

Research

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 Mustapha Hallidu,  Issah Sumaila

Corresponding author: Issah Sumaila, Department of Public Health, Kintampo Municipal Hospital, Ghana Health Service, Bono East, Ghana. isumaila@st.ug.edu.gh

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Determinants of emergency contraceptive utilization among female tertiary students in the middle belt of Ghana, West Africa

Mustapha Hallidu¹, Issah Sumaila^{2,&}

¹Department of Nursing and Midwifery, Kintampo Municipal Hospital, Ghana Health Service, Bono East, Ghana, ²Department of Public Health, Kintampo Municipal Hospital, Ghana Health Service, Bono East, Ghana

[&]Corresponding author

Issah Sumaila, Department of Public Health, Kintampo Municipal Hospital, Ghana Health Service, Bono East, Ghana

Abstract

Introduction: Emergency Contraceptives (ECs) are after-coital contraceptive methods used before implantation. These give females in the sexually active age group the opportunity to prevent unplanned pregnancies after refusing to patronize a contraceptive before unprotected sexual intercourse or when a regular contraceptive fails and or when raped. Higher education students fall under the sexually active age category and form a higher risk group for unplanned pregnancy because of inadequate utilization of ECs. The aim of this study was to identify the determinants of ECs utilization among female tertiary students in the Middle Belt of Ghana, West Africa. **Methods:** institutional-based descriptive cross-sectional study design was used with quantitative method in collecting the data from 28th March 2022 to 18th April 2022. A total of 535 female tertiary students were recruited using simple random proportionate sampling technique. Data were collected using structured questionnaires and entered into Stata version 15 and analyzed descriptively and inferentially using Chi-squared test. A conventional $p < 0.05$ was considered statistically significant. **Results:** out of the 535 respondents that were interviewed, majority (426 (79.6%)) were aware of ECs. However, only 44 (9.4%) had good knowledge of ECs utilization. All respondents who were affiliated to traditional religion had poor knowledge. About half of 279 (52.1%) indicated they ever utilized ECs and 200 (71.7%) of these said the efficacy of ECs was between 75-99%. Regarding barriers to ECs utilization, 333 (20.5%) indicated ECs cause infertility and 330 (20.4%) mentioned the fear of being seen by others. All Chi-square test of associations of demographic characteristics and knowledge on ECs were not statistically significant ($p \geq 0.05$). **Conclusion:** the study reported that ECs utilization among female tertiary students was quite low despite majority being aware of them. Most of them had poor knowledge on ECs utilization, even though majority had not experienced unplanned pregnancies. Further reproductive health and family planning

education and promotion initiatives directed on the utilizations of ECs, their efficacies and typology are needed, especially among future health professionals who will later educate other young adults.

Introduction

Contraception is the application of non-natural methods or equipment to avoid unplanned pregnancy as a result of unprotected sexual intercourse. This could be achieved either by the man or woman, however, must be targeted towards comfort, privacy and freedom to select and plan for intentional pregnancies [1]. Contraception is a common practice amongst females during their motherhood periods [2]. Emergency Contraceptive (EC) is an after-coital contraceptive technique used before implantation, providing women with a second option to prevent unintentional pregnancies after failing to utilize a contraceptive before unprotected copulation or when a regular contraceptive fails and or when raped [3,4]. Emergency Contraceptive (EC) is not supposed to be considered a contraceptive method to be applied on a regular basis [5]. They are composed of an increased dose of the same active ingredients which regular birth control pills have [6]. The mechanism of action of EC is preventing pregnancy, inhibiting or delaying ovulation, but not avoiding implantation of zygotes. The drug does not cause abortion or embryo damage; it should be added also that, EC does not provide protection against sexually transmitted infection (STI) [5,7]. ECPs have 75% - 85% chances of preventing unplanned pregnancies, whilst combination of ECPs and IUDs can prevent almost 99% of unplanned pregnancies [8]. Unplanned pregnancies are of public health concern across the globe, accounting for 44% of all pregnancies with 74 million in low and middle income nations (LMIN) [4]. Each day, an estimated 1,000 women die from avoidable factors influenced by pregnancy and childbirth [4]. Adolescents encounter an elevated danger of complications and mortalities as a result of

unintended pregnancy as compared to older women [4]. The World Health Organization (WHO) predicts that at least 33% of all women seeking hospital care for difficulties influenced by abortions are less than 20 years [4]. In sub-Saharan Africa (SSA), almost 29.1% of all pregnancies are unplanned, with 35.8% in Ghana [9]. About 600,000 women mortalities are recorded as a result of pregnancy-related causes [9]. Unplanned pregnancies contribute to 25 million unsafe abortions and 47,000 maternal mortalities annually [10]. In 2018, 101 unplanned pregnancies happened per 1000 women between the ages of 15 - 44 years and 42% of all the pregnancies were unintended [3].

Globally, 23 million girls aged between 15 - 19 years have unmet needs for contraception, and 16 million girls give birth before their 16th birthday [11]. Both males and females suffer an unbalanced share of unintended pregnancies, abortions and other dangerous reproductive health complications and to alleviate these challenges EC can be of significant assistance [12]. In Africa, 24% of young female adults have the highest rates of unmet needs for EC, according to WHO [13]. Even though the continent records 29% of all unsafe abortions, it accounts for 62% of unsafe abortions-related to mortalities. The increased rate of unplanned pregnancies because of inadequate access to women's reproductive health services suggests that most SSA nations have limited access to facilities for family planning and reproductive health rights which to some extent not contribute to the realizing of the United Nations (UN) Sustainable Development Goal 3 (SDG 3) [10]. The incidence of unsafe abortions is 25 million yearly, and 3 out of 4 abortions prevalence in Africa are treacherous, with the dangers of mortalities from abortion highest in Africa [10]. Emergency Contraceptive (EC) is useful to women who have experienced method failures, inappropriate use of contraceptives, sexual assaults or have agreed to unintended and unprotected sexual intercourse [10]. Emergency Contraceptive (EC) is exceptional amongst

contemporary contraceptive methods in its capability to avoid pregnancies after unprotected sex [14]. A study has indicated a dearth of knowledge about the existence of EC, its effectiveness, and supply including access to it, its effective deadline and the lack of recognition of the essence for its utilization can impede women from patronizing it [15]. Around 30% - 50% of the young below 30 years have utilized the ECPs at each stage in their lives, however, knowledge regarding this medication is limited [5]. Multiple barriers exist for women to obtain or utilize contraceptives effectively and consistently [16].

Sex education and training these days are poor and in most instances do not include EC [17,18]. Sex education has demonstrated to influence sexual behavior, the latter becoming healthier [19]. In setting of university stages, sex education in EC and sexual health is needed, especially for health professionals who can include sex education in their teaching activities [5,20]. Many young adults, particularly female tertiary students, engage in sexual activities before marriage and intended pregnancies, usually without EC bringing about unplanned pregnancies in most nations [4]. When young adults gain admissions to schools (tertiary) they stay away from their immediate families in rented homes or campus hostels for a long time without direct supervision of their parents. According to a study, adolescents are more likely to interact sexually with different sexual partners because of scanty information and accessible facilities concerning STIs, as they stand the higher risk of becoming pregnant unintentionally [21]. A lot of studies have been carried out on ECs in Ghana, but our scholastic search in the middle belt of Ghana depicted limited literature on the determinants of ECs utilization amongst female tertiary students. Hence, this study was conducted to identify the determinants of ECs utilization amongst female tertiary students in the Middle Belt of Ghana, West Africa.

Methods

Study design and setting: descriptive cross-sectional study design was used with quantitative methodology. The study was carried out in the middle belt of Ghana (Bono, Bono East and Ahafo Regions) from March 2021 to April 2022. The study population was female tertiary students in the middle belt of Ghana.

Sampling population: the study included all female tertiary students with valid student identification cards who schooled within the middle belt of Ghana, of sound mind, were willing and agreed to participate in the study. All students outside these criteria were excluded from the study.

Study variables: the dependent variable was EC utilization among female tertiary students. The utilization of EC was determined using a simple question 'have you ever used EC before?'. This simple question required a simple answer of either "Yes" or "No". All those who chose "Yes" were regarded as users of ECs. The independent variables were the female tertiary student's characteristics (age, year of study, field of study, marital status religion, etc).

Sample size and sampling technique: the sample size was computed using the Yamane formula,

$$n = \frac{N}{1+N(e)^2}$$

Where n = desired sample size, N = population size and e = margin of error [22]. The total female student population in the 3 selected schools chosen for the study within the middle belt of Ghana were estimated to be 5951. The estimated sample size for the study with a 10% nonresponse rate was calculated to be 413. They were chosen using simple random proportionate sampling technique. Because of time and resources constraints, a densely populated tertiary educational institution in each of the three regions where the study was conducted was selected to

represent their respective regions for the study. Sunyani Technical University (STU) had an estimated total of 3604 female students. College of Health and Wellbeing Kintampo (CoHK) had an estimated female population of 1642 and Gaoso Nursing and Midwifery Training College (GNMTC) had an estimated female student of 705. The minimum estimated proportionate sample sizes for STU, CoHK and GNMTC were 250, 114 and 49 respectively. In the end, total samples that were collected from the sites were STU (324), CoHK (188) and GNMTC (63). This gave a total respondent of 535.

Data collection tools and procedures: a structured questionnaire was used to gather data for this study. The questionnaire was designed after reviewing relevant available literature on determinants of EC utilization [1,3-5,8,10,14,17,23]. The questionnaire was subdivided into sections A, B and C for easy analysis of the data based on the objectives. Section A captured the socio-demographic characteristics of respondents. Section B was on the knowledge and sources of information of respondents on ECs while section C captured respondents' sexual activities and utilization of ECs. Three separate Google Forms were created with the same questionnaire. Each of the Google Forms was sent to 7 trained data enumerators (4 for STU, 2 for CoHK and 1 for GNMTC) in each region within the study setting. All the 7 data enumerators were subsequently tasked to share the digitized questionnaire with only female students in those selected tertiary institutions who met the inclusion criteria and consented to participate in the study. Interviewers approached the participants, and when they agreed, were asked their WhatsApp numbers to be sent the questionnaire. Those from STU were asked to interview 81 female students each. CoHK and GNMTC data enumerators each interviewed 94 and 63 female's students, respectively. To ascertain the reliability of the data collection tool, the questionnaire was pre-tested among 50 female tertiary students in the Middle Belt of

Ghana. The pre-testing afforded the researchers to modify the questionnaire to illicit the required responses from the participants. Respondents who were available were given access to the questionnaire through WhatsApp contact numbers. The digitized questionnaire was restricted in such a way that multiple responses from the same device were not allowed. Data was collected from February 2022 to March 2022.

Data analysis: after all questionnaires were checked for completeness, 535 questionnaires were considered for analysis. Primary data from Google form was downloaded, cleaned and managed using Microsoft Excel version 16. The data was later exported to Stata version 15 and analyzed. Gender, religion, marital status, educational level were coded as categorical variables. The data was presented in frequencies and percentages. Age was collected as continuous variable and categorized during analysis. The main outcome, knowledge level, was determined using 7 questions. 1 of the 7 questions had a “Yes” or “No” response. The rest had multiple options with multiple correct answers. Each correct answer was coded as “1” with “0” representing a wrong answer. The total correct answers summed up to 17. Any participant who had an aggregate score of at least 14 was considered to have good knowledge on ECs. Those with total score of 13 or less were considered as having poor knowledge on ECs. Descriptive statistics were used to present the proportions on background characteristics of the respondents at the univariate level. The data was presented in frequencies and percentages using tables.

Ethical consideration, registration: the study was carried out in strict adherence to the 1964 Helsinki declaration as revised in 2013 [24]. Approval was obtained from the Bono East Regional Health Directorate Ethical Review Committee, and permissions were also granted by the regional health directorates of the regions and the management of the tertiary institutions of the study settings before data were collected. Informed consents were obtained from the

participants before they were allowed to participate in the study. Before a participant could access the electronic questionnaire, a request for consent appeared for the individual to consent to it before proceeding to answer the questionnaire. Anyone who did not consent to it could not access the questionnaire. Adequate information about the study was provided to the participants regarding the aim of the study. Participants were assured and guaranteed of anonymity, privacy and confidentiality. Furthermore, they were guaranteed of data safety and appropriate data usage and storage on the digitized questionnaire. Only participants who consented were recruited into the study. Participants adequately informed their liberties to pull out from the study at any point without any consequences. All participants’ personal identifiers were deleted from the summarised data, ensuring confidentiality.

Results

Socio-demographic characteristics of respondents: a total of 1027 eligible respondents were approached for the study. Out of this, 583 of the respondents agreed and consented to participate in the study. However, only 535 of the questionnaire were complete. Hence, the study used the completed 535 questionnaires filled by female tertiary students in the middle belt of Ghana for the analysis. About half of them (47.1%) were between the age group of 20-24 years. Most (35.7%) were in their third year of study. The majority of the students (76.1%) were in the field of health sciences and a little over half of them (52.9%) were residents. Most (75.5%) were single and the majority (79.8%) subscribed to Christianity (Table 1).

Knowledge on emergency contraceptives: the study established that majority (79.6%) of the students had ever heard of ECs. Out of the 426 students who had ever heard of ECs, 272 (28.8%) of them heard it from health facilities, 258 (27.3%) indicated they heard it from the media while only 78 (8.2%) heard it from their partners. When

asked about where to purchase ECs, 596 (67%) of the respondents said they could get it from a pharmacy or licensed chemical shop. Again, 252 (28.4%) indicated the ECs could be obtained from health facilities while 41 (4.6%) said it could be obtained from any shop. About half 464 (51.8%) of the respondents identified pills as EC. Approximately a quarter of the students also indicated that injectable (19.9%) and IUD (19.4%) are ECs. However, only 80 (8.9%) knew implanon is an EC. Majority 396 (74.0%) were of the opinion that the maximum time limit within which to take an EC after unprotected sex is 3 days. About a fifth (18.7%) did not know about it while 39 (7.3%) indicated a maximum of 5 days. Majority (492) of the respondents said ECs are recommended after unprotected sex. This was followed by 265, who indicated that ECs are to be taken when condoms raptures during protected sexual intercourse. Those who indicated ECs should be taken when one is raped were 243 while only 64 of them said it should be taken when one misses a period (Table 2).

Overall knowledge level of respondents on ECs: regarding the overall knowledge on ECs, majority (90.6%) of the respondents had poor knowledge. Those who had good knowledge of ECs were only 9.4%.

Respondents sexual activities and utilization of emergency contraceptives: out of the 535 students that were recruited, most (59.2%) had ever had unprotected sex. Majority (73%) of them never had unplanned pregnancy. Out of the 112 respondents who reported having unplanned pregnancy, about half of them (48.5%) attributed it to contraceptive failure while the rest (51.5%) attributed the unplanned pregnancy to forgetfulness to take contraceptives. Again, about half (47.9%) of the respondents indicated they never used ECs while the rest (52.1%) said they ever used it. Majority (71.7%) of the respondent indicated 75-99% as the efficacy rate of ECs. Only 5.4% believed the efficacy rate is <50%. When quizzed about their perceptions of the barriers to ECs use, most (333) of the participants indicated

fear of being seen by others. This was followed by 330 respondents, who believed ECs cause abortion. Others (227), attributed the lack of utilization of the ECs to religious disapproval. The number of respondents who think societal disapproval prevents from utilization ECs was 174 (Table 3).

Association of socio-demographic characteristics of respondents with knowledge on ECs:

respondents in the age group of 25 - 29 years had the highest percentage of poor knowledge on EC in this study (94.7%). Those who were at least 30 years had the least percentage (83.0%). Respondents in the first (91.1%), third (90.6%) and fourth years (96.8%) had higher percentage of poor knowledge on ECs compared to those in second year (86.4%). The percentage of poor knowledge on ECs among those in the health sciences (91.1%) was slightly higher compared to those in the non-health sciences (88.7%). Those who stayed on campus hostel had (90.0%) poor knowledge on ECs those who stayed in private hostel had (88.0%). The single participants had poor knowledge on ECs (91.3%) compared to those who were married (90.3%). It was found that those co-habiting had slightly good knowledge on ECs (19.2%) compare to the married (9.7%) and single respondents (8.7). With regards to religion, all those who subscribed to traditional religion (100.0%) had poor knowledge on ECs. The chi square test of associations showed that the knowledge on ECs among participants had no significant differences ($p > 0.05$) with the demographic variables (Table 4).

Discussion

Contraceptive utilization is a proxy for women's empowerment, population growth and development [25]. In this study, majority of the participants had heard of ECs which is consistent with [3,5,6,10,26,27]. Out of those that had heard about ECs, majority indicated health facilities as their sources of information which is in agreement with similar studies conducted by [1,6]. However,

findings from this study on the sources of information about ECs are inconsistent with similar studies by [26,28-30]. This could be ascribed to the fact that most of the respondents were Health Sciences students and might have acquired formal means of learning about reproductive health issues (family planning). Again, the open and free discussions on sex and sexuality among female students could be a reason. Hence, their large dependence on the information obtained from their field of practice (health facilities) and formal education in their curriculum. Importantly, majority of the respondents identified pharmacy/licensed chemical shops as where ECs could be obtained from. This is consistent with other studies carried out by [4,8,31,32]. This could be attributed to the fact that respondents' were students and had all sources of information on ECs at their disposals particularly social media/internet where most students obtain their information from. A fairly significant number of the study participants indicated the various types of ECs available including pills, IUDs, injectable and implanon. This is in agreement with studies carried out by [2,6,10,26-28,33]. This could be credited to the experiences they might have acquired from the utilization of ECs and the availability of information on family planning services and benefits obtained from health facilities. Additionally, majority of the study participants expressed opinions that the maximum recommended time limit to take ECs is within 3 days after unprotected sexual intercourse. This supports different findings from studies established by [27,28,32,34,35]. This could be that they have had formal tuition on that from schools or might have read them from pamphlets/books. Significant insights from this study was also that, majority mentioned that ECs are recommended when an individual engages in unprotected sexual intercourse. This outcome is consistent with that of [23,27,31,32,35-37]. This could be attributed to the reason that, being tertiary students within the reproductive age bracket, they might have been exposed to the practices of ECs or sourced

information on that from the media particularly internet.

Moreover, vital insights from this study concerning the overall knowledge level of the respondents was that majority of the study participants were poorly knowledgeable about ECs. Consistent with that of [5,14,27,29,30,34,35] even though with variations in the rates. However, this finding contradicts different studies conducted by [3,6,13,26]. This may be as a result of the fact that participants have not been exposed to in depth education and promotions of family planning and reproductive health services particularly on ECs. Equally, most of the study participants had unprotected sex before and majority had unintended pregnancy. These findings are not different from those by [36,38-40]. This could be related to the age categories of the study participants. Being in their reproductive ages and sexually active, they might have explored out of curiosity and engaged in unprotected sex resulting to unintended pregnancy. Pertaining to the reasons for their unintended pregnancies, quite a significant number of the respondents expressed that they forgot to take ECs. This is inconsistent with other studies [41,42]. As to whether the respondents had utilized ECs before, nearly half indicated in the affirmative. This outcome supports that of several studies executed in different settings [10,28,34,43]. But it is in variance with similar studies by [8,26,37,44,45] on ECs utilization. It could be inferred that most of the respondents encounter some form of obstacles that impede them from utilizing ECs. Again, there may be limited availability of reproductive health and family planning services or lack of education and promotion in comprehensive education package. Similarly, higher proportion of the study participants were able to identify the efficacy rates of ECs which is in agreement with similar works from [8,15,16]. It is likely they have chanced on relevant information on the efficacy of ECs from publications or advertisements. On the perceptions of the barriers that obstruct the

utilization of ECs, the respondents recounted the fear of being seen by others (stigma), ECs cause abortions, religious disapprovals and unavailability of ECs as their major challenges. These perceptions are not different from those discovered in a similar study carried out among university students in Kilimanjaro Tanzania, and other settings that mentioned the fear of side effects, religious unacceptability and the fear of being seen by others (stigmatization) [29,46,47]. This could be attributed to the perceived societal unacceptability of ECs and inadequate information on the benefits of ECs to encourage the public to uptake ECs.

Furthermore, our finding identified that, being less than thirty years old was a determinant of poorer knowledge level on ECs. This is in line with other studies by [6,26,47,48]. But similar studies are in variance with our fallouts [49,50]. Level of education (year of study) was found to be associated with poor knowledge on ECs. This is consistent with [5,47,49]. However, it is inconsistent with a similar study conducted among Portuguese female users of healthcare services on ECs [29]. Residence was a predictor to poor knowledge level on ECs. This finding from our study is in line with that of [50]. Respondents who were health sciences students had a slight poor knowledge level on ECs as against their non-health sciences counterparts. This is inconsistent with a different study from [30]. This may be probably because they were health sciences students there was perceived high expectations from them to have known better on ECs or may be their sources of information on ECs misled them. Participants who were co-habiting had a slight better knowledge on ECs as compared to those married. This outcome from our study is inconsistent with a different work which reported that being single makes one have better knowledge level on ECs [37]. This could be attributed to the perceptions that individuals co-habiting may be careful in preventing unwanted pregnancy and so may be much interested in utilizing or knowing more about the relevance of ECs. Participants who

practiced traditional religion had absolutely poor knowledge on ECs. The inference is that, traditionalists may have several forms of preventions against unwanted pregnancies using traditional methods, hence, no need for them to avert their attentions to ECs and their utilizations.

Limitation: questions that had sensitive nature like whether one had ever had protected or unprotected sexual intercourse might produce social desirability bias.

Conclusion

Emergency contraceptive utilization among female tertiary students is low and reproductive health and family planning services, education and promotion initiatives should be tailored towards the utilizations of ECs and their consequential benefits to the user, the society and the nation at large. It is relevant to address the obstacles impeding the users of ECs in utilizing the products; and the information provided on ECs through the various media outlets must be scientifically justified to demystify all forms of misconceptions regarding them. Extensive engagements should be encouraged and all stakeholders should be involved in health promotion activities directed towards improving ECs and their utilizations among the sexually active youth as part of the package of holistic reproductive health in tertiary educational institutions. Again, these health promotion campaigns should make room for people in this age group who are out of tertiary schools. This could improve the knowledge and utilizations of ECs among females in the reproductive age (15 - 49) who are still in or out of tertiary schools. It is also recommended that governments, donors, and the non-governmental sectors should focus on meeting the need for ECs to meet the reproductive health needs of females of reproductive age.

What is known about this topic

- *EC is an option to explore after a regular contraceptive has failed, to prevent unintentional pregnancy or after sexual assault;*
- *EC is not to be used as a regular contraceptive method to be applied on regular basis;*
- *EC play significant role in alleviating the global increase in unintended pregnancies, abortions and dangerous reproductive health complications.*

What this study adds

- *The fear of being seen by others when patronizing ECs remains a major barrier to ECs utilization (stigma);*
- *The proportion of health sciences students who had poor knowledge level on ECs were slightly higher as compared to their colleagues' non-health sciences students;*
- *Respondents affiliated to traditional religion had 100% poor knowledge on ECs.*

Competing interests

The authors declare no competing interests.

Authors' contributions

Mustapha Hallidu conceived the idea, designed the questionnaire, gathered the data and drafted the manuscript. Data analysis was carried out by Issah Sumaila. All authors contributed intellectually, proofread and approved the final version of the manuscript.

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Tables

Table 1: socio-demographic characteristics of respondents recruited from the Middle Belt of Ghana from March, 2021 to April, 2022 (N=535)

Table 2: knowledge of the respondents recruited from the Middle Belt of Ghana from March, 2021 to April, 2022 (N=535) on emergency contraceptives

Table 3: respondents recruited from the Middle Belt of Ghana from March, 2021 to April, 2022 (N=535) sexual activities and utilization of emergency contraceptives

Table 4: association of socio-demographic characteristic of respondents recruited from the Belt of Ghana from March, 2021 to April, 2022 with knowledge on emergency contraceptives

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Table 1: socio-demographic characteristics of respondents recruited from the Middle Belt of Ghana from March, 2021 to April, 2022 (N=535)

Variables	Frequency	Percentage
Age		
<20	34	6.4
20-24	252	47.1
25-29	183	34.2
≥30	66	12.3
Year of study		
Year 1	139	26.0
Year 2	132	24.7
Year 3	191	35.7
Year 4	73	13.6
Field of study		
Health sciences	407	76.1
Non-health sciences	128	23.9
Residence		
Campus hostel	283	52.9
My own home	142	26.5
Private hostel	110	20.6
Marital status		
Co-habitation	41	7.7
Married	90	16.8
Single	404	75.5
Religion		
Christianity	427	79.8
Islam	85	15.9
Traditionalist	23	4.3

Table 2: knowledge of the respondents recruited from the Middle Belt of Ghana from March, 2021 to April, 2022 (N=535) on emergency contraceptives

Variables	Frequency	Percentage
Have you heard EC		
No	109	20.4
Yes	426	79.6
Where you heard it from*		
Media	258	27.3
Health facilities/workers	272	28.8
Family members	120	12.9
Peers/friends	218	23.0
Partner	78	8.2
Where to obtain EC*		
Pharmacy	340	38.2
Licensed chemical shops	256	28.8
Health facilities	252	28.4
Any shop	41	4.6
Which of these can be used as EC?*		
Pills	464	51.8
IUD	174	19.4
Injectables	178	19.9
Implanon	80	8.9
Recommended maximum time limit to take ECs		
Don't know	100	18.7
Within 3 days after sex	396	74.0
Within 5 days after sex	39	7.3
Points at which ECs are recommended*		
After unprotected sex	492	46.2
When one misses a period	64	6.0
When there is a ruptured condom during sexual intercourse	265	24.9
When one is raped	243	22.9
*Multiple response question		

Table 3: respondents recruited from the Middle Belt of Ghana from March, 2021 to April, 2022 (N=535) sexual activities and utilization of emergency contraceptives

Variable	Frequency	Percentage
Ever had unprotected sex		
No	218	40.8
Yes	317	59.2
Ever had unplanned pregnancy		
No	303	73.0
Yes	112	27.0
Reasons for unplanned pregnancy		
Contraceptive failure	50	48.5
Forgot to take contraceptive	53	51.5
Ever used ECs		
No	256	47.9
Yes	279	52.1
Efficacy of EC		
<50%	15	5.4
51-74%	64	22.9
75-99%	200	71.7
What do you think prevent people from utilizing emergency contraceptives*		
Unavailability of the ECs	223	13.8
Fear of being seen by others	333	20.5
ECs cause infertility	330	20.4
ECs cause abortion	153	9.4
Partner disapproval	208	12.8
Religious disapproval	227	14.0
Society disapproval	147	9.1
* Multiple response		

Table 4: association of socio-demographic characteristic of respondents recruited from the Belt of Ghana from March, 2021 to April, 2022 with knowledge on emergency contraceptives

Variables	Poor knowledge	Good knowledge	X ²	p-value
Age			6.78	0.079
<20	25 (89.3)	3 (10.7)		
20-24	211 (89.8)	24 (10.2)		
25-29	143 (94.7)	8 (5.3)		
≥30	44 (83.0)	9 (17.)		
Year of study			5.21	0.157
Year 1	113 (91.1)	11 (8.9)		
Year 2	95 (86.4)	15 (13.6)		
Year 3	154 (90.6)	16 (9.4)		
Year 4	61 (96.8)	2 (3.2)		
Field of study			0.53	0.47
Health sciences	337 (91.1)	33 (8.9)		
Non-health sciences	86 (88.7)	11 (11.3)		
Residence			2.13	0.345
Campus hostel	225 (90.0)	25 (10.0)		
My own home	117 (93.6)	8 (6.4)		
Private hostel	81 (88.0)	11 (12.0)		
Marital status			3.18	0.204
Co-habitation	21 (80.8)	5 (19.2)		
Married	65 (90.3)	7 (9.7)		
Single	337 (91.3)	32 (8.7)		
Religion			4.19	0.123
Christianity	350 (91.1)	34 (8.9)		
Islam	57 (85.1)	10 (14.9)		
Traditionalist	16 (100.0)	0 (0.0)		