

Original Research Article

UTILISATION OF EMERGENCY CONTRACEPTION AMONG FINAL YEAR UNIVERSITY FEMALE STUDENTS

Abstract

Introduction: Unwanted pregnancy and unsafe abortion have become serious public health concerns around the world, particularly among female students in both developed and developing countries. The general objective of this study was to investigate the utilization of emergency contraception among final-year female students of a public university in Ghana.

Methods: A stratified random sample was used to enroll 199 female university students for descriptive cross-sectional research. SPSS version 25 was used to analyze the data. To compare categorical variables, Chi-square analysis was employed, and a p-value of 0.05 was considered statistically significant.

Results: Majority (88.4%) of the respondents demonstrated sufficient knowledge, and 84.4% had a favorable attitude towards emergency contraceptives (ECs). On the indications for EC; after unprotected sex (65.3%), after a missed period (22.6%), when one is raped (83.4%), unwanted pregnancy (75.9%), and rupture of condoms (88.9%) were identified. The majority (59.3%) of students have used EC, with most of the students (43.7%) using Postinor-2. The overall attitude towards EC and Residence ($X^2=7.5$; $p=0.023$), Religion ($X^2=6.2$; $p=0.042$), and marital status ($X^2=17.1$, $p=0.001$) were statistically significant. There was a significant association between the use of EC and Residence ($X^2=10.9$; $p=0.004$) and marital status ($X^2=8.6$; $p=0.035$).

Conclusion: The findings of this study indicated that students had a high degree of awareness, understanding, and attitude about EC, with a significant number of the respondents likely to utilize it in the future. This may aid in the treatment of female students' sexual and reproductive health issues and prevent dropping out of school as a result of unwanted pregnancy. Also, there is the need to engage opinion leaders to address their concerns to allow for the effective utilization of emergency contraceptives.

Keywords: Emergency contraceptive, female university students, utilisation

Plain Language Summary

When female students get pregnant in their course of education the pregnancies are often viewed as unintended pregnancies. In an attempt to prevent unintended pregnancies, some females tend to do use Emergency Contraceptive (EC). The purpose of the study was to assess the perspective of final year female university students on the usage of emergency contraceptive.

The students were selected from the department of nursing, nutrition, and medical laboratory sciences. The selected students were given a questionnaire to assess their knowledge, attitude, and utilization of emergency contraceptives.

The results indicate that majority of the students had sufficient knowledge of emergency contraceptives by stating correctly that Emergency Contraceptives (EC) should be taken within 72 hours of unprotected sexual intercourse. Regarding attitude, most of the students knew that EC does not protect one against sexually transmitted diseases but it should be made accessible to all females. Less than half of them indicated that their religion frowns against the use of EC. The study revealed that the majority of the students have ever used EC. The students got information about EC from friends, health professionals, and their partners. Most of the students used Postinor-2.

The study findings indicate that final-year female students have a higher level of knowledge and a positive attitude towards EC utilization. They know when and how to take EC and generally feel positive towards the utilization of EC. There is some indication that some of the students will use EC in the future to prevent unintended pregnancies.

Introduction

Globally, the incidence of unwanted pregnancy and unsafe abortion has emerged as major concerns in the landscape of public health, especially among female adolescents in developed and developing countries[1]. Young and unmarried women are more vulnerable to unsafe abortions [2,3]. Emergency contraception (EC) is a kind of contemporary contraception that is used after unprotected sexual contact, sexual abuse, misusing regular contraception, or not using contraception at all [4,5]. EC is critical in avoiding unwanted pregnancy; it helps to minimize unexpected childbirth and unsafe abortion, both of which are important maternal health issues [5–7]. Additionally, EC aids in avoiding the socioeconomic stigma and health consequences of unwanted and unexpected pregnancy [8]. Young women who are susceptible to sexual assault and frequently lack the skills and authority to negotiate the use of a condom should have access to EC [9]. According to additional studies, using emergency contraception can dramatically lower the number of abortion-related morbidity and mortality [10,11].

Globally, over 70,000 girls within the ages of 10 to 19 years are said to die per annum as a result of unintended pregnancy and childbirth, and about 3.2 million girls within the ages of 15 to 19 years practice unsafe abortions in lower and middle-income countries[12]. Out of this number, young women below the age of 25 years in only Africa contributed to nearly two-thirds (i.e. over 65%) of all unsafe abortions in the world [9,12]. According to WHO, over 25 million (representing 45percent) abortions each year between 2010 and 2014 were unsafe, with over twenty-four (24) million (i.e. about 97 percent) of unsafe abortion emanating from developing countries[13].

In the African continent, the yearly unsafe (induced) abortion rates from 2003 to 2008 show a rise from 5.6 million to 6.4 million. Thirteen percent (13%) of all pregnancies in Africa ended as abortion in 2008 [13]. Out of the 6.4 million abortions recorded in the year 2008, only 3% were performed legally[13]. Abortion rates estimated for West Africa are among the highest worldwide [14].

In Sub-Saharan Africa (SSA), contraceptive usage is still poor, which may lead to high rates of undesired pregnancies, unexpected births, unsafe abortions, maternal mortality, and sexually transmitted infection

transmission [15]. Not just for clinical results, but also in the context of population expansion, pregnancy planning is essential. The use of various forms of contraceptives in family planning programs is widely recognized as a critical component of attaining the Sustainable Development Goals-3 (SDGs) [16,17].

In Ghana, knowledge, and awareness of any contraceptive technique is nearly ubiquitous, with 98 percent of women and 99 percent of men knowing at least one contraceptive method [18]. While 47.4% of Ghanaian women have used contraception in the past, just 20% are currently using it. Also, 30 percent of married women in Ghana have unmet family planning needs, with 17 percent having unmet spacing needs and 13 percent having unmet limiting needs. Ghanaian women, on average, had 0.6 children more than their optimal number of 3.6. The total fertility rate (TFR) was 17 percent higher than it would have been if undesired births were prevented [19]. Unwanted pregnancies frequently result in unsafe abortions, which can result in problems such as bleeding, infections, infertility, or even death [20,21]. In Ghana, emergency contraceptive pills such as postinor-2, Lydia post-pill, Nor-Levo, and pregnon are accessible without a prescription from physicians and family planning clinics [2,22]. About 23 percent of young females aged 12-19 in the Northern Region of Ghana have already been reported as mothers or pregnant (Ziem& Gyebi, 2012). Avoidable pregnancies have resulted in too many negative effects and unwanted childbirth across the world and as well responsible for over eight hundred maternal deaths daily in developing countries.

In a study of student nurses and midwives in Ghana's Northern Region, 166 (86.91%) stated they had heard of EC before the research, but only 49 (25.65%) reported they had ever used it. Those with a rudimentary understanding of EC, on the other hand, lacked specific information of the content efficacy and temporal schedule after unprotected intercourse [24].

Unplanned pregnancies have far-reaching implications in Ghana. In the Tamale Teaching Hospital, for example, unsafe abortion is the fourth-largest cause of maternal mortality, with the majority of deaths happening in women aged 15 to 34 years [25]. According to research, unplanned pregnancies among unmarried adolescents are more likely to result in induced abortion [26]. Although emergency contraception is an excellent means of preventing unintended pregnancies, it is often underused[10,27]. In Sub-Saharan Africa, for example, access to conventional contraceptive techniques is relatively limited; the continent's average contraceptive prevalence is around 27%. [11]. In addition, maternal mortality is predicted to be 1.8 times greater in women who do not utilize contraception [28]. However, there was a low level of support for family planning among these teenagers, since the majority of these sexually active adolescents were not using any type of contraception and had little awareness of the many current techniques [18]. Due to a variety of circumstances, including a lack of contraceptive awareness, restricted access to health services, and contraceptive failure, many teenage girls, especially newly married females, are at high risk of unintended pregnancies [29].

Students at universities are active in the acceptance and dissemination of innovation throughout various sectors of society. As a result, they are expected to be at the forefront of EC knowledge and its application. However, there is very limited information on emergency contraceptives among tertiary students. In the University, most students are being influenced by their peers, as parental guidance and control are often minimal. So, some of these students through influence may indulge in activities that could result in unwanted pregnancies. For the married, some pregnancies may still be considered unintended. It is against this background, the study wishes to investigate the utilization of emergency

contraception among final year female students of the University for Development Studies (UDS), Tamale campus.

Methods and materials

Study Setting

This study was carried out at the University for Development Student (UDS), Tamale Campus, The largest university in the northern part of Ghana. According to the University Registrar's Office, there were approximately 7,560 undergraduate students on the Tamale campus of which approximately 2,801 were female (unpublished data). The Tamale Campus has the following faculties; School of Medicine (SoM), School of Allied Health Sciences (SAHS), School of Nursing and Midwifery (SoNM), School of Public Health (SPH), Faculty of Education (FoE), and Desert Research Institute (DRI)

Study Design

A descriptive cross-sectional study, using the quantitative approach was adopted for this study.

Sample Population

The sample population included students of the Nursing, Community Nutrition, and Biomedical Laboratory Science, UDS-Tamale campus.

Inclusion and Exclusion Criteria

The inclusion of respondents was based on the program of study at the selected university. These respondents were drawn from; Department of Nursing, Community Nutrition, and Biomedical Laboratory Science, who are of sound mind and have consented voluntarily to be part of this study. The midwifery department was excluded from the study because "family planning and contraceptive use" is a major part of the course taught during their period of training, hence, we felt including midwifery students might not paint a true picture especially regarding knowledge and attitude of emergency contraceptives.

Sample size determination

The Raosoft sample size calculator was used to calculate the sample size[30]. Based on the significance level of 95%, a margin of error of 5%, response distribution of 50%, and sample population of 410 (i.e., the total number of final year students), the sample size was estimated as 199 students.

Sampling methods and techniques

A Stratified Random Sampling (Proportionate Stratified Sampling) technique was used for the study. A sample frame (N) was identified and categorized into various strata using faculties. The sample size was further divided per stratum based on the size of the stratum. After getting the sample per stratum, consecutive sampling was employed to select participants of the stratum until the sample size was exhausted. This method of sampling provided an equal representation of the various departments based on the size of each department.

Data collection tools and procedures

Data was collected using a self-administered semi-structured questionnaire adapted from existing literature[2,31,32] and modified to meet the objectives of this study. According to the study's specific objectives, the questionnaire was divided into four components. Section A contained questions about the respondent's demographics, Section B contained questions about their reproductive characteristics,

Section C contained questions about their knowledge of emergency contraception, Section D contained questions about their attitude toward emergency contraception, and finally, Section E contained questions about their practice or use of emergency contraception.

Before meeting the respondents, permission was sort from the heads of department (HOD). Then the study protocol was explained to the respondents and then consent was obtained. Respondents who met the inclusion criteria and have consented to voluntarily participate in this study would then be given a questionnaire to fill and give back to the research team members or the course representative after completion, in a sealed envelope. The course representatives, upon receipt of these sealed envelopes, forwarded it to the research team for safekeeping. The research team was always available to offer support to those who needed further explanations on specific questions. This was done to ensure that respondents who needed assistance got assisted to choose the responses that applied to them.

Data analysis and presentation

The statistical package for social sciences (SPSS) software version 25 was used to code and analyze the data. Analysis was conducted quantitatively using descriptive and inferential statistics and results were displayed using graphs and tables.

To calculate the composite score for knowledge, all eleven (11) questions were scored. Thus, responses that were considered correct according to literature were scored "1"(a point), and negative, wrong, and "I don't know" responses were scored "0". The scores were added together and a percentage was obtained. Thereafter, those who obtained 50% and above and those who scored less than 50% were said to have sufficient and insufficient knowledge on EC respectively. To estimate the overall attitude of respondents towards EC, all eight (8) questions were scored. Those who obtained 50% or more were said to have a favorable attitude whereas those who obtained less than 50% were said to have an unfavorable attitude towards EC.

To compare categorical variables, Chi-square analysis was employed, and a p-value of 0.05 was considered statistically significant.

Quality control measures

To ensure that the data collected were reliable and valid, the questionnaire was pre-tested among the medical students within the school. Thirty (30) medical students were interviewed during the pre-testing. The pre-testing (piloting) helped in restructuring the questionnaire to elicit the right response that can answer the specific objective. It also provided the research team the opportunity to familiarize themselves with the data collection process, and to rectify all difficulties before the actual data was collected. The questionnaire was shown to experienced researchers in the area for face validity.

RESULTS

Socio-demographic characteristics

Table 1 below shows the socio-demographics of the respondents. Most 60(30.2%) of the respondent were within the ages of 31 to 35 years. More than half 108(52.8%) of the respondents resided in private hostels, the majority 153 (76.9%) of the respondent are Christians, and about half 102(51.3%) of the students

were married. On ethnicity, most 72 (36.2%) respondents were Kassena-Nankana, the majority of the students 137 (68.8%) were in the Nursing Department (Table 1).

Table 1: Sociodemographic characteristics(n=199)

Variable	Categories	Frequency (N)	Percentage (%)
Age	20 -25 years	42	21.10%
	26-30 years	41	20.60%
	31-35 years	60	30.20%
	Above 35 years	56	28.10%
Residences	Campus Hostel	40	20.10%
	Private Hostel	105	52.80%
	My Home	54	27.10%
Religion	Christian	153	76.90%
	Muslim	41	20.60%
	Traditionalist	5	2.50%
Marital Status	Co-habiting	8	4.00%
	Divorce/Separated/widow	3	1.50%
	Married	102	51.30%
	Single	86	43.20%
Ethnicity	Kassana/Nankana/Talensi	72	36.20%
	Dagomba	45	22.60%
	Akan	25	12.60%
	Walaa	19	9.50%
	Dagarti	18	9.00%
	Others	20	10.10%
Department	Medical Laboratory Scientist	26	13.10%
	Nursing	137	68.80%
	Nutrition	36	18.20%

Levels of Knowledge on Emergency Contraceptives

In this study, the majority 166(83.4%) of the respondents agreed that it is recommended to take Emergency Contraceptives (EC) within 72 hours, 144(72.4%) agreed that the effectiveness of EC is 75-

99%, and 130(65.3%) of the students' believed EC is very safe. The majority 146 (73.4%) of the respondents were aware that the recommended doses of EC are two (2), and 185 (65.3%) agreed that the recommended time interval for EC is 12 hours.

On the indications of the use of EC, the following were identified in this study; after unprotected sex 185 (65.3%), after a missed period 45 (22.6%), when one is raped 166 (83.4%), unwanted pregnancy 151 (75.9%), and rupture of condoms 177 (88.9%). The majority 136 (68.3%) of students held that EC was available at the health facilities (Table 2).

Table 2: Level of knowledge on emergency contraceptives among final year female university students(n=199)

Statements	Yes (N, %)	No (N, %)	Don't know (N, %)
Recommended time to take EC is within 72 hours	166(83.4%)	25(12.6%)	8(4.0%)
Effectiveness of EC is 75-99%?	144(72.4%)	34(17.1%)	21(10.6%)
EC is very safe?	130(65.3%)	55(27.6%)	14(7.0%)
Recommended doses of EC are two (2)?	146(73.4%)	28(14.1%)	25(12.6%)
The recommended time interval for EC is 12 hours?	130(65.3%)	43(21.6%)	26(13.1%)
Recommended for use after unprotected sex?	185(65.3%)	10(5.0%)	4(2.0%)
EC is recommended after missed period?	45(22.6%)	145(72.9%)	9(4.5%)
EC is recommended when one is raped?	166(83.4%)	44(22.1%)	6(3.0%)
EC is recommended for unwanted pregnancy?	151(75.9%)	44(22.1%)	4(2.0%)
EC is recommended as a result of rupture of condoms during sex?	177(88.9%)	18(9.0%)	4(2.0%)
EC is mostly available at the health facilities?	136(68.3%)	49(24.6%)	14(7.0%)

The study further revealed that the overall levels of knowledge on EC among final year female university students were sufficient 176 (88.4%) while 23 (11.6%) of the students demonstrated insufficient knowledge (figure 1).

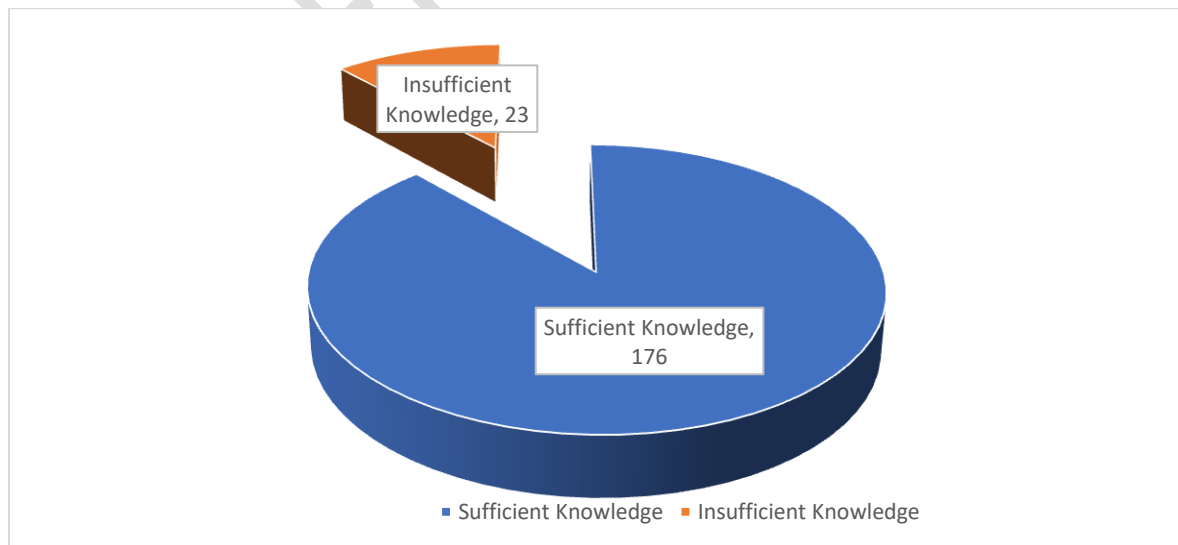


Figure 1: Overall levels of knowledge on emergency contraceptives among final year female university students

Association between Socio-Demographic Characteristics and Levels of Knowledge on Emergency Contraceptives

On the association between the respondents' characteristics and the level of knowledge on EC, 11(26.2%) of respondents within 20 to 25 years has insufficient knowledge while 31(73.8%) had sufficient knowledge. The majority of respondents 36 (87.8%) within 26 to 30 years had sufficient knowledge but 5(12.2%) had insufficient knowledge. More respondents 54(96.4%) above 35 years had sufficient knowledge than 55 (91.7%) of respondents who were within 31 to 35 years. The association between age and knowledge of EC was statistically significant ($X^2=12.9$; $p=0.005$).

On religion, the study revealed a statistically significant association with the level of knowledge on EC ($X^2=12.0$; $p=0.003$). The knowledge levels of respondents on EC were significantly associated with marital status ($X^2=28.4$; $p<0.001$) and Department ($X^2=7.9$; $p=0.019$). (Table 3)

Table 3: Association between socio-demographic characteristics and levels of knowledge on emergency contraceptives

Variable	Categories	Total	Knowledge of EC		Statistical test
			Insufficient	Sufficient	
Age	20 -25 years	42	11(26.2%)	31(73.8%)	$X^2=12.9$ $p=0.005$
	26-30 years	41	5(12.2%)	36(87.8%)	
	31-35 years	60	5(8.3%)	55(91.7%)	
	Above 35 years	56	2(3.6%)	54(96.4%)	
Residences	Campus Hostel	40	6(15.0%)	34(85.0%)	$X^2=0.6$ $p=0.74$
	Private Hostel	105	11(10.5%)	94(89.5%)	
	My Home	54	6(11.1%)	48(88.9%)	
Religion	Christian	153	15(9.8%)	138(90.2%)	$X^2=12.0$ $p=0.003$
	Muslim	41	5(12.2%)	36(87.8%)	
	Traditionalist	5	3(60.0%)	2(40.0%)	
Marital Status	Co-habiting	8	5(62.5%)	3(37.5%)	$X^2=28.4$ $p<0.001$
	Divorce/Separated/widow	3	0(0.0%)	3(100.0%)	
	Married	102	4(3.9%)	98(96.1%)	
	Single	86	14(16.3%)	72(83.7%)	
Department	Medical Laboratory				$X^2=7.9$ $p=0.019$
	Science	26	5(19.2%)	21(80.8%)	
	Nursing	137	10(7.3%)	127(92.7%)	
	Nutrition	36	8(22.2%)	28(77.8%)	

Attitudes towards Emergency Contraceptives

The majority 111(55.8%) of the students disagreed that EC use will cause infertility, 111 (55.8%) disagreed that EC creates a lack of confidence between partners. A total of 144(72.4%) agreed that it was a good idea to make EC accessible to all females, 185(93%) did not think EC could protect against sexually transmitted diseases (STDs), and 165 (82.9%) agreed that EC pills can fail. More than half 123(61.8%) of the respondents were willing to use EC shortly. Less than half 88(42.2%) of the respondents agree that EC should be used once every month, and 87 (43.7%) said their religion frowns against the use of EC (Table 4).

Table 4: Attitudes towards emergency contraceptives

Statements	Yes (N, %)	No (N, %)	Don't know (N, %)
EC use will cause infertility in a woman?	60(30.2%)	111(55.8%)	28(14.1%)
Does EC create a lack of confidence between regular partners?	71(35.7%)	111(55.8%)	17(8.5%)
It is a good idea to make EC accessible to all females?	144(72.4%)	50(25.1%)	5(2.5%)
It is not accepted in my religion to use EC?	87(43.7%)	97(48.7%)	15(7.5%)
I am willing to use EC shortly?	123(61.8%)	63(31.7%)	13(6.5%)
Emergency contraceptives cannot protect one from sexually transmitted infections?	185(93.0%)	12(6.0%)	2(1.0%)
Emergency contraceptives should be used only once every month?	88(44.2%)	84(42.2%)	27(13.6%)
Emergency contraceptive pills can fail you?	165(82.9%)	23(11.6%)	11(5.5%)

In the end, 168(84.4%) of the respondents were said to have a favorable attitude towards EC and 31(15.6%) had an unfavorable attitude towards EC as shown in figure 2 below

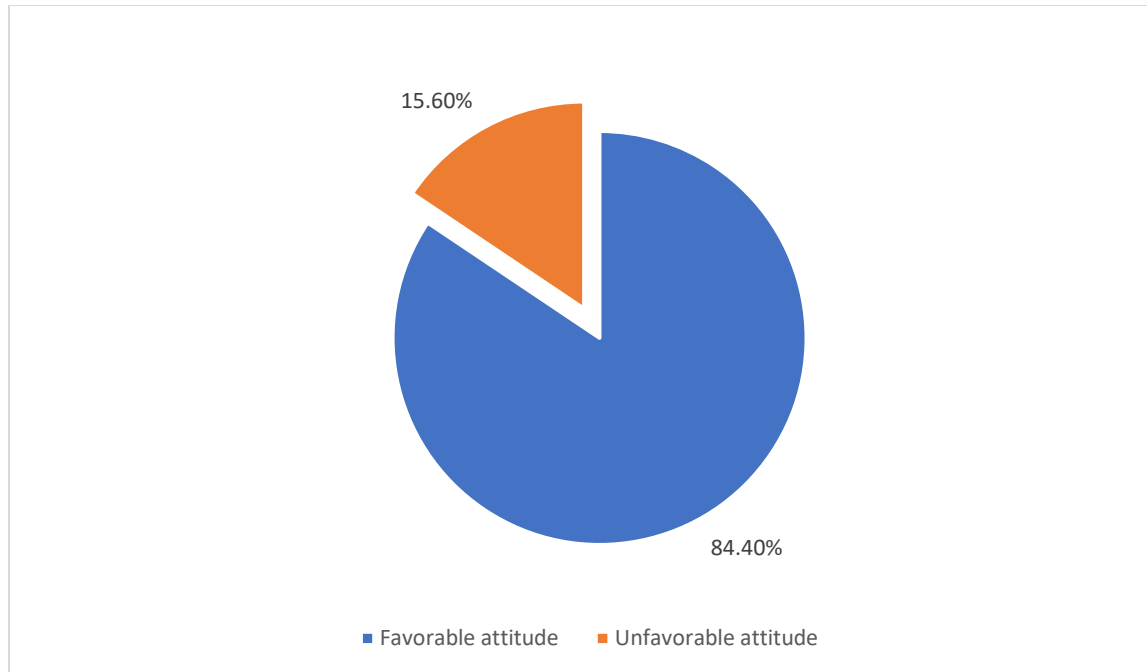


Figure 2: Overall attitude towards EC among respondents

Association between Socio-demographic Characteristics and Attitudes towards Emergency Contraceptives Use

Table 5 as shown below illustrates the association between socio-demographic and attitude towards EC. The study revealed that there was a significant statistical association between attitude towards EC and Residence ($X^2=7.5$; $p=0.023$). The association between overall attitude and Religion ($X^2=6.2$; $p=0.042$), and the marital status of the respondents ($X^2=17.1$, $p=0.001$) were statistically significant. On the other hand, this study did not establish any association between attitude towards EC and age of the respondents ($X^2=6.9$; $p=0.076$), and department ($X^2=2.1$, $p=0.34$).

Table 5: Association between socio-demographic characteristics and attitudes towards emergency contraceptives

Variable	Categories	Total	The overall attitude towards EC		Statistical test
			Favorable	Unfavorable	
Age	20 -25 years	42	31(73.8%)	11(26.2%)	$X^2=6.9$ $p=0.076$
	26-30 years	41	37(90.2%)	4(9.8%)	
	31-35 years	60	49(81.7%)	11(18.3%)	
	Above 35 years	56	51(91.1%)	5(8.9%)	
Residences	Campus Hostel	40	39(97.5%)	1(2.5%)	$X^2=7.5$ $p=0.023$
	Private Hostel	105	83(79.0%)	22(21.0%)	
	My Home	54	46(85.2%)	8(14.8%)	
Religion	Christian	153	126(82.4%)	27(17.6%)	$X^2=6.3$ $p=0.042$
	Muslim	41	39(95.1%)	2(4.9%)	

Marital Status	Traditionalist	5	3(60.0%)	2(40.0%)	$X^2=17.1$ $p=0.001$
	Co-habiting	8	3(37.5%)	5(62.5%)	
	Divorce/widow	3	3(100.0%)	0(0.0%)	
	Married	102	92(90.2%)	10(9.8%)	
	Single	86	70(81.4%)	16(18.6%)	
Department	MLS	26	20(76.9%)	6(23.1%)	$X^2=2.1$ $p=0.34$
	Nursing	137	119(86.9%)	18(13.1%)	
	Nutrition	36	29(80.6%)	7(19.4%)	

Use of Emergency Contraceptives

The study revealed that the majority 118 (59.3%) of the respondents have ever used EC. EC was recommended by friends 63(53.4%), health professionals 78(66.1%), and Partners 23 (19.5%). Most 87 (43.7%) of the respondents used Postinor-2, and 91 (45.7%) have not used EC in the past six months while 64(32.2%) have used EC once in the past six months. The majority 147 (73.9%) used EC to prevent pregnancy with 11 (55.8%) experiencing no adverse effect. A total of 79 (39.7%) respondents spends GHS 10 on a pack of EC, the majority 114(57.3%) of the respondents knew of friends who use EC, 122 (61.3%) believe that support from friends make it easier for you to use EC, 116 (58.3%), believe the availability of EC makes its usage easier, and 156 (78.4%) believe the availability of EC pills make it easier to use. For those who do not use EC, 27 (13.6%) did not know where to find it, 32 (16.1%) do not know EC, and 28 (14.1%) said their partners were opposed to the use of EC (Table 6).

Table 6: Use of emergency contraceptives

Variables	Categories	Frequency	Percentage
Have you ever used EC	Yes	118	59.30%
	No	81	40.70%
Who recommended EC for you	Friends	63	53.40%
	Health professionals	78	66.10%
	Partners	23	19.50%
What contraceptive method do you use	Condom	19	9.50%
	Depo Provera	15	7.50%
	Postinor-2	87	43.70%
	Implants	7	3.50%
	Lydia contraceptive	54	27.10%
	Natural family planning	9	4.50%
The reason why I did not use EC was	Don't know where to find it	27	13.60%

	No knowledge about EC	32	16.10%
	Partner opposed to using EC	28	14.10%
The reason why I used EC was?			
	Partner proposed	33	16.60%
	Fears of pregnancy	147	73.90%
	Affects my period/menses	49	24.60%
How many times have you used emergency contraceptive Pills (Postinor-2) in the last six months?			
	Once	64	32.20%
	Twice	27	13.60%
	Thrice	9	4.50%
	four times	4	2.00%
	More than four times	4	2.00%
	None	91	45.70%
The last time I used EC, I was told...?			
	No information	69	34.70%
	Pills would make me vomit/feels nauseous	39	19.60%
	It can affect my period/menses	59	29.60%
	It can make me feel weak/dizziness	23	11.60%
I experience the following when I used EC?			
	Nausea/Vomiting	52	26.10%
	General Weakness/Dizziness	13	6.50%
	Bleeding/Period not stopping	23	11.60%
	None	111	55.80%
How much do you usually spend on a pack of emergency contraceptive pills (Postinor2)?			
	Less than 10 cedis	79	39.70%
	10 cedis and above	73	36.70%
	Don't Know	47	23.60%
Know of a friend using EC?			
	Yes	114	57.30%
	No	85	42.70%
Will support from friends will make it easier for you to use an emergency contraceptive?			
	Yes	122	61.30%
	No	77	38.70%
Will support from family make it easier for you to use an emergency contraceptive?			
	Yes	116	58.30%
	No	83	41.70%
Will the availability of Emergency contraceptive pills make it easy to use?			
	Yes	156	78.40%
	No	43	21.60%

Association between Socio-demographic Characteristics and use of Emergency Contraceptives

The study revealed that there was a significant association between the use of EC and Residence ($X^2=10.9$; $p=0.004$), marital status ($X^2=8.6$; $p=0.035$). On the other hand, there was no association between the use of EC and Religion ($X^2=5.4$; $p=0.07$), age ($X^2=5.1$; $p=0.167$), and Departments ($X^2=4.6$, $p=0.10$). (Table 7)

Table 7: Association between socio-demographic characteristics and use of emergency contraceptives

Variable	Categories	Total	Have you ever used EC		Statistical Test
			Yes	No	
Age	20 -25 years	42	24(57.1%)	18(42.9%)	$X^2=5.1$ $p=0.167$
	26-30 years	41	21(51.2%)	20(48.8%)	
	31-35 years	60	33(55.0%)	27(45.0%)	
Residences	Above 35 years	56	40(71.4%)	16(28.6%)	$X^2=10.9$ $p=0.004$
	Campus Hostel	40	15(37.5%)	25(62.5%)	
	Private Hostel	105	65(61.9%)	40(38.1%)	
Religion	My Home	54	38(70.4%)	16(29.6%)	$X^2=5.4$ $p=0.07$
	Christian	153	93(60.8%)	60(39.2%)	
	Muslim	41	20(48.8%)	21(51.2%)	
Marital Status	Traditionalist	5	5(100.0%)	0(0.0%)	$X^2=8.6$ $p=0.035$
	Co-habiting	8	7(87.5%)	1(12.5%)	
	Divorce/Separated/widow	3	3(100.0%)	0(0.0%)	
Department	Married	102	65(63.7%)	37(36.3%)	$X^2=4.6$ $p=0.10$
	Single	86	43(50.0%)	43(50.0%)	
	Medical Laboratory Scientist	26	18(69.2%)	8(30.8%)	
	Nursing	137	84(61.3%)	53(38.7%)	$p=0.10$
	Nutrition	36	16(44.4%)	20(55.6%)	

Discussion

In this study, the authors aimed to assess the utilization of emergency contraception among final-year female University students. The study revealed that an overwhelming majority (83.4%) of the respondents knew that the recommended period within which the effect of EC will be realized after administration is 72 hours. This finding is slightly lower than the 87.4% reported in a study among Health Science and Medical Students of Arba Minch University of Ethiopia who knew the timing of the use of Emergency Contraceptive (CE) [33]. The similarities may be because the respondents in both studies were all

pursuing medically-related programs and as part of their tuition, issues of family planning are often taught.

On the interval for the usage of EC, the majority of the respondents correctly identified the interval of usage of EC as 12 hours. This is corroborated by Leung et al., [34] who indicated that emergency contraceptives are taken either as a one or two-dose depending on the composition of the drugs. Similarly, some studies argue that though ECs come in two doses, there is no clear-cut rule indicating that they ought to be taken twelve hourly. They made a case that you can take all two doses of ECs at once without any complication [35–37].

The current study reported that 72.4% of the respondents agree that the effectiveness of EC is within 75% to 99%. This is consistent with Ganatra et al.,[13] who indicated that emergency contraceptives can prevent up to 95% of pregnancies when taken within five days. However, the chances of pregnancy become higher when EC is used after 72 hours. Thus, after 3 to 5 days, ECs are no more very effective in preventing pregnancies. At this stage, it is recommended to see your health provider to suggest other safe options to prevent the pregnancy.

About 25.0% of respondents indicated that missed abortion was an indication for emergency contraceptives usage. This is related to a study in Botswana that found that the majority of people considered a missed period to be an improper time to take emergency contraception [38]. On access to emergency contraceptives, about 70% of the respondents obtained EC from health facilities. This finding is in line with Mishore et al., [31] who also reported that the majority of the respondents obtained EC from health centers or pharmacies.

The majority (88.4%) of the respondents had sufficient knowledge of emergency contraceptives. This is consistent with 87% reported in Ghana [22] and 70.0% in a study conducted in Ethiopia [31]. These findings are however greater than the 53% reported in Botswana [38], 37.4% reported in Northwestern Nigeria [39], 34.1% reported in Ethiopia [40], and 21.9% reported in southern Ethiopia [41]. Contrary to above, 97.7% had poor knowledge in a study conducted in Kaduna, Nigeria [42]. These respondents are offering health-related programs. The huge discrepancies with available literature and the current studies could be influenced by the program offered as espoused above.

In this study, 35.7% of the respondents are of the view that emergency contraceptives create a lack of confidence between regular partners. This is consistent with a study conducted by Tajure, [43] where 36.8% of the respondents associated the use of emergency contraceptives with promoting promiscuity. It is a general belief that people who use emergency contraceptives are often promiscuous [44,45]. This is because, in most settings the usage of contraceptives, be it modern or traditional methods, is often believed to be meant for married people [46,47]. This position is not always true because, sex is a basic need for adolescents [48,49]. Therefore, adolescents or persons who are not married and yet cannot abstain from sex are often advised to resort to the usage of contraceptives [50,51]. However, in situations where some of these contraceptives fail, or one engaging in unprotected sex, then one has to get an emergency contraceptive to avert any unintended pregnancies.

The majority (69.8%) of the participants did not believe that the use of emergency contraceptives could be related to infertility. Students' attitudes towards this were mainly influenced by the high knowledge they already possess on emergency contraceptives. Emergency contraceptive usage generally does not relate to infertility [36] however excessive usage can be a danger to the women's health [52].

The majority (72.4%) believed it was a good idea to make emergency contraceptives accessible to all women. This is consistent with a study carried out among health science and medical students of Arba Minch University by Fekadu, [33] where 84.7% of the participants advocated for emergency contraceptives to be made available to women. This similarity is a result of the respondents offering health-related programs. Contrary to the above, the accessibility of emergency contraceptives to all women and encouraging its usage has a cascading and long-term effect on the development of the girl child. This is so because, oftentimes as girls and women age, they tend to gain some independence. Also, parental supervision declines, and there is a higher influence of peers to engage in sexual relationships (Kgosiemang & Blitz, 2018). Therefore, if the usage of an emergency contraceptive is not regulated, it would affect the lives of most girls soon. For instance, Mishore and colleagues [31] have contended that providing EC to all women might lead to an increase in risky sexual practices and misuse, resulting in adverse effects, and higher HIV/AIDS risk since unprotected sex would be promoted.

The majority of the respondents were willing to use an emergency contraceptive in the future. Fekadu, (2017) in another study showed that about 88.4% of the respondents were willing to use the EC in the future. This is consistent with the current findings where all respondents have obtained a higher level of education.

The majority (84.4%) of the students demonstrated a favorable attitude toward emergency contraceptives. This is consistent with the 87.1% reported by Fekadu, (2017) to have a favorable attitude towards EC. However, the current study is higher than 71.9% reported having a favorable attitude towards EC use (Dagnachew, 2017), 62.9% in Ethiopia [36], 50.9% in Nigeria [39], 50.1% in Southern Ethiopia [41]. Contrary to the above, in some jurisdictions, the majority of the respondents had a very poor attitude towards EC. For instance, 53.6% of respondents in Ethiopia were reported to have poor attitudes towards EC, about 55% in Botswana [38]. The attitude towards EC is highly influenced by the high knowledge of the study respondents reported in this study. In the current study, the majority of the respondents have demonstrated appreciable knowledge of emergency contraceptives.

Also, 59.3% of the respondents have ever used emergency contraceptives. This finding is consistent with 58.8% reported by Fekadu,[33]. This is lower than the 62.3% reported in Nigeria by Nwankwo et al., [39]. On the other hand, this study finding is higher than 22.1% reported on the use of emergency contraceptives in Botswana [38], 9.7% in Ethiopia [40], 2.7% used emergency contraceptives in southern Ethiopia [41], 6.8% used emergency contraceptives in Southwestern Ethiopia [43] and 47.4% used emergency contraceptives in Tanzania [53]. This is also higher than, 33.3% of emergency contraceptives use reported in the Upper East of Ghana [22], and 36.0% used emergency contraceptives in Accra [54]. The discrepancies may be attributed to the socio-demographic characteristics of the respondents. In the current study, over 80.0% of respondents were above 25 years and over half of them married. It can therefore be said that some others may choose to use the emergency contraceptives as a result of failure from other contraceptives such as broken condoms, missed pills, etc. and some may also use them to prevent pregnancy. This is further supported by the majority of the respondents getting a recommendation to use emergency contraceptives from health professionals. There is available literature that supports these findings where some contraceptives including emergency contraceptives are used to correct the menses [55,56].

Postinor-2, Lydia post-pill, NorLevo, and pregnon are some of the most often used emergency contraceptive tablets in Ghana. The most common EC brand in this study was Postinor-2. This is because

the majority of these may be obtained without a medical prescription from pharmacies and family planning clinics (Mohammed et al., 2019). The participants indicated that their reasons for not utilizing ECs were that they wanted to be pregnant, others were uninformed about emergency contraception, and spouses were opposed to their decision to use EC. Another reason given for not utilizing emergency contraceptives was religious beliefs. Similar findings were observed in Botswana, where respondents stated that ECs violated their religious convictions, which is why they do not use them [38]. This, therefore, call for high-level consultation with stakeholder (Chiefs, religious leaders, Health care providers) to get to the button of these issues.

Conclusion

Unwanted pregnancies can be avoided with the use of emergency contraception. Students had a higher level of awareness and knowledge of emergency contraceptives, according to the study. Religion, partner reluctance, lack of information, affordability, and availability of emergency contraceptives (EC) have all been mentioned as variables that may influence their usage of EC. Health education initiatives should be targeted at secondary and tertiary students to deliver correct information about emergency contraceptives and improve access to emergency contraceptives. Also, there is the need to engage opinion leaders to address their concerns to allow for the effective utilization of emergency contraceptives.

Disclaimer

This paper is an extended version of a **preprint /repository/ Thesis** document of the same author.

The **preprint /repository/ Thesis** document is available in this link:

<https://assets.researchsquare.com/files/rs-1067157/v1/9f958f2f-87c3-4e61-8a69-8b24c015a632.pdf?c=1643642994>

[As per journal policy, pre-print article can be published as a journal article, provided it is not published in any other journal]

List of abbreviations

EC- emergency contraceptives, UDS- University for Development Studies, TFR-Total Fertility Rate, SSA-Sub-Saharan Africa, SDGs-Sustainable Development Goals, WHO-World Health Organisation, UNFPA- United Nations Population Fund, SoM-School of Medicine, SAHS-School of Allied Health Sciences, SoMN-School of Nursing and Midwifery, SPH-School of Public Health, FOE-Faculty of Education, DRI-Desert Research Institute (DRI).

Availability of data and materials

The data used to support this study are available from the corresponding author upon request.

Ethics approval and consent to participate

The Ethics Committee on Human Research, Publications, and Ethics granted ethics to this study with reference number (CHRPE/AP/520/21). Permission was sought from each respondent before being involved in this study. Participants gave informed written consent after they got full information about the study. Those who refused to consent voluntarily were left out of the study.

References

1. Manortey S, Duah WT, Baiden F. Factors associated with the use of emergency contraceptive pills among students of the Takoradi Polytechnic in Ghana. *J Sci Res Reports*. 2016;1–10.
2. Issah F. KNOWLEDGE, ATTITUDES AND PRACTICE OF EMERGENCY CONTRACEPTION USE AMONG FEMALE STUDENTS OF THE UNIVERSITY FOR DEVELOPMENT STUDIES (UDS), TAMALE CAMPUS. 2021.
3. Kongnyuy EJ, Ngassa P, Fomulu N, Wiysonge CS, Kouam L, Doh AS. A survey of knowledge, attitudes and practice of emergency contraception among university students in Cameroon. *BMC Emerg Med*. 2007;7(1):1–7.
4. Demissie TW, Nigatu AM, Beyene GM. Assessment of emergency contraceptives utilization and associated factors among female college students at Debre Tabor town. *Contracept Reprod Med*. 2020;5(1):1–9.
5. Hammoud R, Saleh S, Halawani D, Mezher H, Abou El Naga A, Azakir B. Knowledge and attitudes of Lebanese women of childbearing age towards emergency contraception. *Eur J Contracept Reprod Heal Care*. 2020;25(1):28–32.
6. Neinstein LS. Adolescent health care: a practical guide. Vol. 414. Lippincott Williams & Wilkins; 2008.
7. Mutaru A-M, Asumah M, Ibrahim M, Sumaila I, Hallidu M, Mbemah J, et al. Knowledge on Sexually Transmitted Infections (STIs) and sexual practices among Nursing Trainees in Yendi Municipality, Northern Region of Ghana. *Eur J Heal Sci*. 2021;6(4):33–47.
8. Starrs AM, Ezeh AC, Barker G, Basu A, Bertrand JT, Blum R, et al. Accelerate progress—sexual and reproductive health and rights for all: report of the Guttmacher–Lancet Commission. *Lancet*. 2018;391(10140):2642–92.
9. UNFPA. UNFPA ANNUAL REPORT | 2016. 2016; Available from: <https://www.unfpa.org/annual-report-2016>
10. Abraha D, Welu G, Berwo M, Gebretsadik M, Tsegay T, Gebreheat G, et al. Knowledge of and Utilization of Emergency Contraceptive and Its Associated Factors among Women Seeking Induced Abortion in Public Hospitals, Eastern Tigray, Ethiopia, 2017: A Cross-Sectional Study. *Biomed Res Int*. 2019;2019.
11. Ajayi AI, Nwokocha EE, Akpan W, Adeniyi OV. Use of non-emergency contraceptive pills and concoctions as emergency contraception among Nigerian University students: results of a qualitative study. *BMC Public Health*. 2016;16(1):1–8.
12. Akinlusi FM, Rabiou KA, Adewunmi AA, Imosemi OD, Ottun TA, Badmus SA. Complicated unsafe abortion in a Nigerian teaching hospital: pattern of morbidity and mortality. *J Obstet Gynaecol (Lahore)*. 2018;38(7):961–6.

13. Ganatra B, Gerdt C, Rossier C, Johnson Jr BR, Tunçalp Ö, Assifi A, et al. Global, regional, and subregional classification of abortions by safety, 2010–14: estimates from a Bayesian hierarchical model. *Lancet*. 2017;390(10110):2372–81.
14. Singh S, Darroch JE, Ashford LS, Vlassoff M. Adding It Up: The costs and Benefits of Investing in family Planning and maternal and new born health. Guttmacher Institute; 2009.
15. Apanga PA, Adam MA. Factors influencing the uptake of family planning services in the Talensi District, Ghana. *Pan Afr Med J*. 2015;20(1).
16. Berhe H, Tilahun W, Aregay A, Bruh G, Gebremedhim H. Utilisation and associated factors of postnatal care in Adwa Town, Tigray, Ethiopia—a cross sectional study. *Adv Res Pharm Biol*. 2013;3(1):353–9.
17. Abdul-Wahab, I., Nungbaso, A. M., Nukpezah, R. N., & Dzantor, E. K. (2021). Adolescents Sexual and Reproductive Health: A Survey of Knowledge. *Attitudes Adolescents Sexual and Reproductive Health: A Survey of Knowledge, Attitudes, and Practices in the Tamale Metropolis, Ghana*
18. Ghana Health Service. “Ghana demographic health survey,” Key Indicators, Ghana Statistical Service Accra, Ghana. The DHS Program ICF International, Rockville, MD, USA,. 2014;
19. Ghana Statistical Service, Ghana Health Service. Measure DHS: Ghana: demographic and health survey 2014. 2015;
20. Atuhaire S. Abortion among adolescents in Africa: A review of practices, consequences, and control strategies. *Int J Health Plann Manage*. 2019;34(4):e1378–86.
21. Leke RJ, Nana PN. Abortions in low resource countries. *Basic Gynecol Relat issues Rijeka, Croat Intech Eur*. 2012;125–38.
22. Ziba FA, Yakong VN. Awareness and Utilization of Emergency Contraceptives: A Survey among Ghanaian Tertiary Students. *Asian J Res Nurs Heal*. 2019;1–7.
23. Ziem, J. & Gyebi E. N/R Records 70 Maternal Deaths In First Half Of 2012. 2012; Available from: <http://savannahnewsblogspotcom.blogspot.com/2012/08/nr-records-70-maternal-deaths-in-first.html>
24. Mohammed S, Abdulai A-M, Iddrisu OA. Pre-service knowledge, perception, and use of emergency contraception among future healthcare providers in northern Ghana. *Contracept Reprod Med*. 2019;4(1):1–7.
25. Gumanga SK, Kolbila DZ, Gandua BBN, Munkaila A, Malechi H, Kyei-Aboagye K. Trends in Maternal Morlility in Tamale Teaching Hospital, Ghana. *Ghana Med J*. 2011;45(3).
26. Morris JL, Rushwan H. Adolescent sexual and reproductive health: The global challenges. *Int J Gynecol Obstet*. 2015;131:S40–2.
27. Haeger KO, Lamme J, Cleland K. State of emergency contraception in the US, 2018. *Contracept Reprod Med*. 2018;3(1):1–12.
28. Aniteye P, O’Brien B, Mayhew SH. Stigmatized by association: challenges for abortion service providers in Ghana. *BMC Health Serv Res*. 2016;16(1):1–10.
29. Munakampe MN, Zulu JM, Michelo C. Contraception and abortion knowledge, attitudes and practices among adolescents from low and middle-income countries: a systematic review. *BMC Health Serv Res*. 2018;18(1):1–13.

30. Raosoft. Sample Size Calculator by Raosoft, Inc.
31. Mishore KM, Woldemariam AD, Huluka SA. Emergency Contraceptives: Knowledge and Practice towards Its Use among Ethiopian Female College Graduating Students. *Int J Reprod Med*. 2019;2019.
32. Dagnachew A. Assessment of knowledge, attitude and practice of emergency contraceptive use among female students in Harar preparatory schools, Harari regional state, eastern Ethiopia. *Reprod Syst Sex Disord*. 2017;4(215):2.
33. Fekadu Y. Knowledge attitude and utilization of emergency contraception among health science and medical students of Arba Minch University, 2015. 2017;
34. Leung VWY, Levine M, Soon JA. Mechanisms of action of hormonal emergency contraceptives. *Pharmacother J Hum Pharmacol Drug Ther*. 2010;30(2):158–68.
35. Abbas N, Saba T, Rehman A, Mehmood Z, Kolivand H, Uddin M, et al. Plasmodium life cycle stage classification based quantification of malaria parasitaemia in thin blood smears. *Microsc Res Tech*. 2019;82(3):283–95.
36. Tesfaye T, Tilahun T, Girma E. Knowledge, attitude and practice of emergency contraceptive among women who seek abortion care at Jimma University specialized hospital, southwest Ethiopia. *BMC Womens Health*. 2012;12(1):1–6.
37. Raymond EG, Cleland K. Emergency contraception. *N Engl J Med*. 2015;372(14):1342–8.
38. Kgosiemang B, Blitz J. Emergency contraceptive knowledge, attitudes and practices among female students at the University of Botswana: A descriptive survey. *African J Prim Heal Care Fam Med*. 2018;10(1):1–6.
39. Nwankwo B, Mohammed MH, Usman NO, Olorukooba AA. Knowledge, Attitude and Practice of Emergency Contraception among Students of a Tertiary Institution in Northwestern Nigeria. *J Med Basic Sci Res*. 2021;2(1):13–28.
40. Abate M, Assefa N, Alemayehu T. Knowledge, attitude, practice, and determinants emergency contraceptive use among women seeking abortion services in Dire Dawa, Ethiopia. *PLoS One*. 2014;9(10):e110008.
41. Worku A. Knowledge, attitude and practice of emergency contraceptives among female college students in Arba Minch Town, Southern Ethiopia. *Ethiop J Heal Dev*. 2011;25(3):176–83.
42. Amina M-D, Regmi K. A quantitative survey on the knowledge, attitudes and practices on emergency contraceptive pills among adult female students of a tertiary institution in Kaduna, Nigeria. *Prim Heal Care Open Access*. 2014;4(1):1–8.
43. Tajure N. Knowledge, attitude and practice of emergency contraception among graduating female students of Jimma University, Southwest Ethiopia. *Ethiop J Health Sci*. 2010;20(2).
44. Both R, Samuel F. Keeping silent about emergency contraceptives in Addis Ababa: a qualitative study among young people, service providers, and key stakeholders. *BMC Womens Health*. 2014;14(1):1–11.
45. Adongo PB, Tabong PT-N, Azongo TB, Phillips JF, Sheff MC, Stone AE, et al. A comparative qualitative study of misconceptions associated with contraceptive use in southern and northern Ghana. *Front public Heal*. 2014;2:137.
46. Kabagenyi A, Reid A, Ntozi J, Atuyambe L. Socio-cultural inhibitors to use of modern

- contraceptive techniques in rural Uganda: a qualitative study. *Pan Afr Med J*. 2016;25.
47. Muanda MF, Ndongo GP, Messina LJ, Bertrand JT. Barriers to modern contraceptive use in rural areas in DRC. *Cult Health Sex*. 2017;19(9):1011–23.
 48. Pownall JD, Jahoda A, Hastings RP. Sexuality and sex education of adolescents with intellectual disability: Mothers' attitudes, experiences, and support needs. *Intellect Dev Disabil*. 2012;50(2):140–54.
 49. Lindberg LD, Maddow-Zimet I, Boonstra H. Changes in adolescents' receipt of sex education, 2006–2013. *J Adolesc Heal*. 2016;58(6):621–7.
 50. Harrell-Bond B. 10. Attitudes towards sex, family limitation and the use of contraceptives. In: *Modern Marriage in Sierra Leone*. De Gruyter Mouton; 2019. p. 250–78.
 51. Mumah J, Kabiru CW, Izugbara CO, Mukiira C. Coping with unintended pregnancies: Narratives from adolescents in Nairobi's slums. 2014;
 52. Joham AE, Boyle JA, Ranasinha S, Zoungas S, Teede HJ. Contraception use and pregnancy outcomes in women with polycystic ovary syndrome: data from the Australian Longitudinal Study on Women's Health. *Hum Reprod*. 2014;29(4):802–8.
 53. Kara WSK, Benedicto M, Mao J. Knowledge, attitude, and practice of contraception methods among female undergraduates in Dodoma, Tanzania. *Cureus*. 2019;11(4).
 54. Darteh EKM, Doku DT. Knowledge and usage of emergency contraceptives among university students in Ghana. *J Community Health*. 2016;41(1):15–21.
 55. Gainer E, Kenfack B, Mboudou E, Doh AS, Bouyer J. Menstrual bleeding patterns following levonorgestrel emergency contraception. *Contraception*. 2006;74(2):118–24.
 56. Creinin MD, Schlaff W, Archer DF, Wan L, Frezieres R, Thomas M, et al. Progesterone receptor modulator for emergency contraception: a randomized controlled trial. *Obstet Gynecol*. 2006;108(5):1089.