ADDIS ABABA UNIVERSTY

COLLEGE OF HEALTH SCIENCES

DEPARTMENT OF NURSING AND MIDWIFERY

ASSESSMENT OF KNOWLEDGE, ATTITUDE AND INTENSION OF HEALTH SCIENCE STUDENTS TOWARD SAFE ABORTION CARE PROVISION IN DEBRE MARKOSE UNIVERSITY, ETHIOPIA, MAY 2011.

BY: TAREKEGN ASMAMAW (BSc.N)

A Thesis Submitted to the School of Graduate Studies of Addis Ababa University in partial fulfillment of the requirements for the Degree of Master of Science In Reproductive Health Nursing In Department Of Nursing and Midwifery.

May, 2011

Addis Ababa, Ethiopia

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Approval by the board of Examiners

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ACKNOWLEDGEMENT

My heartfelt thanks goes to my advisor S/r Yeshi Assefa for her continuous help equipping me with the necessary knowledge, information and confidence from the beginning of the proposal to the final result of this study.

I am also extending my special thanks to Addis Ababa University, Medical Faculty, College of Health Science Department of Nursing and Midwifery for financial support for this study.

My special thank and appreciation goes to my wife w/ro Firehiwot Nigussie, and my sisters Yeshiwork Asmamaw, Zewdenesh Tesfaye and my brothers walle Dessie, shimelese kinde, and other friends for their encouragement, prayer, patience and tolerance during my study.

Finally, I would like to thank all the participants of Nursing and Health officer students of Debre Markose University for their cooperation and obtaining the necessary support during data collection.

TABLE OF CONTENT

Contents **page**

ACKNOWLEDGEMENT i
TABLE OF CONTENTS iv
LIST OF TABLES iv
LIST OF ANNEXS v
LIST OF ACRONYMS vi
ABSTRACT vii
1. INTRODUCTION 1
1.1. Background 1
1.2. Statement of the problem 3
1.3. Significance of the study 5
2. LITERATURE REVIEW 6
Conceptual frame work 13
3. OBJECTIVE 14
3.1. General objective 14
3.2. Specific objectives 14
4. METHODS AND MATERIALS 15
4.1. The study area and period 15
4.2. Study design 15
4.3. Source population 15
4.4. Study population 15
4.4.1. Inclusion criteria 16
4.4.2 Exclusion criteria 16
4.5. Sample size and sampling technique 16
4.6. Questionnaire development and data collection 16
4.7. Variable of the study 17
4.7.1. Dependent variables 17
4.7.2. Independent variables 17
4.8. Operational definitions 18
4.9. Data quality assurance 18

4.10. Data analysis procedures 19
4.11. Ethical considerations 19
4.12. Dissemination and utilization of results 20
5. RESULTS 21
5.1. socio-demographic characteristics 21
5.2. Knowledge related to magnitude, law and complication of abortion 23
5.3. Respondents attitude toward safe abortion 25
5.4. Respondents intension to provide safe abortion 28
5.5. Respondents willingness to seek abortion care training 31
5.6. Association of socio demographic factors with knowledge, attitude and intension toward safe abortion care service. 31
6. DISCUSSION 37
7. STRENGTH AND LIMITATION OF THE STUDY 43
7.1. Strength of the study 43
7.2. Limitation of the study 43
8. CONCLUSION 44
9. RECOMMENDATION 45
REFERENCES 46
ANNEXES 49

LIST OF TABLES

Table **Page**

Table 1: Distribution of Socio-demographic characteristic of health science students in Debre Markose University, 2011 (n=190)……….. **22**

Table 2: Percentage distribution of respondents, by agreement with statements reflecting general Knowledge toward abortion, according to field of study in DMU... **24**

Table 3: Distribution of health science students by level of agreement with statements reflecting attitude toward abortion, according to field of study in DMU, 2011 (n=190).............................**26**

Table 4: Distribution of DMU health science students by level of agreement with statements reflecting intention to provide abortion services, according to field of study in DMU (2011) (n=190)……………………………………………………………………………….…..... **27**

Table 5: Percentage distribution respondents among list of selected reasons for not intending to provide abortion services, according to field of study in DMU, 2011 (n=190).......................... **28**

Table 6: Percentage distribution of respondents among list of selected reasons for intending to provide abortion services, according to field of study in DMU, 2011 (n=190) ……….……… **28**

Table 7: Distribution of students, by agreement with statements reflecting willingness to seek abortion training, according to field of study in DMU, 2011 (n=190).. **30**

Table 8: Association of socio-demographic variables with selected knowledge related to safe abortion care in DMU, 2011 (n=190)... **32**

Table 9: Association of socio-demographic variables with attitude of health science students toward safe abortion care services in DMU, 2011(n=190)..**34**

Table 10: Association of socio-demographic variables with intension of health science students toward safe abortion care services in DMU, 2011(n=190).. **35**

LIST OF ANNEXS

Annex Page

Annex-1: consent form………………………………………………….…………… 49

Annex-2: Questionnaires…………………………………………………………………50

List of Acronyms

AAU - Addis Ababa University

CAC – Comprehensive Abortion Care

CI – Confidence Interval

COR – Crude Odds Ratio

CTOP – Choice on Termination of Pregnancy

DMU - Debre Markose University

HO – Health Officer

ICDP – International Conference on Population and Development

IPPF - International Planned Parenthood federation

MMR – Maternal Mortality Rate

MOH – Minster of Health.

RH – Reproductive Health

UN – United Nation

WHO – World Health Organization.

ABSTRACT

Background: Negative attitudes toward abortion among professionals providing abortion services could be an obstacle even under a law which permits abortion on request. The shortage of health care providers who are willing or trained to perform abortions undermines the provisions of safe abortion services, by limiting the availability of safe, legal abortion, and has serious implications for women's access to abortion services and health service planning.

Objective: The aim of this study is to assess knowledge, attitudes and intension of DMU Health Science student toward safe abortion provision.

Methods: A quantitative cross-sectional institution based study was conducted to examine knowledge, attitude and intension of health science students (n=190) to provide safe abortion care services using pretested standard questionnaire at Debre Markose University.

Result: Respondents were asked whether unsafe abortion is one of the major health problems in their country. Out of all respondents, 94.2% said that it was a major health problem. 65.3% agreed that they are more comfortable with medical abortion than with surgical abortion. Large majority of respondents 89.0% reported that they were not plan to perform abortion for their patients regardless of their reason for terminating a pregnancy.

Discussion: More intension to provide medical abortion and surgical abortion in this study might have been the perception of students considering that higher magnitude of the problem of unsafe abortion in our country and the need of safe abortion care providers to solve maternal morbidity and mortality from unsafe abortion.

Conclusion and recommendation: Very surprisingly majority of students in this study have willingness to seek abortion care training. Although it may not be possible or desirable to require abortion training for every future health care provider separately, making safe abortion care training a standard part of the curriculum will open avenues for both future nurses and health officer who are in favor of providing safe abortion care services. More important, expanding abortion training in the allied health professions will likely alleviate the abortion provider shortage throughout Ethiopia.

Key word: Attitude, Intension, safe abortion provision, medical abortion, surgical abortion.

1. INTRODUCTION

1.1. Background

Unsafe abortion has been recognized as an important public health problem, especially in developing countries, contributing to the high maternal mortality rate. Unsafe abortion accounted for 14% of all maternal deaths in sub-Saharan Africa, where half of the world maternal deaths occurred. According to the World Health Organization, Ethiopia has the fifth largest number of maternal deaths **(1).** The maternal mortality ratio (MMR) in Ethiopia was estimated at 673 deaths per 100 000 live births in the year 2005, and unsafe abortion was estimated to account for 32% of all maternal deaths in Ethiopia **(2).**

As part of law reform in Ethiopia in 2005, the penal code was revised to broaden the indications under which abortion is permitted. Termination of pregnancy is now legal when the pregnancy results from rape or incest, when continuation of the pregnancy endangers the health or life of the woman or the fetus, in cases of fetal impairment, for women with physical or mental disabilities, for minors who are physically or psychologically unprepared to raise a child and in cases of grave and imminent danger that can be averted only through immediate pregnancy termination. These are significant changes from the previous law, which permitted abortion only in cases of grave and imminent danger that could be averted only through immediate pregnancy termination **(3).**

Health care providers must be educated on the revised penal code and its legal obligations, which they are required to fulfill. Ethiopia has a limited number of gynecologists. Midwives, health

officers and nurses are allowed to perform an abortion (up to the 12th week of gestation) but are often not properly trained and are often unaware of the newly revised abortion laws (**2, 4**).

In addition the negative attitudes of health care providers create barriers for women in seeking safe abortion services. Providers must be educated on their ethical obligations to perform abortion services for women whose circumstances fall under the revised penal code or refer them to a physician who will. Additionally, health care providers may not be aware that according to the Technical and Procedural Guidelines for Safe Abortion Services in Ethiopia they will not be prosecuted if they terminate a pregnancy based on erroneous information provided by the woman. As such, it is important for health care providers to be made as comfortable as possible in providing compassionate care in order to increase women's ease at accessing safe abortion services. As a long-term solution to creating sustainable Comprehensive Abortion Care (CAC), increasing awareness of health care providers is recommended (**4**).

Another point concerns the acceptability to the scientific community and health professionals of providing abortion procedures. In many countries, even those in which abortion is legal, many health workers refuse to perform abortion for religious, personal or ethical reasons. In developing countries in which abortion is illegal, attitudes are often negative (rejection) and the treatment of abortion complications is delayed, providing evidence of a non-acceptability to health professionals of treating women admitted for abortion complications **(5).**

There has been little research to date on health science student knowledge, attitudes and intension towards safe abortion provision in Ethiopia. Studies elsewhere, including countries where abortion is highly restricted, have found that various factors shape health professionals'

attitudes towards abortion **(6).** A study of the attitude of health science student towards safe abortion would be important. It could be useful in devising an alternative strategy for improving access to safe abortion to women with unwanted pregnancies **(7).**

1.2. Statement of the problem

Every day, 182 women die from complications of unsafe abortion. Nearly 46 percent of women who die from unsafe abortion are younger than 24. Approximately 220,000 children are orphaned each year when their mothers suffer unsafe abortion-related deaths. In addition, it is estimated that every year at least five million women and girls are hospitalized for treatment of complications of unsafe abortion, which can lead to long-term effects such as infertility. All in all, unsafe abortions account for about 20 percent of the total burden of maternal mortality plus long-term reproductive ill health **(8).**

In recent years the number of abortions performed nationally and in each of the provinces, including the Western Cape has increased substantially, indicating increased availability and accessibility to abortion services. Despite this manifold increase in demand and utilization, challenges exist in the further expansion of services, particularly through trained nurse or midwife service provision up to 12 weeks gestation. The shortage of health care providers who are willing or trained to perform abortions undermines the provisions of the choice on termination of pregnancy (CTOP) Act, by limiting the availability of safe, legal abortion, and has serious implications for women's access to abortion services and health service planning **(5).**

In 2005, Ipas and the Cambodian Ministry of Health conducted a national study to assess the quality and use of abortion services in public hospitals and health centers. The study in Cambodia reveal that although laws permits abortion through the first 12 weeks of pregnancy, and for some circumstances in the second trimester, many Cambodian women seek abortion care from unskilled providers, herbalists, drug sellers and traditional healers. The research also uncovered that attitudes and knowledge of health-care providers can often pose a significant barrier to women seeking abortion services. Nearly one-quarter of health-care providers reported that hospital staff may oppose abortion training, and that 40 percent of providers from hospitals erroneously believed elective abortion was not permitted by the ministry of health **(9).**

Health personnel's option of refusing participation in the procedure of abortion for conscientious reasons in some countries or regions within countries leads to a situation where despite liberal laws abortions are hardly ever performed (USA, Austria, Germany/federal state of Bayern). In other countries with liberal legal frameworks it has been reported that the prevailing attitude of disapproval and stigmatization of abortion-seeking women by health personnel prevents women from seeking the service in authorized facilities (India, Ghana, and South Africa) **(10).**

The history of policy and action in Ethiopia emphasizes the restrictions of lack of awareness and access, which contribute to the high rates of unsafe abortion and thus high rates of maternal mortality and morbidity. Although the revised penal code is a tremendous reform, there are significant gaps in its implementation. In particular, dissemination of information about the new abortion law has been weak, and many within the health care system as well as the general

population have limited knowledge about the issue. For example, many women and health care providers are not aware that poverty is an extenuating circumstance under which to have an abortion **(1, 2, 4).**

Legalization does not necessarily change entrenched social attitudes toward abortion, or persuade husbands and family members to accept a woman's decision to abort. Women commonly report encountering abusive treatment from health workers who disapprove of their desire for an abortion **(10).** The health professionals' attitudes might affect the availability of abortion services. The important role of Nurses and other health professionals play an important role to identifying, informing, preparing, and supporting the abortion patient; however, there is little known and scarce study about the personal and professional attitudes and intension especially in health science students. So this study assessed knowledge, attitudes and intentions of DMU health science student to provide safe abortion services.

1.3. Significance of the study

Knowledge, attitude and intension (KAI) of health science student toward abortion provision assessment are important to identify area for improvement and encourage better communication with clients who need safe abortion services. Also KAI study would explore factors which determine students ' involvement or disengagement in services may facilitate improvement in the planning and provision of services. In addition it may be one input for who need research on this issue or help to consider the curriculum in relation to safe abortion issue particularly in nursing field. Besides these, the study can provide information for clinical policy makers about the

overall situation and to give attention for the development of guidelines material for high level university students.

2. LITERATURE REVIEW

Maternal mortality due to unsafe abortion in developing countries is worse, where it results in a total death of 80,000 each year, with death rate of 400/100,000 abortions compared to 0.2-1.2/100,000 safe abortions in developed countries . According to hospital based studies, unsafe abortion complications are major contributors of maternal mortality in Africa, for example 35% in Kenya and 40% in Nigeria. Unsafe abortion complications are also major causes of gynecological admissions in Africa, for example up to 60% and 77% in Kenya and Nigeria, respectively. In Africa, unsafe abortion was reported to be as a cause of 30-50% of maternal deaths, contributing for about 13% of the world total. In Africa, maternal mortality from unsafe abortion complications is the highest with 680 deaths/100,000 abortions. Unsafe abortion in Africa is 700 times more likely to lead to death than safe abortion in developed countries (**11**).

In 2005, Ethiopia's maternal mortality ratio was an estimated 673 deaths per 100,000 live births, compared to South Africa's estimated ratio of 400 deaths and the United States estimated ratio of 11 deaths per 100,000 live births (**12**). The leading cause of maternal mortality and morbidity is unsafe abortion, defined by the World Health Organization (WHO) as "the termination of an unintended pregnancy either by persons lacking the necessary skills or in an environment lacking the minimal medical standards, or both" (**13**). An estimated 1,209 of every 100,000 women, attempting to terminate a pregnancy will die as a result of abortion complications (**14**). Hospital studies show that only tuberculosis kills more women than abortion related issues (**4, 15**).

According to The Estimated Incidence of Induced Abortion in Ethiopia 2008, estimate based on the medium multiplier (382,000), the approximately 103,000 legal abortions provided by surveyed health facilities in 2008 accounted for 27% of all induced abortions that year.

Nationally, the incidence of facility-based legal abortion was six per 1,000 women aged 15–44, ranging from almost zero in rural regions to 41– 46 per 1,000 in Addis Ababa (**3).**

A literature review on healthcare professionals' attitudes towards abortion showed that attitudes varied depending on nationality, professional background, and experience in abortion care, personal attitudes such as religious beliefs and the reasons for women undergoing abortion. One study showed the most important personal factors influencing a physician's decision not to perform abortions included lack of proper training and the person's ethical and religious beliefs (**16).**

Studies of medical students in the USA indicate that most students hold views on abortion, the majority of them broadly pro-choice. Most suggested that women are more pro-choice than men. However, one study on students reported that females were less likely to endorse abortion than males. Two studies of US students suggested that older students were more pro-choice than younger students but one reported the opposite (**17**).

From the study of university of Washington on health science student intension toward abortion, Thirty-one percent of all respondents intended to provide medical abortion, 23% were undecided and 46% said they would not provide medical abortion. By contrast, 18% intended to provide surgical abortion, 24% were undecided and 58% said that they would not provide this service. Twenty-nine percent of respondents reported planning to provide abortions regardless of the patient's reason for terminating the pregnancy, and 90% indicated they would refer a patient to another provider if they were unable or unwilling to provide abortion services (**18**).

Additional points from study of university of Washington, thirty-four percent of all respondents

reported that they would not provide abortion services because it would be outside the scope of their practice. Twenty-four percent reported that it is against their religious beliefs, 31% that it is against their personal values and 10% that they will not have the opportunity to be trained in abortion techniques. Small proportions of students believed that they could be ostracized or discriminated against by colleagues (1%), or they or their families might be harassed or threatened (5%) if they performed abortions (**18**).

Also from the above study Sixty-four percent of all respondents indicated a willingness to attend a program with a curriculum that requires abortion training, and 55% were willing to take elective courses in abortion training. A quarter of students indicated an intention to seek a residency program or practicum site that includes abortion training. The beliefs that abortion was "outside the scope of practice" and "against personal values" were significantly associated with not intending to provide surgical or medical abortions; however, religious affiliation was not associated with these outcomes. A marginally significant difference suggested that women may be more likely than men to intend to provide medical and surgical abortions (**18**).

Study from Marquette University concerning attitude the majority of nursing students (52.8%) did not agree that elective abortions should be legal under any circumstances. only 47.2% of felt that abortion was acceptable for fetal anomaly or congenital disorder. Also 52.8% of student indicated that advanced practice nurses should be able to provide medical abortion. Only 30.2% of students agreed that advanced practice nurses should be able to provide surgical abortion. 20.8% were more comfortable with medical abortion than with surgical abortion (**19**).

Regarding to willingness from Marquette University only a few (5.7%) students plan to incorporate either medical or surgical abortion into their practice. A high proportion (75.5%) nursing students would be willing to refer for abortion services. The most frequent reason for not intending to provide abortion services were personal (60.4%), outside of scope of practice (52.8%), and against their religious beliefs (50.9%). Few nurses (3.5%) felt that they would be ostracized, and few (6.9%) felt that they would be harassed for providing abortion services (**19**).

According to literatures review conducted in South Africa health science student attitude and intension toward abortion providing, overall 70–73% of respondents agreed that “elective abortion should be legal and accessible under any circumstance” and that “it’s acceptable for a woman to choose abortion because of a fetal anomaly or congenital disorder”, large majorities of students in each program agreed with these views. Forty-three percent neither agreed nor disagreed that they are more comfortable with medical abortion than with surgical abortion. Eighty-three percent of respondents in the nursing program and 57% of respondents in the physician assistant program agreed that advanced clinical practitioners should be able to provide medical abortion, compared with 43% of medical students; overall, 52% agreed with the statement. Similarly, a greater proportion of nursing and physician assistant respondents (72% and 45%, respectively) than of medical students (21%) agreed that advanced clinical practitioners should be able to provide surgical abortion; 37% of all respondents agreed. Sixty-five percent of students agreed that “every program that addresses women’s health should include abortion training,” without any differences in opinion by program type (**18**).

Study on Attitudes toward Abortion in a Sample of South African Female University Students, 16.9% said they were not aware, while 83.1% said they were aware of the law of South Africa choice of termination of pregnancy (CTOP) Act of 1996. Of the sample, 54.8% described themselves as pro-life, 25.8% described themselves as pro-choice, and 19.4% were neutral. More than three quarters of the sample described themselves as religious, 21.0% were neutral, and 3.2% indicated that they were not religious. If faced with an unwanted pregnancy, 48.4% said they would not consider an abortion, 23.4% said they would consider an abortion, while 28.2% were uncertain (**20**).

Unsafe abortion is one of the four major causes for maternal morbidity and mortality in Ethiopia **(21).** The Ethiopian Society of Obstetricians & Gynecologists (ESOG) conducted in 2000 a KAP study among Health workers in Hospitals and health centers all over the country to investigate the affect of knowledge, attitude and skill of the health care providers on the quality of abortion services. About 98% of the health workers considered abortion related mortality & morbidity as an issue of public health significance and 97.1% of them had encountered patients with incomplete abortion. Almost 70% percent of these encounters were at a "frequent/ sometimes" level. Sixty percent of the health workers also considered abortion complications to be most significant in both urban & rural settings. Negative attitude & lack of knowledge & skill were also cited by 26.2% & 22.1% of the health workers respectively. Denials of abortion services were reported not only for requests of termination of unwanted / unplanned pregnancies, but, also for legally permitted terminations under the current law. The reasons for such denials included the negative attitude of the health workers towards abortion (55.6%), lack of knowledge or skill to perform abortion (36.0%) **(22).**

One Study in Mekele asked respondents whether induced abortion was a major health problem in their locality. Out of all respondents, 712 (85%) said that it was a major health problem, while 100(11.9%) and 26 (3.1%) said it was not major health problem and do not know, respectively. A positive response that induced abortion was a major health problem was higher among males than among females (91.2% versus 78.7%). This was found to be statistically significant (OR: 2.80, 95% CI: 1.84-4.27). This difference could be because males have more information about the problem than females (**11**)

In one study conducted in Addis Ababa on assessment of knowledge, 26% of nurses were claimed that "no" or "uncertain" about that unsafe abortion is a major health problem in our country. In addition to this, 39% of all respondents claimed that the country has no abortion law or uncertain. Related to knowledge about the issue of penal code of Ethiopia, Only 13.31 % the total respondents correctly indicated the issue of this statement. In addition to this knowledge and attitude toward safe abortion care services increases with stay duration in the university (**23**).

A study of the attitude of professionals towards induced abortion would be important. It could be useful in devising an alternative strategy for improving access to safe abortion to women with unwanted pregnancies. The attitude of other groups: women, health professionals, adults, adolescents, students towards abortion and the abortion law would be necessary to investigate and the results could be used to lobby for changes in the law, policies and programming including curriculum (**24**). The purpose of this study is to determine the attitudes and intentions of health science student towards the provision of abortion services. The study is a descriptive cross-sectional survey of 199 health science students (Nursing and health officer) at DMU.

Conceptual frame work

Cultural and societal norms are extremely influential in shaping people's attitudes and values. Also, this framework places the process of values clarification within a larger context of abortion attitude, behavioral intention and, ultimately, behavior or performance **(25)**.

Figure1 lays the conceptual frame work for this study which is modified from Values clarification, which originated in the field of humanistic psychology. The frame work uses back ground variables including: age, sex, religion, year of study, knowledge about the magnitude of unsafe abortion and current abortion law and Personal belief. These independent variables with value clarification leads either positive or negative attitude toward abortion. Attitude also influences intension to provide safe abortion provision. The framework is presented in a diagram.

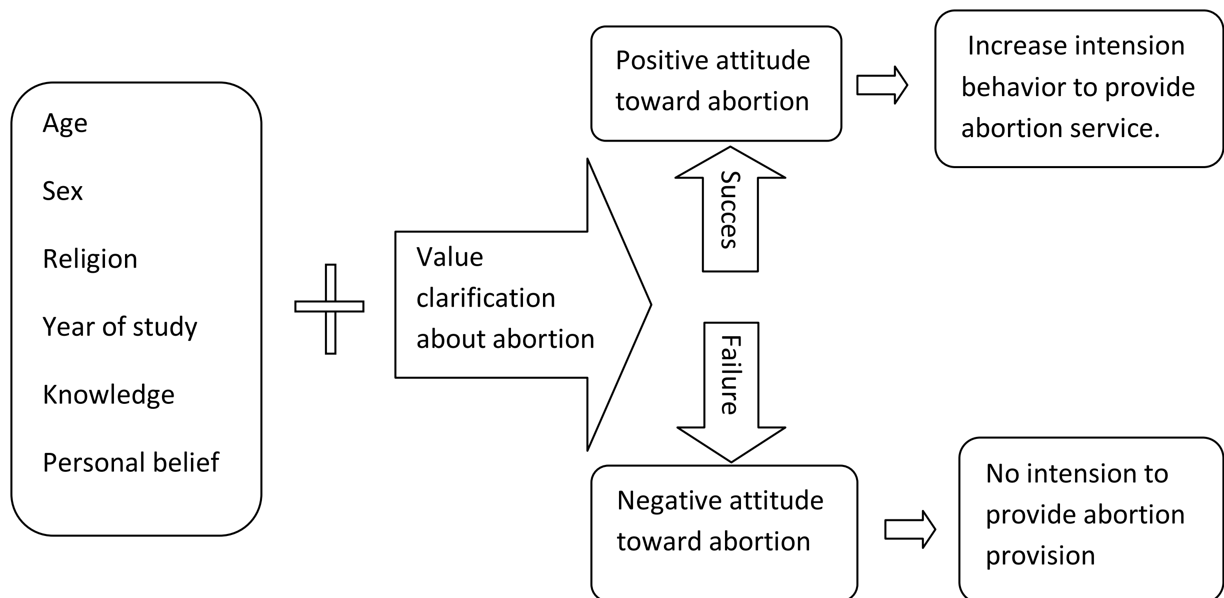

Fig.1: conceptual frame work

Source: Modified from Conceptual framework Values Clarification for Abortion Attitude Transformation Ipas 2008 **(25)**

3. OBJECTIVE

3.1. General objective

- To assess Knowledge, attitude and intension of health science students toward safe abortion provision in Debre Markose University.

3.2. Specific objectives

- To assess student's knowledge about abortion in general.
- To assess students' attitude toward safe abortion
- To assess students' intension toward safe abortion provision
- To assess students' factors that influence intension to provide safe abortion provision.
- To assess students' willingness to seek abortion care training.

4. METHODS AND MATERIALS

4.1. The study area and period

Debre Markose University (DMU) is 295 KM far from Addis Ababa and found in Amhara regional state. It was established in 1999 EC. There are different faculties among them medical facility is one of them. Under medical facility nursing and health officers are the only two departments which provide education for health science students. This study was conducted in nursing and health officer department of medical faculty health science students. The study was conducted from October 2010 –April 2011.

4.2. Study design

The study was descriptive quantitative cross-sectional and institutional based study to assess Knowledge, attitude and intension of health science students toward safe abortion provision (n=199) using pretested standard questionnaire at Debre Markose University.

4.3. Source population

All regular second and third year BSC nursing and health officer students are selected in the study area. First year students are not selected in the study area because they were not admitted to the university when this research proposal was developed.

4.4. Study population

All regular second and third year BSs nursing and health officer students who were attain their education at the time of data collection in the selected study area.

4.4.1. Inclusion criteria

All regular second and third year BSC nursing and health officer students who were attain their education in Debre Markose University and who were volunteers at the time of data collection

4.4.2. Exclusion criteria

Non voluntary, First year health science students and Students from other department were excluded from the study

4.5. Sample size and sampling technique

The total number of study population (year two and year three Nursing and health officer students) are only n=199. It has been suggested that a sample size of between 100 and 200 is adequate for factor analysis, especially if the subjects are homogeneous and there are not too many variables (**20**); So that all students were be taken as part of study sample.

4.6. Questionnaire development and data collection

Semi structured self administered questionnaires were developed for data collection on the variables needed. The questionnaires were develop and modified from Attitudes, Intentions, and Ethical Stance of Advanced Practice Nursing Students toward Abortion Provision University of Washington (**19**). The questionnaires were elicit demographic information; assess Knowledge about the magnitude and current abortion law in Ethiopia; attitude toward abortion; intentions to provide safe abortion; reason for providing safe abortion service; reasons for not providing safe abortion services, and determines willingness for abortion training. Questionnaires Items related to knowledge, reason not providing safe abortion services and willingness to seek abortion training were scored as Yes = 3; Undecided = 2; No = 1. The rest questionnaires were scored as

a five-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = uncertain, 4 = agree, and 5 = strongly agree).

Two degree holder coordinator and four diploma level data collectors were recruited; thereby one day orientation on data collection was processed.

The principal investigator and the coordinator strictly followed the overall activities for each activity on daily base to ensure the completeness of questionnaire, to give further clarification and support for data collectors.

4.7. Variable of the study

4.7.1. Dependent variables

- Knowledge about magnitude and current abortion law in Ethiopia.
- Attitude toward abortion
- Intension to provide safe abortion services

4.7.2. Independent variables

- Sex
- Age
- Religion
- Ethnic group
- Department
- Year of study
- Residence through age of 15
- Personal belief concerning abortion

4.8. Operational definitions

Abortion- expulsion of the fetus from the womb before 28 wks of age

Unsafe abortion - a procedure of termination of pregnancy either by unskilled person or environment lacking the minimal medical standard.

Attitude - Pattern of mental views towards some issue.

Elective abortion - An abortion without medical justification but done in a legal ways

Intension - what you must know in order to determine the reference of an expression

Willingness - readiness of the mind to do or for bear something

Medical abortion - is a type of non-surgical abortion in which a drug is used to induce the abortion

Surgical abortion - A surgical abortion ends a pregnancy by surgically removing the contents of the uterus.

4.9. Data quality assurance

Before the actual data collection the questionnaires were pre-tested on the same source population in AAU which is not selected for the study. Based on the findings of the pre –test some modification and developments of the tool were done. Training was given for data collectors, and coordinator. Data collectors were instructed to check the completeness of each questionnaire whether each and every question was completely answered and also the coordinator was recheck the completeness of the questionnaire immediately after submission

4.10. Data analysis procedures

Data were checked, sorted, categorized and coded. After coding data the data were summarized on a master sheet and fed to the computer to make them ready for processing and analysis. Data were entered into EPI-INFO and exported to SPSS16 for Windows. The Statistical package for the Social Sciences/Personal Computer (SPSS/PC) was used for computing statistics. Frequency distributions were obtained to check for data entry errors (e.g. unrecognized or missing codes). Binary regression analyses were conducted on the categorical data where cell sizes permitted, and descriptive statistics were used on the rest of the variables.

Descriptive statistics were computed and binary and multivariate logistic regressions were also being conducted to examine the independent variables on student with knowledge, attitude and intension toward abortion provision. Agreement score were computed as follows, first recoded the scale as 1=0, 2=1, 3=2, 4=3 and 5=4. Agreement was broadly classified as strongly disagree to strongly agree. Responses for general attitudes were transformed from a five-point scale to a three-point scale ("agree," "neither agree nor disagree" and "disagree"). Likewise, responses for intentions and willingness to seek abortion training were coded "yes," "undecided" and "no."

4.11. Ethical considerations

Ethical clearance was obtained from AAU, department of nursing and midwifery research committee and college of health science institutional review board. Each study participant was adequately informed about the purpose, method and anticipated benefit and risk of the study by their data collector. Informed consent was obtained from study participants for protecting anonymity and ensuring confidentiality.

4.12. Dissemination and utilization of results

The thesis will be presented to Addis Ababa University department of Nursing and midwifery as partial fulfillment of master's degree in maternity and reproductive health nursing. The finding of this study will be disseminated through presentation, publication, and distribution to relevant bodies. Hard and soft copy will be available in the library of AAU, for graduate students as well as for other concerned readers.

5. RESULTS

5.1. Socio-demographic characteristics

A total response rate of 190 (95.5%) from 199 students were obtained to asses knowledge, attitude and intension of health science students toward safe abortion care provision in DMU. With drawing from university, sickness and other personal problems at the time of data collection were some of the reason for 10 students not to be involved in this study. Out of these 152 (80%) of the part constitutes, age group of 18-23 years. By department 96 (50.5%) were nurses and 94 (49.5%) were health officers. By year of study 102 (53.7%) were 2nd year students and 88 (46.3%) were 3rd year students. Concerning ethnicity 159 (83.7%) were Amhara followed by Oromo, Gurage, Tigrie, and others constitutes 10 (5.3%), 3 (1.6%), 2 (1.1%) & 16 (4.2%) respectively. By religion majority of students were Orthodox which constitute 174 (91.6%) and the remaining small proportion Muslim and Protestant constitute 8 (4.2%) and 8 (4.2%) respectively. One hundred thirty two (69.5%) of the students reported that they were living in a rural area during their first 15 years of life and the others 58 (30.5%) were living in urban area. Concerning personal beliefs on abortion 41 (21.6%) were strongly pro-choice, 60 (31.6%) were moderately pro-choice, 16 (8.4%) were undecided, 29 (15.3%) were moderately pro-life and 44 (23.2%) were strongly pro-life (table1).

Table 1: Distribution of Socio demographic characteristic of health science students in Debre Markose University, 2011 (n=190).

Characteristic (N=190)		*Frequency*	*Percent*
sex	*Male*	*155*	*81.6*
	Female	*35*	*18.4*
Age	*18–23*	*152*	*80.0*
	24–29	*33*	*17.4*
	30–35	*3*	*1.6*
	> 35	*2*	*1.1*
Department	*Nursing*	*96*	*50.5*
	HO	*94*	*49.5*
Year of study	*2nd year*	*102*	*53.7*
	3rd year	*88*	*46.3*
Ethnic group	*Amhara*	*159*	*83.7*
	Oromo	*10*	*5.3*
	Tigirie	*2*	*1.1*
	Gurage	*3*	*1.6*
	Other	*10*	*8.4*
Religion	*Orthodox*	*174*	*91.6*
	Muslim	*8*	*4.2*
	Protestant	*8*	*4.2*
Residence through age of 15	*Rural*	*132*	*69.5*
	Urban	*58*	*30.5*
personal beliefs concerning abortion	*Strongly pro-choice*	*41*	*21.6*
	Moderately pro-choice	*60*	*31.6*
	Undecided	*16*	*8.4*
	Moderately pro-life	*29*	*15.3*
	Strongly pro-life	*44*	*23.2*

5.2. Knowledge related to magnitude, law and complication of abortion

Respondents were asked whether unsafe abortion is one of the major health problems in their country. Out of total respondents, 94.2% said that it is a major health problem, while 1.1% and 4.7% said it is not major health problem and uncertain respectively. Regarding knowledge on complication of abortion; 98.9% respondents said bleeding is one of the complications of abortion followed by infection, death, uterine perforation and loss of fertility which accounts 98.4%, 95.3%, 86.3%, 77.9% respectively.

Concerning knowledge on Ethiopia has abortion law or not, out of all respondents 81.6% said that she has abortion law, 17.9% said uncertain and 0.5% said no.

For what reason abortion is legal in Ethiopia context were asked to the respondents; 77.9% of students' response that it is legal in case of rape or incest, 87.9% for the pregnancy that endangers the health or life of the woman or fetus, 62.1% in case of fetal impairment, 52.6% for women with physical/mental disabilities, 38.9% for minors who are physically or psychologically unprepared to rise a child, 13.7% she does not want the child, 41.1% She is financially unable to support the child and 25.8%, said when the pregnancy is the result of extra marital(Table 2)

Table 2: Percentage distribution of respondents, by level of agreement with statements reflecting general Knowledge toward abortion, according to field of study in DMU, 2011(n=190).

Statement	*Nursing (N=96)*			*HO (N=94)*			*All (N=190)*		
	yes	*Undecided*	*No*	*yes*	*Undecided*	*No*	*yes*	*Undecided*	*No*
Unsafe abortion is one of the major health problems in our country.	*93.8*	*5.2*	*1.0*	*94.7*	*4.3*	*1.1*	*94.2*	*4.7*	*1.1*
Knowledge about complication of abortion									
Uterine perforation	*84.7*	*10.4*	*5.2*	*88.3*	*9.6*	*2.1*	*86.3*	*10.0*	*3.7*
Bleeding	*99.0*	*1.0*	*-*	*98.9*	*1.1*	*-*	*98.9*	*1.1*	*-*
Infection	*99.0*	*1.0*	*-*	*97.9*	*2.1*	*-*	*98.4*	*1.6*	*-*
Loss of fertility	*84.4*	*14.6*	*1.0*	*71.3*	*24.5*	*4.3*	*77.9*	*19.5*	*2.6*
Death	*95.8*	*2.1*	*2.1*	*94.7*	*4.3*	*1.1*	*95.3*	*3.2*	*1.6*
Ethiopia has abortion law	*83.3*	*15.6*	*1.0*	*79.8*	*20.2*	*-*	*81.6*	*17.9*	*0.5*
For what reason abortion is legal in Ethiopia context									
Not allowed for any reason	*5.2*	*14.6*	*80.2*	*-*	*16.0*	*84.0*	*2.6*	*15.3*	*82.1*
Rape or incest	*79.2*	*13.5*	*7.3*	*76.6*	*17.0*	*6.4*	*77.9*	*15.3*	*6.8*
If pregnancy endangers the health or life of the woman or fetus	*89.6*	*7.4*	*3.1*	*86.2*	*12.8*	*1.1*	*87.9*	*10.0*	*2.1*
In case of fetal impairment	*61.5*	*26.0*	*12.5*	*62.8*	*27.7*	*9.6*	*62.1*	*26.8*	*11.1*
For women with physical/mental disabilities	*51*	*31.2*	*17.7*	*54.3*	*26.6*	*19.1*	*52.6*	*28.9*	*18.4*
For minors who are physically or psychologically unprepared to rise a child	*34.4*	*36.5*	*29.2*	*43.6*	*36.2*	*20.2*	*38.9*	*36.3*	*24.7*
She does not want the child	*14.6*	*30.2*	*55.2*	*12.8*	*28.7*	*58.5*	*13.7*	*29.5*	*56.8*
She is financially unable to support the child	*36.5*	*20.8*	*42.7*	*45.7*	*25.5*	*28.7*	*41.1*	*23.2*	*35.8*
When pregnancy is the result of extra marital	*21.9*	*18.8*	*59.4*	*29.8*	*28.7*	*41.5*	*25.8*	*23.7*	*50.5*

N.B. Totals are greater than actual size because multiple responses were possible.

5.3. Respondents attitude toward safe abortion

From the total respondents 48.4% agreed that “elective abortion should be legal and accessible under any circumstance”, 3.7% neither agreed nor disagreed and 47.9% were disagree. Of all respondents 65.3% agreed that they are more comfortable with medical abortion than with surgical abortion and about 68.8% of respondents in the nursing program and 73% of respondents in the health officers program agreed that “Graduated BSC nurses and HO should be able to provide medical abortion”. 27.1% of nurses and 28.7% of HO agree that “graduated BSC nurses and HO should be able to provide surgical abortion”. Out of all respondents 77.3% of students agreed that “every program that addresses women’s health should include abortion training” (Table 3).

Table 3: Distribution of health science students by level of agreement with statements reflecting attitude toward abortion, according to field of study in DMU, 2011 (n=190)

statement		*Nursing (n=96)*			*HO (n=94)*			*All (n=190)*			*total*
		Agree	*Uncertain*	*disagree*	*Agree*	*Uncertain*	*disagree*	*Agree*	*Uncertain*	*disagree*	
Elective abortion should be legal and accessible under any circumstances.	*No.*	*47*	*1*	*48*	*45*	*6*	*43*	*92*	*7*	*91*	*190*
	%	*49.0*	*1.0*	*50.0*	*47.9*	*6.4*	*45.8*	*48.4*	*3.7*	*47.9*	*100.0*
It's acceptable for a woman to choose abortion because of a fetal anomaly or congenital disorder.	*No.*	*54*	*8*	*34*	*56*	*6*	*32*	*110*	*14*	*66*	*190*
	%	*56.2*	*8.3*	*35.4*	*59.6*	*6.4*	*34.0*	*57.9*	*7.4*	*34.7*	*100.0*
I am more comfortable with medical abortion than with surgical abortion.	*No.*	*59*	*22*	*15*	*65*	*11*	*18*	*124*	*33*	*33*	*190*
	%	*61.5*	*22.9*	*15.6*	*69.2*	*11.7*	*19.2*	*65.3*	*17.4*	*17.4*	*100.0*
Graduated BSC nurses and HO should be able to provide medical abortion	*No.*	*62*	*16*	*18*	*69*	*5*	*20*	*131*	*21*	*38*	*190*
	%	*64.6*	*16.7*	*18.8*	*73.4*	*5.3*	*21.3*	*68.8*	*11.1*	*20.0*	*100.0*
Graduated BSC nurses and HO should be able to provide surgical abortion	*No.*	*26*	*21*	*49*	*27*	*13*	*54*	*53*	*34*	*103*	*190*
	%	*27.1*	*21.9*	*51.0*	*28.7*	*13.8*	*57.4*	*27.9*	*17.9*	*54.2*	*100.0*
Every program addressing women's health should include abortion-training	*No.*	*70*	*11*	*15*	*77*	*4*	*13*	*147*	*15*	*28*	*190*
	%	*72.9*	*11.5*	*15.6*	*81.9*	*4.3*	*13.8*	*77.3*	*7.9*	*14.7*	*100.0*

N.B. Totals are greater than actual size because multiple responses were possible.

Table 4: Distribution of respondents by level of agreement with statements reflecting intention to provide abortion services, according to field of study in DMU, 2011(N=190)

statement		*Nursing (n=96)*			*HO (94)*			*All (190)*			*Total*
		yes	*Undecided*	*No*	*yes*	*Undecided*	*No*	*yes*	*Undecided*	*No*	
I plan to incorporate medical abortion into my practice	*No.*	*47*	*9*	*40*	*53*	*11*	*30*	*100*	*20*	*70*	*190*
	%	*48.9*	*9.4*	*41.7*	*56.4*	*11.7*	*31.9*	*52.6*	*10.5*	*36.8*	*100.0*
I plan to incorporate surgical abortion into my practice.	*No.*	*35*	*17*	*44*	*38*	*10*	*46*	*73*	*27*	*90*	*190*
	%	*36.4*	*17.7*	*45.8*	*40.4*	*10.6*	*49.0*	*38.4*	*14.2*	*47.3*	*100.0*
I plan to perform abortion for my patients regardless of their reasons for terminating a pregnancy.	*No.*	*5*	*4*	*87*	*8*	*4*	*82*	*13*	*8*	*169*	*190*
	%	*5.2*	*4.2*	*90.7*	*8.6*	*4.3*	*87.2*	*6.9*	*4.2*	*88.9*	*100.0*
I would be willing to refer patients inquiring abortion to other clinics or providers, if necessary.	*No.*	*62*	*9*	*25*	*81*	*5*	*8*	*143*	*14*	*3*	*190*
	%	*64.6*	*9.4*	*26.0*	*86.2*	*5.3*	*8.5*	*75.3*	*7.4*	*17.4*	*100.0*

N.B. Totals are greater than actual size because multiple responses were possible.

5.4. Respondents intension to provide safe abortion

Out of all respondents 52.6% of students were intended to provide medical abortion, 10.5% were neither agree nor disagree and 36.6% were disagree with the statement. 38.4% intended to provide surgical abortion, 14.2% were undecided and 47% said that they would not provide this service. Large majority of respondents 89.0% reported that they were not plan to perform abortion for their patients regardless of their reason for terminating a pregnancy. Only 6.9% agree to plan and 4.2% neither disagree nor agree to plan with the statement. Of the total respondents 75.3% would refer a patient to another provider if they were unable or unwilling to provide abortion services. Only 7.4% were undecided and 17.4% were disagreed with the statement (Table 4).

Table 5: Percentage distribution of respondents among list of selected reasons for not intending to provide safe abortion care services in DMU, according to field of study, 2011

statement	Nursing (n=96)	HO (n=94)	All (n=190)
It will be outside the scope of my practice	9.4	16.0	12.6
It's against my religious beliefs	40.6	30.9	35.8
It's against my personal values	29.2	22.3	25.8
I will not have the opportunity to be trained in abortion techniques	7.3	9.6	8.4
I may be ostracized by my colleagues and/or discriminated against in my profession	5.2	1.1	3.2
I fear that either I or my family may be harassed and/or threatened by others	6.2	3.2	4.7

N.B. Totals are greater than actual size because multiple responses were possible.

Twelve and half percent of all respondents reported that they would not provide abortion services because it would be outside the scope of their practice. Thirty six percent reported that it is against their religious beliefs, 26% that it is against their personal values and 8.4% that they will not have the opportunity to be trained in abortion techniques. Small proportions of students believed that they could be ostracized or discriminated against by colleagues (3.2%), or they or their families might be harassed or threatened (4.7%) if they performed abortions (Table 5).

Table 6: Percentage distribution of respondents among list of selected reasons for intending to provide abortion services, in DMU according to field of study 2011(n=190).

statement	*Nursing N=96)*	*HO N=94*	*All N=190*
The pregnancy or childbirth is a threat to her life	*54.2*	*63.8*	*59.0*
There is a risk of congenital abnormality	*41.7*	*53.2*	*47.4*
The pregnancy or childbirth is a threat to her physical health	*35.4*	*52.1*	*43.6*
The pregnancy is the result of rape or incest	*49.0*	*61.7*	*55.3*
The pregnancy or childbirth is a threat to her mental health	*30.3*	*55.3*	*42.7*
Being unmarried would be a problem	*9.3*	*12.7*	*11.1*
She does not want the child	*4.2*	*12.7*	*8.4*
She is financially unable to support the child	*17.7*	*29.8*	*23.7*
She is too old to have the child	*4.2*	*16.0*	*10.0*
She is too young to have the child	*15.6*	*27.7*	*21.6*
Her career or education would be disrupted	*15.6*	*27.7*	*21.6*

N.B. Totals are greater than actual size because multiple responses were possible.

Regarding to reason to provide safe abortion care services, respondents indicates to give safe abortion care if the pregnancy or childbirth is a threat to her life which constitutes 59%; if there is risk of congenital abnormality constitutes 47%; if the pregnancy or child birth is a threat to her physical health constitutes 43.6%; if the pregnancy is the result of rape or incest constitutes

55.3%. In addition to this financially unable to support the child was one of the leading selected statements, which is not included from the penal code of Ethiopia; followed by she is too young to have the child and her career or education would be disrupted constitutes 23.7%, 21.6% and 21.6% respectively (Table 6).

Table 7: Distribution of students, by agreement with statements reflecting willingness to seek abortion training, according to field of study in DMU, 2011 (n=190).

statement		*Nursing*			*HO*			*All*			*total*
		yes	*Undecided*	*No*	*yes*	*Undecided*	*No*	*yes*	*Undecided*	*No*	
I am willing to attend a program that requires abortion training in the curriculum	*frequency*	*70*	*13*	*13*	*72*	*8*	*14*	*142*	*21*	*27*	*190*
	%	*72.9*	*13.5*	*13.5*	*76.6*	*8.5*	*14.9*	*74.7*	*11.1*	*14.2*	*100.0*
I am willing to take elective courses in abortion training	*frequency*	*68*	*10*	*18*	*67*	*16*	*11*	*135*	*26*	*29*	*190*
	%	*70.8*	*14.4*	*18.8*	*71.3*	*17.0*	*11.7*	*71.1*	*13.7*	*15.3*	*100.0*
I will seek a residency program or practicum site that specifically includes abortion training	*frequency*	*70*	*10*	*16*	*64*	*14*	*16*	*134*	*24*	*32*	*190*
	%	*72.9*	*10.4*	*16.7*	*68.1*	*14.9*	*17.0*	*70.5*	*12.6*	*16.8*	*100.0*

N.B. Totals are greater than actual size because multiple responses were possible.

5.5. Respondents willingness to seek abortion care training

Seventy (73%) of nurses and 72(76.6%) of HO indicated a willingness to attend a program with a curriculum that requires abortion training. Sixty eight (70.8%) of nurses and 67(71.3%) of HO were willing to take elective courses in abortion training and 70 (72.9%) of nursing students and 64(68.1%) of HO students indicated an intention to seek a residency program or practicum site that includes abortion training (Table 7).

5.6. Association of socio demographic factors with knowledge, attitude and intension toward safe abortion care service.

Out of all respondents 116 (74.8%) of males and 19 (54.3%) of females were adequate knowledge related to abortion in general. From these participants, males were more likely adequate knowledge related to abortion than females (COR= 2.5, 95% CI: 1.17-5.34). Based on year of study 60 (58.8%) of 2nd year students and 75 (85.2%) of 3rd year students were adequate knowledge related to abortion. From this figure 2nd year students were less likely adequate knowledge than 3rd year students (COR= 0.24, 95% CI: 0.11-0.53). By residence through age 15, 86 (65.2%) of respondents from rural and 49 (84.5%) of respondents from urban area were adequate knowledge related to abortion. As compared by residence through age of 15, students from rural area were less likely adequate knowledge related to abortion care service than urban area (COR=0.34, 95% CI: 0.15-0.76) (Table 8).

Table 8: Association of socio-demographic variables with selected knowledge related to safe abortion care in Debre Markose University 2011.

Variables (n=190)	*Adequate*	*Inadequate*		
	Number (%)	*Number (%)*	*Crude OR(95% CI)*	*Adjusted OR(95%CI)*
Sex				
• *Male*	*116 (74.8)*	*39 (25.2)*	*2.5 (1.17-5.34)**	*2.84(1.2-6.6))***
• *female*	*19 (54.3)*	*16 (45.7)*	*1*	*1*
Age				
• *≤ 23*	*107 (70.4)*	*45 (29.6)*	*1.18 (0.53-2.65)*	
• *> 23*	*28 (73.7)*	*10 (26.3)*	*1*	
Department				
• *Nursing*	*69 (71.9)*	*27 (28.1)*	*1.08 (0.53-2.65)*	
• *HO*	*66 (70.2)*	*28 (29.8)*	*1*	
Year of study				
• *2nd year*	*60 (58.8)*	*42 (41.2)*	*0.25 (0.12-0.5)**	*0.27 (0.12-0.5)***
• *3rd year*	*75 (85.2)*	*13 (14.8)*	*1*	*1*
Ethnic group				
• *Amhara*	*112 (70.4)*	*47(29.6)*	*1.2(0.5-2.9)*	
• *others*	*23 (74.2)*	*8 (25.8)*	*1*	
Religion				
• *Christian*	*131 (72.0)*	*51 (28.0)*	*0.39 (0.94-1.6)*	
• *Muslim*	*4 (50.0)*	*4 (50.0)*	*1*	
Residence through age 15				
• *Rural*	*86 (65.2)*	*46 (34.8)*	*0.34 (0.15-0.7)**	*0.39 (0.14-0.8)***
• *Urban*	*49 (84.5)*	*9 (15.5)*	*1*	*1*
Personal belief concerning abortion				
• *Pro-choice*	*75 (74.3)*	*26 (25.7)*	*1.4 (0.72-2.7)*	
• *undecided*	*11 (68.8)*	*5 (31.2)*	*1.1 (0.34-3.45)*	
• *Pro-life*	*49 (32.9)*	*24 (67.1)*	*1*	

* *Statistically significant* at P< 0.05.

*** Adjusted for sex, year of study, and residence through age 15 variables.*

The study participants were asked about attitude of safe abortion care service. Of all 77 (50.7%) of age ≤ 23 and 27 (71.1%) of age > 23 were positive attitude toward safe abortion care services. As compared by age, >23 were more likely positive attitude toward safe abortion care services than age of ≤ 23 (COR=2.39, 95% CI: 1.10-5.16). Out of respondents 39 (38.2) of 2nd year student and 65 (73.9%) of 3rd year students were positive attitude toward safe abortion care service. From these, 2nd year students were less likely positive attitude toward safe abortion care services than year 3 students (COR= 0.22, 95% CI: 0.12-0.40).

By personal beliefs concerning abortion, 77 (76.2%) of pro-choice, 12 (75%) of undecided and 15 (20.5%) of pro- life were positive attitude toward safe abortion care services. Pro-choices were more likely positive attitude toward safe abortion care services than pro-life (COR=12.4, 95% CI: 5.9-25.73) in addition to this undecided to personal beliefs concerning abortion were more likely positive attitude toward safe abortion care services than pro-life (COR=11.6, 95% CI: 3.27-41.14) (Table 9).

Table9: Association of socio-demographic variables with attitude of health science students toward safe abortion care in Debre Markose University, 2011.

Variables (n=190)	*Positive*	*Negative*		
			Crude	*Adjusted*
	Number (%)	*Number (%)*	*OR(95% CI)*	*OR(95%CI)*
Sex				
• *Male*	*89(57.4)*	*66(42.6)*	*1.8(0.85-3.77)*	
• *female*	*15(42.9)*	*20(57.1)*	*1*	
Age				
• *≤ 23*	*77(50.7)*	*75(49.3)*	*2.39(1.1-5.16)**	*1.87(0.73-4.8)*
• *> 23*	*27(71.1)*	*11(28.9)*	*1*	*1*
Department				
• *Nursing*	*48(50.0)*	*48(50.0)*	*0.68(0.38-1.2)*	
• *HO*	*56(59.6)*	*38(4o.4)*	*1*	
Year of study				
• *2nd year*	*39(38.2)*	*63(61.8)*	*0.22(0.12-0.4)**	*0.18(0.08-0.41)***
• *3rd year*	*65(73.9)*	*23(26.1)*	*1*	*1*
Ethnic group				
• *Amhara*	*81(50.9)*	*78(49.1)*	*2.77(1.17-6.56)**	*0.97(0.33-2.83)*
• *Others*	*23(74.2)*	*8(25.8)*	*1*	*1*
Religion				
• *Christian*	*98(53.8)*	*84(46.2)*	*2.57(0.5-13.1)*	
• *Muslim*	*6(75.0)*	*2(25.0)*	*1*	
Residence through age 15				
• *Rural*	*68(51.5)*	*64(48.5)*	*0.65(0.34-1.22)*	
• *Urban*	*36(62.1)*	*22(37.9)*	*1*	
Personal belief to abortion				
• *Pro-choice*	*77(76.2)*	*24(23.8)*	*12.4(5.9-25.7)**	*14.0(6.1-32.0)***
• *undecided*	*12(75.0)*	*4(25.0)*	*11.6(3.3-41.1)**	*11.9(3.0-47.5)***
• *Pro-life*	*15(20.5)*	*58(79.5)*	*1*	*1*

* Statistically significant at $P< 0.05$.

** Adjusted for *age, year of study, e*thnic group *and* Personal belief concerning abortion.

Table10: Association of socio-demographic variables with intension of health science students toward safe abortion care services in Debre Markose University 2011.

Variables (n=190)	*Yes*	*No*		
	Number (%)	*Number (%)*	*Crude OR(95% CI)*	*Adjusted OR(95%CI)*
Sex				
• *Male*	*96(61.9)*	*59(38.1)*	*2.75(1.3-5.9)**	*1.9(0.70-5.18)*
• *female*	*13(37.1)*	*22(62.9)*	*1*	*1*
Age				
• *≤ 23*	*83(54.6)*	*69(45.4)*	*1.8(0.85-3.83)*	
• *> 23*	*26(68.4)*	*12(31.6)*	*1*	
Department				
• *Nursing*	*49(51.0)*	*47(49.0)*	*0.59(0.33-1.06)*	
• *HO*	*60(63.8)*	*34(36.2)*	*1*	
Year of study				
• *2nd year*	*48(47.1)*	*54(52.9)*	*0.39(0.22-0.75)**	*0.41(0.19-0.9)***
• *3rd year*	*61(69.3)*	*27(30.7)*	*1*	*1*
Ethnic group				
• *Amhara*	*85(53.5)*	*74(46.5)*	*0.41(0.141-1.2)*	
• *Oromo*	*9(90.0)*	*1(10.0)*	*3.21(0.32-32.2)*	
• *Others*	*14(73.7)*	*5(26.3)*	*1*	
Residence through age 15				
• *Rural*	*69(52.3)*	*63(47.7)*	*0.5 (0.25-0.94)**	*0.51(0.22-1.22)*
• *Urban*	*40(69.0)*	*18(31.0)*	*1*	
Personal belief to abortion				
• *Pro-choice*	*85(84.2)*	*16(15.8)*	*25(11.0-54.7)**	*22.4(9.7-51.4)***
• *undecided*	*11(68.8)*	*5(31.2)*	*10.1 (3.0-34.23)**	*9.0(2.5-32.3)***
• *Pro-life*	*13(17.8)*	*60(82.2)*	*1*	*1*

* *Statistically significant* at P< 0.05.

*** Adjusted for sex, year of study, residence through age of 15 and Personal belief concerning abortion.*

As shown in table 10, of all respondents 96 (61.9%) of male student and 13 (37.1%) of female students were intension to provide safe abortion services. As compared by sex, male students were more likely positive intension to provide safe abortion care services than female students (COR=2.75, 95% CI: 1.29-5.87).

By year of studies, 54 (52.9%) of 2nd year students and 27 (30.7%) of 3rd year students were no intension to provide safe abortion care services. As compared in year of study, 2nd year students were less likely positive intension to provide safe abortion care services than 3rd year students (COR= 0.4, 95% CI: 0.22-0.71).

By residence through age 15, sixty nine (52.3 %) of students from rural area and 40 (69.0%) of urban area were having intension to provide safe abortion care services. As compared by residence through age 15, students from rural area were less likely having intension to provide safe abortion care services than students from urban area (COR=0.5, 95% CI: 0.26-0.94).

By personal beliefs concerning abortion, 84.2% of pro-choices, 68.8% of undecided and 17.8% of pro-life were having intension to provide safe abortion care services. Study participants who report pro-choice and undecided were more likely having intension to provide safe abortion care service than who said pro-life (COR= 25, 95% CI: 11.0-54.73) and (COR= 10.15, 95% CI: 3.01-34.23) respectively (Table 10).

6. DISCUSSION

To our Knowledge, this study is the first of its kind to compare knowledge, attitude and intension of health science students toward safe abortion provision in our country. Unsafe abortion is one of the four major causes for maternal morbidity and mortality in Ethiopia (**21**). In this study out of the total respondents, 27(14.2%) of them indicated that they are "uncertain" or "no" about unsafe abortion is a major health problem. This is lower than the finding from Addis Ababa study 26% (**23**). The higher understanding of unsafe abortion is a major health problem in this study would have been due to the least knowledgeable 1st year students were parts of study participant in Addis Ababa but not in our study. It is fact that as the year of study increases the level of knowledge of students also increased (**23**).

Of all respondents in this study 179(94.2%) of them knows about complication of abortion, which was slightly lower than the study conducted in KAP of health workers in Ethiopia which was 98% (**22**). This might have been due to the study samples in this study were students but the study samples in Addis Ababa were practical health workers so that the experienced health workers to be expected to have higher knowledge than none experienced students.

Dissemination of information about the new abortion law has been weak, and many within the health care system as well as the general population have limited knowledge about the issue (**1, 2, 4**). With regarding to knowledge of Ethiopia has abortion law, the response rate of uncertain or no was lower (19.4%) when compared to the result of a study in Addis Ababa that reported 39% (**23**). The higher response rate of knowing that Ethiopia has abortion law in this study would have been the higher level 2nd and 3rd year student were only parts of the study participant

in this study but the least knowledgeable 1st year student were parts of study participant in Addis Ababa.

From the total respondents only 13.2% correctly indicated for what reason is abortion is legal in Ethiopia context (penal code). These results also consistent with Addis Ababa study which was 13.3% (**23**). The two studies suggest that the participants were relatively better knowledge related to unsafe abortion has a major health problem, complication of abortion and there is abortion law in Ethiopia; but there is least knowledge on stating the issue of the newly revised abortion law (penal code) of Ethiopia.

One study in Mekele claimed that male students were more likely adequate knowledge related abortion than females and the reason he suggested that, because males were more access to different mass media and more information about the problem than females (**11**). This finding also supported by the current study which had shown that 74.8% of male students and 54.3% of females students were adequate knowledge to abortion and from this study finding the odds of male students were 2.5 times more likely adequate knowledge than females (COR=2.5, 95% CI: 1.17-5.34).

By year of study versus knowledge related to abortion, the odds of 2nd year students were 0.24 times less likely adequate knowledge than 3rd year students (COR= 0.24, 95% CI: 0.11-0.53). This finding is also supported by a study done in Addis Ababa which had shown that knowledge increases with stay duration in the university (**23**).

Concerning attitude toward safe abortion care about 48.4 % of all respondents have positive attitude to elective abortion to be legal and accessible under any circumstance which was lower than that of the study conducted in university of Washington which was 69.8%. Out of all respondents in this study, 110 (57.9%) agreed that it is acceptable for a woman to choose abortion because of a fetal anomaly or congenital disorder which was lower than in university of Washington 72.8% (**18**). This difference might have been due to the nationality legalization of abortion, the participant back ground, personal beliefs and others factors that are seen between developed country & developing country.

Of all, 65.3% of respondents in this study were more comfortable with medical abortion than with surgical abortion which was higher than university of Washington 35.1%. Of all respondents 68.8% in this study should able to provide medical abortion and 27.9% should able to provide surgical abortion which was 36.6% and 64.7% respectively in university of Washington (**18**). The respondents' attitude more to provide medical abortion than surgical abortion in this study might have been our study participant perception that medical abortion requires less complicated clinical training than surgical abortion and may be considering surgical abortion is outside the scope of their practice. 77% of all respondents in this study believed that abortion training should be a standard part of women's health training, which is a higher than study in the University of Washington 64.7% (**18**). This might have been due to a higher rate of unsafe abortion & a major health problem in our country.

Among the study participants in this study, 50.7% of age ≤ 23 and 71.1% of age > 23 were positive attitude toward safe abortion care services in general. In association of sex with attitude,

the odds of age >23 were 2.4 times more likely positive attitude toward safe abortion care services than age of ≤ 23 (COR=2.39, 95% CI: 1.10-5.16). This finding is also supported by study conducted in USA (**17**) which suggested that older students were more pro-choice than younger students.

Thirty eight percent of 2nd year student and 73.9% of 3rd year students were positive attitude toward safe abortion care service. 2nd year students were less likely positive attitude toward safe abortion care services than year 3 students (COR= 0.22, 95% CI: 0.12-0.40). From this result, year of study and attitude toward safe abortion care service are significant association with each other.

Based on personal beliefs concerning abortion, 76.2% of this study were pro-choice, 75% of undecided and 20.5% of pro- life were positive attitude toward safe abortion care services. Pro-choices were 12.4 times more likely positive attitude toward safe abortion care services than pro-life (COR=12.4, 95% CI: 5.9-25.73). The odds of Undecided to personal beliefs concerning abortion were 11.6 times more likely positive attitude toward safe abortion care services than pro-life (COR=11.6, 95% CI: 3.27-41.14). This finding also supported by the study conducted in South Africa and USA (**17, 18**).

Intension to provide safe abortion care service will have direct connection with attitude toward safe abortion care services. Out of the total respondents in this study 52.6% were intended to provide medical abortion and 38.4% intended to provide surgical abortion. This is higher than the study conducted in university of Washington which is 31.2% and 18% respectively (**18**). More intension to provide medical abortion and surgical abortion in this study might have been

the perception of students considering that higher magnitude of the problem of unsafe abortion in our country and the need of safe abortion care providers to solve maternal morbidity and mortality from unsafe abortion.

Among different reason for not providing safe abortion care services, it is because of religious belief and it is against personal values indicates 35.8% and 25.8%. Only small proportions of survey respondents believed that they or their family would be harassed, or they might be discriminated against by colleagues which account 3.2% and 4.7% respectively. This finding is also supported by study conducted in USA which is 24 % reported that it is against their religious beliefs, 31% that it is against their personal values and Small proportions of students believed that they could be ostracized or discriminated against by colleagues (1%), or they or their families might be harassed or threatened (5%) if they performed abortions (**18**).

In this study, 61.9% of male student and 37.1% of female students had intension to provide safe abortion care services. As compared association of sex with intension, the odds of male students were 2.75 times more likely positive intension to provide safe abortion care services than female students (COR=2.75, 95% CI: 1.29-5.87). This finding also supported by the study conducted in USA and reported that females were less likely to endorse abortion than males on intension (**17**). We saw that male students were positive attitude toward safe abortion care services than females and the direct effect of attitude on intension in this study also clearly observed.

By year of studies, 52.9% of 2nd year students and 30.7% of 3rd year students were no intension to provide safe abortion care services. In association of year of studies with intension to provide safe abortion, 2nd year students were less likely positive intension to provide safe abortion care services than 3rd year students (COR= 0.4, 95% CI: 0.22-0.71). Like association of attitude with

year of study, there is also association of intension with year of study to provide safe abortion care services. This could be as the year of study increases, the level of knowledge also increases, and indirectly the negative attitude toward safe abortion care decrease as a result intension to provide safe abortion care service will be increased.

Majority of students in this study indicated that, they were willingness to seek abortion care training. 75% of all respondents were willingness to attend a program that requires abortion care training in the curriculum; 71% indicated that they were willingness to take abortion care training and 70.5% indicated that they were willing to seek a residency program or practicum site that specifically includes abortion care training. As compared with other study in university of Washington, respondents' willingness to attend a program that requires abortion care training in the curriculum constitutes 64%; willingness to take abortion care training constitutes 55 % and willing to seek a residency program or practicum site that specifically includes abortion care training constitutes 24% (**18**). In every statement our study participants were better willingness to seek abortion care training than university of Washington. The higher willingness to seek abortion care training in this study would be due to the high prevalence of unsafe abortion in our country so that higher willingness to take abortion care training would be expected. In both studies among different sites for abortion care training, students prefer to attend a program that requires abortion care training in the curriculum. This would be due to training in the curriculum would be convenient, less economical and attain large number trainers at a time.

7. STRENGTH AND LIMITATION OF THE STUDY

7.1. Strength of the study

- The sample is representative.
- Since there is no similar published study conducted in our country, it can contribute a lot as baseline information for future studies.

7.2. Limitation of the study

- Lack of similar studies especially in Ethiopia made difficult in comparing results.
- No qualitative study was conducted in this study.

8. CONCLUSION

- This study shows that the majority of health science students have adequate knowledge on that unsafe abortion is a major health problem, knowledge on complication of abortion and Ethiopia has abortion law, with one exception majority of students could not indicated the issue in the penal code of Ethiopia correctly.
- More than half of students in the study area have positive attitudes toward safe abortion care services. With one exception, students have negative attitude on BSc nurses and HO to be able to provide surgical abortion.
- Almost half of the respondents in this study have intension to provide safe abortion care services.
- Among different reasons not to provide safe abortion care services religious beliefs and personal value to abortions are the commonest statements which are indicated by respondents of this study.
- Increased in the level of knowledge related to maternal health problems including unsafe abortion will bring change in negative attitude toward safe abortion care services as a result intension to provide safe abortion care service will be increased.
- Very surprisingly majority of students in this study have willingness to seek abortion care training.
- Sex, residence through age of 15 & year of study are likely to influence knowledge related to safe abortion care services. Age, year of study and personal beliefs concerning abortion has significant association with attitude toward safe abortion care services. Also sex, year of study, residence through of age 15 and personal belief concerning abortion have significance association with intension to provide safe abortion care services.

9. RECOMMENDATION

Based on this study result I would like to recommend and forwarded for policy makers specially for ministry of health, Academic institution, National & international nongovernmental organization and others who are working to improve awareness and access to safe abortion services and dedicated to resolve death of mothers from unsafe abortion.

- Future health care providers must get adequate information on the revised penal code at every circumstance.
- Although it may not be possible or desirable to require abortion training for every future health care provider separately, making safe abortion care training a standard part of the curriculum will open avenues for both future nurses and health officer who are in favor of providing safe abortion care services. More important, expanding abortion training in the allied health professions will likely alleviate the abortion provider shortage throughout Ethiopia.
- The curriculum needs to be considered due attention in relation to the major health problems of our country such as reproductive health problems.

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ANNEXES

ANNEX 1

Addis Ababa University College of Health Sciences

Department Of Nursing and Midwifery

Consent form

In signing this document, I am giving my consent to participate in the study entitled "Assessment of Knowledge, attitude and intension of health science students toward safe abortion provision in Debre Markose University.

I have been informed that the purpose of this particular research project is to assess knowledge, attitude toward abortion and intensions to provide safe abortion provision of health science student. I have been informed that I am going to respond to this question by answering what I know concerning the issue. I am also informed that the information I give will be used only for the purpose of this study; my identity, the information I give will be treated confidentially. I have also been informed that I can refuse to participate in the study or not to respond to questions if I am not interested. Furthermore I have been informed that I can stop responding to the questions at any time in the process and also informed that my participation or nonparticipation or refusal to answer questions will not have any effect on my education. I also informed that no monetary incentives will be given for my participation in the study. I also informed that my response will be used to develop strategies that help to improve maternal morbidity and maternal mortality rate from unsafe abortion complication.

I understand that the results of this research will be given to me if I ask for them and Tarekegn Asmamaw is the contact person. If I want to complain about my rights as a study participant I can call AAU Faculty of Medicine Institution Review Board Office (IRB) with the Tel. No. 011-553-87-34.

Email:aaumf:rb@yahoo.com

Tarekegn can be reached through a call at 09-11-703973

Are you willing to participate?

YES ______________________ NO ________________

Signature: _____________________ Date: ________________________

Thank you

Annex 2 Questionnaire

Section – one: Demographic information

Please, carefully read the following about your demographic status and circle the number which best describe your demographic information.

No	Questions	Coding categories	code
1	Sex	1. Male 2. Female	
2	Age	______________	
3	Department	1. Nursing Year…………….. 2. HO Year…………….	
4	Ethnic group	1. Amhara 2. Oromo 3.Tigirie 4.Gurage 4. Other specify_____________	
5	Religion	1. Orthodox 2. Muslim 3. Protestant 4. Catholic 5. other specify _____________	
6	Residence through age of 15	1. Rural 2. Urban 3. Other specify _____________	
7	Personal beliefs concerning abortion	1. Strongly pro-choice 2. Moderately pro-choice 3. Undecided 4. Moderately pro-life 5. Strongly pro-life	

Section two: students Knowledge related to magnitude, law, complication of abortion

Please, carefully read the following about your knowledge status and circle the number which best describe your background information.

No	Questions	yes	Uncertain	No
1	Unsafe abortion is one of the major health problems in our country.			
2	Knowledge about complication of abortion			
2.1	Uterine perforation			
2.2	Bleeding			
2.3	Infection			
2.4	Loss of fertility			
2.5	Death			
3	Ethiopia has abortion law			
4	For what reason is abortion is legal in Ethiopia context			
4.1	Not allowed for any reason			
4.2	Rape or incest			
4.3	If pregnancy endangers the health or life of the woman or fetus			
4.4	In case of fetal impairment			
4.5	For women with physical/mental disabilities			
4.6	For minors who are physically or psychologically unprepared to rise a child			
4.7	She does not want the child			
4.8	She is financially unable to support the child			
4.9	When pregnancy is the result of extra marital			

Section three: student's attitude toward abortion

Please read statement below and decide by level of agreement with statements reflecting general attitudes toward abortion. For each statement circle the numbers which best describe your feeling.

No	Questions	Strongly disagree	disagree	uncertain	agree	Strongly agree
1	Elective abortion should be legal and accessible under any circumstances.					
2	It's acceptable for a woman to choose abortion because of a fetal anomaly or congenital disorder.					
3	I am more comfortable with medical abortion than with surgical abortion.					
4	Graduated BSC nurses and Ho should be able to provide medical abortion.					
5	Graduated BSC nurses and HO should be able to provide surgical abortion					
6	Every program addressing women's health should include abortion care-training					

Section four: intension to provide safe abortion

Please read statement below and decide by level of agreement with statements reflecting your intension toward abortion provision after graduation. For each statement circle the numbers which best describe your feeling.

No	Questions	Strongly disagree	disagree	uncertain	agree	Strongly agree
1	I plan to incorporate medical abortion into my practice					
2	I plan to incorporate surgical abortion into my practice.					
3	I plan to perform abortion for my patients regardless of their reasons for terminating a pregnancy.					
4	I would be willing to refer patients inquiring about an abortion to other clinics or providers, if necessary.					

Section five: reason for not providing

Read the statement below and decide your reason for not intended abortion services. For each question, please choose one number which best describes your feeling.

No	Questions	yes	undecided	no
1	It will be outside the scope of my practice			
2	It's against my religious beliefs			
3	It's against my personal values			
4	I will not have the opportunity to be trained in abortion techniques			
5	I may be ostracized by my colleagues and/ or discriminated against in my profession			
6	I fear that either I or my family may be harassed and/or threatened by others			

Section six: Reason for intension to provide abortion services

Read the statement below and decide your reason for intension to provide abortion services after graduation. For each question there are five level of agreement choices, choose one number which best describes your feeling.

No	Questions	Strongly disagree	disagree	uncertain	agree	Strongly agree
1	The pregnancy or childbirth is a threat to her life					
2	There is a risk of congenital abnormality					
3	The pregnancy or childbirth is a threat to her physical health					
4	The pregnancy is the result of rape or incest					
5	The pregnancy or childbirth is a threat to her mental health					
6	Being unmarried would be a problem					
7	She does not want the child					
8	She is financially unable to support the child					
9	She is too old to have the child					
10	She is too young to have the child					
11	Her career or education would be disrupted					

Section seven: willingness to seek abortion care training

Read the statement below and decide your willingness to seek abortion training. For each question there are five level of agreement choices, choose one number which best describes your feeling.

No	statements	Yes	Undecided	No
1	I am willing to attend a program that requires abortion care training in the curriculum			
2	I am willing to take elective courses in abortion care training			
3	I will seek a residency program or practicum site that specifically includes abortion care training			

DECLARATION

I, the undersigned, this thesis is my original work, has not been presented for a degree in any other university and that all sources of materials used in this theses have been duly acknowledged.

Name: Tarekegn Asmamaw

Signature: _________________ **Date:** ____________________

Place of submission: College of Health Sciences, Department of Nursing and Midwifery, University of Addis Ababa.

Date of submission: _____________________

This theses work has been submitted for examination with my approval as university advisor.

Name: Sr. Yeshi Assefa (RN, BSc, MSN)

Signature: _______________ **Date:** _________________