ASSESSMENT OF KNOWLEDGE, ATTITUDE, AND PRACTICE AND ASSOCIATED FACTORS OF OBGYN RESIDENTS, AND OBSTETRICIANS & GYNECOLOGISTS IN TIKUR ANBESSA SPECIALIZED HOSPITAL (TASH), AND SAINT PAUL HOSPITAL MILLENIUM MEDICAL COLLEGE (SPHMMC) TOWARDS PROVISION OF SAFE ABORTION CARE ADDIS ABABA, ETHIOPIA.

A THESIS SUBMITTED TO ADDIS ABEBA UNIVERSITY COLLAGE OF HEALTH SCIENCES DEPARTMENT OF OBSTETRICS AND GYNECOLOGY FOR THE PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR SPECIALIZATION IN OBSTETRICS AND GYNECOLOGY

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COLLEGE OF HEALTH SCIENCES, SCHOOL OF MEDICINE, DEPARTMENT OF OBSTETRICS AND GYNECOLOGY, POSTGRADUATE PROGRAM

I am Dr. Mekonnen Mengistu, hereby declare that this thesis entitled "assessment of knowledge, attitude, and practice, and associated factors of OBGYN residents, and obstetricians & gynecologists in Tikur Anbessa specialized hospital (TASH), and saint Paul hospital millennium medical college (SPHMMC) towards provision of safe abortion care, Addis Ababa, Ethiopia" in line with the requirement of graduate studies fully undertaken by me under the guidance of my advisors. I have, to the best of my knowledge and effort, avoided plagiarism or duplication of materials unless and otherwise cited and/or acknowledged and that it has not been so far submitted for any form of publication or consideration before the final approval.

Mekonnen Mengistu (MD) _____ _____

Principal investigator Signature Date

We hereby certify that we have read and evaluated this research thesis relating to " assessment of knowledge, attitude and practice, and associated factors of OBGYN residents, and obstetricians & gynecologists in Tikur Anbessa specialized hospital (TASH) and saint Paul hospital millennium medical college (SPHMMC) towards provision of safe abortion care, Addis Ababa, Ethiopia" under our guidance from its inception up to in its current format and that it can be submitted for final approval in partial fulfillment to the certificate of Specialty in Obstetrics and Gynecology.

_____ _____ _____

1. Advisor Signature Date

_____ _____ _____

2. Advisor Signature Date

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Abbreviations and acronyms

AAU	Addis Ababa University
D &C	Dilatation and curettage
D & E	Dilatation and Evacuation
DRPC	Department of Research and Publication Committee
FMOH	Federal Minster of Health
IUD	Intrauterine device
KAP	Knowledge, Attitude and Practice
LMP	Last Menstrual Period
MVA	Manual Vacuum Aspiration
OBGYN	Obstetrics & Gynecology
OCP	Oral contraceptive Pill
RI	Year I Resident
RII	Year II Resident
RIII	Year III Resident
RIV	Year IV Resident
SAC	Safe Abortion Care
SSA	Sub-Saharan Africa
SPHMMC	Saint Paul Hospital Millennium Medical College
TASH	Tikur Anbessa Specialized Hospital
WHO	World Health Organization

Abstract

Introduction: The demand for sexual and reproductive health services and education for women over the globe has increased gradually. Studies show that, 99 % maternal deaths recorded in middle, low-income countries are die due to birth, and pregnancy related complications. Abortion is one of the leading causes of maternal death. Unsafe abortion accounts for at least 13% of global maternal mortality and 95% of unsafe abortions occur in developing countries where abortion is restricted by laws.

Objective: To assess knowledge, attitude and practice, and associated factors towards safe abortion provision among residents, and Obstetricians & Gynecologists in Tikur Anbessa Specialized Hospital and Saint Paul Hospital Millennium Medical College.

Method: Cross sectional survey used from March to June, 2021 and using proportional simple random sampling with sample size of 174 (seniors n= 32 and residents, n=142) at Tikur Anbessa Specialized Hospital & Saint Paul Hospital Millennium Medical College Obstetrics & Gynecology residents who were attending their specialty programs and Gynecologists & Obstetricians working in both hospitals. Data collected via self-administered questionnaires with closed ended questions from study participants. Data entered and analyzed by SPSS Version 20. Descriptive frequency & analysis used for socio-demographic characteristics. Binary and multivariable logistic regression analysis conducted to identify associated factors. P-value <0.05, 95% confidence level were used to declare statistical significance.

Result: The prevalence of good knowledge on safe abortion care was 56.6% and using subgroup analysis 54.2% of residents and 67.8% seniors had good knowledge. Accordingly, the odds ratio OBGYN seniors had much knowledgeable than year one residents. [AOR=4.6 (1.35, 16.56, P<0.05)]. Participants having good practice on safe abortion care had favorable attitude than those who had poor practice on safe abortion care [AOR=4.3 (2.19, 8.37)]. Male had good practice towards safe abortion 2.5times than females (AOR = 2.5, CI = 1.08, 5.62). Providers who had favorable attitude towards safe abortion had a better practice on SAC (AOR= 4.7, 2.27, 9.79). Ninety-four point eight percent (94.83%) were providing post abortion family planning; Implanon was the most common (86.1%).

Conclusion: In this, study the overall good knowledge, favorable attitude and good practice of physicians on safe abortion care provision were 56.6%, 57.2% and 54% respectively. Level of education affects knowledge score. Male had good practice towards safe abortion. Had a good

practice on safe abortion care had significantly influenced providers' attitude, towards favorable attitude than those who have poor practice. Based on the study the overall knowledge, attitude and practice score was lower and works to be done to improve residents' knowledge on safe abortion care through onsite or induction training at the beginning of residency program.

Keywords: Safe abortion, Practice, OBGYN resident, Obstetrician &Gynecologist

1. Introduction

1.1 Background

The demand for sexual and reproductive health services and education for women over the globe has increased gradually. Many of the women die due to birth and pregnancy related complications, studies show that, 99 % maternal deaths are recorded in middle and low-income countries (1). One of the leading causes is abortion, which defined as an act of terminating unwanted pregnancy. It is either spontaneous or induced, which may be safe or unsafe(2). In earlier times, the lack of advances in medical practice and effective technologies has caused large number of unsafe abortions in women's lives. It may cause serious consequences and complications. Unsafe abortion remains a major public health problem in developing countries. Unsafe abortion accounts for at least 13% of global maternal mortality and 95% of unsafe abortions occur in developing countries where abortion is restricted by laws(3). Safe Abortion care is a comprehensive termination of pregnancy that offered to clients as permitted by the Ethiopian abortion law. Ethiopian safe abortion services guideline states under article 551 of the penal code permits termination of pregnancy under the following circumstance: (a) the pregnancy is a result of rape or incest (b) the continuation of the pregnancy endangers the life of the mother (c) the fetus has major congenital anomalies (d) the pregnant woman has a physical or mental deficiency.(4)

Despite advances, 22 million unsafe abortions are reported each year across the globe(5). Globally, 25% of all pregnancies ended in abortion in 2010–2014. Between 1990–1994 and 2010–2014, the proportion of pregnancies ending in abortion fell from 39% to 27% in developed countries, while it rose from 21% to 24% in developing countries(6). Over the past two decades, in almost all developed countries, safe abortion services are available and easily accessible upon request. The high prevalence of unsafe abortion among women, healthcare professionals, including physicians, nurses and woman health workers need to pay more attention. They, being the front line care providers, may be the ones who could be able to identify incorrect practices, assess women's condition and be sensitive to their concerns. Therefore, it is important that healthcare personnel have the knowledge and skills to provide safe and competent care(7).

*1.*2 Statement of problem:

History shows that abortion had practiced in all cultural settings, including primitive tribal societies, and that no law, however restrictive, has succeeded in preventing unsafe abortion. As long as there are unwanted pregnancies, induced abortion will be a fact. It has been observe that the rate at which women seek abortion is similar in developed and developing countries. Thus, contrary to common belief, legalizing abortion does not necessarily increase the rates of induced abortion. Rather, it is associated with a reduction in rates of unsafe abortions and attendant maternal morbidity and mortality(8).

According to World Health Organization (WHO), unsafe abortion defines as a procedure for terminating a pregnancy performed by persons lacking the necessary skills or in an environment not in conformity with minimal medical standards, or both(2). Safe Abortion care is a comprehensive termination of pregnancy that offered to clients as permitted by the law by the trained competent providers with up-to-date clinical technologies and clean environment(9). Globally, each year an estimated 36 million to 53 million abortions performed. Worldwide, 210 million women become pregnant each year. Of these, 80 million pregnancies are unplanned. Out of these, 46 million pregnancies are terminated each year, and 19 million end in unsafe abortion(10). More than 97% of unsafe abortions take place in developing countries. Globally, unsafe abortion increased from 44% in 1995 to 49% in 2008. In 2012, the WHO estimates that one in ten pregnancies end up with unsafe abortion, giving one unsafe abortion to seven live births ratio. Likewise, 68,000 women die due to unsafe abortion each year, and the risk of maternal death is high in developing countries (1 in 270 unsafe abortion) (10, 11).

The proportion of unsafe abortions was significantly higher in developing countries than developed countries (49.5% *vs* 12.5%). As WHO (2017) estimated that up to 25.1 million (45.1%) abortion done in unsafe circumstances each year. When grouped by the legal status of abortion, the proportion of unsafe abortions was significantly higher in countries with highly restrictive abortion laws than in those with less restrictive laws (4, 5, 7). Data illustrate how unsafe abortion is consistently higher in places with restrictive abortion laws, reaffirming that women who experience unplanned pregnancies are highly likely to have an abortion regardless of the legal status in their country(12)

Similar to most developing countries, the primary causes of maternal death in Ethiopia include unsafe abortion, hemorrhage, sepsis, obstructed pregnancy, and hypertensive disorders. In 2008, WHO estimated that 18% of maternal deaths in East Africa as compared to, 13% globally caused by unsafe abortion. Unsafe abortion remains a reality for many Ethiopian women and will remain so until safe abortion is more accessible across the country. An estimated number of 382,500 induced abortions were performed in Ethiopia, among induced abortion, only 27% of abortions (some 103,000 abortions) had safe procedures performed in health facilities (10,11). Unsafe abortion was the highest contributor to maternal death in Ethiopia between 1980 and 1999, accounting for approximately a third of maternal mortality, but it has declined substantially since to about 10% in 2014 (13). Such a decline in the contribution of unsafe abortion to global maternal mortality has been evidenced by a recent WHO systematic analysis, the contribution of unsafe abortion to maternal mortality was 10% in SSA as compared to 7.9% worldwide (14).

To reduce deaths and disabilities from unsafe abortion, the Ethiopian Parliament liberalized its abortion law in 2005 to allow safe abortion under certain conditions. Prior to reform, abortion prohibited except in cases where the pregnant woman was in grave or imminent danger. Since 2005, abortion is permitted in the following cases rape or incest, when the pregnancy endangers the woman's life or health, fetal abnormalities, if the woman is physically or mentally disabled, and if the woman is physically or psychologically unprepared to raise a child due to young age(15). Different studies show that the knowledge and practice in relation to safe abortion are limited among women. According to the world health organization (WHO) complication arising from illegal abortion are the second and leading causes of death for young women in Ethiopia(17).

The health risks of abortion depend on whether the procedure being performed safely or unsafely. According to WHO, unsafe abortion remains one of the four leading causes of pregnancy-related deaths, disabilities and injuries around the world, along with hemorrhage, infection and high blood pressure in connection with childbirth(17). WHO defines an unsafe abortion is the termination of a pregnancy by people lacking the necessary skills, or in an environment lacking minimal medical standards or both. When qualified people using correct techniques in sanitary conditions perform abortion, it is very safe(18).

1.3 Significance of the study

Assessment of knowledge, attitude and Practice (KAP) and associated factors of Obstetrics & Gynecology residents and Obstetricians & Gynecologists towards safe abortion provision assessment are important to identify area for improvement and encourage better communication with clients who need safe abortion services. Assessing the KAP and associated factors of OBGYN residents and Obstetricians & Gynecologists on safe abortion provision is important to cut maternal morbidity and mortality especially by doing on the gap of the finding. This study designed with the specific focus of assessing KAP and associated factors of residents and Obstetricians & Gynecologists on safe abortion. The finding of this study would be important to guide public health planners and implementers in planning and designing appropriate intervention strategies to fulfill future gaps so. The findings of this study would help to guide safe abortion care physicians and other concerned stakeholders to work more towards alleviating the problem. In addition, it may be use as baseline data for other researchers who are interested in this area, help to consider the curriculum revision to the safe abortion issues, particularly in the OBGYN department. Besides these, the study can give information for clinical policymakers about the overall situation, and give attention to the development of guidelines material for residency program and training at national level.

2. Review of literature

2.1 Knowledge about abortion techniques:

A survey conducted on Peruvian Obstetrician & Gynecologist on safe abortion knowledge in Peru, most physicians were familiar with surgical techniques for managing incomplete abortions, with 97% expressing awareness of the use of dilation and curettage (D&C) and 94% familiar with MVA. A substantially smaller percentage (71%) knew that misoprostol or other prostaglandins to treat incomplete abortions. Knowledge was overall lower for both surgical and medical techniques for inducing abortion, 79% were aware that D&C or MVA could be used, and 77% were familiar with the use of prostaglandins to induce abortion(19).

Survey conducted at Komfo Anokye teaching hospital, Ghana, in August 2003 using self-administered questionnaires. A total of 180, 74 randomly selected physician had about knowledge of safe abortion or termination of pregnancy offer to save lives and to keep the physical, and mental health of the woman 40 (54%) to save the life of the woman only 26 (35%) permitted on socio-economic or social grounds 6 (8%) strictly illegal 2 (3%) (7). A study conducted at Asella referral hospital, Ethiopia, April 2017, health workers were asked to define abortion, and 154 (83.2%) were reported that abortion is the termination of pregnancy to be less than 28 weeks from LNMP, while 27 (14.6%), and 4 (2.2%) were reported Abortion is the termination of pregnancy to be less than 20 weeks from LNMP. It is the termination of pregnancy to be less than 24 weeks from LNMP` respectively. Among study participants almost all, 180 (97.3%) were reported places to terminate a pregnancy should be equipped with health facilities with trained health workers(1).

Facility-based descriptive cross-sectional study was conduct using structured self-administered questionnaire between July and August 2015 in Addis Ababa, Ethiopia. Four hundred-five (405) mid-level providers (MLPs) including midwives, clinical nurses and health officers included regarding definition of abortion. Two hundred-ninety-one (71.9%) of the respondents knew about the definition of abortion as it stated in the revised abortion law and federal ministry of health of Ethiopia (FMoH) guideline termination of pregnancy before fetal viability (< 28 weeks) and 89.1% said they knew what safe abortion mean regarding knowledge on the

pregnancy termination Procedures. Seventy five point nine (75.9%) familiar with manual vacuum aspiration (MVA), using mifepristone and misoprostol (79.8%), 57.9% dilation and curettage (D&C), and 49.6 evacuations, and curettage (E&C). In this study, health workers were asked to define abortion, and 154 (83.2%) were reported that abortion is the termination of pregnancy to be less than 28 weeks from LNMP, while 27 (14.6%), and 4 (2.2%) were reported abortion is the termination of pregnancy to be less than 20 weeks from LNMP. It is the termination of pregnancy to be less than 24 weeks from LNMP respectively. Among study participants almost all, 180(97.3%) were reported places to terminate a pregnancy should be equipped health facilities with trained health workers (10).

2.2 Attitudes of health workers towards safe abortion

Both before and after the conference, the Obstetrician &Gynecologist physicians surveyed were supportive of legal abortion in the cases in which it was actually legal in Peru [when pregnancy posed a risk of death (97%) and a risk to health (89%). In addition, however, the majority of respondents thought abortion should be legal in the case of fetal malformations (86%) and pregnancy that results from rape (80%). There was a non-significant trend toward increased support for abortion under those conditions following the conference. Physicians were less supportive abortion for the following indications economic hardship (20%), when a woman is single (17%), when a woman is less than 18 years old (20%) or contraceptive failure (31%). Finally, almost all physicians (97%) thought that legal abortion services should be offered in Peru's public hospitals (15,16).

Institutional-based descriptive cross-sectional study design conducted to assess KAP of health workers (midwives, health officer, and clinical nurse) towards safe abortion care service at Asella referral hospital. Of total the 185 respondents, 92 (49.7%) indicated that a woman should not be ill at the time of requesting for SAC while the rest 86 (46.5%) reported that woman should have ill health at the time of requesting SAC and 7 (3.8%) were reported they don`t know. One hundred fifty (62.2%) of health workers reported that they support the pregnancy to be terminated for a woman with less than or equal to 12 weeks of gestational age following a rape, while 68 (36.8%) were reported they don`t support the pregnancy to be terminate and the

remaining two (1.1%) noticed they don`t know (1). One hundred five (56.8%) of health workers reported that they support the pregnancy to be terminated for a woman with less than or equal to 12 weeks of gestational age following an incest pregnancy, while 71(38.4%) were reported they don`t support the pregnancy to be terminate and the remaining nine (4.9%) noticed they don`t know.

One hundred forty-four (77.8%) of respondents support termination of pregnancy for women gestational age of <12 weeks if the pregnancy endangers the life of the woman, 37(20%) of the respondents did not support the termination of the pregnancy even if the conception endangers the life of the women and four (2.2%) of the respondents did not give any suggestions. In this study, 117 (63.2%) report the pregnancy to be terminated as a solution of a woman under age of 18 years and requesting for termination of pregnancy for less than or equal to 12 weeks of gestational age at their health facility. While the remaining 64 (34.6%) and 4 (2.2%) were report that they don`t support the pregnancy to be terminated and they don`t knew respectively (1).

Facility-based descriptive cross-sectional study was conducted between July and August 2015 Addis Ababa Health center, a total of 405 mid-level providers (MLPs) including midwives, clinical nurses, and health officers, two hundred ninety (71.6%) respondents said that they were not comfortable working in a site where termination of pregnancy is performed. Their reasons were against their religion (77.9%), followed by against personal values, not trained on abortion procedure, and outside of the scope of their practice (10).

From 405 respondents 244 (60.2%) said abortion should not be legalize under any circumstances. On the other hand, 27.7% said abortion should be legalize under any circumstance. Of the respondents who said abortion should not be, legalize as 70.5% said their religion does not allow, 59.4% said it encourages pre−/extra-marital sex. The remaining respondents said it will encourage having unwanted pregnancies, homicide on the fetus and culturally it is not accepted which was 55.3, 52.5% and 24.25 respectively(10).

2.3 Practice of health workers on safe abortion

Both before and after the conference survey was conduct in Peru, half of the physicians surveyed had never performed a legal abortion. The average number of legal abortions performed during the past year by respondents was 1.3. Rates of management of incomplete abortion were much higher; for example, Obstetrician & Gynecologist had performed an average of 6.2 D&C's for incomplete abortions in the last two months alone in the public sector (19).

Institutional-based descriptive cross-sectional study design conducted to assess KAP of health workers towards safe abortion care services at Asella referral hospital majority 165 (89.2%) of health workers were reported medical doctors or gynecologists were responsible professionals to perform sharp metallic curettage. Also 153 (82.7%) of health workers were reported physicians (GPs); health officers and midwives were responsible people to perform MVA according to the procedure guideline (1).

Both before and after the conference survey conducted in Peru, half of the Obstetrician & Gynecologist surveyed had never performed a legal abortion. The average number of legal abortions performed during the past year by respondents was 1.3. Rates of management of incomplete abortion were much higher; for example, physicians had performed an average of 6.2 D&C's for incomplete abortions in the last two months alone in the public sector(19).

Facility-based survey was conduct between July and August 2015, Addis Ababa Health center in MLPs, among participants 83% said that they trained on SAC, 81.9% of them said that they practiced/practicing SAC Services. Concerning methods of using termination, 95.6% practiced safe abortion services using medication abortion and 73.5%, MVA. The others said using D&C, E&C that was 11.8, and 8.9% respectively (10).There is no evidence in Ethiopian context in general and in the study area in particular on the KAP of OBGYN residents, and Obstetrician & Gynecologist towards safe abortion. Therefore, the purpose of this study aimed to assess the KAP of OBGYN residents and Obstetrician & Gynecologist towards safe abortion care in TASH and SPHMMC, Addis Ababa, Ethiopia.

3. Objective

3.1 General Objective

To assess knowledge, Attitude, and practice and associated factors of OBGYN residents, and Obstetricians & Gynecologists in TASH and SPHMMC towards provision of safe abortion care, Addis Ababa, Ethiopia.

3.2 Specific objective

- ✓ To assess the knowledge of OBGYN residents, and Obstetrician & Gynecologist on the provision of safe abortion.
- ✓ To assess the attitude of OBGYN residents, and Obstetrician & Gynecologists on safe abortion provision.
- ✓ To determine the level of practice related to safe abortion of OBGYN residents and Obstetrician & Gynecologist on the provision of safe abortion.
- ✓ To identify factors contributing KAP towards provision of safe abortion among residents, and Obstetrician & Gynecologists.

4. Methods and materials

4.1 Study area

The study was conduct at Tikur Anbessa Specialized Hospital and Saint Paul Hospital Millennium Medical College in Addis Ababa, the capital city of Ethiopia. Tikur Anbessa specialize hospital and Saint Paul hospital millennium medical college are the largest Specialize hospital in Ethiopia, with over 700 beds, and serves, as a training center for undergraduate, postgraduate and subspecialty medical students. Tikur Anbessa specialize hospital and Saint Paul hospital millennium medical college built in 1961 & 1968 G.C during Emperor Hailesilasie respectively. Both hospitals serve as tertiary care centers in Ethiopia.

4.2 Study period

From March 01 – May 30 / 2021 G.C.

4.3 Study design

Hospital based cross-sectional study was conducted among OBGYN residents, and Obstetrician & Gynecologist

4.4 Study population

4.4.1 Source of population

The source populations for this study were all OBGYN residents and Obstetrician & Gynecologists in Addis Ababa Tikur Anbessa Specialized hospital and St. Paul hospital millennium medical college.

4.4.2 Study population

All OBGYN residents and Obstetrician & Gynecologist in Tikur Anbessa Specialize hospital, and Saint Paul hospital Millennium Medical College. There are 107 & 108 (215) OBGYN residents, and 21 and 28 (49) Obstetrician & Gynecologist in Tikur Anbessa specialized hospital and Saint Paul millennium medical college respectively. The total number of both resident and Obstetrician & Gynecologist will be 264.

4.5 Eligibility criteria

4.5.1 Inclusion criteria

All OBGYN residents and Obstetrician & Gynecologist who are present in the study area at the time of data collection

4.5.2 Exclusion criteria

Residents and Obstetrician & Gynecologist who are on months off & sabbatical
Residents and Obstetrician & Gynecologist who are absent at the time of data collection

4.5 Sample size determination

The sample size was determined using a single population proportion formula considering the following assumptions, since there is no study conducted concerning KAP of OBGYN residents and Obstetrician & Gynecologist towards safe abortion care, a proportion of 50% of the population will be taken, 5% level of significance (α=0.05). The following formula were used to determine sample size
(Equation 1).

$$n = (Za/2)2*p(1-p)/d2$$

Where,
n= the required sample size
Zα/2 = Critical value of z = 1.96
P = proportion of KAP towards safe abortion care service= assumed to be 50% (0.5)
D=marginal error = (0.05).

$$= \frac{(1.96)2\ 0.5(0.5)}{0.0025}$$

$$= \frac{(1.96)2\ 0.5(0.5)}{0.0025}, \quad n = 384$$

There are 264 (215 & 49) OBGYN residents and Obstetrician & Gynecologist in Tikur Anbessa specialized hospital and Saint Paul hospital millennium medical college respectively; since the total population is less than 10,000, with population correction formula to get the final sample Size:

(Equation 2)

$$nf = \frac{no(N)}{n + (N-1)}$$

And where, n=384, N=264

$$n = \frac{384*264}{384 + (264-1)}, \mathbf{n=157}$$

Adding 10% for non-respondent, the final sample was **174.**

4.6 Sampling method and technique

The total number of the study population (year one to year four residents) were 215, and Obstetrician & Gynecologist were 49 in both hospitals (total n=264) the study participants stratified proportionally to residents and seniors then simple random sampling used to select each of the study participants and depicted below.

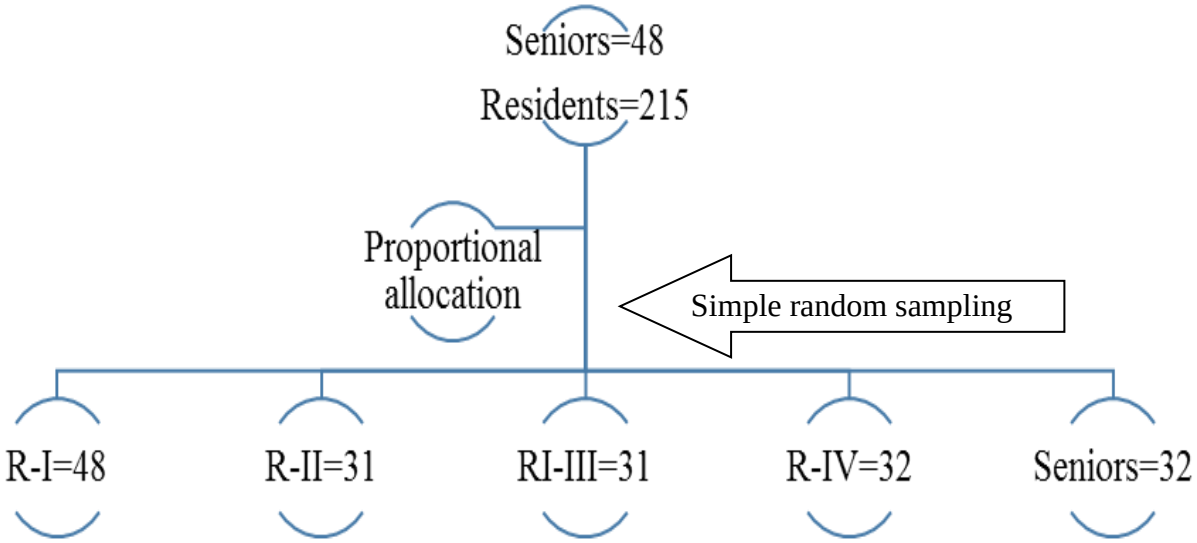

Figure 1: Diagrammatic representation of sampling procedure of the study participants.

4.7 Data collection tools and technique

Data was collected using a self-administered structured questionnaire that were designed by reviewing earlier related studies and the questionnaires was developed and modified from Knowledge, attitude, and practice (KAP) of health providers towards safe abortion provision(1, 8, 17). The questionnaires were elicit demographic information; assess Knowledge about the abortion and current abortion law in Ethiopia, attitude toward abortion, practice to give safe abortion, reason for providing safe abortion service, reasons for not providing safe abortion services. Questionnaires items related to knowledge, reason not providing safe abortion services and willingness to seek abortion training will be scored as

Yes = 1, No = 2, Undecided= 3. The rest questionnaires will be scored as a five-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree). One MPH (RH) holder coordinator and two degrees (BSc) level data collectors recruited; thereby one-day orientation given on data collection process. The principal investigator and the coordinator strictly followed the overall activities for each activity on a daily base to ensure the completeness of the questionnaire, to give further clarification and support for data collectors.

4.8 Data quality control

Orientation given for study participants and the collected data reviewed and checked for completeness by investigators. The supervisors made close follow-up and assistance during the process of data collection. The supervisors and investigator reviewed and checked the collected data for completeness, accuracy and consistency. Double data entry used and each data locked with password and no mismatch.

4. 9 Study variables

4.9.1 Dependent variables

- ✓ Knowledge
- ✓ Attitude
- ✓ practice

4.9.2 Independent variables

- ✓ Age
- ✓ Sex
- ✓ Marital status
- ✓ Level of residency
- ✓ Religion
- ✓ Year of experience
- ✓ Training on safe abortion

4.10 Operational definitions

Knowledgeable: Residents' who scored above the mean (above the average) on knowledge questions consider have good knowledge (knowledgeable) on safe Abortion on normality plots test (Kolmogorov-Smirnov & Q-Q plot) were done on SPSS-20 version.(10)

Favorable attitude: Residents' who scored above the mean (above the average) on attitude questions consider have favorable attitude towards safe abortion(1)

Good practice: Residents' who scored above the mean on safe abortion practice questions considered as good practice.(10)

4.11 Data entry and analysis

Data was entered; cleaned; checked; and analyze using SPSS version 20 statistical software. Categorical variables were summarize as numbers and percentages. Summary of the statistics was conducted to describe continuous data by mean and Median with standard deviations. Binary logistic regression analysis computed to assess the crude association between dependent and independent variables. Variables, which shows association in Binary logistic regression analysis and have P-value less than 0.05 were included in to Multivariable logistic regression model, to identify significant factors associated with outcome variables by controlling confounding factors. The association of participant's socio-demographic characteristics to knowledge on safe abortion care examined, strengths of relationships were quantify using Odds Ratio (AOR) and 95%

confidence interval. Finally significant factors was identified based on AOR include with 95% Confidence level and P-value less than 0.05. Finally, the result were present using tables and graphs.

4.12 Ethical considerations

The study was conduct after getting ethical clearance from institutional review board of AAU-SOM and Obstetrics & Gynecology DRPC and SPHMMC IRB. Subjects informed about the objective of the study and verbal consent taken with the right not to take part in the study. Honesty and confidentiality maintained. The collected data locked in cabinet.

4.13.Dissemination of results

The result of this study will be submit and presented to Addis Ababa University, College of health Science, department of Gynecology & Obstetrics and St. Paul hospital Millennium College, Institutional review board, FMOH, and other stakeholders.

4.14 Management of the research project

The budget were secure based on the profile and arranged for use. Stationary has been collected, arranged, and ready made for use. Data collection formats ready made for use. The tools pre-tested about 5% of the study population before the actual data collection on the planned date. If any problem arises during data collection, the principal investigator made the data collection process appropriate intervention, and data monitoring done. The collected data were checked for completeness, stored and recorded on the master sheet by the principal investigator. Data processing, analysis, report writing, preparation for defense, and accommodating the examiner comments made after completing data collection, analysis, and write up. Monitoring the whole project done according to the work plan (attached in the annex).

5. Results:

5.1 Sociodemographic characteristics of study participants

Of the 174 using self-administered structured questionnaire distributed, 173 completed and returned, giving a response rate of 99.4%. Among the respondents 126 (72.8%) were males, almost half of the participants were under the age group of 29 years with mean and SD of 31±4.97 respectively with the mean age was 31.16 years (SD ± 4.93) and age ranges (25-52 years). Sixty-three of them were orthodox in religion, 53.8% were married, and one fourth of them were year one residents in gynecology and obstetrics. Fifty six percent were less than four-year experience (table1).

Table 1: The socio-demographic characteristics of study participants on KAP of safe abortion care TASH and SPMMC, Addis Ababa, July 2021.

Characteristics n=173	Frequency	Percent (%)
Sex of participant		
Male	126	72.8
Female	47	27.2
Age of the participants		
≤29	83	48
30-39	78	45.1
≥40	12	6.9
Religion status		
Orthodox	109	63
Muslim	34	19.7
Protestant	25	14.5
Catholic	1	0.6
Others[a]	4	2.3
Marital status		
Single	78	45.0
Married	93	53.8
Divorced	2	1.2
Level of education		
R1	48	27.7
R2	31	18
R3	31	18
R4	32	18.3
Seniors	31	18

Professional experience in year		
≤4	97	56.1
5-8	64	37
≥9	12	6.9

NB: [a] Others include Jehovah's witness, paganism etc.

5.2 Knowledge of respondents related to abortion

Regarding to definition of abortion, 159 (91.9%) of the respondents knew the definition of abortion as it defined in the revised abortion law and federal ministry of health of Ethiopia (FMoH) guideline termination of pregnancy before fetal viability (< 28 weeks), 13 (7.5%) reported abortion is the termination of pregnancy to be less than 20 weeks from LNMP. Ninety-eight point eight (98.8%) stated they knew what safe abortion means (table 2).

Regarding different method of terminating pregnancy, 163(94.2%) knew mifepristone and misoprostol used for safe abortion care, 155(89.6%) manual vacuum aspiration (MVA), 110(63.6%) dilation & curettage (D&C), 109(63 %) dilation & evacuation (D&E), and (18.3%) evacuation & curettage (E & C).

One hundred ten (63.6%) of physician were familiar with the revised abortion law, with subgroup analysis 85(60%) of residents and 25(80.6%) of seniors were familiar with revised abortion law. One hundred sixty three (94.2%) respondents said termination of pregnancy should performed in equipped health facilities and trained staffs who are authorized to perform procedure.

Concerning safe termination of pregnancy permitted by revised law 149 (86.1%) of respondents did not require evidences to give termination of pregnancy due to rape or incest. Although, 14 (8.1%) believed that women should submit evidence to get the service even the law said no requirement of evidences. Among participants, 155(89.6%) of them stated that woman should not be ill health at time of requesting safe abortion care while, the rest 18(10.4%) indicated that woman should be ill health at the time of requesting SAC.

Relating to consent for the procedure 130 (75.1%) said the provider should secure informed consent for the procedure using standard consent form. About 165(95.4%) respondents reported that they knew about post abortion care (PAC).

Table 2: The Knowledge based characteristics of study participants at Tikur Anbessa Specialized hospital and St. Paul hospital millennium medical college, Addis Ababa, July202.

Knowledge based Characteristics (n=173)	No. of correctly responders	Percepts
Knowledge of definition of abortion (n=173)		
Knew the definition of abortion less than 28weeks gestation.	159	91.9
Knowledge and procedure of safe abortion [a] (n=173)		
Knew about safe abortion care	171	98.8
Knew about MVA used for safe abortion	155	89.6
Knew mifepristone and misoprostol used for safe abortion	163	94.2
Knew dilatation and curettage used for safe abortion	110	63.6
Knew dilatation and evacuation used for safe abortion	109	63
Knowledge on familiarity of revised abortion law (n=173)		
Familiar with Ethiopian revised abortion law	110	63.6
Abortion is legalized in Ethiopian law under certain circumstance	164	94.8
rape or incest are legalized to abort by Ethiopian law	169	97.7
Pregnancy endangers the life of mother and fetus allowed to have SAC by Ethiopian law	167	96.5
Major anomaly of the fetus allowed to have SAC by Ethiopian law	166	96
women with physical/mental disabilities allowed to have SAC by Ethiopian law	155	89.6
Financial unable to support the child or she does not want the child allowed to abort Ethiopian law	123	71.1
Pregnancy result from extra marital allowed to have SAC by Ethiopian	162	93.6
Knowledge on place of safe termination (n=173)		
Knew the place of safe abortion is to be performed in equipped and by trained personnel	165	95.4
Knowledge on Evidence for requiring for safe abortion (n=173)		
Requirement for women for termination of pregnancy due to rape or incest are not required to submit evidence	149	86.1
The provider has to secure informed consent for the procedure using a standard consent form	131	75.7
Referral arrangement for social support and care are an integrated part of abortion care	148	85.5
Knew about post abortion care	165	95.4

NB: Total do not add to 100 because of multiple response.

Generally, based on operational definition respondents were considered as good knowledge if they scored above the mean (>16.42 of mean values) of 19 questions. In this study, 98(56.6%) of physician had good knowledge about SAC. Since the study, participants were heterogeneous, using subgroup analysis 77(54.2%) of residents and 21(67.8%) seniors had good knowledge.

5.3 Attitudes of respondents related to abortion

In this, study 124(71.7%) of respondents disagree to do safe abortion care for their patients regardless of their reasons for terminating a pregnancy, 25(14.5%) of respondents did not suggest any idea and 24(13.9%) agreed to do safe abortion care for their patients regardless of their reason. Using subgroup analysis 81(57.04%) of residents disagreed and 40(28.2%) of them agreed on provision of safe abortion care for the pregnant woman regardless of their reason. Concerning the Gynecologist & Obstetrician 16(51.6%) agreed and 12(38.71%) disagreed to do safe abortion care regardless of their reason.

Eighty point three percent (80.3%) of the respondents agreed on every program addressing the women heath should include abortion care training and 75.1% of respondents agreed on residents and OBGYN senior should be able to provide safe abortion care for those who is in need.

One hundred forty-eight (85.5%) of respondents said that referral arrangement for social support and care are an integrated part of SAC 13(7.5%) of them were uncertain. Forty-five (26%) respondents said that they were not comfortable working in a site where termination of pregnancy performed and 51(29.5%) were neutral. Their reasons were against their religion 68(73.1%), followed by it encourage unwanted pregnancy 37(39.8%), homicide on the fetus 35(37.6%), culturally not acceptable 21(22.6%) and encourage pre-extra marital sex 18(19.4%) (Fig 2).

Among 173 respondents 163(94.2%) said abortion should not be legalized under any circumstances. On the other hand, 10(5.8%) said abortion should be legalized under any circumstances (Table 2).

One hundred sixty-nine (97.7%) of respondents report that they were supporting the pregnancy to be terminate for a woman with less than 28 weeks of gestational age following a rape or incest. The respondents support termination of pregnancy if the pregnancy endangers the life of the women 96.5%, major anomalies of the fetus 96%, and women with physical or mental illness

and 18(10.4%) of the respondents did not support termination of the pregnancy even if the pregnancy endangers the life of the women.

Generally, based on operational definition there were five questions and each five had five items that were dealing with safe abortion care. Those who scored above the means considered as favorable attitude. Therefore, in this study, 99(57.2%) had favorable attitude. With subgroup analysis 78(55%) of residents and 21(67.8%) seniors had faborable attitude.

Table 3: The characteristic of study participant on attitude of SAC, Addis Ababa, July 2021.

Characteristics (n=173)	Participant response					Mean	Over all mean
	SD	D	N	A	SA		
Elective abortion should be legal and accessible under any circumstances	47 (27.2%)	46 (26.6%)	24 (13.9%)	29 (16.8)	27 (15.6%)	2.67	**16.96**
More comfortable with medical abortion than with surgical abortion	10 (5.8%)	24 (13.9%)	51 (29.5)	67 (38.7%)	21 (12.1%)	3.38	
Are you comfortable working in at site where termination of pregnancy being performed	20 (11.6%)	25 (14.5%)	51 (29.5%)	61 (35.3%)	16 (9.2%)	3.16	
Every program addressing women health should include abortion care training	13 (7.5%)	9 (5.2%)	12 (6.9%)	89 (51.4%)	50 (28.9%)	3.89	
OBGYN residents and seniors should be able to provide safe abortion	16 (9.2%)	7 (4.0%)	20 (11.6%)	72 41.6%)	58 (33.5%)	3.86	

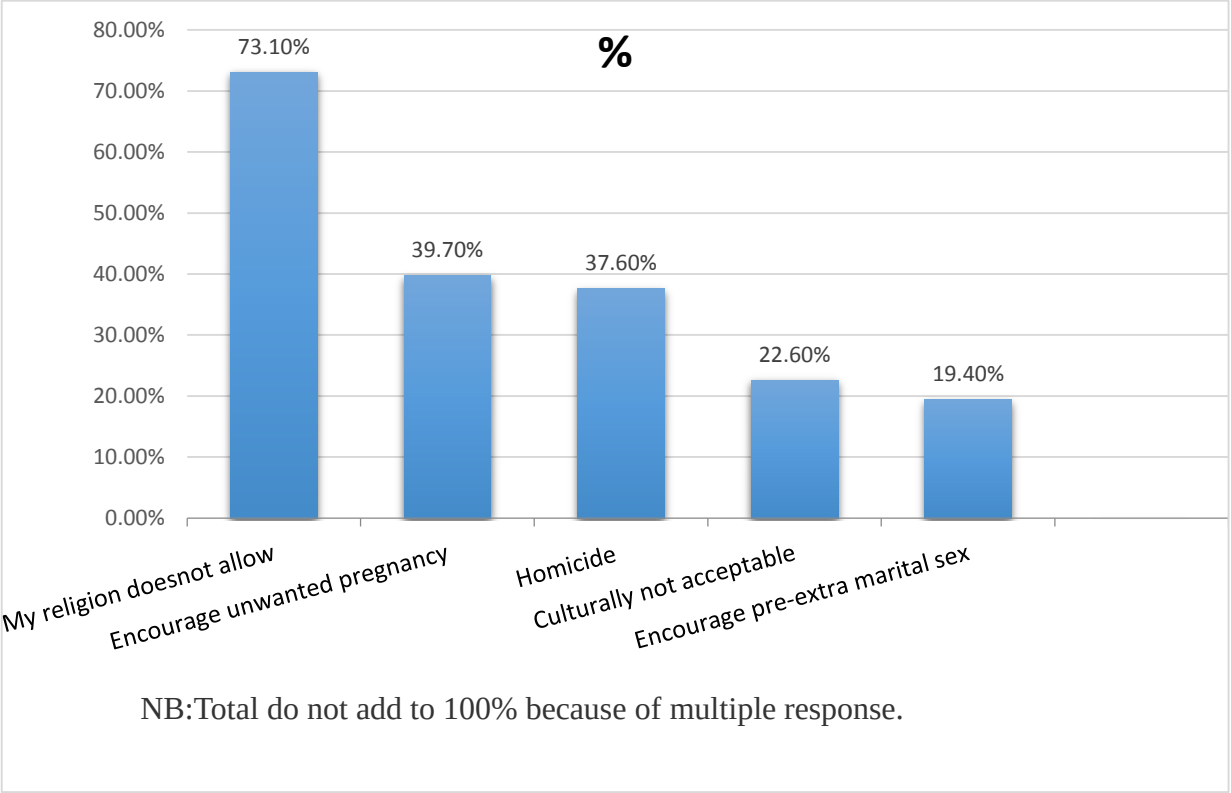

Figure 2: Study participants' attitude on reason for disagreements of safe abortion care, n=173 Addis Ababa, July 2021.

5.4 Practice of safe abortion care (SAC) among of respondents

Among participants 74 (42.8%) said they trained on SAC; from 173 study participants 109 (63%) of them reported they practiced/practicing SAC services and 54(31.2%) of the 109 respondents said they did not practiced safe abortion care for the last one year prior to data collection.

Concerning methods of pregnancy termination, 101(92.7%) practiced safe abortion care using medication abortion and 94(86.2%) MVA. The others reported using D&C, D& E and E&C that were 26.9%, 22% and 18.3% respectively (table4).

Of the total 173 respondents 165(95.4%) provided post abortion family planning, and frequently they gave implanon (86.1%) injectable (69.7%), oral contraceptive pills (OCP) (67.9%), Intrauterine device (IUD) (54.5%) and 17.6% natural methods (Table 4).

Generally, based on operational definition study participants who scored above the mean considered, had good practice. Therefore, in this study, 93(54%) had good practice. With subgroup analysis 73(51.4%) of residents and 20(64.5%) seniors had good practices.

Table 4: Characteristics of study participant on safe abortion practice at TASH and SPHMMC, Addis Ababa, July 2021.

Characteristics n=173	Frequency		Percent	
	Yes	No	Yes	No
Received safe abortion training	74	99	42.8	57.2
Practice on safe abortion care	109	64	63	37
Duration of safe abortion practice (n=109)				
Within three months,	41		37.7	
Six months ago,	14		12.8	
One year ago,	54		49.5	
Methods of SAC practiced to termination of pregnancy[a] (n=173)				
Practiced on medical abortion(n=109)	101	8	92.7	7.3
Practiced on MVA	94	15	86.2	13.8
Practiced on D and C	30	79	26.9	72.5
Practiced on E&C	20	89	18.3	81.7
practice on D&E	24	85	22	78
plan to do abortion for patients regardless of their reasons for terminating a pregnancy	24	149	13.9	86.1
offer post abortion family planning	165	8	95.4	4.6
Methods of post abortion family planning [a](n=165)				
Injectable	115	50	69.7	30.3
OCP	112	53	67.9	32.1
Implanon	142	23	86.1	13.9
IUCD	90	75	54.5	45.5
Natural method	29	136	17.6	82.4

NB: [a] Not 100% due to multiple answers SAC safe abortion care OCP oral contraceptives IUD intrauterine device.

5.5.Factors associated with knowledge

In general 98(56.6%) of respondents had adequate knowledge (i.e. respondents who scored above the mean score) related to abortion. Out of them 30 (63.8%) of females and 68 (54%) of males had adequate knowledge related to abortion. Respondents by their age, less than 30 years (51.8%), 30-39 years (60.3%), 40 years and above (66.7%) had good knowledge.

The association of participants' socio-demographic characteristics to knowledge on safe abortion care examined, and strengths of association quantified using Adjust Odds Ratio (AOR) and 95% confidence interval. Seniors in Gynecology & Obstetrics were more knowledgeable than year one resident by 5.9fold (COR, 95%CI=2.13, 16.82) and 4.6times (AOR, CI 95 % =1.35, 16.56) respectively. The other variable associated was years of professional experiences, and from

providers who worked 5-8 years had better knowledge 2.3 times (CI=1.17, 4.37) than less than 4 year of experience but not statistically significant after adjustment odds ratio. No other demographic variables showed any significant in explaining changes of knowledge score (Table 5).

Table 5: The binary and multivariable logistic regression on the effects of independent variable on knowledge of residents and OBGYN seniors on safe abortion care at TASH and SPMMC Addis Ababa, July 2021

Characteristics n=173	knowledge		p-value	COR	p-value	AOR
	Good	poor				
Sex						
Male	79	47	**0.018***	**2.27(1.15,4.49)**	0.104	1.8(0.88,3.87)
Female	20	27	1			
Level of education						
R1	17(35.4%)	31(64.6%)	1	1		
R2	19(61.3%)	12(38.7%)	0.037	2.6(1.06, 6.69)	0.052	2.9(0.99,6.74)
R3	18(58.1%)	13(41.9%)	0.050	2.5(0.99, 6.37)	0.103	2.4(0.85, 6.12)
R4	21(65.6%)	11(34.4%)	0.009	3.5(1.36, 8.90)	0.074	2.8(0.90, 9.37)
Senior	23(74.2%)	7(25.8%)	**0.001***	**5.9(2.13,16.82)**	**0.018****	**4.6(1.35-16.56)**
Experience in years						
≤ 4	46	51	1			
5-8	43	21	**0.014***	2.3(1.17, 4.37)	0.593	1.4(0.54, 2.82)
≥9	9	3	0.085	3.3(0.84,13.03)	0.821	1.2(0.23, 5.96)
Attitude						
Unfavorable	38	36	1			
Favorable	60	39	0.225	1.4(0.79, 2.67)	0.254	1.7(0.72, 3.09)
Practice						
Poor	37	43	1			
Good	61	32	0.011	2.2(1.2,4.09	0.051	3.1(0.92,4.28)

*P < 0.05

** Statistically significant after adjusted for level education but not for sex, year of experiences and practice.

5.6 Factors associated to attitude of participants towards safe abortion

From respondents 57.2% had positive attitude towards safe abortion. Male had positive attitude towards safe abortion 2.3times (CI of 95% 1.15–4.49) than females but not statistically significant after adjustment.

The other associated factor was practice on safe abortion which showed OBGYN residents and seniors those who had good practice on safe abortion were favorable attitude towards safe abortion 4.8 (CI=2.5-9.16). It was significant after adjusted 4.3times (CI=2.19, 8.37) (table 6).

Table 6: Factors, which affects OBGYN residents and seniors attitude for safe abortion at TASH and SPMMC Addis Ababa, Ethiopia, July 2021 (n=173).

Variables	Attitude		p-value	COR	P-Value	AOR
	Favorable	unfavorable				
Sex						
Male	79	47	**0.018***	2.27(1.15,4.49)	0.104	1.8(0.88,3.87)
Female	20	27	1			
Knowledge on safe abortion						
Poor	38	36	1			
Good	60	39	0.225	1.46(0.79, 2.68)	0.615	1.2(0.60, 2.34)
Practice on safe abortion						
Poor	30	50	1			
Good	69	24	**0.000***	4.8 (2.50, 9.16)	**0.000**	**4.3 (2.19, 8.37)****

*P < 0.05

** Statistically significant after adjusted for good practice but not for sex & knowledge.

5.7 Factors associated to practice of SAC among residents and seniors

Among 173 respondents 109 (63%) of them reported they were currently performing or used to perform SAC. Male had good practice towards safe abortion 2.4times (CI of 95% 1.19-4.71) than females. It was statistically significant after adjustment (adjusted OR = 2.5, CI = 1.08-5.62). The other associated factor the level of education being Obstetricians and Gynecologists had better practice on safe abortion than year one residents had by 3.5folds (CI of 95% (1.33, 8.97). It was significant after adjusted by 4.5times (OR=1.06-16.44). The others variable showed association

was attitude on abortion, providers who had favorable attitude towards abortion had a better practice on SAC by 4.8(CI of 95% 2.51-9.16). It was statically significant after adjusted by 4.7folds (OR= 2.27-9.79) (Table7).

Table 7: The binary and multivariable logistic regression on the effects of independent variable on practice of safe abortion care at TASH and SPMMC Addis Ababa, Ethiopia, July 2021.

Characteristics (n=173)	practice		p-value	COR	P-Value	AOR
	Good	poor				
Sex of participants						
Male	75	51	**0.014**	2.4(1.19,4,71)	**0.032**	**2.5(1.08,5.62)****
Female	18	29	1		1	
level of education						
R1	16	32	1		1	
R2	17	14	0.047	2.6(1.30,6.55)	**0.050**	**2.9(1.02,8.52)**
R3	22	9	0.002	4.9(1.83,13.03)	**0.003**	6.5(1.92,21.98)
R4	18	14	0.044	2.6(1.02, 6.45)	0.090	3.1(0.84,11.48)
Senior	20	11	**0.001***	3.5(1.33, 8.97)	**0.042**	**4.5(1.06,16.44)****
Age of participants						
≤29	39	44	1		1	
30-39	47	31	0.093	1.7(0.91,3.19)	0.607	1.2(0.55,2.78)
≥40	7	5	0.460	1.6(0.46,5.38)	0.892	0.9(0.13,6.05)
Experience						
≤4	47	50	1		1	
5-8	38	26	0.157	1.6(0.82,2.94)	0.646	0.8 (0.29, 2.15)
≥9	8	4	0.240	2.1(0.60,7.54)	0.805	0.8(0.11, 5.49)
Knowledge of study participants						
Poor	32	43	1		1	
Good	61	37	**0.011***	2.2(1.20,4.09)	0.074	1.9(0.94, 4.02)
Attitude of study participants						
Unfavorable	24	50	1		1	
Favorable	69	30	**0.000***	4.8(2.51,9.16)	**0.000**	**4.7(2.27, 9.79)****

*P < 0.05

** Statistically significant after adjusted for sex, level education & favorable attitude.

6. Discussion

One hundred seventy-three residents and Gynecologists & Obstetricians, who were working in two tertiary level hospital in Addis Ababa, assessed their knowledge, attitude, practice, and associate factors on safe abortion provision. Majority of the study participants knew the definition of abortion in Ethiopian context and safe abortion, familiar with revised abortion law. One-fourth of participants were not comfortable working in a site where termination of pregnancy performed and with subgroups analysis one-third of residents and half of OBGY seniors agreed on provision of safe abortion under any circumstances. Level of education and years of professional experience had positive effect on knowledge of safe abortion whereas male gender and good practice related to abortion determine attitude on safe abortion.

To reduce unsafe abortion and its harmful complication Article 551 of the penal code of Federal Democratic Republic of Ethiopia allows termination of pregnancy under some circumstance. Also Federal ministry of Health (FMoH) revised the technical and procedural guideline on June 2014 for safe abortion services for ascertaining quality of care and also allows first trimester pregnancy safe abortion care can be given at health center level as part of task sharing & task shifting (9).

Among respondents, 91.9% knew the national definition of abortion. This study showed that the respondents had much better knowledge compared with others study, which done in Addis Ababa mid-level health care provider (MLPs) (71.9%) (10) this may be due to high level profession training and area of expertise in the field of reproductive health.

Knowledge of the law is crucial so that providers not only know what is expected of them but can also inform and educate women and community at large(9). Nearly two-three of respondents (63.6%) were aware about the revised abortion law. However, majority 95.4% of respondents knew that equipped health facilities with trained staffs that authorized to perform the safe abortion procedure. The woman who request termination of pregnancy are not required to submit evidence of rape or incest in order to obtain abortion service according to Penal code of FDRE though 24.9% of respondents said they would not give the service unless she submitted evidences. This lower than study conducted Addis Ababa in MLPs (31.5%)(10). On other hand if continuation of pregnancy endangers the life woman, 89.6% participants said they would provide the SAC without her state of illness and this study higher comparing a research done at Asella referral hospital (56.2%) and MLPs in Addis Ababa (69.4%) (1, 10).

The provider, as mentioned in the penal code of FDRE, should get clear standard written consent information from all pregnant women who undergoing pregnancy termination after having an objective counseling (20).The information should be clear, objective, and non-forced and provided in a language understandable to the client. From this study, 75.1% of the participants had or would have access to a written consent from the woman before practicing the safe abortion service which is lower when comparing a research done in Addis Ababa (84.2%)(10).

Post procedure carefulness is essential as care during procedure to confirm maximum outcome in abortion care services. The post-abortion care (PAC) components are community and service provider partnership, treatment of incomplete and complication of unsafe abortion, counseling, contraceptive and family planning service and integration of reproductive and other health services(9). From this study participants (95.4%) knew and /or provided the PAC, PAC provision was higher comparing from other studies (58.5%, 85.7%) in Tigray and Addis Ababa respectively (10,12).

As professionals, health care workers must learn to separate their personal beliefs and values from their professional practices and treat all women equally and with empathy, regardless of their reproductive behaviors and decisions (2).

The contemporary study stressed to obtain information on liberalization of abortion at any circumstances. Attitude favoring abortion to be legal were found to be 13.9% and much lower than a study done on mid-level care providers (MLPs) in Addis Ababa health (27.7%) [10]. But using subgroup analysis 28.2% of residents and 51.6% Gynecologist & Obstetrician agreed on provision of safe abortion care for pregnant woman regardless of their reason and the finding in this study comparable for residents and much higher for seniors.

Respondents' reasons why they disagreed on liberalization of abortion were their religion, followed by it encourage unwanted pregnancy, homicide on the fetus, culturally not acceptable and it encourage pre- and extra marital sex.

The national guideline under the subtitle of "provider's skills and performance" clearly underlines the importance of provider basic knowledge and skills to health providers on regular basis in order to maximize their effectiveness to provide the service and manage abortion and its complications(9).

From this study, 42.8% took training on safe abortion; of them 63% applied their training on practice. This study showed almost 2times higher compared a results conducted previously in Addis Ababa (20.5%) in 2017 (10) and Asella (46.5%) in 2019(1). This, clearly, suggests the need to introduce pre-service safe abortion training. Among procedures majority practiced mifepristone with misoprostol and MVA. This finding consistent with revised technical and procedural guidelines for safe abortion services in Ethiopia. Providers should acquire basic knowledge and skills during their pre-service training and get periodic updates through on the job training (9).

This research tried to assess factors, which affect health care providers' knowledge by taking knowledge score fitted to logistic regression. Nearly two-third (56.6%) of respondents had adequate knowledge related to abortion. Obstetricians and Gynecologists had better knowledge 3.8times than residents may be due to their level of training and experience. Therefore, residents especially year one need to have much pre−/on service training and the curriculum should also focus on their training. The overall adequate knowledge score of this finding almost comparable research done in MLPs in Addis Ababa (53.1%) (10) and much lower in other study done in Asella (81.1%)(1).

This study also exhausted to fit logistic regression, by taking mean attitude score as the effect variable, in order to extract the factors influencing the attitude of residents and OBGYN seniors included in the study. From this study more than half (57.2%) of respondents had positive attitude towards safe abortion. The finding from this study, the regression shows seniors had 4.3times likely to have positive attitudes towards safe abortion than residents. Male had good practice towards safe abortion 2.4times than females. It was statistically significant after adjustment by 2.5 folds. On other studies, the finding from the regression shows males were 1.6 times likely to have positive attitudes towards safe abortion than females(10). Residents and OBGYN seniors who had good practice related abortion were 4.8times likely to have a good attitude towards safe abortion than did not have good practice. Therefore, governmental and non-governmental institutions have responsibility to increase residents' and OBGYN seniors' practice related abortion to have a favorable outcome on reproductive health, which is a vital influence for women to get the quality of services.

The findings of this research provide valuable information to guide improvement on the quality and access to abortion services in the country. However, this research only assessed residents and OBGYN seniors KAP towards SAC at Addis Ababa. It would been better to include large sample sizes to get national data. It is also better to include observing the availability of equipment and supplies and directly evaluating the quality of SAC in the sample hospitals. The participants were from government Tertiaries level hospitals; it would been better to include private institutions and others government hospitals and the study results may be use cautiously as raw materials.

7. Conclusion

In this, study the overall knowledge, attitude and practice of physicians on safe abortion care provision were low. The associated factors for knowledge were level of education. Being male and having good practice on safe abortion significantly influenced providers' attitude towards favorable attitude than those who have poor practice on safe abortion care. Male and seniors had good practice on safe abortion care. Ninety-five point four percent (95.4%) of the respondents provided post abortion family planning and Implanon was the most common type of contraceptive provided.

8. Recommendation

- ❖ Based on the results of this study the following recommendations can be forwarded:
- ➢ It would be much beneficial to provide training for residents on safe abortion methods and Effort to improve junior residents' knowledge on safe abortion care are necessary through onsite or induction training at the beginning of residency program.
- ➢ Giving emphasis on the attitude and practice of residents on safe abortion care.
- ➢ Similar studies should be conducted in others teaching hospital in different parts of the country so that a national picture can get on the abortion knowledge, attitude and practice of physicians.

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9. Annexes

9. 1 Questionnaires

Questioner prepared for research on assessment of knowledge, attitude, and practice of Obstetrics & Gynecology residents, and Obstetrician & Gynecologist in Tikur Anbessa Specialize hospital and Saint Paul hospital millennium medical college towards the provision of safe abortion care, Addis Ababa, Ethiopia

I am Dr. Mekonnen Mengistu from Addis Ababa University, College of health science, department of Obstetrics and Gynecology, the main purpose of this study to assess knowledge, attitude, and practice of Obstetrics & Gynecology residents, and Obstetrician & Gynecologist in Tikur Anbessa specialize and Saint Paul hospital millennium medical college towards the provision of safe abortion. So I would like to request you to fill a questionnaire, whatever information you provide will be kept firmly confidentially and therefore writing your name is not important, participating in this assessment is fully voluntary, however, I hope that you will take part and your response is vital.

Voluntary ☐ **Not voluntary** ☐

Date of interview...../...../.....

Checked by supervisor.....

Yes No

Name....., sign.....Date...../...../.....

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Socio-demographic characteristic

Design the questioner based on the table below

Part –I: Socio-demographic characteristics of respondents				
S.N	**Questioner**	**Response**		**Skip**
101	Sex	1. 2.	Male Female	
102	Age	1.	----------years	
103	Religion	1.	Orthodox	
		2.	Muslim	
		3.	Protestant	
		4.	Catholic	
		5.	Other	
104	Marital Status	1.	Single	
		2.	Married	
		3.	Divorced	
		4.	Widowed	
105	Level of residency	1.	R…….	
106	Year of professional experience	1.	.....years	

Knowledge on definition of abortion, safe abortion and procedures, revised abortion law of Ethiopia and post abortion care (1, 7, 8, 17).

Part –II Knowledge assessment questioner for respondents			
S.N	**Questioner**	**Alternative option**	**Skip**
201	Definition of abortion	1. Termination of pregnancy < 20 weeks from last normal menstrual cycle (LNMP)	
		2. Termination of pregnancy < 24 weeks LNMP	
		3. Termination of pregnancy < 28 weeks LNMP	
		4. I do not know	
202	Do you know Safe abortion?	1. Yes	
		2. No	
		3. I don't know	
203	Do you know the types of procedures for safe abortion?	1. Manual vacuum aspiration (MVA)	
		2.Mifepristone and misoprostol	
		3.Dilation and curettage (D & C)	
		4. Dilation and Evacuation	
204	Are you familiar with the revised Ethiopian abortion law?	1. Yes	
		2. No	
		3. Uncertain	
205	For what reason abortion is, legalize in Ethiopia context?	1. Not allowed for any reason	
		2. Rape or incest	
		3. If pregnancy endanger the health or life of the woman or fetus.	
		4. In case of fetal major anomalies	
		5. For women with physical/mental disabilities	

		6. She is financially unable to support the child or she does not want the child. 7. When pregnancy is the result of extra marital	
206	Where do think the Place for terminating pregnancy	1. Equipped health facilities that are not authorized to perform the procedure with no trained staff 2. Non-Equipped health facilities that are not authorized to perform the procedure with no trained staff 3. Equipped health facilities and trained staff authorized to perform the procedure 4. I do not know	
207	What requirement from a woman for termination of pregnancy due to rape or incest	1. Requires to submit evidence 2. Are not required to submit evidence 3. I do not know	
208	The provider has to secure informed consent for the procedure using a standard consent form.	1. True 2. False 3. I don't know	
209	Referral arrangements for social support and	1. Yes 2. No	

	care are an integrated part of abortion care	3. Uncertain	
210	Do you know post abortion care?	1. Yes 2. No 3. Uncertain	

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(1, 8, 17).

Part-III: Attitude assessment questioner on safe abortion provision.						
		Alternative option				
S.N	**Questioner**	**Strongly disagree (1)**	**Disagree (2)**	**Neutral (3)**	**Agree(4)**	**Strongly agree (5)**
301	Elective abortion should be legal and accessible under any circumstances.					
302	If you disagree with what is the reasons for disagreement.	1. My religion does not allow 2. Culturally not accepted 3. It is homicide on the fetus 4. Encourage to have unwanted pregnancies 5. Encourages pre−/extra-marital sex				If you agree, skip Q302**.**
		Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly disagree (5)

303	I am more comfortable with medical abortion than with surgical abortion					
304	Are you comfortable working in a site where termination of pregnancy is being performed.					
305	Every program addressing women's health should include abortion care training.					
306	Obstetrics and Gynecology residents should be able to provide safe abortion					

Read the statement below and decide your practice on the safe abortion. For each question there are five levels of agreement choices, and there are also yes /no question, choose one number which best describes your feeling (1, 8,17).

Part-VI: Practice assessment questioner on safe abortion provision.			
Questioner		**Alternative**	**Skip**
401	Did you take Safe abortion training	1. Yes	
		2. No	
402	Do you Practice safe abortion care?	1. Yes	
		2. No	
403	If yes, how long did you practice?	1. 3 months ago	
		2. 6 months ago	

		3. 1year ago and above					
404	If yes, what Methods of SAC practiced used to termination pregnancy?	1. Medication abortion					
		2. Manual Vacuum Aspiration					
		3. Dilation & curettage (D&C)					
		4. Evacuation & curettage (E &C)					
		5. Dilation and evacuation (D& E					
405	I plan to do abortion for my patients regardless of their reasons for terminating a pregnancy	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)	
406	Do you offer post-abortion family planning?	1. Yes					
		2. No					
407	If yes, what methods of post-abortion family planning provide	1. Inject able					
		2. OCP					
		3. Implanon					
		4. IUCD					
		5. Natural method					

The End and thank you!