Research Article   Open Access

Practices and Attitudes of Female Students on Legalization of Abortion: The Case of Wolaita Sodo University, Ethiopia

Workineh Menna Eligo
[1] Department of Statistics, Wolaita Sodo University, Ethiopia
*Corresponding author: Workineh Menna Eligo, Ph: +25109 16 86 88 90, E-mail: worke2003@gmail.com

ABSTRACT

Abortion is one of the major health problems in our country and the issue of abortion is twisted with a host of political, religious and moral concerns. But regardless the constraints produced by the environment in which they live, a number of women seek induced abortion illegally. The aim of this study is to identify the factor that affect women attitude on legalization of abortion in Wolaita Sodo University the case of 3rd year female students of 2016/17academic calendar. Thus, the target population of this study is all 3rd year female students in the Wolaita Sodo University main campus. The total number of female students considered for these studies were 702 from those 195 students was taken as a representative of the total population by using simple random sampling technique. The analysis were done through descriptive statistics include frequency table and bar charts and from inferential statistics Chi-square test of independence and Logistic regression model, which is used to determine the factor that affect females attitude on legalization of abortion. A Statistical software package (SPSS) was used in the analysis stage of the data. From the descriptive statistics we observed that most of the students don't have a good attitude towards legal abortion and based on the result of inferential output knowledge of respondents, residence of respondent and use of contraceptive method are the most influential variable to affect the attitude of women on legalization of abortion. Consequently, the concerned body should have to consider these problems and try to find the immediate solution for females to get safer abortion services when necessary by skilled practitioner in health institutions with good hygiene.

Keywords: *Female, Abortion, Wolaita Sodo University and Logistic regression model*

INTRODUCTION

According to Ministry of Health (MoH) definition induced abortion is "the terminating of pregnancy before fetal viability, which is conventionally taken to be less than twenty eight weeks from the last normal menstrual period. If the last normal menstrual period is not known, a birth weight of less than 1000g is considered as abortion". Unplanned pregnancy most of the time results induced abortion which causes severe health problems like infertility and death mainly in developing countries (MoH 2006).

In many developing countries managements complications of usage abortion consumes up to 50% of their resources including hospital beads, blood supply, medications and involved health man power. In many countries, induced abortion is still illegal. However there is over whelming evidence that neither structure laws nor lack of accesses to qualified personnel stop females from seeking abortion. Rather the outcome the procedure is affected restrictive laws. Abortion mortality and morbidity tend to be highest in countries where abortion laws are most restrictive such laws allow abortion only when a female can be seen has victim circumstances that is in medical emergency or causes of fatal abnormality or following rate or incest. Yet the great majority of females need abortion for family planning reasons and on economic and social grounds (Tsedey, 2002).

In most part of Ethiopia, abortion is considered as taboo, as a result a female who had an induced abortion hide herself and do not seek health service to inspire unless she is in the terminal stage. Unsafe abortion not only affect the health of females it also affects material and financial resources of the health institutions. According to Ethiopian the Ministry of Health, in Ethiopia about 32% of all maternal deaths are the result of complications related to unsafe abortion. Abortion is the second leading cause of death for women, after tuberculosis (MoH 2006).

1.2 Statement of problem

Abortion is one of the most serious public health problems in world wide. Millions of abortion were performed out of the legal system often by unskilled practitioners with unsafe material causing a significant numbers of maternal deaths and most female as result follow their own way and find untrained provider's secretary often at enormous risk to themselves and pay their lives. Even in Wolaita Sodo University among the student there is unwanted pregnancy and abortion is occurring.

1.3 Objective of the study

1.3.1   General objective

The general objective of this study is to assess the attitude of females on legalization of abortion.

1.3.2   Specific objective

The Specific objectives of this study was focused on the following ideas

- ❖ To describe the ideas of female students in Wolaita Sodo University on legalization of abortion.
- ❖ To assess the awareness of female student on complication of unsafe abortion.
- ❖ To determine the association between attitude of respondent for legalization of abortion, the variable knowledge of respondent and unwanted pregnancy.
- ❖ To determine the association between abortions should be legalized and knowledge of respondent

1.4 Significance of the study

It is clearly known that abortion and its complication are so common in our country and studies done previously showed that there is presently high prevalence of abortion   related maternal death rate. Yet no safe solution traced to the problem. Experience from other countries show that a safe solution to the

problem is to give family planning service available to every body at hand and to lose the restrictive abortion laws so that females safer abortion services by skilled practitioner in health institutions is good .Assess the attitude of females in legalization of abortion and to come up with feasible solutions to this problem is significance of the study. Since there are many research have been done, but problem is still present. So our research will give base line information for researchers and policy makers for further study in the region and at national level.

1.5 Research questions
- ❖ What is the response of female students on legalization of abortion?
- ❖ What is the awareness of female students on complication of unsafe abortion?
- ❖ Is there any association between respondent attitude for legalization of abortion and the variable knowledge of respondent and unwanted pregnancy?
- ❖ Is there any association between abortion should be legalized, knowledge of respondent and respondent marital status of respondent?
- ❖ What are the factors that affect respondent attitude on legalization of abortion?

1.6 Scope of the study
The Study is to assessing attitude of female students on legalization of abortion the case of Wolaita Sodo university students. The study is restricted to the Wolaita Sodo university student. This study is carried out in Wolaita Sodo university main campus third year female students of 2016/17 academic calendar.

1.7 Definitions of operational terms
Abortion: - is termination of pregnancy before the fetus is viable occurs before 28 Week of gestation. It is the deliberate bringing to an end of human pregnancy.
Induced abortion: - is inference with provable fetus with the aim of termination pregnancy.
Unsafe abortion: - is procedure for terminating of an unwanted pregnancy either by persons lacking the necessary skills or in an environment lacking the minimal medical standards.
Attitude: - a feeling about legalization of abortion which could be a feeling of acceptable or rejection.
Live birth: - those pregnancies that end to delivery of fetus that start to live extractive life.

1.8 Limitation of the Study
There are several limitations that we faced performing this research. Those are:-
- ❖ Unwillingness of some respondents to give a correct answer during data collection which has an influence on the final result.
- ❖ The samples only took about Wolaita Sodo University main camps; it does not enough to represent the whole university.
- ❖ Due to shortage of time interval given, we did not have enough time to investigate the whole problems affecting legality of abortion.
- ❖ Lack of enough reference books, and other related reading material.

1. Literature Review
2.1 Prevalence of the Problem
Every year 40 to 60 million females seek termination of prevalence and same 20 million unsafe abortions take place each year. Nearly 99% of its takes place in developing countries. Globally there are about 585,000 pregnancy related deaths each year and about 78,000 deaths are related to complication of abortion. In developing countries maternal mortality ratio rage from 190 per 100,000 live births to 870 per 100,000 live births. Extremely high ratios over live births are found in East and West Africa who estimates of maternal mortality ratio of Ethiopia is 1400 per 100,000 live births. In Africa there is about 5,000,000 unsafe abortions each year and over 40% of deaths due to unsafe abortion take place in Africa. Even though, there is no available data on the prevalence of abortion in Ethiopia evidence from hospital indicate that there are a number of females who seek abortion each year and abortion is the leading causes of maternal death (Tsedey 2002).

The 2008 annual report of the Centre for Reproductive Rights indicated that at least 26% of world citizens live in countries where abortion is prohibited (Centre for Reproductive Rights 2008). Currently, most countries, even those with relatively liberal laws on abortion, still have penal code provisions that indicate the situations in which abortion is a crime (Goodman et al. 2008). Laws, policies, economic status, and social norms strongly influence women's choices when undertaking abortion, and especially unsafe abortion (Centre for Reproductive Rights 2008).

In Ethiopia, improving family planning services may contribute to reduction of unsafe abortion. However, access to family planning alone may not be sufficient to reduce unsafe abortion. Women's preference of induced abortion as means of birth control, problem associated with service accessibility and utilization, failure of contraceptives particularly less effective methods that could result in unwanted pregnancies, and other reasons, can lead to increased unsafe abortion rates, leaving many women exposed to risks of unsafe abortion (H.Getahun, Y. Berhane 2004).

Ethiopia is trying to improve the quality of post abortion care through training of post abortion care providers and introduction of safer procedures like the manual vacuum aspiration. Considering the magnitude and impact of the problem, Ethiopia may also consider legalization of induced abortion in the coming future. Assessment of the magnitude and impact of unsafe abortion, and the attitudes and perceptions of those people who may need care in particular, and that of care providers and the community in general will be helpful for decision making and development of measures to make abortion safe. However, there is a wide gap of information in Ethiopia, regarding legal issues of abortion. Therefore, this study was conducted with the objective to assess the attitudes of 15-49 year old women and men towards legalization of abortion, in Mekelle town, Tigray. A qualitative part, mainly focus group discussions, was incorporated to complement the quantitative study by providing information concerning the perspective perceptions and opinions of religious leaders, opinion leaders, decision makers, and health professionals on induced abortion and legalization of abortion. It is believed that the information obtained will be utilized as additional evidence during development of measures to reduce the problem of unsafe abortion in the region in particular, and in the whole country in general (MHO 2006).

2.2 Socio- cultural context of abortion
Most studies conducted on abortion have failed to explain the socio-cultural and economic Situations of the women who undertake the procedure. Although the existence of abortion all

over the world and its biomedical and public health perspectives are documented, women's opinions, Perceptions and experiences of abortion are scarcely analyzed. Even in studies that do pay Attention to the context of women who have abortions, the feelings and decision-making Processes experienced by women intending to abort an unwanted pregnancy are not fully explored (Shah and Åhman, 2009).

2.3 Acceptability of abortion

It is n undeniable fact that abortion, both safe and unsafe, has always occurred and will continue to occur in every culture and society. It is inevitable that women will continue to experience unwanted pregnancies for widely varying reasons, including lack of birth control services, Contraceptive failure and sexual assault. In response, we must aim to address all facets of the Problem, from the provision of contraceptive services to preventing unwanted pregnancy, through the provision of high quality abortion care within the legal indications of individual nations and Post-abortion care for unsafely procured abortions (Amissah, 2004).

2.4 Barriers for safe abortion

While the last 30 years have seen a global trend toward liberalization of national abortion laws, many governments around the world continue to impose legal barriers to abortion services. These Barriers often take the form of criminal laws that punish both providers of abortion and those who undergo the procedure. Even in contexts where laws regulating abortion are liberal, lack of clarity in the law, an absence of public funding for abortion, burdensome procedural barriers to abortion Services, and providers' refusals to offer legal abortions may effectively deny women access to Safe abortion services. In addition, as new technologies for abortion service delivery emerge, most governments have been slow to enable women to take advantage of them (Adinma et al., 2012).

2.5 Legal abortion in Ethiopia

In Ethiopia, one in seven women die from pregnancy-related causes, and unsafe abortion causes more than half of the 20,000 maternal deaths that occur annually. For much of Ethiopia's modern history, safe abortion services were unavailable. In fact, abortion was only allowed when it physically put the woman's life at risk. Motivated by the growing death toll from unsafe abortion and other related causes, advocates, providers and policymakers sought legal reform. In 2004, the Ethiopian Parliament voted to approve a new, progressive law. Though the new Criminal Code of the Federal Republic of Ethiopia maintains the legal prohibition of abortion, it stipulates that abortion is allowed by law in the following conditions:

Article 551 of the penal code of the federal democratic republic of Ethiopia ''Termination of pregnancy by a recognized medical institution with in the period permitted by the profession is not punishable'' where

- ❖ When the pregnancy results from rape or incest;
- ❖ When continuance of the pregnancy endangers the health or life of the woman or the fetus; in cases of fetal abnormalities;
- ❖ The fetus has incurable and serious deformity;
- ❖ For women with mental disabilities;
- ❖ For minors who are physically or psychologically unprepared to raise a child;
- ❖ In the case of grave and imminent danger that can be averted only through immediate pregnancy termination.

The revised law establishes that poverty and other social factors may be grounds for reducing the criminal penalty for abortion

and that in cases of rape or incest, no proof is required beyond the woman's statement that it has occurred. By allowing abortion for minors who are unprepared to raise a child, the law also marks a significant change for Ethiopia, where adolescents make up more than 45 percent of those seeking abortions.

3 Materials and methods

3.1 Description of the Study area

Wolaita zone is one of the southern nation nationalities and peoples reformed towns. A zone city is located in southern part of Ethiopian southern nation nationality people region under Wolaita zone. This city is invented before 1829 and this town located 153Km away from Hawassa regional city and 332Km away from federal city Addis Ababa. The national road along Shashemane from Addis Ababa to Arbaminch divides the town in to two parts. And our study is carried out on Wolaita Sodo University of this town. The town has moderate air condition (mid land). Geographically the town is located 1975meters above sea level and annual rain fall distribution of the city is 930.8ml and the average temperature is 19.11 degree calicoes. The town as the administrative capital city of the Wolaita zone (annual report of 2007).

3.2 Study Population

The populations that are studied in this research are seven department third year natural and computational science female students in Wolaita Sodo University, main campus.

3.3 Method of data collection

For this study the primary and secondary data's were used. Secondary data was used to gain the number of female students from registrar. Primary data was used to collect from female students using self-administered questionnaire. Collecting the data properly is the basic stand point for the future analysis and there should be a great care when the data are collected. The source of data for this study is primary source on attitudes of female students on legalization of abortion in Wolaita Sodo University main campus. The target population for this study is all third year female students in Wolaita Sodo University. Sampling method was simple random sampling.

3.4 Sampling Design

3.4.1 Sampling Techniques

Sampling technique is a system of taking small ratio of observation from large population with the aim of getting information of those large populations from the sample observation by using some statistical techniques. Since we take population from natural and computational third year batches there is no heterogeneity among them. Therefore simple random sampling was used for this study in order to get a good representative sample.

3.4.2 Sample size determination

We were determining sample size (n) by using formula.

$$n = \frac{\left(Z\alpha_{/2}\right)^2 * p(1-p)}{d^2}$$

$$n = \frac{Z\alpha_{/2}^2 pq}{d^2} = \frac{(1.96)^2(0.458)(0.542)}{(0.05)^2} = 195$$

We take margin of error, 5%, p = 0.458, q = 0.542 we take p from similar research about knowledge, attitude and practice of women's on legalization of abortion " A study on Attitude of Female Students on Legalization of Abortion in Jimma University College of Natural and Computational Science".

By using proportional allocation we had taken samples from listed Colleges.

Population was collect from the following departments.
1. College of Natural and Computational Science (N_1) = 297
2. College of Agriculture (N_2) = 128
3. College of Social Science and Humanities (N_3) = 165
4. College of Business and Economics (N_4) = 112

$N=N_1+N_2+N_3+N_4$ (total number of graduating class(3rd year) female students).

To estimate sample size, by using the following formula

$$n_h = \frac{nN_h}{N}$$
$$n = 83+35+46+31= 195$$

$n_i = \frac{nN_i}{N}$ Where N_i= Total number of third year i^{th} college female students

n = Total sample size, n_i = Sample size for third year i^{th} college female student

❖ **Inclusion Criterion:** This research includes only those who were graduates in three years.

3.5 Study variable
There are 2 types of variables involved in this study.

Dependent variable
The dependent variable or response variable that is affected by independent variables.
Dependent variable in this study is attitude of female students on legalization of abortion.

$$Y_i = \begin{cases} 1, \text{for students who have posative attitude} \\ 0, \text{for students who have negative attitude} \end{cases}$$

Independent Variables
- Age
- Marital status
- Use of contraceptive
- Adequate knowledge
- Residence of student
- Family education level
- Region they came from
- Family Occupation

3.6 Method of data analysis
In this study we use both descriptive and inferential statistical methods to analyze data.

3.6.1 Descriptive statistics
Is one of the simplest and revealing devices for summarizing data and presenting meaningful information? This study was used the descriptive statistics like tables and charts to describe or minimize the response of the respondent on the legalization of abortion and issues related to it.
Descriptive statistics is used to describe the basic features of the data in study. They provide simple summaries about the sample and the measure. We will simply describing what is or what the data shows. From descriptive statistics, we will use frequency distribution, charts (pie chart and bar chart).
❖ Pie chart is a circle that is divided in two sections according to the percentages of frequency in each category of the distribution.
❖ Bar chart is a set of bars (thick lines or narrow rectangles representing some magnitude over time space).
❖ Frequency distribution is a way of displaying of numbers in organized manner or a tabular arrangement were by data is grouped in to different interval. It is simply a table that at minimum displays how many times in data set each

response occurs. We were also use mean, variance and standard deviation.

3.6.2 Inferential statistics
There are different kinds of statistical models. Among them chi-square, logistic regression and multiple linear regression are most popular one. But, this study was used logistic regression test to describe association of socio-demographic status with legalization of abortion. As its name indicates that the inferential statistics infer about the population depending on the sample data, analysis and test.
Inferential statistics are techniques that allow us to use samples to make generalizations about the populations from which the samples were drawn. It is, therefore, important that the sample accurately represents the population. Inferential statistics arise out of the fact that sampling naturally incurs sampling error and thus a sample is not expected to perfectly represent the population. The methods of inferential statistics are (1) the estimation of parameter(s) and (2)testing of statistical hypothesis. It consists of organizing from samples to populations performing hypothesis testing determining relationships among variables and making conclusions. Hypothesis which are chi-square test of independency and logistic regression.

3.6.3 Chi-square test of Independence
A variety of statistical test are available for analyzing a given set of data. A chi-square test is useful for determining whether there is relationship between dependent and independent variables whose categories are placed in category. It is non-parameter test method hence it does not required any information required to any population distribution.
Chi-square test of independence is appropriate when our variables are categorical. Hence the qualitative data used in computation of the test statistical as the frequency of associated with each category of the variables of interest. Hence the test is applied when we have two or more categorical variables. It uses to determine the whether there is an association between the response and explanatory variable under the consideration. We want to test the association between the individual explanatory variable toward response variable.

Procedure for the chi-square test of independence
Here, $\chi^2 = \sum_{i=1}^{r}\sum_{j=1}^{c}\frac{(Oij-Eij)^2}{Eij}$ follows chi-square distribution with (r-1)(s-1) degree of freedom
χ^2_{cal} = chi - square calculated O_{ij} = observed frequency, E_{ij} = expected frequency.

Hypothesis
The null and alternative hypothesis state as
Ho: There is no association between the two categorical variables.
H_1: not H_0
Assumption of chi-square test of independency
- The observation must be independent of each other.
- The population must be directly proportional to the variable understudy.
- Each member and every individual (objective) independent each other.
- The sample is large.

3.7 Logistic Regression
Logistic regression is applied when the dependent variable is qualitative in nature or categorical. Qualitative variable are either binary (dichotomous) variable or multiple categories. Binary logistic regression is the form of regression which is used when

the dependent variables dichotomous and the independent variable are of any type. Multinomial regression can handle the case of dependent variable with more than two classes. A logistic regression is a technique for making prediction when the dependent variable is dichotomous and the independent may be categorical and mix of continuous categorical .This study will use the binary logistic model used to analyze weather the attitude of female students on legality abortion is positive or negative(Christensen, 1997).

3.7.1   Binary logistic Regression

We were used binary logistic regression to perform logistic regression on binary response variable. A binary variable only has two possible values, such as presence or absence of particular event. The dependent variable in this case is dummy variable, which take the value of (1) for students who have positive attitude. And (0) for students who have negative attitude. i.e

$$Y_i = \begin{cases} 1, for\ students\ who\ have\ posative\ attitude \\ 0, for\ students\ who\ have\ negative\ attitude \end{cases}$$

A model with one or more predictors is fit using an iterative reweighted least squares algorithm to obtain maximum likelihood estimates of the parameters. Binary logistic regression has also been used to classify observations in to one of two categories and it may give fewer classification errors than discriminates analysis for some cases. The model for the binary logistic regression is given as:

$$p(x) = \frac{e^{\alpha + \sum_{i=1}^{k} \beta xi}}{1 + e^{\alpha + \sum_{i=1}^{k} \beta xi}}$$

Logit

$$(P(X_i)) = \log\left[\frac{p(x_i)}{1-p(x_i)}\right] = \alpha + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_k X_k$$

i =1, 2, 3…, k and odds are calculated as follow:

$$Odds = \frac{p}{1-p} = Exp(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \ldots + \beta_k x_k)$$

or

$$Ln\frac{P}{1-P} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 +, \ldots, + \beta_K X_K$$

Where,

- ✓ P = the probability students have positive attitude on legalization of abortion.
- ✓ 1-p = the probably students have negative attitude on legalization of abortion.
- ✓ βo = is constant term.

- ✓ β_is are coefficient of the predictor variable
- ✓ X_i, i = 1, 2, . . ., k independent variables.

So by using SPSS we are going to obtain values for each coefficients because the model have been programmed in to available logistic regression packages like SPSS

❖ **Assumptions of Binary logistic Regression**
➢ The dependent variable (outcome) variable is dichotomies
➢ The outcomes are independent and mutually exclusive.
➢ It requires large samples to be accuracies all models.
❖ **Model Adequacy Checking**

The Hosmer-Lemeshow Test is another alternative in checking model fitness. If the Hosmer-Lemeshow goodness-of-fit test statistic is greater than 0.05, we will not reject the null hypothesis that there is no difference between observed and model predicted value implying that the model estimates are adequate to fit the data at an acceptable level.

❖ **Test statistics for over all models**

The overall significance of the binary logistic regression model was checked by using Omnibous test. The hypothesis test is given by $Ho: \beta_0 = \beta_1 = \beta_2 = \beta_3 \ldots \beta_k = 0\ Vs$
H$_1$: At least one of the coefficients is different from zero

- • Decision: reject Ho if omnibus test is significant

Test statistics for each coefficient

The significance of the coefficients of individual variables in the binary logistic regression model will tested by using the appropriate test statistics is Wald statistics. Which is given by:-

$$X^2 = \{\frac{\beta_i}{Se(\beta_{i})}\}^2$$

Hypothesis $Ho: \beta_i = 0\ VS\ H1: \beta_i \neq 0\ for\ i = 1, 2 \ldots k$
Decision: reject $Ho: if\ \chi_{cal}^2 \geq \chi^2_{\alpha}(1)$ or the corresponding p-value of each variables less than (α = 0.05).

5.   RESULTS AND DISCUSSION

4.1 Descriptive statistics

The study was conducted on attitude of female students on legalization of abortion in Wolaita Sodo university main camps third year female students of 176 population and from those 60 was taken as representative of population. Entering the data as coded form in to the SPSS version 21gives the following summarized information.

Tables below shows Frequency Table for categorical variables

Table 1 Socio-demographic characteristics of the study participants

Variable	Category	Frequency	Percent
Age of the respondent	17-20	33	16.9
	21-24	123	63.1
	>24	39	20.0
	Total	195	100.00
Religion of respondents	Orthodox	36	18.5
	Protestant	91	46.7
	Muslim	45	23.0
	Catholic	20	10.3
	Other	3	1.5
	Total	195	100
Area of Residence were the respondents came from	Rural	107	54.9
	Urban	88	45.1
	Total	195	100.0
Marital status of respondent	Single	166	85.1

	Married	29	14.9
	Total	195	100.0
Family education level of respondent	Illiterate	88	45.1
	Primary	42	21.5
	Secondary	52	26.7
	Above Secondary	13	6.7
	Total	195	100.0
Family occupation of respondent	Farmer	120	61.5
	Trader(Merchant)	24	12.3
	Government employed	20	10.3
	NGO	13	6.7
	Other	18	9.2
	Total	195	100.0

The minimum age (17-20) of the study participants was 16.9%. The 63.1% of age category were (21-24), that constituted the largest proportions of the study participants. The 20.0% of the respondents was under the age category of >24. Majority of the study participants 91 (46.7%) were protestant. From the total of 195 participants 23.0% are Muslim. The 18.5% of them are Orthodox. The 10.3% were catholic and 1.5% others. Only 29 (14.9%) of the study participants were married, while the majority which account 166(85.1%) were single. There were 107 (54.9 %), the large number of respondents live in Rural area and 45.1% of them are lives in urban. There were 88 (45.1%) of the study participants had illiterate family, 42 (21.5%) with primary education, 52 (26.7%) had secondary education and 13(6.7%) had above secondary education level. There were 120 (61.5%) of the study participants family were reported they are farmers and 24 (12.3%) were traders where as 20(10.3%) were government employee. The 6.7% are NGOS and 13.3% of respondent's families have other types of occupation.

23(11.79%) of them are from Tigray and 3(1.67%) is from other. The graph indicates that large amounts of respondents are from Oromia region.

When asked about the possible outcomes of unwanted pregnancy the majority of the respondents responded 114(58.46%) were said that continue to born and 81(41.54%) said aborted it. Peer pressure(culture) was forced to abort 57.95% of the respondents, The reason for abortion 31.79% says it affect my education. The 6.67% them were said economic problem. The rest have other reason. Many of respondents 107 (54.87%) or more than half of respondents does not use contraceptive methods they may be not do sexual intercourse. The 29(14.87%) uses pill, 36(18.46%) loop, 7(3.59%) condom and 16(8.21%) of them uses calendar method. The 140(71.79%) of study participants heard about abortion and 55(28.21%) of respondents not have adequate knowledge about abortion. The ways of performing abortion that the majority of respondents knew was: abortion by traditional method 85(43.59%), by Surgical procedures 42(21.54%), 39(20.00%) of them knows abortion by using drug and 29 (14.87%) of the respondents know abortion by other methods.
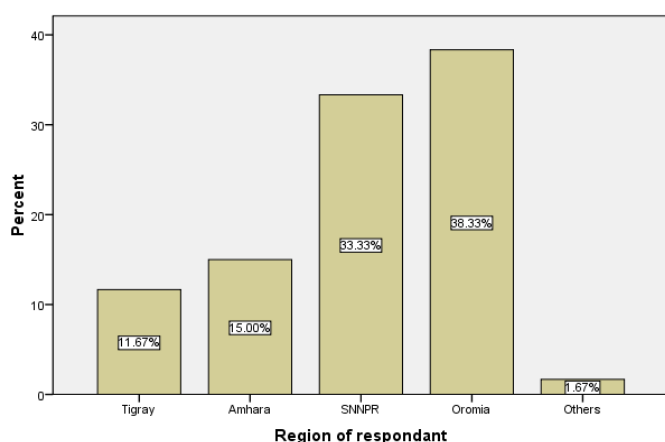

Figure 1 Bar chart of region of respondent

Based on above bar chart (Figure1) among the 195 respondents, about 75(38.33%) are from Oromia. The 65(33.33%) of them are from SNNPR. The 29(15.00%) are from Amhara. The

Table 2 Respondents general knowledge about abortion

Variables	Category	Frequency	Percent
Type of Contraceptive used	Not use	107	54.87
	Pills	29	14.87
	Loop	36	18.46
	Condom	7	3.59
	Calendar method	16	8.21
	Total	195	100.00
Knowledge of respondent about abortion	Have knowledge	140	71.79
	Not have knowledge	55	28.21
	Total	195	100.00
Method of abortion they know	Surgical procedure	42	21.54
	Abortion by drug	39	20.00

	Abortion by traditional method	85	43.59
	Others	29	14.87
	Total	195	100.00
Decision of respondent If unwanted pregnancy occurs	Continue to born	114	58.46
	I Aborted it	81	41.54
	Total	195	100.00
Cause of Abortion	Economic problem	13	6.67
	It affects my education	62	31.79
	Peer pressure (Culture)	113	57.95
	Other	7	3.59
	Total	195	100.00

The majority of the respondents (25%) they are not heard about abortion.18.33% of respondents gain information about abortion from media (television, radio and newspaper, internet). 16.67% of them from teachers their friends. The 15% of respondents heard from their friends as well as the information source for abortion gained by family is 13.33%, family and from other is 11.7%.
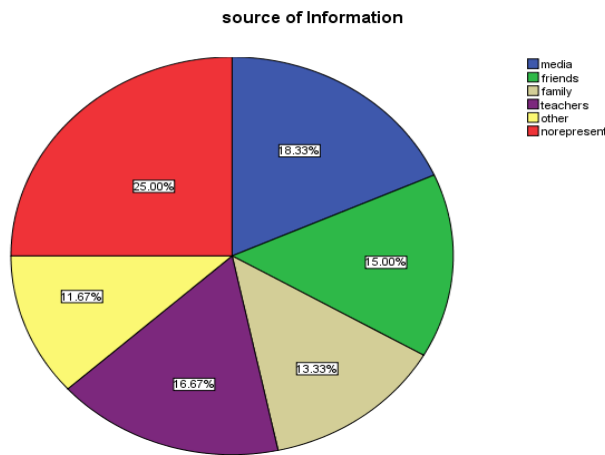

Figure 2 Pie chart source of information

Table 3 Variables related to attitudes of respondent on legalization of abortion

Variables	Category	Frequency	Percent
Effectiveness of Legalization of abortion	Strongly Disagree	68	34.87
	Disagree	46	23.59
	Agree	55	28.21
	Strongly Agree	26	13.33
	Total	195	100.00
Legalization of abortion is should be Decision of women	Strongly Disagree	46	23.59
	Disagree	64	32.82
	Agree	59	30.56
	Strongly Agree	26	13.3
	Total	195	100.00
Legalization of abortion reduce Mothers Mortality	Strongly Disagree	75	38.46
	Disagree	59	30.26
	Agree	32	16.41
	Strongly Agree	29	14.87
	Total	195	100.00
Attitude of respondent	Positive attitude	72	36.92
	Negative attitude	123	63.08
	Total	195	100.00
why you support	To prevent unsafe abortion	17	8.72

Legalization of abortion	To prevent death of mothers	29	14.87
	To prevent poverty	16	8.21
	Other	10	5.13
	I have no idea	123	63.08

From above table 3 respondents about effectiveness of legalization of abortion 68(34.87%) of the respondent were says strongly disagree, 46(23.59%) disagree, 55(28.21%) agree and 26(13.33%) of them said they are strongly agree. When they are asked about abortion should be decision of women's 46(23.59%) of respondents report were say strongly disagree, 64(33.82%) of them said disagree, 59(30.56%) said agree and only 26(13.3%) said we are strongly agree. When legalization of abortion reduces mothers mortality rate is asked 75(38.46%) of respondents said we are strongly disagree, 59(30.26%) disagree, 32(16.41%) agree and 29(14.87%) reported they are strongly agree. Generally most

of respondents 123(63.08%) were asked have negative attitude on legalization of abortion and 72(36.92%) of respondents have positive attitude on legalization of abortion. When they were asked the reason they support government on legalizing of abortion 17(8.72%) said it is good for preventing unsafe abortions, most of them29 (14.87) answered it is good to reduce mothers mortality,16(8.21%) said to prevent poverty and 10(5.13%) the rest were by another reason and 123(63.3%) of respondents were not represent because they are not support legalization of abortion.

Table 4 Cross tabulation of some independent variables with Attitudes of student.

Variables	Category	Attitudes of respondent		
The residence where the respondent came		Positive attitude	Negative attitude	Total
	Rural	19	88	107
	Urban	52	36	88
Family occupation of the respondent	Farmer	36	85	121
	Trader	3	13	21
	Government employed	10	10	20
	NGO	6	6	12
	Other	16	10	26
The Region where the respondent (student) came	Tigray	16	6	22
	Amhara	13	16	29
	Oromia	16	49	65
	SNNPR	26	49	75
	Others	1	3	4

As above cross tabulation table 4 indicates most of respondents whom have negative attitude are rural living students compared to urban. Most of students whom families are farmers have negative attitude on legalization of abortion and respondents whom family occupation is NGO are relatively more positive attitude on legalization of abortion. When we compare based on

region they came from Oromia region and SNNPR have more probably negative attitude than others regions.

4.2 Inferential analysis
Inferential statistics is statistical method deals with making inference or conclusion about population based on data from a

limited number of observations that come from the population. Inferential statistic consists of estimation and hypothesis testing among these inferential testing method we use logistic regression, χ^2 test and odds ratio test.

4 **Pearson chi-square:** It is a measure of linear association between variables. The values of correlation coefficient ranges from -1 to 1.The sign of the coefficient indicates absolute values the direction of the relationship and its absolute value indicates the strength, with larger absolutes indicates stronger relationships. Chi-square does not indicate strength and direction. A low significant value (typically bellow 0.05) indicates that there is relationship between them.

Table 5 Chi-square test of the dependent and independent variables

Independent variable	Category	Attitude		Pearson chi square	p-value
		Positive	negative		
Age the respondent	17- 20	13	23	1.121	0.18
	21-24	45	67		
	>24	16	31		
Region	Tigray	16	7		
	Amhara	13	16		
	SNNPR	17	49		
	Oromia	26	49	5.663	0.223
	Other	0	2		
Marital status	Single	62	104	0.589	0.000
	Married	10	19		
Residence which respondents came	Rural	19	88	10,790	0.039
	Urban	52	36		
Family occupation	Farmer	36	85	4.429	0.000
	Trader	3	13		
	Gov't employ	10	10		
	NGO	6	6		
	Others	16	10		
Method of contraceptive	Use	42	46	2.787	0.000
	Not use	29	78		
Family education level	Illiterate	26	62	2.736	0.439
	Primary	23	20		
	Secondary	16	36		
	Above	6	6		
Adequate knowledge about abortion	Have	65	75	6.334	0.001
	Not have	6	49		

The general chi-square test about female's attitude on legalization of abortion and factors or independent variable is;

❖ H0: the independent variables do not significantly influence the attitude of female students on legalization of abortion
❖ H1: the independent variables are significantly influence the attitude of female students on legalization of abortion

From the overall chi-square test output results, p-value = 0.000, 0.039, 0.000, 0.0000 and 0.001, (marital status, residence of respondent, family occupation, using contraceptive and adequate knowledge of respondent about abortion) respectively. These variables have p-value less than 5% and they have association with the female's attitude and those which have p-value of above 5% are not significantly related with female's attitude. These variables are age, region respondents came and family education level. Since, we reject H0, and we accept H1. From this, we conclude that there is association (relationship) between method of contraceptive, marital status, students residence, family occupation and adequate knowledge with that of attitude of female students on legalization of abortion.

Binary logistic Regression

Binary logistic regression analysis is done by using the significant variables in the factor that affect attitude of female students on legalization of abortion. To find the most determinant of factor that affects attitude of female students on legalization of abortion the respondent's attitude, we must determine whether each individual variable are significant or not to test whether each coefficient is statistically significant or not.

Table 6: Omnibus Tests of Model Coefficients

		Chi-square	Df	Sig.
Step 1	Step	49.813	10	.000
	Block	49.813	10	.000
	Model	49.813	10	.000

In the above (Table6) of omnibus test of model coefficients indicates the overall significance of the model when we are considering all the influence variables included in the model. Therefore from the above result the binary logistic model is fitted, that means the model is statistically significant, so we conclude that at least one coefficient is different from zero.

Table 7: Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	29.046	0.564	0.771

Cox & Snell R2 indicates that 56.4% of the response variable which is respondent's attitude is explained by the independent variables. And also Nagelkerke R Square indicates that 77.1% of the response variable is explained by the predictor variable.

Table 8: Hosmer and Lemeshow Test

Step	Chi-square	Df	Sig.
1	3.903	8	0.866

Since the p-value of Hosmer and Lemeshow test p-value = 0.866 which means the Hosmer and Lemeshow implying that the model estimate are adequate to fit the data. A large p-value indicates a good match. A small p-value indicates a poor match, which tells us that we should look for some alternative ways to describe the relationship between this covariate and the outcome variable. In this study, the p-value (0.866) indicates a good match. The Hosmer and Lemeshow goodness of test is greater than 0.05, we will not reject the null hypothesis that there is no difference between the observed model predicted value, implying that the model estimates are adequate to fit the data at acceptable level. The Wald statistic is also an alternative test which is commonly used to test the significance of individual logistic regression coefficient for each independent variable.

Table 9: Classification Table

Observed		Predicted		
		Attitude of respondent		Percentage Correct
		Positive attitude	Negative attitude	
Attitude of respondent	Positive attitude	59	13	81.8
	Negative attitude	10	113	92.1
Overall Percentage				88.3

From the above Table 9 of the classification of the respondents that who answers the question correctly were 92.1 % of the model prediction is correct. According to the expected data we can predict 88.3% correctly with entering independent variables.

Table 10: Variables in the equation

Variable	Code	β	S.E	Wald	Df	Sig.	Exp(B)	95% CI. for Exp(β) lower	Upper
Marital status	Single (reference)	_	_	0.754	2	0.686	_	_	_
	Married	2.728	1.023	7.116	1	0.063	15.256	0.944	18.258
	Divorced	-1.494	0.818	3.336	1	0.068	0.224	0.097	22.145
Student residence	Rural(reference)	_	_	_	_	_	_	_	_
	Urban	0.259	2.070	6.456	1	0.011	1.296	0.327	2.110
Family occupation	Farmer(reference)	2.845	_	2.367	4	0.669	_	_	_
	Trader	-1.146	1.160	0.975	1	0.323	0.318	0.033	3.091
	Government employ	0.681E4	1.633	0.174	1	0.677	1.976	0.081	48.503
	NGO	0.057	1.354	0.002	1	0.967	1.058	0.075	15.033
	Others	-0.711	2.024	0.123	1	0.726	0.491	0.009	25.971
Contraceptive method	Not use(reference)	_	_	_	_	_	_	_	_
	Use	0.905	2.083	5.545	1	0.019	2.472	0.000	14.39
Adequate knowledge	Have no knowledge (reference)	_	_	_	_	_	_	_	_
	Have knowledge	0.276	2.320	7.318	1	0.007	1.319	0.670	1.77
	Constant	13.587	4.019E4	.000	1	.020	4.858	_	_

From the above Table 10 result, the fitted model for logistic regression is stated out in the following form.
Test statistic in the logistic regression
Ho: the independent variables do not significantly influence the attitude of female students on legalization of abortion;
H1: the independent variables are significantly influence the attitude of female students on legalization of abortion.
No need of saying about insignificant variables because, they are not important to predict the model and we fit the logit only by significant variables.
Logit (pi) = log(P_i/(1-P_i)) = βo+β1X1+β2X2+ ….+βnXn
So from the SPSS output we have the following logistic model. The log odd logistic regression equation for success "p" is written in the form of;

Logit(p/(1-p)) = β_(0)+ β_2 student residence+ β_4 contraceptive+ β_5 knowledge
Logit(p/(1-p)) = 13.587+ 0.259student residence+ 0.905contraceptive+ 0.276knowledg
Where β0 is constant and β1, β2, β3… β5 are the parameter estimators
X2 = students residence, X4 = contraceptive and X5 = knowledge since the sig. (p) -value of these independent variables are less than α-value = 0.05. From this we can conclude that these independent variables are significantly different from zero and they are important to predict the model or they are called factors that affect attitude of female students on legalization of abortion. From the above output in table since p-values of X2, X4, and X5 are 0.011, 0.019, and 0.007 respectively are less than α-value 0.05. From this, we conclude

that the coefficients (β's) of these variables have significant effect on the attitude of female students on legalization of abortion. Insignificant variables are the variables that have no great influence on the attitude of female students on legalization of abortion are family occupation and marital status.

When we see that table 10 shows that:
For contraceptive method
Since its p-value is less than α-value, we can conclude that using contraceptive has significant effect on the attitude of female students on legalization of abortion. The odds of having positive attitude of female students on legalization of abortion whom used contraceptive method are 2.472 times more than that of contraceptive not user keeping other variables constant.
For residence of respondents
The odds of having positive attitude on legalization of abortion of students whom lives in urban is 1.296 times greater than having positive attitude on legalization of abortion of students whom lives in rural by keeping other variables constant.
For adequate knowledge
From the output above p-value is 0.007< 0.05. Therefore, it tells us that the knowledge has significant effect on the attitude of female students on legalization of abortion (β has significant effect). Therefore we can conclude that the odds of having positive attitudes of female students on legalization of abortion who have adequate knowledge is 1.319 times higher than having positive attitudes of female students on legalization of abortion those who have no adequate knowledge.
Generally, we can conclude that parameters such as student's residence, unwanted pregnancy, contraceptive method and knowledge of respondent are significantly different from zero (1). This implies that the attitude of female students on legalization of abortion is affected by all these factors what we have mentioned above.

CONCLUSION AND RECOMMENDATIONS
5.1 Conclusion
This chapter summarize the general findings of the study in short form. This means depending on the result and discussion of the study that we concluded the following points.
As we observe from the above most of female students have negative attitude on legalization of abortion and also not happy on the issue of legalization of abortion.
From chi-square test of independence result the response variable that is respondent attitude and the influence variable that is knowledge of respondent, marital status, family occupation and contraceptive method are dependent, that means there is an association between them. Age of respondent, region respondents

came from and family education level of respondents are independent. That means there is no any significant association between them.
Finally, the finding obtained from the logistic analysis the respondent attitude for legalization of abortion are significantly influenced by knowledge of respondent, residence of respondent and use of contraceptive method.

Recommendation
Depending on the result of the study, we recommend the following to the concerned bodies to give solution for abortion related problems.
❖ Most respondents have negative attitude towards legalization of abortion, so those respondents shall change such kinds of attitude to minimize maternal death when it is necessary.
❖ According to their residence most of students whom are came from rural have negative attitude on legalization of abortion so knowledge and creating concepts about legal abortion must be distributed in rural.
❖ From the result attitude of females are influenced by their knowledge towards legal abortion. Therefore, the concerned bodies should be give awareness for females to improve their knowledge about abortion.
❖ Similar studies should be conducted in different parts of the country so as to get a national picture on the medication abortion knowledge, attitude and practice.
❖ Finally, we suggest that any health professional should consider the risk of illegal abortion and should try to establish safer abortion service for women.

REFERENCES
1. A. Agresti, Introduction To Categorical Data Analysis 2nd edition.(2007)
2. A. Guthmache, Institute, Sharing Responsibility women, Society and Abortion.(2004)
3. Christensen, Logliner Models and Logistic Regression.(1997)
4. J.Hally, Sons , ASIS, Cochran Sampling Technique 3rd edition, (1977)
5. A. Lakshmana R., A. Abatemam, A Study on Attitude of Female Students on Legalization of Abortion in Jimma University College of Natural Science.168-177 (2016)
6. WHO, Abortion: maternal health and mother hood programmed, second edition Geneva. (2004)
7. WHO revised, Estimates of maternal mortality Geneva.(1993)
8. W. Berrer, WHO, Making abortions safe: A matter of good public health policy and practice. The International Journal of Public Health, Special Theme: Reproductive health. Geneva: WHO; 78(5): 569-714. (2000).