

## Research Article

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## Knowledge, Attitude, Utilization of Emergency Contraceptive and Associated Factors among Female Students of Debre Markos Higher Institutions, Northwest Ethiopia, 2014

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### Abstract

**Introduction:** Emergency contraception (EC), also called post coital contraception is a method of preventing pregnancy as a result of unanticipated sexual activity, contraceptive failure, or sexual assault. Young people today marry later, and more start sex before marriage. In addition to the higher risk of morbidity and mortality, adolescent pregnancy can lead to serious social stigma and health consequences for both mother and child. However, in many developing countries, pregnancy severely limits an adolescent in pursuing education and in having broader economic opportunities in the future.

**Objectives:** the main of this study was to assess the knowledge, attitude, utilization of emergency contraceptive and associated factors among female students of Debre Markos Higher Institutions 2014.

**Methods:** Quantitative cross-sectional study design supported with qualitative study was conducted. Multi stage sampling technique was used to select 549 students among female students in Debre Markos Higher Institutions. Data were collected by interview using structured self-administered questionnaire. The analysis was done using SPSS version 16. Logistic regression analysis was used to identify factors associated with outcome variables.

**Results:** The overall response rate was 88%. The age of the study participants ranged from 18-35 years with mean of 20.59 ( $\pm 1.9$ SD) years. Among the students participated in this study 411(74.9%) were found to be knowledgeable about emergency contraceptives but only 283(48.5%) had favorable attitude and 99(18.4%) female students ever used. Age group greater than or equal to 25 years, married students and students with unfavorable attitude were less likely users.

**Conclusion:** More than half of respondents had unfavorable attitude towards emergency contraceptive methods and the utilization was very low. Age of respondents, married status and their attitude were independent predictors of emergency contraceptives use.

Health education program should be setup to the university students to give accurate information about emergency contraceptive methods.

**Keywords:** Emergency contraceptive; Knowledge; Attitude; Utilization; Unwanted pregnancy

### Introduction

Emergency Contraception (EC), also called post coital contraception is a method of preventing pregnancy as a result of unanticipated sexual activity, contraceptive failure, or sexual assault [1].

There are two types of emergency contraceptive pill, one type contains a combination of the female sex hormones estrogen and progestin and a second type of Emergency Contraceptive (ECP) contains only progestin. The hormones in ECPs prevent an egg from being fertilized by sperm, either by delaying or preventing ovulation, or by affecting the ability of sperm to reach the egg. These hormones may also prevent an egg from implanting in the uterus. The first dose of ECP is taken within 72 hours of unprotected intercourse. The second dose is taken 12 hours later. Alternatively, both pills may be taken at the same time, as soon as possible after unprotected sex. ECP may be taken up to 120 hours, but its effectiveness is lower [1-3].

Effectiveness of emergency contraceptive pills is 75% - 89% when taken within 72 hours of unprotected intercourse. When taken within 72 hours of unprotected intercourse, ECPs that contain both estrogen and progestin reduce the risk of pregnancy by 75 percent. When initiated within 24 hours of unprotected intercourse, progestin-only ECPs were found to reduce the risk of pregnancy by 95 percent [2].

Another form of emergency contraception is the insertion of a copper Intra uterine Device (IUD) by a trained healthcare professional.

When inserted within five days of unprotected sex, the copper IUD is 99 percent effective in preventing pregnancy [1-3].

The need for emergency contraception is clearly demonstrated by the occurrence of high magnitude of unwanted pregnancy and induced abortion. If emergency contraception is easily available and distributed along with appropriate advocacy and Information Education and Communication (IEC) activities millions of unwanted pregnancies and abortions could be averted [4,5].

One fourth of world population is between age 10 and 24. One third of the total population of sub Saharan Africa is aged between 10-24 years [6]. Ethiopia has a predominantly young population that makes up 30% of the total population [7]. Young people today marry later, and more start sex before marriage. Thus they face more risk of unwanted or unintended pregnancy [8]. For many youth, sex is largely unplanned and sporadic yet few young people know about the option of

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emergency contraception, contraceptives after unprotected intercourse [9]. The proportion of women aged 15–19 years in Africa who have had an unsafe abortion is higher than in any other region; almost 60% of unsafe abortions in Africa are among women aged less than 25 years and almost 80% are among women below age 30 [10].

In Ethiopia about 25,000 women die every year due to pregnancy and child birth complications, and abortion is estimated to account for about 32% of these deaths [11]. Unintended pregnancy poses a major challenge to the reproductive health of young people in developing countries. Some women with unintended pregnancies obtain abortions many of which are performed in unsafe conditions and others carry their pregnancies to term, incurring risks of morbidity and mortality higher than those for adult women [12].

In addition to the higher risk of morbidity and mortality, adolescent pregnancy can lead to serious social stigma and health consequences for both mother and child. The adverse social and economic consequences for an adolescent who becomes pregnant will depend on her particular marital, cultural, familial, and community situation. However, in many developing countries, pregnancy severely limits an adolescent in pursuing education and in having broader economic opportunities in the future [13].

Emergency contraception is largely underutilized worldwide and has been referred to as one of the best kept secrets in Reproductive Health. In USA less than 13% college students had ever used EC in 2002. In many low income countries, the lack of knowledge about and access to emergency contraception may result in young females resorting to unsafe abortions, which contribute significantly to maternal morbidity and mortality [14].

Studies showed that there was a gap on knowledge, attitude and practice of emergency contraception in the studies conducted in different countries. Different studies conducted in Ethiopia indicated that awareness of EC is less than 50% and utilization is less than 10% [15–18].

Thus, this study was aimed to assess the knowledge, attitude, utilization of emergency contraception and associated factors among Debre Markos higher institution female students. The information attained from this study will help to improve reproductive health services for young people and to apply appropriate interventions based on the findings. So the information obtained from this study could indicate as to make an emphasis on the possible interventions depending on the finding. This result can be inference to the other higher institutions in the country. Finally helpful to policy makers and programmers to emphasis on reproductive health issues of adolescents starting from the lower education level and it could help as Prerequisite for government in collaboration with non government agencies for successfully integrating ECPs into large-scale reproductive health programs.

## Methods and Materials

### Study setting and period

This study was conducted from April to June 2013 among Female students to assess knowledge, attitude, and utilization of emergency contraceptive and associated factors in Debre Markos Town, East Gojjam zone, Amhara. Debre Markos is the capital city of East Gojjam Zone and is found in the North West part of the country bounded by Gozamen woreda in the North, South, and East, and Andeded Woreda in the West. It covers an area of 6 million square meters and located on the main road of Addis Ababa-Bahir Dar and 300 km away from Addis

and 265 km from Bahir Dar, it is estimated that, 70,857 people live in 2002 E.C, of which about 21,257 is youth group. Two NGO clinics/ FGAE and Marry Stop/providing reproductive health services to the target adolescent and youth, one government health center provides this services.

### Study design and populations

Quantitative cross-sectional study design supported with qualitative study was conducted. The source populations were all female undergraduate students among Debre Markos Town. Study population; were regular female students who at least fulfill inclusion criteria. Regular female students who attended the higher schools during study were included in the study and those critically ill were excluded from the study.

### Sample size and sampling

The required sample size was determined using single proportion formula taking 43.5% the proportion of students who aware of emergency contraception from the study conducted among female university students in Addis Ababa, assuming 5% marginal error, 95% confidence interval and using design effect of 1.5 and adding 10% non response rate the total sample size was 624. Multi-stage sampling technique was used to select study participants. First students was stratified by their institutions as university and college (private and government) then university students (further stratified by their field of study as health science and non health science then students in each field study) and college students (were stratified by their institutions as private and government also further as health and none health. Finally proportional numbers of participants (students) were selected by simple random sampling technique. Purposive sampling was used to select key informants for the study.

### Measurement

Self administered structured questionnaire was used to collect data. It was prepared in English and translated in to Amharic and then translated back in to English to check for consistency and clarity. The questionnaire included socio- demographic characteristics, awareness of EC and regular contraception, attitude toward EC, utilization of EC and regular contraception. For qualitative data collection, an open ended semi- structured interview guide to know the service providers knowledge of EC, types of services provided in the institution, who was the service users and the reasons mentioned by the service users for asking EC service and the attitude of service providers towards EC in the reduction of maternal morbidity and mortality used for in-depth interview of the health service providers. Knowledge of EC how can prevent pregnancy, the availability of RH service in the campus and availability means of RH issue was used.

### Data collection method

Data collectors and supervisors were recruited based on their prior experience on data collection. Training was given to the data collectors and supervisors on the objectives of the study, the content of the questionnaire, issue related to confidentiality of the responses and rights of the respondents for a day. Data was collected by trained data collectors through interview. In-depth interview with health service providers of the student clinic, hospital, FGAE clinic, Marie stops clinic, were carried out using a guideline. One family planning service provider from each site participated in the interview and note taker also involved in this process. The questionnaire was pre tested on other department female undergraduate students before the actual data collection and was checked for the clarity and consistency. Supervisors

and principal investigator were made immediate supervision on data collection process. Completed questionnaires were checked daily for completeness.

### Data processing and analysis

The collected data were entered into EPI -data version 3.1 computer software package. The entered data were exported to SPSS version 16 for analysis. Then, the data were recoded, categorized and sorted to facilitate its analysis. Descriptive analysis was used to describe the percentages and number distributions of the respondents by socio-demographic characteristics and other relevant variables of the study. Logistic regression was used to fit data in order to identify factors associated with outcome variables. All explanatory variables that were associated with the outcome variables in bivariate analysis with p-value of 0.20 or less were included in the initial logistic models of multivariable analysis. The crude and adjusted odds ratio together with their corresponding 95% confidence intervals was computed. A P-value<0.05 was considered to declare a result as statistically significant association in this study. Thematic analysis was used for the qualitative part.

### Ethical consideration

Ethical clearance was obtained from institutional research review board of Debre Markos University. Then formal letter that explains the Objectives, Rationale and expected outcomes of the study was written to the respective institution. Then purposes and the importance of the study were explained and written informed consent was obtained from each participant. Participant's involvement in the study was on voluntary basis; participants who are unwilling to participate in the study & those who wish to quit their participation at any stage were informed to do so without any restriction. Moreover, Confidentiality of the information was assured through using anonymous questionnaire and keeping the data in secured place.

### Result

#### Socio - demographic characteristics of respondents

A total of 549 students completed the questionnaire with overall response rate of 88%. The age of the study participants ranged from 18-35 years with mean of 20.59 ( $\pm 1.90$ SD) years. Majority, 517 (94.2%) of the respondents were followers orthodox Christian and four hundred ninety (89.3%) were Amhara by ethnicity followed by Oromo and Tigre which accounts for 25(4.6%) and 23(4.2%) respectively (Figure1). Majority of the respondents, 449 (81.8%) were never married in their marital status and more than half of the respondents were from natural sciences stream (Table 1).

#### Emergency contraceptive knowledge, attitude and utilization of the respondents

**Knowledge of emergency contraceptive methods:** The knowledge score was computed from questionnaire and mean value of the response were taken to classify knowledgeable and not. Hence, 411(74.9%) were knowledgeable and the rest were not. Majority of the respondents, 527(96%) have ever heard about emergency contraceptive. Of these, 229(43.5%) did not know when they have heard whereas, 149(28.3%) of female students in the study heard it from health centers. Near to three fourth (68.1%) of respondents replied that women can get contraceptives from hospital/HC/clinic (Table 2).

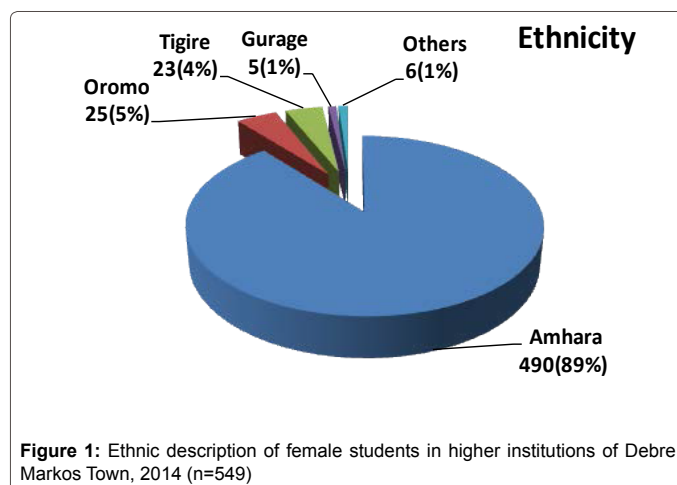
**Attitude towards emergency contraceptive methods:** The attitude score was computed from questionnaire and mean value of the response were taken to classify favorable and unfavorable. Hence,

266(51.5%) had unfavorable attitude and the rest had favorable. More than half, 303(55.2%) of study participants indicated that they were ready to use or recommend others to use ECs. About, 289(53.6%) respondents think ECs were unsafe but the rest state it was safe for most women. Regarding their acceptance of ECs by participants on the use ECs, 283(48.5%) of female students had favorable attitude towards the utilization of ECs where as the rest had (Table 3).

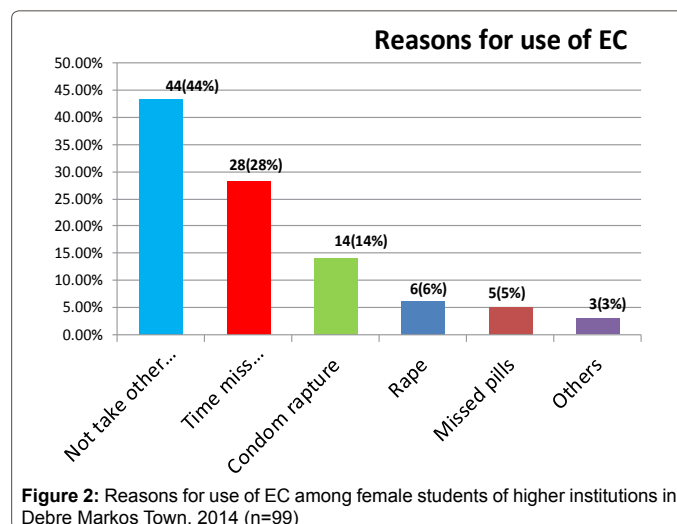
**Utilization of emergency contraceptive methods:** Majority, 440(81.6%) respondents were not ever used ECs. Among the users, 64(64.6%) on oral pills, 52(52.5%) used two times, 51(51.5%) were recommended by friends, 43(43.4%) use it for the reason that they did not use other contraceptives. Regarding the time of use, 252(46.8%) indicated it should be taken with 24 hrs were as 344(63.8%) of female respondents did not knew the content of EC (Table 4). Reasons for use of EC among female students of higher institutions in Debre Markos Town is shown in Figure 2.

Regarding the sources of Emergency contraceptive methods, majority 346(53.9%) study female students indicated Health center and also 296(53.9%), 175(31.9%) and 165(30.1%) respondents replied that public hospitals, private hospital and pharmacies as source of the drug respectively.

**Determinant factors related to knowledge about emergency contraceptives:** The association of selected variables was investigated



**Figure 1:** Ethnic description of female students in higher institutions of Debre Markos Town, 2014 (n=549)



**Figure 2:** Reasons for use of EC among female students of higher institutions in Debre Markos Town, 2014 (n=99)

Variables	Frequency	Percent
<b>Age</b>		
15-19 years	111	20.2
20-24 years	419	76.3
>=25 years	19	3.5
<b>Religion</b>		
Orthodox	517	94.2
others	32	5.8
<b>Total</b>	<b>549</b>	<b>100</b>
<b>Marital Status</b>		
Never married	449	81.8
Ever Married	100	18.2
<b>Total</b>	<b>549</b>	<b>100</b>
<b>Educational level</b>		
TVET	286	52.1
University	263	47.9
<b>Total</b>	<b>549</b>	<b>100</b>
<b>Department/college</b>		
Social science	128	23.3
Natural sciences	302	55.0
Health sciences	119	21.7
<b>Total</b>	<b>549</b>	<b>100</b>
<b>Monthly in come</b>		
< 250 Birr	310	56.5
250 – 499 Birr	172	31.3
>=500Birr	67	12.2
<b>Total</b>	<b>549</b>	<b>100</b>

**Table 1:** Socio-demographic characteristics of respondents Debre Markos Town, 2014(n=549)

using both the bivariate and multivariate logistic regression technique. Accordingly, variables in the bivariate analysis: age, marital status, religion, college/department, income, and information about how EC work and time to take EC were show association with outcome variable. Explanatory variables that show association with p-value up to 0.2 were included in the multivariable logistic regressions. Finally, only one of these variables i.e. how EC work was remained to be significantly associated with knowledge of EC. Participated Female students who did not know how emergency contraceptive work were found to be associated with the knowledge of EC. Female students who did not know how emergency contraceptive work were six time more user than their counter parts [AOR=6.27, 95% CI (1.85, 21.38)] (Table 5).

### Determinant factors related to attitude about emergency contraceptives

The association of selected variables was investigated using both the bivariate and multivariate logistic regression technique. Accordingly, variables considered in the bivariate analysis were: age, marital status, religion, college/department, income, and information about how EC work and time to take EC. Explanatory variables that shown association with p value up to 0.2 were included in the multiple logistic regressions. Finally, college/department and how EC work, were remained to be significantly associated with attitude towards EC. The college/department of respondents and those who did not knew how it work were statistically significant factor for attitude towards EC and had a positive relation. Female students who did not know how emergency contraceptive works were 1.72 times more likely to have unfavorable attitude towards EC (AOR 1.72(95% CI (1.12, 2.65)). Those female students from social sciences were 1.74 times more likely to have unfavorable attitude towards EC as compared to those from natural sciences(AOR=1.74(95%CI(1.03,3.01)). Those female students from health sciences were 2.16 times more likely to have favorable attitude as compared with those from natural sciences (AOR=2.16,95%CI(1.38,3.40) (Table 6).

### Determinant factors related to practice about emergency contraceptives

The association of selected variables was investigated using both the bivariate and multivariate logistic regression technique. Accordingly, variables considered in the bivariate analysis were: age, marital status, religion, college/department, income, and information about how EC work and time to take EC. Explanatory variables that shown association with p value up to 0.2 were included in the multivariable logistic regressions. Finally, age, marital status, time heard/duration how EC work and attitude were remained to be significantly associated with utilization of EC. Those female students whose belongs to age group of 25 and above years were 80% less likely user of emergency contraceptives compared to those respondents whose age belong to 20 – 24 years (AOR=0.20 (95% CI= (0.06, 0.62)]. Married female students were 82% less likely to use EC as compared with those never married (AOR=0.18(95% =.10, .31)]. Those respondents who did not knew time they heard were 2.94 times more likely to utilize EC compared to those who heard before one year ago (AOR = 2.94(95% CI (1.66, 5.19)]. Students with unfavorable attitude were 98% less likely to use emergency contraceptives (AOR = 0.02 (95% = 0.01, 0.03)]. Those female students whose time heard less than one year duration were 2.01 times more likely to use EC as compared to those whose time heard greater than one year(AOR=2.01(95%CI(1.00,4.00) (Table 7).

Variables	Frequency	Percent
<b>Ever Heard (n=549)</b>		
Yes	527	96.0
No	22	4.0
<b>First heard(n=527) &lt; 1year</b>	96	18.2
<b>&gt;=1year</b>	202	38.3
<b>I don't know</b>	229	43.5
<b>Where you 1<sup>st</sup> Heard(information source)***</b>		
At clinic	66	12.5
At Health center	149	28.3
From Friend/relative	114	21.6
News /magazine	19	3.8
Radio	77	14.6
Television	79	15
Course or formal lecture	98	18.6
Telephone line	3	0.6
Others	10	1.5
Don't remember	37	7
<b>Total</b>	<b>659</b>	<b>100</b>
<b>Where woman get contraceptive pills***</b>		
Hospital /Health/clinic	367	68.1
Community health worker	74	13.7
Private clinic	99	18.4
Pharmacy	99	18.4
Supermarket	5	0.9
It is not possible to obtain them	5	0.9
Don't Know	36	6.8
<b>Total</b>	<b>685</b>	<b>100</b>
<b>How do EC work?</b>		
Prevent pregnancy	340	63.1
Cause abortion	60	11.1
I don't know	139	25.8
<b>Knowledge(summary Index)</b>		
<b>Knowledgeable</b>	411	74.9
<b>Not knowledgeable</b>	138	25.1
<b>Total</b>	<b>539</b>	<b>100</b>

**Table 2:** Knowledge of EC among female students of higher institutions in Debre Markos Town, 2014  
(\*\*\*= multiple response)



Variables	Frequency	Percent
<b>Attitude(summary index)</b>		
Un Favorable	266	51.5
Favorable	283	48.5
<b>Total</b>	<b>549</b>	<b>100</b>
<b>How safe do you think Emergency birth control methods are for most women?</b>		
Safe	250	46.4
Unsafe	289	53.6
<b>Total</b>	<b>539</b>	<b>100</b>
<b>Do you think you would ever use it or recommend it to a friend or relative in case of need?</b>		
Yes	303	55.2
No	246	44.8
<b>Do you think your partner would accept that you use this method</b>		
Yes	247	45
No	302	55
<b>Total</b>	<b>549</b>	<b>100</b>

**Table 3:** Attitude of respondents towards EC female students of higher institutions in Debre Markos Town, 2014 (n=539)

## Qualitative findings

**Emergency contraception service provision knowledge, attitude and utilization:** The service providers stated that “the rate of unintended pregnancies is increasing”. The possible reason indicated by majority of participants were “Lack of awareness” and “afraid to request”. To lower the rate there should be awareness creation activities from different stakeholders and establishing and strengthening RH clubs.” Potential EC clients were “who involved in unplanned sex, raped, condom break and being younger”.

If women are exposed to unprotected sex, as indicated “They should come to health care service provision area” and “should start as early as possible EC (earlier is the better),” “within 72 hours for hormonal pills and five for IUCD.”

Staffs of the service providers “indicated that there is always discussion with clients about the methods and currently the available EC methods are Post pill and IUCD in their institutions.”

The service providers also indicated “majority of the female students/women have no awareness of EC methods.” Regarding the attitude of clients towards EC; the respondents stated “there are students/ women who think EC will be used for termination of pregnancy “the clients also have fear of side effects”.

Providers’ knowledge regarding EC methods, really all respondents stated that; “the staffs have awareness but there is gap on dosage of administration.” As barriers for health care provider provision of ECs methods were, “not protect against STI,” “rely on ECPs as regular form of contraception”, “lack of trained staffs to provide emergency contraceptives” and “Encourage irresponsible behavior”. Hormonal methods (especially post pill)” were recommended as emergency contraceptive methods in almost all case as indicated by the respondents.

## Discussion

Emergency contraception is a method of preventing pregnancy as a result of un-anticipated sexual activity, contraceptive failure or sexual assault. Effectiveness of emergency contraceptive pills is 75% - 89% when taken within 72 hours of unprotected intercourse [1]. The finding from this study revealed that 74.9% of the respondents were knowledgeable. This is in line with study in USA (73%) [14], but higher than study done in Mekele Town (67.3%), Addis Ababa and Unity

University (43.5%) [16,19]. This could be related to methodological difference and time gap of the studies. The finding from this study revealed that most (96%) of the respondents had heard of emergency contraception method which was lower than studies conducted in Bahir Dar University (99.4%) [15]. This could be related to limited media access and environmental difference.

The most common source of information for this study group was health care provides (40.8%), from friends/relatives (21.6%), Formal lecture (18.6%), Television (15%), Radio (14.6%), and Magazine (3.8%). This is lower than studies conducted in Mekele Town, Cameroon university students (69.9% from friends) and Nigerian (33% from friends) [19,20]. Information from health personnel in this study is higher than study in Cameroon (19.9%) [21].

Friends were sources of information for 21.6% of respondents in this study which is lower than study in Addis Ababa and Unity university(40%) and KAP study in Addis Ababa post abortion care centers(40.8%) [16,18]. This could be related to difference in culture of discussion here in the study participants.

In this study 48.5% of the respondents had positive attitude towards EC utilization. The finding is lower than study conducted in USA (96%), Bar Dar University (56.7%), Arsi college female students (62.9%), Addis Ababa University (53%), Haremaya University (76.5%). This could be related to the environmental difference [14,15,22,23]. The finding of this study was in line with study conducted in Mekele Town (46.4%) [19].

Variables	Frequency	Percent
<b>Have you ever used EC pills?</b>		
Yes	99	18.4
No	440	81.6
<b>Total</b>	<b>539</b>	<b>100</b>
<b>Method of EC that used</b>		
Pills	64	64.6
IUCD	30	30.3
Don't remember	5	5.1
<b>Total</b>	<b>99</b>	<b>100</b>
<b>Frequency if used</b>		
One times	45	45.5
Two-times	52	52.5
More times	2	2
<b>Total</b>	<b>99</b>	<b>100</b>
<b>Who recommend it</b>		
Friends	51	51.5
Partner	39	39.4
Telephone line	4	4
Internet	1	1
Don't remember	4	4
<b>Total</b>	<b>99</b>	<b>100</b>
<b>After EC, did you start using regular methods</b>		
Yes	38	38.3
No	42	41.6
Do not remember	13	13.1
Don't know	6	6
<b>Total</b>	<b>99</b>	<b>100</b>
<b>Which method did you start using</b>		
Pills	43	43.4
Depo provera	35	35.4
Condom	14	14.1
IUCD	2	2
Others	3	3
Don't remember	2	2
<b>Total</b>	<b>99</b>	<b>100</b>

**Table 4:** Utilization of emergency contraceptives among higher institutions in Debre Markos Town, 2014

Variable	Knowledge of ECs		Odd ratio (95%CI)		P-Value
	Knowledgeable	Not	Crude	Adjusted	
<b>How EC work?</b>					
Prevent pregnancy	246(72.4%)	94(27.6%)	1.00	1.00	
Cause abortion	41(68.3%)	19(31.7%)	1.42(0.16, 12.96)	1.62(16,15.89)	
I don't know	117(84.2%)	22(15.8%)	<b>6.51(2.01,21.13)*</b>	<b>6.27(1.85,21.38)**</b>	<b>P=0.003</b>
<b>College/Department</b>					
Social science	100 ( 78.1% )	28(21.9%)	2.00(.81,4.95)	2.23(.71,7.03)	
Natural science	228( 75.5% )	74(24.5%)	1.00	1.00	
Health science	83 ( 69.7% )	36(30.3%)	0.45(0.09,2.07)	0.91(.17,4.79)	
<b>Duration</b>					
Immediately	113(75.3%)	37(24.7%)	2.58(.71,9.31)	2.75(.73,10.42)	
Within 24hrs	189(75%)	63(25%)	1.00	1.00	
Within 120hrs & above	102(74.5%)	35(25.5%)	2.35(.62,8.89)	1.89(.48,7.41)	
<b>Marital status</b>					
Never Married	343(76.4%)	106(23.6%)	1.00	1.00	
Ever Married	68(68%)	32(32%)	0.23(0.3,1.55)	0.90(.16,1.22)	

**Table 5:** Determinant of knowledge of EC among female students of Debre Markos town, 2013 (\*\* on AOR it is significant)

Variable	Attitude		Crude OR (95%CI)	Adjusted OR (95%CI)	P-Value
	Unfavorable	Favorable			
<b>Age</b>					
15 – 19 years	45(40.5)	66(59.5)	1.47(.96,2.25)	1.23(.63,2.02)	
20 – 24 years	210(50.1)	209(49.9)	1.00	1.00	
≥ 25 years	11(57.9)	8(42.1)	0.73(.29,1.85)	0.81(.31,2.14)	
<b>Religion</b>					
Orthodox	255(49.3)	262(50.7)	1.00	1.00	
Other	11(34.4)	21(65.6)	1.86(0.88,3.93)	1.72(0.79,3.78)	
<b>College</b>					
Social Sciences	60(46.9)	68(53.1)	0.88(.58,1.33)	1.74(1.01,3.01)**	<b>P=.046</b>
Natural sciences	132(43.7)	170(56.3)	1.00	1.00	
Health sciences	74(62.2)	45(37.8)	<b>0.47(.31,.73)*</b>	<b>2.16(1.38,3.40)**</b>	<b>P=0.001</b>
<b>Time heard</b>					
< 1 year	44(45.80)	52(54.2)	0.90(0.56,1.45)	1.38(.83,2.29)	
≥ 1 year	111(55)	91(45)	1.00	1.00	
I don't know	99(43.2)	130(56.8)	0.62(.43,.94)	1.47(.99,2.18)	
<b>How EC work</b>					
Prevent pregnancy	1829(53.5)	158(46.5)	1.00	1.00	
Cause abortion	27(45)	33(55)	1.41(0.811,2.44)	1.13(.63,2.02)	
I don't know	54(38.8)	85(61.2)	<b>1.81(1.21,2.71)*</b>	<b>1.72(1.12,2.65)**</b>	<b>P=0.013</b>

**Table 6:** Determinants of attitude towards EC among female students of Debre Markose town, 2013 (N= 549) (\*\* AOR significant)

This study revealed that 18.4% of study female students emergency contraceptive methods utilization. The finding study found to be lower than study conducted in Finland (29%), Mekele Town (24.2%) and Adama University (26.7%) [19,23,24]. This could be related to limited access of EC in this study area. However, the finding of this study was higher than KAP study in Addis Ababa post abortion care centers (14.1%), Addis Ababa & Unity University (4.9%), Makerere University (14.5%), and Cameroon (7.4%) [16,18,21,25].

The knowledge of where contraceptive could be obtained in this study was 68.1% (hospital /HC/Clinic) this found to be lower than in USA (95%) [14]. The possible reason for this may be: due to lack of awareness of ECs as well as due to mass Media in adequacy in this area. In this study among the users of ECS, 64.6% used oral pills. This was lower than study done at Addis and Unity University (82.8% oral pills) [16]. Regular method users in this study was about 38.3% which lower than study at Addis Ababa post abortion care centers (69.1%). This could be related to difference in study subjects and access factors [18]. Related to when to use ECs, 27.8% respondent indicated the correct

time of use in this study. This is lower than KAP study at Addis Ababa post abortion care centers (49.2% correct time frame) [18] but higher than study done at Bar Dar University female students (25%) [15]. The possible reason for low EC practice rate in this study could be due to having negative attitude towards emergency contraception, lack of correct information, low promotion and availability of the methods in most health institutions as well as lack of enough mass Medias that works about reproductive health condition of the society.

## Conclusion

In conclusion, higher institution female students are expected to have greater knowledge of EC than most youth with no or less educational attainment. This study has shown that female students have awareness about EC and less than half of the respondents have positive attitude toward the methods. More than half of the study participants think still ECs were unsafe to most women. More than half of the respondents had unfavorable attitude toward EC methods. The utilization of ECs methods among the study participants was very low

Variable	Utilization		Crude OR (95%CI)	Adjusted OR (95%CI)	P-Value
	Yes %	No %			
Age					
15 – 19 Years	51(45.9)	60(54.1)	1.55(.83,2.92)	1.38(.69,2.74)	P=0.006
20 – 24 Years	239(57)	180(43)	1.00	1.00	
≥ 25 Years	13(68.4)	6(31.6)	0.09(.04,.27)*	0.20(.06,.62)**	
College					
Social sciences	69(53.9)	59(46.1)	1.16(.68,1.99)	.88(.48,1.64)	
Natural sciences	155(51.3)	147(48.7)	1.00	1.00	
Health sciences	79(66.4)	40(33.6)	1.52(.85,2.73)	1.80(.91,3.55)	
Marital status					
Never Married	244(54.3)	205(45.7)	1.00	1.00	P=0.000
Ever married	59(59)	41(41)	0.17(.103,.273)*	0.18(.10,.31)**	
Income					
< 250 Birr	163(52.6)	147(47.40)	1.00	1.00	
250 – 499 Birr	104(60.5)	68(39.5)	0.57(.36,.93)	0.71(.41,1.21)	
≥ 500 Birr	36(53.7)	31(46.3)	0.54(.29,1.04)	0.90(.41,1.97)	
Time heard					
< 1 year	51(53.1)	45(46.9)	1.56(.86,2.84)	2.01(1.00,4.00)**	P=0.049
≥ 1 years	127(62.9)	75(37.1)	1.00	1.00	P=0.000
I don't know	113(49.3)	116(50.7)	2.92(1.75,4.88)*	2.94(1.66,5.19)**	
How work					
Prevent pregnancy	200(58.8)	140(41.2)	1.00	1.00	
Cause abortion	31(51.7)	29(48.3)	0.81(42,1.55)	1.03(.47,2.23)	
I don't know	71(51.1)	69(48.9)	1.65(.94,2.90)	1,31(.70,2.46)	
Attitude					
Unfavorable	247(92.9)	19(7.1)	0.19(0.01,0.03)*	0.02(.01,.03)**	P=0.000
Favorable	56(19.8)	227(80.2)	1.00	1.00	

**Table 7:** Determinants of practice towards EC among female students of debre markos town, 2013 (N = 549) (\*is COR significant and \*\* is AOR statically significant after entering of P value>=.2)

and even among the users more than half did not know the correct time to take the drugs. Still significant number of respondents had different concerns about EC methods which need to be clarified about. The qualitative study also revealed the rate of unintended pregnancies was increase among unmarried women.

This finding strongly suggests that adequate practice of the method and its availability is lacking among the female college students. Hence, there is a need to educate adolescents about ECs, with emphasis on the correct time limit for use, the situation when they use it and accurate message about its effect on health. Moreover, health education program should be set up to the university and college students to give accurate information about emergency contraception.

## Authors' contributions

HA, MM and DJ were participated in the conception, design, and data collection, analyzed the data and drafted the paper. They were also approved the proposal with some revisions, participated in data collection and analysis, commented on the analysis and improved the first draft. All authors revised subsequent drafts of the paper.

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