ADDIS ABABA UNIVERSITY

SCHOOL OF PUBLIC HEALTH

Assessment of Modern Contraceptive Utilization and Associated Factors among Female Anti-Retroviral Therapy Attendants in Arada Sub city, Addis Ababa, Ethiopia.

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Thesis Report Declaration

I, the under signed, declared that this is my original work, has never been presented in this or any other University and that all the resources and materials used for the thesis work, have been fully acknowledged.

Name of student: Tewabech Alemu Signature: _____Date: _____

This thesis has been submitted for examination with my approval as the student thesis work advisor.

Name of advisor: Dr Assefa Seme Signature: _____Date: _____

This thesis examination result is correct and based on the given evaluation criteria

Name of internal examiner: _____ Signature: _____Date: _____

Name of external examiner: _____ Signature: _____Date: _____

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ACRONYMS

AAU Addis Ababa University

AIDS Acquired Immune Deficiency Syndrome

AOR Adjusted Odds Ratio

ART Anti-Retroviral Therapy

CPR Contraceptive Prevalence Rate

DMPA Depo Medroxy progesterone Acetate (DMPA)

EDHS Ethiopian Demographic and Health Survey

FMHACA Food, Medicine and Health Care Administration and Control Authority of Ethiopia

EPP Estimation and Projection Package

ETB Ethiopian Birr

FP Family Planning

HIV Human Immunodeficiency Virus.

IUCD Intra Uterine Contraceptive Device

MOH Ministry of Health

MTCT Mother to Child Transmission of HIV

OR Odds ratio

PEPFAR U.S. President's Emergency Plan for AIDS Relief

PLWHA People Living with HIV/AIDS

PMA Performance monitoring and accountability

PMTCT Prevention of Mother to Child Transmission of HIV

REC Research and Ethics Committee

SNNPR Southern Nations, Nationalities and Peoples Region

SPSS Statistical Package for Social Sciences

SSA Sub-Saharan African

UNAIDS Joint United Nations Programme on HIV/AIDS

WHO World Health Organization

ABSTRACT

Background

Preventing unintended pregnancy is one of the 4 pillars of prevention of mother to child transmission program. Counseling and provision of contraceptives to HIV infected women who are on ART is an important strategy to prevent unintended pregnancy and its complication among HIV positive women who wish to limit the number of their children or delay pregnancy. World Health Organization considers providing safe and effective contraceptive to HIV infected women as one strategy for preventing pediatric infections. Despite these adopted strategies very few HIV positive women who wish to delay or limit the number of children are using modern contraceptive methods.

Objective: To assess utilization of modern contraceptives by women of reproductive age who are attending ante retroviral therapy(ART) clinic and associated factors in public health facilities in Arada sub city, Addis Ababa, Ethiopia.

Methods: Institutional based quantitative cross-sectional study was conducted in selected 5 public health facilities in Arada sub city from February to March, 2016. A systematic random sampling technique was used to select study participants. Three hundred and forty eight eligible women of reproductive age who were on ART were interviewed by using a pre tested structured questionnaire to assess modern contraceptive utilization status. Data entry and cleaning was done using Epi Info version 3.5.1 and then exported to SPSS version 20 using stat transfer software version 12 for analysis. Bivariate analyses were done for each independent variable and the outcome variable to select variables for the multivariate analyses. Variables which showed p-value of less than 0.25 during bivariate analysis were entered into multivariate logistic regression model to identify their independent effects. Odds ratio was used to measure the strength of association between the dependent and independent variables while95% confidence interval was used to determine the significance of the association. Tables and figures were used to present the results of the study.

Result: One hundred (28.7%) of the respondents used at least one method of modern contraceptives to avoid or delay pregnancy. Condom was the most utilized type of contraceptives. Out of one hundred contraceptive users 85.2% were using dual contraceptives. Marital status (currently married) (AOR 3.15, 95% CI 1.50-6.61),having open discussion with sexual partner about contraceptive use (AOR8.03, 95% CI 4.22 to15.28), peers' positive influence (AOR 2.39,95% CI 1.09 to 5.22) and not having perception of being HIV positive affect their contraceptive use (AOR 0.2, 95% CI 0.11 to 0.37) were the major determinant factors identified to modern contraceptive utilization among ART attending women.

Conclusion and recommendation: Utilization of modern contraceptives by ART attending HIV positive women of reproductive age in the study sub city was low (28.7%). Condoms were the most frequently used contraceptive method. The proportion of women with HIV using dual contraceptive were high (85.2%).Being currently married, having open discussion with sexual partner, peers' positive influence and not believing about the negative influence of HIV on contraceptive use have positively affected contraceptive use by ART attending HIV positive women in the study area. Strengthening counseling on the importance of couple's discussion as well as health education about HIV and family planning as part of ART care and treatment to avoid negative perception towards contraceptive use is recommended.

Key words: contraceptive utilization, HIV positive, modern contraceptive, family planning.

1. Introduction

1.1 Background

HIV is a global problem affecting many peoples. There are approximately 36.9 million people currently living with HIV and tens of millions of people have died of AIDS-related causes since the beginning of the epidemic(1, 2). Women account for half of the estimated 36.9 million adults living with HIV and AIDS worldwide, the majority of whom are in their reproductive years(3-5).Each year over 600,000 children around the world are infected with HIV through MTCT during pregnancy, delivery or breast feeding. From these majority (71%) of these infections are occurring in sub-Saharan African countries(3, 4).

Ethiopia is one of the countries in sub-Saharan Africa(SSA) that have a generalized HIV epidemic with about 793,700 people living with HIV/AIDS(2, 5, 6).In 2013 there were an estimated 793,700 (716,300-893,200) people living with HIV including 200,300 (172,400 – 232,400) children under 15 years according to the latest EPP/Spectrum modeling (Estimation and projection package).There were 7,792 new infections in children under 15 years in 2012.More than 90% of the infection is through mother to child transmission of HIV (1, 2, 6).Mother-to-child transmission of HIV remains a major public health problem and continues to account for a substantial proportion of new HIV infections among young children(7).

Preventing unintended pregnancy is one of the 4 pillars of prevention of mother to child transmission program (PMTCT). Counseling and provision of contraceptive to HIV infected women who are on ART is an important strategy to prevent unintended pregnancy and its complication among HIV positive women who wish to limit the number of their children or delay pregnancy(8-10)**.**

At national level the Federal Ministry of Health has undertaken a number of actions to assess the MNCH/PMTCT Status of the target population of Ethiopia and design relevant strategies. Among those strategies is the use of Health development Army to improve maternal and child health service provision and utilization including PMTCT which is a good opportunity towards elimination of mother to child transmission of HIV. It is further noted that the government of Ethiopia has given high priority to PMTCT and is committed to eliminate HIV by 2015 by making the necessary improvements in coverage and quality of PMTCT service delivery. In August 2012, the FMOH has adopted the option B+ for PMTCT and revised the implementation manual and training packages accordingly. Option B+ in all PMTCT sites Strengthen mother-

baby pair cohort follow up and continuous quality improvement approach in all PMTCT sites Ensure PMTCT implementation per the e-MTCT strategic plan in all regions Strengthen early infant diagnosis in all PMTCT sites Strengthen integration of HIV care and family planning services Improve service integration and decrease drop-out rate of HIV positive pregnant women from accessing care. This will take the program a step forward in delivering better quality services with more efficacious regimen further strengthening the good opportunity for elimination of mother to child transmission of HIV.

World Health Organization considers providing safe and effective contraceptive to HIV infected women is as one strategy for preventing pediatric infections with a minimum cost than other pillars of PMTCT(8, 10, 11).Hence, contraceptive prevents 21.7% more HIV-positive pregnancies and vertical HIV transmission(12).

1.2 Problem statement

Globally more than 2 million HIV positive women fall pregnant each year, with up to 600, 000 dying of pregnancy-related complications annually, mostly in resource-constrained settings(13).HIV infected women in sub Saharan African countries are at higher risk of unwanted pregnancies and sexual transmitted infections(8, 13, 14)**.**Pregnancy in this category of women is associated with increased risk of poor outcomes which include maternal mortality as well as pediatric HIV infections.In 2013 alone, it was estimated that about 1.4 million new pediatric HIV infections occurred in sub-Saharan Africa(9).According to EDHS 2011, the prevalence of HIV in Addis Ababa is 5.2% and the prevalence of HIV among pregnant women is 5.8%which is about three times the national prevalence which is 2.3%.Despite the potential contribution of family planning (FP) to the prevention of HIV infection and unintended pregnancies many researches done in different regions shows that contraceptive use among HIV positive women in Ethiopia remains low(15-17).

The percentage of married women aged 15–49 using modern contraceptive method is 40%(18).And there is 25% unmet need for family planning(11). For Addis Ababa the contraceptive prevalence among currently married women aged 15-49 is 57% (18) .But still there is 11% unmet need for family planning(11)**.** Despite these little information is known about contraceptive utilization by HIV positive women especially in Addis Ababa (including the study area) as result of limited studies. Continued pregnancy in women with HIV end up with losing of her life and HIV positive Orphans which has also an impact on the economy of a family as well as the country in general .

Utilization of modern contraceptive among people living with HIV is believed to be influenced by many factors at individual, social and service delivery levels. Parity, education, knowledge about contraception and HIV sero-positivity do influence utilization of contraceptive at individual levels and at service delivery level attitudes and skills of the providers, method specific side effects, ease of use and access of FP method have also influence on utilization of contraceptive and Socially religious beliefs, cultural norms, peer influence and partner support also have influence on contraceptive utilization of women(19).Therefore it is important to assess modern contraceptive utilization by women on ART and associated factors.

1.3 Rational of the study

There is higher number of HIV positive women enrolled on ART which is around 5079in Arada sub city and low contraceptive utilization among the general populations found in Arada sub city when we compare from other nearby sub cities. Research done on this area is scarce and there is limited data available on modern contraceptive utilization among HIV positive woman in Addis Ababa including the study area. Little attention is given to the prevention of unintended pregnancy as strategy to the prevention of mother to child transmission of HIV.

Therefore the present study is aimed to fill such gaps and to show the magnitudes of contraceptive utilization by ART attending women and associated factors in Arada sub city.

1.4 Significance of the study

The result of this research will be used as an input for the programmers and policy makers to strengthen and improvement of family planning services and for the PMTCT programs. And the finding of this research will be used as a supplementary data for further similar studies. The result of this research will also be used to help the care and support given to HIV positive women by considering their desire for bearing children.

2. Literature Review

2.1 Magnitude of HIV/AIDS at Global, regional and national level

Epidemiological data indicates that globally the spread of HIV/AIDS remain continuing. According to the latest estimate from UNAIDS, there are 36.9 million peoples living with HIV in 2014, up from 29.8 million in 2001. These are the result of continuing new infection, people living longer with HIV due to antiretroviral therapy and general population growth. When we see the global prevalence rate (the percent of people ages 15-49 who are infected) has leveled since 2001 and was 0.8% in 2014.Even though new infections are declining by 35% since 2000, still there are about 2 million new infections in 2015 or about 5,600 new infections per day and 1.2 million people died of AIDS in 2014, 42% decrease since 2004. Deaths have declined due to in part to antiretroviral treatment (ART) scale-up(2)**.**

When we see the regional variations, Sub-Saharan Africa remains the hardest hit region, and is home to 70%(25.8 million) of people living with HIV but only about 13% of the world's population. Young women account for 63% of young people living with HIV(2)**.**Most children with HIV live in this region (88%). And about 2 million peoples are estimated to be living with HIV in Latin America and Caribbean combined including 100,000 new infected in 2014,The Caribbean itself, with an adult HIV prevalence rate of 1.1%, is the second hardest hit region in the world after sub-Saharan Africa. An estimated 5.0 million people are living with HIV in Asia and the Pacific. Even though it is a home to the two most populous nations in the world China and India and even relatively low prevalence rates (0.9).

In Ethiopia there is high rate of new HIV infection. In 2013 there were an estimated 793,700 (716,300-893,200)people living withHIVincluding200,300(172,400–232,400) children according to the latest EPP/Spectrum modeling(Estimation and projection package). As per the same modeling, the pediatric HIV population in Ethiopia are mostly older children who were vertically infected in earlier years when the coverage and effectiveness of PMTCT in the country was low/MTCT rates high (in 2013 there is 163,800 HIV positive children were aged 5-14years)(20).

There were approximately 45,200 (36,500-55,200) AIDS related deaths in 2013 and about 898,400 (770,700 – 1,048,500) AIDS orphans in the same year. HIV adult prevalence is estimated at 1.5% in 2011(11). However prevalence varies according to age, sex, gender and geographical location(20)**.**

According to the2011 EDHS adult prevalence for females and males was 1.9% and1.0%respectively. The distribution of HIV prevalence also varies by age. Looking at the younger age groups it can be seen that young women have a two to six fold higher HIV prevalence than young men (11).

Variations in HIV prevalence were also observed among regions. According to the 2011 DHS Gambella region and the urban administrations of Addis Ababa and Dire Dawa with prevalence of 6.5,5.2 and4.0 respectively have the highest prevalence while SNNPR and Oromia region the lowest with prevalence of 0.9 and1.0respectively. However, due to their large population size, Oromia, Amhara (1.6%) and SNNPR regions have the largest PLHIV population. In addition to the regional variation mentioned above, variation are also observed in urban rural area urban showing a seven fold higher HIV prevalence compared to rural areas (4.2% versus 0.6%)(11).Overall the HIV epidemic in Ethiopia can be summarized as both generalized and heterogeneous(11).

2.2 Factors associated with utilization of contraceptive

Utilization of modern contraceptive among people living with HIV is believed to be influenced by many factors at individual, social and service delivery levels. Individually, parity, education, knowledge about contraception and HIV sero-positivity do influence utilization of contraceptive And at individual levels and at service delivery level attitudes and skills of the providers, method specific side effects, ease of use and access of FP method have also influence on utilization of contraceptive and Socially religious beliefs, cultural norms, peer influence, partner support also have influence on contraceptive utilization of a women(19)**.**

2.2.1 Age and Contraceptive use

There is a variation in contraceptive utilization among women of different age group .The report of EDHS2011 of Ethiopia shows that there was lower utilization of contraceptive among young women and older women(some of whom are no longer fecund) than those at an intermediate age group. For example, 5 percent of all women age 15-19 report current use of any contraceptive method. This proportion increases until it peaks at 29 percent in the 30-34 age group, after which it decreases steadily to 11 percent among women age 45-49. A similar pattern is observed among currently married women(11).

A study done in Nekemte Public Health Facilities, East Wollega Zone, Ethiopia on Utilization of Family Planning Methods and Associated Factors among women Living with HIV Attending ART

Clinics showed that those women with in the age of 25-34 were more likely to use contraceptive than those women of above age 44 (AOR 0.564,95% CI 0.323 to 0.985)(15).

A study done in Tigray shows that those women with age of 30 and above has significant association with contraceptive utilization(21).Another study done in Uganda shows that younger age especially age group (20-29) years was 1.4 times more likely to be associated with use of modern contraceptives(19).

2.2.2 Parity and Contraceptive use

A study done in Tigray Region, Northern Ethiopia on HIV Positive Women on Chronic Follow Up Care shows that those mothers who have two and more than two alive children were 2.46 times more likely to use contraceptive than those who do not have alive(21).A study done in Uganda shows that Contraceptive use was 26.2% among women having three or more surviving children compared with 19.0% of women who have no surviving children used contraceptives(19) .

2.2.3 Education level and contraceptive use

A study done in Uganda on utilization of family planning services among sexually active people living with HIV/AIDS showed a strong trend toward declining fertility and increasing utilization of contraceptives among relatively well-educated and middle-class population(19). A study done in Malawi indicated that women with secondary education were 5.8 times more likely to contraceptive use than those women without formal education (9)**.**

Another study done on utilization of family planning methods and associated factors among women living with HIV in Nekemte, East Wollega zone, Ethiopia showed that educational status of woman living with HIV displayed significant positive relationships with utilizing a family planning service. Women with some form of education were 3.2 times more likely to utilize contraceptive than those women with no education (15).

Another study done in Tigray Region, Northern Ethiopia shows that primary education has a significant positive impact on contraceptive utilization (AOR 2.27, 95% CI 1.12 to 2.86(21)**.** Similar results are found in the study done in South Africa(22)**.**

2.2.4 Knowledge about Contraceptive

A study done in Uganda shows that there is a statistically significant association of knowledge about contraceptive and use of contraceptives. Women who had knowledge about FP methods were about 3.7 times more likely to use contraceptive than their counterparts(19).

Another study done in Gonder, shows that, women who have information on modern contraception were6 times more likely to use contraception than their counter parts(16).

On the other hand a study done in Nekemte shows that, knowledge of women on contraceptive didn't show significant association with current utilization of contraceptive(15).

2.2.5 Method related to use of contraceptive

Concerns about side effects and inconveniences of methods were by far the most prominent reasons for discontinuation of use contraceptive among women with unmet need for family planning (23)**.** A study done in Tigray shows that injectables was the most commonly used type of contraceptive method which accounts 70.7% of users(21)**.** This is also similar with a study conducted in South Africa, 70.2%(22). However, utilization of inject able method reported very low in Uganda, 4.1 %(19).

2.2.6 Partner support and contraceptive use

A study done in Malawi on influences on modern contraceptive use among HIV positive women showed that partner approval was more likely to be associated with of use of modern contraceptive in that partner approval was 4 times more likely to be associated with modern contraceptive use (9).A study done in Uganda shows that participants who reported approval of their spouse were 7 times more likely to use of FP than those who reported no approval of their spouse(19).

2.2.7 Access and contraceptive use

A study done in Uganda shows that those women who have access to family planning, family planning counseling were more likely to use FP the association was statistically significant(19).

There are also policy related factors which include right to have children , access to free health service and education that affect contraceptive utilization(19). There are also other factors which are not mentioned above like cultural norms, different religious beliefs, HIV sero-positivity, that affect contraceptive utilization by ART attending women(24).

To conceptualize, utilization of modern contraceptives among people living with HIV is influenced by many factors at individual level, community, at service delivery level. At individual level age ,education, knowledge about contraceptive, marital status influence contraceptive utilization .and at community(social) level, peers influence, spouse support, religious teachings, cultural norms have also influence utilization of contraceptives. As shown in the conceptual framework figure below, there are also policy related factors such as the right to have children and access to free health service and education and method related factors such as side effect related to use contraceptive and ease of use of family planning which affect the contraceptive utilization. But, in this study I could not assess the policy related factors.

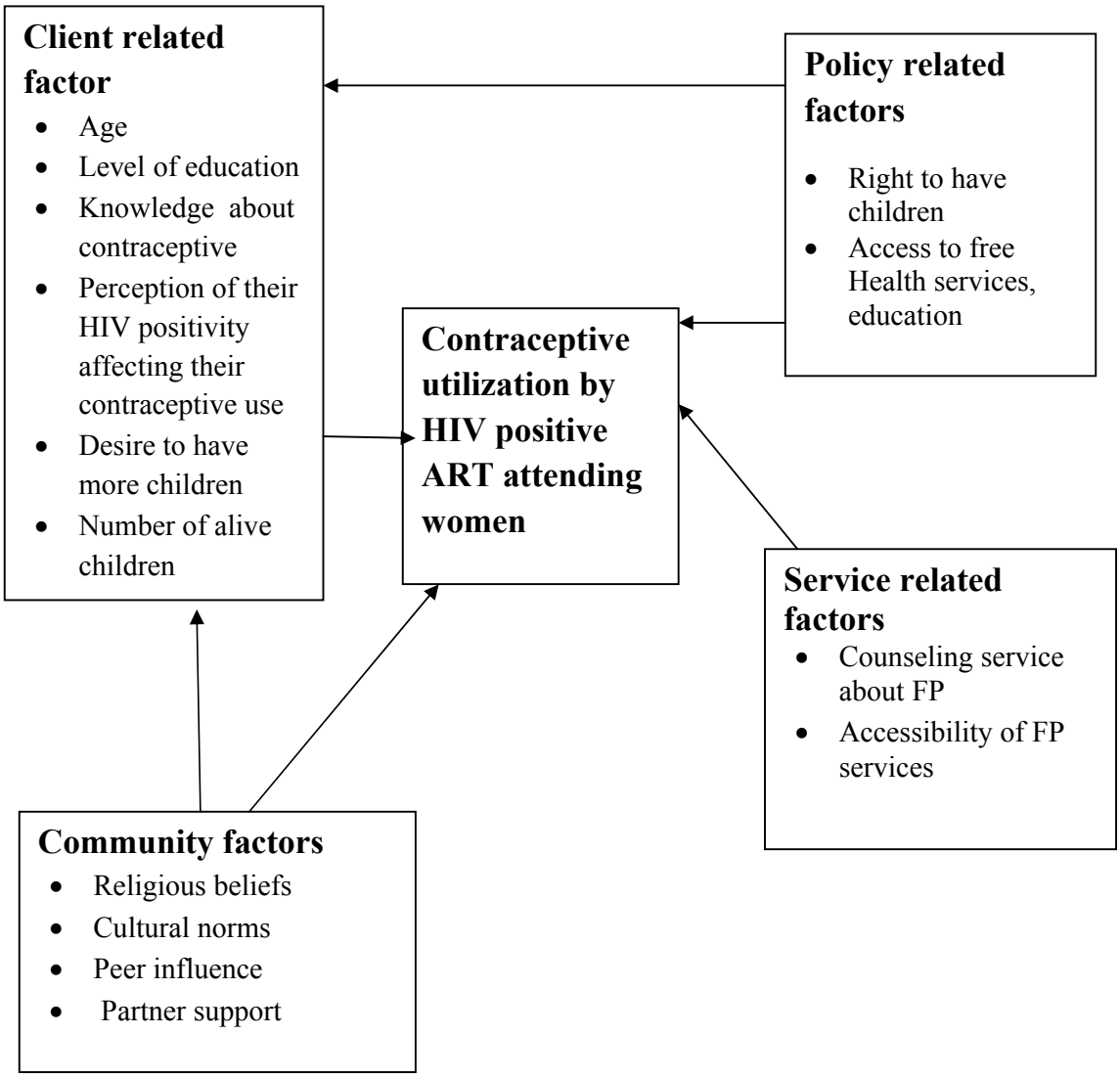

Figure 1: Conceptual frame work on modern contraceptive utilization and associated factors among HIV positive women on ART, 2016

Source: Adopted by reviewing different literatures(9, 19, 24)

Research Questions

a) What is the current level of contraceptives utilization by PLWHA who are on ART?

b) What factors influence utilization of contraceptives among PLWHA who are currently on ART?

3. Objective

3.1 General Objective

- To assess utilization of modern contraceptive methods by ART attending women of reproductive age and associated factors in Arada sub city Addis Ababa, Ethiopia

3.2 Specific Objectives

- To determine the magnitude of modern contraceptive utilization among women ART attendants in Arada sub city Addis Ababa, Ethiopia.
- To identify factors affecting utilization of modern contraceptives among women ART attendants in Arada sub city Addis Ababa, Ethiopia

4. Methods

4.1 Study setting

The study was undertaken from February 2016 to March 2016 in2 government hospitals and in 3 health centers ART units in Arada sub city, Addis Ababa, Ethiopia. Arada sub city is one of the ten sub cities of Addis Ababa city administration which has total population of 225,999 with a population density of 237person per hectare, females represent 55% of the total population. The district is located in the northern area of the city, nearby the center. It borders with the districts of Gullele, Yeka, Kirkos, Lideta and Addis Ketema. Arada is known as the center of the old and the new generation artistic, social and urban life style according to the 2011 central statistics agency Ethiopians facilities and service Atlas, Arada sub city has 5 hospitals (both 3 private and 2government),9 health centers, 82clinic (primary clinics, medium and specialty clinics), 38 pharmacies and 1 health post(25). Out of these health facilities the 2 public hospitals and 8 health centers were providing ART service.

4.2 Study Design

Facility based cross-sectional study design was carried to assess utilization and associated factors of modern contraceptives among ART attending women.

4.3 Source Population

The source population was all HIV positive women who were in ART units of health facility found in Arada sub city during the study period.

4.4 Study population

The study population was those HIV positive women on ART who were in ART units of selected health facility found in Arada sub city during the study period.

4.5 Inclusion criteria

- Those HIV positive women on ART who came for follow up in the ART clinic in the selected health facility was considered for the study.

4.6 Exclusion Criteria

- Those HIV positive women who were on ART but who were already pregnant, critically or mentally ill was excluded from the study.

4.7 Variable of the study

4.7.1 Dependent variable:-

- Modern contraceptive utilization status among HIV positive women on ART.

4.7.2 In dependent variable:-

- Sociodemographic characteristics (age, educational status, marital status, religion and occupation)
- Knowledge about contraceptive
- Perception of being HIV positive affects contraceptive use
- Desire for children
- Having alive children
- Open discussion with their spouse about contraceptive use
- Peer influence
- Spouse influence
- Access to contraceptives
- Counseling about contraceptives

4.8Sample size

The actual sample size was calculated by using the formula required for estimating single population proportion. $\mathbf{n = \underline{(Z_{\alpha/2})^2 X p X (1-p) /d^2}}$Where

n=the required sample size

p= the proportion of contraceptive prevalence among HIV positive women

$Z_{\underline{\alpha/2}}$=the critical value at 95% confidence level of certainty which is 1.96

d = the margin of error between the sample and the population which is 5%

Based on the result of previous studiesdone on unmet Reproductive Health Care Needs and Occurrence of Unintended Pregnancy among HIV Positive Women in Antiretroviral Treatment Units in Addis Ababa, 29.4% of HIV positive women of reproductive age were using modern contraceptives(26)**.**

Then**,** $\mathbf{n=\underline{(1.96)^2 X0.29 X (1-0.29)/(0.05)^2}}= \underline{316.394}$

To compensate for the non-respondents a 10% allowance will be added to the sample which is 316.394+31. =348.0336=**<u>348</u>**

For the other objectives: factors affecting modern contraceptive utilization, sample size were calculated using two population proportion formula

$n_1=\underline{Z\alpha_{/2}\sqrt{(1+1/r)p(1-p)-Z_\beta\sqrt{P_1(1-P_1)+[P_2(1-P_2)/r\}^2}}$**Where,**

(P1-P2)2

$Z_{\alpha/2}$=95% confidence level ,$Z_{\beta=}$ power

P_1= the probability of event in the unexposed,

P_2=the probability of event in the exposed

r= ratio of exposed to unexposed.

n_1= sample size of exposed and n_2=sample size of non exposed

Using **statcalc** sample size and power calculation for descriptive study of Epi info version7, assumed that, for the **level of education** the ratio of unexposed :exposed as 1, 80% power ,and p1=47.9% among non educated (illiterates) taken from previous study done in DebreMarkos town and by adding 10% non-response rate, for the **knowledge** the ratio of unexposed :exposed as 1, 80% power ,and p1=56.7% among non- knowledgeable taken from previous study done in Gimbe town and by adding 10% non-response rate, for having open discussion , the ratio of unexposed :exposed as 1, 80% power ,and p1=69.5% among not having open discussion taken from previous study done in Gonder town and by adding 10% non-response rate then, the sample size was as shown below .

Factors	Power (80%)	95% CI	P_1	P_2	n_1	n_2	N_{total}
Level of education	0.84	1.96	47.9%	67.9%	105	105	231
Knowledge	0.84	1.96	56.7%	76.7%	96	96	210
Having open discussion	0.84	1.96	69.5%	89.5%	72	72	158

Note, N total = total sample size (n_1 +n_2) and after adding 10% non-response rate

By comparing the two objectives results, I selected the largest sample size which was 348

Therefore the final sample size was **348**

4.9 Sampling Procedures

The study was conducted in five randomly selected health facilities (two government hospitals and three health centers) found in the Arada sub city. Governmental facilities were preferred from private facilities because of the relatively long time service provision and relatively small service charge fees for card which helps to observe relatively high number of women enrolled in ART and family planning service.

The sample required for this study was allocated proportionally to each of these facilities based on the number of women on ART in each facility one moth prior to data collection. Systematic random sampling method was used to select eligible participants in each of the facilities by using client flow as a sampling frame. Every 14^{th} women coming for follow up were interviewed. This is done by dividing expected total number of women coming for the ART follow up within a month prior to data collection in the five facilities (by referring the client's registration book) by the total sample size.

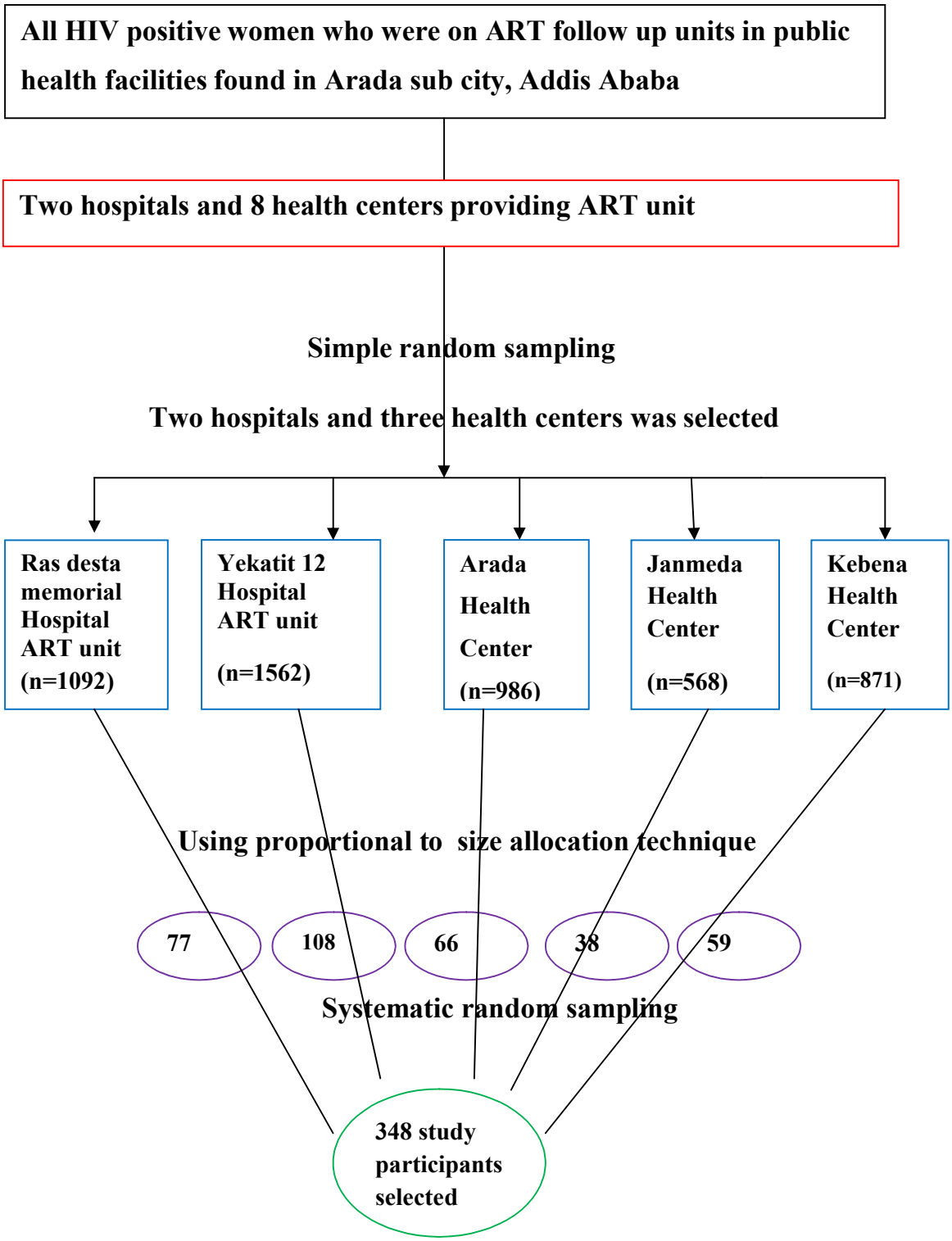

Figure 2: Schematic presentation of the sampling procedure used in the study, Arada sub city, Addis Ababa, Ethiopia, 2016.

4.10 Data Collection Procedures

Those HIV positive women on ART who came for follow up in the ART clinic during the data collection period were interviewed using structured questionnaire adopted from previous studies(19). The questionnaire was first translated in to Amharic and translated back to English to check its consistency. The data were collected by5clinical nurses working in ART units of the same facilities. Clinical Nurses working in the ART unit of the same facility were preferred for data collection to maintain confidentiality and participant's safety.

4.11 Data Quality management

To ensure the quality of data one day training was given for the 5 data collectors on the objective and relevance of the study, confidentiality of information and informed consent and to make them familiar with the data collection questionnaire. Then the structured questioner was pretested on20 participants taken from another health facility other than the health facility selected for real data collection to check for inconsistencies and errors, how the data collectors understand the questionnaires. And participants who were involved in the pretest was excluded in the later data collection. The principal investigator was closely supervising the data collection process and all the questionnaires were checked for completeness. Inconsistencies and errors were corrected accordingly.

4.12 Data analysis procedures

Data entry and cleaning was done using Epi Info version 3.5.1 then exported to SPSS statistical software version 20 using stat transfer software version 12 for analysis. Errors related to inconsistency of data were checked and corrected during data cleaning. First descriptive statistics such as percentage, frequency, mean and standard deviation was carried out .Then bivariate analyses were done for each independent variable and the outcome variable to select variables for the multivariate analyses. Variables which showed p-value of less than 0.25 during bivariate analysis were entered into multivariate logistic regression model to identify their independent effects. Odds ratio was used to measure the strength of association between the dependent and independent variables while95% confidence interval was used to see the significance of the association. Tables and figures were used to present the result of the study

4.13 Operational Definitions

Contraceptive utilization:- the use of contraceptive methods to avoid or delay pregnancy by sexually active non married and married ART attending women or her partner at the time of the survey.

Current contraceptive method users:- respondents who responded positively for use of contraceptive methods at the time of the survey to delay or avoid pregnancy.

Modern contraceptives:- includes male and female condoms (restricted to those reporting ‘‘Always’ use), injectables (DepoMedroxy Progesterone Acetate (DMPA), oral contraceptive pills, diaphragm, implants, intrauterine contraceptive devices (IUCD), female tubal ligation, and male partner sterilization.

Unintended pregnancy:- a pregnancy that is mistimed or unwanted.

Woman who are on ART follow up care: Women who are on ART and made at least one visit to ART treatment unit for receiving ART.

Knowledgeable about contraceptives:- Women who can mention an example or describe use of at least one contraceptive method correctly during the survey.

Currently not married:- women who were single/divorced/widowed/separated at the time of the survey.

4.14 Ethical consideration

Ethical clearance was obtained from Addis Ababa university school of public health Research and Ethics Committee (REC) and also formal letter was written to Addis Ababa City Health Bureau and Arad sub city health office to secure permission. And Addis Ababa City Health Bureau wrote letter of co-operation for those selected health facilities after ethical clearance.

Informed verbal consent was obtained from each study participants by explaining the objective of the study and the right of the respondents to participate or not in the study.

All interviews were taken in a place that keeps privacy and time chosen by respondents. To ensure confidentiality the name of participants was not included in the questionnaire and that is why I try to choose nurses working the ART clinic for data collection for ensuring confidentiality and the information given by the respondents were kept in a safe place.

4.15 Dissemination of results:

The findings of the study will be presented at Addis Ababa University School of Public Health, College of Health Science. And also the finding of this study will be communicated to Arada sub city health office for future implementation plan. The document will also be disseminated to relevant stakeholders working in the family planning programs for improving of family planning services and Prevention of mother to child transmission of HIV (PMTCT). Publication of the findings will also be considered.

5. Result of the study

5.1 Socio demographic characteristics of the study population

Three hundred forty eight(348) eligible clients were interviewed in the ART treatment unit making the response rate of 100%.Majority (31%) of the respondents were taken from Yekatit 12 hospital and the smallest (11%)of the respondents were taken from Janmeda health center. The mean age of the respondents were 34 years with standard deviation of**±6.77.**

As shown in the Table1**,**one hundred ten(31.6%) were in the age group of 30-34 years. One hundred and sixty (46%) were married 204 (58.6%) were followers of Orthodox Christianity. one hundred fifty three(44%)and112(32.2%) were Amharas and Oromos respectively. 40% of the respondents were attended higher education and 39.9% were attended secondary education and 13.2% were primary education and the rest 6% were illiterate(cannot read and write) . When we see the occupation of the respondents majority of them were house wife and merchants accounting for 75 (21.6%) and70 (20%) respectively. (Table 1)

Table 1; Socio demographic characteristics of the ART attending women in selected health facility of Arada Sub city, Addis Ababa,Ethiopia,2016

Characteristics	Frequency (n=348)	Percentage (%)
Age distribution (n=348)		
20-24	26	7.5
25-29	61	17.5
30-34	110	31.6
35-39	68	19.5
40-44	56	16.1
45-49	27	7.8
Mean ± SD	**34 ± 6.77**	
Religion(n=348)		
Orthodox Christian	204	58.6
Muslim	91	26.1
Catholic	5	1.4
Protestant	47	13.5
Others	1	0.3
Ethnicity(n=348)		
Amhara	153	44
Oromo	112	32.2
Gurage	47	13.5
Tigray	35	10.1
Others	1	0.3
Marital status(n=348)		
Single	72	20.7
Married	160	46
Divorced	66	19
Widowed	46	13.2
Separated	4	1.1
Level of education (n=348)		
Not educated(can't read and write)	21	6
Primary(1-6 grade)	48	13.8
Secondary (7-12grade)	139	39.9
Higher (≥12 grade)	140	40.2
Occupation(n=348)		
Unemployed	43	12.4
Housewife	75	21.6
Government employee	58	16.7
Student	19	5.5
Commercial sex worker	9	2.6
Merchant	70	20.1
Daily laborer	21	6
Other (private workers)	53	15.2
Monthly income (n=348)		
<1500 Birr	99	28.4
1500-2113 Birr	26	7.5
2114-2500 Birr	162	46.6
<2501 Birr	61	17.5

5.2 Reproductive characteristics of the study population

As shown in table 2,out of the 348 study participants236(67.8%) had alive childrenbut112 (32.2%) had no alive children. Majority of the study participants 117(49.5%) have one child,71(30%) of the respondents have two children.64(18.4%)of the study participants had an experience of unintended pregnancy after they know their HIV status. Regarding to desire for children 210(60.3%)participants have desire for children in the future and138(39.7%) of them had no desire for children in the future.

Table 2;**Reproductive characteristics of ART attending women in selected health facility of Arada sub city, Addis Ababa, Ethiopia, 2016**

Characteristics	Frequency	Percentage
Do you have any children of your own? (n=348)		
Yes	236	67.8
No	112	32.2
Number of children live with you (n=236)		
One	124	52.5
Two	66	28
Three and more than three	46	19.5
Have any children who are alive but do not live with you(n=348)		
Yes	14	4
No	334	96
Number of children who are alive but do not live with you (n=14)		
One	13	93
Two	1	7
Three and more than three	0	0
Have any children who was born alive but later died (n=348)		
Yes	3	1
No	345	99
Number of children have died (n=3)		
One	3	100
Two	0	0
Three and more than three	0	0
Total no of children who are alive (n=237)		
One	117	49.5
Two	71	30
Three and more than three	49	20.5
Experience of un intended pregnancy after you know your HIV status(n=348)		
Yes	64	18.4
No	284	81.6
Desire to have child (ren) in future (n=348)		
Yes	210	60.3
No	138	39.7

5.3 Current contraceptive utilization of women on ART

Out of the 348 study participants only one hundred (28.7%) were using contraceptives to delay or avoid pregnancy but,248(71.3%) were not using any contraceptive method.

As shown in figure 3, Condom was utilized by most (39%)of the respondents and sterilization and tubal ligation was the least utilized type of contraceptives which accounts 2%.

As shown in table 3 below, out of the 61 participants who use contraceptives other than condom,52(85.2%) of them were using condom in addition to the contraceptives they choose for dual purpose. Out of the 91 condom users (for primary choice and for dual purpose)68(74.7%) were using condom consistentlybut23 (25.3%) were not.

Out of 348 study participants 305(87.6%)of respondents had access to contraceptives whenever they need them and the rest 43(12.4%) had no access to contraceptive. Out of the 305 study participants who had access for contraceptives 157(51.5%)of them get contraceptive from the health institution they take ART and the rest148 (48.5%) were not getting from the health institution they take ART.

When we see the knowledge of participants about contraceptive methods, three hundred thirty six (96.6%) of the respondents were knowledgeable about contraceptive methods (the participants mention an example or describe use of at least one method of contraceptive method correctly) and the rest twelve (3.4%) were not knowledgeable about contraceptive.

Out of the 348 study participants 321(92.2%) of the respondents received counseling about family planning as part of the counseling they received from ART clinic. But, 27(4.8%) of the respondent didn't receive counseling about family planning.

Among the 348 study participants only 123(35.3%) of respondents had open discussion with their sexual partner about contraceptive use and the rest 225(64.7%) were not having open discussion. Out of the 348 study participants more than half 184(53%) of the respondents perceived that being HIV affects their contraceptive utilization.(Table 3)

Table 3; Current contraceptive utilization of women on ART in selected health facility of Arada sub city, Addis Ababa,Ethiopia,2016

Characteristics	Frequency	Percentage
Currently using contraceptive (n=348)		
Yes	100	28.7
No	248	71.3
The primary reason for condom use(n=39)		
For Family planning	14	35.9
For Prevention of STIs including HIV	6	15.4
Both of the above	19	48.7
Use condom in addition for other contraceptive methods for dual purpose(n=61)		
Yes	52	85.2
No	9	14.8
Use condoms consistently? (for every sexual act) (n=91)		
yes	68	74.7
No	23	25.3
Desire to use FP to avoid child (ren) in future(n=348)		
Yes	260	74.7
No	88	25.3
Knowledge about use of contraceptive methods (n=348)		
Knows *	336	96.6
Doesn't know	12	3.4
Access to contraceptives whenever you need them(n=348)		
Yes	305	87.6
No	43	12.4
Source of your FP methods(n=305)		
In side this health institution	148	48.5
Outside these institution	157	51.5
Receive counseling for FP as part of the counseling that you receive in ART unit(n=348)		
Yes	321	92.2
No	27	7.8
Having Perception of being HIV positive affect your utilization of contraceptive? (n=348)		
Yes	184	52.9
No	164	47.1
ART (anti retro viral therapy) affect your pregnancy desires(n=348)		
Yes	215	61.8
No	133	38.2
Openly share contraceptive use with your sexual partner(n=348)		
Yes	123	35.3
No	225	64.7

Note :know*=The Participant can mention an example or describe use of at least one contraceptive method correctly

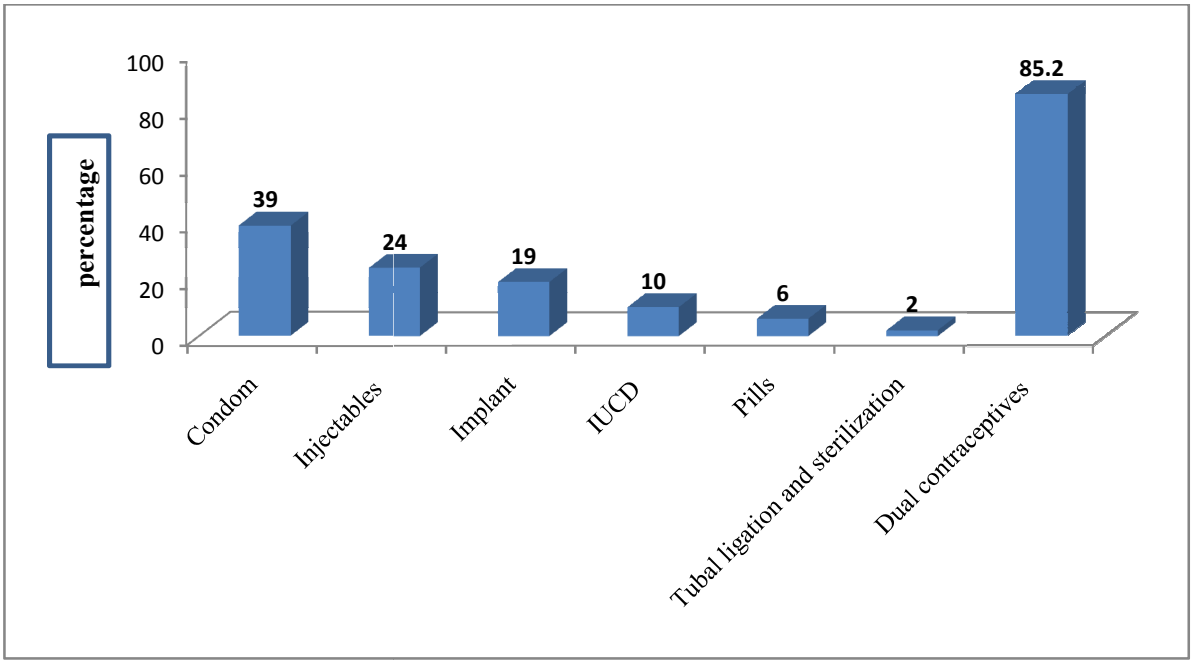

Figure 3;Type of contraceptive currently utilized by respondents in Arada sub city, Addis Ababa,Ethiopia,2016

5.4 Reasons for not using contraceptive

The most common reasons mentioned by respondents of this study for not using contraceptives were want to have children ,fear of side effects and do not want to take many drugs which account for121(48.8%), 88(35.5%) and 63(26.3) respectively (Figure 4).

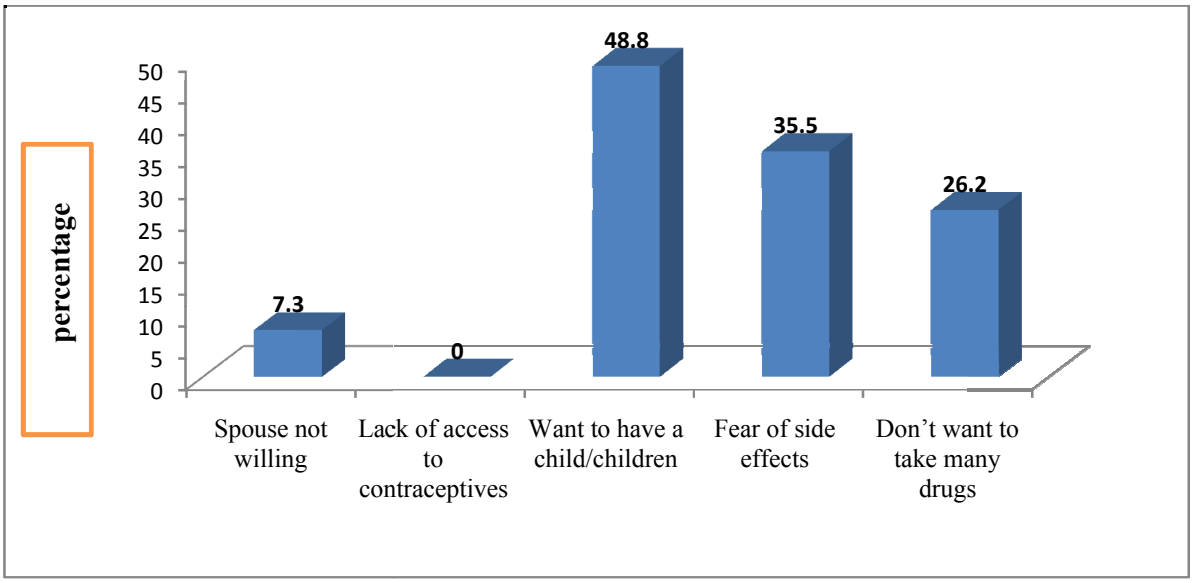

Figure 4; Reason for not using contraceptive among respondents, Arada sub city, Addis Ababa,Ethiopia,2016

5.5 Contraceptive utilization by respondents

The magnitude of contraceptive utilization was 28.7%.Cross tabulation of variables with contraceptive utilization showed that women whose age were greater or equal to 35 years, who were currently married, who had alive children, who had no desire for children in the future, who had access to contraceptives, who received counseling about family planning as part of the counseling taken from ART unit, who had open discussion with their sexual partner about contraceptive use, who had knowledge about contraceptives, who had peer positive influence, who did not have a perception of being HIV positive affects their contraceptive use and who had spouse support were more utilizing contraceptives than their counter parts(Table4).

Table 4; Contraceptive utilization among respondents in Arada sub city, Addis Ababa, Ethiopia,2016

Variables	Contraceptive utilization		Percentage
	Yes	No	
Age			
<35(n=197)	55	142	27.9
≥35(n=151)	45	106	29.8
Level of education			
Not educated(cannot read and write) (n=21)	9	12	42.9
Primary(1-6 grade)(n=48)	16	32	33.3
Secondary(7-12grade) (n=139)	40	99	28.8
Higher(>=12grade) (n=140)	35	105	25
Marital status			
Currently Married (n=160)	76	84	47.5
Currently not married (n=188)	24	164	12.8
Have alive children			
Yes (n=236)	78	158	33.1
No (n=112)	22	90	19.6
Desire to have children in the future			
Yes(n=210)	60	150	28.6
No (n=138)	40	98	28.9
Perception of being HIV/AIDS positive affect their contraceptive use			
Yes (n=184)	36	148	19.6
No (n=164)	64	100	64
Knowledge about contraceptive			
Knows (n=336)	100	236	29.8
Do not knows (n=12)	0	12	0
Open discussion with sexual partner on contraceptive use			
Yes (n=123)	76	47	61.8
No (n=225)	24	201	10.6
Peer positive influence			
Yes (n=57)	31	26	54.4
No (n=291)	69	222	23.7
Spouse support to use contraceptive			
Yes (n=52)	19	33	36.5
No (n=296)	81	215	27.4
Access to contraceptives			
Yes (n=305)	98	207	32.1
No (n=43)	2	41	4.7
Receiving counseling about family planning			
Yes (n=321)	94	227	29.3
No (n=27)	6	21	22.2

Note: Currently not married=single/divorced/widowed/separated

5.6 Factors associated with contraceptive utilization

Binary logistic regression was done to identify significant factor with contraceptive utilization then those factors which showed p-value of less than 0.25 during bivariate analysis were taken to multivariate analysis.

The bivariate analysis showed that marital status(currently married), having alive children, not having perception of being HIV positive affects their contraceptive use, open discussion with sexual partner about contraceptive use and peers positive influence had significantly associated with modern contraceptive utilization.

And also the multivariate analysis showed that marital status (currently married), not having perception of being HIV positive affect their contraceptive use, open discussion with sexual partner about contraceptive use and peers positive influence had significantly associated with modern contraceptive utilization.

As shown in the table 5 below, women who were currently married were 3.15 times more likely to use contraceptive than women who were currently not married (AOR 3.15, 95%CI 1.50 to 6.61).Similarly, Women who had peers positive influence were 2.39 times more likely to use contraceptive than women who had peers' positive influence (AOR2.39,95% CI1.09 to 5.22). And women who had no perception of being HIV/AIDS positive affect their contraceptive use was4.3 times less likely to use contraceptive than their counterparts(AOR 4.3,95% CI 2.25 to 8.23) (Table 5).

Table 5;Factors associated with modern contraceptive utilization of ART attending women in Arada sub city, Addis Ababa,Ethiopia,2016

Independent variable	Contraceptive utilization		COR with 95%CI	Adjusted odds ratio AOR with 95% CI
	Yes	No		
Age				
<35(n=197)	55	142	0.91(0.57-1.46)	
≥35(n=151)	45	106	1.00	
Level of education				
Not educated (cannot read and write) (n=21)	9	12	1.00	
Primary (1-6 grade) (n=48)	16	32	1.5(0.52-4.29)	
Secondary (7-12 grade) (n=139)	40	99	1.86(0.73-4.77)	
Higher (>=12 grade) (n=140)	35	105	2.25(0.87-5.79)	
Marital status				
Currently married (n=160)	76	84	**6.18(3.64-10.49)****	**3.15(1.50-6.61)****
Currently not married (n=188)	24	164	1.00	1.00
Have alive children				
Yes (n=236)	78	158	**2.02(1.18-3.46)****	1.17(0.57-2.40)
No (n=112)	22	90	1.00	1.00
Desire to have children in the future				
Yes(n=210)	60	150	1.00	
No (n=138)	40	98	1.00(0.64-1.64)	
Perception of being HIV/AIDS positive affect their contraceptive use				
Yes (n=184)	36	148	1.00	1.00
No (n=164)	64	100	**2.63(1.63-4.26)****	**4.3(2.25-8.23)****
Open discussion with sexual partner about contraceptive use				
Yes (n=123)	76	47	**13.5(7.75-23.66)****	**8.03(4.22-15.28)****
No (n=225)	24	201	1.00	1.00
Peer positive influence				
Yes (n=57)	31	26	**3.84(2.13-6.90)****	**2.39(1.09-5.22)***
No (n=291)	69	222	1.00	1.00
Spouse support to use contraceptive				
Yes (n=52)	19	33	1.53(0.82-2.84)	0.76(0.34-1.72)
No (n=296)	81	215	1.00	1.00
Receiving counseling about family planning				
Yes (n=321)	94	227	1.45(0.57-3.71)	
No (n=27)	6	21	1.00	

Note:1.00=reference, *=significant at p-value <0.05, **= significant at p-value<0.01

6. Discussion

6.1 Current Contraceptive utilization

This study attempted to assess utilization of modern contraceptive and associated factors among ART attending women. Out of the 348 study participants about three in ten (28.7%) ART attending women were using modern contraceptives to delay or avoid pregnancy. This finding is consistent with the study done on ART attending women in Addis Ababa which was 29.4% (26),the study done in Southwest Uganda which was 27.8% (24),the study finding of performance monitoring and accountability of Ethiopia round 4(PMA2016/Ethiopia-R4) which was 26.5% (27) and(PMA2015/Ethiopia-R4)which was 26.5% (28)**.**On the other hand the finding of the current study was lower than the finding of a study done in DebreMarkos Hospital which was 47%(17)and a study finding in Tigray 46.3% (29). This difference might be due to high desire for children which was 60% in this study,43.7% in Tigray and 28.5% in DebreMarkos and relatively low sample size in this study when we compare from the other. Similarly the finding is also lower than the study finding done in Uganda irrespective of the type of contraceptives (modern or traditional) 87.3% (19), Malawi 55.2% (9), Kenya 99%(30), Nepal 70.8% (31).The possible explanation for this difference might be due to difference in the study subjects and the sample size use, as well as difference in study setting (in that the study is done at community level not facility based) .

The issue of contraceptive use among ART attending women in the study area has important implications for the policy makers and the programmers as well as the researchers in order to support safe and healthier reproductive options among HIV positive women in the study area by making them informed of low utilization of contraceptive the information used as an input to the policy makers to develop effective strategy to achieve target 2 and 3 of the e-MTCT plan 2013-2015. The result can be used by the researchers for further similar studies in order to address those factors not assessed in this study.

When we see the type of contraceptives used Condom was the primary choice by 39% of women and injectables were the second common type of contraceptive which is utilized by 24% of the study participants. This finding were consistent with a study finding in DebreMarkos(17), Kenya(30), Uganda(19) and South Africa(22). This finding was much higher than the study finding in Gonder which was8.2% (16).The possible reason for this disparity might be due to high knowledge about importance of using condom that prevents both pregnancy and STIs and existence of free delivery of condom within the ART clinics in this study area and lack of awareness about the effectiveness and proper use of condom by male partners and hates of condom by male partner during intercourse among the study participants of Gonder and difference in the study period .

Another finding of this study was that 85.2% use dual contraceptive as recommended by the Ethiopian HIV/AIDS Prevention and Control Program National guidelines for preventing HIV/STI transmission and unintended pregnancies(32). This finding was higher than the study finding in Tigray (59.6%) (29), 30% in Gimbe (33), 14.1% in Tigray (21) and 19% in DebreMarkos (17).This might be due to good counseling about the importance of condom by the health care providers and free delivery of condom within the ART clinics and majority of the respondents use condom for prevention of STI as well as for family planning purpose. Out of the 91condom users 74.7% use condom consistently. Want to have children and fear of side effects were the main reason for not using contraceptive which account for 48.8% and35.5%, respectively. Since the respondents were currently on ART they may have fear of anti-retroviral therapy and contraceptives interaction and side effect of contraceptives which has negative impact on their health. This finding is similar to the study finding done in Nekemt in which 96% high desire to have children(34).

In this study knowledge of at least one method of contraception was nearly universal among the studied subjects (97%).This figure is similar to the finding reported by EDHS, 2011 and 2014 in Ethiopia, which was 97%(11, 18).

The study showed that marital status(currently married), not perceiving that being HIV positive affects their contraceptive use, having open discussion with sexual partner about contraceptive use and peers positive influence had significantly associated with modern contraceptive utilization. That means these variables are the determinant factors for contraceptive utilization among HIV positive women on ART.

Marital status was significantly associated with contraceptive utilization. Currently married women were 3.15 times more likely to use contraceptive than currently not married women(AOR 3.15, 95% CI 1.50 to 6.61). This finding is consistent with the study done in Addis Ababa and Malawi with(AOR 2.32, 95% CI 1.60 to3.40)(9)and (AOR 7.2 95%CI 4.3 to 8.8)(14)respectively. This might be due to married women may have frequent sexual contact which may expose them to unintended pregnancy and sexual transmitted infections to prevent this they may use contraceptive.

Having open discussion with sexual partner were significantly associated with contraceptive utilization .Those women who had open discussion with sexual partner about contraceptive were more likely to use contraceptive than their counter parts(AOR 8.03, 95%CI 4.22 to 15.28).This finding was consistent with the study finding done in Nekemte, Oromia region, Ethiopia(34) and study done in Tigray(21).Hence men play a vital role in either supporting with sexual partner to use contraceptive or not. And having open discussion with partners makes the partners familiar with importance of contraceptive for both of them due to that it makes the decision very easy to do that hence, men often play a decisive role in most of the aspects.

Women who did not have perception of being HIV positive affects their contraceptive use were significantly associated with contraceptive utilization (AOR 4.3, 95% CI 2.25 to 8.23).

The study also showed that there is no significant association between contraceptive utilization and level of education, age, and number of alive children, desire to have children in the future, spouse support to use contraceptive and receiving counseling about contraceptive.

7. Strength and limitation of the study

Strength of the study:

- This study has focused on those population at risk of many reproductive health problems where adequate information and studies are lacking. This might certainly fill some of the knowledge gabs and serve as supplementary data for future studies.

Limitation of the study:

- **Sampling bias:** The study did not sample all HIV positive women it only include women in the ART clinic, the study result may not be generalized to all HIV positive women in the Arada sub city hence this study was done at health facility level we cannot generalize to the general community. Since the data collectors were nurses working in the ART clinic the participants may feared to say no to the data collectors for participating in the study.
- Like other cross sectional studies it could not tell temporal relationship between exposure and outcome.

8. Conclusion

Utilization of modern contraceptives was low(28.7%) among HIV positive women. Condom was the most frequently used method of contraceptive.

The proportion of women with HIV using dual contraceptives were high(85.2%).

Marital status(currently married), not having perception of being HIV positive affect their contraceptive use, having open discussion with sexual partner about contraceptive use and having peers' positive influence were significant predictor of contraceptive use in this study area.

9. Recommendation

For the health care provider:

- They should strengthen counseling service and health education about HIV and family planning as part of ART care and treatment to avoid negative perception towards contraceptive use.

For the researchers:

- Further studies using qualitative or mixed approach should be conducted in the general community considering the perspective of health care providers and communities to get more representative findings and to identify the possible reasons at community level is very important.

For government and stakeholders:

- They should strengthen integration of family planning service with ART care and treatment **to** avoid unintended pregnancy and its consequences.

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11. Annexes

11.1 Annex 1Information Sheet and Consent Form

Information Sheet and Consent Form to assess modern contraceptive use among women ART attendants and associated factor in the public health facilities of Arada sub city, Addis Ababa, Ethiopia

Name of the Principal Investigator: Tewabech Alemu Beyene

Name of the Organization: Addis Ababa university school of public health

Name of the sponsor: Addis Ababa university school of public health

Introduction

This information sheet and consent form is prepared by the investigator whose main aim is to assess modern contraceptive use and associated factors among women ART attendants in the health facilities of Arada sub city Addis Ababa, Ethiopia.

The investigator is MPH student from Addis Ababa university school of public health.

Purpose of the study:

The purpose of this research is to assess modern contraceptive use and associated factors among women ART attendants in the health facilities of Arada sub city Addis Ababa, Ethiopia.

And this study finding will helps us to increase utilization of contraceptive by identifying factors associated with contraceptive utilization.

Study Procedure:

If you agree to participate in the study you will be expected to answer a couple of questions about contraception and how you wish family planning service should be provided for HIV positive women on ART. The entire session will take about **20-25 minutes**.

Risk and/or Discomfort:

There is no known risk of participating in this study. However you may feel a little discomfort to discuss contraception which some people normally regard as a private issue. And wasting your time about 20-25 minutes but this may not be too much.

Benefits:

You may not directly benefit from participating in this study, however information obtained from this study may be used to improve provision of contraception for HIV positive peoples**.**

Incentives: You will not be provided any incentives to take part in this project.

Confidentiality and Anonymity:

To protect your privacy and confidentiality the interviews will take place in a private room and by nurses who work in this ART unit. Anything discussed between you and research assistants

will be confidential. All recorded information will not be seen by other people outside the study and kept locked. However, the information may be seen by study supervisor from College of Medicine but your privacy and confidentiality will still be guaranteed as your name will not be recorded, instead unique study identification numbers (code) will be used which cannot be linked to you**.**

Right to Refuse or Withdraw:

Your participation in this study is on voluntary basis. You are free to decline participation or withdraw from study participation and any time. The services you receive will not be affected by your decision on whether to participate in the study or not.

Persons to contact: If you have any question you can contact any of the following individuals and you may ask at any time you want.

1. **Tewabech Alemu Beyene**: **Addis Ababa University school of public health**

Mobile: + 251 913338531

E-mail: **twabech27@gmail.com**

2. **Dr Assefa Seme: Addis Ababa University School of public health,**

Mobile: +251911228193

E-mail: **assefaseme@gmail.com**

Consent form

This consent form has been read and explained to me and I have understood, and my questions have been addressed. I therefore willingly agree to take part in the study.

_____ _____

Code of participant Participant signature and date

_____ _____

Name of interviewer Interviewer signature and date

11.2 Annex 2Data collection form

Data collection form for Addis Ababa University, MPH research project on modern contraceptive use among women on ART and associated factors in Arada sub city, Addis Ababa, Ethiopia 2015/2016.

Part I- Socio-demographic characteristics		
S.no	**Questions with possible answers**	**Remark**
1.	Participants ID no:	
2.	In what month and year were you born? Month……. Year ……	
3.	How old were you at your last birthday? Age in complete years……..	***Correct Q no 2 and 3 if there is inconsistency***
4.	Level of education 1. Non education(can't read and write) 2. Primary(1-6 grade) 3. Secondary (7-12 grade) 4. Higher (≥12 grade)	
5.	Marital status of the respondent 1. Single 2. Married 3. Divorced 4. Widowed 5. Separated	
6.	Religion 1. Orthodox 2. Muslim 3. Catholic 4. Protestant 5. Others(specify)……	
7.	Ethnicity 1. Amhara 2. Oromo	

	3. Gurage 4. Tigray 5. Other (specify)……	
8.	Occupation 1. Unemployed 2. House Wife 3. Gov. employee 4. Student 5. Commercial sex worker 6. Merchant 7. Daily laborer 8. Other(specify)……	
9.	Do you have an income? 1. Yes 2. No	***If No go to Q no 11***
10.	Monthly income in Ethiopian Birr …….	
Part 2 Reproduction and Current utilization of contraceptive		
11.	Do you have any children of your own? 1. Yes 2. No	
12.	If yes, how many children live with you? 1. One 2. Two 3. Three and more than three	
13.	Do you have any children who are alive but do not live with you? 1. Yes 2. No	***If No go to Q no 15***
14.	If yes how many children who are alive but do not live with you? ……..	
15.	Do you have any children who was born alive but later died? 1. Yes 2. No	
16.	If yes how many children have died?	

	....	
17.	Total no of children who are alive ……	***Sum Q no 12and14***
18.	Do you have an experience of un intended pregnancy after you know your HIV status? 1. Yes 2. No	
19.	Are you currently using anything to delay or avoid pregnancy? 1. Yes 2. .No	
20.	If yes, what contraceptive are you utilizing? 1. Condom 2. pills 3. Inject able(Depo-Provera) 4. Implant 5. IUCD 6. Other(sterilization and tubal ligation)	
21.	What is the primary reason for condom use? 1. For Family planning 2. For Prevention of STIs including HIV 3. Both of the above	***Applies if participant uses condoms for question no.20***
22.	Do you use condom in addition for other contraceptive methods for dual purpose? 1. Yes 2. No	
23.	Do you use condoms consistently? ***(for every sexual act)*** 3. Yes 4. No	
24.	Do you have a desire to have child (ren) in future? 1. Yes 2. No	
25.	Do you have a desire to use FP to avoid child (ren) in future?	

	1. Yes 2. No	
26.	If not using contraception is there any reasons for not using contraception?***(Multiple answer is possible)*** 1. Spouse not willing 2. Lack of access to contraceptives 3. Want to have a child/children 4. Fear of side effects 5. Don't want to take many drugs	***If participant answer NO for question no 19)***
Part 3 Client factors /Community factors		
27.	Does HIV/AIDS affect your utilization of contraceptive? 1. Yes 2. No	
28.	Do you openly share contraceptive use with your sexual partner? 1. Yes 2. No	
29.	Does your spouse influence you in utilizing of contraceptive? 1. Yes 2. No	
30.	Would peers influence your use of contraceptive? 1. Yes 2. .No	
31.	Does faith (religion) influence your use of contraceptive? 1. Yes 2. No	
32.	Does culture influence your use of contraceptive methods? 1. Yes 2. No	
33.	In what ways do the following influence your use of contraceptive? 1. Spouse…… 2. Peers…… 3. Faith…… 4. Culture……	***Based on the above answers of questions 20,21,22,23,24 ,25)***

34.	Assess the knowledge/awareness about use of contraceptive methods ***(Participant can mention an example or describe use of at least one contraceptive method correctly)*** 1. Knows *2. Doesn't* know	
Part 4 service delivery factors		
35.	Do you have access to contraceptives whenever you need them? 1. Yes 2. No	
36.	What is the source of your FP methods? 1. In side this health institution 2. Outside these institution	
37.	Do you receive counseling for FP as part of the counseling that you receive in ART unit? 1. Yes 2. No	
38.	Are you currently taking antiretroviral therapy medicine? 1. Yes 2. No	
39.	Does ART (anti retro viral therapy)affect your pregnancy desires? 1. Yes 2. No	
40.	Do you have any concerns about side effects of the contraceptive methods that could influence your choice of method? 1. Yes 2. No	
41.	Please mention any other concern that may affect your contraceptive utilization?……	

Thank you once again for your cooperation!

11.3 Annex 3Amharic version informed consent form

<u>የአማርኛ የምርምር (ጥናት) ማብራሪያና ስምምነትመግለጫቅፅ</u>

የምርምርንድፈሐሳቡርዕስ፡-በአዲስአበባከተማበአራዳክፍለከተማየፀረ-ኤች.አይ.ቪ.መድኀኒትእየወሰዱያሉሴቶችዘመናዊየወሊድመከላከያአጠቃቀማቸዉንእናተጓዳኝ ምክንያቶችንመዳሰስ፡፡

የዋና ተመራማሪ ስም፡-ተዋበች ዓለሙ በየነ

የተቋሙ ስም፡-አዲስ አበባ ዩኒቨርሲቲ የህብረተሰብ ጤና ሳይንስ ትምህርት ክፍል

መግቢያ

ይህ ማብራሪያና ስምምነት ቅፅ የተዘጋጀው በአዲስ አበባ ዩኒቨርሲቲ የህብረተሰብ ጤና ሳይንስ ትምህርት ክፍል የድህረ ምረቃ (ማስተርስ) ተማሪ አማካኝነት ነዉ፡፡የጥናቱ ዋና ዓላማ በአዲስ አበባ ከተማ በተለይም በአራዳ ክፍለ ከተማ የፀረ-ኤች.አይ.ቪ መድኀኒት እየወሰዱ ያሉ ሴቶች ዘመናዊ የወሊድ መከላከያ አጠቃቀም እና ተጓዳኝ ምክንያቶችን ለመዳሰስ ነዉ፡፡

የምርምር ፕሮጀክቱ ዓላማ

የዚህጥናትዋናዓላማየፀረኤች.አይ.ቪመድኀኒትእየወሰዱያሉሴቶችዘመናዊየወሊድመከላከያአጠቃቀማቸዉንእናተጓዳኝምክንያቶችንመዳሰስሲሆንየጥናቱዉጤትምኤች.አይ.ቪ ኤድስ ከእናት ወደ ልጅ እንዳይተላለፍ ለማድረግ የሚረዱ ፕሮግራሞችን እንዲሁም የቤተሰብ እቅድ አገልግሎትን ለማጠናከር ለፖሊሲ አዉጭዎች እና ለፕሮግራም ሰዎች ግብአት በመሆን ያገለግላል፡፡

የአሰራር ሂደት

በዚህ ጥናት ላይ ለመሳተፍ ከተስማሙ ስምምነቱን በደንብ መረዳትና ለመሳተፍ ፍቃደኛ መሆንዎን በፊርማዎት ማረጋገጥ ይገባዎታል፡፡ በመቀጠልም በጥናቱ መረጃ ሰብሳቢዎች ስለ ወሊድ መከላከያ ተጠቃሚነትዎ የተወሰኑ ጥያቄዎችን የሚጠየቁ ሲሆን እርስዎም የተጠየቁትን ጥያቄዎች በመመለስ የሚተባበሩንይሆናል፡፡

ሊከሰቱ የሚችሉ ስጋቶችና ምቾት መጓደሎች

በዚህ ጥናት በመሳተፍዎ ምንም አይነት ችግር የማያጋጥሞ ሲሆን ምናልባትም ስለ ወሊድ መከላከያከሌላሰዉ ጋር መወያየት ምቾት ስለማይሰጥዎ መወያየት አይፈልጉ ይሆናል፡፡ነገር ግን እኛን በመተባበርዎ ከሚሰጠን ጥቅም ጋር ሲነፃፀር ይህምንም ማለት አይደለም፡፡ መሳተፍዎ ምናልባትም ጊዜዎን ሊሻማብዎ ይችልይሆናል:: ነገርግን የሚቆዩት ከ 20-25 ደቂቃ ብቻ በመሆኑይህን ያህል የሚባል አይደለም፡፡

ጥቅሞች

በዚህ ጥናት በመሳተፍዎ የተለየ ጥቅም አያገኙም፡፡ነገርግን ከዚህ ጥናት የሚገኘዉ መረጃ የቤተሰብ እቅድ አገልግሎትን ለማሻሻል እንዲሁም ኤች.አይ.ቪ.ኤድስ ከ እናት ወደ ልጅ እንዳይተላለፍ ለማድረግ ይረዳል፡፡

ማካካሻ

በዚህ ጥናት በመሳተፍዎ ምንም አይነት ማካካሻ አይሰጥም፡፡ነገር ግን በጥናቱ በመሳተፍዎ ምስጋናችን ከፍተኛ ነው፡፡

ሚስጢር ስለ መጠበቅ

ከዚህ ጥናት የሚገኝ መረጃ ሚስጥራዊነት ለመጠበቅ ቃለ መጠየቁ የሚካሄደዉ ማንም ሰዉ በሌለበት ባዶ ክፍል ዉስጥ ሲሆን ቃለ መጠይቁን የምታደርግሎት እዚሁ ክፍል የምትሰራ ነርስ ናት፡፡ በ እርስዎ እና በነርሷ መካከል የሚደረገዉ ማንኛዉም ዉይይት ሚስጥራዊነት እንደተጠበቀ ይሆናል፡፡ ከዚህ ጥናት የሚሰበሰበው እርስዎን የሚመለከት ማንኛዉምመረጃ ተቆልፎ በማህደር የሚቀመጥ ሲሆን ማህደሩ በስምዎ ሳይሆን በተለየ የሚስጥር ቁጥር(ኮድ) ስለሚቀመጥ ኮዱን ከዋናው ተመራማሪ እና ከ ተቆጣጣሪዉ ውጪ ለማንም አይገለፅም፡፡

በጥናቱ ያለመሳተፍ ወይም እራስን የማግለል መብት

ጥናቱ ላይ መሳተፍ ግዴታ ሳይሆን በ ፍቃደኝነት ላይ የተመሰረተ በመሆኑጥናቱ ላይ ላለ መሳተፍ ከፈለጉ በማንኛዉም ሰዓት ጥናቱን ጥሎ መዉጣት እንዲሁም መመለስ የማይፈልጓቸዉን ጥያቄዎች አለመመለስ ይችላሉ፡፡ በዚህ ጥናት ባለመሳተፍዎ ወይም በከፊልም ሆነ በሙሉ ጥያቄዎችን ባለመመለስዎ በሚያገኙት ማንኛዉ የጤና አገልግሎት ላይ የሚያሳድረዉ ተፅእኖም ሆነ የሚያጡት የጤና አገልግሎት አይኖርም፡፡

የሚገናኟቸው ሰዎች

በጥናቱ ዙሪያ ማንኛውም ጥያቄ ካሉዎት ከዚህ በታች የተጠቀሱትን ሰዎች በሚፈልጉት ጊዜ ማነጋገር ይችላሉ፡፡

1. **ተዋበች ዓለሙ በየነ፡-**አዲስ አበባ ዩኒቨርሲቲ የህብረተሰብ ጤና ሳይንስ ትምህርት ክፍል

   ስልክ ቁጥር፡- 0913338531

   ኢ-ሜል፡-twabech27@gmail.com

2. **ዶክተር አሰፋ ሰሜ፡-**አዲስ አበባ ዩኒቨርሲቲ የህብረተሰብ ጤና ሳይንስ ትምህርት ክፍል

ስልክ ቁጥር፡- +251911228193

ኢ-ሜል ፡-assefaseme@gmail.com

የስምምነት መግለጫ ቅፅ

ከላይ የተዘረዘሩትን ሀሳቦች በሙሉ የተገነዘብኩና የተረዳሁ ሲሆን በጥናቱ ላይ ለመሳተፍ ፍቃደኛ መሆኔን በፊርማየ አረጋግጣለሁ፡፡

የተሳታፊ መለያ ቁጥር ___የተሳታፊ ፊርማ እና ቀን_____

የጠያቂዉ ስም_____የጠያቂዉ ፊርማ እና ቀን_____

11.4 Annex 4Amharic version questionnaire

የአማርኛ መጠይቅ ቅፅ

ክፍል 1- ማህበራዊ እና ኢኮኖሚያዊ ሁኔታ		
ተ.ቁ	ጥያቄ እና የመልስ ምርጫዎች	ማሳሰቢያ
1.	የተሳታፊ መለያ ቁጥር:-	
2.	በ መቼ ወር እና ዓመተ ምህረት(ዓ.ም) ነዉ የተወለዱት? ወር…… ዓ.ም……	
3.	የመጨረሻ ልደትዎን ሲያከብሩ ስንት ዓመትዎ ነበር ? እድሜ በዓመት……	ጥያቄ ቁጥር 2 እና 3 ያመሳክሩ ስህተት ካለ
4.	የትምህርት ደረጃ 1. ያልተማረች (ማንበብ እና መፃፍ የማትችል) 2. አንደኛ ደረጃ (1-6 ክፍል) 3. ሁለተኛ ደረጃ (7-12 ክፍል) 4. ከፍተኛ ደረጃ (≥12 ክፍል)	
5.	የተሳታፊ የጋብቻ ሁኔታ 1. ያላገባች 2. ያገባች 3. አግብታ የፈታች 4. የትዳር አጋር በሞት የተለያት 5. የተለያዩ	
6.	ሀይማኖት 1. ኦርቶዶክስ ክርስቲያን 2. እስልምና 3. ካቶሊክ 4. ፕሮቴስታንት 5. ሌላ ካለ ይገለጽ ( )	
7.	ብሄረሰብ 1. አማራ	

	2. ኦሮሞ 3. ጉራጌ 4. ትግሬ 5. ሌላ ካለ ይገለጽ( )	
8.	የስራ ሁኔታ 1. ስራ አጥ 2. የቤት እመቤት 3. የመንግስት ሰራተኛ 4. ተማሪ 5. ሴተኛ አዳሪ 6. ነጋዴ 7. የቀን ሰራተኛ 8. ሌላ ካለ ይገለጽ ( )	
9.	የገቢ ምንጭ አለዎት? 1. አዎ 2. የለም	ለጥያቄቁጥር9የለም ከሆነ ወደ ቁጥር 11 ይሂዱ
10.	የወር ገቢዎ ስንት ነዉ በ ኢትዮጵያ ብር……..	
ክፍል 2 - ስነ-ተዋልዶ እና በአሁኑ ሰዓት ያለ የቤተሰብ ምጣኔ ተጠቃሚነት		
11.	የራስዎ የሆኑ ልጆች አለዎት? 1. አዎ 2. የለም	
12.	አዎ ከሆነ ከ እርስዎ ጋር የሚኖሩ ስንት ልጅ አለዎት? 1. አንድ 2. ሁለት 3. ሦስት እና ከሦስት በላይ	
13.	በህይወት ያሉ ነገርግን ከ እርስዎ ጋር የማይኖሩ ልጆች አሎዎት? 1. አዎ 2. የለም	የለም ከሆነ ወደ ጥያቄቁጥር15 ይሂዱ

14.	**አዎ ከሆነ በህይወት ያሉ ነገርግን ከ እርስዎ ጋር የማይኖሩ ልጆች ብዛት** **…….**	
15.	**በህይወት ተወልደዉ ከ ጊዜ በኋላ የሞቱ ልጆች አለዎት?** 1. **አዎ** 2. **የለም**	
16.	**አዎ ከሆነ በህይወት ተወልደዉ ከ ጊዜ በኋላ የሞቱ ልጆች ብዛት** **……**	
17.	**አጠቃላይ በህይወት ያሉ ልጆች ብዛት** **……**	**ጥያቄቁጥር12እና14 ይደምሩ**
18.	**ኤች. አይ.ቪ. ፖዚቲቭ መሆኖዎን ካወቁ በኋላ ያልተፈለገ እርግዝና አጋጥሞዎ ያዉቃል?** 3. **አዎ** 4. **የለም**	
19.	**በአሁኑ ሰዓት እርግዝና እንዳይፈጠር ወይም እርግዝናን ለማዘግየት የሚጠቀሙት የወሊድ መከላከያ ዘዴ አለ?** 1. **አዎ** 2. **የለም**	
20.	**አዎ ከሆነ ምን አይነት የወሊድ መከላከያ ዘዴ ነው የሚጠቀሙት?** 1. **ኮንዶም** 2. **እንክብል** 3. **በመርፌ መልክ የሚወሰድ (ዲፖፕሮቬራ)** 4. **በክንድ የሚቀበር** 5. **በማህጸን የሚቀመጥ (አይ.ዩ.ሲ.ዲ)** 6. **ሌላ (ዘላቂ የሆነ የእርግዝና መከላከያዎች)**	
21.	**ኮንዶም ለመጠቀምዎ ዋናው ምክንያትዎ ምን ነበር?** 1. **እርግዝናን ለመከላከል** 2. **የአባላዘር በሽታን ለመከላከል**	***(ለጥያቄቁ. 20መልስ ዎኮንዶም ከሆነ***
22.	**በአሁኑ ሰዓት ከሚጠቀሙት የወሊድ መከላከያ በተጨማሪ ኤች.አይ .ቪ ኤድስን ለመከላከል ኮንዶም ይጠቀማሉ?** 1. **አዎ**	

	2. **የለም**	
23.	**ኮንዶምን ሁል ጊዜ ይጠቀማሉ?** ***(በእያንዳንዱ ዎታዊ ግንኙነት)*** 1. **አዎ** 2. **የለም**	
24.	**ለ ለወደፊቱ ልጅ (ልጆች) እንዲኖርዎት ይፈልጋሉ?** 1. **አዎ** 2. **የለም**	
25.	**ለወደፊቱ ልጆች ላለመውለድ የወሊድ መከላከያ ለመጠቀምይፈልጋሉ?** 1. **አዎ** 2. **የለም**	
26.	**በአሁኑ ሰዓት ምንም አይነት የወሊድ መከላከያ የማይጠቀሙ ከሆነ ምክንያትዎ ምንድን ነው?*(ከ አንድ በላይ መልስ ይቻላል)*** 1. **የትዳር አጋሬ ፈቃደኛ ስላልሆነ** 2. **የወሊድ መከላከያ ማግኘት ስላልቻልሁ** 3. **ልጅ/ልጆች እንዲኖሩኝ ስለምፈልግ** 4. **የጎንዮሽ ጠንቆችን በመፍራት** 5. **ብዙ መድኀኒት መውሰድ ስለ ማልፈልግ**	**ለጥያቄቁጥር 19መልስ ዎየለምከሆነ**
ክፍል 3 - ከተጠቃሚው /ከህብረተሰቡ ጋር የተያያዙ ምክንያቶች		
27.	**ኤች.አይ.ቪ/ኤድስ የወሊድ መከላከያ ተጠቃሚነትዎ ላይ ተጽእኖ አድርሷል?** 1. **አዎ** 2. **የለም**	
28.	**የወሊድ መከላከያ ተጠቃሚነትዎን በግልፅ ከጾታዊ ግንኙነት አጋርዎ ጋር አውርተው ያውቃሉ?** 1. **አዎ** 2. **የለም**	
29.	**የትዳር አጋርዎ የወሊድ መከላከያ ተጠቃሚነትዎ ላይ ተጽዕኖ ያደርጋሉ?** 1. **አዎ** 2. **የለም**	
30.	**የወሊድ መከላከያ ተጠቃሚነትዎ ላይ የአቻ ግፊት ተጽዕኖ አለ ወይ?** 1. **አዎ**	

	2. **የለም**	
31.	**እምነትዎ(ሀይማኖት)የወሊድ መከላከያ ተጠቃሚነትዎ ላይ ተጽዕኖ አለው ወይ?** 1. **አዎ** 2. **የለም**	
32.	**ባህልዎ የወሊድ መከላከያ ተጠቃሚነትዎ ላይ ተጽዕኖ አለው ወይ?** 1. **አዎ** 2. **የለም**	
33.	**በተራ ቁጥር** 18፣ 19፣ 20 **እና** 21 **ላይ በሰጡት መልስ መሰረት ከታች የተዘረዘሩት ሁኔታዎች በምን መልኩ ነው የወሊድ መከላከያ ተጠቃሚነትዎ ላይ ተጽዕኖ ያላቸው?** 1. **የትዳርአጋር**…… 2. **አቻግፊት**…… 3. **እምነት/ሀይማኖት**…… 4. **ባህል**……	
34.	**የቤተሰብእቅድአገልግሎትተጠቃሚነትላይያለንዕውቀት/ግንዛቤመዳሰስ(*ተሳታፊውምሳሌማቅረብወይምቢያንስአንድየእርግዝናመከላከያዘዴንበ ትክክልመግለጽከቻለች)* **ቃለች** **ውቅም**	
ክፍል 4 - **ከ አገልግሎት አሠጣጥ ጋር የተያያዙ ሁኔታዎች**		
35.	**የእርግዝና መከላከያ ዘዴዎችን ለመጠቀም በፈለጉ ጊዜ በቀላሉ ያገኛሉ?** 1. **አዎ** 2. **የለም**	
36.	**የእርግዝና መከላከያ ዘዴዎችን የሚጠቀሙት የት ነው?** 1. **እዚህ ጤና ተቋምውስጥ** 2. **ከዚህ ጤና ተቋም ውጪ**	

37.	**የፀረኤች.አይ.ቪ.ህክምናአገልግሎትክፍልውስጥበሚሰጠውየምክርአገልግ ሎትውስጥበተያያዥነትስለቤተሰብእቅድአገልግሎትየምክርአገልግሎት ይሰጣልወይ?** 1. **አዎ** 2. **የለም**	
38.	**በአሁኑ ሰዓት የፀረ-ኤች.አይ.ቪ መድሃኒት ይወስዳሉ?** 1. **አዎ** 2. **የለም**	
39.	**የፀረ-** **ኤች.አይ.ቪመድሃኒትናኤች.አይ.ቪክእናትወደፅንስእንዳይተላለፍየሚደ ረግበትሁኔታለማርገዝባለዎትፍላጎትላይተጽዕኖአለውወይ?** 1. **አዎ** 2. **የለም**	
40.	**በ ቤተሰብ እቅድ አገልግሎት ምርጫዎ ላይ እና በተጠቃሚነትዎ ላይ የቤተሰብ እቅድ አገልግሎት ዘዴዎች ያላቸው የጎንዮሽ ጠንቆች ተጽዕኖ አላቸው ብለው ያስባሉ?** 1. **አዎ** 2. **የለም**	
41.	**ሌላም የቤተሰብ ዕቅድ አገልግሎት እንዳይጠቀሙ የሚያደርግ ስጋቶች ካለዎት እባክዎይግለፁ?** …… …… …… ……..	

ስለተባበሩን በድጋሚ እናመሰግናለን!!