THE MAGNITUDE AND DETERMINANTS OF INDUCED ABORTION AMONG COLLEGE STUDENTS AT DEBRE TABOR TOWN, DEBRE TABOR, ETHIOPIA

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ABSTRACT

BACKGROUND: Globally, 358,000 women die each year as a result of causes related to pregnancy and childbirth. Abortion is one of the top five causes of maternal death in Ethiopia. Therefore, this study was conducted to assess the magnitude and associated factors of induced abortion among college students in Debre Tabor town.

METHODS: An institution based cross-sectional study was conducted from February 3 to May 28, 2021. A total of 236 female students were recruited from Debre Tabor Health Science College, Begiemidir Educational College and Fekede Egzi College using simple random sampling technique. The data were collected using self-administered questionnaire, and data analysis was done by SPSS version 25.0.

RESULT: The prevalence of induced abortion was 18.6%. Department, year of study and condom use were significantly associated with the occurrence of induced abortion. Compared to non-health science students, medical laboratory students and HIT students were 4.9 (1.535-15.39) and 13.9 (3.965- 49.045) times practiced induced abortion respectively. After controlling other variables, second year students were 10.8 (1.205- 96.782) times more likely to encounter induced abortion than third year students. Those who did not use condoms were 3.25(1.319-7.9940) times more likely to engage in practicing induced abortion.

CONCLUSION: The prevalence of induced abortion was generally high in the study area. Department, year of study and condom use were strongly associated with induced abortion.

KEY WORDS: Induced Abortion; Debre Tabor town; Ethiopia.

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INTRODUCTION

Abortion is a sensitive and contentious issue with religious, moral, cultural, and political dimensions, and is a public health concern in many parts of the world, as a common practice in most cultures and society [1,2]. Abortion is defined as termination of pregnancy prior to 20 weeks' gestation or a fetus less than 500-grams of birth weight [3]. Abortion can be classified as spontaneous (which can further be sub-classified as threatened, inevitable, incomplete, complete or missed abortion), induced abortion and therapeutic abortion. Induced abortion can be safe or unsafe. Unsafe abortion is a procedure for termination of pregnancy either by a person lacking the necessary skills or in an environment lacking minimal medical standards or both [3]. Safe induced abortion refers to the deliberate termination of pregnancy either through surgical procedures or by pharmacological means. An estimated 56 million induced abortions occurred each year worldwide, out of which safe abortion and unsafe abortion accounted as 55% and 45% per annum respectively. In 2012, The Ethiopian Parliament changed the ground for abortion, which paved the way for access to safe abortion service and reduced the burden of unsafe abortion along with its complications, and set further indications which include cases of pregnancy from rape, incurable fetal deformities, women's physical or mental disabilities, or lack of physical or mental maturity for childbirth due to younger age [4].

One-third of the world's women lack access to legal or safe abortion, of whom 330 maternal deaths per 100,000 occur as a result of abortion related procedures [5]. Every day, approximately 1000 women die from preventable causes related to pregnancy and childbirth and 99% of all maternal deaths occur in developing countries [6]. The high proportion of unintended pregnancies and abortion in Ethiopia contributes to one of the highest maternal mortality rates (MMR)in the world [7]. The top five causes of maternal death in Ethiopia are hemorrhage, unsafe abortion (contributed 18% of all maternal deaths in eastern Africa), sepsis, hypertensive disorders of pregnancy and obstructed labor [8]. The rate of abortion among Ethiopian college students was found to be 65 per 1000 women of reproductive age, and 96.9% of all the abortion cases were found to be induced whilst only half were reported to be safe abortion [9].Some national studies conducted in Ethiopia reported that the prevalence of induced abortion and its negative consequences are increasing in the country [2,4,10].

As per the report of studies conducted in Addis Ababa and Jimma town; early marriage, contraception use, place of residence, age younger than 19, being on primary educational level and second trimester pregnancy were found to increase the likelihood of induced abortion [11,12]. Despite the presence of some studies done in different parts of Ethiopia on this title, no previously conducted studies at colleges of Debre Tabor town are available. Therefore, this is the first study of its kind aimed at assessing the magnitude and associated factors of induced abortion among Ethiopian college students in Debre Tabor town. The finding might also be used as a baseline data for conducting further related studies in the future.

METHOD AND MATERIALS

Study design, area and period

Institution based cross sectional study design was employed, and the study was conducted in Debre Tabor Health Science College, Fekede Egzi College and Begiemidir Educational College, which are found in Debre Tabor Town, from February 3 to May 28, 2021. Debre Tabor Town is found in South Gondar Zone of Amhara Region in Ethiopia, and is about 667 kilometers far from Addis Ababa, the capital city of Ethiopia. There are 6 colleges in the town, of which three are private (Guna Tabor, Fekede Egzi and Sebastopol College), and the remaining are governmental colleges (Debre Tabor Health Science College, Begiemidir Educational College and Polytechnic College).

Population

We enrolled a total of 236 participants, of which 96 were recruited from Debre Tabor Health

Science College, 60 from Fekede Egzi College and the remaining 80 participants were recruited from Begiemidir Teachers' College proportionally through simple random sampling technique, who were attending class in 2020/2021. Female students in reproductive age, and those who came to Debre Tabor Health Science College, Fekede Egzi College and Begiemidir Educational' College during the study period were included in the study. The 3 colleges were selected by lottery method.

Sample size determination and Sampling technique

The sample size was determined using a single population proportion formula with the assumption of 95% confidence interval, margin of error 5% and the proportion of induced abortion among college students(P) 43.3% [3].

Thus, after reduction using correction formula (since the total population was less than 10,000) and after adding 5% non-response rate, a final sample size(n) of 240 was obtained. Female students in all health science departments (midwifery, nursing, medical laboratory technician, HIT) and non-health science departments (accounting, management, civics and physical education) both in regular and extension programs available during the study period were involved proportional to their number in each department. Then simple random sampling technique, using the list of students as a sampling frame, was used to select eligible students from each department.

Study Variables

Magnitude of induced abortion (yes/no) was taken as a dependent variable, while socio demographic factors (age, marital status, religion, residence), department, year of study, alcohol use, emergency contraceptive use, condom use, knowledge on legality of abortion were independent variables of our study.

Data collection procedures and Analysis

The data were collected using pretested self-administered structured questionnaires and analyzed using SPSS version 25.0. Results of the variables such as socio-demographic factors, sexual and reproductive history of the participants were expressed in descriptive form of percent, frequency and mean. Additionally, binary and multivariate logistic regression models were used to identify the presence of association between independent variables and the dependent variable, and was expressed in terms of crude odds ratio (COR) and adjusted odds ratio (AOR) respectively. Data quality was assured through pretested questionnaires and by providing training for data collectors. The questionnaires were also checked for completeness, consistency and coherence daily.

RESULT

A total of 236 study participants with a response rate of 98.4% were involved in this study. Age range of the respondents was between16 and 34 with a mean age of 22.2±3.3. Concerning marital status of the study participants, the majority (73.3%) were single, and large proportion of them (77.5%) were orthodox in terms of religion. Regarding their residence, 40.7% and 59.3% of the study subjects were urban and rural dwellers respectively.

Table 1: Socio-demographic characteristics of study participants at colleges of Debre Tabor town, June 2021.

Variables	Category	Frequency (n)	Percent (%)
Age	15-19	48	20.3
	20-24	138	58.5
	25-29	42	17.8
	30+	8	3.4
Marital status	Single	173	73.3
	Married	51	21.6
	Divorced	9	3.8
	Widowed	3	1.3
Religion	Orthodox	183	77.5
	Muslim	39	16.5
	Catholic	6	2.5
	Protestant	7	3.0
	Other	1	0.4
Residence	Urban	96	40.7
	Rural	140	59.3
Income	< 1000	141	59.7
	≥ 1000	91	40.2

As per the result of this study, the total number of students under the department of midwifery, nursing, medical laboratory technology and health informatics were 30(12.7%), 18(7.6%), 42 (17.8%) and 22(9.3%) respectively. On the other hand, non-health science departments (accounting, management, civics and physical education) altogether constituted 124(52.5%) students respectively (Figure 1). Out of 236 respondents 196(83.1%) were first year, 22(9.3%) were second year and 18 (7.6%) were on their third year of study.

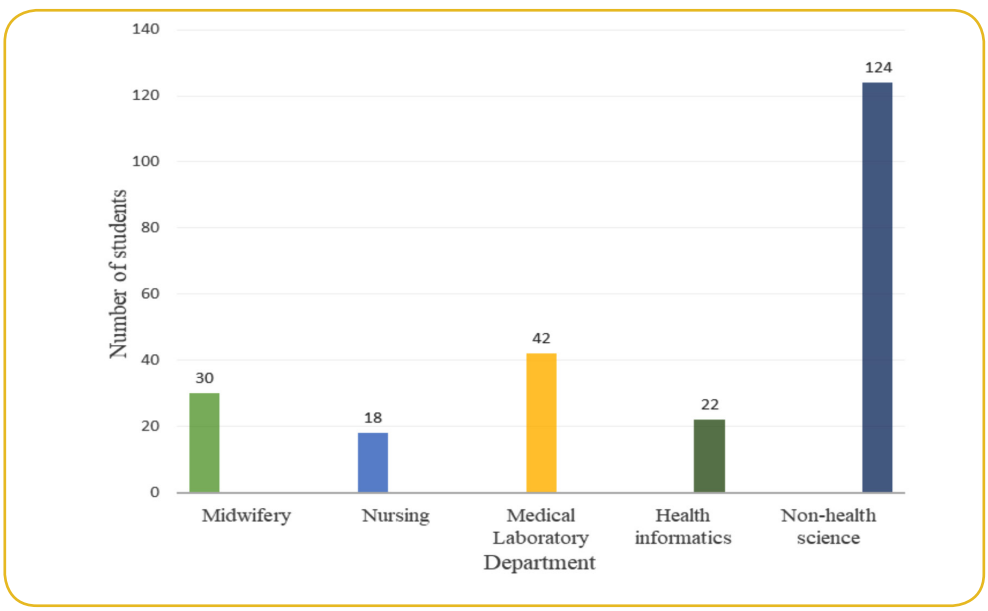

Figure1: Diagrammatic representation of study participants' field of study in colleges of Debre Tabor Town, June 2021.

Among 236 respondents, 166 (70.3%) of them had sexual intercourse at least once, and the remaining 70(29.7%) respondents have not had sexual intercourse yet. Regarding condom use, 63 (26.7%) have used condom during their sexual intercourse activity, whilst 173 (73.3%) did not use. Out of the total study participants, 91(38.6%) used emergency contraceptive pills once they had unprotected sexual intercourse. A total of 94 (39.8%) respondents reported that they had used alcohol at some point during their previous lifetime. Out of the total respondents, 87 (36.9%) participants became pregnant, and 40.2% of the pregnancies were planned.

Out of the total study participants, 155 (65.7%) had some knowledge about conditions under which abortion is considered to be legal in Ethiopian context. Concerning participant awareness on legality of abortion as per Ethiopian law, the vast majority of study participants (38.7%) knew all the conditions under which legality of abortion is ensured in Ethiopia, and very small percentage (3.9%) of participants did know only one reason, more specifically, pregnancy unwholesome for the mother's life or pregnant mother with mental or physical impairment, for abortion to be considered legal (Table 2).

Table 2: Respondents' awareness on legality of abortion as per Ethiopian law in colleges of Debre Tabor Town, June 2021.

Conditions which make abortion legal	Frequency of participants (Yes)	Percent
Pregnancy due to rape	31	20
Pregnancy from close kin/relative	25	16.1
Pregnancy unwholesome to the mother's life	18	11.6
Pregnancy having potential danger for fetal health	6	3.9
Pregnancy leading to fetal abnormalities	9	5.8
Pregnant mother with mental or physical impairment	6	3.9
All the above reasons/ conditions	60	38.7
Total	155	100

In our study, the overall prevalence of induced abortion was found to be 18. 6%. Out of those who had history of induced abortion, 24(54.5%) did complete the process at home,14 (31.8%) did it in governmental health institutions, and the remaining 6 (13.7%) did so at private clinics. Regarding the number of times of abortion, 45 (77.6%) study participants aborted only once, 10 (17.2%) aborted twice, 1 (1.8%) aborted thrice and 2(3.4%) had abortions more than three times (Table 3).

Table 3: Abortion related statuses of study participants at colleges of Debre Tabor town, June 2021

Variables		Frequency and percentage
History of abortion	Yes	58(24.6)
	No	178(75.4)
Type of abortion	Spontaneous	14(24.1)
	Induced	44(75.9)
Number of times of abortion	Once	45(77.6)
	Twice	10(17.2)
	Thrice	1(1.8)
	More than three times	2(3.4)
Place of induced abortion	Home	24(54.5)
	Health Institutions	14(31.8)
	Private clinics	6(13.7)

Numbers in parenthesis indicate percentage for corresponding variables

Among the respondents who had history of induced abortion at home, 9(37.5%) of them did so using over the counter drugs, 10(41.7%) of them used traditional herbal medications, 3(12.5%) used physical methods and the remaining 2(8.3%) used other methods to undertake the abortion. Regarding complications faced during the procedure of induced abortion, 27(61.4%) respondents had faced complications, namely; severe bleeding (37%), abortion related infections (18.5%), severe pain (29.6%), recurrent abortion (7.4%) and infertility (7.4%).

Factors Associated with Induced Abortion

Eleven dependent variables were entered to binary logistic regression then after variables that had a p-value of less than 0.25 were entered to multivariable logistic regression. Among the variables entered into multivariable logistic regression three variables, namely; department, year of study and condom use were significantly associated with prevalence of induced abortion.

The result of this study showed that medical laboratory students were 4.9 (1.535- 15.39) times more victims of induced abortion than health extension students. HIT students were 13.9(3.965-49.045) times more likely to practice induced abortion than health extension students. With respect to year of study, second year students had 10.8 (1.205- 96.782) times more chance of undertaking induced abortion than third year students. Those who had used condom were 3.25(1.319-7.9940) times more likely to engage in practicing induced abortion than those who did not use it (Table 4).

Table 4: Association between prevalence of induced abortion and independent variables at colleges of Debre Tabor town, June 2021

Variable	Category	Significance of COR	COR	Significance of AOR	AOR
Marital status	Single	0.060	0.097(0.01-1.10)	0.763	0.600(0.022-16.63)
	Married	0.081	0.107(0.01-1.31)	0.702	0.5159(0.17-15.47)
	Widowed	0.736	0.625(0.040-9.650)	0.478	3.711(10-13.8)
	Divorced	0.571	1	1	
Department	Midwifery	0.609	0.667(0.141-3.151)	0.476	0.485(.066-3.539)
	Nursing	0.008	4.667(1.483-14.689)	0.218	2.499(.582-10.726)
	Medical laboratory	0.001	4.66(1.945-11.197)	0.007*	4.860(1.535- 15.390)
	HIT	0.000	7.778(2.780-21.763)	0.000*	13.945(3.965-49.045)
	*Others	0.000			1
Year of study	First	0.503	1.679(0.369-7.644)	0.151	4.424(.580-33.736)
	Second	0.081	4.571(0.829-25.211)	0.033*	10.799(1.205-96.782)
	Third	0.006	1		1
Residence	Urban	0.165			
	Rural	0.000	1	1	
Condom Use	Yes	0.001	3.261(1.646-6.458)	0.010*	3.247(1.319-7.9940)
	No	0.000	1	1	
History of post-pill use	Yes	0.007	2.512(1.290-4.093)	0.112	2.050(0.8464-0.9640)
	No	0.000	1	1	
Alcohol use	Yes	0.129	1.667(.862-3.222)	0.613	0.794(0.324-1.946)
	No	0.000	1	1	
Knowledge on abortion	Yes	0.152	1.721(.819-3.618)	0.454	1.424(0.564-3.591)
	No	0.000	1	1	

*others(accounting, management, civics and physical education)

DISCUSSION

In our study, 59.8% of the participants faced unplanned pregnancy. This finding was relatively higher compared to the report of studies done in the United States, Dilla University and Harar town where they reported 45%,11.1% and 33.3% cases of unplanned pregnancy respectively [13–15,5]. On the contrary, our finding was lower than the report of a study undertaken in Haramaya University, where the prevalence of unintended pregnancy was found to be 78.3%. This discrepancy in finding might be owing to differences in the number of study participants and study area, where our study was undertaken on college students, unlike the latter studies which took place in health facilities and post-abortion care centers.

Our study showed that 24.6% of the study participants had history of abortion experience. This finding was relatively lower as compared to a study done in the United States (42%), and it was higher than studies done in Ethiopia, Wolaita Sodo University and Mizan Tepi University where abortion experience was reported to be 2.8%, 6.5% and 1.8% respectively [9,14,16]. This discrepancy might be due to the difference in sample size and study period. According to this study, the prevalence of induced abortion was 18.6%. Our finding was relatively lower as compared to studies done in Wolaita Sodo University (96.9%), Arba Minch town (43.4%) and Hawassa town (66.7%), Amhara region (25%), Maichew town (93%) and Haramaya University where it was 66.7 percentwise [1,9,16,17]. On the other hand, our finding was higher than a study done in Hawassa University, northwest Ethiopia and Wachamo University, where the magnitude of induced abortion reported was 9.6%, 4.8 % and 5.9% respectively [2,3,10]. This difference might arise from variation in the study period and knowledge of study participants about abortion.

Our study revealed that year of study did have statistically significant association with the magnitude of induced abortion. This finding was supported by a study done in Wolaita Sodo University [9]. Furthermore, our study declared that department of study participants and history of condom use had significant association with magnitude of induced abortion. This finding was not in line with other studies [18–20]. A study done in Wolaita Sodo University showed that alcohol use had independent and statistically significant association with the likelihood of experiencing abortion unlike our study, which did not find significant association between alcohol use and prevalence of induced abortion.

Medical laboratory students, in our study, were 4.9 times more for the odds of having induced abortion practice than health extension students of the same batch. In addition, HIT students had 13.9(3.965- 49.045) times more odds of practicing induced abortion than health extension students of the same batch. This finding was contradictory with other studies done in Hawassa University and Northwest Ethiopia [20,21]. This discrepancy might be due to differences in the tendency of making abortion more pragmatic. Regarding year of study's association with induced abortion, 2nd year students were 10.8(1.205- 96.782) times more likely in practicing induced abortion than 3rd year students. In addition, our study revealed that students who did use condom had 3.25(1.319-7.9940) times more odds of having induced abortion than those who did not use. These findings of our study were contradictory with other studies' finding [10,22]. Students who reported use of alcohol had four times odds of practicing abortion than students who never used alcohol [AOR 3.95(1.63-11.11)]. Additionally, the odds of having abortion were again four times higher among fist year students as compared to second year and above students [AOR 3.98(1.50-10.53).

LIMITATIONS OF THE STUDY

Despite invaluable efforts made for the successes of this research, it was not without some limitations as noted below. The limitation of the study was The sensitive nature of the study and social desirability bias made it difficult for knowing the accurate magnitude of induced abortion due to lack of

reliable data records and reluctant behavior of study participants to uncover their abortion related history.

CONCLUSION

The prevalence of induced abortion was high in our study. Majority of the study participants had knowhow about the legality of abortion. Department, year of study and condom use were determinant factors having significant association with induced abortion.

RECOMMENDATION

It is better if Federal Ministry of Health ensures access for different family planning methods of clients' choice to curb unwanted pregnancy, and thereby abortion. Due emphasis should be given for college students of reproductive age to scale up their knowledge on utilization of family planning methods and having protected sex through establishing health clubs at college level.

ABBREVIATIONS

AAU- Addis Ababa University
DTU- Debre Tabor University
DU-Dilla University
EDHS –Ethiopia demographic health survey
MMR-Maternal mortality rate;
MTU-Mizan Tepi University
US- United States
WHO-World Health Organization
WSU-Wolaita Sodo University

ETHICAL CLEARANCE

Ethical clearance from Debre Tabor University and permission letter from South Gondar Zone Health Bureau were obtained to undertake this study. Written informed consent was also taken from each study participant before data collection.

COMPETING INTEREST

The authors report no conflicts of interest in this work.

AVAILABILITY OF DATA AND MATERIALS

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

AUTHORS' CONTRIBUTION

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising, or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted, and agree to be accountable for all aspects of the work.

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