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# Induced Abortion and Its Predictors Among Hawassa University Female Students

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## To cite this article:

Yohannes Fikadu Geda, Walelign Animut Tirfe, Molalign Mesele Gessese. Induced Abortion and Its Predictors Among Hawassa University Female Students. *International Journal of Immunology*. Vol. 8, No. 3, 2020, pp. 53-60. doi: 10.11648/j.iji.20200803.13

**Received:** March 2, 2020; **Accepted:** March 19, 2020; **Published:** October 27, 2020

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**Abstract:** Global incidence of unsafe abortion among University students is increasing; and still frequent and worrisome in Universities of Ethiopia. There are a few studies on induced abortion among university students. There for this study was aimed to determine magnitude and predictors of induced abortion among Hawassa University female students. Institution based cross-sectional study was conducted from May 1-15, 2019 and 741 participants were selected from Hawassa University regular undergraduate female students. For entry and analysis EPidata and SPSS was used respectively. Association between dependent and independent variables were measured by adjusted odds ratio. Variables with  $p < 0.25$  on bivariate were used for multivariable analysis and  $p < 0.05$  were considered significant. Magnitude of induced abortion among Hawassa University students was 9.6%. From the respondents 68% of them age greater or equal to 20 (AOR=0.32, 95% CI: 0.14, 0.74) were less likely to have induced abortion compared to those respondents with age less than or equal to 19. Married respondents were 3.32 times (AOR=3.32, 95% CI: 1.51, 7.28) more likely to have induced abortion compared to not married respondents. From the respondents 95% of them who have heard only about short term contraceptive (AOR=1.95, 95% CI: 1.04, 3.66) were more likely to have induced abortion compared to those who have heard only about long term contraceptives. Respondents who have used methods to avoid pregnancy currently were 5.41 times (AOR=5.41, 95% CI: 2.73, 10.72) more likely to have induced abortion compared to who haven't used any method. Induced abortion among Hawassa university female student was high compared to other studies. This study showed the independent predictors of abortion among Hawassa University students were age, marital status, type of contraceptive they know and using any method to avoid pregnancy currently.

**Keywords:** Induced Abortion, Student, Sexual Health of Youth, University, Hawassa

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## 1. Introduction

### 1.1. Background

Induced abortion is an intentional termination of pregnancy by any means or person other than spontaneous miscarriage [1]. Women usually under-report their abortion experiences, mainly because abortion is a sensitive and controversial issue with religious, moral, cultural, political and scopes other reasons in many countries across the world [2-5]. World Health Organization (WHO) estimates that one woman dies every eight minutes due to unsafe abortions; consequently around five million women who undergo unsafe abortions require hospitalization [6-8].

The world attains 42 million induced abortions annually almost all of this is induced abortion [2, 10]. Worldwide, around 120 million women annually need contraception but it is not accessible to them; parallel with this, approximately 250 million pregnancies occur and one-third of them are unintended; out of them 20% are terminated as induced abortion [6]. More than one-fourth of the world's people live in rural areas where the procedure is not allowed or allowed only to preserve the woman's life [6, 11].

Most of women undergoing induced abortion have no previous births preceding abortion [12, 13]. Unsafe abortion is a significant but preventable cause of global maternal mortality and morbidity [14]. Utilization of family planning is very crucial to decrease unintended pregnancy and unsafe

abortion which in turn reduces maternal morbidity and mortality [7, 8, 15]. However, there is limited understanding over the counseling needs of women accessing abortion services, particularly in sub-Saharan Africa [16].

Ethiopia government revised the laws of abortion in 2005 that had permitted induced abortion with certain conditions like: if woman's pregnancy could create health problems on her, if the fetus had conditions incompatible with life, or if the conceived pregnancies were from incest, rape or minor groups [3, 17]. However, irrespective of legal status, abortions still occur and increasing from time to time and nearly half of them are performed by an unskilled practitioner or in less than sanitary conditions, or both [12, 18].

Even if restrictive laws often render safe abortions more difficult to acquire, they are frequently ineffective at minimizing the incidence of abortion [19, 20]. In case the restrictive law reduces induced abortion rate it could have the unintended consequence [21, 22]. But it is publicly known that number of countries in the world legalize abortion without restriction [23], however this alone does not guarantee access to safe abortion, and 30% of maternal mortality is attributable to unsafe procedures [14].

### **1.2. Statement of the Problem**

Updated reports show that around 13% of maternal deaths are the result of unsafe abortion in the globe [1, 24]. Overall, 10%–15% of abortions worldwide occur in the second trimester, this account for a disproportionate number of maternal deaths when provided under unsafe conditions [25]. Health sequel of unsafe abortion account for an estimated 7.9% of global maternal mortality and maternal deaths among Sub-Saharan Africa is 9.6% (19, 26).

In Africa, about one in every seven pregnancies (15%) ends in an induced abortion [27]. Unsafe abortion is a leading cause of death among young women's in sub-Saharan Africa [28]. Both the incidence and health burden of unsafe abortions are disproportionately concentrated in low income countries, where approximately 97% of the 25 million annual unsafe abortions occur [19].

The ages at which women have induced abortion is a significant factor [29]. A study shows that the interviewed women decided to terminate their pregnancies for different reasons like poverty, poor timing of the pregnancy and absence of support from male partners [15]. Women's reasons for induced abortions represented their vulnerability types at the critical time of decision making [30]. In addition to this absence of planning programs and more information and access to contraception methods were the risk factors of induced abortion [31]. Women's knowledge of abortion legislation is a significant determinant of the utilization of safe abortion services [32].

The 2030 Agenda for Sustainable Development renewed the commitments by 193 Member States of the United Nations (UN) to reduce global maternal mortality through universal access to sexual and reproductive health (SRH) services, education and information [33, 34]. Over six

million induced abortions were reported in Africa with over two million induced abortions occurring in Eastern Africa [28].

Although the Ethiopia has expanded access to abortion and post abortion care, the last estimates of abortion incidence date from 2008 [28]. According to a study more than 32% of maternal mortality reported in Ethiopia is due to unsafe abortions [32]. The overall magnitude of unintended pregnancy in Ethiopia is about 42%; 3.27 million estimated pregnancies, half a million ends up in abortion [1].

Even some studies done in Ethiopia, which shows the magnitude and associated factors for induced abortion at community and facility base, but there is limitation of studies done on the magnitude and associated factors for induced abortion among University students. So that this study were planned to show the magnitude and predictors of induced abortion among Hawassa University female students. This will help for the policy makers and program implementers to consider the prevention of repeat induced abortion and its associated factors at facility and community based level.

## **2. Main Body**

### **2.1. Methods and Materials**

The study was conducted in Hawassa University (HU) located in Hawassa City. Hawassa is the capital city of southern nations nationality peoples region (SNNPR) located at 275km south to Addis Ababa, the capital city of Ethiopia. Hawassa's climatic condition is woinadega and has 280,000 populations. Currently, Hawassa University has seven functional campuses, within it seven campuses, HU operates 8 Colleges and 1 Institute. HU runs 81 Undergraduate degree programmes, 108 Masters and 16 PhD programmes in its 41 Schools and Departments. The student population as of March 2018 is 48,558 (of which 28.86% are female) [37].

Institutional based crosssectional study was conducted from May 1-15, 2019. Hawassa university undergraduate female students were the source population of this study and selected female students of Hawassa University during data collection period were the study population.

The required sample size for the first objective was calculated using single population proportion formula and with an assumption of 95% confidence interval, 5% margin of error, a proportion of 32.4% from study done at Medawalabu University, Ethiopia on induced abortion [38] making 673. Adding 15% contingency to account for non-response rate yielded a final sample size of 774.

For the second objective various Sample sizes were calculated based on proportions of different variables from literatures using Open Epi statistical software Version 3.03 considering the assumptions: 80% power of the study, 95% confidence and ratio of unexposed to exposed 1:1. Of thus calculated sample sizes the one with the highest sample size was taken by considering 2 for design effect and 15% contingency, but the samples were less than sample size of the first objectictiv. Since sample size for the first objective is

greater it was used in this study.

Stratified multistage sampling technique was used, and the procedure was as follows. There are eight colleges in Hawassa university; this colleges were divided in to two practical strata as health and non-health colleges. Simple random sampling method was applied to select three representatives of non-health colleges, and sample size was allocated to the stratified colleges proportional to their size (PPS). Next three representative departments from each non health and health colleges have been included and then class years are stratified as first, second, third, fourth and above. The total sample size were again allocated to each class year probability proportional to size (PPS), finally 774 students were selected by Simple Random Sampling (SRS) technique using identified females ID accessed from each collage registrar.

The data were collected by self-administered pretested questionnaires. Twelve data collectors and two supervisors were recruited. Moreover, practical exercises have been done by data collectors during training with the principal investigator how to introduce mentioned issues. Data collection was done by arriving at the end of the scheduled time based on the block number, lecture room number and time to collect data was arranged by communicating with department head and instructor who own each class during data collection time.

For the students purpose of the study, confidentiality and the need for providing honest answers was clarified. After necessary introduction was made the students have had informed how they were selected. Female students who were not included in the study and all male students were ordered to leave the class. In addition to specific instructions on the questionnaire, participants were given clear oral guidance on filling out the questionnaire.

Sitting arrangement was rearranged to make the process confidential and then questioners were distributed in the same time for all students in the same college and they have given similar time to finalize. They also ensured complete privacy during completing the questionnaire. Supervision of the data collection process was done by supervisors along with the principal investigator.

The questionnaire was prepared in English (instructional media of the university) as well as in Amharic languages. Training was given to data facilitators who are masters students and the supervisors before the actual data collection on how to approach and select the study participants, on the objective of the study and the content of the questionnaire. To check the clarity, consistency, skipping pattern and order of questions, questionnaire was pre-tested. After pretest, questions were revised, edited, and those found to be unclear were modified.

Data was checked manually for completeness. Then the data were cleaned and stored for consistency after entered in to Epi Data version 3.1 software. For further analysis the data were exported to statistical package for social sciences version 24.0 software. Descriptive statistics were carried out. Bivariate and multivariate analysis was used to see the effect

of independent variable over unintended pregnancy. Variables which were significant on bivariate analysis at p-value less than 0.25 were taken to multivariate analysis. The fitness of model was checked by Hosmer and Lemeshow test. In multivariate analysis P- value of less than 0.05 and 95% confidence level was used as a cut of point for presence of association. Finally, results were compiled and presented using tables, graphs, charts and texts.

Ethical clearance were obtained from Hawassa University College of medicine and health science institutional review board (IRB). Permission obtained from academic vice president and registrar and alumni directorate; oral informed consent was obtained from participants. Confidentiality and anonymity were ensured, and participants were informed that their participation would be voluntary.

## 2.2. Result

### 2.2.1. Socio-demographic Characteristics of Respondents

Age of the study participants ranged from 18 to 27 years with a mean age of  $20.94 \pm 1.79$ , and the age groups 20-24 constituted 81.2%. Respondents from year one accounts 234 (31.6%), year two 241 (32.5%), year three 237 (32%) and year four 29 (3.9%) were participated in this study. From this 105 (14.2%) were married and 351 (47.4%) have partner from both in university and out of university (table 1).

**Table 1.** Socio-demographic characteristics among Hawassa University female students, Hawassa, June 2019-(N=741).

	Number	Percent
Age		
15-19	109	14.7
20-24	602	81.2
25-29	30	4.0
Collages		
Natural and computational science	290	39.1
Agriculture	171	23.1
Social science & humanity	147	19.8
Medicine and health science	133	17.9
Year of study		
Year one	234	31.6
Year two	241	32.5
Year three	237	32
Year four	29	3.9
Marital status		
Not married	636	85.8
Married	105	14.2
Have partner (N=636)		
Yes	351	47.4
No	285	38.5
Unable to read and write	40	5.4
Place of permanent residence		
Urban	533	71.9
Rural	208	28.1

Most of the respondents 483 (65.2) have had discuss about sexual reproductive health issues; their choice to discuss for majority of the respondents 354 (47.8) were peers. Condom was the most 524 (70.7) known contraceptive method by the

respondents (table 2).

**Table 2.** Sexual and reproductive health characteristics among Hawassa University female students, Hawassa, June 2019-(N=741).

	Number	Percent
Issues discussed		
Yes	487	65.7
No	254	34.3
Discussion SRH issues with		
Peers	354	47.8
Partner/husband	110	14.8
Parents	16	2.2
Other*	7	0.9
Types known		
Injectable	610	82.3
Pills	548	74
Condoms	524	70.7
Implants	504	68
IUCD	446	60.2
Calendar	398	53.7
Emergency contraceptive	398	53.7
Other**	9	1.2
Money used will be decided by		
You and Your husband/partner jointly	160	21.6
You	260	35.1
Parents	240	32.4
Your husband/partner	81	10.9
Experience intercourse		
Yes	249	33.6
No	492	66.4
Unintended pregnancy (N=98)		
Yes	98	13.2
No	643	86.8

	Number	Percent
After entrance to university (N=98)		
Yes	68	9.2
No	30	4
Contraceptives not available	5	0.7
Outcome of up (N=98)		
Terminated	71	9.6
Nothing the UP continues	27	3.6

### 2.2.2. Predictors of Induced Abortion

On bivariate analysis year of study, age, place of permanent residence, marital status, decision to use money, discussion about reproductive health issues, type of contraceptive they heard and using any method to avoid pregnancy were significantly associated with induced abortion. However in multivariate analysis age, marital status, type of contraceptive they heard and using any method to avoid pregnancy stay statistically significant factors associated with induced abortion.

From the respondents 68% of them age greater or equal to 20 (AOR=0.32, 95% CI: 0.14, 0.74) were less likely to have induced abortion compared to those respondents with age less than or equal to 19. Married respondents were 3.32 times (AOR=3.32, 95% CI: 1.51, 7.28) more likely to have induced abortion compared to not married respondents. From the respondents 95% of them who have heard only about short term contraceptive (AOR=1.95, 95% CI: 1.04, 3.66) were more likely to have induced abortion compared to those who have heard only about long term contraceptives. Respondents who have used methods to avoid pregnancy currently were 5.41 times (AOR=5.41, 95% CI: 2.73, 10.72) more likely to have induced abortion compared to who haven't used any method (table 3).

**Table 3.** Predictors of induced abortion among Hawassa University female students, Hawassa, June 2019-(N=741).

Variables	Category	Have induced abortion		COR (CI)	AOR (CI)
		Yes, N (%)	No, N (%)		
Year of study	Year one	18 (25.4)	216 (32.2)	0.71 (0.408,1.25)	0.48 (0.23,1.01)
	Year two and above	53 (74.6)	454 (67.8)	1	1
Age	<19	15 (21.1)	100 (14.9)	1	1
	>20	56 (78.9)	570 (85.1)	0.65 (0.36,1.20)	0.32 (0.14,0.74)*
Place of permanent residence	Rural	22 (31.0)	186 (7.8)	1.17 (0.68,1.99)	1.38 (0.76,2.49)
	Urban	49 (69.0)	484 (72.2)	1	1
Marital Status	Not married	60 (84.5)	576 (86.0)	1	1
	Married	11 (15.5)	94 (14.0)	1.12 (0.45,1.75)	3.32 (1.51,7.28)*
How to use your money would be decided by	You	50 (70.4)	498 (74.3)	0.82 (0.48,1.41)	0.66 (0.34,1.31)
	Parent/Partner/Husband	21 (29.6)	172 (25.7)	1	1
Have you discuss about SRH issues	Yes	47 (66.2)	436 (65.1)	1.05 (0.57,1.59)	1.20 (0.65,2.23)
	No	24 (33.8)	234 (34.9)	1	1
Type of contraceptive you know	Short term	18 (26.1)	113 (17.9)	1.62 (0.91,2.88)	1.95 (1.04,3.66)*
	Long term	51 (73.9)	520 (82.1)	1	1
Using any method to avoid pregnancy currently	Yes	38 (53.5)	138 (20.6)	4.44 (2.69,7.34)	5.41 (2.73,10.72)*
	No	33 (46.5)	532 (79.4)	1	1

### 2.3. Discussion

This study revealed very worrisome figures of unsafe abortion and unsafe sexual practices among female Hawassa

University students; magnitudes of induced abortion all respondents were 9.6% and among those respondents who experience intercourse were 28.5%. Which is three fold higher than national report of abortion in Ethiopia (2.3%); but it is almost similar with a stud conducted in Wolayita

Sodo University [39]. Similarly induced abortion among students of Kaduna State University, Northwestern Nigeria was 8.38% [40]. The possible reasons for a significant numbers of adolescent experienced induced abortions might be their developmental changes, being young people, living in higher institutions without direct parental supervision, freedom for initiating sexual activity, and lack of awareness about safer sex. This idea were supported by a study on Rift valley University students which states that institutions are getting sexually active and often take advantage of freedom from direct parental supervision and guidance to express their freedom by initiating sexual activity without adequate protection [41].

Other studies shows magnitude of induced abortion among Public Hospitals in Ethiopia was greater than the result of this study; 60.8% in Eastern Tigray [42], 20.3% in Debre Berhan [1] and 33.6% in Addis Ababa [29]. And countries other than Ethiopia Magnitude of abortion were also higher than the finding in this study; like 79.3% in Angola [26], 39% incidence of induced abortion in Uganda [24], 64.1% in Ghana [43], 12.2% in Democratic Republic of Congo [18], 48% in Zimbabwe [22], 53% of pregnancies in Malawi are unintended, and that 30% of unintended pregnancies end in abortion [27] and 13.4% in Mexico [23]. The discrepancy might be due to most studies listed here were conducted on antenatal care clinic by which almost all of the participants were married which exposes to unintended pregnancy and induced abortion as well. This justifications were supported by different studies which states that once females are on open access to legal intercourse the chance to have unintended pregnancy, consequently abortion is inevitable [42-44].

The findings of this study strongly imply that despite abortion is relatively liberalized; an effort to reduce unsafe abortion and subsequent maternal mortality, unsafe abortion remains to be a major problem affecting significant number of females. In this study pertinent predictors of induced abortion were found to be age, marital status, type of contraceptive they heard and using any method to avoid pregnancy. Several issues were mentioned by the respondents as most important reasons for resorting to abortion; reasons appear to underscore their understanding of the responsibilities of parenthood and family life. In addition to this significant numbers of students are engaged in unprotected sex and hence they are exposed to unintended pregnancy, abortion, sexual transmitted infections (STIs) and HIV/AIDS.

Respondents whose age less or equal to 19 were more likely to have induced abortion compared to those respondents with age greater than or equal to 20. Similarly a study in Northern Ethiopia among total community shows age less than 18 years were the risk factor of induced abortion [1]. In addition a study in Nigeria states that, 15 -20 years is the usual age group at which majority of women are first exposed to sexual intercourse and are therefore at a greater risk of exposure to complications of abortions, and other reproductive health problems [40]. This might be due to

younger women are more liable to sexual coercion and rape that can lead to induced abortion and lack of access to contraceptives to prevent abortion.

Married respondents were more likely to have induced abortion compared to not married respondents. Consistently a study in Addis Ababa also shows respondents who have stay more than one to two years were more likely to have induced abortion compared those not married respondents [29]. Similarly another study in Nigeria states that there is higher probability of demand for abortion by married couple who believe that they have had enough children [40]. This can be explained as increased unmet demand for contraceptive use in Ethiopia, more women have unplanned pregnancies, the demand for induced abortion increases. Contrary to this a study in Ghana states that married women were less likely to have an unsafe induced abortion [43]. Similarly a study in Democratic Republic of Congo shows single or separated or divorced women or widows had higher risk than married women [18].

Respondents who have heard only about short term contraceptive were more likely to have induced abortion compared to those who have heard only about long term contraceptives. Similarly a study in Addis Ababa University supports this idea and states that students who have better knowledge about long term contraceptive were less likely to have induced abortion [45]. This might be due to the fact that if they know long term contraceptive they may use long term contraceptives than short term contraceptives; because short term contraceptives have some disadvantages like need to be remembered every day and compliance cases may also be listed, this idea were supported by a study in Rift Valley University [41].

Respondents who have used methods to avoid pregnancy currently were more likely to have induced abortions compared to who haven't used any method. Similarly, female preparatory school students in Dabat District, Ethiopia using contraceptive currently were more likely to have induced abortion [32]. In addition a study in Ghana states is worth noting that 18.7% of women in the study who have induced abortion were on contraceptives [43]. This might be due those who were using contraceptive was practicing intercourse unlike who were not using contraceptive.

### 3. Conclusion

Induced abortion among Hawassa university female student was high. This study showed the independent predictors of abortion among Hawassa University students were age, marital status, type of contraceptive they know and using any method to avoid pregnancy currently.

This study had some limitations: Due to the fact that this study deals with very personal and sensitive issues such as sexual practice and induced abortion, obtaining an honest response among adolescent students was difficult. There may be social desirability bias so they may hide the real information. To the extent that in university adolescents differ from out of university adolescents, these findings may

not be applicable to out of university adolescents. Since this study was targeted only on regular undergraduate students, who are not representative of all university students.

It is imperative that improved sexual health education is rendered and wider availability of Youth Friendly family planning services are realized in Universities and other places where young men and women live together. Institutions providing safe abortion services, should devise strategies to reach out for youth who are in need of their services and prevent youth from unsafe abortion and hence they prevented from unsafe abortion. Hawassa University student clinic should devise 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 implemented to address topics on unwanted pregnancy and safe abortion. 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 and may solve blurry among care providers.

## Competing of Interest

There is no competing of interest among the authors.

## Financial Support

Nil.

## Abbreviations and Acronym

AIDS: Acquired Immune Deficiency Syndrome  
 AOR: Adjusted Odds Ratio  
 CI: Confidence Interval  
 COR: Crude Odds Ratio  
 HIV: Human Immunodeficiency Viruses  
 HU: Hawassa University  
 IEC: Information, Education and Communications  
 IRB: Institutional Review Board  
 PPS: Probability Proportional to Size  
 SNNPR: Southern Nations Nationality Peoples Region  
 SRH: Sexual and Reproductive Health  
 SRS: Simple Random Sampling  
 STI: Sexual Transmitted Infections  
 UN: United Nation  
 WHO: World Health Organization

## Acknowledgements

I am carrying out this work because of God, who gives me a chance to live with his grace and stay strong with his blessings.

This work can't be good as it is now, friends your support and advice made this proposal viable, thank you for your time. My wife, you are kind, patient and closest friend ever; I see you can hear me even I am silent thank you my sweet and

I love you.

My subjects, under graduate Hawassa University female students who have been included in this study; this research can't be a plan if you are not here, many thanks dear students.

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