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Ethiopian Society of Obstetricians and Gynecologists (ESOG)
Tele:- 251-11-5506068/69 Fax:-251-115-506070 P.O.Box 8731 Addis Ababa
E-mail:- esog@ethionet.et Web site:- www.esog.org.et

Editorial Office
Editorial matters and correspondence concerning articles should be addressed to the Editor-in-Chief:
Ethiopian Journal of Reproductive Health
P.O.Box 8731, Addis Ababa
Tel: 251-11-5506069
Fax: 251-11-5506070
Email: esog@ethionet.et

Original Article

Unmet Need for Family Planning and Its Determinants among Currently Married Women in Kobbo Woreda, North-East of Amhara

Getahun Molla[1], Habtamu Belete[2]

Abstract

Background: Addressing unmet need for family planning provides an opportunity for policy makers in all sectors to respond to the expressed fertility preferences of their population while simultaneously improving health, slowing the rate of population growth, and contributing to achievement of national goals.

Objective: to examine the underlying factors of unmet need for family planning among currently married women in Kobbo woreda, North-East Amhara.

***Methods*:** A community based cross sectional study was conducted among currently married women in Kobbo woreda. A multi-stage sampling technique was carried out to collect quantitative data from 692 women. Qualitative information obtained through focus group discussion and key informant interview were used to support the results from the quantitative data.

Results: The study result revealed that 47.3% currently married women have unmet need for family planning, of which, 27.5% for spacing and 10.5% for limiting. Thirty eight percent were using contraception and 14.7% of currently married women had no need. Unmet need for family planning is highest among women of younger age (<25 years of age), who have no education, live in rural areas, who married too early, have more number of living children (4 or more), have no or little knowledge of family planning and have never discussed family planning issues with their husbands and health workers.

Conclusions: since the higher level of unmet need is observed for women with less frequent discussion with health workers and husbands, large number of living children and early age at first marriage, family planning programs need to target these women in order to reduce unmet need for family planning.

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Introduction

Fertility is influenced by different socio-economic and demographic factors. However, contraceptive use is the most important proximate variable affecting fertility. Studies have shown that use of effective family planning (FP) methods is the major reason for the recent fertility decline in Kenya, Botswana and Zimbabwe (1).

In Ethiopia, total fertility rate did not show any marked decline between the mid 1950s and mid 1980s (2). Since late 1980s the fertility rate began to decline from 6.4 children per woman in 1990 (3) to 5.9 births in 2000(4) and to 5.4 births in 2005(5) and it further declined to 4.8 in 2011(6).

Although FP services have been provided for a prolonged period; in Ethiopia, contraceptive prevalence has not reached a level whereby it will have an adequate impact on fertility. This was mainly attributed to the services delivery system, which was carried out through the network of general health facilities that are available mostly in urban and semi-urban communities, and the bulk of the rural population remaining without access to FP services (7). The recent Ethiopian Demographic Health Survey (EDHS 2011) revealed that contraceptive prevalence was only 29%.

The level of unmet need for FP in Africa is the highest of all continents of the world. Among African countries, Sub-Saharan Africa has the highest level of unmet need. In most of these countries the proportion of unmet need is even more than contraceptive prevalence (8).

In Ethiopia, the extent of unmet need is around 25% of which 16% constitute unmet need for spacing and 9% for limiting (6). The same study indicated that in Amhara region, the prevalence of unmet need among married women is high; though a decline from 30% in 2005 to 22% in 2011. The rate of contraceptive prevalence of the region increased from 15% in 2005 to 34% in 2011, whereas the proportion of total demand satisfied increased from 35% in 2005 to 61% in 2011(5,6).

In population with high unmet need, material morbidity and mortality also tends to be very high. Women with unmet need have a high probability of becoming pregnant and thus exposed to the risk of pregnancy related illness and even death (9). About 500,000 women lose their lives every year during pregnancy and labor, of these 99% of the deaths occurs in developing countries (10). In Ethiopia, the maternal mortality ration is among the highest in the world (673 per 100.000 live births) (5).

In addition, infant and child mortality is very high among women with unmet need. The chance of survival for the newborn are increased as the birth interval increases (11). Satisfying unmet need can directly contribute to reductions in maternal and child mortality-averting an estimated 16,877 maternal and 1.1 million child deaths worldwide by the year 2015 (12). In Ethiopia, infant and under five mortality rates are estimated at 59 and 88 per 1000 live births, respectively (6).

Addressing unmet need for FP provides an opportunity for policy makers in all sectors to respond to the expressed fertility preferences of their population while simultaneously improving health, slowing the rate of population growth, and contributing to achievement of national goals (13).

This study was conducted to determine the unmet need and examine the underlying factors of unmet need for FP among currently married women of reproductive age in Kobbo woreda of Amhara region.

Materials and Methods

A community based cross sectional study was conducted among currently married women in Kobbo worda of Amhara region from February to June, 2009. Kobbo woreda is located in the Northern part of the country, and North-Eastern part of Amhara region. It is one of the nine woredas of North Wollo administrative zone. A multi-stage sampling technique was carried out to interview 692 women within the reproductive age group.

The sample size was determined based on the estimates of prevalence of unmet need for contraception among currently married women in Amhara region which is 30% (5) along with 95% confidence level, 5%tolerable error and a design effect of 2 to adjust for a multi-stage cluster sampling. From the total thirty-two kebeles in the woreda (28 rural and 4 urban kebeles), eight kebeles (one from urban and seven from rural) were selected by using simple random sampling methods. Each kebele has 3-4 sub-kebels (got). One sub-kebele (got) from each selected kebeles was selected by the same method.

The number of women interviewed in each enumeration areas (sub kebeles) was allocated based on the probability sampling to proportion to the size f the study population in the enumeration area. Finally based on the sampling frame of households in each sub kebele, currently married women within the reproductive age group were selected from the eight sub-kebeles using systematic random sampling method. The systematic selection was conducted across every 8th house hold with a random start. For household which was not eligible or had respondent who was unwilling to be interviewed, the next household was substituted and in case of more than one currently married women in a household, the one who owns the house or is registered at the kebele was taken.

A structured questionnaire was developed and presented, modified and administered to collect the quantitative data from household survey. To strengthen the information obtained by quantitative data, qualitative data was also collected through focus group discussions (FGDs) and key informant interview (KIIs). Verbal consent was obtained before conducting each interview, and participants were assured of complete confidentiality of information.

All data enumerators were female and 12 grade complete. Field supervisors were closely following the data collection process and checked the collected questionnaires. The principal investigator reviewed the instruments to ensure the date quality. The FGDs were moderated and interviews with key informants were made by the principal supervisor.

Descriptive statistics, bi-variate and multivariate techniques were used in the quantitative data analysis. Variables that showed significant association were selected for further analysis using multiple logistic regression models. The data processing and analysis were done using the statistical package for social sciences version 15 (SPSS-15.0). Both qualitative and quantitative data results were integrated in this report in such away as to complement each other.

Results

The total demand for FP among currently married women in the woreda is 85.3% (47.3% with unmet need and 38% with met need). In urban area, 34.3% of women have unmet need for FP. In contrast, the level of unmet need in rural areas is 60%. The availability of services and better awareness about FP may have contributed to higher met need (65.7%) in urban areas. The bi-variate results also showed that place of residence was significantly associated with unmet need ($p<0.001$) (table 1).

Among women of no formal education, primary education and secondary or higher education, the unmet need was found to be 60.2%, 58.6% and 25%, respectively. This different level of unmet need may be due to the indirect effect of education on contraceptive use through knowledge of contraceptive methods, service availability and awareness to the source of supply. This was further supported by the findings in the FGDs. Most educated participants were free to discuss and explain their approval of contraceptive use. Regarding knowledge of contraceptive methods, most of them could state the names of various contraceptive methods. In contrast, most uneducated or less educated participants know only pills and injectables.

The study result indicated that unmet need is highest (74.8%) among young women (less than 25 years). The level of unmet need is also higher among those who were found in the older age group (35 or above) than in the middle age group (25-34 years).

35 or above	1	25.0	3	75.0	4	100.0		
Desired number of children								
0	0	-	0	-	0	100.0	3.64	0.123
1-3	60	59.0	42	41.0	102	100.0		
4 or more	302	51.1	288	48.9	590	100.0		
Number of living children								
0	12	40.0	18	60.0	30	100.0	10.50	0.000
1-3	178	48.2	192	51.8	370	100.0		
4 or more	181	61.8	111	38.2	292	100.0		

During FGDs, different reasons were given for not using contraceptive methods. Majority of the participants, both in the younger and older women groups raised side effect of contraceptives and husband opposition as main reasons. In the discussion with younger women, husband opposition was the most common reason for not using contraceptive methods. Moreover most of them fear the side effects of contraceptives, such as saying "Yameknal" (make women sterile) and "Menta Yasweldal" (followed by twin birth). This fear was shared by several discussants of the two groups (young & old). Older women also perceived that the risk of pregnancy is very low because of their less fecundity status.

Women who married too early are exposed to longer duration of reproductive period and more likely to have larger number of children than those who marry in their late age (1). As a result age at first marriage has influence on the level of unmet need.

As shown in Table 1, high unmet need 59.5% and 55.8% were observed among women who married early, 15-19 and less than 15, respectively. The bi-variate result shows that age at first marriage is significantly associated with unmet need (p<0.001).

In Ethiopia, studies show that number of living children is a decisive factor for a woman to have demand for FP services (14). As the number of living children increases, women are more likely to be motivated either to space or limit their pregnancy. Among women who had no living children, 40% have unmet need, among those who had 1 to 3 living children, 48.2% have unmet need and among those who had 4 or more children, 61.8% have unmet

Respondents were asked about discussion of FP issues with their husbands during the six months prior to the survey. The data in Tale 2 show that among women who did not discuss FP issues with their husband, 76.9% had unmet need whereas women who discussed at least once, 30.7% had unmet need for contraception.

The bi-variate result showed that spousal discussion is significantly associated with unmet need (p<0.001).

known.

Open and free discussion about the number of ch want to have and use of FP may encourage wome at decision to use an appropriate contraceptive m

Task 2:- Percentage distribution of unmet need in FP amo towards FP, Kobbo woreda, 2009.

	Unmet need			
	Yes	%	No	%
Knowledge of FP methods				
Don't know	11	100.0	0	0.00
Know at most two methods	317	64.8	172	35.2
Know at least three	40	21.0	152	79.0
Knowledge of the place where FP services				

provided								
Don't know	19	90.5	2	9.5	21	100.0	56.22	0.000
Know at most two methods	335	61.4	210	38.6	545	100.0		
Know at least three	32	25.7	94	74.3	126	100.0		
Ever use of modern contraceptive methods								
Never used	275	81.1	64	18.9	339	100.0	410.9	0.000
Used at least one method	58	16.5	295	83.5	353	100.0	9	
Discussion of FP with husband								
Never discussed	307	76.9	92	23.1	399	100.0	125.3	0.000
Discussed at least once	90	30.7	203	69.3	293	100.0	0	
Discussion of FP with health worker								
Never discussed	322	88.6	42	11.4	364	100.0	222.1	0.000
Discussed at least once	89	27.0	239	73.0	328	100.0	5	

Thus, study indicated that the unmet need for women who did not discuss about FP with health workers, was 88.6% and for those who discussed with health workers, was 27.0%. In the interview with key informants, they reported that besides providing contraceptive methods, health extension workers (HEWs) thought the community about advantages of FP, providing counseling regarding side effects and effectiveness of the methods. Variables that showed significant association in the bi-variate analysis were selected for further analysis using multiple logistic regression models.

A multi-variate statistical analysis was employed to determine independent effects of each predictor variable on unmet need after controlling the effect of other variables. The result of the logistic regression model for socio-demographic and FP factors are presented in Table 3. Age at first marriage, number of living children, and discussion with spouse and with health workers about FP were found to be the most important determinants of unmet need for FP in the study area.

Table 3: Results of the multivariate logistic regression analysis on unmet need for FP among married women, Kobbo Woreda, 2009

Independent Variable	B	SE	sig	Exp(B)
Knowledge of FP methods				
Do not know	-0.012	0.311	0.887	0.988
Know at most two	-0421	0.499	0.390	0.641
Know more than two (RC*)				1.000
Discussion about FP with husband				
Never discussed	1.007	0.324	0.002	2.737
Discussed at least once (RC)		-	-	1.000
Discussion about FP with health workers				
Never discussed	2.021	0.338	0.000	7.546
Discussed at least once (RC)				1.000
Respondent's occupation				
House wife	0.702	0.648	0.279	2.017
Other (RC)		-	-	1.000
Place of residence				
Rural	0.503	0.761	0.508	1.654
Urban (RC)		-	-	1.000
Women education				
No schooling	0.166	0.463	0.719	1.181
Primary & above (RC)		-	-	1.000
Age of women				
Less than 25	-0.020	0.299	0.873	0.980
25-34	-0.341	0.371	0.271	0.711
35 and above (RC)		-	-	1.000
Age at first marriage				
Married before age 15	0.730	0.614	0.024	2.075
Married between 15-19	0.205	0.546	0.050	1.228
Married after age 19(RC)		-	-	1.000
Number of living children				
None	-1.230	0.299	0.001	0.292
1-4	-0.432	0.201	0.038	0.391
More than 4 (RC)		-	-	1.000

**Reference Category*

Discussion

The study result revealed that 47.3% currently married women in Kobo woreda have unmet need for FP, 34.4% for spacing and 12.9% for limiting.

Thirty eight percent were using contraception and 14.7% of currently married women had no need for any FP. This level of unmet need was much higher than the average level of unmet need in Sub-Saharan African countries (24%) (12). It is also observed that the level of unmet need in the study area is higher than the national level of unmet need for FP (25%) (6).

The bivariate and multivariate logistic regression analysis have indicated the fact that unmet need for FP is high in Kobbo woreda and is affected by different factors. Although socio-demographic factors (religion, place of residence, age and women education) were important in determining unmet need, as shown in the multivariate logistic analysis of the study, most of them were not statistically.

Age, at first marriage had influence on the level of unmet need. The study revealed that the proportion of women with unmet need decreases as age at first marriage increased. About 55.8% of women among those who married before age 15, and 59.5% among those who married between the age of 15 and 19 have unmet need for FP. This is in line with previous studies conducted in Debremarkos Town by Korra (14). Bhandari (15) also found unmet need to be high among women who married early in a study conducted in a district of Eastern region of Nepal.

Early age at first marriage exposes women to begin child bearing too early and to spend more of their reproductive period in marriage. Frequent pregnancy and repeated child births together with domestic activities (fetching water, collecting fire-wood, preparing meal and caring children) increases the burden on women's day to day activities which limit their exposure to the outside environment and communication with others.

The finding that husband-wife discussion about FP significantly affects the level of unmet need is of fundamental importance for future strategies. As highlighted by other researchers (16, 17, 18), husband-wife communication on matters pertaining to FP and reproductive health provides an enabling environment for couples to implement their fertility desires and contraceptive needs.

Discussion of women with HEWs about FP was found to be strongly associated with unmet need. The result shows an interesting and encouraging outcome. It is also a promising activity for FP programmers to note that visiting women in their home is an effective approach to raise contraceptive use. The result is also consistent with previous studies (14,19).

The FGDs, in the present study revealed that the close relationship of HEWs with the community initiated women to use contraceptive methods. In addition, result of the KIIs showed that health service extension program could significantly contribute to raising contraceptive use in the woreda.

Number of living children was found to be one of the factors for a woman to have demand for FP services. In other words large number of living children is a factor to encourage women to space or to limit their fertility. Women who have more living children are more likely to have unmet need than those who have fewer or none. This is in line with studies conducted in Addis Ababa by Tekabe et al (20), in a district of Eastern region of Nepal by Bhandari (15) and in Iran by Ahmadi (16).

In conclusion, age at first marriage, number of living children, spousal discussion and discussion with health workers about FP were found to be the most important determinants of unmet need for FP in the study area. Integrated FP information, education and communication programs and strategies aiming at encouraging communication between couples, expand access to FP services in rural area, discussion of women with health workers, particularly HEWs, and improving age at marriage could possible help to address women with unmet need.

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ORIGINAL ARTICLE:

Knowledge, Attitude, and Practice of Emergency Contraception among Haramaya University Female Students; Eastern Ethiopia

Berhanu Desta [1]

Abstract

Background: An estimated 10-40% of young, unmarried women experience unwanted pregnancies. Many of these can be prevented by using emergency contraception (EC).

Objective: To assess the knowledge, attitude, and practice of EC.

Methods: A cross-sectional survey was conducted on 572 female students of Haramaya University in March 2009. Data was collected using a structured questionnaire. Participants were selected through multistage sampling technique. To analyze the data, frequency distribution and logistic regression were used.

Results: 272(47.6%) of respondents have even heard of EC. Of these, 70(25.7%) had good knowledge and 208 (76.5%) had favorable attitude. About (17(48.7%) of respondents had ever used EC pills. Logistic regression model identified age, previous residence; religion, grade level, sexual experience, media exposure, sex education, currently chewing chat, and currently taking alcohol are associated with awareness of EC. Similarly, age, religion, and sex education were found to be associated with favorable attitude.

Conclusion: The specific knowledge and practice of EC was low. Therefore, to enhance EC knowledge and practice among female students, Haramaya University needs to design and include a reproductive health course in its curriculum and offer to all students as a common course.

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Introduction

Due to the limited knowledge and guidance, adolescents are less likely to practice safer sex or to use contraception. Contraceptive use is still infrequent in most early sexual experiences. An estimated 10-40% of young, unmarried women experience unwanted pregnancy (1). According to UNFPA about 4.4million abortions are sought by adolescent girls each year (2). To avoid these unwanted pregnancies, many adolescents disproportionately resort to unsafe abortion. Young women aged 15-19 years account for a t least one fourth of the estimated unsafe abortions performed each year, which result in some 78,000 deaths(1).

Unsafe abortion is a significant cause of maternal morbidity and mortality in much of the developing world (3). The risk of death from unsafe abortion is the highest in Africa, where the case fatality rate reaches 7 deaths per 1000 unsafe abortions (4). Unsafe abortion claims the lives of 34,000 African women annually (5). Unwanted pregnancy is one of the major reproductive health challenges faced by adolescents in Ethiopia. About 54% of pregnancies to girls under age 15 are wanted (6).

A study in Harar town showed that the prevalence of unintended childbirth among sexually active women constituted 14.3% of the total births while induced abortion was 14.4%(7). Improving contraceptives use are crucial steps toward reducing the incidence of unwanted pregnancy (3). Many of these unwanted pregnancies can also be avoided by using emergency contraception (EC) (8).

EC is the only method that can be used after sexual intercourse, offering a second change to prevent unwanted pregnancy (9). Emergency contraceptive pills (ECPs) should be taken as soon as possible after unprotected sex. They are most effective the sooner they are taken but can be used up to 120 hours after unprotected sex (10).

In this case of intrauterine device (IUD) EC, insertion in to women's uterus within 5 days of unprotected intercourse is effective to protect unwanted pregnancy (11). EC should not be used as a regular contraceptive method but should be used only in emergency as a backup. ECPs contain hormones found in oral contraceptive pills but in higher does (8,12).

Knowledge and use of EC help to minimize unwanted pregnancies that lead to unsafe abortion. But many young unmarried women who are exposed to unwanted pregnancy may have inadequate knowledge about EC. Study made at Jimma Marie Stops Clinic showed that only 7(35%) of the respondents had knowledge of EC (13). Similarly a study conducted at Jimma University community High School revealed that 13(19.1%) of the respondents had knowledge of EC timing (14). Since the potential users' knowledge of EC is not adequate, the focus of this study was to assess the knowledge, attitude, and practice (KAP) of EC among Haramaya University female students.

The objectives of this study were to assess the level of EC knowledge and attitude of female students; assess practice of EC among female students; and identify socio-demographic factors affecting female student's KAP on EC.

Materials and Methods

Study area and Population

This cross sectional survey was conducted in Haramaya University among female students. In 2008/09 academic year, the university had 12,383 enrolled students of which 2,814 were female students (15). The survey excluded four faculties from the study, because two were newly opened faculties which had no second year and above students (as the study include those levels) while the other two were medical faculties where the students are more familiar with EC than non-medical students.

Sample Size

The formula for a sample population proportion used to calculate the sample size was N=(Z/e)2 (P) (1-P). The assumptions were: P=proportion of EC awareness from previous study was 35.6% (16); Za/2=95% confidence level corresponding to the value 1.96; and e=sampling error tolerated at 0.04. Non-response rate was considered at 10%. Thus, the required sample size of the study was 606.

Sampling Technique

The respondents were selected using multistage sampling. To select the study participants, the calculated sample size (606) were distributed to each college and faculties included in the study using probability proportional to their size. The total number of female students of college and faculties included in the study was 2,273. Secondly, 18 departments from each faculty and college (had 42 departments) were randomly selected and the sample size allocated to each college and faculty was distributed. Eventually, the required numbers of respondents were selected from each grade level from the randomly selected departments.

Data Collection

A self administered questionnaire was designed from similar survey conducted previously and some questions were modified to suit the context of the study.

Before conducting the actual survey, the questionnaire was pre-tested at Kotebe Teachers' College on 30 female students to check its clarity, ordering, and consistency. Based on the feedback, some questions were rephrased and demanded.

Data was collected at dormitory and lecture hall. Dormitory data collection was made to get first year female students who were only available at their dormitory after dinner due to end of first semester class. Their list along with room number was obtained from building proctors.

After rooms of randomly selected departments were identified, the randomly selected female students were made to gather at one room by building proctors and self administered questionnaire was distributed to them by three trained data collectors.

The lecture hall data collection was conducted to get all randomly selected female students of year two and above. The situation was facilitated by the University Gender Office in collaboration with girls club. Their list was obtained from girls club. The office called them at lecture hall. The self administered questionnaire was distributed to them by five trained data collectors and one supervisor.

Operational Definitions

Knowledge: To assess the level of EC knowledge, a series of eight questions on method identification, drug composition, timeframe for effective use, time interval between does, mechanism of action, effectiveness of the drug, appropriate situations for use, and whether EC can prevent sexually transmitted infection (STIs) or not were asked for those who have ever heard of EC.

Hence, to get the summarized level of knowledge, each respondent's correct response was first scored out of eight, each score frequency was tallied and the total score ranged from 0-8(0%-100%). Cumulated total score was calculated and respondents who were aware of EC classified with respect to their level of EC knowledge. Thus, respondents who score zero out of eight considered as "No knowledge", who score (1,2,3 & 4 out of 8) or 12.5%-50% as "Fair knowledge", and who score (5,6,7, & 8 out of 8) or 50% and above as "Good knowledge".

Attitude: It is the opinion, outlook and intention of participants towards EC methods. Participants who had negative opinion on EC and responded negatively to attitude questions were considered to have unfavorable attitude. While those who had positive outlook toward EC and responded positively to attitude questions were considered to have favorable attitude.

For positively worded statements those who select "Yes" were regarded as having positive attitude and those who choose "No" were considered as having negative attitude. Conversely, for negatively worded statements those who select "No" were clustered as having positive outlook whereas those who said "Yes" were categorized as having negative attitude. Accordingly, each respondent's correct response was first scored out of four, each score frequency was tallied, and then the total score was ranged 0-4(0-100%). The attitudinal items score ranged were added to categorize those who score (2,3, &4 out of 4) or 50% and above as "favorable attitude" and those who score (0, & 1 out of 4) or below 50% as "unfavorable attitude" (16,17.

Practice: It is use or ever use of EC when respondents were exposed to unprotected sex to prevent unwanted pregnancy.

Data analysis

Data analysis was done using SPSS software version 15.0. Data was cleaned by running frequencies and cross-tabulation. Frequency distribution and logistic regression model were used to analyze the data. Accordingly, socio-demographic and other predictor variables were included in the model. A p-value of less than 0.05 was considered statistically significant. Logistic regression was preferred as it is strong in determining individual independent effects of each variable on dependent.

Ethical issues

Ethical clearance explaining the objective of the study as received from the Institute of Population Studies, Addis Ababa University and permission was obtained from Haramaya University. Before conducting the survey, the purpose of the study and its confidentiality was explained to the participants. variable by controlling potential confounding. Respondents were also notified that participation was based on willingness.

Verbal consent was obtained from each participant. As soon as the consent was obtained, they were notified that discussion with friends was not allowed and privacy was assured by arranging their seat apart from each other before the survey.

Results

Overall 572 respondents participated in the study making the response rate of 94.4%.

Socio-demographic characteristics

Respondents' age ranged from 15 to 24 years. Age 20-24 constituted 411(71.9%). The mean and median age was 20 years with a Standard deviation of 1.4. Urban respondents were 399(69.8%). Regarding religion, the majority were Orthodox Christian 371(64.9%), followed by Protestant 101(17.7%), and Muslims 90(15.7%). There were 326 (57%) first year students, 110(19.2%) second year, and 114(19.9%) third year students. Socio-demographic characteristics of study participant are shown in Table 1.

Other Characteristics

A total of 391(68.4%) respondents received sex education, 79(13.8%) were currently chewing chat, and 74(12.9%) were currently taking alcohol. The other characteristics are depicted in Table 2.

Table 1: Socio-demographic characteristics of Haramaya University female students, March 2009

Category	Female students (n=572)	Percent
Age (in years):		
15-19	161	28.1
20-24	411	71.9
Previous place of residence:		
Urban	399	69.8
Rural	173	30.2
Religion:		
Orthodox	371	64.9
Protestant	101	17.7
Muslim	90	15.7
Catholic	7	1.2
Others	3	0.5
Grade level:		
First level	326	57.0
Second year	110	19.2
Third year	114	19.9
Fourth year	21	3.7
Fifth	1	0.2

Table 2: Other Characteristics of Haramaya University female students, March 2009

Other Characteristics	Female students (n=572)	Percent
Ever got chance to learn sex education		
Yes	391	68.4
No	181	31.6
Currently chewing chat:		
Yes	79	13.8
No	493	86.2
Currently taking alcohol:		
Yes	74	12.9
No	498	87.1

Sexual experience, and family planning knowledge and practice

Of total respondents, 103(18%) had ever practiced sexual intercourse, and 324(56.6%) had media exposure such as TV and Radio on family planning (FP) broadcasted for the last six months prior to the survey. All respondents had ever heard of FP methods. The most frequent methods mentioned by respondents were oral contraceptive pills 495(86.5%), condoms 428(74.8%), and injectables 427(74.7%). Fifty eight (76.3%) respondents were currently practicing contraceptive use, and 23(22.3%) had pregnancy of which 18(78.3%) reported that it was unwanted. Sexual experience, FP knowledge and practice are given in Table 3.

Table 3: Sexual experience, and family planning knowledge and practice of Haramaya University female students, March 2009

Characteristics	Female Students (n=572)	Percent
Ever had sex:		
Yes	103	18.0
No	469	82.0
Exposure to media:		
Yes	324	56.6
No	248	43.4
Ever heard of family planning methods		
Yes	572	100.0
No	0	0.0
Currently using contraceptives:		
Yes	58	76.3
No	18	23.7
Total	76	100.0
Types of contraceptive currently used:		
Oral pills	10	17.2
Injectables	8	13.8
Condoms	30	51.7
Calendar	7	12.1
Withdrawal	3	5.2
Total	58	100.0
Ever been pregnant:		
Yes	23	22.3
No	80	77.7
Total	103	100.0
Planned pregnancy:		
Yes	5	21.7
No	18	78.3
Total	23	100.0
Ever had induced abortion:		
Yes	17	73.9
No	5	21.7
No response	1	4.3
Total	23	100.0
Reasons for induced abortion:		
Health problem	2	11.8
Rejection of partner	3	17.6
Out of marriage pregnancy	8	47.1
No money to bear and rear	2	11.8
Other	2	11.8
Total	17	100.0

Knowledge on EC

Among total respondents, 272(47.6%) ever heard of EC. Of these, 52(19.1%) heard in the six months preceding the survey, 53(19.5%) between 6-11 months, 55(20.2%) 1-5 years ago, 31(11.4%) 5 years ago, and 81(29.8%) couldn't remember the exact time. The most frequently mentioned source of EC information was TV/Radio 120(44.1%), followed by female friends 46(16.9%). Based on knowledge questions, the correct responses were analyzed and their level of EC knowledge classified.

Hence, among the 272 respondents who had heard of EC, 70(25.73%) had good knowledge, 188(69.12%) had fair knowledge while 14(5.15%) had no knowledge of EC.

Attitude towards EC

To determine attitudinal level, four attitude indicators concerning EC were asked. Two positive and two negative items were equally included. The four items were provided to be answered dichotomously either "Yes" or "No" type. Attitude toward EC is given in Table 4.

Table 4: Haramaya University female students attitudes toward emergency Contraception, March 2009(n=272)

Attitude Indicators	Yes	No	Total
Talking EC after unprotected sex is much better than regular use of contraceptive method	1927(70.6)	80(29.2)	272(100)
I will use EC in case need arise	142(52.2)	130(47.8)	272(100)
EC pills can hurt the baby in case if it doesn't work	164(60.3)	108(39.7)	272(100)
Recommending EC use after unprotected sex to a friend is dangerous	78(28.7	194(71.3)	272(100)

The correct responses were analyzed to determine the attitudinal level of respondents. Thus, among the 272 respondents who had heard of EC, 208(76.5%) had favorable attitude whereas 64(23.5%) had unfavorable attitude.

Emergency contraceptive pills practice and related procedures

Sexually experienced respondents were asked whether they used EC to prevent unwanted pregnancy or not. Thus, respondents for this question were only 35(33.9%). Among these, 17(48.6%) used ECPs whereas 18(51.4%) respondents never used ECPs. To avoid unwanted pregnancy, 12(66.7%) unsafely aborted, 5(27.8%) aborted at health centers, and 1(5.6%) delivered.

Determinants of knowledge, attitude, and practice of EC

Knowledge result shows, independent variables were significant. Of these, previous residence, currently chewing chat, and currently taking alcohol were highly significant in predicting EC knowledge.

Urban respondents' were 2.31 times more likely to be aware of EC than their rural counterparts (P<0.000). Currently chewing chat and taking alcohol respondents' were 3.37 and 2.53 times more likely to be aware of EC than their counter parts (P<0.000 and P<0.007); respectively.

Attitude result shows age, religion, and sex education was significant in predicting attitude. Of these variables, religion and sex education were highly significant. Orthodox followers and sex education receivers were 2.08 and 2.30 times more likely to have favorable attitude toward EC than their counterparts (P<0.037) and P<0.014), respectively.

Regarding practice, the study was planned to analyze and determine the predictor variables that affect respondents' EC practice using multivariate analysis test. However, the dependent variable "practice" was excluded from the model due to few cases (only 17) which were inadequate to fit into the model as logistic regression model requires large sample size to determine the predictor variables. Determinants of EC knowledge and attitude are shown in Table 5.

Table 5, Determinants of Emergency Contraceptives Knowledge and Attitude among Haramaya University Female Students, March 2009

Knowledge Result			Attitude Result					
Predictor variables	(N=572)	Odds ratio	95% C.I	P-value	(N=272)	Odds Ratio	95% C.I	P-value
Age								
15-19	161	0.539	(0.344-0.845)	0.007**	63	0.444	(0.217-0.908)	0.026*
20-24(RC)	411				209			
Previous residence								
Urban	399	2.306	(1.513-3.517)	0.000***	215	1.422	(0.681-2.968)	0.349
Rural (RC)	173				57			
Religion								
Orthodox	371	1.955	(1.313-2.912)	0.001**	199	2.077	(1.044-4.132)	0.037*
Others (RC)	201				73			
Grade level								
First year (RC)	326				1			
Second year & above	246	1.713	(1.139-2.577)	0.010*	104	1.662	(0.844-3.271)	0.141
Sexual experience								
Ever had sex	103	1.945	(1.141-3.314)	0.014	69	1.407	(0.630-3.143)	0.404
Never had sex (RC)	469	203						
Exposure to media:								
Yes	324	1.747	(1.195-2.554)	0.004**	178	1.437	(0.766-2.698)	0.259
No (RC)	248				94			
Sex education:								
Yes	391	1.672	(1.114-2.509)	0.013	213	2.302	(1.183-4.482)	0.014*
No (RC)	181				59			
Currently chewing chat:								
Yes	79	3.368	(1.786-6.354)	0.000***	62	2.413	(0.956-6.093)	0.062
No (RC)	493				210			
Currently taking alcohol:								
Yes	74	2.532	(1.295-4.948)	0.007**	59	0.545	(0.237-1.251)	0.152
No(RC)	498				213			

*P<0.05 ** P<0.0 ***P<0.001 RC- Reference Category ↓Protestant, Catholic, & Muslim

Discussion

All respondents had ever heard about family planning methods. The most frequent methods identified were oral pills 495(86.5%), condoms 428(74.8%) and injectables 427(74.7%). This finding is almost consistent with Ethiopia Demographic and Health Survey 2005 where oral pills, injectables, and condoms were the most widely known methods both by women and men(23).

Two hundred seventy two (47.6%) respondents ever heard of EC. This finding is consistent with Kampala University (45.1%) and female university students in Addis Ababa (43.5%) (19,24). But inconsistent with Kingston University (84%), and Jimma (22.8%), (18,25). The most frequently mentioned source of EC information was TV/Radio 120(44.1%), female friends 46(16.9%), and healthcare providers 26(9.6%). This finding is consistent with a study done at Bahir-Dar University where the first sources were TV/Radio, female friends, and healthcare providers(17). Contrary to this, in Kingston University study the first sources were friends, newspapers/magazines, and TV/Radio (18) while in Nigeria University study the prime source were healthcare providers (49%), and female friends (33%) (9).

In the present study, 70(25.73%) respondents had good knowledge of EC. This finding is not consistent with a study of Cameroon university (7.2%), a study conducted at Addis Ababa University (43.5%), and study done in the Niger Delta of Nigeria (50.7%). (20,24,27).
Respondents' favorable attitude toward EC was found to be 208(76.5%). Findings from Kingston University (56%), female university students in Addis Ababa (52.6%), Jimma University (56%), and Niger Delta (

Conclusions

(1
Despite having favorable attitude towards EC, the knowledge, and practice about EC was very low. R Therefore, to enhance the low level of EC knowledge st and practice among female students Haramaya u University needs to design and include reproductive health course that incorporate sex education and contraceptive use with adequate EC information into its curriculum and offer to all students as a common course.

For instance, ECPS practiced at Kampala University (7.4%), Hwassa post secondary (7%), and Nigeria University (2%), (9,16,19). Among sexually experienced, 23(22.3%) ever had pregnancy where 18(78.3%) were unwanted, and five (21.7%) planned. This result was inconsistent with Hwassa post-secondary, students where 69.9% were unplanned (16). Among ever been pregnant, 17 (73.9%) ever had induced abortion. However,. Other studies how different findings such as; Nigeria University (34%), Bahir-Dar University (62.5%), and Cameroon University (8.8%) (9,17,20).

Sex education should enable young people to develop into sexually healthy persons, who are able to make informed choice about their current and future sexual life (21). Study conducted among in school and out-of-school youth in Ethiopia revealed that daily char intake was associated with unprotected sex (22). Alcohol intake is associated often with unplanned and unprotected intercourse. Teenage drinkers are more likely to be engaged in risky sexual behavior and experience unprotected intercourse than non-drinkers (1).

According to logistic regression analysis, predictor variables that determine Haramaya University female students' knowledge of EC were: age, previous residence, religion, grade level, sexual experience, media exposure, sex education, currently chewing chat, and taking alcohol. Of these, currently chewing chart, and taking alcohol were highly significant in predicting EC awareness. During chat and alcohol ceremonies, various topics like class subjects, politics, sexual issues, social matters and new ideas are widely discussed. Hence, different information can easily be dissented among the participants that increase their chance of being aware about EC. But it is advisable to be aware of EC through posters, sex education, TV/Radio, news papers, etc. Logistic regression analysis also identified age, religion, and sex education as determinant factors of respondents' attitude toward EC.

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Author Contact: ips_bd2008@yahoo.com

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ORIGINAL ARTICLE:

First Sexual Intercourse and Risky Sexual Behaviors among Undergraduate Students at Haramaya University, Ethiopia

Tariku Dingeta[1], Lemessa Olijira[2], Tadesse Alemayehu [3] and Ayalu Akililu[4]

Abstract

Back ground: First sexual intercourse is a milestone that varies considerably in its timing and its timing and represents an important developmental state. However, it has negative aspects such as unwanted pregnancy, sexually transmitted diseases and infection with HIV. Most adolescents do not use any form of contraception when entering into sexual intercourse for the first time.

Objective: To assess predictors of first sexual intercourse and associated risky sexual behaviors.

Methodology: This is an institution based cross-sectional study conducted from January to February 2010 among undergraduate students at Haramaya University. Quantitative data were collected from 846 randomly selected students.

Results: The majority (536,69.8%) of the students were male. From 843 participants 304(39.6%) ever had sex. The man (SD) age of first sex was 17.8(2.5) years. The majority of the respondents (138,45%) decided to have first sex because of falling in love, followed by curiosity (47,15.5%) of respondents. Out of the sexually active, 82(27%) had their first sexual intercourse with a casual partner. Less than half (42.8%) reported having used any contraceptive method during first sexual intercourse. Peer pressure, having friends who had sex, being male respondents, and discussion of sex related issues with boy or girl friend were among the factors predicting sexual initiation.

Conclusion: A sizable proportion of the participants had had initiated sexual intercourse. Peer pressure is the main reason mentioned for sexual initiation and risky sexual behaviors. Programs and intervention should seek to help individuals postpone their first sexual experience until they are ready for responsible decision making.

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Introduction

The transition in status involved in first sexual intercourse represents a change that is made only once during the life of an individual (1). While both females and males express fear of premarital pregnancy and HIV/AIDS, relatively few adolescents plan for their first intercourse, and hence the majority are unprepared to use contraceptives (1). The first sexual intercourse is a normative milestone that varies considerably in the timing of its occurrence and represents an important developmental state. It has positive aspects like love, discovery, intimate relationship, plan for the future, but also associated with negative aspects such unwanted pregnancy, sexually transmitted diseases and infection with HIV (2,3).

Studies show different measures of sexual health risk during first sexual intercourse such as non-use of contraceptives and sexual incompetence (3).

Studies also revealed that different factors contribute for the probability of experiencing first sexual intercourse. Among them, immediate social environment (intrapersonal and interpersonal) ecological factors have the strongest effect on adolescent's sexual behavior and may provide insights into adolescent's engagement in sexual intercourse (4). The interpersonal factors include age, race, individual self-esteem, alcohol use, religiosity, and perceptions of sex. Factors such as parental, peer, and school relations are some of the interpersonal factors that are associated with initiation of sexual intercourse (6,5). Moreover, evidences also show that rape, sexual violence or physical coercion contribute to unwanted first intercourse. Females are significantly more likely to have been forced into sex than males (5,7,8). Different studies also cite curiosity, peer pressure, love, and promise of marriage, and financial reasons among the factors that predict the onset of sexual intercourse more strongly than other distant factors such as socio-demographic and developmental characteristics (9,7,10).

Research also shows that adolescents have first sexual intercourse with a casual partner under an unstable relationship, which is more often with an older partner (11).

Youth in higher education are living separately from their family and in different environment which might affect their sexual behavior in many ways such as freedom from close supervision of parents, stress, peer pressure etc. this suggests the importance of addressing young people's first sexual intercourse circumstances and factors associated with it. Therefore, this study aimed at first sexual intercourse and associated risky sexual behaviors among undergraduate students of Haramaya University.

Materials and Methods

The study was conducted in Haramaya University which has 11 colleges and more than 38 departments.

A cross-sectional study design was employed among regular under graduate students in Haramaya University using quantitative data in February, 2010.

In order to determine the sample size the following assumptions were taken: expected proportion of sexual intercourse initiation among Ethiopian youth is 47% (12). In addition, a design effect of 2, desired precision of 5%, 95% confidence level and 10% non-response rate were considered. With these assumptions the sample size was calculated to be 843.

Multistage stratified sampling was used to select students for the study. The total sample size was allocated for 11 colleges proportional to the number of students in each college. Eleven departments one from each college were randomly selected to represent each college. Students in each of these section were stratified by sex. The total numbers of the sample size allocated to departments were proportionally allocated based on the number of students in each year. Finally, 843 male and female students proportional to their number in the final strata were randomly selected.

The qualitative data was entered into a computer and analyzed using SPSS version 16.0. Descriptive statistics such as percentages were conducted on valid responses to specific variables, excluding missing values. Bivariate analyses were carried out to examine the relationship between the outcome variables and selected determinant factors as appropriate. Factors for which significant bivariate association observed was retained for subsequent multivariate analyses.

Ethical approval was obtained from Haramaya University Institutional Research Ethics Review Committee. Students were assured of the confidentiality of the information they report and no names were collected.

Students were briefed about the aims and contents of the study and that participation is voluntary. Informed consent was obtained in a form attached with the questionnaire.

Results

Socio-demographic characteristics

A total of 843 questionnaires were returned by participants, 75(8.9%) questionnaires were discarded because of incomplete and/or inconsistent response. Analysis were conducted on the remaining 768(91.1%) questionnaires. The majority 536 (69.80%) of the students were male. The median age of the respondents was 21 years (males 21.1 and females 19.9), the majority (635,82.7%) belonged to the 20-24 years age group. Almost all (743,96.7%) of the respondents were not in a marital relationship (Table 1).

Table 1: Socio-demographic characteristics of the Eastern Ethiopia, 2010

Variable	Frequency	%
Sex: Male	536	69.8
Female	232	30.2
Age: 15-19	123	16
20-24	635	82.7
25-29	10	1.3
Residence before join		
Haramaya University		
Urban	354	46.1
Rural	414	53.9
Marital status: single	743	96.7
Married	25	3.3
Year of study		
1st year	306	39.8
2nd year	236	30.7
3rd year	172	22.4
4th year and above	54	7.1

Sexual behavior

From a total of 768 students, 304 (39.6%) reported to have ever had sexual intercourse. Among these, 244(42.7%) and 60(23.7%) were male and female respectively. The reported mean (SD) age of first sexual intercourse was 17.8 years (2.54) which is almost similar in both males and female with 17.7 and 18 years of age respectively.

A big number of students, 102 (33.6%) had first sexual intercourse when they were in preparatory education and 57(18.75%) had after they joined university. Among the respondents initiating sexual intercourse after they join university, the most (23,40.4%) occurred in the first year. More females started sexual intercourse after they joined the university than male respondents (female 42%; male 13%; P<0.001) (Table 2).

Table 2: Status, events and conditions at initial sexual intercourse by gender among sexually active (n=304) undergraduate students at Haramaya University, Eastern Ethiopian, 2010

Status, events, conditions at time of sexual initiation	(N=244 80.3%	(N=60 10.7%)	Total (N=304)	ODDS RATIO, P-value
Age				
≤ 18	126(82.4%)	27(17.6%)	153(63%)	1.5(0.76-2.99),0.2
≥ 19	68(3.1%)	22(44.9%)	90(37%)	1.00
Level of education				
Before joining university	212(86.9%)	35(58.3%)	247(81.2%)	4.7(2.4-9.4),0.0001
After joining university	32(13.1%)	25(41.7%)	57(18.8)	1.00
Condition of relationship with partner				
Stable relationship	178(73%)	44(73.3%)	222(73%)	0.9(0.49-1.94),0.95
Casual partner	66(27%)	16(26.7%)	82(27%)	1.00
Kind of Sexual partner (n=304)				
Spouses	13(5.3%)	4(6.7%)	17(5.5%)	1.00
Boy or girl friend	181(74.2%)	39(65.0%)	220(72.4%)	0.94(0.3-2.9),0.91
Teacher	6(2.5%)	2(3.3%)	8(2.6%)	1.4(0.2-9.8),0.72
Stranger	19(7.8%)	12(20.0%)	31(10.2%)	2.7(0.73-9.9),0.14
Others (relative, commercial sex worker)	25(10.2%)	3(5.0%)	28(9.3%)	0.5(0.1-2.6),0.42
Planning of sexual intercourse	115(47.1%)	24(40.0%)	139(45.7%)	1.34(0.73-2.47),0.3
Planned	129(52.9%)	36(60.0%)	165(54.3)	1.00
Not planned				
Contraception use	106(43.6%)	25(41.7%)	131(43.2%)	1.08(0.59-2),0.7
Yes	137(56.4%)	35(58.3%)	17256.8%)	1.00
No				
Condom use	73(31.4%)	20(33.3%)	93(31%)	0.87(0.46-1.67),0.6
Yes	167(69.6%)	40(66.7)	207(69%)	1.00
No				
Alcohol, chat or other drugs use	27(11.1%)	12(20.0%)	39(12.8%)	0.5(0.22-1.13),0.06
Yes	217(88.9%)	48(80.0%)	265(87.2%)	1.00
No				
Reason for initiations of sexual intercourse	114(46.7%)	24(40%)	138(45.4%)	1.00
Fall in love	40(16.4%)	7(11.7%)	47(15.5%)	0.83(0.33-2.1),0.69
Curiosity	26(10.7%)	3(5.0%)	29(9.5%)	0.55(0.15-2.1),0.355
Peer pressure	64(26.2%)	7(11.7%)	28(9.2%	1.6,(0.61-4.1),0.35
Promise for marriage	17(7.0%)	5(8.3%)	22(7.2%)	1.4(0.5,4.2),0.55
To make partner happy	16(6.6%)	4(6.7%)	20(6.6%)	1.2(0.4-3.9),0.77
Marriage	10(4.0%)	10(16.9)	20(6.6%)	4.8(1.8,12.7),0.002
Others (rape, drunk, get gift)				
Regret to first sexual intercourse	116(47.5%)	20(33.3%)	136(44.7%)	1.9(1.0-3.42),0.04
Yes	128(52.5%)	40(66.7)	168(55.3%)	1.00

No				

From the 57 students that reported to have had their first sexual intercourse after they joined the university, more than one third (20;35.1%) reported love as the reason for initiation of sex, followed by curiosity (9:15.8%), peer pressure (5;8.8%) and being drunk (4;7%). More males than females respondend curiosity and peer pressure as reasons for having their first sex (16.4% versus 11.7%; 10.7% versus 5%). Rape was reported by 3 (5%) females as reason for first sexual intercourse (Table 2).

Respondents who had ever practiced sex were also asked their relationship with their first sexual intercourse partner, the majority 220(72.4%) reported boy or girl friend whereas 5(1.6%) with commercial sex worker. From total respondents who ever practiced sexual intercourse, 222(73%) reported they experience first sexual intercourse within stable relationship with their partner from which five (2.25%) during marriage; whereas 82(27%) with a casual partner. Among the sexually active students, 139(45.7%) planned their first sex with their partner. On the contrary, among respondents who had first sex with a casual relationship more than four out of five (82.7%) unplanned their first sexual intercourse (P 0.0004). From the respondents who replied ever had sex, 136(44.7%) of the respondents (47.7% male, 33.3% female; or 1.9;P<0.001) regretted by their first sexual intercourse. Among the sexually active students, less than half (42.8%) reported having used any form of contraceptive method and only 93(32%) of them used condom at first sexual intercourse (Table 2).

Predictors of sexual initiations

Being male, peer pressure, perception that all friends had sex, discussion of sex related issue with friends of opposite sex and perceiving that their best friend had sex were found to be significantly associated with the initiation of sexual intercourse. Year of study, residence area where the respondents came from, not having living father or mother, living separated from parents and field of study had no significant association with sexual initiation (Table 3). Discussion of sex related issues with father had positive association with late initiation of sex. Less than 27% of respondents who discussed sex related issues with their father started sexual intercourse before they were 18 years old (OR 0.4; 95% CI 0.2-07). Additionally, perceived peer pressure has also statically significant association with early age of sexual initiation (OR 2.1; 95% CI 1.2 – 3.5) and lack of contraceptive use during first sexual intercourse. Analysis also shows discussion of sex related issue with both parents was significantly associated with decreased sexual initiation during elementary educational level (38.3% of respondents who had discussed sex related issue start first sex during elementary education compared to those that never discussed (85.4% (OR 0.2; 95% CI 0.1 – 0.6; p 0.003).

Table 3: Predictors of sexual intercourse initiation among undergraduate students (n=786) at Haramaya University, 2010

Variable	Crude OR (95% CI)	Ever had sex P value	Adj. OR (95% CI)	P value

Sex: Male	2.4(1.7-3.4)	0.001	1.5(1.1-2.3)	0.049
Female	1.0		1.0	
Against my value to have sex at teenage:				
Agree	0.7(0.5-0.9)	0.027	1.1(0.8-1.7)	0.44
Disagree	1.00		1.0	
Have perceived peer pressure				
Yes	2.4(1.8-3.3)	0.001	1.4(1.1-1.9)	0.042
No	1.0		1.0	
Number of friends ever had sex				
Not at all	1.0		1.0	
Half of them	3.2(2.3-4.5)	0.001	2.52 (1.7-3.6)	0.0004
All of them	4.5(2.8-7)	0.001	2.6(1.42-4.5)	0.001
Best friend ever had sex:				
Yes	4(2.9-5.6)	0.0002	2.8(1.94)	0.001
No	1.00		1.0	
Discuss sex related issues with friend of opposite sex				
Yes	1.8(1.3-2.5)	0.0003	1.6(1.2-2.3)	0.006
No	1.0		1.0	

Discussion

The limitations of this study should be first considered. First, the cross-sectional design of the survey limited our ability to make casual inferences. Self-administered questionnaires on sexuality cannot be used without bias involving recall as well as conscious and unconscious barriers concerning confidential or very intimate information revelations. However, we made every effort to enable students to fill out questionnaires in private and have re-assured them that their information will be kept strictly confidential.

The overall prevalence of sexual intercourse initiation in the study population was 37%. This finding is relatively low particularly for males compared to other study findings in the country and outside. For example a study done in Gondar college of Medical sciences showed 56.1% students were sexually active (13). Studies done among different countries on university students also showed higher figures than the current findings, which ranges from 67.2% - 80% of the university students reported having engaged in sexual intercourse experiences (14, 15, 16).

This might be because of sampling variation and also underreporting of sexual activities due to the sensitive nature of the study. Among sexually active students 18.75% had their first sex after they joined the university which is higher compared to the study done in Nigerian university in which 14.2% of the study participant had first sex after they join university (15). This shows that a higher number of students in this ample initiate sex after they join university; from this we can infer that that sexual education should take place at both schools and universities in order to reduce the negative consequences of students' sexual milestone.

When asked why they had initiated sexual intercourse, both male and female students gave similar answers which included love responded by 45.4% (male 46.7%; female 40%), curiosity 15.5% (male 16.4%; female 11.7%) and peer pressure 9.5% (male 10.7%, female 5.0%). This revealed peer pressure was an important underlying factor for sexual initiation. Studies showed similar reasons, where males most often said curiosity and peer pressure had led them to begin having sex earlier than they would have liked (7,10).

Females also raised getting good mark (1;0.02%), rape (3,0.6%) and getting drunk (3,0.6%) as the reasons for the first intercourse. However, these reasons were very low compared to the other reasons given in this study and also other study results (7). These figures may be an underestimation, since social taboos and fear of stigmatization lead to reluctance to report rape of forced intercourse.

In this study multivariate analysis showed peer pressure, having best friend who had ever practiced sex, discussion about sex with friends of opposite sex and being male had independent association with likelihood of reporting initiation of sexual intercourse. This result is similar with other studies. A study on college students in America also showed men who have intimate unmarried friends experienced premarital sexual intercourse eight times more active compared to those who don't have such sexually active friends (1). In this study also 63% of the respondents who their best friend had sexual intercourse initiated sexual intercourse (OR 4.0; 95% CI 2.9-5.6). sensitive issues such as sexuality are difficult to discuss among family members but it is easier to discuss among peers. These finds showed that peer groups and friends play a significant role in influencing views, attitudes and sexual behavior of young persons. As a result targeted peer education on critical thinking skills may be necessary to avert the negative influences of friends.

This study shows only 27% of the students had their first sexual intercourse with casual partner. However, this result is high when we compare with a study done in Nigeria Ibadan University students that showed 17% of the students had their first sexual intercourse with casual partner (15). This might be related to sampling variation. This study showed more or less similar result proportion of male and female (28% of male and 25% female) had first sexual intercourse with casual partner. A study done in Switzerland showed males were more likely to have experienced first intercourse in more.

Casual relationships or with a person they had just met, while females were more likely to have experienced their first intercourse in a close relationship such as with a lover, marriage or serious relation which led to marriage (11).

A major concern about first intercourse among youth is the lack of contraception use. Condom use at the time of first sexual intercourse was very low in the study, where less than two out of five students (32%) reported that they used condom. This is very low compared to a report from Kattamudu college, Nepal in which around 57% students used condoms during their first sexual intercourse (5). This might be related to adolescents' experience of their first sexual intercourse with a partner who seems to never had any experience and some of them might experience a situation where the use of condom or other contraception can be difficult to deal with for instance because of refusal of partners or themselves.

Conclusion

This study has revealed that more than 37% of the surveyed students in Haramaya University had premarital sexual intercourse and majority of them initiated sexual intercourse before they jointed the university. Moreover, among those who had their first sex after they joined university close to half did it in first year of their study. Additionally, almost half of the respondents ever practiced sex reported that their first sexual intercourse were unplanned. Less than half of the respondents mentioned using any contraceptive method during first sexual intercourse. Discussion of sex related issue with mother and father had significant association with late initiation of first sex and contraceptive usage among sexually active respondents' we therefore recommend peer education, involvement of parents and attention to students especially during their first year of study at university be given attention in order to delay first sexual intercourse or at least avert its adverse consequences.

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ORIGINAL ARTICLE:

Prevalence of Incision Extension during Cesarean Section at Three Teaching Hospitals in Addis Ababa, Ethiopia

Ahmed Abdella [1], Lia Tadesse [2]

Abstract

Background: The most common major surgical procedure in obstetrics and gynecology in Cesarean Section (CS). Though advances in CS techniques, antibiotics, blood transfusion etc., have improved maternal and fetal outcomes. Cesarean delivery still poses higher maternal morbidity and mortality than vaginal delivery. One of the major causes of morbidity and mortality in CS is intra-operative hemorrhage which is partly caused by uterine incision extension (IE).

Objective: To determine the prevalence of uterine IE and assess factors associated with IE in CSs in three teaching hospitals in Addis Ababa, Ethiopia.

Methods: A cross-sectional study was undertaken from July 1 to August 30,2005 at three teaching hospital of Addis Ababa University. The data was entered and analyzed using EPI INFO statistical package, version 6.

Main Results: There were 42(12.7%) IEs among the 332 CS. Second state of labor (n=14, 34.1%), low station (m=16, 30.7%), occipito-posterior position (n=15, 25.4%), prolonged labor (21, 20.4%), rupture of membrane (n=16, 28.6%), and dystocia (n=86, 25.9%) were found to have significantly higher IE prevalence. Post partum hemorrhage (PPH) due to tear of a vessel was seen in 33.3% of the IES. Even though the occurrence of IE was more common in those with emergency CS (13.4%), repeat CS (14.5%) and CS before term (16.7%) than elective (7.1%), primary (12.1%), and CS AT TERM (12.3%), respectively, the differences were not statistically significant.

Conclusion: IE is one major cause of intra-operative complications occurring in CS performed in the three teaching hospitals. In the presence of high risk factors (rupture of membranes, second stage of labor and low station of the presenting part), intra-operative complication should be anticipated and appropriate precautions made. Further studies are required to assess the long term complications and better uterine incision techniques.

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Introduction

The significant decrease in maternal mortality, especially in developed countries is attributable to timely interventions such as Cesarean section (CS). CS has contributed significantly in prevention of maternal morbidity and mortality. Currently, the rising CS rate throughout the world of serious concern (1). Even-though the unmet CS need in developing countries such as Ethiopia is generally enormous, the safety of CS and increasing CS rate in certain urban areas are also important concerns. Within eight years (1979 to 1987), the CS rate at Tikur Anbessa Hospital, almost doubled (from 7.67% to 13.6% (2).

Cesarean delivery has higher maternal mortality and morbidity than vaginal delivery. The maternal mortality after CS varies from place to place; it is 2.7 to 26 times the risk of death after vaginal delivery (3, 4, 5. Not all death and morbidities are direct consequence of the procedure. In Massachusetts, seven maternal deaths were found to be directly associated with CS among 121,000 CS (5.8/100,000) (6). The leading causes of deaths attributed to CS include pulmonary embolism and cardiopulmonary arrest (7).

In Ethiopia, most of the CSs (71.57%) are performed on emergency basis (2). Emergency CS is associated with increased complications such as incision extension (IE) than elective CS (8). The published reports on complication of CS are very limited and there are none that focus on IE. This study was conducted to determine the prevalence of IE and assess the factors associated.

Material and Methods

This is a cross-sectional study conducted at the three teaching hospitals of Addis Ababa University: Tikur Anbessa (TA), Gandhi Memorial (GM) and St. Paul's (SP) hospitals. A total of 332 women delivered by CS in the three hospitals from July 1 to August 30,2005, were included in the study. This accounts for 95% of the sample size (350 CS) estimated using the formula for single proportion with 5% degree of precision and 35.5% prevalence of IE (9).

IE was defined as "extension of the original incision line by 2 or more cms; or tear of a vessel lying at the lateral side of the uterus." Surgeons were oriented to use the width of their fingers in estimating extent of extension. An abdominal delivery of the fetus, placenta and the membranes at or after 28 completed weeks of gestations was classified as emergency CS if it was undertaken after the onset of labor or occurrence of a complication such as ante-partum hemorrhage before the onset of labor on the other hand, delivery before the onset of labor or obstetric complication was classified as elective CS.

Data was collected prospectively immediately after the CS by the primary surgeons using a pre-prepared data collection data collection format. All the surgeons in the three hospitals were briefed on the research, format the definitions. Completeness and accuracy of the data was checked by the principal investigator followed by data entry nd analysis using EPI-INFO version 6 statistical package. The total number of CS with IE was divided by the total CS to compute the prevalence of IE. Descriptive statistics, odds ratio, x^2, p-value and Fisher's exact test were used as appropriate. Statistical significance was set at a p-value of less than 0.05.

Verbal consent was obtained from each subject by the primary surgeons. The data collection format did not include any information that may identify the patient or surgeon. Ethical clearance was obtained from the research and publication committee of the department of obstetrics and gynecology, Addis Ababa University.

Results

From July 1 to August 30, 2005 a total of 332 CS were performed in the three teaching hospitals; 133(40.1%) in TASH, 123 (37%) in GMH and the remaining 76(22.9%) in SPH. There were a total of 42 IEs with an overall prevalence of 12.7%. the prevalence at TAH, GMH and SPH were 12% (n-16), 13.8% (n=17) and 11.8% (n=9), respectively.

Most of the IEs (54.8%, n=23) were 3-4 cm tears. The remaining 13 (30.9%) and 6 (14.3%) had 2 and ≥5cm, respectively. Twenty-six (61.99%) of all the 42 IEs had downward extensions: 16(38.1%) were limited to the lower uterine segment while 8(19%) and 2(4.8%) were extending downward to either the cervix or vagina, respectively. Twelve IEs (28.6%) were lateral extension; 10(23.8%) of which involved either the left (n=5) uterine artery. The remaining 4(9.5%) IEs went upward to the uterine body.

The prevalence of IE was similar among the different socio-demographic and reproductive characteristics except residence. IE was significantly higher (c2=4.98, p-value = 0.026) among residents out of Addis Ababa (n=17, 20.2%) than Addis Ababa (n=25, 10.1%) (Table 1).

Table 1: Distribution of incision extension by socio-demographic and reproductive characteristics among 332 Caesarean sections in three teaching hospitals, Addis Ababa, Ethiopia, 2005

Category		Cesarean sections		Total %)	P value (c^2)
		With IE n (%)	Without IE n(%)		
Residence	Addis Ababa	25(10.1)	223(89.9)	248(74.7)	0.02(4.98)
	Out of AA	17(20.2)	67(79.8)	84(25.3)	
Age	15-24	12(10.0)	108(90.0)	120(36.1)	0.746
	25-29	18(14.3)	108(85.7)	126(38.0)	
	30-34	8(13.6)	51(86.4)	59(17.8)	
	>34	4(14.8)	23(85.2)	27(08.1)	
Education	Illiterate	15(17.0)	73(83.0)	88(26.5)	0.347
	Read & write	3(12.0)	22(88.0)	25(07.5)	
	Formal education	24(11.0)	195(89.0)	219(66.0)	
Religion	Christian	37(13.7)	233(86.3)	270(81.3)	0.32
	Muslim	5(08.1)	57(91.9)	62(18.7)	
Occupation	Farmer	06(28.6)	15(71.4)	21(06.3)	0.0360
	Housewife	36(11.6)	275(88.4)	217(65.4)	
Gravidity	I	14(10.4)	121(89.6)	135(40.7)	0.56
	II-IV	24(14.0)	148(86.0)	172(51.8)	
	≥V	4(16.0)	21(84.0)	25(07.5)	
Parity	Nullipara	19(11.6)	145(88.4)	164(49.4)	0.64
	I	11(12.1)	80(87.9)	91(27.4)	
	II-IV	11(17.2)	53(82.3)	64(19.3)	
	≥V	1(07.7	12(92.3)	13(03.9)	
Previous abortions	None	34(12.5)	49(87.5)	271(81.6)	0.88
	I-II	7(12.5%1)	49(85.5%)	56(16.9%)	
	≥III	(20%)	4(80%)	5(1.5%)	
Total		42(12.7%)	290(87.3)	332(100%)	

Two hundred ninety (87.3% were emergency and the remaining 42(12.7%) elective CS. Even though the prevalence of IE was higher among emergency CS (n=39, 13.4%) than elective CS (n=3, 7.1%), the difference was not statistically significant (x^2=0.367,p-value,0.81). similarly, the prevalence of IE was not significantly different (x^2=0.727, p-value=0.12) between primary (n=31, 12.1%) and repeat CS (n=11, 14.5%).

Almost 98% (n=325) of the uterine incisions were lower transverse with IE prevalence of 11.7% (n=38). Classical CS and inverted-T incisions accounted for 0.6% (n=2) each and lower-vertical for 0.9% (n=3). Blunt and sharp expansion were used in 32597.9%) and 7(2.1%) uterine incisions, respectively. Prevalence of IE was higher (Fisher exact p-value=0.05) among CS with sharp uterine incision expansion (n=3, 42.9%) than blunt expansion (n=39, 12.0%).

The main indications for CS included non-reassuring fetal heart rate pattern (NRFHR) (n=93, 28%), dystocia (n=86, 25.9%), previous CS (n=60, 18.15%), and breech (n=38, 11.4%).

Failed induction and other indications accounted for 55(16.5%) of the 332 CS indications. The prevalence of IE was highest among CS after dystocia (n=21, 24.4%), previous CS (n=8, 13.3%), and NRFHR (n=10, 10.8%).

Most of the CS were undertaken by year II (n=247, 74.7%) and year III (n=79, 23.8%) residents. Year IV residents and consultants were the primary surgeons for 6 CS only (1.8%). The prevalence of IE among the three surgeons were 14.2% (n=35), 7.6% (n=6) and 16.7% (n=1), respectively, with no significant difference between them (p-value>0.05).

Although the prevalence of IE was higher among the preterm (16.7%, n=5) than the term (12.3%, n=37); the differences was not statistically significant (P=0.325). similarly, the increasing trend of IE from 07.3%, 12.9%, to 20.0% with increasing birth weight from less than 2500, 2500-3999 to 4000 or more grams, respectively, was not statistically significant (X^2,2.26, P,0.35) (Table 2)

Table 2: Distribution of incision extension by gestational age and birth weight among 332 Caesarean sections in three teaching hospitals, Addis Ababa, Ethiopia, 2005

Variables	Cesarean sections		Total (%)	P value (c^2)
	With IE No (%)	Without IE No (%)		
Gestational age				0.325
Preterm	5(16.7)	25(83.3)	30(09.0)	
Term	37(12.3)	265(87.7)	302(91.0)	
Birth weight	3(07.3)	38(92.7)	41(12.3)	0.35
<2500gm	35(12.9)	236(87.1)	271(91.6)	(2.26)
2500-3999gm	4(20.0)	16(80.0)	20(06.0	
≥4000gm				
Total	42(12.7	290(87.3)	332(100%)	

Sixty four (19.3%) cases had no labor at the time of CS and 3(4.7%) of them had IE. The remaining 268 cases were at various states of labor at the time of CS. Occurrence of IE gradually increased from 1.2%, 17% to 34.1% as the labor progressed from the latent phase through the active phase to the second stage, respectively. The increasing trend of IE prevalence with CS performed at later states of labor was statistically significant (c2=33.5, p-value=0.000) (Table 3).

The prevalence of IE also had an increasing trend with increasing duration of labor; it increased from 4.3% to 11.0% and 20.4% when CS was done at no-labor to '12 or less' and 'more than 12' hours duration of labor, respectively. The IE prevalence also showed a significant increasing trend (c2=9.88, p-value=0.02) with increasing duration of fetal membrane rupture (Table 3).

Table 3: distribution of incision extension by selected labor variables among 332 caesarean sections in three teaching hospitals, Addis Ababa, Ethiopia, 2005

Variables	Cesarean sections		Total (%)	P value (c^2)
	With IE No (%)	Without IE No (%)		
Stage of labor				
No labor	03(04.5)	63(95.5)	66(19.9)	<0.000
Latent phase	01(01.2)	83(98.8)	86(25.3)	(33.5)
Active phase	24(17.0)	117(83.0)	141(42.5)	
Second stage	14(34.1)	27(65.9)	41(12.3)	
Duration of labor				
No labor	03(4.7%)	63(95.3%)	66(19.9)	0.007
≤12 hours	18(11.0)	145(89.0)	163(49.1)	(9.8857)
≥12Hours	21(20.4)	82(79.6)	103(31.0)	
Duration of fetal membranes' rupture				
Not ruptured	4(03.4)	115(96.6	119(35.8)	<0.000
≤12 hours	23(14.6)	135(85.4)	158(47.6)	(24.2760)
>12Hours	16(28.6)	40(71.4)	56(16.9)	
Oxytocin use				
Yes	3(04.3)	66(95.7)	69(20.8)	0.03
No	39(14.8)	224(85.2)	263(79.2)	(4.53)
Presentation				
Vertex	36(13.7)	227(86.3)	263(79.2)	
Face	1(14.3)	6(85.7)	7(2.1)	
Brow	1(33.3)	2(66.7)	3(0.9)	
Breech	2(3.7)	52(96.3)	54(16.2)	
Shoulder	2(40)	3(60)	5(1.5)	
Station				
Above zero	26(9.3)	254(90.6)	280(84.3)	0.000025
At or below Zero	16(30.7)	36(69.2)	52(15.7%)	(21.1)

IE prevalence following oxytocin use (n=3, 4.3%) for either induction or augmentation was also significantly higher (c^2=45.3, p-value =0.033) than CS performed without the use of oxytocin (n=39, 14.8%) (Table 3). Similarly, IE was significantly higher (c^2=14.77, p-value =0.000) among CS performed after rupture of the fetal membranes (n=38, 17.8%) than those intact membranes (n=4, 3.4%).

The most common fetal presentation was vertex (n=260, 78.3%) and 78.3%) and 13.7% of them had IE. Breech was the second common presentation (n=52, 15.7%) with IE prevalence of 3.8% (n=2). The remaining 20 were face (n=7), brow (n=3), shoulder and compound (each 5) presentations with a total of 4(20%) extensions. Two of the four IE occurred among the shoulder and one each among the face and brow presentations (Table 3).

The station of the presenting part at the time of the CS was at or below the ischial spines in 52 (15.7%) of all the cases and this group had a significantly higher (OR=4.34, 95% CI=1.96-9.32) IE occurrence (30.7%) than those with station above ischeal spines (9.3%). In five CS performed in the second stage of labor with vertex presentations, the presenting part was pushed by an assistant from below; two of the five had IEs (Table 3).

Among the 263 vertex presentations, the position of 175 was identifiable while the remaining 88 cases' position was unknown due to high head. Among the 175 vertex presentations, 68(26.2%), 48(18.5%) and 59(22.7%) were occuputoposterior (OP) position, respectively. The occurrence of IE among OP (n=15, 25.4%) was 3 times more common (OR=3.12; 95% CI=1.08-9.73) than OA (n=7, 1.3%). Even though IE was higher in OT (n=11, 22.9%) than OA, the difference was not significant (OR=2.72; 95% CI=0.88-8.96).

Twenty-one (6.3%) of the 332 women had PPH based on the estimation of $\geq$100 ml blood loss.

PPH was 20 time more likely (OR=20.21; 95% CI=6.84-63.24) among CS with IE (33.3%, n=14) than CS without IE (2.4%, n=7). Eight patients with PPH developed shock due to bleeding from IE (n=6) and uterine atony (n=2). A total of four cases required blood transfusions; two of these were due to IE and the other two due to atony and APH. There was no maternal death.

Discussion

The prevalence of IE in the three teaching hospitals of Addis Ababa University was high (12.7%). The reported prevalence varies from less than 1% to 13% (9,10,11). The variation in IE prevalence in different setups is due to the variation of circumstances under which CS in provide in different setups where factors affecting IE different. For example, in Sweden and Saudi Arabia (10,12) IE are prevalence was low but the proportion of elective CS is higher (37% to 50%) than in this study (12.7%). Other possible reasons for the differences in IE prevalence include the skill of the operators, stage of labor, indications for the CS, type of incisions (9,10,11,12). Besides, the definition and diagnosis of IE differs from study to study.

In the study of Rodriguez (9), US, the prevalence of IE was found to increase significantly from 1.2% in the latent phase to 17%, and 34.1% in the active phase and second stage of labor, respectively. Unlike Rodriguez's study in which the prevalence of IE was 1.4% in CS undertaken before labor, our finding was slightly higher (4.7%). A recent comparative study in Italy found that the risk of IE is not significantly affected by the stage of labor (11).

Although IE prevalence was higher among emergency CS (13.4%) than elective (7.1%), the difference was not statistically significant. Similarly, higher occurrence of IE was reported in emergency (0.6%) than elective CS (1.2%) from King Khalid University, Riyadh (12). Generally increased surgical complications including IE were also cited from Sweden among emergency CS (18.9%) than elective (4.2%) (10).

The station of the presenting part below the ischial spines had significantly higher rate of IE similar to the findings by Nielson. This can be explained by the difficulty in disengaging the head.

Studies about expanding uterine incision during CS are limited. In 1994, a small study in Florida reported no significant difference in the occurrence of IE and PPH between blunt and sharp expansion of uterine incision (9) while another small study in Pakistan in 2002 indicated that blunt expansion of uterine incision during low segment CS was significantly associated with more unintended IEs and PPH than sharp uterine incision (13). On the other hand, a larger study in 2002 demonstrated that sharp technique was associated with increased risk of PPH and inadvertent extension of uterine incision than blunt technique (14). In our study, almost all the incision (97.9%) were made using blunt technique and the prevalence of IE was lower (Fisher exact test of 0.05) among the blunt (12.0%) than the sharp (42.9%). A recent study found that the risk of unintended incision extension and PPH were decreased in "cephalad-caudad" blunt expansion than "transversal" blunt expansion of uterine incision (11).

Among the 21 cases with PPh, 14 (66.7%) had IE accounting for 33.3% of those with IE extension showing higher morbidity.

Conclusion

IE is a prevalent intra-operative complication in CS performed in the three teaching hospitals. It seems that CS done in second stage of labor, when the station of the presenting part is below the ischial spines, CS done after rupture of membrane, and use of oxytocin are predisposing factors for IE. Hence, it is recommended that providers prevent such predisposing factros as much as possible, and for factors that are not preventable surgeons should anticipate and be ready to manage the associated complications as appropriate.

The effectiveness of preventive measures such as pushing up impacted fetal head below the ischial spines before making an incision and the role of "cephalad-caudad" blunt IE in preventing IE could be area of future studies in well controlled trials.

Author Contact: ahmedamu@yahoo.com

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Program Briefs

Intra Health

International

Because health workers save lives

Intra Health International

For over 30 years, in more than 90 countries, Intra Health International has empowered health workers to better serve communities in need. Intra Health fosters local solutions to health care challenges by improving health workers performance, strengthening health systems, harnessing technology, and leveraging partnerships.

In collaboration with governments, nongovernmental organizations, and private-sector organizations around the world, Intra Health champions the needs and contributions of health workers from doctors and nurses to community health workers to health facility managers and works to ensure they have the tolls, supplies, information, training, and support they need to provide communities they serve with the best possible opportunity for health and wellbeing.

INTRAHEALTH INTERNATIONAL-ETHIOPIA

Inrahealth began working in Ethiopia in 2003, to support the FMOH in expanding PMTCT services to health center level, as well as supporting the reduction of harmful traditional practices, specifically female genital cutting. From 2003-2009, under the USAID funded Hareg and Capacity projects, IntraHealth assisted the government to initiate PMTCT services in 448 health centers, an piloted the expansion of services to the private sector, introduced HIV+ Mother-to-Mother Support Groups to the country and directly support 63 groups of over 1300 members, and successfully increased MNCH service utilization at health center level.

In 2009, ***the USAID funded Community PMTCT (CPMTCT)*** project was initiated with a view to increasing the utilization of MNCH/PMTCT services and improving community follow-up of HIV+ pregnant women/mothers and HIV exposed infants through age two.

The project focuses on building public health sector MNCH/PMTCT management capacity, increasing access to services, improving service quality and increasing demand for MNCH/PMTCT services, focused on the primary health care unit level. Recognizing that low utilization of maternal health services is a key barrier to improved PMTCT performance, the CPMTCT project puts considerable emphasis on improving the quality of labor and delivery services through BEmONc training and mentoring, as well as training and mentoring in other maternal, neonatal and family planning services.

Facility efforts are complemented by mother to Mother support groups (MSG) for HIV+ pregnant women and mothers and MNCH/PMTCT demand creation activities at community level, carried out by urban and rural health extension workers, the Ethiopian Orthodox church, EIFDDA, PLHA and women's associations. These activities include educating their members, promoting couples counseling, holding small group discussion and house to house visits.

Positive mothers identified during ANC visits are linked to MSG where they exist, and where not, monthly meetings between HC and HEW serve to as a forum to identify whether HIV+ mother and HEI have come to scheduled follow-up appointments, and if not, HEW/HC staff visit the mother-baby in their homes.

The CPMTCT project aims assist the government in providing MNCH/PMTCT services to approximately 1,500,000 pregnant women and their partners until end of project in September 2014.

Currently over 1500 HIV+ pregnant and mothers are participating in CPMTCT supported MSGs; the project is supporting service delivery and outreached in 500 HC/PHCU, has trained over 13,000 health workers, and supported HIV testing for 341,556 pregnant women and 54,965 partners and assures that 84% of HIV+ pregnant women identified at project supported health centers receive ARVs at project supported or nearby ART HC.

The four core objectives for community PMTCT project (October 2009 to September 2014) are:

1. To build the capacity of regional health bureaus, zonal and woreda health offices and community-based organizations, to support and manage community-based PMTCT.
2. To increase access to MNCH/PMTCT services through providing facility and community services; and improving bidirectional linkages/referrals el.
3. To increase demand for MNCH/PMTCT services through community outreach.
4. To improve the quality of community and facility-based MNCH/PMTCT services.

In addition to the CPMTCT project, IntraHealth is the country lead for USAID-funded, Engender Health led Global ***Fistula Project***. Working closely with Hamlin fistula Hospital, Amhara Regional Health Bureau and Engender Health, Intrahealth is responsible for building community and health sector capacity to prevent fistula cases as well as identify fistula cases and prepare and refer them for surgery.

This includes fistula screening, pre-repair services and referral for treatment, as well as health worker and community volunteer training and outreach events, and support for the Dangila EmOC center. From October 2011- September 2011 2011, 322 women were referred to the pre-repair centers for fistula and incontinence screening. 210 women were diagnosed with fistula and received counseling, de-worming, treatment of infections, and nutritional support at the four pre-repair centers. 183 were referred to Bahir Dar and Mekele Hamlin Centers for their first surgery, 21 were referred for a second surgery and 2 women with small fistula were treated and cured in the Sekota pre-repair unit a continuous indwelling catheterization. In addition the EmOC center the project supports in Dangila HC performed 87 c-sections and 11 forceps deliveries.

1708 health providers and managers were trained in safety motherhood, use of partograph, and fistula recognition and care and 2375 community volunteers were trained on fistula prevention and referral. After training community volunteers held 5290 session to educate communities on good maternal health care and fistula prevention, detection and referral.

For more information: www.intrahealth.org

Or contact us with intrahealth@intrahealth.org

ICAP-Columbia University, MaiMan School of public health (Ethiopia office)

Mission

ICAP works with Ministries of Health, local governmental organizations, and in-country partners to support sustainable HIV/AIDS prevention, care, and treatment programs that are integrated into national HIV/AIDS control programs.

Overview

ICAP at Columbia University's Mailman school of public health was established in 2004 to support the development of HIV/AIDS care and treatment services in resources limited settings.

ICAP currently implements four major programs: the MTCT-Plus Initiative; the Multi-country Columbia Antiretroviral Program (MCAP); the University Technical Assistance Program (UTAP); and the Dominican HIV/AIDS Treatment Initiative.

ICAP supports programs in Cameroon, Cote d'Ivoire, Democratic Republic of the Congo, Ethiopia, Kenya, Lesotho, Mozambique, Nigeria, Rwanda, south Africa, Swaziland, Tanzania, Thailand, Uganda, and Zambia. Although program specifics vary, all ICAP initiatives focus on family-centered, HIV/AIDS- specific primary care delivered by multidisciplinary teams.

In 2005, the Government of Ethiopia embarked on an ambitious program to provide free care and treatment to people living with HIV/AIDS. In August 2005, ICAP received a cooperative agreement from the CDS, under PEPFAR, to support the national rollout of HIV/AIDS care and treatment services in Ethiopia. Columbia's broad experience implementing public sector ART roll-out and commitment to working with Ethiopia's Ministry of Health (FMOH), CDC/Ethiopia, and other USG partners, have enabled ICAP to support the government of Ethiopia to rapidly expand access to HIV/AIDS care and treatment.

ICAP in Ethiopia supports the implementation of comprehensive HIV/AIDS prevention, care and treatment program rollout in Ethiopia at various levels.

National support: In partnership with the Federal Ministry of Health and Federal HAPCO, ICAP in Ethiopia provides support in the rollout of national Pediatric HIV/AIDS care and treatment program, integration of TB/HIV services and adherence support.

ICAP in Ethiopia is a lead PEPFAR partner in pediatric HIV/AIDS care and treatment. Major achievements in this area include; finalization of national situational analysis, conduction of two national conferences, development of Website, national guideline, Pediatric HIV Care/ART intake forms and the formation of national Pediatric HIV/AIDS care and treatment technical working group. In collaboration with EHNRI and CDC Ethiopia, ICAP also provides technical assistance in the rollout of national Early Infant HIV Diagnosis (EID) program.

ICAP Ethiopia closely works with FMOH and CDC Ethiopia in the integration of TB/HIV services. The first national symposium on IPT, minimum package for TB/HIV services, and assisting in the development of national guidelines are key contributions. ICAP Ethiopia is also an active member of the national TB/HIV technical working group.

As part of the realization of the principle of the "Greater Involvement of People living with HIV/AIDS-GIPA" ICAP Ethiopia closely works with the AELWHA to promote adherence to care and treatment and empower PLWH to take an active part in the fight against HIV, starting from the designing of policies to implementation of programs at a grass root level.

Malaria/HIV is another area that ICAP provides technical assistance.

Regional support: in partnership with the FMOH and CDC Ethiopia, ICAP provides support to the regional health bureaus of Oromia Regional State, Harari Regional State, Somali Regional State and Dire Dawa City Administration Council so that the regions can effectively rollout HIV/AIDS prevention, Care and Treatment programs. To this effect ICAP Ethiopia has signed memorandum of understanding (MOU) and sub agreement with regions. ICAP Ethiopia's regional offices are providing technical support in the design, implementation and evaluation of HIV/AIDS prevention, care and treatment programs.

ICAP also provides support to Jimma and Haramaya Universities in the area of capacity building of staffs and works together in the expansion of HIV care and treatment services particularly in the training health care providers. It is also working to expand its support to all universities in Oromiya.

Facility level support: CU-ICAP, with president's Emergency Plan for AIDS Relief (PEPFAR) funding through CDC-Ethiopia, provides comprehensive support for all HIV/AIDS related activities in hospitals in Oromia, Harrari, Somali and Dire Dawa Regions. As of August 2011, ICAP supports HIV/AIDS prevention care and treatment programs at 36 hospitals and 49 health centers in the four regions, with the overreaching goals of strengthening of systems, quality service delivery and capacity building. And as of September 2011, ICAP took the task of expanding its support to additional 205 health centers (all) in Oromia region.

To reach to these goals ICAP in Ethiopia works through strong site level presence and coordination and hence, has established a main and central regional office in Addis Ababa and three regional offices in Jimma, Dire Dawa, and Shashemene.

ICAP's Ethiopia office facility level support includes infrastructure development, training, supportive supervision and mentorship of multi-disciplinary ART teams, assistance with laboratory, pharmacy and medical records, and establishment of systems to enhance enrollment, follow-up, and adherence. CU-ICAP's regionalized technical assistance model enables ongoing site-level presence, intensive hands-on mentoring, and the effective transfer of clinical and programmatic skills.

Facility level comprehensive HIV/AIDS care and treatment activities are as follows:

- HIV counseling and testing service- VCT, PIHCT and outreach VCT.
- PMTCT services during ANC and labor and PMTCT plus initiative.
- Care of HIV exposed infants and Early infant HIV diagnosis.
- Pediatric HIV/AIDS care and treatment.
- Adult ART
- Palliative care
- Adherence support and peer educators (PE) program
- Mother's support group (MSG) program
- Laboratory support
- TB/HIV integration
- STI
- M & I support

For more information on ICAP's activities, please

Visit: http://www.columbia-icap.org/ethiopia/

Family Guidance Association of Ethiopia

Family Guidance Association of Ethiopia (FGAE) is a local NGO established in 1966. It is this organization started Family Planning service in Ethiopia. FGAE is a full member association of International Planned Parenthood Federation (IPPF) since 1975. The association played pivotal role in national development particularly through its pioneering role in introducing the very concept and practice of family planning information and services to the country by challenging strong, usually tacit, opposition both from political and religious circles to harmonize population growth and socio-economic development.

The humanitarian mission initially started in government facilities came to gradually expand when FGAE managed to establish its own facilities and following the official recognition of family planning services as part and parcel of an integrated maternal and child health care (MCH) program at facilities maintained by the Ministry of Health (MOH) as of early 1980s. Ever since, family planning and reproductive health services started to gain ground as part and parcel of national development endeavors. This organization has shared a lot of experiences and skills for all stakeholders of family planning in Ethiopia and envisages an Ethiopian Society where all people, particularly women and young people enjoy compressive, quality sexual and reproductive health services in their country.

Overview of FGAE's Service provision

FGAE has 4 basic program areas

1. **Adolescent and young people program area**
   - Urban youth and rural youth focused programs.

2. Access program area

- Improving access to quality SRH information and services through its facilities and community based programs.

3. HIV/AIDS program area

- Prevention, care and support services for all the needy people.

4. Safe Motherhood and Safe abortion program areas

- FGAE is providing all range of Maternal and child health services including all range of family planning service, delivery, ANC, PNC, PMTCT, EPI, and Treatment of infertility and Gynecological services.

- FGAE is providing **Comprehensive abortion care** services based on the Ethiopian abortion law for the poor, underserved and marginalized people so as to prevent unsafe abortion in Ethiopia.

Strategies and Technical Approaches

FGAE has aligned strategies with the ministry of health HSDP IV and GTP and the technical approach accounts for the current challenges with high unmet need for family planning and high maternal mortality in Ethiopia. FGAE is contributing a lot in providing integrated and compressive SRH services using its high standard clinics, youth centers and outreach services. Strengthening the capacity of the health providers working in the government health facility and HEWS is also a focus area of FGAE to improve the access of SRH for the rural community. FGAE is a training center for the health sector in the country (both pre service and in-service trainings for health providers on SRH service.) FGAE has a strong partnership with the ministry of Health and other stake holders.

Availability of FGAE

FGAE is providing quality integrated SRH services all over the country trough 8 administrative area offices, 8 higher SRH clinics, 12 medium clinics, 28 youth centers and 4 outreach STI clinics. FGAE is an Ethiopian born organization always on the side of Ethiopian people and making sure that every pregnancy is wanted and stands for improving the health of women, children, young people and most importantly those people who are marginalized, underserved and poor.

For more information please visit our website on

www.fgae.org

or contact us the following address:

Tel: +251-115514111

Fax: +251-115-512 192

P.O.Box 5716

A.A, Ethiopia

Instructions to authors

1. Type of articles

   The Ethiopian journal of Reproductive Health (EJRH) publishes original articles, review articles, short reports, program briefs, and commentaries on reproductive health issues in Ethiopia, and the African region. The ERHJ aims at creating a forum for the reproductive health community to disseminate best practices, and relevant information on reproductive health.

   Original articles: Articles reporting on original research using quantitative and/or qualitative studies could be submitted to EJRH.

   Review articles: Review articles on all aspects of reproductive health issues could be considered for publication in the EJRH.

   Commentaries: Commentaries on any aspects of reproductive health in Ethiopia or the African region will be considered for publication in the EJRH.

   Program briefs: a one or two pages of description of a program run by governmental or non-governmental organizations could be submitted for publication. These briefs should give short summaries about the objectives, strategies for implementation, and expected outputs of programs that are executed by different organizations.

   Short reports: preliminary research findings or interesting case studies could be presented in a summarized form to the journal.

2. Uniform requirements

   In order to fulfill uniform requirements for the journal, the following instructions have to be followed by the authors:

   Manuscript layout: manuscripts should be written in English and typed double-spaced leaving generous margins. Pages should be consecutively numbered. The body of the manuscript should be organized under appropriate headings and sub-headings such as introduction, methods, results, discussion, acknowledgments, and references.

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   Abstracts: articles should have abstracts of not more than 250 words. It should summarize the background, objective, methods, major findings and conclusions.

   Table and figures: all tables and figures should be submitted on separate sheets of paper and be clearly labeled in the order of their citation in the text. A reader should be able to read only the tables and easily understand all information without reading the text.

   References: references have to be numbered consecutively in the order in which they are first mentioned in the text. References must also follow the Vancouver system.

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   Manuscripts should be submitted to the Editor-chief in three good quality copies accompanied by a cover letter signed by all authors. In addition, an electronic copy of the article has to be submitted via email to the journal. When articles are accepted, authors will be required to submit a filled "Author (s) Guarantee Form", which certifies that all authors have contributed to the work submitted, and that the content of the manuscript has neither been previously published nor being considered for publication elsewhere. Please note that Case Reports and faxed sub-mission of manuscripts will not be accepted.

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