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Original Research Article

MAGNITUDE AND ASSOCIATED FACTORS OF ABORTION AMONG REGULAR FEMALE STUDENTS OF SAMARA UNIVERSITY, AFAR, ETHIOPIA, 2016

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Abstract

Background: Abortion is one of the leading causes of maternal deaths in Ethiopia. University youths are disproportionately affected by the consequences of unsafe abortion. It is one of the leading causes of maternal mortality and morbidity in the world. Hundreds of thousands of students become pregnant without intention, and many of them decide to end the pregnancies into abortion. University students are more susceptible to risky sexual exposures and unwanted pregnancies; therefore the objective of this study was, to assess the magnitude and factors associated with abortion among Samara University students. **Methods:** A cross-sectional study was conducted among Samara University students by using self-administered questionnaire. Multi-stage cluster sampling was employed to select a total of 509 female students. **Results:** very worrying magnitude of abortion was relieved. The rate of abortion was found to be 88 per 1000 students, making fourfold of the national rate of abortion for Ethiopia (23/1000 women aged 15–44). Virtually all of the abortions were induced and only 50% were reported to be safe. Alcohol use, Participation in Youth Friendly Services, having multiple sexual partners and using emergency contraceptive were found to be statistically significant. Alcohol use was found to have statistically significant association with Abortion; those students who ever had alcohol have 5.5 times more likelihood of having Abortion than their counterparts 95% CI (1.9 – 16.02). Similarly, student who did not participate in Youth-friendly services were more likely to have abortion compared to students who participate in youth-friendly services 95% CI 0.19 [0.01, 0.33] **Conclusions:** The rate of abortion among Samara University Students was higher as compared to all Abortion study rates elsewhere. It amounted four times as high as the rate for the general population in Ethiopia. Even higher rates of abortion might be detected by use of more robust methods. Moreover, alarmingly higher proportions of abortions (77.8%) were performed or initiated under unsafe circumstances. It is imperative that improved sexual reproductive health education; with focus on safe and legal abortion services should be rendered and wider availability of Youth Friendly Services where young men and women congregate.

Keywords: Abortion, Youth Friendly services, Sexual experience, University, Samara, Afar

Background

Unintended pregnancy is a pregnancy that is either mistimed or unwanted at the time of conception. It is associated with an increased risk of morbidity for women, and with health behaviors during pregnancy that are associated with adverse effects. Women of all ages may have unintended pregnancies, but some groups, such as university students, are at a higher risk. It is reported that despite the availability of different modern methods of contraceptives, ranging from short, long-term to permanent methods, as well as natural methods of contraception, the problem of unwanted pregnancies is very big worldwide but still underreported in many communities due to its sensitive nature. This is so sad due to the high incidence of a pregnancy termination which contributes to high maternal mortality and morbidity. About 80 million of unintended pregnancies are estimated to occur worldwide annually. In developing countries, more than one-third of all pregnancies are considered unintended and about 19% will end up in abortion, which are most often unsafe accounting for 13% of all maternal death globally (1).

Each year, approximately 20 million unsafe abortions are performed worldwide. They result in nearly 80,000 maternal deaths and hundreds of thousands of disabilities. In some countries, unsafe abortion is the most common cause of maternal death. It is also one of the most easily preventable and treatable condition. In Africa, the risk of dying after unsafe abortion is one in hundred fifty. The percent of maternal deaths due to unsafe abortion is 13% (2).

Abortion is the termination of pregnancy by removal or expulsion of a conception tissue (fetus, fetal membranes, and placenta) from the uterus. Abortion can occur either spontaneously, due to complications during pregnancy or could be induced (3). Safe abortion can be defined as providing services for termination of a viable early pregnancy as well as managing other clinical types of abortion. The World Health Organization (WHO) defines unsafe abortion as a procedure for terminating unwanted pregnancy performed by persons lacking the necessary skills or in an environment, not in conformity with minimal medical standards, or both (4).

As in the rest developing the world, unsafe abortion in Ethiopia, is a major public health problem, leading to high maternal morbidity, mortality, and gynecological hospital admissions (5). Institution-based studies, conducted in hospitals of also showed a high prevalence of induced abortion, and as the most frequent cause of maternal morbidity and mortality, for example, a study conducted on abortion at Jimma Hospital, Southwestern Ethiopia showed that the problem of induced abortion is quite significant in the area. Among the total patients admitted with a diagnosis of induced abortion, 62.5% were admitted for bleeding and infections, of which students less than 20 years accounted for 35% (6). In response, Ethiopia has revised the penal code in 2004 has which addresses the issues of abortion with the intent of different reasons to save the life of mother and fetus. To guide the implementation, the Federal Ministry of Health (FMOH) had developed abortion service guideline (7).

Review of risk factors of abortion shows that several variables have been implicated as risk factors of abortion in studies conducted across different countries. In U.S. poor women were reported to experience abortion more often than their counterparts (8). Elsewhere, a study conducted in Hungary concluded that reliable contraceptive methods were used significantly less frequently by the aborters than by the control group and the likelihood

of abortion was significantly lower among those informed by a health-care provider (9). A study conducted locally in Northern Ethiopia stated that, place of residence, marital status, contraceptive use, number of pregnancies and level of education attained by the women were found to be significantly and independently associated with induced abortion; while fear of family criticism was mentioned as reason for resorting to abortion by Jimma University students (10). Two other studies documented sexual violence or rape to be the primary cause for seeking abortion 20-25% of the cases (5). Recent changes in abortion law in Ethiopia are believed to pave the way for access to safe abortion services and subsequently reduce the burden of unsafe abortion and its complications and maternal death (11). Notwithstanding the new law, however, almost six in 10 abortions in Ethiopia are unsafe (12).

Methods

Study Setting: A far national regional state is located in the northeastern part of Ethiopia and lies in the East African Great Rift Valley. It is bordered by the countries of Djibouti in the west and Eritrea in the north. The region is characterized by an arid and semi-arid climate with low and erratic rainfall. The altitude of the region ranges from 120m below sea level to 1500m above sea level. Temperature varies from 20^0C in higher elevations to 48^0C in lower elevations. Rainfall is bi-modal throughout the region with a mean annual rainfall below 500mm in the semi-arid western escarpments and decreasing to 150mm in the arid zones to East. Afar is increasingly drought-prone. The production system of the Afar region is dominated by pastoralism (90%) and agro-pastoralism (10%). The region has a total population of 1,411,092, consisting of 786,338 men and 624,754 women

Samara University is a governmental higher institute located in Afar region, Samara town, North East, Ethiopia. Samara is located at the North Eastern part of Ethiopia which is 588 Km from Addis Ababa, the capital city of Ethiopia. Samara University cornerstone was laid on 2002G.c in its first year of operation 2007/8, SU taught 1867 students within 3 departments. As of 2014/15, SU has total students of 4,300 (1721 female and 2579 male) on regular basis under thirty-five educational departments.

Study Design: An institution based cross-sectional study design was employed among undergraduate female students in 2015/16 academic year

Population: All undergraduate female students residing in Samara University in the stated academic year were source populations. Those students who were blind, critically sick (to the extent of unable to read and write), Health Extension trainees, Postgraduate students, students left for filled trip/clinical attachment during data collection period were excluded from the study.

Sample Size Determination: A multi-stage cluster sampling technique was employed to proportionally recruit students from all colleges of the University. The required sample size for the study was determined by using the single population proportion formula: $n = Z^2pq/d^2$. A p-value of 6.5% was taken from a study done on Wolaita Sodo University female students [14]. The margin of error 3%, 95% confidence level and a non-response rate of 10% and a design effect of 2. The final sample size was determined to be 546.

Sampling procedure: Cluster sampling procedure was employed to reach the study participants. To come up with the size of respondent all colleges in SU were classified into different clusters the predetermined sample size was divided

through proportional allocation to size (PAS). A number of students in each study year within the departments were selected using the principle of proportional to size allocation method. Then, students were selected from each department by cluster sampling

Data Collection Tools and Procedures: Data was collected by structured and pre-tested questionnaire. Five data facilitators and two supervisors were recruited and one-day training was given on emphasizing the objectives, relevance of the study, and confidentiality of the information, respondent's right and informed consent. A pre-test of the data collection tool was carried out in Ayssaita College and adjustments were made accordingly. Questionnaires were prepared in English (Instructional media of the University. Confidentiality was assured to provide honest answers. In addition to specific instructions on the questionnaire, participants have been given clear oral guidelines on filling out the questionnaire.

Data Management, Analysis, and Interpretation: Data was entered into EPI-data 3.0 and transported to SPSS Version20 for further processing and computation. Frequencies, percentages and summary statistics were computed to describe the study population in relation to relevant variables. First, the bivariate analysis using cross tabulation was done to see the association between each independent variables and the outcome interest (Magnitude of Abortion).and crude odds ratio (COR) with 95% CI were obtained. Then, variables observed in the bivariate analysis with (p-value < 0.2) were subsequently included into the final models of multivariable logistic regression to control for possible confounding effect and to assess the separate effects of each variable on the outcome variable. The strength of statistical association was measured by adjusted odds ratios (AOR) and 95% confidence intervals (CI). All tests with $p < 0.05$ were considered statistically significant.

Ethical considerations: The study was approved by the Ethical review committee of the Samara University Written consent was obtained from the College of Medical and Health Sciences. Students were thoroughly explained on their rights and the purpose of the research. Written informed consent was obtained and necessary precautions were made to ensure confidentiality.

Result

Socio-demographic characteristics of the students: A total of 509 female students participated in this study with a response rate of; 93%. The age of the study participants ranged from 18 to 28 with mean ± SD of 20.49 ± 1.62 years. First and second-year students constituted the major proportion (72.5%). More than half (54.6%) of the respondents were Orthodox Christians followed by Muslims (25.9%) and Protestants (16.5%). Virtually most of the students were single 447(87.8%). The reported monthly average earnings (pocket money) of the students ranged from 0 to 1000 ETB with mean ± SD 485 ± 263 ETB. Most 142 (27.9%) of the respondents were enrolled under the College of Engineering and technology. (See table 1 below)

Abortion and Sexual Reproductive characteristics of the students: Age at first sex ranged from as early as 15 years to 22 years. Most 101 (96.2%) of those who are sexually experienced deed between the ages 15 to 19 and only 56 (53.3%) of them reported using a condom at first sex. Almost half (45.4%) of the students have a boyfriend. Sixty-two (12.2%) of the students had pregnancy history, and 49 (79%) of these pregnancies were unplanned. An induced Abortion was reported by 45 (8.8%) students.

The most commonly stated reasons given for induced abortion was, not to interrupt education, fear of social stigma from parents and community and unable to afford the cost for the baby. Skilled health professionals attend only 10 (22.2%) of the total abortion the rest 35(87.8%) were unsafe abortion terminated by people lacking the necessary skills or in an environment lacking minimal medical standards or both. Of sexually active students, most students had only one sexual partner, 88 (84.6%). While 16(15.4%) had multiple sexual partners. Sexual desire, Peer pressure and sex due to Alcohol use were the main reasons for students' first sexual intercourse 84.8%, 13.3% and 6.3% respectively. (See table-2 below)

Youth Friendly Service utilization and Abortion-related characteristics: Most of the study participants 306 (60.1%) did not participate in youth-friendly services offered by samara university and nearby blue star clinics. More than three fourths (77.4) have information about family planning methods. Among the respondents 86.9% mentioned pills, 82.4% mentioned Injectable, 74.3% mentioned Condom and 68.3% mentioned IUCD. Emergency contraceptives were known by 69.8% of female samara university students but only 12.8% students have reported using Emergency contraceptives.

Participants were asked to state conditions/grounds under which they thought abortion should be legalized. Around half of the respondents, 227(44.6%) described abortion should be permitted in cases of rape/incest. only 47 (9.2%) responded abortion should be available on demand while 460 (90.7%) rejected the idea of providing abortion services on demand. (See table 3 below)

Factors associated with abortion: Alcohol use, Participation in Youth Friendly Services, having multiple sexual partners and using emergency contraceptive were found to be statistically significant. Those students who ever had alcohol have 5.5 times more likelihood of having Abortion than their counterparts with P-value of 0.001 (95% CI = 1.9 - 16). Similarly, a student who did not Participate in Youth-friendly services were more likely to have an abortion compared to students who participate in youth-friendly services (AOR [95% CI] =0.19[0.01, 0.71])

Sexual experience appeared to be inversely related to class year, with the highest proportion being 80 percent among first-year fresh students as compared to 20% among senior students. Meanwhile, only 53.3% of those who are sexually experienced has ever used a condom and 65.7% the same group admitted that they had had at least one unprotected sex (sex without a condom) over the last twelve months. Condom use appeared to be higher for students with urban residence 62.5% followed by students from semi-urban areas (32.1%). Students who came from rural areas had the least condom usage (5.4%). More than half of the respondents (69.8%) ever heard of emergency contraception and only 65 (12.8%) of the sexually experienced respondents ever used emergency contraception. (See table 4 below)

Discussion

This study revealed the very worrying magnitude of abortion among Samara University students. The abortion rate was found to be 88 per 1000 students and virtually all of the abortions were induced and less than half (16) were reported to be safe. This rate of abortion amounts more than fourfold the national rate of abortion for Ethiopia (23/1000 women aged 15–44); more than fourfold the rate of abortion among first-year medical students in Mexico City (2%) and significantly higher than the rate of abortion in Jima university, Wachamo university and

Wolayta Sodo university which were accounted 4%, 5.9%, 6.5%, respectively. This difference might be the presence of high-risk sexual exposures around geographic location of the University; being high way road from Addis Ababa to Djibouti, the existence of military training camp, a site for mega project factory (Tendaho sugar factory) and hot weather conditions may have created suitable conditions for increased sexual exposure. Students with multiple sexual partners were found to have an association with high experience of abortion which is different from a community-based study done in northwest Ethiopia, in which increase in a number of births, there was a decrease in the number of abortion.

The higher rate of abortion among the students may partly be explained by the type of the study subjects and period. This figure is much higher than the rate of induced abortion reported by community-based studies conducted in North West Ethiopia Harar, and Eritrea.

The high rate of abortion among samara University students was parallel in relation to high sexual exposure, which is particularly troubling and it indicates that most sexual intercourses are unprotected and unsafe and hence raise serious concerns with the risk of HIV/AIDS and other STDs.

With regard to risk factors, logistic regression analysis of the current study revealed, alcohol use had a statistically significant association with experience of abortion. Students who ever had alcohol were found to be up to five times more likely to have experienced abortion than students who never had alcohol. This is consistent with current evidence on the relationship between alcohol and risky sexual behavior.

The multivariate logistic regression also revealed that first-year students had a significantly higher risk of experiencing sexual intercourse than senior students. This is in agreement with results of a logistic regression on sexual experience, where, in a similar fashion, the same groups of students were found to be more likely to be sexually experienced.

This further strengthens other findings that significant numbers of students are engaged in unprotected sex and hence prone to unintended pregnancy, abortion and STIs.

On the other hand, religious affiliation, the age of students and monthly pocket money did not show significant association with the likelihood of having an abortion. However, use of emergency contraception and students' participation in youth-friendly services; appear to be protective against abortion in this study. Exposure for YFS may increase the knowledge and skills for Abstinence, consistent condom use as well as emergency contraception.

Several issues were mentioned by study participants as most important reasons for resorting to abortion. As part of law reforms in Ethiopia in 2005, the penal code was revised to broaden the indications under which abortion is permitted. Termination of pregnancy is now legal when the pregnancy results from rape or incest, when continuation of pregnancy dangers the health or life of the women or the fetus, in case of fetal impairment, for women with physical or mental disabilities. The fact that significant proportion of students resorted to traditional and unsafe services indicates that access to safe abortion remains to be a problem.

Strength and limitations of the study: The study was the first of its kind in the study area, accordingly provided important evidence on pressing reproductive health issues among university students. Data were collected at the end of academic calendar; hence the possibility of obtaining

full-year information about students was enhanced. The study involved a relatively large sample size, leading to a fairly representative figure. The sensitive nature of the subject investigated and the fact that the research mainly depended on data from respondents; there could have been a room for social desirability bias with possible underestimation of the true prevalence of abortion among the students. The small number of abortion cases accrued might undermine the power of statistical tests.

Conclusion and recommendations

The rate of abortion among Samara University Students was higher as compared to other Abortion study rates elsewhere. It amounted more than three times as high as the rate for the general population in Ethiopia. Even higher rates of abortion might be detected by use of more robust methods. Moreover, alarmingly higher proportions of abortions (77.8%) were performed or initiated under unsafe circumstances. Students who ever used alcohol, who were in their first year had a significantly higher risk of abortion as compared to their counterparts. Knowledge of students on legal issues of abortion was very low; very few students properly stated all the conditions for legal abortion in Ethiopia. The findings of this study strongly imply that despite the recent policy changes to liberalize abortion in an effort to reduce unsafe abortion and subsequent mortality, unsafe abortion remains to be a major problem affecting a significant number of youth women. It is imperative that improved sexual health education is rendered and wider availability of Youth Friendly services are realized in Universities and other places where young male and female congregate. Institutions providing safe abortion services should devise strategies to reach out to youth who are in need of their services and prevent youth from resorting to unsafe abortionists and hence the grave complications of unsafe abortion. Samara University students' clinic and HIV Prevention and training office should develop a way to make contraceptives, especially emergency contraceptives available for those in need, overcoming privacy barriers. Information, Education, and Communications (IEC) programs on youth reproductive health should be properly tailored to address topics on unwanted pregnancy and safe abortion, especially to fill the knowledge gap of students with regard to legal issues surrounding abortion (Ethiopian abortion law) and safe abortion services. Expanding access to emergency contraception and condom distribution with focus on drinking establishment which students often use might be equally important. Finally, alongside other efforts, lobbying for further liberalization of abortion services may serve to overcome perceived unnecessary barriers to access to safe abortion services by youth students.

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List of tables

Table 1–socio-demographic characteristics of regular female students in Samara University, June 2016

Characteristics	**Responses**	**Frequency**	**Percentage (%)**
Age (N=509)	18-19	149	29.3
	20-24	350	68.8
	>25	10	2.00
Class year (N=499)	First year	197	39.5
	Second year	165	33.1
	Third year	103	20.6
	Fourth year and above	34	6.8
College (N=509)	Engineering and technology	142	27.9
	Natural and computational Science	86	16.9
	Medical and Health science	72	14.1
	Dray land Agriculture	58	11.4
	Business and Economics	58	11.4
	Social Science and Humanities	76	15.3
	Veterinary Medicine	15	2.9
Religion (N=509)	Orthodox	278	54.6
	Muslim	132	25.9
	Protestant	84	16.5
Marital status (N=509)	Single	460	90.4
	Married	49	9.6
residence (n = 493)	Urban	310	60.9
	Semi urban	131	25.7
	Rural	68	13.4
Pocket money/month (n=405)	First quartile (≤ 250)	86	21.2
	second quartile (251-500)	198	49.8
	Third quartile (501-750)	48	11.9
	Fourth quartile (751-1000)	73	18

Table 2–sexual reproductive characteristics of regular female students in Samara University, June 2016

Characteristics	Responses	Frequency	Percentage (%)
Boyfriend (N=509)	Yes	231	45.4
	No	278	54.6
Ever had sexual intercourse (N=509)	yes	105	20.6
	No	404	79.4
Age at first sex (n=105)	15-19	69	72.6
	20-24	26	27.4
	25+	10	9.5
number of sexual partners (n=104)	Single	88	84.6
	Multiple	16	15.4
Reason for sex (n=105)	Sexual desire	89	84.8
	Substance use	32	30.8
	Peer pressure	14	13.3
	Others	2	2.0
Ever been pregnant (n = 104)	Yes	62	59.6
	No	42	40.4
Ever Practiced abortion (N=509)	Yes	45	8.8
	No	464	91.2
Reasons for abortion(n=45)	Fear of parents & community	10	22.2
	case of unplanned pregnancy	12	26.6
	case of education	9	20
	Economic reason	6	13.3
	Others	8	17.8

Table 3: institutional YFS utilization characteristics of regular female students in Samara University, June 2016

Characteristics	Responses	Frequency	Percentage (%)
Participation in YFS (N=509)	yes	203	39.9
	No	306	60.1
Mentioned family planning methods	Pills	345	86.9
	Depo provera	327	82.7
	Condom	295	74.3
	IUCD	271	68.3
	Implant	272	68.5
Ever used Condom (n=105)	Yes	56	53.3
	No	49	46.7
Ever heard emergency contraceptives (n=397)	Yes	277	69.8
	No	120	30.2

Ever used emergency contraceptives (n=280)	Yes	65	12.8
	No	215	42.2
Conditions for Legal Abortion	In case of health problems	210	41.3
	In case of demand	47	9.2
	In case of rape/incest	305	59.5
	In case of unwanted px	88	18.6
	In case of students	80	16.5
Abortion care provider (n=45)	Known Health facility	10	22.2
	Others	35	77.8

Table 4: Factors affecting the practice of abortion among students in Samara University, June 2016 (n = 509)

Characteristics	Ever experienced abortion		COR	AOR	P-value
	Yes(45)	No (464)			
Age					
15-19	12	137	1.19 (0.59-2.37)	1.02(0.49-1.27)	0.09
20-24	33	317	1	1	
Religion					
Orthodox	24	254	8.9(.72-10.77)	5.29(0.46-60.51)	0.06
Muslim	7	125	3.3(0.27-39.73)	8.91(0.72-10.00)	0.08
Protestant	11	73	2.5(0.15-42.80)	3.42(0.52-.80.95)	0.233
Others	3	12	1	1	
Class year					
Fresh	36	326	0.64(0.29-1.35)	1.57(0.73-3.35)	0.056
Senior	9	128	1	1	
number of sexual partners					
One	13	75	1	1	
Multiple	6	10	3.2(1.73-6.06)	**2.9(1.001-10.085)**	**0.002**
Alcohol use					
Yes	13	19	7.56(2.52-22.46)	**5.5(1.9-16.0)**	**0.001**
No	6	66	1	1	
Participation in YFS					
Yes	25	178	1	1	
No	20	286	0.49 (0.26-0.92)	**0.19 (0.01, 0.33)**	**0.022**
Number of pregnancy					
One	16	46	1		
Multiple	3	39	4.5 (1.26-16.67)	5.5(0.97, 1.5)	0.078
Ever Used Emergency Contraceptive					
Yes	31	246	0.34 (0.13-0.91)	**0.79(0.23, 0.26)**	**0.031**
No	5	115	1	1	