

EMERGENCY CONTRACEPTION AMONG FEMALE REGULAR UNDERGRADUATE STUDENTS OF DEBRE MARKOS UNIVERSITY - KNOWLEDGE, ATTITUDE, UTILIZATION, AND ASSOCIATED FACTORS, 2021: A CROSS-SECTIONAL STUDY

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ABSTRACT

INTRODUCTION: Contraception failure, condom breakage, missed doses of oral contraceptives, and failure to use any method of contraception are all common reasons for emergency contraception. To prevent such problems, emergency contraceptives are the only method that can be used after unprotected sex. Therefore, this study aimed to determine the knowledge, attitude and practice of emergency contraception in the study area.

METHODS: An institutional-based cross-sectional study was conducted on 446 students using multistage stratified sampling was conducted at Debre Markos University from June 27 to July 15, 2021. Data were entered into EPI info and translated into a statistical package for social sciences (SPSS) for window version 26 for data analysis. Multiple logistic regressions were employed.

RESULTS: Most of the participants 330 (74.4%) reported having heard about emergency contraception (EC). Out of those who heard about EC, 58.1% identified oral pills as a possible method of EC, followed by injectable 18%. Around half, 207 (46.7%) of the study participants indicated that they recommended others to use ECs. Among the respondents who had ever heard of EC, almost a quarter of 104 (23.3%) of them had ever used EC pills. Females who are 5th year (AOR: 0.25, 95% CI: 0.66-97), respondents who are from health science (AOR: 2.25, 95% CI: 1.01-5.07), and respondents whose father had a first degree and above (AOR: 6.297, 95% CI: 2.06-19.26) were strongly associated with knowledge of female students with ECs.

CONCLUSIONS AND RECOMMENDATIONS: This study showed that the awareness of emergency contraception among the respondents was fair. Furthermore, their attitude towards the use of emergency contraception and advising others to use and practice was low. Therefore, to further increase the knowledge, attitude, and practice of user-friendly emergency contraception services, basic training on reproductive health and family communication services should be promoted.

KEYWORDS: Emergency Contraception, Knowledge, Attitude, Practice, Ethiopia

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INTRODUCTION

Emergency contraception, often known as post-coital contraception is a method of preventing pregnancy after a sexual act that is unprotected or inadequately protected. Contraceptive failure, condom breakage, missed oral contraceptive doses, and failure to use any type of contraception are all common reasons for emergency contraception¹. Oral estrogen-progestin, progestin-only, or selective progesterone receptor modulators, as well as insertion of a copper intrauterine device (IUD), are all options for emergency contraception. Oral progestin only pills; Levonorgestrel is the most popular emergency contraceptive treatment, but a mixed regimen of high doses of ethinylestradiol and progestin is also effective².

Progestin-only emergency contraception is better tolerated and more efficacious than the combined regimen. In the United States, two regimens with levonorgestrel alone are available: a single-dose regimen (1.5 mg of levonorgestrel) and a two-dose regimen (two tablets of 0.75 mg of levonorgestrel taken 12 hours apart)³.

EC is used before the potential time of implantation, unlike the regular contraceptive methods that are administered before the act, and can reduce the risk of unintended pregnancy by 75% to 99% if taken within 72 hours of sexual intercourse. Emergency contraceptives are cost-effective, medically safe, and highly effective for use in the prevention of unplanned pregnancy and subsequently avoiding unsafe abortion and other consequences⁴.

Among the 1.9 billion women of reproductive age worldwide in 2019, 1.1 billion have a demand for family planning; of these, 842 million are using modern contraception, and 270 million have an unmet need for modern methods. An additional 172 million women use no method at all, despite their desire to avoid pregnancy, and thus are considered to have an unmet need for family planning⁵. The World Health Organization (WHO) indicates that 75% of sexually active women are at risk of unwanted pregnancy due to the lack of contraceptives, where

one in four pregnancies is unplanned⁶.

In Ethiopia, unsafe abortion is the second most common cause of maternal mortality, which accounts for 19.6% of maternal mortality⁷. Unwanted pregnancy and unsafe abortion can be prevented by accessing to contraceptive methods including (EC)⁴. The Ethiopian Demographic and Health Survey (EDHS) 2019 report indicated that the prevalence of contraception among married women is 41 %⁸. Despite the increase in the use of modern contraceptives, the rate of unintended pregnancy per 1000 women of reproductive age in Ethiopia ranges from 13.7 to 41.5 %⁹. One-fourth of maternal deaths are due to unsafe abortion, and approximately 60 percent of admitted obstetrics and gynecologic cases of unsafe abortion could have used emergency contraceptives¹⁰. University life for many students represents a move toward independence from parental supervision, new friendships, and a chance to experience romantic or sexual relationships. An emergency contraceptive method plays a critical role in limiting unwanted pregnancies and ultimately reducing maternal mortality and morbidity rates¹¹.

Knowing about knowledge, attitudes, and practice associated factors towards emergency contraceptives among female students will help local planners design a better strategy and implementation program. This study provides information on the barriers to the use of EC, allows an initial process to understand the reasons for the low adoption of EC, and will help further studies to be conducted and to make possible recommendations.

METHOD AND MATERIALS

Study design and population

An institution-based cross-sectional study was conducted from June 27 to July 15, 2021, among female undergraduates of Debre Markos University. The subject source population for the study was all regular undergraduate female students registered in the 2020/2021 academic year at Debe Markos University. According to the university's registrar office, there are about 2078 female regular

undergraduate students in 2020/2021, 440 (21%) of them were enrolled to health science departments, and 1638 (79%) are enrolled to non-health science departments. All university undergraduate regular female students were available on campus during data collection were source population. Selected female students who gave their consent were eligible to participate in the study. Students who are sick, unable to communicate, and unable to see during data collection were excluded.

Sample size calculation

The sample size was calculated using the single population proportion formula

$$\frac{(n=(Z^{\alpha}/2)^2 P (1-P))}{D^2}$$

(n=sample size, Z = level of confidence interval, P = proportion of the event to be studied, D = margin of error)) and considering the level of significance to be 5%, 95 confidence interval, the proportion of students who know about emergency contraceptive methods was 72%¹², 1.5 design effect, adding a 10% non-response rate. Therefore, the final sample size was 446. The sample size was proportionally allocated to two departments; 94 health science department students and 352 from non-health science departments.

Sampling methods

To obtain a representative sample, multistage stratified sampling was applied to select study participants. First, 16 departments were selected from a total of 56 departments using the lottery method. Next to this, the students were divided into two practical strata, which were health science students and non-health science students. From each stratum, participants were selected by systematic random sampling based on the proportion of the number of female students in each stratum, that is, 440 (21%) health science students and 1638 (79%) non-health science students.

Study variables

Dependent variable: Knowledge, attitude, and practice of EC, and independent variables:

Age, Marital status, Parents' educational level, Availability of services, Affordability of services, and Mass media.

Operational definition

Emergency contraception: A kind of contraception indicated after unprotected sexual intercourse to prevent unwanted pregnancy.

Sexually active: having a history of vaginal sexual intercourse.

Unintended pregnancy: the pregnancy occurred without a plan.

Good knowledge -a is assigned to respondents who answered $\geq 50\%$ of the knowledge questions correctly, and "poor knowledge" to those answering $< 50\%$ of questions.

Attitude: Intending to use or recommend is considered a positive attitude, and no intention is a negative attitude.

Practice: Any history of EC usage.

Media: Radio, Television

Data collection methods

A structured and self-administered questionnaire was used to collect data from individual participants. The questionnaires contained open and closed questions that address sociodemographic characteristics, knowledge, attitudes, and practices on EC utilization patterns. The questionnaires are prepared in English and translated to the Amharic version.

The quality of the data was ensured by properly designing the structured questionnaires. Every day after data collection, the principal investigator reviewed and verified the competency and relevance of the questionnaires and the necessary correction was made. Before data collection, a questionnaire pretest was done among 5% (23 students) of the extension students, and necessary corrections was taken accordingly.

Data processing and analysis

All questionnaires were visually coded and entered into EPI info, and translated into the SPSS version²⁶ software package for analysis, collecting errors, and frequency checks was done. The results are presented in free-form tables, figures and text using

frequencies and summary statistics such as mean, standard deviation, and percentage to describe the study population about relevant variables.

Ethics approval

A letter of ethical clearance with code number S/R/C/59/2021 was obtained from DMU School of Medicine after approval. The study was carried out in accordance with the Declaration of Helsinki. The study participants were approached while in class. Informed written consent was obtained from participants after being informed about the voluntary basis of participation. The confidentiality of respondent's information was protected.

RESULT

Sociodemographic characteristics of respondents

A total of 446 students participated in the study with an overall response rate of 100%. The age of the study participants ranged from 18 to 35 years with a mean of 22 years SD (± 2.14) years. The majority of the respondents, 392 (88.1%) were never married and more than half of the respondents were from the non-health science departments. Most of the respondents, 93%, were followers of Orthodox Christianity followed by Protestants, representing 6.5% of the respondents.

Approximately 177 (39.7%) of the students responded that their mother cannot write and read, and about 70 (15.7%) reported that their mother attended higher education. Regarding their father's education, 90 (20%) reported that their father attended higher education, and about 43 (9.6%) responded that their father cannot write and read. The majority of the 302 respondents (67.7%) were from a rural residence (Table 1).

Table 1: Sociodemographic characteristics of female regular undergraduate students of Debre-Markos University, 2021 (N=446).

Background variables	Frequency	Percent (%)
Age		
18-22 years	325	72.9
23-27 years	103	23.1
28-32 years	14	3.1
Above 33 years	4	0.9
Marital status		
Single	392	87.9
Married	39	8.7
Divorced	8	1.8
Widowed	4	0.9
Separated	3	0.7
Religion		
Orthodox	415	93
Protestant	30	6.8
Muslim	1	0.2
Place of residence		
Urban	144	32.3
Rural	302	67.7
Mother educational level		
Can't read & write	177	39.7
Read and write	125	28
Grade 1-6	34	7.6
Grade 7-12	39	8.7
Diploma	33	7.4
First degree and above	37	8.3
Father educational level		
Can't read & write	43	9.6
Read and write	190	42.6
Grade 1-6	65	14.6
Grade 7-12	57	12.8
Diploma	19	4.3
First degree and above	71	15.9
Department		
Health Science	94	21.1
Non-Health Science	351	78.7

Most of the participants 330 (74.4%) reported that they had heard about EC. Out of those who heard about emergency contraceptives, 58.1% identified oral pills as a possible method of emergency contraceptive, followed by injectable 18% and intrauterine contraceptives (13.5%).

The main sources of information about EC were health facilities (28%), followed by hearing from a friend or a relative (19.7%), and mass media (18.2%). Most of the 272 respondents (61%) could identify the correct timing for the administration of emergency contraceptive pills after unprotected sex. The overall summary index of knowledge revealed that 372 (83.6%) of the study participants had good knowledge about EC and 16.4% of the respondents had no adequate knowledge about emergency contraceptives.

Table 2: Knowledge of emergency contraceptives among female regular undergraduate students of Debre-Markos University, 2021 (N=446)

Background variables	Frequency	Percent (%)
Have you ever heard of emergency contraceptives (EC)?		
Yes	332	74.4
No	114	25.6
What type of ECS do you know?		
Emergency contraceptive pills	259	58.1
IUCD	60	13.5
Both	55	12.3
Injectable	72	16.1
Where do you get the information about EC?		
Media	81	18.2
Health facilities	125	28
Informal education	68	15.2
Internet	18	4
Magazine	4	0.9
Friend or relative	88	19.7
Time to take ECs?		
Within 72 hours	272	61
After 72 hours	17	3.8
Don't know	156	35
The recommended dose of Emergency contraceptive pills		
One	126	28.3
Two	32	7.2
Three	12	2.7
Don't know	275	61.7
Effectiveness of EC pills		
75-99%	98	22
30-50%	33	7.4
Not sure	314	70.4
A place to obtain EC		
Health institutes	368	82.5
Supermarket	23	5.2
Social worker	1	0.2
Don't know	45	10.1
Impossible to obtain	8	1.8
Importance of EC		
Post rape	184	41.3
Back up when a condom break	24	5.4
When the oral contraceptive pill is forgotten		
238	53.3	
Knowledge of EC (summary index)		
Good knowledge	372	83.4
Poor knowledge	73	16.4

Attitude and Practice of EC among female Debre Markos University Students

The attitude score was calculated from the questionnaire and the mean value of the response was taken to classify favorable and unfavorable. Around half, 207 (62.3%) of the study participants indicated that they recommended others to use ECs and about 174 (39%) respondents believed ECs were unsafe. Of the total, 141 (31.6%) students supported the idea of making available emergency contraceptives for all females. Of the respondents (47%) the students have a favorable attitude towards emergency contraceptives.

Among the respondents who had ever heard of EC, almost a quarter of 104 (31.3%) of them had ever used EC Pills. However, none of the women had ever used IUCD. After rape, missing pills and condom slippage were the commonly stated reasons for using EC accounting for 272 (61%), 156 (35%), and 18 (4%), respectively. Among the sexually active students, 36 (8.1%) had an unintended pregnancy.

Factors associated with knowledge of emergency contraceptives

In bivariate analysis, a significant difference was observed between predictors; the mother's

educational level, the father's educational level, the field of study, and the year of study were associated with knowledge of emergency contraception. By using variables that have a p-value < 0.25 in the multivariable logistic regression analysis, the model was fitted with a backward stepwise procedure. After controlling, the effect of other variables, they were significantly associated with knowledge of EC. Socio-demographic factors; father's educational level, a field of study, and year of study showed a significant association with good knowledge of EC in multivariate logistic regression analysis. Females in the fifth year were 75% less likely to have good knowledge of EC than students in the second year (AOR: 0.25, 95% CI: 0.66-0.977, P = 0.048). Respondents who are health science students were 2.2 times more likely to have good knowledge of EC compared to those of non-health science departments (AOR: 2.25, 95% CI: 1.01-5.07, P = 0.05). On the other hand, respondents whose father had a first degree and above were 6.29 times more likely to have good knowledge of EC compared to those with a father who can't read and write (AOR: 6.29, 95% CI: 2.06-19.26, P = 0.001).

Table 3 Bivariate and multivariate analysis of factors associated with knowledge of EC among Female Regular Undergraduate Students of Debre-Markos University, 2021 (N=446).

Notes: *P<0.05; 1, reference

Variable and Category	Knowledge		COR (95% CI)	P value*	AOR (95% CI)	P value*
	Good	Poor				
Father educational level						
Can't read & write	29	14	6.372 (2.099-19.347)	0.001	6.29 (2.059-19.257)	0.001*
Read and write	150	40	3.520 (1.329-9.320)	0.011	3.12 (1.169-8.315)	0.023*
Grade 1-6	57	8	1.853 (0.574-5.982)	0.303	1.86 (0.573-6.041)	0.301
Grade 7-12	54	3	0.733 (0.168-3.208)	0.680	0.67 (0.152-2.936)	0.593
Diploma	16	3	2.475 (0.535-11.453)	0.246	2.72 (0.580-12.787)	0.204
First degree and above	66	6	1		1	
Field of study						
Health science	86	8	1		1	
No health science	286	66	3.96 (1.549-10.16)	0.039	2.25 (1.06-5.067)	0.048*
Year of study						
2 nd year	189	28	0.333 (0.096-1.155)	0.083	0.253 (0.066-.977)	0.046*
3 rd year	149	37	0.559 (0.163-1.915)	0.354	0.375 (0.098-1.436)	0.152
4 th year	25	4	0.360 (0.074-1.750)	0.205	0.28 (0.051-1.499)	0.136
5 th year	9	4	1		1	

Factors associated with the practice of emergency contraceptives

The association of selected variables was investigated using both bivariate and multivariate logistic regression techniques. Accordingly, the variables considered in the bivariate analysis were: age, marital status, religion, college/department, and overall knowledge about EC. Explanatory variables that showed an association with a p-value <0.25 were included in the multivariable logistic regressions. Finally, the field of study, the knowledge of the respondents, and marital status remained to be

significantly associated with the utilization of EC. Respondents from health science were two times more likely to use emergency contraceptives compared to respondents from non-health science departments respondents (AOR = 2.14, 95% CI= 1.265-3.532). Single female students were 41% more likely to use EC as compared to those respondents who were married (AOR=0.41, 95% =0.21-.824, p = 0.01). Respondents with poor knowledge were 1.7 times less likely to use EC compared to those who had good knowledge (AOR = 1.69, 95% CI; 1.819-3.482, p = 0.015).

Table 4: Bivariate and multivariate analysis of factors associated with the practice of EC among Female Regular Undergraduate Students of Debre-Markos University, 2021 (N=446).

Variable and Category	EOC use		COR (95% CI)	P value*	AOR (95% CI)	P value*
	Yes	No				
Field of study						
Health science	33	61	1	1	1	1
No health science	71	281	1.848 (1.298-3.508)	0.004	2.11 (1.265-3.532)	0.004*
Marital status						
Single	81	311	1	1	1	1
Married	15	24	0.417 (0.209-0.831)	0.013	0.41 (0.204-0.824)	0.012*
Divorced	3	5	0.434 (0.102-1.854)	0.260	0.59 (0.134-2.617)	0.489
Widowed	3	1	0.087 (0.009-1.846)	0.035	0.10 (0.010-1.025)	0.053
Separated	2	1	<0.01	0.999	<0.01	0.999
Overall knowledge						
Good knowledge	94	278	1	1	1	1
Poor knowledge	10	64	2.130 (1.050-4.320)	0.036	1.69 (1.819-3.482)	0.015*

Notes: *P<0.05;1, reference

DISCUSSION

The study aimed at examining the level of knowledge and attitudes toward EC among female students at Debre Markos University. Most of the participants (74.4%) reported having heard about EC, this finding was lower compared to a study conducted at Adis Ababa University (84.2%)¹³. However, this finding is superior to the result of studies at Arbaminch University (63%). This difference might be attributed to a lack of free discussion on sex and sexuality among female students at Debre Markos University.

Furthermore, in this study 272 (61%) of the participants correctly identified the time limit of EC pill use, which was lower than a study done on university students in Ghana (78.7%)¹⁴, Arbaminch university (70.2%) (15), Haramaya University (81.4%)^{12, 15, 16}. The finding showed that unintended pregnancies were observed in 36 (8.1%) of the respondents, which was slightly lower than the study conducted at Arbaminch University 20 (15.7%), Harar town 30 (23.6%)^{4, 17}. This may be explained by the wide availability of other contraceptive methods. Around half, 207 (46.7%) of the study participants

indicated that they recommended others to use ECs, this was again lower than the findings of similar studies conducted in Dangila Hdasie high school 147 (77.4%). This could be because of the lack of free discussion on sex and sexuality among female students at Debre Markos University. The present study also showed that female students who had adequate knowledge of EC were more likely to use EC than their counterparts, which was in line with other studies^{4, 13}.

CONCLUSIONS AND RECOMMENDATION

This study showed that the awareness of emergency contraception among Female Regular Undergraduate Students of Debre-Markos University was fair. The students had also optimal knowledge of the timeframe for the use of EOC. Moreover, their attitude to using emergency contraception and to advising others to use and practice was low. There was a strong association between the field of study, marital status, and knowledge about emergency contraceptive communication with the practice of emergency contraception. Therefore, further to increase the knowledge, attitude, and practice of emergency contraception user-friendly services, basic training about reproductive health and family communication services should be promoted.

ABBREVIATIONS

DMU	Debre Markos University
EC	Emergency Contraception
ECPs	Emergency Contraceptive Pills
EOC	Emergency Oral Contraceptive
IUCD	Intrauterine Contraceptive Device
KAP	Knowledge Attitudes and Practice
WRA	Women of Reproductive Age
WHO	World Health Organization

DECLARATIONS

Data Sharing

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

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Author Contributions

I the author made substantial contributions to the conception and design, acquisition of data, or analysis and interpretation of data, took part in drafting the article or revising it critically for important intellectual content, agreed to submit it to the current journal, gave final approval to the version to be published, and agree to be accountable for all aspects of the work.

Disclosure

The authors declare that they have no competing interests regarding the publication of the paper.

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