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ASSESSMENT OF KNOWLEDGE, ATTITUDE, AND PRACTICE TOWARDS EMERGENCY CONTRACEPTIVES AMONG FEMALE COLLEGE STUDENTS AT MEKELLE TOWN, TIGRAY REGION, ETHIOPIA: A CROSS SECTIONAL STUDY

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ABSTRACT:

Background: Death related to unintended pregnancy associated events is a series public health concern in Ethiopia. This is very common in young adolescents for whom life is full of adventure and temptation with very little knowledge about the consequences of their reckless activities. Emergency contraceptives are the only method that can be used within short time after sexual intercourse, offering a second chance to prevent unwanted pregnancy.

Objectives: To assess the knowledge, attitude and practice of emergency contraceptives among female college students at Mekelle town, Ethiopia.

Methods: An institutional based cross-sectional survey was conducted among 616 female college students at Mekelle town from March to July, 2011. Multistage sampling technique with Probabilities proportional to size was used. Data were analyzed by SPSS window version 16.0 software package and presented using frequencies, percentages. Crude & adjusted odds ratio were used to control the possible confounding variables.

Results: Of the total respondents, 393(67.3%) of them replied that they have heard about emergency contraceptives. Among those who have ever heard of emergency contraceptives, 224 (57%) mentioned pills only, 9 (2.3%) mentioned intrauterine contraceptive devices only and 154(39.2%) mentioned both pill & IUCDs. 263(45%) of the respondents were knowledgeable towards ECs, and about 271(46.4%) of the students had positive attitude towards emergency contraceptives. Of the sexually active respondents 70(24.2%) only reported that they had used emergency contraceptive methods previously. Whereas, 219(75.8%) were not used emergency contraceptives; some of the reasons were lack of knowledge about ECs (42.9%); no desire to use (22.8%) and inaccessibility toward emergency contraceptives (16.4%).

Conclusion: The study indicated low level of knowledge; very low level of practice and majority showed negative attitude towards emergency contraceptives.

INTRODUCTION: Emergency Contraception (EC) refers to a group of birth control modalities that, when used after an unprotected intercourse or contraceptive failure within defined time limits; can prevent an unwanted pregnancy [1, 2].

EC has different terminologies like: morning after pill, post coital contraception, and second chance [3]. There are two types of emergency contraception: hormonal methods (pills) and the insertion of intrauterine device (IUD). Hormonal emergency contraception pill consists of:

i) Combined oral contraceptive pills: taken within 72 hours of unprotected intercourse and then 12 hours later.

ii) Progesterone only pills: one pill should be taken as the first dose as soon as convenient, but not later than 3 days (72 hours) after unprotected intercourse to be followed by another one pill 12 hours later.

Another, method of emergency contraception/ Post coital insertion of a copper- releasing IUD was 1st reported in 1976 [3, 4, 5, 6].

Emergency Contraception is largely underutilized worldwide and has been referred to as one of the best kept secrets in Reproductive Health (RH) [7]. It can reduce the number of unwanted pregnancies and is unique in that it is the only immediate option left for somebody who has had unprotected intercourse and is not ready for a pregnancy.

For many women, emergency contraception (EC) offers a final opportunity to prevent unwanted pregnancy after they have had unprotected sexual intercourse, have experienced a contraceptive failure, have remembered too late that they have forgotten to take their birth control pills, or have been forced to have sex against their will (rape) [8, 9, 10,11]. Unplanned pregnancies among young women are a worldwide problem with social and economic repercussions for the unprepared young individual [12]. A critical challenge in the global effort to reduce maternal mortality is the persistence of unsafe abortion as a result of unwanted pregnancy, which accounts for 13% of Pregnancy related deaths worldwide [12, 13].

In many low income countries, the lack of knowledge about and access to EC may result in women resorting to unsafe abortions, which contribute significantly to maternal morbidity and mortality. Each year, about 210 million women around the world become pregnant. Among them, about 75 million pregnancies (36%) are unplanned and/or unwanted. And globally, more than 20 million women experience ill health as a result of pregnancy each year [11, 13, 14, 15].

Each year, an estimated 19 million unsafe abortion occurs in the developing world, and around 70,000 women die from abortion-related causes where abortion is often legally restricted and maternal care services are lacking. In addition to those who die from unsafe abortions, tens of thousands suffer from chronic and sometimes irreversible health consequences, including infertility [16, 17, 18]. Emergency contraception (EC) as a backup method is new in Ethiopia. Various reports show that there is little knowledge and information available about EC in the country.

Unsafe abortion as a result of unplanned/unwanted pregnancy is one of the leading causes of maternal mortality and morbidity in Ethiopia. Ethiopia has a high incidence of unwanted pregnancies and unsafe/septic abortions, particularly among adolescents [19,20,21]. Therefore, this study is needed because Emergency contraceptives play a vital role in preventing unwanted pregnancies, induced abortions and would serve as a backup to other family planning methods [22].

METHODOLOGY:

Study setting: The study was carried out between March, 2011 to July 2011 at Mekelle town. Mekelle is the capital city of Tigray Administrative regional state, located approximately 783 kilometers north part of Addis Ababa, the capital city of Ethiopia. The town is divided in to seven administrative localities. In the town there are four governmental and fifteen private colleges, including social science educations, health science colleges, technical and vocational colleges which run in diploma and degree programs. An institution based cross - sectional study design was conducted. The primary population source of the study was all college female students in Mekelle town who were attending their education during the study period

and Study population were Female students who were randomly selected from Mekelle health Science College, SDC Mekelle TVET, and Sheba College in Mekelle town. The sample size was determined using single population proportion formula assuming the proportion of students who are aware of ECs is to be 50%. Adding non response rate of 10%, and multiplying by a design effect of 2 due to the multistage nature of the sampling method. The required samples based on the usual formula were 616.

After calculating the sample size, the multistage stratified sampling were employed considering all governmental and private colleges/ institutions in Mekelle town, streams or departments and year of study in the sampling process for the selection of the study subjects. Initially, of the whole nineteen governmental and private college institutions in the town three institutions, Mekelle health Science College, SDC Mekelle TVET and Sheba College were selected randomly and the total sample size of the study were distributed over each of the institute proportional to their size.

In the second stage, departments/streams from the selected college were selected using simple random sampling (SRS) technique. Accordingly the sample size of the study allocated to each institute was distributed to each of the stream and department proportional to their size.

Finally, the required numbers of female students were selected randomly (applying SRS) from each year of study again proportional to their size from the randomly selected departments. For this study a self administered structured questionnaire were conducted. The questionnaires contain open as well as closed ended questions which covers socio demographic information, knowledge, attitude and practice on emergency contraceptive. This were prepared in English and translated to Tigrigna and then turn to English for its consistency. After the data collection, each questionnaire was checked for its completeness. Data cleaning and editing as well as coding were done by EPi Info version 3.5.1 statically soft ware package & enter in to SPSS window version 16.0 soft ware for analysis purpose.

The independent variable were socio demographic characteristics- age, marital status, religion, place of origin, years of study, and residence and the outcome variable was Knowledge, attitude and practice (KAP) of emergency contraceptives.

The research permission was obtained from the Institution review board of department of midwifery and nursing, college of health science, AAU. A formal letter was written to Tigray regional health bureau and permission to carry out the study was obtained from the regional health bureau to conduct the study in the selected sites of Mekelle town colleges.

Verbal consent was obtained from the study participants after explaining the objective and procedure of the study. Confidentiality was maintained and assured by excluding their names from identification of the study subject.

RESULTS:

Socio - Demographic characteristics of Respondents: Out of total 616 female college students 584 were included in the study with a responses rate of 94.8%. Most of the respondents 301 (51.5%) were within age group of 20-24 years. and ranged from a minimum of 16 years to a maximum of 43 years. Majority of the study subjects 579(98.1%) were from Tigray ethnic group. And 379 (64.9%) had urban background prior to their entry to the colleges, with the rest being from rural **(Table 1).**

Family Planning Knowledge, Attitude & Practices of The Respondents: Majority, 574 (98.3%) of female students in the study had ever heard about regular modern contraceptives. While only 10 students (1.7%) never heard about any family planning method in their life time. Knowledge of modern contraception 476(82.9%) of respondents knew condom type of contraception, 442(77.0%) oral pill, 452 (78.7%) Injectable, 260(45.3%) Norplant, 238(41.5%) calendar, 233(40.6%) IUCD & 4(0.7%) followed by other type of contraceptive methods.

The common sources of information were 289(50.3%) from health institution and 226(39.4%) from school **(Table 2).**

TABLE 1: SOCIO - DEMOGRAPHIC AND ACADEMIC CHARACTERISTICS AMONG FEMALE COLLEGE STUDENTS AT MEKELLE TOWN, JUNE, 2011

Characteristics	Number (584)	Percent
Age (years)		
15-19	211	36.1
20-24	301	51.5
25-29	55	9.4
30+	17	2.9
Place of origin		
Urban	379	64.9
Rural	205	35.1
Marital status		
Single	438	75
Married	121	20.7
Divorced and widowed	25	4.3
Residence		
In campus	87	14.9
Outside campus	497	85.1
Religion		
Orthodox	539	92.3
Muslim	26	4.5
catholic	13	2.2
Protestant	4	0.7
Other	2	0.3
Ethnicity		
Tigray	573	98.1
Amhara	11	1.9
Attending college		
Governmental	444	76.0
Private	140	24.0
Year of study		
First year	260	44.5
Second year	142	24.3
Third year	182	31.2

TABLE 2: KNOWLEDGE, ATTITUDE AND PRACTICE ABOUT REGULAR TYPE OF CONTRACEPTIVES AMONG FEMALE COLLEGE STUDENTS IN MEKELLE TOWN, JUNE, 2011

Variables	Frequency	Percent
Ever heard of Contraceptives (N=584)		
Yes	574	98.3
No	10	1.7
Source of information(574) *		
Health institution	289	50.3
Mass media	160	27.9
Friend	60	10.5
Family	77	13.4
School	226	39.4
Other	1	0.2
Know method of contraceptive *		
Condom	476	82.9
Oral pill	442	77.0
Injectable	452	78.7
Norplant	260	45.3
Calendar	238	41.5
IUCD	233	40.6
Other	4	0.7
Importance of contraception		
Yes	558	95.5
No	26	4.5
Ever use of contraception		
Yes	232	39.7
No	352	60.3

* refers some respondents have multiple responses

Most of the respondents, 558(95.5%) also believed that contraceptives are important in preventing unwanted pregnancy. 232(39.7%) of the respondents were ever used contraceptive methods and the most commonly used method was Injectable 153(65.9%) followed by oral pill 68 (29.3%) **(Figure 1**).

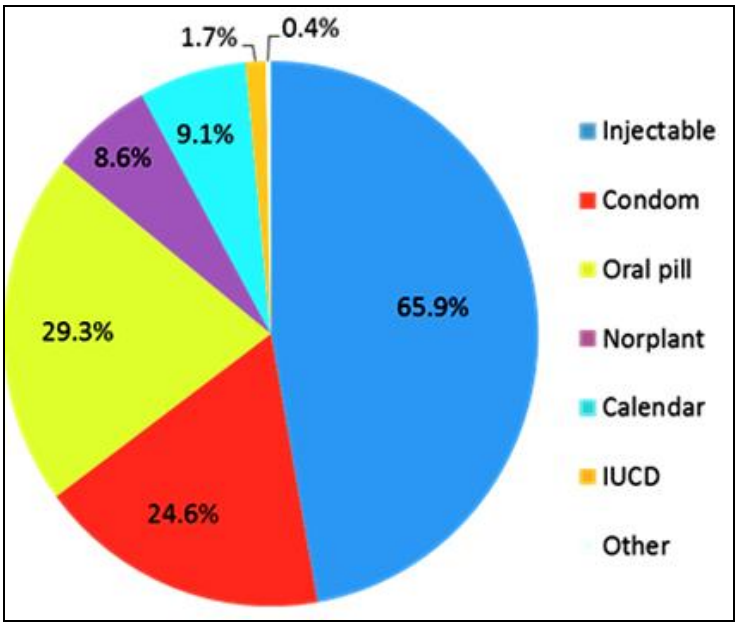

FIGURE 1: PERCENTAGE OF TYPE OF MODERN REGULAR CONTRACEPTIVES USED BY THE RESPONDENTS.

Emergency Contraceptive Knowledge, Attitude & Practices among Mekelle Female College Students:

Awareness and Knowledge of Emergency Contraceptive: This study examined the awareness of respondents about EC prior to the assessment of their detailed knowledge. According the survey findings, about 393 (67.3%) of the whole respondents ever heard about ECs. In addition, When asked about specific types of emergency contraceptives, among those who had ever heard of emergency contraceptives, 224 (57.0%) mentioned oral pills and 154 (39.2%) mentioned both oral pills and IUCDs, 9(2.3%) mentioned IUCD only, and 6(1.5%) followed by others **(Table 3).**

TABLE 3: PERCENTAGE DISTRIBUTIONS OF FEMALE COLLEGE STUDENTS BY ECS AWARENESS IN MEKELLE TOWN, *JUNE*, 2011

Variable	Number	Percent
Ever heard about ECs		
Yes	393	67.3
No	191	32.7
Know method of ECs		
Oral contraceptive pill	224	57.0
IUCD	9	2.3
Both	154	39.2
Other	6	1.5

The main sources of information about emergency contraceptive were health institution about 168(42.7%), followed by class teacher 100(25.4%). **(Figure 2).**

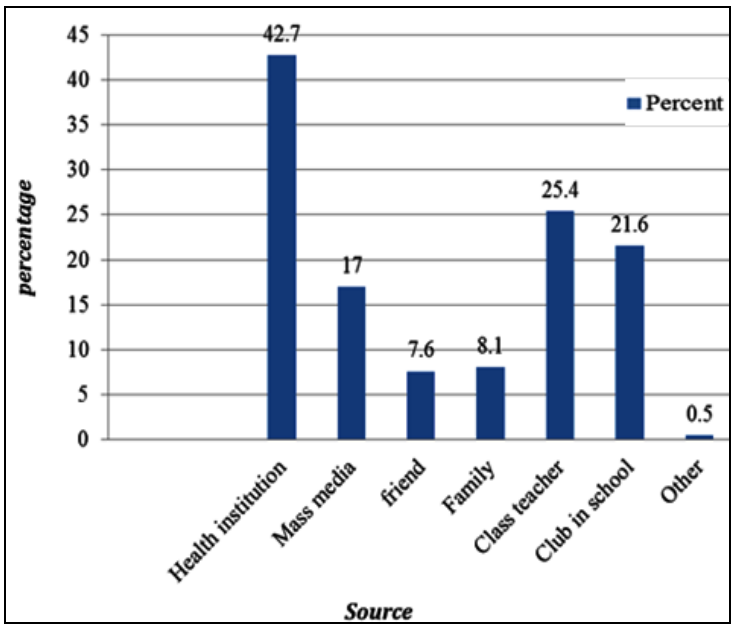

FIGURE 2: MAIN SOURCES OF INFORMATION ON EMERGENCY CONTRACEPTIVE AMONG RESPONDENTS WHO HAVE HEARD ABOUT IT.

Of those respondents who were aware of emergency contraceptives, 260(44.5%) correctly identified the recommended time limit to be taken, i.e. combined ECPs within 72 hours after un protected sex. 108(18.5%) correctly knew the effectiveness of ECPs in preventing un wanted pregnancy, 159(27.2%) and 188 (32.2%) of the respondents also identified the recommended number of doses and the recommended time between the doses of ECPs, respectively. Forced sex or rape (45.9%) and accidental breakage or slippage of condom (33.6%), missed pills (32.7%) and followed by failure of contraceptives (25%) stated as appropriate situation to use ECs to prevent unintended pregnancy (**Table 4**).

Regardless of IUCD emergency contraception, of those who were aware of emergency contraceptive method, 130(22.3%) stated the correct timing of administration of IUCD which is after the unexpected sexual contact, and 198(33.9%) were correctly identified its effectiveness in preventing unintended pregnancy. By computing the knowledge questions of the respondents the mean value was 2.33, median of 2.00 and S.D of 1.47. Therefore, regardless of knowledge of ECs summary index below, majority of the respondents, 321(55.0%) were not knowledgeable. **(Table 4)**

TABLE 4: KNOWLEDGE REGARDING THE TIMING AND DOSING OF EMERGENCY CONTRACEPTIVE AMONG FEMALE COLLEGE STUDENTS, WHO KNOW ECS IN MEKELLE TOWN, *JUNE*, 2011

Knowledge assessment questions (N=393)	Frequency	Percent
Situation(s) that EC should be taken *		
If condom ruptured during intercourse	196	33.6
When there is missed pills	191	32.7
When forced to have sex/raped	268	45.9
When there is failure of contraception	146	25.0
I don't know	138	23.6
Recommended time to take Combined ECPs		
Within 24 hours after sex	106	18.2
Within 72 hours after sex	260	44.5
Within 4-6 days after sex	22	3.8
Even after a missed a period	17	2.9
I do not know the time	179	30.7
Recommended time for IUCD on ECs		
Within 24 hours after sex	52	8.9
Within 72 hours - 120hrs / 5 days after sex	130	22.3
Even after a missed a period	20	3.4
I don't know and others	382	65.4
Effectiveness of ECPs in preventing pregnancy		
Highly effective (>95%)	257	44.0
Effective (75-89%)	108	18.5
Less effective (<10%)	19	3.3
Not effective at all	3	0.5
I don't know	197	33.7
Effectiveness of IUCD in preventing pregnancy		
Highly effective (>95%)	198	33.9
Effective (75-89%)	87	14.9
Less effective (<10%)	46	7.9
Not effective at all	7	1.2
I don't know	246	42.1
Recommended number of dose of ECPs		
One dose	203	34.8
Two dose	159	27.2

Three dose	16	2.7
I don't know	206	35.3
Recommended time between the doses of ECPs		
12 hours apart	188	32.2
24 hours apart	129	22.1
I don't know	267	45.7
Knowledge of ECs (Summary index)		
Not knowledgeable	321	55.0
Knowledgeable	263	45.0

***** refers some respondents have multiple responses

Attitude towards emergency contraception and willingness for future use: As **table 5** presents that, concerning the attitude assessment questions towards emergency contraceptives, the respondents score was with mean of 1.52, median 2.00 and SD 0.79. Based on this majority of the students, 313 (53.6%) of them have negative attitude towards ECs.

TABLE 5: PERCENTAGE DISTRIBUTION OF FEMALE COLLEGE STUDENTS IN MEKELLE TOWN BY ATTITUDE TOWARDS EC, *JUNE*, 2011

Indicators of Attitude	Frequency	Percent
Think Provision of ECs after an episode of un-protected sex can prevent unwanted pregnancy?		
Agree	373	63.9
Disagree	211	36.1
Believe EC may hurt the baby in case it does not work		
Yes	267	45.7
No	108	18.5
I don't know	209	35.8
Willingness to use ECs method in the future		
Yes	404	69.2
No	107	18.3
May be	73	12.5
Attitude of ECs (summary index)		
Positive attitude	271	46.4
Negative attitude	313	53.6

Emergency Contraceptive practices and pregnancy related characteristics among sexually active female college students at Mekelle town: At the time of the study 289(49.5%) respondents have ever had sex in the past. Of those who are sexually active, about 243(84.1%) started sex before the age of 18 and 46(15.9%) started sex at 18 years of age and above. Regardless of the respondents having number of sexual partner in their life time, most of them, 226(78.2%) had one sexual partner.

Concerning rape, respondents who were sexually active in the past, 32(11.1%) of them were claimed to had sex without their consent or raped. With regard to pregnancy experience, on those who were sexually active, a total of 130(45.0%) respondents replied that they had been pregnant and with 65.4% gave a history of at least once pregnancy previously. And from the pregnant study subjects, 42(32.3%) had practiced induced abortion. On the other hand, those respondents who had heard of emergency contraceptives, only 70(24.2%) respondents reported that at least once they had used emergency contraceptive methods previously.

65(92.9%) of the participants said that they had used oral pills as type of emergency contraceptive methods, 3(4.3%) IUCDs & 2(2.9%) both oral pill and IUCD type of ECs. Of the 219 respondents who had not ever used ECs, 94(42.9%) were due to lack of knowledge about Emergency contraceptives and 50(22.8%) hadn't desire to use it **(Table 6).**

TABLE 6: ECS PRACTICE AND PREGNANCY RELATED CHARACTERISTICS AMONG SEXUALLY ACTIVE FEMALE COLLEGE STUDENTS AT MEKELLE TOWN, JUNE, 2011

Characteristics	Number	Percent
Ever had sex(N=584)		
Yes	289	49.5
No	295	50.5
Age at first sex (N=289)		
< 18 years	243	84.1
≥ 18 years	46	15.9
Ever had sex without consent or raped (N=289)		
Yes	32	11.1
No	257	88.9
Number of life time sexual partners (N=289)		
One	226	78.2
Two	46	15.9
More than three	11	3.8
Do not remember/know	6	2.1
Ever been pregnant (N=289)		
Yes	130	45.0
No	159	55.0
Number of pregnancies (N=130)		
One times	85	65.4
Two times	30	23.1
Three & above	15	11.5
Ever had induced abortion (N=130)		
Yes	42	32.3
No	88	67.7

Number of induced abortions (N=42)		
One times	34	81.0
Two times	5	11.9
three and more	3	7.1
Ever used ECs (N=289)		
Yes	70	24.2
No	219	75.8
Type of ECs used (N=70)		
Oral pill	65	92.9
IUCD	3	4.3
Both	2	2.9
Reason for not used ECs (N=219) *		
ECs not accessible	36	16.4
hadn't desire to use it	50	22.8
Lack of Knowledge about ECs	94	42.9
Partner opposed	9	4.1
Religious reasons	37	16.9
Fear of side effect	20	9.1
Wanted to be pregnant	19	8.7

***** Remained some respondents have multiple responses

Determinants of Knowledge, Attitude and Practice Towards ECs:

Determinant factors related to knowledge about Emergency Contraceptives: In bivariate analysis, age group of female college students was found to be associated with the knowledge of EC; those respondents who were in the age group of 20-24 were 1.46 more knowledgeable compared to respondents who were in the age group of 15-19. As shown in table seven [COR=1.46, 95% CI (1.02, 2.09)]. But the association was insignificant after adjusting for possible confounders. The crude odds ratio result indicated that place of origin of the respondents prior to the entry to their college were also found to be significantly associated with knowledge of ECs; Students who were rural back ground prior to their entry to the college were more knowledgeable of ECs compared to students who were urban back ground [COR=1.47, 95%CI (1.04, 2.07)]. Marital status has a significant effect on knowledge of ECs among female students without controlling other variables; ever married female students were found to be 2.43 times more likely to be knowledgeable of ECs than those who are single and those divorced & widowed were also 2.39 times more knowledgeable than single female students. Were as the adjusted odds ratio of marital status was found insignificant when the other variables controlled.

Similarly according to crude analysis, number of life time sexual partner of the respondents was found to be negatively associated with the knowledge of ECs. The likelihood of ECs knowledge among respondents who had have more than one sexual partner was less by 46% compared with those who had have one sexual partner in their life time. [COR=0.54, 95%CI (0.38, 0.71)]. This output assured that female students having one sexual partner have more likely to be knowledgeable of ECs than those who have more than one sexual partner.

Adjusted for other variables, experience toward use of EC has to be a significant factor on respondents knowledge of EC; those who had not ever used ECs were found to be 0.38 times less likely to be knowledgeable towards ECs than those who had have an experience of use of ECs. As shown in table 7 [Adj.OR=0.38, 95% CI (0.21, 0.70)] **(Table 7).**

TABLE 7: SOCIO-DEMOGRAPHIC AND OTHER DETERMINANT VARIABLES OF KNOWLEDGE OF EC AMONG FEMALE COLLEGE STUDENTS OF MEKELLE TOWN, JUNE, 2011

Variable	Knowledge of ECs		Odds ratio (95% CI)	
	Not knowledgeable	Knowledgeable	Crude	Adjusted
Age(years)				
15-19	129 (61.1%)	82(38.9%)	**1**	**1**
20-24	156 (51.8%)	145(48.2%)	**1.46(1.02,2.09*)**	1.03(0.56,1.87)
25-29	29 (52.7%)	26 (47.3%)	1.41(0.78, 2.56)	0.66(0.28,1.58)
30+	7 (41.2%)	10 (58.8%)	2.25(0.82, 6.14)	0.86(0.25,2.96)
Place of origin				
Urban	221(58.3%)	158(41.7%)	**1**	**1**
Rural	100(48.8%)	105(51.2%)	**1.47(1.04,2.07*)**	1.19(0.72,1.98)
Marital status				
Single	263(60%)	175(40%)	**1**	**1**
Married	48(39.7%)	73(60.3%)	**2.43(1.59,3.69*)**	1.65(0.84,3.23)
Divorced & widowed	10(40%)	15(60%)	**2.39(1.05,5.47*)**	1.81(0.63,5.24)

Religion				
Orthodox	297 (55.1%)	242 (49.9%)	**1**	
Muslim	12 (46.2%)	14 (53.8%)	1.43(0.65, 3.15)	
Catholic/Protestant & others	12 (63.2%)	7(36.8%)	0.72(0.28, 1.75)	
Attending college				
Governmental	255(57.4%)	189(42.6)	**1**	**1**
Private	66(47.1%)	74(52.9%)	**1.51(1.03,2.22*)**	1.19(0.67,2.11)
No of life time sexual partners				
one	103 (45.2%)	123(54.4%)	**1**	**1**
More than one	218(60.9%)	140(39.1%)	**0.54(0.38,0.75*)**	0.88(0.47,1.67)
Ever been Pregnant				
Yes	46 (35.4%)	84(64.6%)	**1**	**1**
No	88 (55.3%)	71(44.7%)	**0.44(0.27,0.71*)**	0.59(0.32,1.09)
Ever used ECs				
Yes	19 (27.1%)	51(72.9%)	**1**	**1**
No	302 (58.8%)	212(41.2%)	**0.26(0.15,0.46*)**	**0.38(0.21,0.7*)**

***** Remained statistically significant in both crude and adjusted odds ratio in the table.

Determinant factors related to Attitude about Emergency Contraceptives: The multivariate analysis disclosed that the extent of knowledge of respondents towards EC was a statistically significant factor for positive attitude towards EC and had a positive relation. According to multivariate analysis, respondents who were knowledgeable have 2.48 times more likely to have positive attitude towards EC as compared with those who were not knowledgeable respondents. **Table 8** [Adj. OR=2.48, 95% CI(1.34, 4.57)].

TABLE 8: SOCIO-DEMOGRAPHIC AND OTHER DETERMINANT VARIABLES OF ATTITUDE TOWARDS EC AMONG FEMALE COLLEGE STUDENTS OF MEKELLE TOWN, JUNE, 2011 (N = 584)

Characteristics	Attitude of ECs		Odds ratio (95% CI)	
	Negative attitude	Positive attitude	Crude	Adjusted
Age(years)				
15-19	192(91%)	19(9%)	**1**	
20-24	276(91.7%)	25(8.3%)	0.92 (0.49, 1.75)	
25-29	52(94.5%)	3(5.5%)	0.58 (0.17, 2.05)	
30+	15(88.2%)	2(11.8%)	1.35 (0.29, 6.34)	
Marital status				
Single	404(92.2%)	34(7.8%)	**1**	
Married	108(89.3%)	13(10.7%)	1.35 (0.68, 2.67)	
Divorced & widowed	23(92%)	2(8%)	0.98(0.22, 4.34)	
Religion				
Orthodox	492 (91.3%)	47 (8.7%)	**1**	
Muslim	25 (96.2%)	1 (3.8%)	0.42 (0.06, 3.16)	
catholic/protestant & other	18 (94.7%)	1 (5.3%)	0.58 (0.08, 4.45)	
Ever had induced abortion				
Yes	40(95.2%)	2(4.8%)	**1**	
No	79(89.8%)	9(10.2%)	0.44(0.91, 2.13)	
Ever used ECs				
Yes	62(88.6%)	8(11.4%)	**1**	
No	473(92%)	41(8%)	0.67(0.3,1.5)	
Knowledge				
Not knowledgeable	304(94.7%)	17(5.3%)	**1**	**1**
Knowledgeable	231(87.8%)	32(12.2%)	**2.48(1.34,4.57)***	**2.48(1.34,4.57)***

***** Remained statistically significant in both crude and adjusted odds ratio in the table.

Determinant factors related to Practice about Emergency Contraceptives: In Bivariate analysis, age group of the respondents was found to be associated with the practice of ECs. Those respondents who were in the age group of 20-24, 25-29 and 30 & above were less likely to practiced ECs compared to those respondents who were in the age group of 15-19years. As shown in **table 9** [COR=0.36, 95%CI (0.2, 0.7), 0.24(0.1, 0.6) and 0.19(0.06, 0.69)] respectively. But the association was insignificant after adjusting for possible confounders. The multivariate analysis also ascertained age at first sex of respondents as a statistically significant affecting factor of practice of EC.

As the result indicated, being 18 years and above had a positive effect on the likelihood of practice of EC as compared with being age at first sex below 18 years. Female students who ever had sexual intercourse at age of 18 years & above were found 7.01 times more likely to be practiced of EC than those who had sexual intercourse at age of below 18 years. [Adj. OR=7.01, 95% CI (1.28, 38.3)] as shown in **table 9**. Number of life time sexual partner of the respondents was found to be positively associated with practice of EC.

The likelihood of practice of EC among students who have more than one sexual partner was found to be 5.65 times more likely to be practiced ECs than those who have one sexual partner. [COR=5.65, 95% CI (3.24, 9.95)]. But it is insignificant after adjusting for possible confounders. Knowledge of respondents towards ECs was found to be negatively associated with the practice of ECs; the likelihood of practice of ECs among respondents who were knowledgeable of EC was less by 74% as compared with those who were not knowledgeable towards ECs. [COR=0.26, 95% CI (0.15, 0.46)]. But the association was insignificant after adjusting for possible confounders (Table 9).

TABLE 9: THE SOCIO-DEMOGRAPHIC AND OTHER DETERMINANT VARIABLES OF PRACTICE TOWARDS EC AMONG FEMALE COLLEGE STUDENTS OF MEKELLE TOWN, JUNE, 2011 (N = 584)

Characteristics	Practice of ECs		Odds ratio (95% CI)	
	Yes	No	Crude	Adjusted
Age(years)				
15-19	12(5.7%)	199(94.3%)	**1**	**1**
20-24	43(14.3%)	258(85.7%)	**0.36(0.2, 0.7) ***	0.69(0.18, 2.60)
25-29	11(20%)	44(80%)	**0.24 (0.1, 0.6) ***	0.56(0.13, 2.58)
30+	4(23.5%)	13(76.5%)	**0.19(0.06, 0.69) ***	0.94(0.14, 6.1)
Marital status				
Single	37(8.4%)	401(91.6%)	**1**	**1**
Married	26(21.5%)	95(78.5%)	**0.23(0.12, 0.42) ***	2.25(0.56, 9.06)
Divorced & widowed	7 (28%)	18 (72%)	**0.16 (0.06, 0.42)***	2.00(0.44, 9.06)
Attending college				
Governmental	44(9.9%)	400(90.1%)	**1**	**1**
Private	26(18.6%)	114(81.4%)	**0.48 (0.29, 0.82)***	1.02(0.41, 2.52)
Age at first sex				
<18 years	67(27.6%)	176(72.4%)	**1**	**1**
≥18 years	3(6.5%)	43(93.5%)	**5.46(1.64,18.18***	**7.01(1.28,38.3)***
Ever been raped				
Yes	12(37.5%)	20(62.5%)	**1**	
No	58(22.6%)	199(77.4%)	2.06(0.95, 4.46)	
No of life time sexual partners				
One	52(23%)	174(77%)	**1**	**1**
More than one	18(5%)	340(95%)	**5.65(3.20, 9.95) ***	0.98(0.35, 2.78)
Ever been pregnant				
Yes	44(33.8%)	86(66.2%)	**1**	
No	26(16.4%)	133(83.6%)	**2.62(1.50, 4.56) ***	
Ever had induced abortion				
Yes	22(52.4%)	20(47.6%)	**1**	**1**
No	22(25%)	66(75%)	**3.3(1.52, 7.16) ***	2.71(0.99, 7.41)
Knowledge				
Not knowledgeable	19(5.9%)	302(94.1%)	**1**	**1**
Knowledgeable	51(19.4%)	212(80.6%)	**0.26(0.15, 0.46) ***	0.49(0.19, 1.22)

***** Remained statistically significant in both crude and adjusted odds ratio in the table.

DISCUSSION: Although emergency contraception is not recommended as a regular family planning method, it is the most useful as a group of birth control modalities, when used after an unprotected inter-course or contraceptive failure within defined time limits [2]. The result from this study revealed that greater than two-third (67.3%) of the respondents had heard of the emergency contraception method. This is lower than the reports on studies in San Francisco (89%). This could be due to low health promotion and low availability of EC in developing country like Ethiopia. It is comparable to reports from Katmandu- Nepal (68%) [21, 26] & Jimma university community high school (64%) [3].

The mean age of respondents of this study was approximately 20 years. More than half (57%) had ever heard emergency contraceptive pills. The most common source of information was health institution (42.7%), class teacher (25.4%), club in the school (21.6%), mass media (17%) and friend (7.6%). This showed higher than studies conducted on Uganda, Makerere University among University Students with the mean age of the participants was 21 years and Less than half (45.1%) had ever heard about emergency contraceptive pills (ECPs) and their most common sources of information about EC were friends (34%), media (24.8%) and schools (19.4%) [10].

Almost half of the total number of my study subjects (49.5%) reported that they were sexually active in their lifetime with 84.1% of the respondents had first sex at age below 18 years. Majority of the respondents (53.6%) had negative attitude towards ECs. 39.7% had ever practiced regular type of contraception with only 24.2% having ever practiced emergency contraception.

However, Of those respondents who are aware of emergency contraceptives, (44.5%) correctly identified the recommended time limit to be taken combined ECPs within 72 hours after un protected sex, (18.5%) correctly knew the effectiveness of ECPs in preventing un wanted pregnancy, (27.2%) and (32.2%) of the respondents also identified the recommended number of doses and the recommended time between the doses of ECPs, respectively. This finding is lower in level of Knowledge and practice rate of ECs than studies reported among female undergraduates in the University of Lagos, Nigeria, which revealed that 67.8% of the respondents reported knowing about emergency contraception with more than half (56.1%) were sexually active and of this group, 96.8% had ever practiced contraception with only 33.9% having ever practiced emergency contraception [27].

However, only 37.8% and 36.3% of respondents who had reported knowing about emergency contraception knew the correct time frame for effective use, and correctly identified emergency contraceptives respectively [24, 36]. The possible reason for low EC practice rate and knowledge 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.

This study revealed that 69.2% of female students of Mekelle College of health science, SDC Mekelle TVET and Sheba College who had heard about EC would like to use emergency contraceptives in the future, 18.3 percent would not, while 12.5 percent were unsure. This finding explained that less intention to use ECs in the future than studies obtained in Awassa town, south part of Ethiopia in which about 80 percent of female college students who had heard about EC would like to use emergency contraceptives in the future, 15.6 percent would not, while 4.2 percent were unsure. The possible reason for this may be: due to lack of awareness of ECs as well as due to mass Media in adequacy in Tigray region [21].

Among the respondents who were sexually active, about 45% become pregnant & of them 65.4% gave history of at least one pregnancy with 32.3% had induced abortion. On the other hand, among the total study participants, about 84.1% had first sex at age of below 18 years, 11.1% ever had sex without their consent, of which 53.1% were unintended pregnancy, which is higher than studies done in Oremia region, Wolliso town [3].

The extent of knowledge of respondents towards EC was a statistically significant factor for positive attitude towards EC and had a positive relation. The likelihood of positive attitude increased as the extent of knowledge of EC increased.

These respondents who were knowledgeable have more likely to have positive attitude towards EC as compared with those who have not knowledgeable respondents, which is consistent as study conducted in Awassa town [21]. Adjusted analysis of age at first sex of respondents was statistically significant affecting factor to practice of EC; being 18 years and above had a positive effect on the likelihood of practice of EC as compared with being age at first sex below 18 years, [Adj.OR=7.01,95%CI(1.28, 38.3)] [21].

CONCLUSION AND RECOMMENDATIONS: College female students are expected to have greater knowledge of EC than most youth with no or less educational attainment. This study has shown that 67.3 percent of the female college students have awareness about EC and Even among those who were aware, only 45 percent had adequate knowledge of ECs, 46.4% positive attitude toward the methods. The female students' attitude towards EC was significantly associated with their level of knowledge about the method (Adj.OR=2.48) as stated by the adjusted analysis.

The finding revealed that the likelihood of positive attitude increased as the extent of knowledge of EC increased. Respondents who had adequate knowledge of EC were found 2.48 times more likely to have positive attitude towards EC than those who were not knowledgeable on EC. On the other hand, practice of EC is very low with high risk of unintended pregnancy and induced abortion among the sexually active students. This finding strongly suggests that adequate knowledge 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 college students to avail accurate information about emergency contraception and existing "Reproductive Health Clubs" in the college could be the venue for disseminating similar information.

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