

**ASSESSMENT OF AWARENESS AND USE OF EMERGENCY
CONTRACEPTION AMONG FEMALE STUDENTS AT KENYA MEDICAL
TRAINING COLLEGE, KENYA.**

**BY
SAMUEL KABARA KING'AU**

**A research project report submitted in partial fulfillment for the requirements of
the award of the degree of Master of Arts in Project Planning and Management of
the University of Nairobi.**

2013

DECLARATION

This research project report is my original work and has not been presented for award of degree in any other university.

Candidate

Signature..... Date.....

Samuel Kabara Kinga'u

L50/70777/07

Supervisor

This research project report has been submitted with my approval as the University supervisor.

Signature..... Date.....

Professor Timothy Maitho

Department of Public Health, Pharmacology and Toxicology

DEDICATION

I dedicate this project report to my daughters Leticia and Karsha and my wife Irene for the inspiration I draw from them.

ACKNOWLEDGEMENTS

I wish to convey my sincere gratitude to my supervisor, Professor Timothy Maitho for his guidance and effort during the entire period of this work. I also wish thank the management of the University of Nairobi for giving me the opportunity to study for the course and all my lecturers and the entire staff of the Department of Extra Mural Studies for taking me through the course work. I also extend my sincere gratitude to all my classmates with whom we held group discussions together.

TABLE OF CONTENTS

	Page
DECLARATION	ii
DEDICATION	iii
ACKNOWLEDGEMENTS	iv
LIST OF TABLES	viii
LIST OF FIGURES	ix
ABBREVIATIONS AND ACRONYMS	x
ABSTRACT.....	xi
CHAPTER ONE: INTRODUCTION	1
1.1 Background to the study	1
1.2 Statement of the Problem	4
1.3 Purpose of the study	4
1.4 Research objectives	4
1.5 Research questions.....	5
1.6 Significance of the study	5
1.7 Limitation of the study.....	5
1.8 Delimitation of the study	5
1.9 Basic assumptions of the study	6
1.10 Definition of Significant Terms	6
1.11 Organization of the study	7
CHAPTER TWO: LITERATURE REVIEW	8
2.1 Introduction.....	8
2.2 A Global Perspective	8
2.3 A Regional Perspective.....	12
2.4 Kenya Situation.....	21
2.5 Review of independent variables	22
2.5.1 Awareness of ECPs use	22
2.5.2 Timeframe for taking ECPs	23
2.5.3 Sources of ECPs and information	23
2.5.4 Access and risky behavior	24
2.6 Conceptual framework	24
2.7 Summary and knowledge gap	24

CHAPTER THREE: RESEARCH METHODOLOGY	26
3.1 Introduction	26
3.2 Research design	26
3.3 Study area	26
3.4 Target population	26
3.5 Sample size and Sampling procedure	26
3.5.1 Sample Size Determination	26
3.6 Sampling procedure	27
3.7 Data collection	27
3.8 Validity of instruments	28
3.9 Reliability of instruments.....	28
3.10 Data analysis	29
3.11 Ethical considerations.....	29
3.12 Operationalization of study variables.....	30
CHAPTER FOUR: DATA ANALYSIS, PRESENTATION AND	
INTERPRETATION	31
4.1 Introduction	31
4.1.1 Response rate	31
4.2 Respondent's demographics	31
4.2.1 Respondents age	31
4.2.2 Respondents marital status	32
4.2.3 Religion	32
4.2.5 Location of campus.....	32
4.2.6 Course being pursued	33
4.2.7 Year of Study	33
4.3 Knowledge on Existence of Emergency Contraception	34
4.3.1 Reason ladies get pregnant while still in college.....	34
4.3.2 Actions women can take after unprotected sex to prevent conception	34
4.8 Actions women can take after Unprotected Sex	35
4.3.3 Whether was aware of emergency contraception	35
4.4 Time Frame for taking emergency contraceptive pills	35
4.4.1 Drugs one can use to terminate a 2 months pregnancy.....	35
4.4.2 Time period when the first dose of postinor -2 should be taken after unprotected sex	36

4.4.3 Time interval between the first and second dose when taking postinor-2	37
4.4.4 Necessity of the pregnancy test before using postinor-2	37
4.4.5 Number of times per month it is recommended to take postinor-2 tablets	38
4.5 Source of procurement for emergency pills	38
4.6 Access to emergency pills versus risky sexual behaviour	39
4.6.1 Willingness to use Postinor-2 after unprotected sex	39
4.6.2 Relationship between unprotected sex and ECPs availability	39
4.6.3 Whether use of postinor-2 promotes promiscuity	40
4.7 The Sources of Information Regarding Emergency Contraceptive Pills	40
4.8 Additional findings concerning emergency pills	41
4.8.1 Reasons ladies fail to use ECPs	41
4.8.2 Willingness to pay for Emergency Pills	41
4.8.3 Number of tablets contained in a postinor-2 pack	42
4.8.4 Menstrual irregularity as the most common side effect of Postinor-2	42
4.8.5 Importance of ECPs in Preventing STDs	42
CHAPTER FIVE: SUMMARY OF FINDINGS, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS	44
5.1 Introduction	44
5.2 Summary of the findings	44
5.3 Discussion of key findings	45
5.3.1 Knowledge on existence of emergency contraceptive pills	45
5.3.2 Correct timeframe	46
5.3.3 Source of Procurement of ECPs	46
5.3.4 Relationship between access to ECPs and risky sexual behaviour	47
5.3.5 Sources of Information on ECPs	47
5.4 Conclusions	48
5.5 Recommendations	48
5.6 Suggestions for further studies	49
REFERENCES	50
APPENDICES	54
APPENDIX 1: LETTER OF INTRODUCTION	54
APPENDIX 2: SAMPLE QUESTIONNAIRE FOR FEMALE STUDENTS	55
APPENDIX 3: REQUEST TO CARRY OUT RESEARCH	58

LIST OF TABLES

	Page
Table 3.1: Reliability Analysis	29
Table 3.2: Operationalization of study variables	30
Table 4.1 Respondents age	31
Table 4.2: Marital status	32
Table 4.3: Religion	32
Table 4.4: Location of campus	33
Table 4.5: Course being pursued by respondents	33
Table 4.6: Year of study	34
Table 4.7: Reasons for ladies getting pregnant while in college	34
Table 4.8 Actions women can take after Unprotected Sex	35
Table 4.9: Whether respondents were aware of emergency contraception	35
Table 4.10: whether there are drugs that can terminate a 2 months pregnancy	36
Table 4.11: period for first dose of <i>postinor -2</i> to be taken after unprotected sex	36
Table 4.12: time interval between the first and second dose of <i>postinor -2</i>	37
Table 4.13: necessity of the pregnancy test before using <i>postinor-2</i>	37
4.4.5 Number of times per month it is recommended to take <i>postinor-2</i> tablets	38
Table 4.14: number of times per month recommended for taking <i>postinor – 2</i>	38
Table 4.15: source of procurement for emergency pills	38
Table 4.16: willingness to use ECPs after unprotected sex	39
4.6.2 Relationship between unprotected sex and ECPs availability	39
Table 4.17: Relationship between unprotected sex and ECPs availability	39
Table 4.18: Whether use of <i>postinor-2</i> promotes promiscuity	40
Table 4.19: The first source of knowledge on ECPs	40
Table 4.20: Reasons ladies fail to use ECPs	41
Table 4.21: Willing to pay to access emergency pills to prevent pregnancy.....	41
Table 4.22: Number of tablets contained in a <i>postinor – 2</i> pack.....	42
Table 4.23: Menstrual irregularity as the most common side effect of <i>postinor-2</i>	42
Table 4.24: Whether <i>postinor – 2</i> is Important in Preventing STD’s	43

LIST OF FIGURES

	Page
Figure 1: Conceptual Framework	24

ABBREVIATIONS AND ACRONYMS

ECPs	Emergency contraceptive pills
F.D.A	Food and Drugs Administration
HIV	Human Immunodeficiency Virus
KMTC	Kenya Medical Training College
MOH	Ministry of health
OCP	Oral contraceptives
S.T.D	Sexually Transmitted Diseases
UK	United Kingdom
USA	United States of America

ABSTRACT

Young and unmarried women constitute a high risk group for unsafe abortions. It has been estimated that widespread use of emergency contraception may significantly reduce the number of abortion-related morbidity and mortality. The aim of this study was to establish the level of awareness and use of emergency contraception by female college students at KMTC through a cross-sectional survey. Specifically the study sought to determine awareness of existence of emergency pills, knowledge of correct timeframes for use, the sources of emergency pills, whether easy access leads to risky sexual behaviour and the sources of information on emergency pills. The study was conducted at six campuses namely Mombasa, Machakos, Nairobi, Nyeri, Nakuru and Kisumu. Stratified random sampling was used in this study. All qualitative responses were edited and coded before data entry. The data was then analyzed using the Statistical Package for Social Sciences version 21.0. From the study, it was found that 79.6 % of the students were aware of the existence of emergency contraception. However, knowledge of the correct timing in the use of emergency contraception was insufficient with only 59.8% reporting the correct timeframe. The most common source for the drugs was the chemists at 76.4%. 64.1% of the students felt that access to emergency pills would not increase their chances of engaging in more unprotected sex while 56.8% felt emergency pills do not promote promiscuity. The sources of information regarding emergency pills were female friends (37.2%), health care providers (22.8%), boyfriends (20.4%) and the media (2.2%). From the study, it was concluded that knowledge of existence of emergency pills was sufficiently high. However, knowledge of correct timeframes for use was poor. The chemists were the most popular sources of procurement for emergency pills. It was also concluded that access to emergency pills does not promote irresponsible sexual behaviour. From the study, it is recommended that students be provided with appropriate information regarding emergency contraception especially regarding the correct timing. Access to emergency contraception should be improved in the college either through the college clinics or with a responsible person in the hostels. It was also suggested that detailed information regarding emergency contraception should be provided to the students in their first year of college during the attitude training. This will create awareness early enough in order to prevent pregnancies and possible abortions while the girls are still in college. The results of this study will be important in policy formulation in training institutions and the Ministry of Health and will help to curb the rising cases of teenage pregnancy.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Emergency contraception (EC) refers to the use of certain contraceptive methods by women and girls to prevent pregnancy after unprotected sexual intercourse (Adamczyk, 2009). Many women who have a need for emergency contraception do not use it. Usually, women simply do not know that it exists or, if they know, they do not know where to get it or how or when to use it. Young and unmarried women constitute a high risk group for unsafe abortion (Allaby, 1995). It has been estimated that widespread use of emergency contraception may significantly reduce the number of abortion-related morbidity and mortality. The Consortium for Emergency Contraception has set a goal of making emergency contraceptive pills a standard part of reproductive health care worldwide.

A baseline assessment of attitude and knowledge of emergency contraception (EC) among policy makers, public and private sector providers, family planning clients and university students demonstrated that less than 50% of service providers and only 10% of clients knew about EC (Kidula *et al*, 1992). Efforts between the Ministry of Health and nongovernmental organizations (NGOs) in reproductive health service provision resulted in the approval of Postinor-2[®] for use in April 1997. After one year on the market 3,500 packets of Postinor-2[®] were being sold each month through 27 clinics and 375 pharmacies (Muia, 1999). For over a decade, EC has been widely available in Kenya's private sector. It has become increasingly popular with adolescents, who value the easy confidential access provided by pharmacies (Kigundu *et al*, 1996). This access however has been accused of increasing risky sexual behaviour among young people.

ECPs contain a special regimen of the same hormones as regular oral contraceptives (OCs). They are reserved for an emergency that might produce a pregnancy. Such situations include a broken condom or slipped diaphragm, non-use of contraception or a rape (Ellerson *et al*, 2003). A woman using ECPs takes two doses twelve hours apart of particular formulations of regular OCs normally containing oestrogen and a progestin (Robinson *et al*, 1996). An alternate regimen of progestin-only pills as effective as combined OC but with a lower incidence of side effects is also available in some countries. With either regimen, the first dose is taken as soon after unprotected sex as possible, but not later than 72 hours afterwards (Trussell, 1999). ECPs reduce the risk of pregnancy by about 75%. This rate is calculated using the following estimations. If 100 women have a single act of unprotected intercourse in the second or third week of their menstrual cycle, only two would become pregnant in they

used ECPs as compared to the eight expected to become pregnant without use of contraceptives (Glasier *et al*, 1996).

Some women experience nausea and vomiting for a day or two when using ECPs. Other possible side effects include spotting, temporary breast tenderness, headaches, dizziness and fatigues (Vadies *et al*, 1998) Depending on when in her cycle a woman uses them, ECPs may work in several ways. Studies show that if a woman has not ovulated, ECPs can stop or delay ovulation. Delaying ovulation may be the main or only mechanism of action (Barnhart, 1994). If a woman has ovulated, ECPs may prevent fertilization, hinder transport of a fertilized egg down the fallopian tube causing it to reach the uterus at the wrong time or prevent implantation in the uterus (Sutkin *et al*,2006).

ECPs cannot cause abortion. The medical community and regulatory agencies such as the United States Food and Drug Administration define pregnancy as beginning after the implantation of a fertilized egg (Borrego *et al*, 2006). ECPs cannot affect an implanted embryo. If used during pregnancy, the best evidence suggests that there will be no harmful effects to the woman or fetus (Boss, 2006).

ECPs form an important safety net by providing a backup method in case of unprotected sex. For young people who are not prepared for a sexual experience or had involuntary sex, ECPs offer a second chance at contraception. ECPs provide youth who have not previously sought services with an introduction to reproductive health care (Nguyen *et al*, 1997). Family planning programs can provide ECPs and counseling for sexually active young people either in advance of need, to be kept on hand in case of an emergency, or for use within 72 hours of unprotected sex (McDougal *et al*, 2009). Advance distribution with adequate counseling and follow-up is most important for youth using barrier method which fails more often than hormone contraceptives. Some young adult reproductive health experts advocate the provision of a package of ECPs with condoms and vice versa (Gorenflo *et al*, 2004).

ECPs aid sexually active young people as they move to sustained contraceptive use (Noble, 1996). ECPs should be viewed as bridge to regular contraception because regular contraceptives have higher efficiency rates. The unintended pregnancy rate for condoms, as commonly used is about 14% of women in the first year of use (George *et al*, 1994).

Like all hormonal contraceptives, ECPs do not protect against sexually transmitted infections including HIV. Because many young women do not act until they have missed a menstrual

period, they may miss the opportunity to use ECPs to prevent pregnancy (Pearson *et al*, 1995). Because ECPs are only effective for 72 hours after unprotected sex, it should be made clear to the youth that contraception is needed for further acts of intercourse. ECPs do not provide protection for the rest of a woman's monthly cycle (Rodrigues, 2001).

The use of emergency contraceptive pills is limited in many countries, even though the effectiveness of the pills in an emergency has been known to the medical community for three decades. (Smith, 1993). Despite the limitations, more and more women have been hearing about ECPs and asking their providers for them. In most countries women can obtain ECPs only through service providers, although in some countries contraceptive pill packages are available over-the-counter or through community outreach workers (Utomo, 2009)

Some European countries like the UK have contraceptive pills packaged specifically for emergency use. (Ho *et al*, 1993). Women use ECPs widely in the UK and Netherland where they form part of an integrated reproductive health service and are covered in the national health insurance systems (Gold, 1997). The experience of the Netherlands demonstrates the acceptability of ECPs among youth. In 1991, 70% of Dutch women receiving ECPs from general practitioners were less than 25 years and 34% were younger than 20 years (Glasier *et al*, 1996)

Despite the importance and efficiency of ECPs, youth in need of emergency contraception face many barriers. Many young people are not aware of the existence of ECPs as a means to prevent unintended pregnancy (Baecher *et al*, 2009). Health service providers are also often poorly informed about emergency contraception and although there is no evidence to support the concern that ECPs encourage promiscuity, providers frequently give this as a reason for not providing ECPs to the youth (Robinson *et al*, 1996). Most providers in a Vietnamese study overestimated the incidence and severity of side effects and cited incorrect contraindications. Some providers stated that they did not promote ECPs because of the lack of publicized research findings and the majority believed that distribution should be strictly controlled (Glasier *et al*, 1996).

Confusion between ECPs and abortion still exists, and this confusion can block efforts to prevent unintended pregnancy as has been demonstrated in Malaysia (Harper *et al*, 1995). While there are some advocates for the provision of ECPs along with condoms, one study of university health centers in the US shows some providers are concerned about the

approach. These providers believe that telling students to use condoms to prevent pregnancy and STDs and then also offering ECP because of the risk of condom breakage sends a mixed message about the effectiveness of condoms.

(Trussell *et al*, 2007)

It has been suggested that although educated youth have adequate knowledge of the modes of HIV transmission, access to EC has encouraged frequent and risky sexual encounters (Mellanby *et al*, 1993). This study sought to establish the level of awareness and knowledge of EC among female students in Kenya Medical Training College (KMTC).

1.2 Statement of the Problem

Young and unmarried women constitute a high risk group for unsafe abortions. It has been estimated that widespread use of emergency contraception may significantly reduce the number of abortion-related morbidity and mortality. Despite all first year students at the Kenya Medical Training College undergoing attitude training in HIV/AIDS in their first month of college, there have been cases of students getting pregnant before completing their respective courses. It may also be possible that some students procure unsafe abortions without the knowledge of the administration. Availability of emergency contraception both in the private and public health facilities seems not to reduce the number of pregnancies among these students. This suggests that there is a different area of concern about the awareness and use of emergency contraceptive pills which this research sought to unravel.

1.3 Purpose of the study

This study aimed at establishing the level of awareness and knowledge of emergency contraception by female college students at Kenya Medical Training College (KMTC).

1.4 Research objectives

This study was guided by the following objectives.

1. To determine if the students at KMTC are aware of the existence of ECPs.
2. To establish if the students at KMTC know the correct timeframe for taking ECPs
3. To determine where the students at KMTC obtain ECPs when they need them.
4. To evaluate if easy access to emergency pills leads to risky sexual behaviour at KMTC.
5. To establish the sources of information on emergency pills for the female students at KMTC

1.5 Research questions

This study sought to answer the following questions:

1. Are the students at KMTC aware of the existence of ECPs?
2. Do the students at KMTC know the correct timeframes for taking ECPs?
3. Where do the students at KMTC obtain ECPs whenever they need them?
4. Does ease of access to emergency pills contribute to risky sexual behavior at KMTC?
5. Where do the college girls at KMTC get information on emergency pills?

1.6 Significance of the study

Emergency contraceptive pills are now currently available in most public and private health facilities. However, emergency contraception has attracted negative media attention with reports indicating that it encourages frequent and risky sexual behaviour. This study endeavoured to assess the awareness of emergency contraception and whether availability influences irresponsible sexual behaviour. The findings will inform future policy formulation and shape strategies for improving rational use of emergency contraceptive pills.

1.7 Limitation of the study

With the whole issue of sexuality and contraception shrouded in mystery, some respondents were unwilling to share information freely with the researcher. This is because discussing sexual issues is still a taboo among many people. However, being medical students, the respondents were better placed to handle the survey tool. Financial constraints and time hampered access to all the 33 campuses.

1.8 Delimitation of the study

This study included five Kenya Medical Training College campuses in Mombasa, Nairobi, Machakos, Nakuru, Kisumu and Nyeri. It only surveyed female students in the departments of pharmacy, clinical medicine and laboratory sciences. With various government bodies and nongovernmental organizations promoting the use of emergency contraceptives, what was formerly a taboo subject can now be discussed openly. Having interacted with clients of EC in the course of my work and having developed the language to use in this subject, it was easier to solicit information from respondents. The respondents in this study were all medical students who were familiar with the subject in question. This facilitated easy filling of the questionnaires.

1.9 Basic assumptions of the study

It was assumed that all the respondents had some basic knowledge concerning emergency contraception, were able to read and respond to questions in the survey tool and that they would provide information that was correct and truthful. It was also assumed that the sample represented the population and the instrument was valid in measuring the desired constructs.

1.10 Definition of Significant Terms

Abortion

The act of terminating a pregnancy.

Contraceptive

A device that prevents conception after sex.

Ease of access to ECPs versus risky behaviour

This relates whether easy access to ECPs influences risky sexual behaviour

Efficacy

The ability of a drug to cause the desired pharmacological effect.

Emergency

A sexual act that is unplanned and /or unexpected.

Emergency contraceptive pill

Medicines taken within 72 hours of unprotected sex to prevent conception.

Knowledge and awareness of emergency oral contraceptives

This refers to the respondents' knowledge about ECPs with regard to availability, dosage, timing and side effects.

Knowledge of existence of ECPs

This refers to whether the student knows that emergency pills do exist, can identify them and knows what they are used for?

Knowledge on the correct timeframe for using ECPs

This refers to whether they know when to take the first dose, when to take the second dose and number of times per month that they can take ECPs.

Providers

Health care professionals who render reproductive health services

Regimen

A drug or a combination of drugs taken in a specific manner to produce a certain desired effect.

Spotting

The appearance of a small amount of blood similar to menstrual blood when a woman uses contraceptive pills.

Source of procurement for ECPs

This refers to where the students obtain ECPs from whenever they need these drugs

Sources of information on ECPs

This refers to where the student gets information concerning ECPs. This could be from friends, family, healthcare providers or the media.

1.11 Organization of the study

Chapter one gives an introduction and background information to this study. Chapter two covers literature review where similar researches carried out globally, regionally and locally have been looked at for the purposes of comparing trends. Chapter three dwells on the details of the research methodology. Chapter four covers the data analysis, presentation and interpretation while chapter five summarizes the results, gives the discussion, conclusion and the recommendations made from this study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter gives the perspective of researches carried out on the use of ECP in the world, regionally and locally for the purpose of comparing trends. In Kenya, despite the publicity created by the government and health related NGOs about ECP, little research has been done especially in middle level colleges.

2.2 A Global Perspective

In Sweden, a study was conducted in the cities of Uppsala, Vasteras and Orebro to investigate the knowledge, experiences and attitudes towards emergency pills (EPs) among women presenting for induced abortion. It involved a population of 591 Swedish –speaking women consecutively attending the clinics for an induced abortion during a four month period in 2000.

The results indicated a response rate of 88% (n=518). 43% had a history of one or more previous abortion and 43% were daily smokers. Four out of five women, 83%, were aware of ECP but only 15 women used it to prevent pregnancy. 38% knew the recommended time frames for use and 54% had knowledge of the mode of action. The two most common sources of information about ECP were media and friends

One out of five, 22% had previously used the method and at the time of conception 55% would have taken ECP if it had been available at home, and 52% were positive to having ECP available over the counter.

The study concluded that emergency contraception was well known but still underused. Lack of awareness of pregnancy risk was one limiting factor for its use. Making ECP available over the counter was recommended as an important measure towards better availability. It was also suggested that information strategies to the public were needed before ECP could be widely used as a back-up method (Bromham, 2001).

In South East Scotland, a study was carried out to determine the level of knowledge of emergency contraception among 14 and 15 years olds. This was done through a confidential questionnaire survey administered to 1206 pupils in the fourth year of secondary school. The

main outcomes to be measured were knowledge of the existence of emergency contraception, its safety, efficacy and time limits and where to obtain it.

The results demonstrated that 1121 (93.0%) fourth year pupils aged 14-16 had heard of emergency contraception. 194 girls (32.7%) and 168 boys (27.5%) had experienced sexual intercourse. Of the girls who had experienced sexual intercourse, 61 (31.4%) had used emergency contraception. Knowledge of the correct time limits was poor, sexually active girls being the most knowledgeable. Pupils attending schools ranked lower than the national average for academic attainment were less likely to have heard of ECP and more likely to have been sexually active. 861 (76.8%) pupils knew they could obtain ECP from their doctor. 925 (82.5%) pupils believed emergency contraception to be effective but 398 (35.5%) thought it more dangerous than the oral contraceptive pill (Burton *et al*, 1990).

The study concluded that one third of sexually active girls aged 16 in South East Scotland have used emergency contraception helping explain the fairly constant teenage pregnancy rates despite increasing sexual activity.

However, many did not know when and how to access EC properly, despite many Scottish teenagers being well informed of the existence of emergency contraception.

It was recommended that health education initiatives target teenagers from less academic schools as they were more likely to be sexually active at a young age and less well informed about emergency contraception (Burton *et al*, 1990)

In India, a study was conducted to assess the awareness of emergency contraception among female college students in Chandigarh, Punjab University in 2007. A systematic random sampling was used to select respondents. The results indicate that of the 1,017 college students included in the study, 507 (49.9%) knew about different contraceptive methods. Maximum awareness was regarding oral contraceptive pill 239, (47.1%). Only 74 (7.3%) had knowledge about (ECP). Of them 10, (14.7%) students knew the correct time for use of ECP and the side effects of ECP were known to 48 (88.9%) respondents. The study concluded that awareness about ECP was very low among female college students of Chandigarh, especially regarding correct timing of its use and its side effects. It was recommended that appropriate awareness program on EC be introduced for them. (Puri *et al*, 2007).

A study in Nepal found that emergency contraception (EC) could play a critical role in reducing unintended pregnancies, but very few people were aware about it (Adhikari, 2009). The research aimed to investigate the level of awareness and factors influencing awareness of EC among college students. A cross-sectional study was carried out in April-May 2006. Structured self-administered questionnaires were administered to 1,137 college students (573 males and 564 females) in Kathmandu valley. The association between awareness of EC and the explanatory variables were first assessed in bivariate analysis using the Chi-square test. The associations were further explored using a multivariate logistic analysis.

A two-stage systematic random sampling technique was applied, the first stage of which included random selection of 12 colleges in Kathmandu. In order to select these 12 colleges, a list of all the private and public colleges affiliated with Tribhuvan University and located in Kathmandu Valley was obtained from the office of the Vice Chancellor in Kathmandu. The list included colleges which provide intermediate (commonly known as Grade 11 & 12), undergraduate, and graduate degrees. In the second stage, two classes were selected randomly from each sampled college. The number of students in a class ranged from 40 to 60. Since all the colleges were co-educational, all males and females students present on the day of the interview in the sampled classes were requested to participate in the study. Females and males students were interviewed separately in different classrooms.

A self-administrated structured questionnaire in the Nepali language was used to obtain information from the students. The questionnaires were pre-tested among college students in a non-selected college and later refined as required. Almost all students in selected classes were present on the day of interview. None of the approached students refused to participate in the study. With regard to awareness of EC, the survey assessed awareness by asking the question, "Have you ever heard about emergency contraception?" A total of 1,137 college students (573 males and 564 females) in Kathmandu Valley were interviewed. (Adhikari, 2009).

Verbal informed consent was obtained from the participants before they were enrolled in the study. The consent form was written in the local language stating the study's objectives, nature of participant's involvement, risk and benefits, and confidentiality of the data. Students were requested to read the consent form carefully. They were given clear options on voluntary participation. It was also made clear that they could refuse to answer any questions

and terminate the interview when they desired. Confidentiality of information was ensured by removing personal identifiers from the completed questionnaires. The names of sampled colleges were not made public and thus it was not possible for anyone outside the research team to trace reported incidents of sexual behaviour to respondents. Respondents were thus protected against any possible adverse repercussions from participating in the study.

All completed questionnaires were entered into a database immediately after being manually coded and validated. Data entry and validity checks were performed for all the questionnaires by using the software program dBase IV. The cleaned and validated data was transferred into the Statistical Package for Social Sciences 11.5 program for further processing and analysis. Both bivariate and multivariate techniques were applied to identify the factors associated with the likelihood of being aware of EC. The Chi-square test was used to test the association. The variables that were significant in the bivariate analysis were re-examined in the multivariate analysis (binary logistic regression) in order to identify the significant predictors after controlling other variables.

The results showed that a large majority of the respondents (85% males and 92% females) were in the youth category (15-24 years). An overwhelming majority of the students (88% of males and 83% of females) were unmarried, and 86% (91% of males and 80% of females) were from outside Kathmandu valley. Students covered in this study were from 67 districts out of 75 districts of the country. A majority of the males (59%) and about a quarter of the females (23%) lived either with friends or alone in Kathmandu. More than half of both males and females were currently pursuing their undergraduate degree. A large majority of the students (93% of the females and 91% of the males) had received education related to reproductive health in their respective schools/colleges. (Adhikari, 2009).

Overall, only about two-thirds of the college students (68%) had heard about EC. For example, male students were more aware (72%) of EC than were female students (64%). Similarly, a higher proportion of younger students aged 15-19 (73%) than the older students (66%) were aware of EC. Unexpectedly, a higher percentage of students (74%) who had an undergraduate level of education had heard of EC compared to those who had graduate or post graduate education (66%). Regarding marital status, unmarried students were more aware of EC than married students. Similarly, the awareness level was significantly higher among those who were from outside Kathmandu Valley, who lived either alone or with

friends, and who had received reproductive health education in school/college. For instance, more than two-thirds of students (70%) who were from outside Kathmandu Valley while less than three-fifths (57%) of those who lived in Kathmandu Valley were aware of EC. Likewise, those students who were living with their family members were less aware (66%) of EC than those who were living either alone or with friends (72%). A far higher proportion of the respondents who had received RH education in school/college (72%) had heard about EC than those who had not received RH education (24%).

These observed associations in bivariate analysis were reassessed by logistic regression to identify adjusted association with the probability of being aware of EC. It was found that variables such as sex of the students, permanent place of residence (district), and RH education are significant predictors of awareness of EC after controlling for other variables. Males are 1.5 times more likely than females to be aware of EC. Similarly, students who lived in Kathmandu Valley were 41% (OR = 0.59, 95% CI = 0.41-0.86) less likely to be aware of EC than students from outside Kathmandu Valley. Likewise, those students who received RH education in school/college were almost 9 times more likely to be aware of EC compared with those who did not receive such education. (Adhikari, 2009).

The study concluded that awareness about EC among college level students was low. Health education initiatives should target such students as they were more likely to be sexually active. There was a need to educate students about EC, which can help to reduce unintended pregnancies, many of which result in unsafe abortion and take a large toll on women's health. Education about EC at college levels could benefit even out-of-college youth, because their friends often are students.

2.3 A Regional Perspective

A survey of 1500 students in post secondary institutions in Southwest Nigeria showed that the concept of EC was well known. Respectively, 32.4%, 20.4% and 19.8% knew that combined pills, progesterone only pills and intrauterine contraceptive device (IUCD) were usable for EC, while 56.7% mentioned the use of traditional methods. Only 11.8% had ever used either pills or IUCD and 10% had used a traditional method. Few students (11.5% and 2.3% respectively) knew the correct timing of EC pills and IUCD. The respondents reported

varying circumstance under which EC was indicated but the majority cited condom breakage and sexual assault. (Arowajolu *et al*, 2002).

The popular media represented the common source of information while hospitals and clinics were the commonest sources of procurement. About 7% of the respondent planned to use EC in future while 58% were not aware and 4.7% were uncertain. The reasons for these responses were explored (Arowajolu *et al*, 2002). In a similar study in Nigeria, between September and October 2001, a randomly selected sample of female undergraduate students of the University of Benin, were surveyed about their demographic information, sexual history and contraceptive use, and awareness and knowledge of emergency contraception.

The results indicated that of the 880 respondents, 43% were sexually active, 39% had ever practiced contraception and 34% had ever had an induced abortion. Overall, 58% of respondents reported knowing about emergency contraception, sexually active respondents were significantly more likely than those who were not and those who had ever practiced likely than those who were not and those who had ever practiced contraception were more likely than those who had not to be aware of emergency contraceptives. (Arowajolu *et al*, 2002).

However, only 18% of the respondents who reported knowing about emergency contraception knew the correct time frame in which emergency contraceptives must be used to be effective. This study concluded that there was an urgent need to educate Nigerian young people about emergency contraception emphasizing available methods and correct timing of use (Aziken *et al*, 2003).

Emergency contraception (EC) is widely available free of charge at public sector clinics in South Africa. At the same time, rates of teenage and unintended pregnancy in South Africa remain high, and there are few data on knowledge of EC in the general population in South Africa, as in other resource-limited settings (Belzer *et al*, 2005). The researchers conducted a cross-sectional, interviewer-administered survey among 831 sexually active women at 26 randomly selected public sector clinics in the Western Cape Province.

They conducted a cross-sectional survey at 26 public sector primary care clinics in one urban (17 clinics around Cape Town) and one rural (9 clinics in the Boland/Overberg region) health

region of the Western Cape Province, South Africa, from November 2004 to February 2005. The Western Cape is home to approximately 5 million people, the majority living in or around Cape Town. Reproductive health services are relatively well developed in this setting, with a contraceptive coverage rate of 74% among sexually active women ages 15–49 (Belzer *et al*, 2005). The urban region is characterized by a large metropolitan area (the only major city in the province) with densely populated residential areas where clinics are located; the rural region (one of four in the province) is characterized by a commercial agricultural economy interspersed with small towns, each of which has a primary care clinic. In each region, a random sample of clinics was selected with probability of selection weighted by patient load based on clinic usage statistics, following the sampling strategy of a previous survey of EC conducted in 1999/2000.

At each clinic over a two-day period, trained female interviewers with a minimum of high school education approached consecutive women exiting the clinic to participate. Women were eligible if they had ever had sexual intercourse and were between the ages of 15 and 49. The number of women interviewed at each facility was proportional to clinic size and varied from 11 to 52. Women were approached to participate regardless of their reason for being at the clinic and refusals were minimal (<2%). Semi-structured interviews were conducted in a private room on-site in participants' preferred language and lasted approximately 15 minutes. The interviews employed standard questionnaire items that had been used for research on EC and women's reproductive health in this setting, without distinction between hormonal and non-hormonal EC methods, and included pilot testing and standardized phrasing for administration in different local languages.

Stata version 8.0 (Stata Corporation, College Station, Texas, USA) was used for statistical analyses. Chi-square, Fisher's exact, and student's t-tests were used to determine factors associated with awareness of EC. Logistic regression models using generalized estimating equations with robust variance estimators were used to examine the predictors of awareness of EC, taking into account the clustered sampling of participants within clinics. Independent variables were entered into the model if they demonstrated an appreciable crude association ($p < 0.10$) with the outcome, and were retained if their association persisted, or if their removal altered associations involving other covariates. The results of this model were presented as adjusted odds ratios (OR) and 95% confidence intervals (CI). All participants

provided informed consent, and approval to conduct the survey was granted by the Provincial Department of Health and the Research Ethics Committee of the University of Cape Town.

The results showed that of the 831 sexually active women who participated in the study, 624 (75%) were from the urban health region and 207 (25%) from the rural health region. Most participants were attending the clinic on the day of the interview for either specific medical problems (34%, n = 283) or for postnatal care (30%, n = 249); 19% of the sample (n = 158) were at the clinic for family planning services specifically. The median age was 26 years (IQR, 21–34) and the median level of education was grade 10 (equivalent to 10 years of formal schooling). Most participants spoke either Afrikaans or Xhosa as their home language (47%, n = 391 and 44%, n = 366, respectively). Eighty-two percent of participants (n = 688) had been pregnant at least once; for 61% of the participants who had ever been pregnant (n = 420), their last pregnancy was unintended (Belzer *et al*, 2005)

Just under three-quarters of women (72%, n = 598) were using a clinic-supplied method of contraception at last sexual intercourse. The most commonly used methods at last sexual intercourse were injectables (45%, n = 269), followed by the male condom (20%, n = 120) and female sterilization (9%, n = 55). Twenty-one percent of participants (n = 175) were protected from both pregnancy and sexually transmitted infections (STI) the last time they had sexual intercourse, with 10% using a condom and an effective non-barrier contraceptive (n = 83), and 11% using a condom alone (n = 91) (Belzer *et al*, 2005).

Fifty-one percent (n = 424) were protected only from pregnancy through the use of non-barrier contraception. Twenty-nine percent of women (n = 241) were not using any method. Of the 241 women not using any method, 17% (n = 50) were attending the clinic for postnatal care, while 42% (n = 101) were at the clinic for specific medical problems, and 10% (n = 24) were attending family planning services on the day of the interview (Belzer *et al*, 2005).

Concerning awareness on emergency contraception, fifteen percent of women (n = 126) mentioned EC by name or description spontaneously when asked if there was anything a woman could do soon after unprotected sexual intercourse to try to prevent pregnancy (111/750 women who were not sterilized, 15%). The percentage of women who

spontaneously mentioned EC in the rural region (7%, n = 15) was lower than in the urban region (18%, n = 111) ($p < 0.001$). Overall, 30% of the women in the entire sample (n = 253) had ever heard of EC when asked directly, after the method was described to them (including 230/750 women who were not sterilized, 31%). The level of EC awareness was particularly low in the rural region with only 17% of women (n = 34) being aware of EC on direct questioning compared with 35% of women in the urban region (n = 219) (Belzer *et al*, 2005)

Respondents who were aware of EC most commonly reported that they had first heard about EC from friends or family members (40%, n = 100) or at the clinic (27%, n = 69). Other sources of information about EC were the mass media (9%, n = 23) and school (5%, n = 13). Thirty-seven percent of subjects (n = 93) who had heard of EC did not know whether they could obtain EC from the clinic they were visiting, and 8% (n = 21) believed they could not get it at that clinic. In addition, most participants (75%, n = 190) who were aware of EC did not know about the appropriate interval for efficacy between unprotected sex and taking EC which, based on recent evidence is considered to be up to 72–96 hours after sexual intercourse. Approximately 41% of participants (n = 104) said they did not know that there was a time interval for use; 24% (n = 61) believed that it could be taken only immediately after, the morning after, or within 12 or 24 hours of intercourse. Nine percent (n = 23) reported that EC must be taken within two days, and 1% (n = 2) thought it could be taken up to one week after intercourse. Of those who were aware of EC, only 26% (n = 64) had ever been told about EC by a health care provider (Belzer *et al*, 2005).

Women over the age of 20 were significantly more likely to have heard of EC than teenagers or women 40 or older. More educated women and women whose most recent pregnancy was not unintended were also more likely to have heard of EC. Knowledge of EC was also associated with the type of method used at last sexual intercourse: women using the oral contraceptive pill were more likely to have heard of EC than other women. Knowledge of EC was lowest among women who used a condom alone for pregnancy prevention at last sexual intercourse. The strongest independent predictors of EC awareness were location in an urban area (OR: 2.1; 95% CI: 1.3–3.4) and having a higher level of education (OR: 5.9; 95% CI: 3.3–10.5). However, the crude associations involving participant age, unintended pregnancy and contraceptive methods used did not persist in the multivariate model. These results were not altered when the model was restricted to women who had not been sterilized

With regard to use of emergency contraception, thirty-four women had ever used EC, 13% of the 253 who were aware of EC and 4% of the total sample of 831 women (and 4% of unsterilized women); most of these had only ever used it once (76%, n = 26). The main sources of supply were private doctors and pharmacies (Belzer *et al*, 2005).

The findings of this study indicated that awareness of EC was relatively low among women both in the rural and urban region of the Western Cape Province, South Africa. Overall, awareness was lower in South Africa than recent data from Europe and North America, but was similar to or higher than what has been reported in other developing countries including Mexico, India, Kenya and Nigeria. They found that the lowest level of EC awareness was among teenagers, which conflicts with other data from South Africa and internationally. In light of the HIV epidemic in South Africa, increasing emphasis is being placed on the promotion of condom use, especially among teenagers, for both STI and pregnancy protection. Because EC is advocated as a back-up contraceptive method for condom failure or non-use, it was concerning to find that EC awareness was lowest among young women and women using a condom alone at last sexual intercourse.

Women with a higher level of education and women attending urban clinics had the greatest levels of EC awareness. Women with more education and who lived in urban areas may get reproductive health information from sources other than public health clinics. They found that a smaller proportion of women who were aware of EC had been told about EC by a health care provider in the urban area (24%) than in the rural area (33%). Educated women may also have a greater incentive to obtain information on strategies to delay childbearing, and thus seek out information for themselves about options such as EC.

These data suggested that most women who had heard about EC did so from friends and family. Given that information about EC is relatively simple to convey accurately, and in light of this finding, peer education approaches were suggested as useful in increasing EC awareness. More generally these findings indicated a substantial unmet need among women for information on EC and a need for greater client-health care provider dialogue regarding EC, including the existence of EC, its availability at public sector clinics, and the timeframes involved in its use after unprotected sex. They suggested that relaying basic information on EC needs to become part of routine reproductive health counseling and specific health service

interventions to improve EC awareness need to be designed, implemented and evaluated in South African and other resource-limited settings.

Accurate EC knowledge was lacking, even among those who were aware of the method. Without accurate knowledge of EC it is unlikely that those who need it will be able to access it within the appropriate window of opportunity. Despite the availability of EC free of charge at all public sector primary level clinics in South Africa for several years, and the strong promotion of EC in the South African national contraception policy guidelines, very few women in this study had ever used it. This very low level of EC use is occurring in the context of high levels of unprotected intercourse and unintended pregnancy in this study population. Almost all of the women who had used EC had purchased it from private sources (doctors, clinics or pharmacies), suggesting a lack of awareness of EC availability at public clinics. This may also reflect the fact that women who know and use EC are of higher socioeconomic status than women who do not. Most women either did not know if EC was available at the clinic they were attending, or thought that it was not available at the clinic. Pharmacies have less restricted operating hours and are open on weekends and after hours, which could explain the higher uptake of EC, despite the costs involved. Making EC more affordable through pharmacies or other similar outlets may enhance the provision of information and access in addition to improving public sector information and distribution (Belzer *et al*, 2005).

The study had several limitations. Firstly, this was a relatively small survey conducted in one part of South Africa. The results required further investigation in other settings in Sub-Saharan Africa, particularly where reproductive health knowledge and health care infrastructure may be more limited. Additionally, this survey was conducted among individuals attending public health clinics, who are likely to have higher health-related knowledge than women from a general population sample. Related to this the study focused on the Western Cape Province, which has a better reproductive health infrastructure than most other areas of South Africa, and a result awareness and uptake of EC may be higher in this sample compared to other parts of the country.

They concluded that given the important role that health service providers play in women's knowledge and perceptions of contraceptive methods, future research needs to be conducted in South Africa and other settings among healthcare providers themselves. For EC to play a

role in increasing contraceptive coverage and decreasing unintended pregnancy in South Africa, specific health service interventions are necessary so that all South African women know about the method, where to get it, and the appropriate time interval for its use before the need for emergency contraception (Belzer *et al*, 2005).

In Ghana, research was undertaken to assess knowledge and attitude toward EC among a sample of students at the University of Ghana. They used a two-page, self-administered questionnaire in a cross-sectional study among students chosen by random sampling. The aspects of EC assessed included level of knowledge, extent of use, common traditional methods of emergency contraception, as well as socially and culturally acceptable ways to promote EC in Ghana. They assessed how the availability of EC could influence the use of condoms among male respondents. Less than half (43.2%) of the 194 respondents (88 males and 106 females) had heard of modern emergency contraceptive methods. Postinor-2, a dedicated emergency contraceptive product, which was already on the Ghanaian market, was known to 1.5% of respondents.

Only 11.3% of respondents indicated correctly the recommended time within which emergency contraceptive pills (ECPs) are to be taken after unprotected sex. Taking concentrated sugar solutions, having an enema, and douching were commonly used traditional methods of EC. More than half (55.0%) of the male respondents indicated that they would either "certainly" or "probably" reduce how often they used condoms once they knew that EC was available. Almost all (97.4%) the respondents wanted to learn more about EC. The indications from this study were that the promotion of EC in Ghana was desired and must be encouraged. The fact that EC does not offer protection against sexually transmitted infections needed to be emphasized.

A study in Ethiopia was done to assess the knowledge and practice of Gondar University students regarding emergency contraception. A university based cross-sectional study was conducted in the University of Gondar in May 2004. All undergraduate students of the university were included in the study. A self-administered anonymous questionnaire was used for data collection. A total of 2323 students (1764 males and 559 females) responded to the questionnaire. Five hundred and fifty eight students (24.0%) thought that there are methods that can be used to prevent pregnancy when a woman had unprotected sex. Overall, 437 students (18.8%) knew the correct methods of emergency contraception (pill or IUCD). Of

those who mentioned pill as the only method of emergency contraception, 285 (73.3%) said the pill should be used within 72 hours after unprotected sex. Only one student used pill as emergency contraceptive. Students in the health field have 6.8 times higher knowledge on emergency contraception compared to students in other fields. Generally, there was an increasing trend in the knowledge of students when their age and year of study increases. Married or divorced students had 3.36 times higher knowledge when compared with never married students.

The study concluded that except students in the health field, other students had low awareness about emergency contraception. Emergency contraceptive user rate was very low. Even in those who are aware of emergency contraception, the information they had regarding the methods that can be used and the timing of emergency contraception was not sufficient. The study suggested that students should be provided with appropriate information regarding emergency contraception and access to emergency contraception should be improved in the university. To investigate the knowledge, practices, and attitudes among female university students in South Africa regarding emergency contraceptives (EC), a study was conducted in the University of Limpopo, Pretoria. A cross-sectional study was conducted among 582 female university students who were selected using multi-stage sampling techniques. Multivariate logistic regression analysis was used to find significant predictors for EC awareness. The average age of the female students was 20.9 years (SD=3.0) and 57.2% were presently sexually active. Overall, 49.8% of the participants reported having heard about EC prior to the study. Regarding sexual activities among the female students, 53.2% reported to have sex, and 21.2% of the sexually experienced students used EC prior to the study.

Regarding the effectiveness of EC, 29.5% students said it could be used up to 72 hours after unprotected sexual intercourse, and 8% said it could be used just before sex. About two-thirds (61.8%) would recommend the use of EC and 63.2% would use it if they needed. The multivariate analysis indicated that students who were older (>20 years), presently sexually active, and living with their parents were more likely to be aware of EC ($p<0.05$). It concluded that students' knowledge and utilization of EC were low. Health education and promotion needed to be targeted towards these students, and the EC services be offered on campus.

A study in Uganda to determine knowledge, use and attitudes towards EC among resident and non-resident female first year university students was done in Kampala. This Cross

sectional study was carried out at Makerere University from January to March 2005. Out of 5971 females admitted in the academic year 2004/2005, 379 answered a self administered questionnaire. The students were approached individually and given the questionnaire if they consented.

The results showed that the mean age of the participants was 21 years. Less than half (45.1%) had ever heard about emergency contraceptive pills (ECPs). The most common sources of information about EC were friends (34%), media (24.8%) and schools (19.4%). The ever pregnancy rate was 3.4 percent and 42 percent were in a steady relationship of three or more months. The contraceptive ever-use rate was 14.5 percent. Among the users, the most common methods were condoms (48.9%) and withdrawal (23.4%). Emergency contraceptive pills had been used by seven students. Forty two percent did not know the time interval within which ECPs can work and one third thought it would interrupt an ongoing pregnancy. Thirty five percent did not know when in the menstrual cycle they were likely to conceive. The majority of the students were against over the counter (OTC) availability of EC because of fear of misuse. The study concluded that knowledge about emergency contraception and fertility awareness was low among the female first year university students. Friends and the media were an important source of EC information. It was recommended that awareness and knowledge of EC should be increased.

2.4 Kenya Situation

To gauge knowledge, attitudes and practices about emergency contraception in Nairobi, the population council conducted a five part study. They searched government and professional association policy documents, clinic guidelines and service records for references to emergency contraception.

They also conducted in-depth interviews with five key policy makers and with 93 family planning providers randomly selected to represent both the public and private sector. They also surveyed 282 family planning clients attending 10 clinics, again representing both sectors. Lastly they conducted four focus group discussions with university students. It was found that although one specially packaged emergency contraceptive (Postinor[®] lenonorgestrel tablets) is registered in Kenya, the method was scarcely known or used (Lema *et al*, 2002).

Participants in all parts of the study generally supported expanded access to EC in Kenya. They did, however, want additional detailed information particularly on the health effects of EC. They also differed on who should have access to EC and how it should be provided. Another study was carried out in Kibera slum in Kenya to evaluate the prevalence, knowledge, attitudes and practices towards the uptake of emergency contraceptive pills by women in this Kenyan slum (Kiragu et al, 1995). The design was a cross-sectional survey conducted in Kibera, Nairobi. Multi stage sampling was used to determine the study population and 384 women were interviewed using a structured questionnaire. SPSS version 16 and STATA version 11 were used for statistical analyses.

The results were that the mean age of the women was 26 years with a standard deviation of 7.4. Majority of the women were married (52%). More than half (58%) reported to use a method of contraception. The prevalence of emergency contraceptive pill was found to be (23%). The findings of this study show that knowledge of emergency contraceptive pills was high (74%) meaning many women have heard about it. The main source of information of Emergency Contraceptive Pills (ECPs) was from friends and family (34%). However when it came to its usage, (37%) of the women thought that it would cause health problems if they used it, while (25%) were not familiar with the emergency contraceptive pill itself, hence were afraid of using it. The main reason for the women not using emergency contraceptives was because of misinformation (62%) followed by a lack of awareness (38%).

This study found the prevalence of ECP to be 23% and that knowledge on ECP was adequate with more than half the women reporting to have heard of ECP. However awareness does not lead to use of ECP's and the method is underused. The major constraint to ECP use was misinformation, with many women fearing that ECP might cause health problems or interfere with their fertility. Religion was also a constraint to ECP with only Protestants reporting its use.

2.5 Review of independent variables

2.5.1 Awareness of ECPs use

Concerning awareness on emergency contraception in a south African study, fifteen percent of women (n = 126) mentioned EC by name or description spontaneously when asked if there was anything a woman could do soon after unprotected sexual intercourse to try to prevent pregnancy (111/750 women who were not sterilized, 15%). The percentage of women who

spontaneously mentioned EC in the rural region (7%, n = 15) was lower than in the urban region (18%, n = 111) ($p < 0.001$). Overall, 30% of the women in the entire sample (n = 253) had ever heard of EC when asked directly, after the method was described to them (including 230/750 women who were not sterilized, 31%). The level of EC awareness was particularly low in the rural region with only 17% of women (n = 34) being aware of EC on direct questioning compared with 35% of women in the urban region (n = 219) (Belzer *et al*, 2005)

2.5.2 Timeframe for taking ECPs

Most participants (75%, n = 190) in a South African study who were aware of EC did not know about the appropriate interval for efficacy between unprotected sex and taking EC which, based on recent evidence is considered to be up to 72–96 hours after sexual intercourse. Approximately 41% of participants (n = 104) said they did not know that there was a time interval for use; 24% (n = 61) believed that it could be taken only immediately after, the morning after, or within 12 or 24 hours of intercourse. Nine percent (n = 23) reported that EC must be taken within two days, and 1% (n = 2) thought it could be taken up to one week after intercourse (Belzer *et al*, 2005).

In Ghana, research was undertaken to assess knowledge and attitude toward EC among a sample of students at the University of Ghana. Only 11.3% of respondents indicated correctly the recommended time within which emergency contraceptive pills (ECPs) are to be taken after unprotected sex (Nana *et al*, 2012)

In Ethiopia's University of Gondar, respondents who mentioned pill as the only method of emergency contraception, 285 (73.3%) said the pill should be used within 72 hours after unprotected sex. Only one student used the pill for emergency contraception (Kedebe, 2006).

2.5.3 Sources of ECPs and information

A study in South Africa found that respondents who were aware of EC most commonly reported that they had first heard about EC from friends or family members (40%, n = 100) or at the clinic (27%, n = 69). Other sources of information about EC were the mass media (9%, n = 23) and school (5%, n = 13). Thirty-seven percent of subjects (n = 93) who had heard of EC did not know whether they could obtain EC from the clinic they were visiting, and 8% (n = 21) believed they could not get it at that clinic (Belzer *et al*, 2005).

In Kenya, a study conducted in Kibera slums showed that the main source of information of emergency contraceptive pills (ECPs) was from friends and family (34%) (Kiragu and Zabin, 1995).

2.5.4 Access and risky behaviour

A study in Kibera slums in Kenya found that awareness does not lead to use of ECP's and the method is underused. The major constraint to ECP use was misinformation, with many women fearing that ECP might cause health problems or interfere with their fertility since availability would lead to more risky behaviour (Kiragu and Zabin, 1995).

2.6 Conceptual framework

Figure 1 is a conceptual framework which shows the relationship between the dependent and the independent variables in the study.

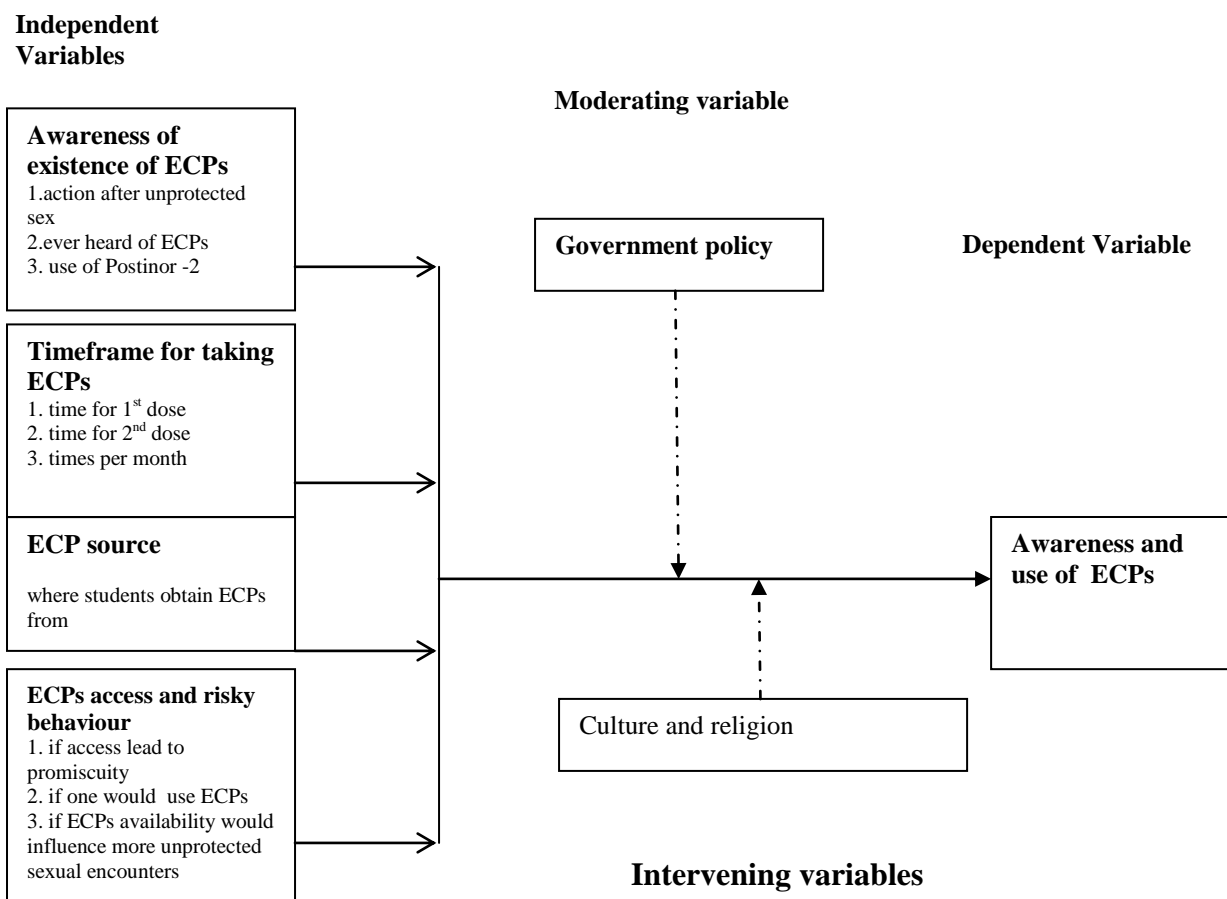


Figure 1: Conceptual Framework

2.7 Summary and knowledge gap

Chapter two covers literature review on emergency contraceptive pills globally, regionally and narrows down to the Kenyan perspective. Whereas there has been widespread information about emergency contraceptive pills in the country, it is not clear how much the college students know about these drugs. The knowledge gap this study sought to fill was whether the users were aware of the existence of emergency pills, the correct timeframes for use, their perceptions about access to emergency pills and sexual promiscuity and the sources of information about these drugs.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter covers the research design, study area, study population, sampling method, data collection, data validity and reliability as well as data analysis.

3.2 Research design

The study was a descriptive cross sectional survey. This design is cheap and less time consuming. Stratified random sampling was used in this study since the students in the campuses are heterogeneous with respect to the courses they pursue as well as their level of study. Respondents were sourced from six campuses in the college, sampled and the selected ones given a questionnaire to fill.

3.3 Study area

The study was conducted at the Kenya Medical Training College. The college has 33 campuses distributed in the country. However, this study involved six campuses in Machakos, Nakuru, Kisumu, Nairobi, Mombasa and Nyeri purposely selected as they have the three courses targeted. These courses are pharmacy, clinical medicine and medical laboratory science.

3.4 Target population

The target population included all the female students in the six campuses of the Kenya medical training college.

3.5 Sample size and Sampling procedure

3.5.1 Sample Size Determination

For populations that are large, Cochran (1963) developed the equation to yield a representative sample size.

$$n_0 = \frac{z^2 pq}{e^2}$$

This equation is valid where n_0 is the sample size, Z^2 is the abscissa of the normal curve that cuts off an area α at the tails ($1 - \alpha$ equals the desired confidence level, e.g., 95%), e is the desired level of precision, p is the estimated proportion of an attribute that is present in the population, and q is $1-p$. The value for Z is found in statistical tables which contain the area

under the normal curve. The study took into account that there was a large population of students in the six campuses that were selected.

Therefore, it assumed $p=.5$ (maximum variability), and a 95% confidence level and $\pm 5\%$ precision. The resulting sample size was calculated to be:

$$n_0 = z^2 pq / e^2 = \frac{1.96^2 (0.5)(0.5)}{0.05^2} = 385 \text{ students}$$

3.6 Sampling procedure

The researcher had earlier sought the approval the ethics committee at Kenya Medical Training College, before commencing data collection. Stratified random sampling was used in this study since the students in the campuses were heterogeneous with respect to the courses they pursue as well as their level of study. The strata were the campuses, courses and years of study. For each stratum, simple random sampling was used to select the students to be given the questionnaire. For each course, first year, second year and third year students were sampled.

Sixty four questionnaires were given in each campus except Nairobi which got sixty five. Each class was allocated twenty one questionnaires. In each class, the class list was used as it is arranged by the college numbers that are assigned according to when the student reported and is completely random. Every second female student on the class list was selected to participate in the study. None of the selected ladies declined to pick the questionnaire.

3.7 Data collection

After receiving the information about the study, the respondents were given a self administered questionnaire to complete in private. To maintain anonymity, the respondents were instructed not to write their names on the questionnaire. The questionnaires were placed in non-identifiable envelopes that the respondent put in a sealed letter box located at convenient positions in the campus. The researcher had the phone numbers of the class representatives for all the classes and often called to check the progress. After three days the various colleges had collected their questionnaires together. The selected tutors from the different colleges mailed the questionnaires back. It took another three days to collect all the questionnaires from all the six colleges.

3.8 Validity of instruments

Validity refers to how well a test measures what it is purported to measure. The questionnaires were pre-tested at the Kitui campus which was a non participating campus over a period of three days, one week before the actual study. After pre testing, the data collection instruments were adjusted appropriately in order to enhance the validity of the data collected. This was done by removing troublesome words in the tool as well as removing ambiguous statements. Colleagues were also requested to re-look at the questionnaire and critique it. To ensure confidentiality, all the respondents were provided with an envelope to seal the filled questionnaire which was then dropped into a sealed box located at convenient places within the campuses.

Caution was exercised to ensure the confidence of the respondents through full introduction by the investigator and ensuring the questions are framed in a manner that is non-judgemental and non intrusive into one's personal life. The purpose of the study was also fully explained to the respondents so that they don't withhold vital information due to fear of victimization. Data was collected and analysed by the investigator to minimize errors caused by different investigators. Completed questionnaires remained in the custody of the investigator. The personal computer and laptops used to store and analyse data were password protected. Compact discs, flash discs and hard copies of all documents were safely stored by the investigator.

3.9 Reliability of instruments

Reliability is the degree to which an assessment tool produces stable and consistent results. Reliability analysis was done using Cronbach's Alpha which measures the internal consistency by establishing if certain item within a scale measures the same construct.

Gliem and Gliem (2003) established the Alpha value threshold at 0.6, thus forming the study's benchmark. Cronbach Alpha was established for every objective which formed a scale. The table shows that knowledge on existence of emergency pills had the highest reliability ($\alpha= 0.902$). others were correct timeframe for use ($\alpha=0. 894$), sources of procurement ($\alpha=0.872$), access to ECPs vis a vis risky behaviour ($\alpha=0.891$), and sources of information about ECPs($\alpha=0.894$). This illustrates that all the five variables were reliable as their reliability values exceeded the prescribed threshold of 0.6.

Table 3.1: Reliability Analysis

Scale	Cronbach's Alpha	Number of Items
knowledge on emergency pills	0.902	5
Correct timeframe	0.872	3
Sources of procurement	0.734	3
access vis a vis risky behaviour	0.891	5
sources of information on ECPs	0.894	6

3.10 Data analysis

All qualitative responses was edited and coded before data entry. The data was then analysed by the statistical package for social sciences (SPSS) version 21.0 and stratified by the socio-demographic attributes such as age, course being pursued, level of study, marital status. Frequencies were calculated to establish the percentages in each category. After analysis, data was summarised and presented in form of frequency tables.

3.11 Ethical considerations

The researcher sought and was granted approval by the Ethics and Review Committee at Kenya Medical Training College, before commencing data collection. The purpose of the study was fully explained to the respondents who then agreed to participate in the study. They were assured that all information would be treated with utmost confidentiality. Questions were framed in a manner that was non-judgmental and non intrusive into one's personal life. The respondents were provided with an unmarked envelope to seal the filled questionnaire which was then dropped into a sealed box located at convenient places within the campuses.

3.12 Operationalization of study variables

The operationalization of study variables is shown in Table 3.2.

Table 3.2: Operationalization of study variables

Objective	Independent Variables	Indicators	Measurement Scale	Data analysis
To determine awareness of existence of ECPs at Kenya Medical Training College	Awareness of existence of ECPs	Knowledge of what to do after unprotected sex to prevent pregnancy. Having heard of ECPs Why students fall pregnant while still in college	Ordinal	Descriptive
To establish if students at KMTC know the correct timeframe for taking ECPs	Timeframe for taking ECPs	Timing of first dose, Timing of second dose, Times per month to take ECPs Whether pregnancy test is needed	Nominal	Descriptive
To determine the procurement source of ECPs for girls at KMTC	Source of obtaining ECPs	Chemist, Private Clinic, Hospital	Nominal	Descriptive
To determine if easy access to ECPs leads to risky sexual behaviour at KMTC	Ease of access to ECPs	Whether one would have more unprotected sex if ECPs were more available Whether one believes ECPs promote promiscuity	Nominal	Descriptive
To establish the sources of information on ECPs at KMTC	Sources of information on ECPs	College female friends, Family/ relatives, Healthcare provider, Media, Boyfriends	Ratio	Descriptive.
	Dependent Variable To assess level of awareness and use on ECPs	Knowledge of existence of ECPs at KMTC Knowledge of correct timing Sources of procurement	Ordinal	Descriptive

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This chapter contains the data analysis, presentation and interpretation of the research findings. The data collected was arranged into categories and interpreted on the basis of each research objective.

4.1.1 Response rate

Out of the 385 questionnaires sent to the respondents, a total of 368 questionnaires were filled and returned to the researcher which represented a return rate of 95%. This is significant enough to provide reliable and valid findings for this study. This reasonable response rate was made a reality after the researcher made personal calls to remind the respondents to fill in and return the questionnaires to selected tutors.

4.2 Respondent's demographics

4.2.1 Respondents age

The respondent's age is shown in Table 4.1 below

Table 4.1 Respondents age

	Frequency	Percentage
Below 19 years	39	10.59
20 – 24 years	287	77.99
25 – 29 years	33	8.97
30 – 34 years	2	0.54
Above 35 years	7	1.90
Total	368	100

The study found that the majority of the respondents were between 20- 24 years (79.3%) while only a small percentage (1.9%) was above 35 years. This shows that majority of the female respondents were in the reproductive age and therefore more likely to engage in sex.

4.2.2 Respondents marital status

The marital status of the respondents is shown in Table 4.2.

Table 4.2: Marital status

	Frequency	Percentage
Single	288	78.3
Married	67	18.4
Separated	6	1.6
Divorced	3	0.8
Widowed	4	1.1
Total	368	100

The table shows that majority of the respondents (78.3%) were single and 18.4% of were married.

4.2.3 Religion

The religion of the respondents is shown in Table 4.3.

Table 4.3: Religion

	Frequency	Percentage
Catholic	113	30.7
Protestant	218	61.2
Muslim	20	5.6
Hindu	17	4.7
Total	368	100

The Table shows that 61.2 % were Protestants, 30.7% catholic, 5.6% Muslims while 4.7% were Hindus.

4.2.5 Location of campus

The Table 4.6 below shows the location of the campus where the respondents were studying at.

Table 4.4: Location of campus

	Frequency	Percentage
Nyeri	63	17.1
Nakuru	60	16.3
Machakos	64	17.4
Mombasa	56	15.2
Kisumu	64	17.4
Nairobi	61	16.6
Total	368	100.0

The findings show that 17.4% of the respondents indicated that they were in Machakos and Kisumu campus respectively, 17.1% of the respondents indicated they were in Nyeri campus, 16.6% were in Nairobi campus, and 16.3% were in Nakuru campus while 15.2% were in Mombasa campus.

4.2.6 Course being pursued

Table 4.5 shows the courses pursued by the respondents

Table 4.5: Course being pursued by respondents

	Frequency	Percentage
Pharmacy	115	31.3
Clinical Medicine	158	40.8
Laboratory	95	27.9
Total	368	100.0

The Table shows that 40.8% were pursuing clinical medicine, 31.3% pharmacy while 27.9% were pursuing laboratory studies.

4.2.7 Year of Study

The year of study is shown in Table 4.6.

Table 4.6: Year of study

	Frequency	Percentage
1 st year	150	40.8
2 nd year	112	30.4
3 rd year	106	28.8
Total	368	100.0

Majority (40.8%) of the respondents indicated that they were in first year, 30.4% of the respondents indicated that they were in second year, 28.8% of the respondents indicated that they were in third year.

4.3 Knowledge on Existence of Emergency Contraception

4.3.1 Reason ladies get pregnant while still in college

The main reasons ladies get pregnant while still in college is summarized in Table 4.7 below.

Table 4.7: Reasons for ladies getting pregnant while in college

	Frequency	Percentage
Unavailability of condoms	74	20.1
Condom breakage	53	14.4
So that boyfriends do not leave them	167	45.9
Unavailability of ECPs	74	19.6
Total	368	100.0

The Table shows that boyfriends play a significant role in these pregnancies. Unavailability of condoms and lack of emergency pills is also a big contributor.

4.3.2 Actions women can take after unprotected sex to prevent conception

When asked if there were any actions that women can take to after unprotected sex to prevent conception they responded as shown in Table 4.8.

4.8 Actions women can take after Unprotected Sex

	Frequency	Percentage
Yes	293	79.6
No	33	8.7
I don't know	43	11.7
Total	368	100.0

The majority (79.6%) of the respondents indicated that there was something a woman could do after she has had unprotected sex to prevent pregnancy. This is an indicator that knowledge on prevention of unintended pregnancy is available to them.

4.3.3 Whether was aware of emergency contraception

Table 4.9 shows whether the respondents were aware of emergency contraception.

Table 4.9: Whether respondents were aware of emergency contraception

	Frequency	Percentage
Yes	275	74.7
No	93	25.3
Total	368	100.0

Majority (74.7%) of the respondents indicated that they had heard of emergency contraception while 25.3% of the respondents indicated that they hadn't heard. Thus knowledge on existence of ECPs is widespread among the students.

4.4 Time Frame for taking emergency contraceptive pills

4.4.1 Drugs one can use to terminate a 2 months pregnancy

When asked if there were any drugs they can use to terminate a two months pregnancy, they responded as shown in Table 4.10.

Table 4.10: whether there are drugs that can terminate a 2 months pregnancy

	Frequency	Percentage
Yes	152	41.3
No	86	23.4
I don't know	130	35.3
Total	368	100.0

From the findings, 41.3% of the respondents indicated that there were drugs they could take to terminate their pregnancy, 35.3% didn't know while 23.4% of the respondents indicated that there weren't any drugs they could take to terminate their pregnancy. The 41.3% indicated that they could use *cytotec* and *gynaecosid* to terminate a pregnancy more than two months old. This reveals that the majority of the students may be using drugs that are contraindicated in pregnancy in order to terminate early pregnancies.

4.4.2 Time period when the first dose of *postinor -2* should be taken after unprotected sex

The respondents were asked to indicate the time period when the first dose should be taken after unprotected sex. The results are as shown in Table 4.11 below.

Table 4.11: period for first dose of *postinor -2* to be taken after unprotected sex

	Frequency	Percentage
Immediately	76	20.7
Within 12 hours	45	12.2
Within 72 hours	220	59.8
After 3 months	27	7.4
Total	368	100.0

Only 20.7% indicated the most effective period to take the first dose of ECPs. It shows that they could be using ECPs but wrong information may be a reason the drugs are ineffective.

4.4.3 Time interval between the first and second dose when taking *postinor-2*

Respondents identified the time interval between the first and second dose as shown in Table 4.12.

Table 4.12: time interval between the first and second dose of *postinor-2*

	Frequency	Percentage
2 hours	5	1.4
4 hours	6	1.6
12 hours	302	93.5
72 hours	55	3.5
Total	368	100.0

A great majority of the students (93.5%) were aware of the correct timing between the first and the second dose.

4.4.4 Necessity of the pregnancy test before using *postinor-2*

The respondents were required to indicate if the pregnancy test was necessary before taking emergency pills. The results are shown in Table 4.13.

Table 4.13: necessity of the pregnancy test before using *postinor-2*

	Frequency	Percentage
Yes	150	40.7
No	218	59.3

Only 59.3% of the respondents knew that this test was not necessary. The delay occasioned by getting the test done could also lead to a delay in taking the first dose.

4.4.5 Number of times per month it is recommended to take *postinor-2* tablets

The respondents indicated the number of times it is recommended to take emergency pills per month as shown in Table 4.14

Table 4.14: number of times per month recommended for taking *postinor* – 2

	Frequency	Percentage
Only twice	24	6.5
Thrice	6	1.6
Each time after sex	33	9.0
Once	305	82.9
Total	368	100.0

82.9% of the respondents correctly indicated that Postinor-2 tablets were recommended only once a month

4.5 Source of procurement for emergency pills

The respondents identified their sources of procurement for emergency pills as shown in Table 4.15.

Table 4.15: source of procurement for emergency pills

	Frequency	Percentage
Nearby Chemist	281	76.4
Hospital	12	3.3
Clinic	48	13.0
I always have them in stock	27	7.3
Total	368	100.0

The chemist was the most popular source of procurement for ECPs probably due to the convenience of long opening hours.

4.6 Access to emergency pills versus risky sexual behaviour

4.6.1 Willingness to use Postinor-2 after unprotected sex.

The respondent's willingness to use emergency pills after unprotected sex is shown in Table 4.16.

Table 4.16: willingness to use ECPs after unprotected sex

	Frequency	Percentage
Yes	255	69.3
No	41	11.1
Not sure	72	19.6
Total	368	100.0

69.3% of the students were willing to use ECPs after unprotected sex. Failure to use may thus indicate unavailability of lack of access.

4.6.2 Relationship between unprotected sex and ECPs availability

The respondents were asked to state if they would have more unprotected sex in ECPs were always available. The results are shown in Table 4.17

Table 4.17: Relationship between unprotected sex and ECPs availability

	Frequency	Percentage
Yes	73	19.8
No	236	64.1
Not sure	59	16.0
Total	368	100.0

The Table shows that availability of ECPs may not increase the incidence of unprotected sex in 64.1% of the respondents.

4.6.3 Whether use of postinor-2 promotes promiscuity

Table 4.18 shows what the respondents felt about the relationship between use of emergency pills and sexual promiscuity.

Table 4.18: Whether use of postinor-2 promotes promiscuity

	Frequency	Percentage
Yes	209	56.8
No	79	12.2
Not sure	80	30.9
Total	368	100.0

There were mixed feeling as to whether ECPs promote sexual promiscuity. 56.8% felt ECPs promote promiscuity.

4.7 The Sources of Information Regarding Emergency Contraceptive Pills

The respondents were required to indicate their first source of information about existence of emergency pills. The results are shown in Table 4.19.

Table 4.19: The first source of knowledge on ECPs

	Frequency	Percentage
Female friends in college	137	37.2
Newspaper / Radio / TV	8	2.2
Family/ relatives	64	17.4
My boyfriend	75	20.4
Health care provider	84	22.8
Total	368	100.0

Female friends appear to contribute a significant portion (37.2%) while the media, despite the access, has a very small portion (2.2%)

4.8 Additional findings concerning emergency pills

The study also found more additional information concerning emergency pills as shown in the sections below.

4.8.1 Reasons ladies fail to use ECPs

Table 4.20 shows the reasons ladies fail to use emergency pills.

Table 4.20: Reasons ladies fail to use ECPs

	Frequency	Percentage
When they are in their safe period	116	31.5
No access to ECPs when needed	80	21.7
Assurance from boyfriends	103	28.0
Time limit for use of ECPs may be over	69	18.8
Total	368	100.0

The table shows different reason for failure to use ECPs.

4.8.2 Willingness to pay for Emergency Pills

The willingness to pay for emergency pills is shown in Table 4.21.

Table 4.21: willing to pay to access emergency pills to prevent pregnancy

	Frequency	Percentage
I can't pay	66	17.9
Up to Kshs. 1000	104	28.3
Up to Kshs.500	36	9.8
Only Kshs. 200	162	44.0
Total	368	100.0

Majority of the students (82.1%) were willing to pay a certain amount in order to access ECPs.

4.8.3 Number of tablets contained in a postinor-2 pack

The respondents were required to indicate the number of tablets contained in a pack of emergency pills. The results are shown in Table 4.22.

Table 4.22: number of tablets contained in a *postinor* – 2 pack

	Frequency	Percentage
One	11	3.0
Two	342	92.9
Three	8	2.2
Four	7	1.9
Total	368	100.0

From the findings, 92.9% of the respondents correctly indicated that a *Postinor* -2 pack contained two tablets.

4.8.4 Menstrual irregularity as the most common side effect of Postinor-2

Respondents were asked if menstrual irregularity was the most common side effect of emergency pills. The results are shown in Table 4.23

Table 4.23: menstrual irregularity as the most common side effect of postinor-2

	Frequency	Percentage
Yes	272	73.9
No	96	26.0
Total	368	100.0

According to the findings, 73.9% of the respondents correctly indicated that menstrual irregularity was the most common side effect of Postinor-2.

4.8.5 Importance of ECPs in Preventing STDs

Asked if emergency pills can prevent sexually transmitted infections, they responded as shown in Table 4.24

Table 4.24: Whether *postinor* – 2 is Important in Preventing STD’s

	Frequency	Percentage
Yes	11	3.0
No	334	90.8
I don’t know	23	6.2
Total	368	100.0

According to the findings, 90.8% of the respondents correctly knew that Postinor-2 could not prevent sexually transmitted diseases.

CHAPTER FIVE

SUMMARY OF FINDINGS, DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter gives the summary of key findings, discussion, conclusions and recommendations of the research on the awareness and use of emergency oral contraceptive pills by female students at 6 campuses of the Kenya Medical Training College.

5.2 Summary of the findings

The study found out that most ladies knew there was something they could do to prevent pregnancy after having unprotected sex. Most had heard of emergency contraceptive pills and could identify the postinor-2 brand as the pack containing two tablets. They knew it was used for this purpose. A considerable number of students were also aware that they could use other drugs, notably cytotec and gynaecosid to terminate a two months old pregnancy. Most of them were also willing to pay an amount to access the emergency pills. A large percentage also indicated they would use these pills if they needed to prevent conception after unprotected sex.

The results on correct timeframes in the dosing of ECPs show that almost 60% indicated that it is within 72hrs while only 21% indicated immediately. Whereas the first tablet can be taken within the 72 hours of unprotected sex ECPs will be most effective if taken immediately after unprotected sex. The period between the first and second doses was clearly understood by most respondents as being 12hours apart. This did not seem to confuse the students although a minority indicated that the two tablets can be taken together at once.

The pregnancy test is not necessary for one to take ECPs but a considerable number (40.7%) thought it was. This could delay the time of taking the first dose as they seek the pregnancy test. big majority (82.9%0 knew that ECPs should be used only once per month as they are not regular contraceptives and should be used only in cases of emergency.

Concerning where the students obtain the ECPs when needed the chemist and clinics were the most popular. This may be because of the confidentiality afforded and longer opening hours. It was found out that whereas 69.3% would use ECPs after unprotected sex, only 19.8% indicated they would have more unprotected sex if ECPs were always available. However, 56.8% thought that use of ECPs may promote promiscuity. The students indicated that they got information concerning ECPs mostly from female colleagues in college. Boyfriends and relatives also contributed considerably in this aspect. The media did not have a significant value in this regard despite radio being readily available even on cheap phones and social media like Facebook and Twitter being a favorite for these students.

5.3 Discussion of key findings

The key findings are discussed below following the objectives of the study.

5.3.1 Knowledge on existence of emergency contraceptive pills

The study found that 79.6% of respondents know there was something they could do to prevent pregnancy after unprotected sex. 74.7% of the respondent had heard about emergency contraception. Knowledge on existence of ECP was widespread. This finding differs with others found in similar studies.

Belzer (2005) found that only 15% of respondents in South Africa's Western Cape mentioned EC by name when asked if there was anything a woman could do soon after unprotected sex to prevent pregnancy. Puri (2007) found that awareness about ECP was very low among female students of Punjab University in Chandigarh India. In a similar study Aziken (2003) found that 58% of students in Nigeria's University of Benin knew about emergency contraceptives. Knowledge on existence of ECPs is high among the KMTC students. Being medical students they are more likely to have this knowledge than those in other studies mentioned above. The spread of information concerning ECP has also been enhanced in Kenya through the mainstream and the social media. This may also have contributed to this high level of awareness.

5.3.2 Correct timeframe

This study realized that 59.8% of the respondents knew that the first dose is taken within 72 hours of unprotected sex. Only 20% indicated that this dose should be taken immediately. Whereas both responses are correct, the most effective is the latter. A vast majority 93.5% knew that the correct time for the second dose is 12 hours.

Trussells (2013) at the University of Princeton USA indicates that the first dose should be taken as soon after unprotected sex as possible, but not later than 72 hours afterward. The study agrees with Puri (2007) who found that awareness of correct timing in the use of ECP was low among college students in Chandigar's Punjab University in India. This study also agrees with Aziken (2003) who found that although 58% of respondent at the University of Benin in Nigeria knew about the existence of ECPs, only 18% knew the correct timeframe in which emergency contraceptives must be used to be effective. Belzer (2005) in South Africa found out that most respondents (75%) who were aware of the existence of ECPs did not know the appropriate interval for efficiency between unprotected sex and taking ECPs. This is in agreement with the study's findings

Baiden (2002) also found that only 11.3% of respondents in the University of Ghana indicated correctly the recommended timeframe within which ECPs are taken after unprotected sex. Kebede (2006) in a study in Ethiopia's University of Gondar concluded that the information the students had concerning the timing of emergency contraception was insufficient. The findings of this study relate closely with those in India, Ghana, Ethiopia and South Africa. Clear knowledge concerning the correct timeframe in the use of ECPs is still low and requires to be emphasized if ECPs are going to be effective.

5.3.3 Source of Procurement of ECPs

The study found that 76.4% of respondents obtained ECPs from the chemist and 13% from private clinics. Whereas, ECPs are available in the hospitals, only 3.3% obtained from there. This study agrees with a study by Belzer (2005) in a South African study who notes that 37% of respondents who were aware of ECPs did not know they could obtain them from the clinic. Kigundu (1996) in a study at two hospitals in Nairobi noted that ECPs have become popular among adolescents who value the confidential

access provided by pharmacies. Arowajolu (2002) found that hospitals and private clinics were the commonest sources of procurement for ECPs in a Nigerian study.

The findings of this study compare well with the rest where private pharmacies and clinics appear to be favorite sources of ECPs, perhaps because of the confidentiality afforded. Whereas, the public hospitals also stock ECPs, would be users do not obtain them there as seen in Nigeria, Kenya and South Africa, the reasons behind which need to be investigated.

5.3.4 Relationship between access to ECPs and risky sexual behaviour

This study found that 56.8% of respondents thought that use of ECPs promoted promiscuity. This is in agreement with Kigondu (1996) who claims that access to ECPs has been accused of increasing risky sexual behaviour among young people. Robinsons (1996) notes that health providers fail to provide ECPs to the youth on the basis that this promotes promiscuity. There may not be enough evidence to link enhanced provision of ECPs and increased risky sexual behaviour. However, ECPs have not yet been classified as over-the-counter drugs and this hinders access.

5.3.5 Sources of Information on ECPs

This study found that 37.2% of the respondents got information concerning ECPs from collegemates, 22.8% from the healthcare providers and only 2.2 % from the media.

This is contrary to Arowajolu (2002) who found out that in Nigeria the popular media was the common source of information. In South Africa, Belzer (2005) had 40% reporting to have heard about ECPs first from friends and family members, 9% from mass media and 5% from school. Byamugisha (2007) in a Ugandan study found that friends and the media were an important source of ECPs information.

Whereas other studies show the media as playing a big role in provision of information concerning ECPs, this study found college mates, friends and family as the major sources of information. The students may have less interaction with mainstream media while in college hence the low contribution of the media in information provision.

5.4 Conclusions

The following conclusions were made from this study;

1. Knowledge on existence of emergency contraception was adequately high. However knowledge of existence does not always translate to rational use of the emergency pills. Knowledge on the correct timeframe for taking emergency contraceptive pills was poor among these students. The most appropriate time to take the first dose was least understood. However, the number of times per month when they should be used was well known.
2. Among the sources of procurement for emergency contraceptive pills, chemists and private clinics were the most popular perhaps due to the confidentiality provided. Whereas government hospitals have these drugs in stock, very few students access them from the hospital. There seems to be a barrier or lack of information regarding availability of ECPs in the public hospitals.
3. It can be concluded that increased access to emergency pills may not necessarily lead to an increase in risky sexual behaviour and authorities need not fear availing ECPs to the youth. While condoms are readily available in and outside the hostels, girls continue to fall pregnant while still in college. Therefore, emergency pills may help reduce the incidences of college pregnancies where condoms have failed.
4. Friends and family members were the most popular sources of information concerning emergency pills. College mates provide this information to their friends when need arises. While there has been a lot of buzz on mainstream media and the social media about youth reproductive health, the media appears to have very little contribution in informing these youth about ECPs. Boyfriends also appear to influence the use ECPs and should also be considered as a target group in training on rational use.

5.5 Recommendations

The following recommendations were made from this study;

1. Mere knowledge does not lead to rational use of emergency contraceptives as seen in the pregnancy cases within the college. It also must be emphasized that ECPs are reserved for emergencies and not mainstream contraception. The fact that ECPs do not protect one against sexually transmitted infections also needs to be underlined. The knowledge on the correct time frame in the use of emergency pills

is still poor. Despite the students knowing that they can take the first dose within 72 hours of unprotected sex, they should know that the earlier one takes the first dose, the more likely the drug will be effective. Any training about ECPs must lay emphasis on the correct timeframe.

2. Private pharmacies and clinics are still the major sources of procurement for ECPs while public facilities lag behind. ECPs should therefore be transferred from the main hospital pharmacies to the youth-friendly centres where it has been shown the youth are freer to interact with healthcare providers. This will enhance uptake of the ECPs.
3. There is still no evidence that enhanced access to ECPs leads to increased risky sexual behaviour. The drugs should be classified as over-the-counter drugs to ease access since this will reduce the number of unsanitary abortions procured each day in the country.
4. Boyfriends appear to contribute in the use of ECPs and should be a target group in any training that may be arranged. Campaigns need to be organized to educate the public about ECPs as has happened with condoms. Expectedly critics will emerge from various quarters notably religious groups. However, the benefits outweigh the negatives in many ways. The media needs to support such campaigns which can be sponsored by the private sector players.

5.6 Suggestions for further studies

The following studies should be carried out in order to get more information about emergency contraceptive pill use.

1. The level of knowledge and use of emergency contraceptive pills among students in non medical post secondary institutions.
2. How free access to emergency pills influences condom use among students of post secondary institutions.
3. The level of knowledge and use of emergency contraceptives among the different levels of study i.e. first year, second year and third year students
4. The difference in level of knowledge and use of emergency contraceptive pills between rural students and urban students.

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APPENDICES

APPENDIX 1: LETTER OF INTRODUCTION

Samuel K. Kabara

P.O. BOX 22031-00400

Nairobi

Email: **samkabara@yahoo.com**

Dear respondent,

RE: INTRODUCTION LETTER

My name is Samuel Kabara, a research student undertaking a master of arts degree in Project Planning and Management in the University of Nairobi. I am conducting a survey to assess the awareness of emergency contraception among female students in Kenya Medical Training College. The information is necessary as a part of the fulfilment of the requirements for this degree. The results obtained will also be used in designing future strategies for training students on this important subject.

I wish to assure you that all information obtained will be treated in the highest confidence.

Thank you for participating in this study.

Yours faithfully,

Samuel Kabara

L50/70777/07

APPENDIX 2: SAMPLE QUESTIONNAIRE FOR FEMALE STUDENTS

Questionnaire No.....

Emergency contraception awareness and use survey:

Academic department

.....

Year of Study

Instructions

Kindly respond by placing a tick (✓) inside the box provided for each question and fill in the blank spaces.

A. Socio-demographic characteristics of the respondent

1. Age in years.
19 and below 20 – 24 25 – 29 30 – 34 35 and above
2. Marital status
Single Married Separated Divorced Widowed
3. Religion
Catholic Protestant Muslim Hindu
4. Location of campus
Nyeri Nakuru Machakos
Nairobi Kisumu Mombasa
5. Course being pursued
Pharmacy Clinical Medicine Laboratory
6. In which year of study are you?
1st year 2nd year 3rd year

B: Knowledge on emergency contraception

7. Why do some ladies fall pregnant while still in college?
Unavailability of condoms when there is need
Condom breakage
To ensure their boyfriends do not leave them
Unavailability of emergency contraception

8. Why do some ladies fail to use emergency contraceptive pills (ECPs)?
- When they are in their safe period
- No access to ECPs when needed
- Assurance from boyfriends
- Time limit for use of ECPs may be over
9. Is there anything a woman can do after she has had unprotected sex to prevent pregnancy?
- Yes
- No
- I don't know
- If yes, what can she do?.....
10. If you discovered you are 2 months pregnant and you did not know about it before, are there any drugs you can take to terminate the pregnancy?
- Yes No don't know
- If yes, which ones
11. If you accidentally had unprotected sex, how much would you be willing to pay to access emergency pills to prevent pregnancy?
- I can't pay Up to Kshs. 1000
- Up to Kshs.500 Only Kshs. 200
12. Have you heard of emergency contraception?
- Yes
- No
- If yes, which method do you know.....
-
13. What is Postinor – 2 used for?
14. Where did you first hear about Postinor – 2?
- Female friends in college Newspaper / Radio / TV
- Family/ relatives My boyfriend
- Health care provider
15. What is the number of tablets contained in a Postinor – 2 pack?
- One Three
- Two Four

16. How soon should the first dose of Postinor – 2 be taken after unprotected sex?
 Immediately Within 72 hours
 Within 12 hours After 3 months
17. What is the time interval between the first and second dose when taking Postinor?
 2 hours 12 hours
 4 hours 72 hours
18. What are the likely side effects of using Postinor – 2?
 1)
 2)
 3)
19. Is pregnancy test necessary before using Postinor – 2?
 Yes No Don't know
20. Menstrual irregularity is the most common side effect of Postinor – 2?
 Yes No I don't know
21. Would you use Postinor – 2 after unprotected sex if it was available to you to prevent pregnancy?
 Yes No Not sure
22. If Postinor – 2 was always available and you were guaranteed of never getting pregnant, would you have unprotected sex more often?
 Yes No Not sure
23. Does the use of Postinor – 2 promote promiscuity?
 Yes No Not sure
24. How many times per month is it recommended to take Postinor – 2 tablets?
 Only twice each time after sex
 thrice once
25. Postinor – 2 is important in preventing sexually transmitted diseases?
 Yes No I don't know
26. Where do you or your friends obtain Postinor – 2 whenever the need arises?
 Chemist Private Clinic
 Hospital I always have them in stock

APPENDIX 3: REQUEST TO CARRY OUT RESEARCH

KENYA MEDICAL TRAINING COLLEGE

All correspondence should be addressed to

Principal
Fax 2211905
Email: mtcnakuru@wananchi.com
Telephone: Nakuru 051-2211843,2211905
When replying quote.



Medical Training college
P.O BOX 110
NAKURU
20100

Date: 20th May 2013

SAMUEL KABARA KINGAU
P.O. BOX 110-20100
NAKURU

Dear Sir,

REQUEST TO CARRY OUT RESEARCH AT THE KMTC

The above subject refers. We are in receipt of your request to carry out data collection for your proposed research on knowledge and awareness of emergency contraception among female students.

The research committee is pleased to inform you that permission has been granted for the said exercise. Please observe the college research protocol as presented to you. We also look forward to seeing a presentation of your findings in the next biennial research conference.

Kind regards,



Judy Koech
Research coordinator

A handwritten signature in blue ink, appearing to read 'Judy Koech', written over the official stamp.