



# **Awareness and Utilization of Emergency Contraceptives: A Survey among Ghanaian Tertiary Students**

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## **Authors' contributions**

*This work was carried out in collaboration between both authors. Author FAZ conducted the interview, wrote the manuscript and analysed the data. Author VNY planned and designed the study. Both authors reviewed the manuscript draft and approved the final version.*

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## **ABSTRACT**

**Background:** Unplanned pregnancy has become a public health concern globally. It has been linked to unsafe abortion and maternal mortality. According to the World Health Organization, developing countries bear nearly all the burden of the 22 million abortions and two thirds of the abortion related mortalities each year. Ghana is one of the developing countries with high prevalence of unplanned pregnancy and unsafe abortion. The Emergency contraceptive (EC) is the only female contraceptive method that offers women the opportunity to prevent pregnancy after unprotected sex. However, little is known about its utilization among women in Ghana. This study investigated the knowledge and utilization of EC among tertiary students in the Bolgatanga Municipality of the Upper East Region of Ghana.

**Methods:** The method adopted was cross sectional study conducted in the Bolgatanga Municipality of the Upper East Region of Ghana from February to April, 2016. Participants were selected using

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simple random sampling. A structured questionnaire was administered to 300 participants. The data was analyzed using SPSS version 21.0.

**Results:** Majority (85.9%) of the participants were between the ages of 15-25 years, not married (82.8%) and Christians (75.0%). Among the participants, 72.4% were sexually active and 17.8% had ever been pregnant. Among those reporting ever being pregnant, 31(72.1%) of them stated that the pregnancies were unplanned. Over 80% of the participants had knowledge on EC. Those who were sexually active had more knowledge than those who were not ( $p=0.026$ ). Teachers (51.6%) and friends (41.5%) were the main source of information for the students. Only 33.3% of those who have ever heard of EC ever used it with 83.8% of them using it more than once.

**Conclusion:** There was a high level of knowledge of EC among participants but important gaps were identified. The Sexual activity and religion were important factors in determining the use of EC.

*Keywords: Emergency contraception; Bolgatanga municipality; upper east region; post-secondary; utilization; awareness; unplanned pregnancy.*

## 1. BACKGROUND

The emergency contraceptives (ECs) also known as “post coital method”, “morning after pill “ or “second chance” are the only method of contraception that offers women the opportunity to prevent unplanned pregnancy after unprotected sex, contraceptives failure or incorrect use [1–3]. There are numerous methods of emergency contraceptives including the pills; levonorgestrel (progestin-only, Postino-2), ulipristal acetate (progesterone modulators), mifepristone (antiprogesterone synthetic steroids), combine oral contraceptive pills (Yuzpe method), and the copper intrauterine device (IUD). However, the levonorgestrel and the IUD are the most known and widely used [4,5]. These methods are 52 % -98% effective depending on the method and the time it is used after the unprotected sex. It is up to 5 days effective after unprotected sex [6,7]. Their mechanism of action is either to delay, inhibit ovulation or prevent the implantation of a fertilized ovum but does not in any way affect an already established pregnancy [5,8].

Unplanned pregnancies have their attendant problems; unsafe abortion and maternal morbidity and mortality. These pregnancies have become a public health concern worldwide. Each year, about 38% percent of the pregnancies that occur globally are unintended [9,10]. According to the World Health Organization, about 25% of all pregnancies that occurred during the period 2010 to 2014 resulted in induced abortion. Globally, 22 million unsafe abortions occur annually. Over 90% of these abortions occur in developing countries. Also, two-thirds of all abortion related deaths worldwide, occur in Africa [2]. Unsafe abortion is one of the leading causes

of maternal mortality accounting for 13% of global maternal mortality. Maternal mortality is seen as the easiest preventable cause of death by the World Health Organization [11,12]. In Ghana, unsafe abortion accounts for 11% of all maternal deaths [13].

Emergency contraceptives reduce the possibilities of unplanned pregnancies after unprotected sex [2,3]. Increasing the awareness level, availability and utilization of emergency contraceptives is essential for the reduction of unplanned pregnancies and the resultant unsafe abortion in developing countries [14, 15].

Although we came across studies investigating knowledge and utilization of emergency contraceptives in Ghana, very few of these studies were conducted among tertiary students. Tertiary students are generally at sexually active age and prone to unplanned pregnancies which may result in unsafe abortions. Thus, investigating their knowledge and usage of emergency contraceptive and its associated factors will make available data that will inform the design of future interventions.

This study assessed the awareness level and utilization of emergency contraceptives among tertiary students in the Bolgatanga Municipality of Ghana.

## 2. METHODS

### 2.1 Study Area and Participants

This is a cross sectional study conducted in the Bolgatanga Municipality, the capital city of the Upper East region of Ghana. This study was conducted from February to April, 2016. The

Bolgatanga Municipality is one of the thirteen Districts and Municipalities of the Upper East Region. It is the largest urban centre in the region. It houses four of the region's nine post-secondary institutions; three nurses training colleges and a polytechnic. It is located approximately 779 km north of Accra, Ghana's capital city. The participants of the study were tertiary (post-secondary school) females who were in their next level of study. The participants were selected using convenient sampling technique.

The sample size was 257 using the Cochran formula, based on the assumption that 21.2% [16] of the population had ever used emergency contraceptives. In order to adjust for the possible loss of participants, the sample size was recalculated to be 285 ( $257/0.90$ ) assuming a response rate of 90%. Three hundred participants were therefore included in the study. They were contacted at their places of industrial attachment. Information about the study and data collections procedures were explained to the participants. Those agreed to participate were taken through the consent processes and subsequently provided with the questionnaire to complete. Participants were told they could decide to withdraw from the study anytime without any conditions attached. Their inclusion was on voluntary basis. The purpose of the study and the assurance of confidentiality of information given during the study were explained to participants. They were also told they could decide not to answer any question they were not comfortable with. At the end, 297 agreed to participate resulting in a 99% response rate.

## 2.2 Data Collection Methods

Data was collected using a structured questionnaire that assessed demographic data of participants, their knowledge level of EC and utilization. The questionnaire was pretested at the University for Development Studies using ten [10] students. The necessary corrections were made with the main data collection activity. Participants were given the questionnaire to answer at their own convenience. The researchers then went back to each of them to retrieve the answered questionnaire.

## 2.3 Data Analysis

The data was entered in Microsoft excel spreadsheet and analysed using SPSS version 21.0.

Data was presented as frequency tables. Categorical variables compared using Chi-Square test. A p-value of less than 0.05 at 95% confidence interval was considered statistically significant.

## 2.4 Limitation of the Study

The study was a cross sectional studies are difficult to establish causalities.

The data was also self report making it liable to social desirability and recall biases

## 3. RESULTS

Table 1 presents the demographic data of participants. The majority 225 (75.8%) of the participants were between the ages of 21-25 years with a mean age of 23 and standard deviation 3 years. Also, 246 (82.8%) were single and 223 (75.0%) Christians. Among these, 215 (72.4%) of them were sexually with only 82 (27.6%) who have never had sex. Forty-three participants (20.0%) had ever been pregnant with 31(72.1%) stating the pregnancies were not desired.

Table 2 shows participants' knowledge level of EC. Majority, 258 (87.0%) of them were aware of EC. Teachers, 133 (51.6%) and friends, 107 (41.5%) Doctors/Nurses 18 (0.7%) were the sources of information on emergency contraceptives. The most common types of EC known by the participants were pills 233 (90.3%) followed by IUD 25 (9.7%). Out of the total number of participants, 225 (87.2%) of them were able to state the right use of EC and were also aware of the fact that it can fail (91.9%). Majority (72.5%) also had knowledge of the contraindications to EC. However, only 39.1% of those who had knowledge of EC were able to mention the right time to take the pill after unsafe sex.

Table 3 presents data on the utilization of EC by participants. Among those who reported the awareness of EC, 33.3% (n=86) of them have ever used the method with over 90.0% using it more than once. The use of EC was suggested by friends (69.8%) and partners (27.9%). Those who have never used EC mentioned religion (65.1%) and fear of infertility (34.9%) as their reasons for the non-usage.

As shown in the Table 4, participants who were sexually active were more likely to have heard of EC compared to those that were not.

**Table 1. Socio-demographic data of respondents**

<b>Variable</b>	<b>Frequency (%)</b>
<b>Age</b>	
15-20	36 (12.1)
21-25	225 (75.8)
26-30	31(10.4)
31-45	5 (1.6)
<b>Marital status</b>	
Single	246 (82.8)
Married	38 (12.8)
Divorced	12 (4.0)
widow	1 (4.0)
<b>Religion</b>	
Christian	223 (75.0)
Islam	71 (24.0)
Traditionalist	3 (1.0)
<b>Type of institution</b>	
Nurses Training College	243 (81.8)
University	35 (11.8)
Polytechnic	19 (6.4)
<b>Sexually active</b>	
Yes	215 (72.4)
<b>Ever been pregnant (n= 215)</b>	
Yes	43 (20.0)
<b>Was pregnancy desired (n=43)</b>	
Yes	12 (27.9)

*Data presented as frequency (percent)*

#### 4. DISCUSSION

Though the majority of the participants of the study have heard of emergency contraceptives, this did not translate to its utilizations. In addition, participants who had awareness on EC were significantly more likely to be sexually active and to report ever using it.

The findings of this study indicated 87% of the participants have heard of emergency contraceptive. This finding is similar to what was reported among Ethiopian undergraduate female students where 84.2% of the studied subjects had knowledge of emergency contraception [17]. However, the knowledge of emergency contraception was much higher in current study than that reported among women of reproductive age in the Tamale Metropolis. (69.0%) [14] and the 41.9% among graduating female students of Jimma University, Southwest Ethiopia [15]. This phenomenon could be attributed to cultural and demographic differences.

An important finding of the study was that students who were sexually active were more likely to report having heard of EC. There was a statistically significant association between

contraceptive knowledge and being sexually active ( $P \leq 0.026$ ). Women who were sexually active had more knowledge of emergency contraceptives than their counterparts who had not started sexual activities.

Over 87% of the study participants who had ever heard of emergency contraceptives stated what emergency contraceptives are used for, where one can purchase them, the types of emergency contraceptives and also the knowledge of failure. This high level of knowledge may be attributed to the fact that 81.8% of the participants were nursing students at various levels of training.

Although the participants had high level of knowledge of EC, some gaps in knowledge were identified. Only 39% of the participants who had knowledge of EC were able to state the time frame within which emergency contraceptives are able to prevent pregnancy after unprotected sex. This is lower than the reported among women of reproductive age in the Tamale Metropolis where 85% of studied subjects knew the exact time frame after unprotected sex, within which EC can prevent pregnancy [14] but similar to the 38% in the study conducted among reproductive age women in California [18].

**Table 2. Information on EC**

<b>Variables</b>	<b>Frequency (%)</b>
<b>Ever heard of EC</b>	
Yes	258 (87)
<b>Source of information</b>	
Teachers	133 (51.6)
Friends	107 (41.5)
Doctors/nurses	18 (0.7)
<b>Where to purchase EC</b>	
Pharmacy	212 (82.2)
Hospital	45 (17.4)
Supermarket	1 (0.4)
<b>Types of EC</b>	
Pills	233 (90.3)
IUD	25 (9.7)
<b>Uses of EC</b>	
Prevention of unwanted pregnancy	225 (87.2)
Treatment of STI	29 (11.2)
Abortion	4 (1.6)
<b>Timing of EC</b>	
Before sex	144 (55.8)
1-5 days after sex	101 (39.1)
Anytime	13 (5.0)
<b>Contraindication of EC</b>	
Yes	187 (72.5)
No	71 (27.5)
<b>Whether EC can fail</b>	
Yes	237 (91.9)
No	21 (8.1)

*Data presented as frequency (percent)*

**Table 3. Utilization of EC**

<b>Variables</b>	<b>Frequency (%)</b>
<b>Ever used EC</b>	
Yes	86 (33.3)
No	172 (66.7)
<b>No. of time ever used EC</b>	
Once	14 (16.3)
Twice or more	72 (83.7)
<b>Reasons for not using EC</b>	
Fear of infertility	60 (31.3)
Religious reasons	112 (58.3)
Fear of ill Health	9 (4.7)
STIs	11 (5.7)

*Data presented as frequency (percent)*

source of information about emergency contraceptives.

On the utilization of emergency contraceptive, only 33.3% of those who had ever heard of emergency contraceptives used it with over 90% of them using EC more than once. This is slightly similar to the 36.2% and 40% of EC utilization reported among female students in Mizan Tepi University, south west Ethiopia and women in their reproductive age in the Tamale Metropolis respectively [10,14]. It is however higher than the 11.2% and 24.5% of EC utilization reported among Indian educated women and Egyptian women aged 19-49 years respectively [20].

Several studies identified friends as the main source of information about emergency contraceptives [16,19]. However, it was found in this study that teachers were the main source of information (51.6%). In view of the fact that majority of the study participants were student nurses whose teachers are qualified nurses, it is just right to state that this finding agrees with [14] who identified health workers as the main

Among participants who reported ever being pregnant, 72.1% were unplanned. This is higher than the global figure of unplanned pregnancies [13]. Given that the majority of these students were within the ages of 21-25 years (75.8%) and were single (82.8%), a large proportion of them might not be ready for a family yet. There is, thus, the likelihood that most of these unplanned pregnancies might result in

**Table 4. Factors influencing the utilization of EC**

Variable	Sexually active (n=215)	Have never had sex(n=82)	p-value
<b>Ever Heard of EC</b>			
Yes	200 (93.0)	69 (84.1)	0.026
No	15 (7.0)	13 (15.9)	
<b>Knows uses of EC</b>			
Yes	173 (80.5)	69 (84.1)	0.508
No	42 (19.5)	13 (15.9)	
<b>Knows when to use</b>			
Yes	101 (47.0)	43 (52.4)	0.437
No	114 (53.0)	39 (47.6)	

*Categorical variables compared using chi-square test and  $p < 0.05$  considered statistically significant*

abortion with the possibility of some being unsafe. There is, therefore, evidence indicating a strong association between unplanned pregnancies and unsafe abortions [21].

Religion (65.1%) and fear of infertility (34.9%) were the reasons for non-utilization of EC among the study participants. The participants were either Christians or Muslims. Each of these religions has their own beliefs about emergency contraception with some believing it is another form of chemical abortion. Despite the explanations given by experts on the safety of EC, the Catholic Church forbids its members from taken any form of contraception, including EC. The Catholics believe that EC has anti-implantation effect which involves intercepting the origin of life. Therefore, the Catholic Church believes EC acts as a contraceptive or an abortifacient and the church does not accept both conditions [10,12]. Islam however, allows contraception but forbids abortions [4,13,22]. From our study, religion and fear of infertility are the major barriers to the effective utilization of EC to reduce unsafe abortion and maternal mortality.

## 5. CONCLUSION

The participants had high level of knowledge of EC but important gaps were identified.

Perceived infertility as a side effect of emergency contraception and religion remains the main obstacles to the patronage of EC. Advocacy in the communities, Churches and mosques are required to stem the tide of unbelief on emergency contraception use.

## AVAILABILITY OF DATA AND MATERIALS

The data used for this article are available and will be made available upon request by contacting the corresponding author.

## CONSENT FOR PUBLICATION

Consent to participate in the study was obtained from all the participants. The consent for publication was also obtained from the participants.

## CONSENT

As per international standard written informed participant consent has been collected and preserved by the authors.

## ETHICAL APPROVAL

Ethical approval was given by the ethics committee of the University for Development Studies' School of Allied Health Sciences.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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