

**FACTORS THAT INFLUENCE UTILIZATION OF
EMERGENCY CONTRACEPTIVES AMONG FEMALE
UNDERGRADUATE STUDENTS, UNIVERSITY OF
KABIANGA, KENYA**

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**Factors that Influence Utilization of Emergency Contraceptives among
Female Undergraduate Students, University of Kabianga, Kenya**

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**A Thesis Submitted in Partial Fulfillment of the Requirements for the
Degree of Master of Science in Public Health of the Jomo Kenyatta
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DECLARATION

This thesis is my original work and has not been submitted for a degree in any University.

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This thesis has been submitted for examination with our approval as the University Supervisor

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DEDICATION

This thesis is dedicated to my family for their assistance and moral support over the years

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LIST OF ABBREVIATIONS AND ACRONYMS.

EC	Emergency contraceptives.
ECPS	Emergency contraceptive pills.
HIV	Human immune deficiency virus.
IUCD	Intra uterine contraceptive device.
KDHS	Kenya Demographic Health Survey.
RH	Reproductive Health.
UK	United Kingdom.
USA	United States of America.

DEFINITION OF TERMS

Abortion	Deliberate termination of a pregnancy before term.
Adolescent	Who define adolescent as young people between age of 10 and 19 years.
Attitude	Hypothetical construct that represents an individual's degree of like or dislike for something positive or negative views of a person, place something or event.
Emergency contraceptives	WHO defines emergency contraceptives as a method of Contraception that can be used to prevent pregnancy within the first 120 hours after unprotected sexual intercourse.
Knowledge	Possession of information about the reason for use of emergency contraceptives, timing of use, time interval between doses, identification of the drug, drug composition, mode of action, effectiveness and if it prevents HIV.
Unintended pregnancy	The act of becoming pregnant without planning or waiting to become pregnant.
Youth	World Health Organization (2006) defines youth or young adult as one who is 15-24 years.

ABSTRACT

Higher rates of unplanned or unwanted pregnancies occur amongst university age women, with majority of them being unplanned. Emergency contraception comprises drugs with various dosages (the emergency contraceptive pill) or intrauterine devices used to prevent pregnancy after unprotected sexual intercourse or after a recognized contraceptive failure. It could also be referred to as a group of birth control method that when used within demarcated time limits after unprotected intercourse can prevent an unwanted pregnancy. Therefore this study sought to determine factors that influenced emergency contraceptives utilization among undergraduate Students at University of Kabianga, Kenya. A cross sectional study was employed and stratified random sampling was used to get the selected sample. Data was collected using self-administered questionnaires. Univariate analysis was used for different quantitative variables and results presented using frequency tables, pie diagrams and bar charts. Bivariate analysis was used to determine the test of association between demographic factors, knowledge, attitude and the use of emergency contraceptives using chi-square test at 5% significance level. Out of the 154 respondents' majority 37% were aged between 22 and 23 years. Majority of the respondents were single at 77.9%. A total of 113(73.4%) respondents were sexually active with majority of them using EC with a prevalence rate of 70%. More than half of the respondents were rated as knowledgeable at 53.2% though very few were able to identify IUCD at 1.9% as an EC. There was a favorable attitude (71.4%) towards EC. There was a significant association between utilization of EC and age of the respondents ($p=0.015$) and between utilization of EC and year of the study ($p=0.002$). In conclusion factors that influenced the uptake of emergency contraceptives among university age women were age and the year of study. The study recommends that students joining universities require enhanced health education on sexuality and proper use of emergency contraceptives so as to enable them make informed decisions when need arises.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Emergency contraceptives add to the range of known and accepted options of birth control methods and may assist in preventing unintended or unwanted pregnancies. (Lehan *et al*, 2014).

The unfavorable unwanted pregnancies impacts such as maternal mortality, morbidity, jeopardy of the students' educational progress and future career prospects has inspired the necessity for the effective utilization of emergency contraceptives in the universities (Ahmed *et al* 2017). In the world it is estimated that 222 million women who would want to avoid pregnancy have no knowledge and are not therefore utilizing effective modern methods of contraception (Dawson *et al* 2014). Unintended pregnancy is a growing problem worldwide and this affects college age students more than any other group and the situation can have negative effect on both the woman and the child. (Musah, 2016) Unfortunately, abortion which is carried out by either an unskilled person or under unhygienic condition or in a sub-standard medical environment is mostly the outcome of this unplanned and unintended pregnancies (Musah, 2016).

Globally, maternal and infant mortality and other related health issues resulting from unsafe abortions is increasingly becoming a public health burden. According to global estimates about 44 million pregnancies end in unsafe abortion per year (Darteh & Doku, 2015). In 2008, estimates indicate that one in five of abortions were unsafe. These estimates differ by region. All though Africa has low abortion rate compared to Latin America, the percentage of unsafe abortion of about 97% is staggering; especially in western Africa (Darteh & Doku, 2015).

In Nigeria and some other parts of Africa, results of studies done indicate that every year, unplanned and unintended pregnancies lead to at least 50 million abortions globally, several of which are unsafe and subsequently end in about 80,000 maternal deaths(Adewunmi *et al*, 2012).

Unwanted pregnancies increase the risk of poor birth outcome and maternal depression; predisposes a woman and child to long-term economic, health, and social disadvantages and affect a woman's lifetime earning potential. (Lehan *et al* 2014).The effects of poor infant health can last into adulthood and include risk of lower educational attainment and therefore increasing knowledge and use of EC may be one way of supporting women so that they may bear children when or if they feel they are physically, emotionally, and financially ready. (Lehan *et al*, 2014).

Emergency contraception becomes the only method women can prevent pregnancy after they have had unprotected sexual intercourse, have experienced a contraceptive failure, have remembered too late that they have forgotten to take their birth control pills, or have been forced to have sex against their will. However, their utilization is still questionable as many unplanned and unintended pregnancies are still experienced in the universities (Tilahun *et al.*, 2010). In Kenya, the use of modern contraceptive methods has increased over the last decade from 32 percent in the 2003 KDHS to 53 percent in 2014, however, despite the increase in modern contraceptive use, the use of emergency contraceptive which is one of the modern contraceptive remains low among the youths at less than 0.5% with the injectables being the most commonly used form of modern contraception for youth at 19.9 %, followed by implants at 7.6%, male condoms at 3.3% female condoms at 0.5% (Kenya Demographic and Health Survey (KDHS, 2014).Emergency contraception is a drug or device which is used to prevent pregnancy after unprotected intercourse (including sexual assault) or after a recognized contraceptive failure. It has alternatively been called post-coital contraception or the morning after pill. These terms are baffling and imply that EC pills can only be taken immediately, which is incorrect. They can be used, with decreasing efficacy, for up to five days post intercourse (Musah, 2016).

Emergency contraception could also be referred to as a group of birth control method that, when used within demarcated time limits after unprotected intercourse, can prevent an unwanted pregnancy. (Musah, 2016). Emergency contraception is intended for occasional, rare or emergency use only, but not as a regular form of contraception. Situations that can cause this include failure of barrier methods such as spillage, breakage or misuse of condom, sexual assaults, failed coitus interruptus, or two or more consecutive missed oral contraceptive pills (Musah, 2016) Emergency contraception is effective only in the first few (up to five days) days following intercourse before the ovum is released from the ovary and before the sperm fertilizes the ovum (WHO, 2012). Emergency contraception principally obstructs ovulation, interrupts follicular development, and/or obstructs the development of the corpus luteum (Musah, 2016).

There are various methods of emergency contraception including hormonal contraceptive pills (also called morning-after pills), intrauterine contraceptive devices and mifepristone (Musah, 2016). The EC pill, is further divided into two types, one type contains a combination of Estrogen and Progestin and the other form of pill contains Progestin only (Westley & Schwarz, 2012) While the orthodox contraceptive methods are active before or during penile-vaginal intercourse, emergency contraception is a post coital method of birth control with the intended for use in the event of contraceptive method failure, unprotected intercourse or sexual assault.

Emergency contraception varies in its usage with the woman's age. Contraception use among currently married women for any modern methods has seen some improvement both for adolescents (15-19 years) and youth (20-24 years). Literature indicates that EC is lowest among the youngest women age 15-19 (19 percent), most probably because they are in the early stages of their reproductive life or striving to have a health family building (GSS, 2013). Considerably, much research suggests that EC reduces the risk of pregnancy of women who have had unprotected sexual intercourse by approximately 75 % to 89% if taken within 72 hours after engaging in unprotected sexual intercourse even though it can go beyond 72 hours but in

decreasing potency (Musah,2016). Emergency contraception prevents pregnancy in the same way as other hormonal contraceptives such as pills, injectable, Depo Provera or even during breast feeding by delaying ovulation, obstructing fertilization or inhibiting implantation of the fertilized egg by varying endometrial receptiveness, or possibly causing reversion of the corpus luteum. (Musah, 2016).

Unplanned pregnancies amongst students at higher level of education influence students' academic success. Female students are under the risk of unplanned pregnancies because of ineffective or non-use of contraceptives. This may lead to failure to complete their education, may prevent sustaining employment and making independent marital decisions (Asut, 2018).

Therefore the study seeks to establish the impediments to utilization of emergency contraceptives at University of Kabianga.

1.2 Statement of the problem

Despite the value of EC in reducing unintended pregnancy, research suggests that it may be underutilized and that EC may avert 60% to 80% of pregnancies that are unintended in women aged 18 to 24 and that it may also provide an alternative to the non-use of contraception or an option for those who use withdrawal as a method of birth control (Lehan *et al.*, 2014).

Unintended pregnancy is a growing problem worldwide, and this issue affects college age students more than any other group. The situation can have negative effect on both the woman and the child. Unfortunately, abortion which is carried out by either an unskilled person or under unhygienic condition or in a sub-standard medical environment is mostly the outcome of this unplanned and unintended pregnancies (Meyer, 2007). This may be especially true for university students because they feel they are not ready to mother or father children yet or not ready to take up parental responsibility (Musah, 2016).

There are many young women who have resorted to regular use of emergency contraceptives as a family planning method each time they have unprotected sexual

intercourse. This begs the question whether these young women are aware that emergency contraception is not a regular family planning method, or whether they actually know the side effects of EC, the mode of action of EC, from which outlets they get the EC supply, its availability and what information is given to them and by whom? On the other hand there are some who also do not use EC. Again the question is why? Could it be as a consequence of exaggerated side effects from previous use or misrepresentation from peers or some service providers? It is because of this reason that the researcher saw the need for a study to assess university students' level of knowledge, attitude and socio demographic factors surrounding emergency contraception use. (Musah, 2016).

1.3 Justification

Despite the value of emergency contraception in reducing unintended pregnancy, use in college women has not been widely studied (Lehan *et al.*, 2014). Previous studies in sub Saharan Africa have demonstrated that University female students are at high risk of sexually transmitted infections including HIV and have high rate of unwanted pregnancy which results to high abortion rate (Somba *et al.*, 2014). Additional research studies are needed to understand the barriers for contraceptive use in particular type of contraceptives used and reasons for not utilizing services provided in health facilities within university campuses (Somba *et al.*, 2014).

Most studies conducted in Kenyan universities focused mainly on knowledge, attitude and perception of female students on general contraceptives and little emphasis on emergency contraceptives yet it offers women the last chance when the latter has failed .None of the studies has been undertaken at University of Kabianga. This study is in line with sustainable development goal three that seeks to ensure healthy lives and promote wellbeing for all at all ages more so the target that by the year 2030 there is ensured universal access to sexual reproductive health care services including family planning, information, education and the integration of reproductive health into national strategies and programs.

1.4 General objective of the study

To determine the factors that influence emergency contraceptives utilization among female undergraduate students of University of Kabianga, Kenya.

1.4.1 Specific objectives of the study

1. To determine the prevalence of emergency contraceptives utilization among female undergraduate students of University of Kabianga, Kenya.
2. To assess the knowledge on emergency contraceptives among female undergraduate students of University of Kabianga.
3. To assess the attitudes of female undergraduate students towards Emergency Contraceptives at University of Kabianga,
4. To determine the social demographic factors that influence emergency contraceptives utilization.

1.5 Research questions

1. What is the prevalence of emergency contraceptives utilization among female undergraduate students of University of Kabianga, Kenya?
2. How knowledgeable are female undergraduate students on emergency contraceptives.
3. What are the attitudes of female undergraduate students on emergency contraceptives?
4. How do socio demographic factors affect utilization of emergency contraceptives?

CHAPTER TWO

LITERATURE REVIEW

2.1 Prevalence of emergency contraceptives utilization

In the US Since 1995, ever-use of emergency contraception has increased among women aged 15 to 44 from 0.8% in 1995 to 20.0% from 2011 to 2015 (Haeger *et al* 2018).

In a study at six colleges in Dessie Ethiopia 10% of the students sampled had ever used emergency contraceptives(Nibabe *et al.*, 2014) In a study at Imo state university in Nigeria the findings were that 67% of the students were sexually active and only 39.9% of them used emergency contraception(Ojiyi *et al.*, 2014). Results from Demographic and Health Survey in Tanzania also reported contraceptive prevalence use rate of 19% among female aged between 20 and 24 years. (Somba *et al.*, 2014).

In study conducted on factors influencing uptake of contraceptive services among undergraduate students aged 18-35 years at Jomo Kenyatta University of Agriculture and Technology, Kenya, 436 students, 55% had experienced sexual intercourse. The overall level of contraceptives use was low at 34.2% of which Emergency contraceptives use was at 11.9% (Wangima, 2016). The level of awareness on ECPs has been found to be relatively high in many areas. However, this does not translate to the usage in some cases. Studies have demonstrated this occurrence.(Bwire, 2014) A study conducted in Pakistan on Community Health Workers, revealed that that the level of knowledge on ECPs was high 75.5%, but the practical use was low at 17%. Similar findings were realized in a rapid assessment conducted by International Consortium for Emergency Contraception, on EC use among three hundred secondary, university, and out-of-school girls in Nairobi. The results demonstrated that while 74% knew about EC, less than 9% had actually used it. (Bwire, 2014)

2.2 Knowledge on emergency contraceptives

A study among University students of Port Harcourt Nigeria showed that 57.7% of students had some idea on EC and slightly above half (69.2%) of them knew correct timing and use of EC while 48% of respondents knew that EC could also be called morning after or post coital pill (Musah, 2014). In a study in Nigeria among undergraduate students only 34.6% of those who were aware of emergency contraception identified correctly the appropriate time interval for its effectiveness (Ojiyi, 2014). In a survey at Stellenbosch University the findings showed that only 47.5% of the respondents knew EC as oral contraceptives which either prevent implantation of the fertilized ovum or prevent ovulation. It was also found that only 9.0% of the respondents knew that EC does not prevent STI (Kitshoff, 2010). In the same study, 52.5% of the respondents knew and referred EC as either the pill or postinor2 which should be taken after unprotected sexual intercourse and only 48 of the respondents (that is 24%), knew EC could be a device or a drug to prevent pregnancy after engaging in unprotected sex (Kitshoff, 2010).

In Bostwana a study on awareness and practices of contraceptive Use Among University Students, showed that students knew contraception was not 100% effective(Hoque *et al*, 2013). In Cameroon a study done among University students showed that general awareness of EC was 63% however the knowledge on the initial dose of EC pill was limited, only 5.7% knew that the first dose of EC pill could be taken up to 72 hours after sexual intercourse (Miruts, 2014). A study on Knowledge, Attitude and practice of emergency contraceptives among Adama university female students, Ethiopia (Tilahun *et al*, 2010) showed 46.8% of the students had heard about emergency contraceptives and from those who had heard emergency contraceptives, 27.2% had good knowledge. However, only 4.7% had used emergency contraceptive methods.

A study on Emergency contraceptive: Post-secondary school Female students and service providers perspective a case of Awassa Town, Ethiopia (Alemayehu, 2013) showed out of the total 596 female college students 229(38.4%) of them ever had sexual intercourse with mean age 18.24 at their first intercourse and 83.7% had ever

used one of the modern contraceptive methods. Out of 212 (35.6%) of the whole respondents who had ever heard about EC, 60.8% knew at least one correct method of EC while only 31.6% correctly identified 72 hours as the time limit for the method use. The summary index for knowledge about EC disclosed that only 17.0% had good knowledge of EC (Alemayehu, 2013).

In a study (Wright, 2015) on university men's perception on emergency contraceptives, most participants had knowledge of sexual health, reproductive health and contraceptives but demonstrated lower knowledge of EC. Although participant's knowledge of EC was lower, with only about two thirds of the participants able to answer the true or false questions regarding EC accurately, seventy eight percent of them stated that they did not have moral objections to EC. Although participants knew about contraception choices, many participants were unaware, misinformed, and confused about EC. In a study, knowledge, attitude and perception on emergency contraceptives among college students,(Nibabe *et al*,2014) Of the 352 respondents,69.9% had heard about emergency contraception. Regarding the type of contraceptives used as emergency, 53.7% said pills, 11.4% said IUCD and 19.1% cited both pills and IUCD. Of these students, 15.9% did not know which particular contraceptive is used as emergency contraception. With respect to the type of drug used as emergency contraception, 46.3% replied that it is the same as the drug found in ordinary contraceptives and 41.9% answered that it is the same one but stronger than the ordinary contraceptives.

Concerning the time limit for taking pills and the insertion of an IUCD as emergency contraception, only 32.1% indicated correctly that emergency contraceptive pills should be taken within 72 hours, whilst only 6.5% replied that an IUCD should be inserted within 5 days (Nibabe *et al.*, 2014). Studies have demonstrated that the level of awareness on ECPs has been relatively high in many areas however; this does not translate to the usage in some cases (Bwire, 2014). In the said study conducted in Pakistan on Community Health Workers, the findings were that the level of knowledge on ECPs was high at 75.5% but the practical use was low 17%. Difference in knowledge on EC among urban and rural communities

was reflected in a study conducted among 831 sexually active women in Western Cape Province, South Africa where the level of awareness was found to be 17% among women from the rural areas as compared to 35% among those in the urban areas (Adeniji *et al.*, 2013). In a study among 600 students in tertiary schools in Anambra State, South East Nigeria, 30.1% of the respondents who knew about EC, had correct knowledge on the timing of their use; 4.6% had incorrect knowledge while 65.3% had no knowledge of time as relates to the use of EC(Nworah *et al.*, 2010).

In a study on factors associated with utilization of emergency contraception among female students in Mizani Tepi university south west Ethiopia, 489 female students participated in the quantitative study, the findings were that 46.3% of them had used EC following unprotected sex. Female students' knowledge about EC, age at first sexual intercourse, history of pregnancy and previous use of regular contraceptives were found to be significant predictors of EC utilization (Shiferaw, 2015).

2.3 Attitude towards emergency contraceptives

A study in three colleges in USA showed that the attitude of students towards contraceptive use do not differ significantly on the basis of gender and that there is significant relationship between students attitude and their knowledge of contraception (Ugoji, 2013).A study in three colleges in Ethiopia indicated that, 63.6% of the respondents who had ever heard of emergency contraception had a favorable attitude toward it. In this study also there was significant association between age and educational level of the respondents and their attitude toward emergency contraception. Students aged 18–19 showed 86.5% less-positive attitudes towards emergency contraception compared with students aged 24–25. Similarly, students aged 20–21 were 74.5% less positive toward emergency contraception compared with their 24–25 year-old counterparts Again, first and second year students reported less-positive attitudes toward emergency contraception than third year students (Nibabe, 2014).

A study, Postsecondary school Female students and service providers perspective a case of Hawassa Town, Ethiopia on Emergency contraceptives (Alemayehu, 2013), 65.6% of the respondents had favorable attitude towards EC. In a study on awareness, perception and practice among female undergraduate students in Imo state university in Nigeria a total of 700 students participated in the study. The findings were that 58.1% of those who were aware of emergency contraception approved of their use. The major reasons given by the 41.9% who disapproved of their use were religious reasons 50.4% and that they were harmful to health 49.2%. Of the 67% of the students were sexually active only 39.9% used emergency contraception. High dose progestogen (postinor-2) was again the most commonly used method at 70.8%.

The most common situation in which emergency contraception was used was following unprotected sexual intercourse at 45.5%. A study on Knowledge, Attitude and practice of emergency contraceptives among Adama university female students in Ethiopia showed that majority(62.9%) of the students had positive attitude towards it(Tilahun *et al.*, 2010).

2.4 Socio demographic determinants of emergency contraceptives utilization

Studies have demonstrated that age and marital status of the students have an association with utilization of emergency contraceptives. In a study, students aged between 22 and 23 years old were 2.9 times more likely to utilize emergency contraceptives than younger fellow students while married students were 0.359 times less likely to utilize emergency contraceptives than unmarried students (Nibabe *et al.*, 2014). In Nigeria a study at Imo state university results showed that 41.9% of the respondents never used emergency contraceptives citing religious reasons (Ojiyi, 2014). According to (KDHS, 2014) the use of any form of contraceptive method was higher among sexually active unmarried women at sixty five percent than among married women at fifty eight percent. (KDHS, 2014).

According to United Nations, (2009), contraceptive frequency among women of reproductive age who are married or in a relation differs from three per cent in Chad

to eighty-eight per cent in Norway. In a study (Wangima, 2016) the results showed that respondents who professed one kind of religion either catholic, Muslim and protestant were unlikely to utilize contraceptives. On the place of residence, students who resided within campus were 0.55 times less likely to use contraception. Students who stayed with parents did not utilize contraceptives compared to those who stayed alone. (Wangima, 2016). Individual factors such as risk perception, fear of side effects, opposition from male partners, health service limitations and insufficient knowledge needed to make informed choices have been reported as barriers for utilization of contraception. (Somba *et al.*, 2014).

Independent variables

Dependent variable

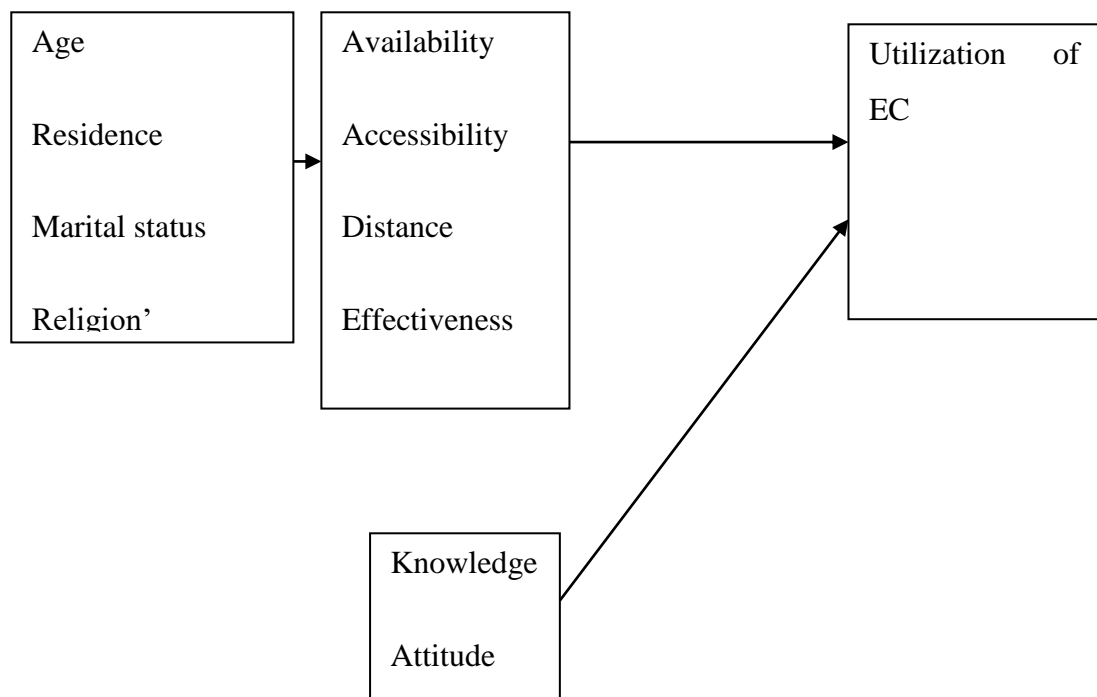


Figure 2.1 Conceptual framework

CHAPTER THREE

MATERIALS AND METHODS

3.1 Study area

The study was carried at University of Kabianga a public university in Kenya which is situated in Kericho West District, Kericho County in the Southern end of the Rift Valley Region of Kenya. It is 26 km from Kericho Town and 6 km off the main Kericho - Kisii road.

3.2 Study design

Cross sectional study design was adopted to collect quantitative data .According to Orodho (2012) this was designed to obtain pertinent and precise information concerning the current status of a phenomenon and whenever possible to draw valid general conclusions from the facts discovered thus the suitability for this study.

3.3 Study population

The population of female students at University of Kabianga stood at 3803 from all the four campuses namely Main campus, Kapkatet, sotik and Town campuses as per 2019 admissions records.

3.3.1 Inclusion criteria.

Undergraduate female students.

3.3.2 Exclusion criteria.

Students from the school of Health sciences at Kapkatet campus were excluded from the study as they could have prior information by the virtue of their training.

Students who did not consent to the study were excluded.

3.4 Sampling

3.4.1 Sample size determination.

The quantitative sample size was determined using Fischer et al (1998).

$$n = \frac{Z^2 pq}{d^2}$$

Where n=Desired sample size

Z =Standard Normal deviation (1.96 for a 95% confidence level)

P = the proportion of the population having the characteristic being measured.

$$P = 0.119$$

From previous research the proportion of undergraduate students utilizing emergency contraceptives was at 11.9%. (Wangima 2016)

q = contact usually set at 1-p (0.5)

d=degree of accuracy will be set at 0.05

$$n = \frac{Z^2 pq}{d^2}$$

$$n = \frac{1.96^2 \times 0.119(1-0.119)}{0.05^2}$$

$$0.05^2$$

$$n=161.$$

But since the target population was less than 10000 the required sample size was adjusted using the formula.

$$nf = \frac{Nn}{N+(n-1)}$$

Where.

n_f =the desired sample size(when the population is less than 10000).

n =the desired sample size(when the population is more than 10000)=161.

N =the estimate of population size=3553 after excluding 250 female students from school of health sciences.

$$3553 * 161 / (3553 + (161 - 1)) = 154$$

Therefore a sample of 154 students was adopted.

3.5 Sampling method

Stratified random sampling was used to select students from the three campuses. The students were stratified according to the year of study. Each year of study formed a strata i.e 1st year, 2nd year, 3rd and 4th year. The number of students in each year of and campus was obtained from admissions office then in each year a sample proportionate to the study year and campus was picked. Simple random sampling was then applied to each strata in their respective campuses by

Table 3.1: Female Students Distribution per Campus.

YEAR	MAIN CAMPUS	TOWN CAMPUS	SOTIK CAMPUS	KAPKATET CAMPUS	TOTAL
ONE	432	133	42	65	607
TWO	839	92	34	68	965
THREE	988	71	16	69	1075
FOUR	813	71	22	48	906
					3553

Table 3.2: Study sample frame.

Year	Sample size	Main campus	Sotik campus	Town campus
First	26	19	2	6
Second	42	37	1	4
Third	47	40	1	3
Fourth	39	35	1	3

3.6 Data collection method.

Self-administered questionnaires were given to one hundred and fifty four students. The pre tested questionnaires elicited responses on knowledge, practice on emergency contraceptives and attitude towards emergency contraceptives. The researcher was involved in administering the questionnaires to the participants to ensure quality of the questionnaires.

3.7 Pilot testing.

A trial study was carried out before the main study. Data collected in the study was analyzed in line with the procedures laid down for the main study. The target sample size 10% (15 students) from university of Eldoret participated in the study.

3.8 Data management and analysis.

All the questionnaires were thoroughly checked by the researcher to ensure quality and clarity of responses daily. Data was analyzed using univariate analysis where the frequency tables were generated, pie diagrams and bar charts, bivariate and multivariate analysis was used to determine the association between the overall use of Emergency Contraceptives and other predictor variables using chi-square test at 5% significance level.

3.9 Validity and reliability

To promote validity and reliability within the study, a number of measures were introduced, including ensuring homogeneity in the ages of the students surveyed. For example, the study focused primarily on students at the same level of study (university).

Reliability coefficient was above 0.79

3.10 Ethical considerations

Approval to carry out the study was sought from Ethical Review Committee of University of Kabianga and was approved on 24th April 2019. (IERC AN 0008).

Approval by board of post graduate studies of JKUAT was done on 29th October 2020. (JKU. 2/11/TM-310-C014-8038/2015).

Participation was voluntary through written informed consent after respondents had been explained to. The risks, benefits and withdrawal from the study was well captured in the consent form. Confidentiality and privacy was assured by use of anonymous questioners. The data collection materials were kept under lock and key by the researcher. The computer and data collected was password protected.

CHAPTER FOUR

RESULTS

4.1 Demographic information

Out of the 154 respondents who filled the questionnaires, 57 of them turned out to be between the age of 22 – 23 years (37%) followed by 20 – 21 years 51(33.1%). This was followed by the respondents who are between the age of 24 – 25 years 28 (18.2%) followed by those who are between 18 – 19 years 13 (8.4%) and a few who were above 26 years 5(3.3%). This means that majority of the respondents are of young age. More than half of the respondents indicated that they were Protestants (67.6%) followed by Catholics (28.6%) with a minority from the Muslim community and atheist who had a tie of (1.9%).

Majority of the respondents (120) turned out to be single (77.9%) followed by those who were cohabiting (18) (11.7%) then those who were married (15) (9.7%) and few who were widows (1) (0.6%). Approximately (58%) of the respondents indicated that they resided in private hostels or rentals followed by university hostels (59) (38.3%) and a small number (5) indicated that they stay at home (3.3%). A number of respondents said that they lived with a friend or friends (69) (44.8%) followed by those who stay alone (52) (33.8%). This was followed by those who lived with a partner (24) (15.6%) then those who lived with parents/guardian (5) (3.2%) and finally those who lived with relative/relatives (4) (2.6%) as shown in the table below.

Table 4.1: Demographic information

Characteristics of the respondents	Frequency	Percent (%)
Age		
18 – 19 years	13	8.4
20 – 21 years	51	33.1
22 – 23 years	57	37.0
24 – 25 years	28	18.2
Above 26 years	5	3.3
Religion		
Catholic	44	28.6
Protestant	104	67.6
Muslim	3	1.9
Atheist	3	1.9
Marital status		
Married	15	9.7
Single	120	77.9
Widow	1	0.6
Living with a partner	18	11.7
Place of residence		
University hostels	59	38.3
Private hostels/Rentals	90	58.4
Home	5	3.3
Who the respondent's live with		
Friend	69	44.8
Relative	4	2.6
Partner	24	15.6
Parents/Guardian	5	3.2
Alone	52	33.8

4.2 Emergency contraceptives practices

4.2.1 Prevalence of emergency contraceptives utilization

The findings as shown in the figure below depicted that majority of the respondents were using EC with a prevalence of 70%. Out of the 70% of the respondents who were utilizing EC, a majority of them (43) were in their fourth year of study (40%) followed by the third years (29%) then the second years (21%) and a few of the first years (10%) were using EC. This shows that there is an increasing rate on the use of emergency contraceptives as per their year of study.

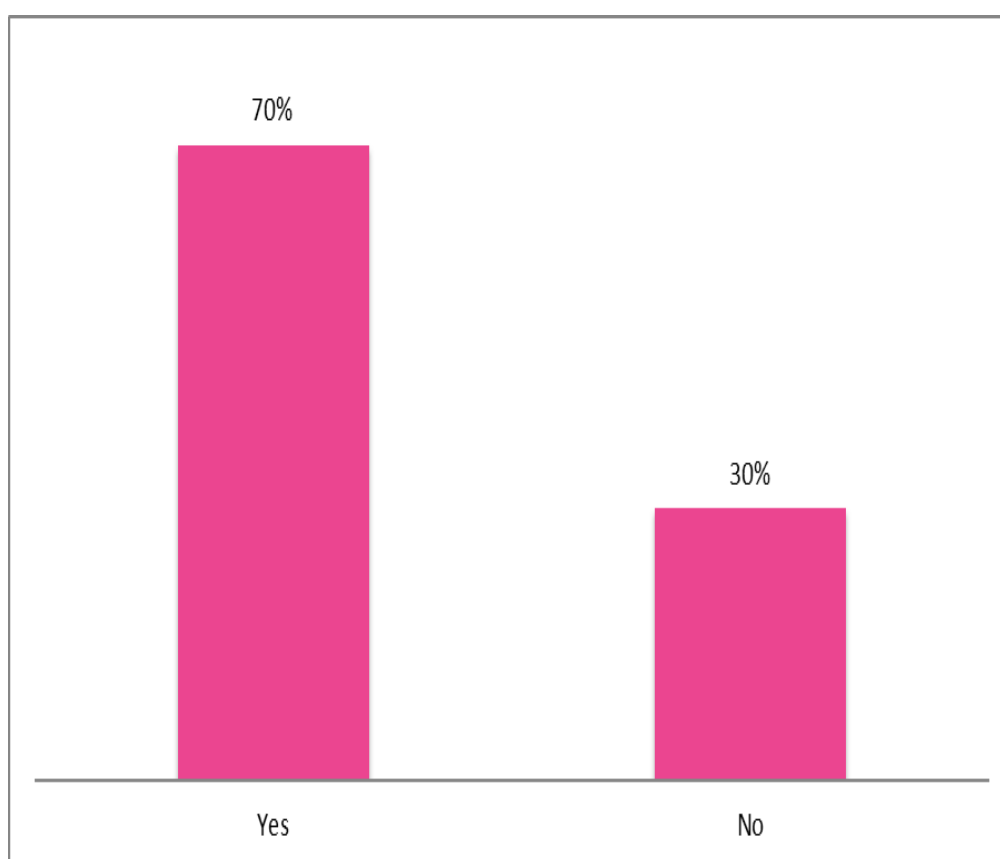


Figure 4.1: Prevalence of EC utilization

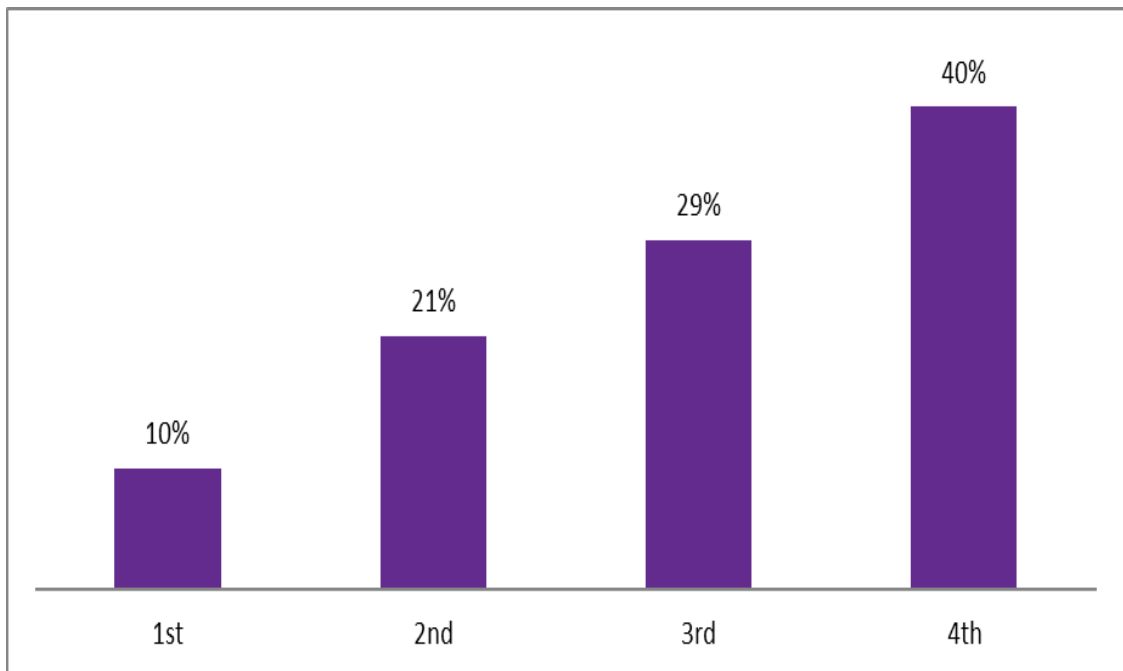


Figure 4.2: Prevalence of EC per Year of Study

4.2.1 Respondent's sexual activity

A total of 113(73.4%) respondents reported having been sexually active and a total of 41(26.6%) who indicated not being sexually active. Out of the (70%) who had used EC, (64.9%) had encountered side effects while (35.1%) said that the EC did not affect their bodies in any way. Majority of them (105) indicated that they had used Postinor 2 (97.4%) and a few had used IUCD (2.6%). A total of (44.6%) of the respondents indicated that they had used EC more than two times followed by those who had used it once (35.8%) and finally those who had used it twice (19.6%) after having unprotected sexual intercourse as shown in the table below.

Table 4.2: Utilization of EC

	Are you sexually active?		Did you encounter any side effects after using ECS?		
	N	%	N	%	
Yes	113	73.4	70	64.9	
No	41	26.6	38	35.1	
Type of Emergency contraception used and number of times used					
Form	N	%	No. of times	N	%
Postinor 2	105	97.4	Once	39	36.1
IUCD	3	2.6	Twice	21	19.4
			More than two times	48	44.4

The figure below shows the overall use of EC. The findings depicted that almost half of the respondents were frequently using EC (40%) followed by those who had never used (20%), (15%) who most frequently used it, (14%) who use it occasionally and (12%) who rarely used the emergency contraceptives.

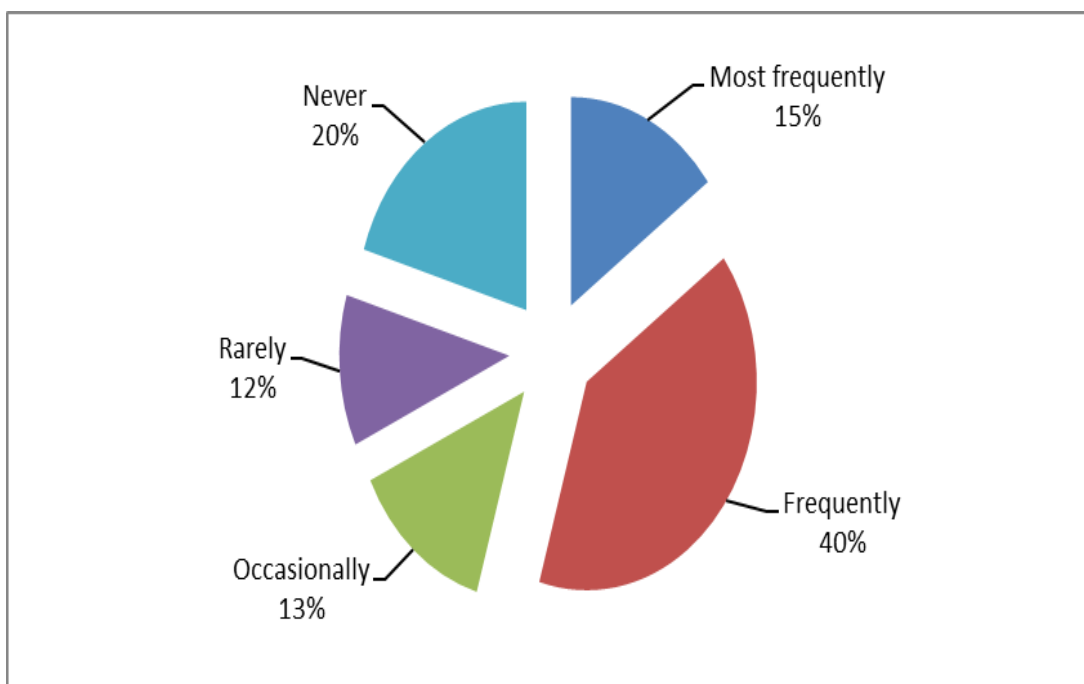


Figure 4.3: Overall rate of EC utilization.

4.3 Knowledge on emergency contraception.

In assessing the level of actual knowledge on EC, a set of eight knowledge questions ie method identification, timeframe for effective use, drug composition, mechanism of action , appropriate situations for use, time interval between doses, effectiveness of the drug and whether EC can prevent STIs or not were asked for those who had ever heard of EC. The summary index was arrived at by tallying all the responses on each question then it was scored. The total of each tallied score was rated as per the eight questions on a scale of 0 – 100%. Those who scored more than four questions (>50%) were considered knowledgeable and those who scored less than four (<50%) were considered not knowledgeable. (Desta B. *et al.*, 2011), (Atsede, 2007) and (Wondimu, 2008).

Majority of the respondents (148) highly rated that they had ever heard about emergency contraceptives (96.1%) and a few (6) (3.9%) said that they have never heard about EC. Overall, more than half of the respondents were rated as

knowledgeable (53.2%) with a number of them (101) who highly rated that Progestin pills (65.6%) can be used as EC followed by combined oral pills (17.5%) then estrogen only pills (2.6%) and a few who were able to identify IUCD (1.9%) as an EC. Few respondents were knowledgeable on the drug composition that is (5.2%) who indicated that EC is composed of the same hormones present in other contraceptives but of higher dosage.

A total of (86.9%) respondents correctly identified the recommended time limit for taking the EC after unprotected sex. This comprised (51.9%) who indicated within 72 hours after unprotected sex, (24%) who indicated immediately after sex (24%) and (11%) who indicated within 24 hours after sex. The three time frames were considered valid as it applies to both types of EC which is the IUCD and Positior 2. Approximately (80%) were able to understand how EC works or its effect and majority of them indicated that it prevents pregnancy. Majority of the respondents (147) highly rated that EC does not prevent HIV/AIDs and STIs (95.5%). More than half of the respondents who have used EC indicated that they are effective (51.3%) and highly effective (22.7%) in preventing pregnancy. A number of them indicated that the correct timeframe after unprotected sex was within 72 hours (59.7%) and within 120 hours (2.6%).

Infrequent sex (38.3%) and condom burst (27.3%) were chosen as the situations in which to use EC. A majority (109) of the respondents did not know the drug composition (70.8%) despite the fact that most of them were using it. A number (14.9%) of respondents did not know how EC works as shown in the table below.

Table 4.3: Knowledge assessment questions 1

Questions	Frequency	Percent (%)
Ever heard of emergency contraceptives?		
Yes	148	96.1
No	6	3.9
Products that can be used as EC?		
Combined oral pills	27	17.5
Progestin only pills	101	65.6
Estrogen only pills	4	2.6
IUCD	3	1.9
Herbal vaginal pessaries	3	1.9
Monthly injectables	6	3.9
I do not know	10	6.5
Composition of drugs in EC?		
The same as in the regular contraceptives	24	15.6
The same but a high dose in the same hormones	8	5.2
Completely different from the regular contraceptives	13	8.4
I do not know	109	70.8

Table 4.4: Knowledge assessment questions 2

Questions	Frequency	Percent (%)
After how long should the first dose of EC be taken		
Shortly after sexual exposure	37	24.0
Within 24 hours after sex	17	11.0
Within 72 hours after sex	80	51.9
Within 4 - 6 days after sex	10	6.5
After a missed period	5	3.2
I do not know	5	3.2
How do you think EC work		
Induce abortion	3	1.9
Prevents pregnancy	123	79.9
Terminates early pregnancy	5	3.2
I don't know	23	14.9
In your own assessment how effective are EC		
Highly effective	35	22.7
Effective	79	51.3
Less effective	10	6.5
Not effective	10	6.5
I do not know	20	13.0
Do EC prevent one from contracting HIV/AIDS and STIs?		
Yes	7	4.5
No	147	95.5
What is the correct timeframe of using EC ?		
If menstruation fails	8	5.2
Within 72 hours	92	59.7
Within 120 hours	4	2.6
After 120 hours	2	1.3
I don't know	48	31.2
In which situations should EC be used?		
When condom burst	42	27.3
When there is missed pills	9	5.8
When there is failure of contraception	9	5.8
When there is infrequent sex	59	38.3
When there is miscalculation of calendar method	9	5.8
I do not know	17	11.0
When forced to have sex	9	5.8
Summary index of knowledge		
Knowledgeable	82	53.2
Not knowledgeable	72	46.8

4.3.1 Socio demographic factors associated with knowledge.

Correlation analysis was conducted to determine the covariates that are significantly correlated with knowledge and utilization of EC. The covariates measured under the socio demographic factors were taken as parameters that measure the given areas using Pearson chi-square at 5% significance level

There was no statistical association on age, religion, year of study, place and knowledge.

Table 4.5: Association between socio demographic factors and knowledge

Variable	Knowledgeable (n=82)Number (%)	Not knowledgeable (n=72)Number (%)	Statistical test
Age			
18 – 19 years	6(7.3%)	7(9.7%)	
20 – 21 years	28(34.1%)	23(31.9%)	
22 – 23 years	30(36.6%)	27(37.5%)	$\chi^2 = 3.175, df = 4, P = 0.529$
24 – 25 years	17(20.7%)	11(15.3%)	
Above 26 years	1(1.2%)	4(5.6%)	
Religion			
Catholic	22(26.8%)	22(30.6%)	$\chi^2 = 2.280, df = 3, P = 0.964$
Protestant	56(68.3%)	48(66.7%)	
Muslim	1(1.2%)	2(2.8%)	
Atheist	3(3.7%)	0(0.0%)	
Year of study			
First	13(15.9%)	13(18.0%)	$\chi^2 = 0.280, df = 3, P = 0.964$
Second	22(26.8%)	20(27.8%)	
Third	25(30.5%)	22(30.6%)	
Fourth	22(26.8%)	17(23.6%)	
Place of residence			
University hostels	30(36.6%)	29(40.3%)	$\chi^2 = 0.682, df = 2, P = 0.711$
Private hostels/Rentals	50(61.0%)	40(55.6%)	
Home	2(2.4%)	3(4.2%)	
Marital status			
Married	10(12.2%)	5(6.9%)	$\chi^2 = 4.068, df = 3, P = 0.254$
Single	59(72.0%)	61(84.7%)	
Widow	1(1.2%)	0(0.0%)	
Living with a partner	12(14.6%)	6(8.3%)	

4.3.2 Independent determinants of knowledge

The study findings presented in the table showed that a unit increase in age would lead to a unit increase in knowledge by 5.3%, a unit increase in the year of study would lead to a unit decrease in knowledge by 7.4%, a unit increase in religion would lead to a decrease in knowledge by -24.2%, a unit increase in marital status would lead to a unit decrease by 12.2% and a unit increase in place of residence would lead to a unit decrease in knowledge by 3.1%. The findings further revealed that age ($p=0.789$, $OR=1.054$), year of study ($p=0.691$, $OR=0.929$), religion ($p=0.406$, $OR=0.785$), marital status ($p=0.449$, $OR=0.886$) and place of residence ($p=0.920$, $OR=0.969$) were not significant since all their significance levels are above 0.05 ($P>0.05$). This implies that the socio demographic characteristics of the respondents do not contribute significantly to the level of knowledge that the respondents have concerning utilization of emergency contraceptives.

Table 4.6: Findings of logistic regression analysis on knowledge.

Variable	β	Wald's statistics	Df	P-value	OR
Age	.053	.071	1	.789	1.054
Year	-.074	.158	1	.691	.929
Religion	-.242	.690	1	.406	.785
Marital	-.122	.572	1	.449	.886
Residence	-.031	.010	1	.920	.969
Constant	.675	.622	1	.430	1.963

4.4 Attitude towards utilization of emergency contraceptives

The summary index of attitude was determined using the four indicators of EC. Two positive and two negative indicators were used to strike a balance between the responses. The indicators were categorized as yes or no. Those who selected yes for the positive indicators were considered as having favorable attitude and those who selected no were considered as having unfavorable attitude.

Those who selected yes for the negative indicators were considered as having unfavorable attitude and those who selected no were considered as having favorable attitude. The responses on each attitudinal items was scored, tallied, and then the total of each respondent score was made to range between 0-4 (0-100%). A score of 50% and above was considered as “favorable attitude” whereas those scored below 50% of the total were thought of as having “unfavorable attitude”.(Desta B. *et al.*, 2011).

Overall, majority of the respondents had a favorable attitude (71.4%) towards EC and more than half indicated that using EC is better than using long term contraceptive method (70.8%). A number of them pointed out that they would use it in case of an emergency (58.4%). Less than a half felt that EC cannot damage the baby when breastfeeding (39.6%) and majority indicated that it is not dangerous to recommend EC to others (70.1%).Although cumulatively respondents were rated as having unfavorable attitude towards EC (28.6%) about (29.2%) said that using EC is better than using contraceptive method.

Table 4.7: Assessment on attitudes

Attitude indicators	Yes N (%)	No N (%)	Total N (%)
Using EC is better than using contraceptive method	109(70.8)	45(29.2)	154(100)
In case of an emergency, I will use EC	90(58.4)	64(41.6)	154(100)
EC can damage the baby when breastfeeding	93(60.4)	61(39.6)	154(100)
It is dangerous to recommend EC to others	46(29.9)	108(70.1)	154(100)
Summary index of attitudes.			
Favorable		110(71.4)	154(100)
Unfavorable		44(28.6)	

4.4.1 Socio demographic factors associated with attitudes.

Correlation analysis was conducted to determine the covariates that are significantly correlated with attitude and utilization of ECS. The covariates measured under the socio demographic factors were taken as parameters that measure the given areas using Pearson chi-square at 5% significance level. The findings as depicted in the Table below shows there was no significant association between the attitude towards utilization of EC and age of the respondents, religion, year of study, place of residence and marital status.

Table 4.8: Association between socio demographic factors and attitude.

Variable	Favorable attitude (n=110) Number (%)	Unfavorable attitude (n=44) Number (%)	Statistical test
Age			
18 – 19 years	9(8.2%)	4(9.1%)	$\chi^2 = 2.281, df = 4, P = 0.684$
20 – 21 years	37(33.6%)	14(31.8%)	
22 – 23 years	40(36.7%)	17(38.6%)	
24 – 25 years	19(17.3%)	9(20.5%)	
Above 26 years	5(4.5%)	0(0.0%)	
Religion			
Catholic	29(26.4%)	15(34.1%)	$\chi^2 = 4.337, df = 3, P = 0.227$
Protestant	77(70.0%)	27(61.4%)	
Muslim	1(0.9%)	2(4.5%)	
Atheist	3(2.7%)	0(0.0%)	
Year of study			
First	19(17.3%)	7(15.9%)	$\chi^2 = 0.349, df = 3, P = 0.950$
Second	29(26.4%)	13(29.5%)	
Third	33(30.0%)	14(31.8%)	
Fourth	29(26.4%)	10(22.7%)	
Place of residence			
University hostels	42(38.2%)	17(38.6%)	$\chi^2 = 0.186, df = 2, P = 0.911$
Private hostels/Rentals	64(58.2%)	26(59.1%)	
Home	4(3.6%)	1(2.3%)	
Marital status			
Married	12(10.9%)	3(6.8%)	$\chi^2 = 1.596, df = 3, P = 0.660$
Single	83(75.5%)	37(84.1%)	
Widow	1(0.9%)	0(0.0%)	
Living with a partner	14(12.7%)	4(9.1%)	

4.4.2 Independent determinants of attitude

The results for the logistic regression analysis indicated that a unit increase in age would lead to a unit decrease in attitude by 7.3%, a unit increase in the year of study would lead to a unit increase in attitude by 2.4%, a unit increase in religion would lead to a unit decrease in attitude by 28.4%, a unit increase in marital status would lead to a unit decrease in attitude by 5.9% and a unit increase in place of residence would lead to a unit decrease in attitude by 3.1%. The p-values revealed that age (p=0.741, OR=0.930), year of study (p=0.908, OR=1.024), religion (p=0.383, OR=0.753), marital status (p=0.746, OR=0.943) and place of residence (p=0.928, OR=0.970) were not significantly associated with attitude. This implies that age, year of study, religion, marital status and place of residence do not influence the level of attitude on emergency contraceptive utilization.

Table 4.9: Findings of logistic regression analysis on attitude

Variable	β	Wald's statistics	Df	P-value	OR
Age	-.073	.109	1	.741	.930
Year	.024	.013	1	.908	1.024
Religion	-.284	.761	1	.383	.753
Marital	-.059	.105	1	.746	.943
Residence	-.031	.008	1	.928	.970
Constant	-.100	.012	1	.914	.904

4.5 Socio demographic factors associated with utilization of emergency contraceptives

The study findings indicated that there was statistical association between utilization of EC and age of the respondents. It was noted also that there was a statistical association between utilization of EC and year of the study. Some covariates like religion, place of residence and marital status showed that they did not influence the utilization of EC.

Table 4.10: Association between socio demographic factors and utilization of emergency contraceptives.

Variable	Utilized EC (n=108) Number (%)	Didn't utilize EC (n=46) Number (%)	Statistical test
Age			
18 – 19 years	6(5.6%)	7(15.2%)	$\chi^2 = 12.287, df = 4, P = 0.015$
20 – 21 years	30(27.8%)	21(45.7%)	
22 – 23 years	45(41.7%)	12(26.1%)	
24 – 25 years	24(22.2%)	4(8.7%)	
Above 26 years	3(2.8%)	2(4.3%)	
Religion			
Catholic	31(28.6%)	13(28.3%)	$\chi^2 = 0.037, df = 3, P = 0.998$
Protestant	73(67.6%)	31(67.4%)	
Muslim	2(1.9%)	1(2.2%)	
Atheist	2(1.9%)	1(2.2%)	
Year of study			
First	13(12.1%)	13(28.3%)	$\chi^2 = 14.965, df = 3, P = 0.002$
Second	27(25.0%)	15(32.6%)	
Third	32(29.6%)	15(32.6%)	
Fourth	36(33.3%)	3(6.5%)	
Place of residence			
University hostels	36(33.3%)	23(50.0%)	$\chi^2 = 4.420, df = 2, P = 0.110$
Private hostels/Rentals	69(63.9%)	21(45.7%)	
Home	3(2.8%)	2(4.3%)	
Marital status			
Married	11(10.2%)	4(8.7%)	$\chi^2 = 6.637, df = 3, P = 0.084$
Single	79(73.1%)	41(89.1%)	
Widow	1(0.9%)	0(0.0%)	
Living with a partner	17(15.7%)	1(2.2%)	

4.5.1 Independent determinants of emergency contraception utilization

In order to establish the influence of socio-demographic characteristics on emergency contraceptive utilization, logistic regression analysis was performed by regressing age, year of study, religion, marital status and place of residence were regressed against utilization of emergency contraception. Therefore the results showed that a magnitude increase in age would lead to a magnitude decrease in utilization of EC by 25.2%, a magnitude increase in the year of study would lead to a magnitude decrease in utilization of EC by 50.1%, a magnitude increase in religion would lead to a magnitude increase in utilization of EC, a magnitude increase in marital status would lead to a magnitude decrease in utilization of EC by 53.8% and a magnitude increase in place of residence would lead to a magnitude decrease in utilization of EC by 25.3%. The P-values showed that age ($p=0.261$, $OR=0.777$), religion ($p=0.419$, $OR=1.298$) and place of residence ($p=0.464$, $OR=0.777$) were not significantly associated with the utilization of EC.

Year of study ($p=0.022$, $OR=0.606$) and marital status ($p=0.049$, $OR=0.584$) indicated that they had a statistically significant effect on utilization of Emergency Contraceptives.

Table 4.11: Findings of logistic regression analysis on EC utilization

Variable	β	Wald's statistics	Df	P-value	OR
Age	-.252	1.265	1	.261	.777
Year	-.501	5.257	1	.022	.606
Religion	.261	.653	1	.419	1.298
Marital	-.538	3.848	1	.049	.584
Residence	-.253	.537	1	.464	.777
Constant	2.167	4.200	1	.040	8.729

CHAPTER FIVE

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Discussion

5.1.1 Socio-Demographic factors affecting utilization of EC.

Majority (37%) of the study participants included in the study were aged 23 or below and majority of the respondents turned out to be single (77.9%) this findings are close to those found in study on Knowledge, attitude and practice of progestin-only emergency contraceptives among female students of Jimma Teachers Training College, Jimma, Ethiopia where majority of the students were within the age range of 20 to 24. Most of the students, 225 (83.33%) were unmarried (Bahir *et al*, 2018). Religious beliefs could play a significant role in shaping their social practices. For example, the Catholic Church has been against the use of any contraceptive method. In this study more than half (67.6%) of the respondents were Protestants, 28.6% were Catholics and (1.9 %) were Muslims. These findings are close to those found in a study on Knowledge and Utilization of Emergency Contraception Pills among Female Undergraduate Students at the University of Nairobi, Kenya where Majority (97.6%), were Christians with proportion of Catholics and Protestants being 22.7% and 74.9% respectively. Muslims constituted a minority at 2.3% and that religious status of the respondents did not influence their use of emergency contraceptives. (Nyambura *et al*, 2017).

In this study (3.3%) lived with the parents, this is way below compared to a study Emergency Contraceptives: Knowledge and Practice towards Its Use among Ethiopian Female College Graduating Students where the majority (61.7%) of the participants were living with their

Parents (Kirubel *et al*, 2019). The study findings indicated that there was statistical association between utilization of EC and age of the respondents. These findings can be compared to one in Ethiopia where age of the respondent had statistical association with utilization of emergency contraceptives, women in their age 20–24 years were

2.10 times more likely utilized EC as compared with women aged over 30 years of age. (Feleke *et al*, 2019).

In this study there was a statistical association between utilization of EC and year of the study this could be because a first year student is still naive on utilizing emergency contraceptives. Marital status did not influence the utilization of EC. This is contrary to a study in Ethiopia which showed married women were likely to utilize Emergency contraceptives more than the single women (Fikre *et al*, 2020).

5.1.2 Emergency Contraceptives Utilization

In this study 70% of the of the sexually active respondents were found to have utilized emergency contraceptives, this findings is way above studies done in Ethiopia 34 %,South African university students,28%,Cameroon,7.4%,HongKong,12.9%.Federal polytechnic Kaduna, Nigeria 38%, Ghana 41% (Fikre *et al*,2020). This study findings can be compared to findings of a study on Emergency contraceptive utilization and associated factors among college students in Dire Dawa City, Eastern Ethiopia: A cross-sectional study where among 86 participants who were sexually active (81.4%) had unprotected sex, of whom (69.7%) had used an emergency contraceptive following unprotected sex. (legesse *et al.*, 2021).

This percentage was even much higher than those appearing in the findings of a study on prevalence of Emergency Contraceptive pill use among Spanish Adolescent Girls and their Family and Psychological profiles where the prevalence of ECP use was that 122 girls had used the ECP sometime in their lives (19.85% once and 10.80% twice or more; total prevalence of 30.65%) compared with 276 girls (69.35%) who had had sexual intercourse and had never used it (Jimenez *et al*, 2018). The findings of this study are still high compared to one study Contraceptive use, knowledge, attitude, perceptions and sexual behavior among female University students in Uganda: a cross-sectional survey, Uganda that gave a prevalence of 45.1% (Nsubuga *et al*, 2016), and also a study in university of Nairobi where of the respondents 53.0% who reported that they were sexually active, (20.2%) had ever

used EC (Nyambura *et al*, 2017). Similarly still high to a study done at Jomo Kenyatta University of Agriculture and Technology where 11.9% of the respondents had used emergency contraceptives (Wangima, 2016).

Majority (97.4%) of the respondents in this study who had used emergency contraceptives indicated that they had used emergency contraceptives pills(postinor 2) while 2.6% had used IUCD. This cannot be compared to the findings from a study in Ethiopia among female graduating college students who had ever heard of EC, almost one-third (33.0%) of them had ever used EC Pill and none of the women had ever used IUCD (Kirubel *et al*, 2019).

5.1.3 Knowledge of emergency contraceptives

In this study the overall prevalence of awareness among the participants was 96.1%. This awareness of EC was much higher when compared to students from Kwazulu-Natal, South Africa (50%),Kampala, Uganda (45%), and Makelle Town, Ethiopia (67%).(Kgosiemang *et al*, 2018). This levels of awareness were similar to that reported in Mexico (95%) where a large number of students heard about EC from their friends, but very few had heard about it from health institutions (Kgosiemang *et al*, 2018).This level of awareness was lower to the one done in Botswana where 100% of the respondents had heard of the Emergency Contraceptives. (Kgosiemang *et al*, 2018). Also lower than that from a study on Nursing Students' Knowledge, Awareness, and Experiences of Emergency Contraception Pills' Use at University of Seville Spain where the awareness was 100 % (Leon *et al*, 2022).

Slightly over half (53.2%) of the respondents had good knowledge of EC in this study, which is lower when compared to a study in Ethiopia of 70% (Kirubel *et al*, 2019). It can also be compared to the study results from Jimma Teachers Training College, Jimma, Ethiopia that indicated that 145 (53.70%) of the total respondents who heard about emergency contraceptives had good knowledge about emergency contraceptives (Bahir *et al*, 2018). In this study the results are superior to the results obtained in the studies conducted among Ethiopian colleges and university among female students in Haramaya (25.7%), and Arba-Minch (21.9%), (Kirubel *et al*,

2019). Also higher than one done in India (5.5%) (Sahu *et al.*, 2019). In this study the percentage of the respondents who are considered knowledgeable (53.2%) is high compared to a study on the knowledge and perceptions of the first year medical students of an International University on family planning and emergency contraception in Nicosia, Turkish Republic of Northern Cyprus, About two thirds of the participants (68.0%) were not informed about the ECPs compared to 17.9% with correct knowledge. (Asut *et al.*, 2018).

In reference to method identification of EC only 1.9% of the respondents were able to identify IUCD as one method, this slightly below identification by first year students in a Medical school in Turkey at 4.8 %.(Asut *et al.*, 2018). This could be attributed to the fact that they might have heard the information from their senior medical students. In reverence to the time limit for emergency contraception to be used in order to be successful, only four respondents knew that all types of emergency contraception could be taken for a period of up to 120 hours after engaging in unprotected sex and still prevent an unplanned pregnancy, this low compared to a research in Spain where Between 7–8 of 10 students were aware that the time after sexual intercourse is crucial for the efficacy of the ECP%.(Leon *et al.*, 2022). Nearly all the respondents (95.5%) knew that emergency contraception does not protect one against getting STDs, and 4.5 % felt it protects one from the same. This was also confirmed in a study in Turkey where Most participants were aware of the fact that the use of ECPs does not protect from STI (Asut *et al.*, 2018). This research findings also can be compared to one from University of Nairobi where 98.8% knew EC does not protect one from STI and 1.2% held a view that it does actually protect one from the same. (Nyambura *et al.*, 2017).

In this study there was no statistical association between level of knowledge and age, religion, year of study, place of residence and marital status which is in agreement with a research done on Emergency contraception amongst female college students assessing knowledge, attitude and practice in Botswana where there was no association between age, marital status, religion or year of study and attitude towards use of EC (Kgosiemang *et al.*, 2018). On the contrary from a study in Nairobi

respondents' age, College of study, year of study and insurance coverage were significantly associated with level of knowledge. (Nyambura *et al.*, 2017). Similarly Socio-demographic factors, age and educational status of the respondents 'parents, showed a significant association with good knowledge of EC in a study in Ethiopia (Kirubel *et al.*, 2019).

5.1.4 Attitude towards emergency contraceptives.

In this study the summarized figure for attitude towards EC showed 71.4% of the respondents who have ever heard of EC had favorable attitude toward EC. This figure is higher than one in Ethiopia where 48% had a favorable attitude towards EC. (Feleke *et al.*, 2019).The findings from this study concur with on done in Ethiopia where respondents had a favorable attitude towards EC and that some of the students had a plan of using emergency contraceptives (ECPs) and also promote others to use if unintended sexual intercourse occurred(Bahir *et al.*, 2018). A favorable attitude towards EC was also seen in students studying nursing in Spain (Leon *et al.*, 2022). Another study from Nigerian University students also concurred (Ajayi *et al.*, 2016).

On the contrary concerning the overall level of female students' attitudes, the majority 165 (57.8%) of the participants had an unfavorable/negative attitude and 79 (27.6%) had a favorable/positive attitude towards EC in a study conducted among college students in Dire Dawa City, Eastern Ethiopia (legesse *et al.*, 2021).The results for the logistic regression analysis indicated that age, year of study, religion, marital status and place of residence did not influence the level of attitudes on emergency contraceptive utilization. This can also be compared to a study in Ethiopia (Bahir *et al.*, 2018).

5.1.5 Study limitations.

This study was conducted among female undergraduate students only ant the views of their male counterparts who may have a role in utilization of EC were not captured. Therefore, research that includes male students could be done.

5.2 Conclusion

1. Prevalence of emergency contraceptives utilization

Among the main objectives of this study was to find out the prevalence of emergency contraceptives utilization of which the findings were that there was high level of sexual activity at 73.4% amongst university students with the uptake of emergency contraceptives at 70% of which combined oral contraceptives being the most used method at 97.4%. Much as IUCD has dual benefits when used as emergency contraceptive, it was the least utilized form at 2.6%.

2. Knowledge on emergency contraceptives.

The study has revealed that while overall awareness of EC was at 96.1%, the actual knowledge of EC was low at (53.2%) among female undergraduate students of university of Kabianga. Emergency contraception provides a good opportunity to reduce the chances of unintended pregnancies thereby promoting maternal health. With the present study findings, there could be a disconnection between awareness and actual knowledge.

3. Attitude towards emergency contraceptives.

Overall, majority of the respondents had a favorable attitude (71.4%) towards EC and more than half (70.8%) indicated that using EC is better than using long term contraceptive methods.

A number of them (58.4%) pointed out that they would use EC In case of an emergency. Of those who had ever heard of emergency contraception, 63.6% reported favorable attitudes toward emergency contraception compared to 28.6% who had unfavorable attitude.

4. Socio demographic determinants of emergency contraceptives utilization.

An individual's age and the year of study were closely associated with the use of emergency contraceptive. The usage of emergency contraceptives was found to increase with age. Furthermore female students who were higher in their year of study used the EC more than those who were lower in their year of study. This indicates the importance of health education among the first years students in order to understand their sexual and reproductive health needs and the use of mitigation measures such as emergency contraceptives in case of unprotected sexual intercourse.

5.3 Recommendations.

- The high rate of unprotected sexual activity was reported among University of Kabianga students and the authors call for concerned bodies to take action in strengthening of sexual health clubs starting from the lower levels of education. Educators should provide moments to reflect, to think about the responsibilities involved in sexual practices and to discuss gender relations in terms of relationships because this aspect is linked directly to pregnancy in female college students.
- Quite a number of the female college students did not have any actual knowledge about emergency contraceptives. It is recommended that female students should be provided with accurate and specific information regarding emergency contraception including mechanism of action, side effects and efficiency. More emphasis should be put on Intra Uterine Contraceptives devices as it has two advantages first as emergency contraceptives and secondly as a long term mode of contraception. Information on EC methods and timing of use, misperceptions about side effects should be well articulated forthwith.
- It would be a good idea to put in place appropriate informative programs addressing the barriers and dispelling the myths, rumors and misconception surrounding EC.

- Students joining universities at first year and those of lower years of study urgently require information guided by special policies to provide reproductive health services.
- The author recommends a study on how equipped is universities clinics or health centers and personnel training in providing intra uterine contraceptives as an emergency contraceptive method.

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APPENDICES

Appendix I Consent Form.

STUDY TITLE

Emergency Contraceptives Utilization Among Undergraduate Students Of Kabianga University, Kericho County.

Investigator: Eliud Ngososei

Jomo Kenyatta University Of Agriculture And Technology Eldoret Campus

School Of Public Health

Po Box 1947

Eldoret

Telephone Number: +254721628440 (Eldoret, Kenya)

Researchers Statement

My name is Eliud and I am requesting you to volunteer to be in this research study. This consent form is to give you the information you need to help you decide whether to take part in the study or not. Please read the form carefully.

Purpose of the Study

I am conducting a study on Emergency Contraceptives Utilization among Undergraduate Students of Kabianga University in Kericho County.

Procedures

If you agree to participate in this study then information on your background characteristics, sexual and reproductive health issues, attitude and knowledge on emergency contraception will be sought. The questionnaire will be administered to you by the researcher. The information that you provide during this study will be kept confidential. Only the researcher will have access to the questionnaires and the information that you provide. The survey will take 10-15 minutes to complete.

Confidentiality

Only the consent form will have your name the questioners will be coded. Research materials such this consent form will be destroyed within a 5 year period. The study findings will not be used to put you at harm.

Compensation

No compensation

Benefits of the Study

The information that you provide will help you directly but will enable us to have an understanding of the needs of the female youth in terms of sexual and reproductive health. It is my hope that the results of the study will improve and make more acceptable the health services currently available to you.

Risks

Participating in this study will not subject you to any risks. The risk could be minimal as some of the information sought could personal.

Rights

Participating in this study is voluntary and you have the right to refuse to participate or not to answer any questions that you are uncomfortable with. If after commencement of the study you change your mind about participating you have the right to withdraw. The decision not to participate will not affect any aspects of your life. If there is anything that is unclear or you need further clarification I shall be delighted to do so.

Contacts

You can contact the researcher on 0721628440.

In case of further queries, you may contact Jomo Kenyatta University of Science and Technology –Eldoret Campus .

P. O. Box 1947, Eldoret.

Do you have any question about the study?

Declaration of the Respondent:

I have understood that the purpose of the study is to collect information about the extent of use of emergency contraceptives, knowledge and attitude. I have read or been informed about what the study entails. I have had the opportunity to ask questions about the study and any questions that I have asked have been answered to my satisfaction. Therefore I voluntarily consent to participate in this study and understand that I have the right to withdraw from the study at any time without in any way affecting my life.

Signature **of** **Respondent:** _____ **Date:**

Signature of Researcher: _____

Date:

Appendix II: Research Permit



UNIVERSITY OF KABIANGA INSTITUTIONAL ETHIC REVIEW COMMITTEE

Tel: 020-2172665
Fax: 051-800397

P.O. Box 2030- 20200
Kericho

Ref: IERC/2019/007

Date: 24th APRIL, 2019

Eliud Ngososei,
University of Kabianga,
P. O. Box 2030 – 20200,
Kericho, Kenya.

Dear Sir/Madam

RE: Factors that Influence Utilization of Emergency Contraceptives among Female Undergraduate Students, University of Kabianga

This is to inform you that University of Kabianga Ethics Review Committee (UoK IERC) has reviewed and approved your above research proposal. Your application approval number is **IERC AN 0008**. The approval period is **24th April, 2019 – 23rd March, 2020**.

This approval is subject to compliance with the following requirements;

- i. Only approved documents including (informed consents, study instruments, MTA) will be used.
- ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by UoK IERC.
- iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to UoK IERC within 72 hours of notification.
- iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to UoK IERC within 72 hours.
- v. Clearance for export of biological specimens must be obtained from relevant institutions.
- vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
- vii. Submission of an executive summary report within 90 days upon completion of the study to UoK IERC.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) <https://oris.nacosti.go.ke> and also obtain other clearances needed.

Yours sincerely



Dr. Erick Mibei, PhD.

CHAIRMAN, INSTITUTIONAL ETHICS REVIEW COMMITTEE

cc: Deputy Vice Chancellor (PR & D)
Director, (Research, Extension and Linkages)

Appendix III: Questionnaire for Respondents

Instructions

The purpose of this questionnaire is to determine the utilization of Emergency Contraception among University of Kabianga undergraduate students in order to fulfill the academic requirements for a Master of Public Health degree, you are hereby welcomed to respond to these questions. Please place a tick mark (✓) in the box provided or write in the space provided.

SECTION A. DEMOGRAPHIC INFORMATION

1. Age in completed years.....

2. Year of study

First Second Third Fourth

3. Indicate your religion

Catholic Protestant Mus Att Other
(specify)

4. Specify your marital status

Married Singl Separat Wid Living with a

partner

5. Place of residence

University hostels Private hostels/Renta Home

other (specify)

6. Who do you live with

Friend Relative Partner Parents/Guardian

SECTION B. KNOWLEDGE

1 Ever heard about EC

Yes

No

2 Which one can be used as EC

Combined oral pills

Progestin only pills

Estrogen only pills

IUCD

Herbal vaginal pessaries

Monthly injectables

I do not know.

3 what do you think is the composition of drugs in EC

The same as in the regular contraceptives

The same but a high dose in the same hormones

Completely different from the regular contraceptives

I do not know

4 How long should the first dose of EC be taken

Immediately after sex

Within 24 hours after sex

Within 72 hours after sex

Within 4 - 6 days after sex

After a missed period

I do not know

5 How do emergency contraceptives work

Induce abortion

Prevents pregnancy

Terminates early pregnancy

I don't know

6 How effective are EC

Highly effective

Effective

Less effective

Not effective

I do not know

7. Do EC prevent one from contracting HIV/AIDS and STIs

Yes

No

8 What is the correct timeframe after sex

If menstruation fails

Within 72 hours

Within 120 hours

After 120 hours

I don't know

9 which situations can EC should be taken

- When condom burst
- When there is missed pills
- When there is failure of contraception
- When there is infrequent sex
- When there is miscalculation of calendar method
- I do not know
- When forced to have sex

SECTION C. ATTITUDES

Please tick (√) against each opinion.

OPINION	YES	NO
Using EC is better than using contraceptive method		
In case of an emergency, I will use EC		
EC can damage the baby when breastfeeding		
It is dangerous to recommend EC to others		

SECTION D. UTILIZATION

1 Are you sexually active?

Yes No

2 (a) Have you ever used any form of Emergency Contraception?

Yes No

(b) If yes which form of Emergency Contraception?

Oral pills Intra Uterine device

3 Rate the overall use of Emergency Contraceptives

Frequently Very Frequently Occasionally Rarely Never

THANK YOU FOR TAKING PART IN THIS STUDY