Assessment of fertility desire and associated factors among People Living With HIV/ADIS attending Antiretroviral therapy clinic in Fitche Hospital, North Shoa Zone, Oromiya, Ethiopia.

By:

Dereje Bayissa (Bsc N)

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Department of Nursing

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Advisors:

1. **S/r Bosena Tebeje (Asst. Prof., MSC/RH, BSC N, RM)**
2. **Mr. Temamen Tesfaye (MSc, BSC N)**

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Jimma, Ethiopia

Abstract

Background: *-Most couples living with HIV/AIDS are of child bearing age and face difficult choices concerning their sexuality and child bearing. Couple's choices may be affected by direct or indirect social economic and cultural factors as well as medical factors. However, little is known about the fertility desire preferences of PLWHA in Ethiopia in genera and Fitche in particular.*

Objectives: *-To assess fertility desire and associated factors among PLWHA attending ART in Fitche Hospital, North Shoa Zone, Oromiya, Ethiopia 2013.*

Methods*: Facility based cross-sectional study design was employed on 340 PLWHA attending Fitche Hospital ART clinic from February21-April 20th, 2013. The study participants were selected using simple random sampling technique. A pre- tested semi-structured questionnaire was used to collect data and analyzed using SPSS Version 16.0. Qualitative data was collected from key informants by in-depth interview using interview guide and triangulated with quantitative result.*

Result*: Of all respondents majority 214 (62.9%) were females and 144 (42.4%) were between 30-39 years and educational status 184(54.1%) were attended primary to secondary school.*

The prevalence of fertility desire of PLWHA receiving care in Fitche Hospital was 133(39.1%) of whom 80(37.4%) were females and 53(42.06%) were males.

The indentified factors associated with fertility desired were:- Age from 18-29 years and 30-39years, duration stayed with partner/marital length, having no biological living children and 1 to 3 children, faced community pressure for having children, partner fertility desire, duration of time HIV-diagnosis ≤1 years, disclosed HIV-serostatus to partner and partner sero-difference.

Conclusion and Recommendation*: Study revealed that 39.1% of PLWHA have fertility desire currently or in the near future with significant predictors of age, marital length, have fewer or no living children, partner fertility desire, community pressure, duration of HIV-diagnosis, discordant HIV-test and disclose HIV-serostatus to partner. Therefore, Policy makers and Ministry of Health need to consider and plan for the implications of increased numbers of PLWHA who may choose to have children and should give greater emphases to address PLWHA's fertility issues in more comprehensive manner.*

Key words: *- Fertility Desires, HIV/AIDS, PLWHA and Fitche Hospital.*

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Acronyms

AIDS- ----------Acquired Immunodeficiency Syndrome

ART- ----------Antiretroviral Therapy

AOR.....Adjusted Odd Ratio

COR.....Crude Odd Ratio

HAART ----------Highly Active Antiretroviral Therapy

EDHS ----------Ethiopian Demographic and Health Survey

ETB----------Ethiopian Birr

FHAPCO----------Federal HIV/AIDS prevention and control office

FMOH ----------Federal Ministry of Health

HIV ----------Human Immunodeficiency Virus

JU.....Jimma University

MTCT----------Mother –To- Child Transmission

PMTCT ----------Prevention of Mother to Child Transmission

PLWHA ----------People living with HIV/AIDS

SPSS----------Statistical Package for Social Sciences

SSA----------Sub Saran African

UNAIDS ----------Joint United Nations Programme on HV/AIDS

WHO ----------World Health Organization

CHAPTER ONE

Introduction

1.1. Background information

HIV the virus that causes AIDS acquired immunodeficiency syndrome as become one of the world's most serious health and development challenges (1).The first cases were reported in 1981 and today, more than 30 years later and there are approximately 34 million people currently living with HIV and nearly 30 million people have died of AIDS-related causes since the beginning of the epidemic (1, 2).

Fertility desires defined as wish/ intention to have more children despite the diagnosis of HIV, whereas intentions denote a commitment to implementing fertility desires. Therefore, intention comprises both desire and planning aspects(3).Historically, policies in many countries discouraged HIV-infected individuals from having children in order to reduce the number of children born with HIV or born to HIV-infected parents, but a more flexible approach towards reproductive choices of PLWHA has now emerged. This shift has been mainly informed by a reproductive rights approach and universal access to PMTCT and ART interventions and the availability of assisted reproductive techniques for HIV infected people in developed countries which have dramatically reduced the chances of sexual and perinatal HIV transmission (4, 5).

This has given rise to the growing recognition of the rights of PLWHA to have children or prevent unintended pregnancies (6-9).

The complex relationship between fertility and HIV/AIDS threatens the preventive Strategies against the HIV epidemic in countries like Ethiopia, where the fertility rate is still high and PMTCT utilization low. The National HIV/AIDS strategic framework calls for a multi-sectoral response, guaranteeing rights of all people living with HIV/AIDS and facilitating the supply and use of antiretroviral drugs. Ethiopia has adopted the WHO/UNICEF/UNAIDS 4-pronged PMTCT strategy as a key entry point to HIV care for women, men and families. Technical interventions, including antiretroviral medications, essential obstetric care, health system management and resource allocation, and gender bias are part of the national comprehensive PMTCT program. Addressing all four prongs has potential to interrupt the cycle that leads to MTCT at several points(12). While the Government of Ethiopia's HIV policy is supportive of

HIV and reproductive health services integration, these services remain predominantly vertical in terms of program administration, funding and service delivery(13).

More than for others, reproducing (or "giving life") for HIV-positive individuals means transcending the death that appears near, and these figures may be much higher in low-resource settings, where the disease prognosis is still very poor. Ethiopia is characterized by high fertility that is culturally valued, high HIV prevalence, low levels of contraceptive use and significantly higher desires to have a child in the general population with a higher preference among men (69%) versus women (57%)(14).

1.2. Statements of the problems

The HIV cases have been reported in all regions of the World; almost all those living with HIV (97%) reside in low- and middle-income countries, particularly in sub-Saharan Africa and the result of continuing new infections, people living longer with HIV, and 1.7 million People died of AIDS in 2011, a 24% decrease since 2005(1, 2).

New HIV infections overall have declined by more than 20% since 2001 and, in 25 low- and middle-income countries, new infections have declined by more than 50%. Still, there were about 2.5 million new infections in 2011 or more than 7,000 new HIV infections per day and most new infections are transmitted heterosexually, although risk factors vary(1, 2, 15).

HIV is the leading cause of death among women of reproductive age and women, especially younger women, are biologically more susceptible to HIV and Young people, ages 15–24, account for approximately 40% of new HIV infections (among those 15 and over)(1).

Globally, young women twice as likely to become infected with HIV than their male counterparts and there were 3.3 million children living with HIV in 2011, 330,000 new infections among children (a decrease of 24% from 2009-2011), 230,000 AIDS deaths, and approximately 17.3 million AIDS orphans (children who have lost one or both parents to HIV), most of whom live in sub-Saharan Africa (88%)(1, 2).

Ethiopia is among the countries that are on top list of nations hard hit by HIV/AIDS pandemic.

According to the 2011 EDHS, HIV prevalence is 1.5 percent of adults age 15-49 are infected with HIV and Women have higher HIV prevalence 1.9% than men 1% (14).

PLWHA, just like the general population, desire to have children after learning of their HIV-status (17-19). Unlike the general population, however, people who know they are HIV infected

have additional issues to consider, including potential health risks for (re)infections, vertical transmission of HIV and orphaning. Despite these concerns, studies show that some PLWHA still wish to have children for a range of reasons(4, 20).

Most couples living with HIV/AIDS are of child bearing age and face difficult choices concerning their sexuality and child bearing (18).

As access to ART increases, HIV can be experienced as a chronic but treatable disease; PLWHIV are more likely to desire children. Most recently, fertility issues in HIV positive PLHIVA are becoming increasingly important(3). In a setting with high HIV prevalence and high fertility rates, addressing fertility issues of People Living with HIV/AIDS (PLWHA) is crucial. However, understanding of the factors associated with fertility desires of PLWHA in Ethiopia is remarkably low. In 2009, only 8 percent of HIV-positive pregnant women received ARV prophylaxis(16). Evidence relating to fertility and reproductive intentions among PLWHA is rare(21), despite the fact that more than 80% of PLWHA are of reproductive age(6).

Some studies revealed that the incidence of pregnancy was similar to the general population, despite the women having received counseling against pregnancy and provision of family planning services(21). For example study conducted in Brazil, in 2007, Cape Town, South Africa in 2009, Kabala, Uganda in 2011 and Nekemte, Ethiopia in 2011 shown that 15%, 11%, 17.6% and 69.4% HIV-infected women had at least one child post-HIV- diagnosis and also in Nekemte 12% men's partners becoming pregnant since HIV- diagnosis(4, 19, 22, 23).

It is important to study fertility desires and intentions and contraceptive use among PLWHA because HIV can be transmitted in the same way that pregnancy is achieved, that is, through unprotected hetero-sexual intercourse(10). Thus, unprotected sex among PLWHA, in order to conceive, carries the risk of transmitting HIV to sexual partners and subsequently to children during birth or breast feeding. The reproductive decisions made by PLWHA and their partners have long-term consequences for the survival and wellbeing of their families and society at large(11). Moreover, only few studies highlighted on PLWHA's fertility desires and available researches in the country in general and in the study area in particular didn't address fertility desires and associated factors and their implication for intervention programmes. Hence this study was conducted to assess fertility desires and associated factors among PLWHA attending ART clinics of Fitche Hospital.

CHAPTER TWO

Literature reviews

2.1.1. Fertility desire of PLWHA

Studies from different contexts worldwide indicate that HIV positive patient' manifest reproductive intentions and sexuality issues characterized by fertility intentions(15).

Many studies have been conducted on fertility desire of PLWHA among women in parts of the world. For example cross-sectional study conducted in Canada in 2009, South Africa in 2008, Malawi in 2007, and Ethiopia in 2011 in Addis Ababa revealed that 58%, 38%, 66% and 39% had fertility desire respectively(24-26).

Some studies have been conducted on fertility desire of PLWHA on both sexes in different countries, for instance cross-sectional study carried out in Cape Town South Africa in 2009, southwest Nigeria in 2005 and rural Uganda in 2011 shown that 51%, 63.3%, 13% had fertility desire respectively (27-29) and in Ethiopia in Addis Ababa in 2007, South Wollo in 2010 and Nekemte 2011, 40.2%, 36.4% and 36% had fertility desire respectively(36, 23, 30).

2.1.2. ART and fertility desires among PLWHA:-

Evidence on the effect of ART on fertility intentions is very mixed. Most studies have documented a positive relationship between ART use and desire for future fertility. A study found that ART use was positive associations with fertility desire have been reported in studies in South Africa, Brazil, Uganda and India. The availability of PMTCT programmes has also been found to motivate fertility desire(4, 31,32, 33). Interestingly one study revealed that negatively significant association between ART use and fertility desires in Nigeria(28).

PLWHA, just like the general population, desire to have children after learning of their HIV status (17-19).

2.1.3. Demographic factors that influence fertility desire among PLWHA include age,

Studies in Brazil(19), United States(37), South Africa(38), Uganda(29, 39) and Nigeria(28) have showed that younger PLWHA are more likely to desire (more) children than older PLWHA. Gender has been reported to influence fertility desires, with men being more likely than women to desire children in Uganda, Malawi, South Africa and Brazil(40).

Fertility desire has been reported to be negatively associated with number of living children among PLWHA in the United States(37), Brazil(31); South Africa(34, 38), Uganda(41, 42), Nigeria(35) and Malawi(21). Studies conducted in Ethiopia in Addis Ababa and Nekemte revealed that significantly associated with desired children were younger (18-29) years, married/in relationship, have no children, and had partner who also desire children more likely desires than others comparing group respectively and in addition to those variables, studied in Nekemte identified that town positively associated with 30-39 years, having no living child, having living 1-2 children, having a recently CD_4 count ≥200 cell/mm^3 (23, 36).

Health-related factors that affect future fertility among PLWHA apart from ART use include subjective health status(20). A limited number of studies show that PLWHA who felt healthier were more likely to be in favour of having more children in the United States(37), India(32) and Nigeria(44).

2.1.4 Socio-cultural factors that affect fertility desire among PLWHA includes cultural norms and values about parenthood, social support, and disclosure of status. Although it is well known that cultural factors contribute to high fertility rates in the general population in SSA extant studies on PLWHA rarely consider cultural factors, as most of them are quantitative, while qualitative and mixed methods studies are few and far between(20). In many societies and especially in SSA with those who are childless receiving negative social disapproval. Children are valued for their household or farm labour and economic contribution, insurance for old age support, lineage perpetuation and posterity and securing a marriage(45). The value of children in the identity and social status of men and women applies to PLWHA as well, and so they are under intense pressure from family, spouses and friends to reproduce (4,45, 46).

2.1.5. Social support and disclosure status of PLWHA:-

Social support and disclosure and stigma are some of the related social factors that affect fertility desire among PLWHA. Studies show that stigma and social support can affect fertility intentions in both directions(20). PLWHA with greater internalized stigma find it difficult to disclose their status in order to obtain social support(48). Those with perceived low self-stigma are more likely to disclose their status(49),discuss their fertility intentions with partners and health care providers factors that may foster positive feelings towards childbearing. However, stigma and social support can also have a reverse effect(46).

For example, a study in Uganda found that those PLWHA with higher scores on social support and internalized stigma were less likely to desire children(4, 46,47).

2.1.6. Contraceptive uses among PLWHA:-

Family planning use among PLWHA has considerable population and public health benefits. In addition to reducing unwanted pregnancies, family planning can help PLWHA to prevent the transmission of HIV to sexual partners and children. There is evidence that provision of contraception is a more cost-effective approach than use of antiretroviral prophylaxis in preventing vertical transmission(34), and so should be an important component of PMTCT(50). Family planning serves to improve maternal and child health, reduces HIV infected infants and orphans, and reduces fertility (34, 47).

Some studies show a positive relationship between HIV infection and contraceptive use. For example, studies show that women who know that they are HIV positive are more likely than HIV negative women to be using contraception in Zimbabwe(51) and Rwanda(50). On the other hand, studies in Kenya and Zambia showed that HIV- positive women and HIV- negative women had similar contraceptive use rates(52). A study in three SSA countries found that the demand for contraceptives was similar for both HIV-positive and negative women in Kenya and Zambia, but higher for HIV-positive women in Rwanda(6).

2.1.7. Reasons for have fertility desires or not have fertility desires of PLWHA:-

Some studies identified that the majors reasons mentioned for fertility desires of among PLWHA reproductive ages. For instance study conducted in rural Uganda in 2011, New Guinea in 2011, Rural Malawi in 2010, Ethiopia in(A.A, and Nekemte in 2011) were wanting at least one child/ more children , to reach ideal family size, no live child, wanting a different sex, support in old age, family/partners influence to have children, marriage, replacing previous died child and sufficient financial means as important in their fertility desires for PLWHA (21, 23, 26, 29, 53).

Some studies identified that the majors reasons mentioned for not having fertility desires of among PLWHA For example, study conducted in rural Uganda in 2011, New Guinea in 2011, Rural Malawi in 2010, Ethiopia in (Addis Ababa and Nekemte in 2011) were insufficient financial means, already attained the desired number of children, believed that their health condition would be compromised by childbearing, due to fear of MTCT of HIV, gave advice from health workers, fears of infant or partner infection or children becoming orphans were the majors reasons (21, 23, 26, 29, 53).

2.1.8. Sexual desire/activities:-

Understanding sexuality is a key to understand many beliefs & behaviors which affect health and reproduction. Sexuality is at core of human identity and personhood. Sexuality starts from early life of human being(18). For instance in study conducted in Cape Town, South Africa, the vast majority of women 88% and men 87% on ART were in stable intimate heterosexual relationship(18). Study conducted in Addis Ababa in 2011 shown that 36.7% of participants were sexually active within the preceding six months, of whom 73% had used condom and Nekemte town 70% of respondents were sexual active from those 78.4% among men versus 61.8% among women were sexually active in the six months prior to interview and 72% have current sexual practice with regular/one partner(23, 26).

There are two main gaps of previous studies on PLWHA on fertility desires were that they focus almost exclusively on women without included men.

The current study will be focused on all reproductive age men and women and in addition to this some variables likes, partner fertility desires, contraceptive use, and social support and sociocultural are included to see the associations.

2.2. Conceptual Framework

The conceptual framework of this study was based on the Traits-Desires-Intentions-Behavior (TDIB) framework developed by Miller to describe the psychological sequence that culminates in reproductive behaviors(54). Miller used this framework to trace the sequence of how childbearing motivations lead to fertility desires, fertility intentions and subsequent childbearing.

These motivations are in turn activated as the individual's desires for parenthood, which are then transformed into intentions to bear children. Childbearing motivational traits in a traditional African society like ours include personal and sociocultural characteristics, such as age, marital status, level of education, income, ethnic background, number of surviving children and high social values placed on childbearing and HIV-related factors, such as the quality of life, use of antiretroviral drugs, time since diagnosis of infection, disclosure status and stage of disease progression (clinical and laboratory) are possible motivational traits among this population.

Therefore, variations of both implicit and explicit motivational traits may present situations or circumstances that determine whether desires are translated into intentions(54).

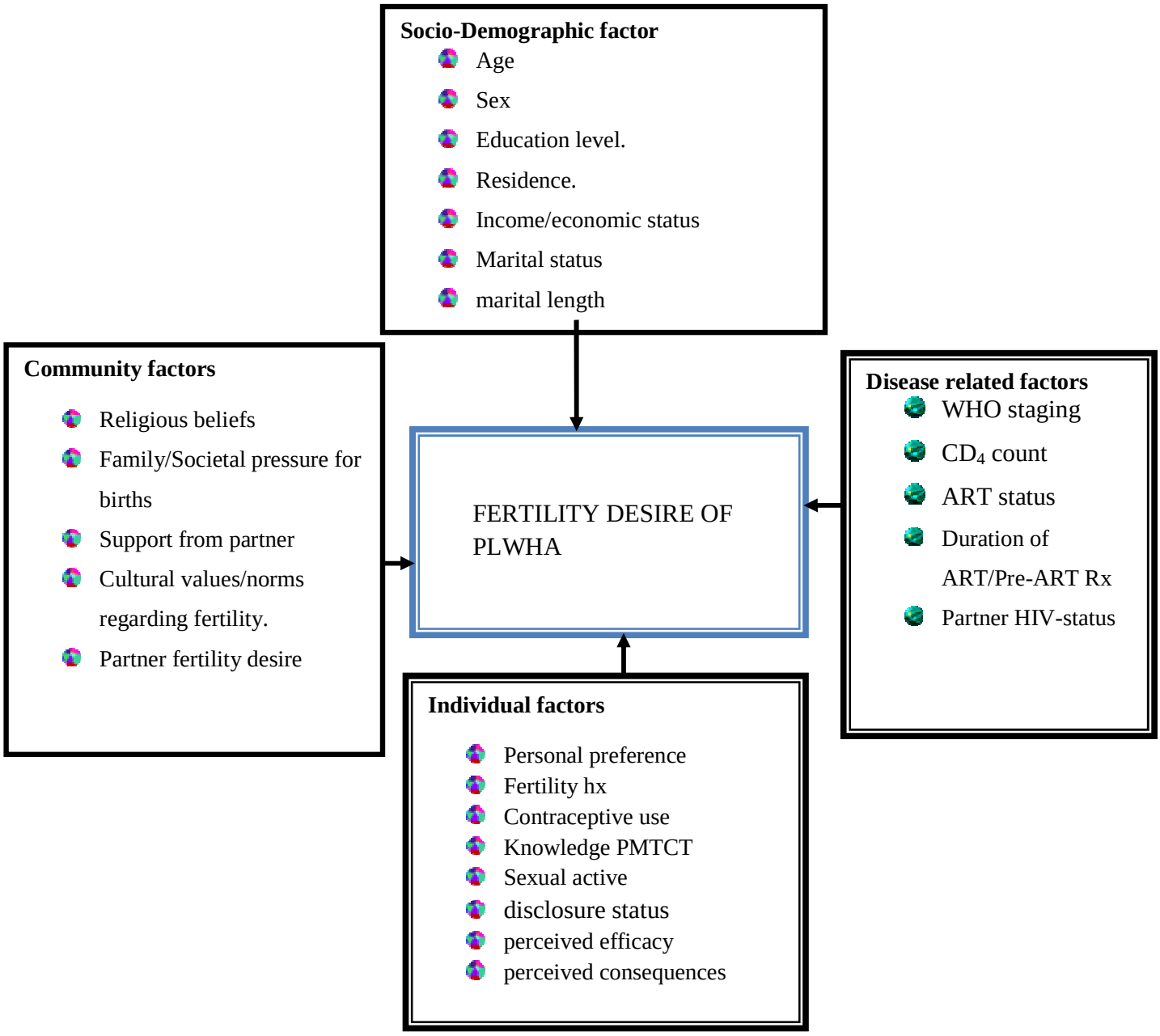

Figure 1: Conceptual Framework of Fertility Desire & Associated Factors of PLWHA(54)

2.3. Significance of the study: -

There were many factors responsible for fertility desire for PLWHA which need to be identified by researches and which are different from facility to facilities. The major consequences of fertility of PLWHA are increasing new HIV infection, orphan children and unwanted pregnancy among these populations. In order to design effective policies and interventions that will protect PLWHA and their sexual partners, and unborn children, knowledge of factors affecting of sexual and reproductive intentions amongst PLWHA is crucial.

It will expected that findings generated from this study will contribute to the understanding of the level and factors influencing fertility desires and reproductive intentions and aid programme designing and practice to address counseling and SRH service needs of PLWHA.

The majority of PLWHA of the study area and the country in general are reproductive age and the main modes of HIV transmission in Ethiopia are heterosexual and mother-to-child transmission.

Understanding factor affecting fertility desire and desire for children for PLWHA is necessary to help them enjoy their sexual lives and achieve reproductive goals without sacrificing the health of their partners, their children and their own health.

Further, the result will be accessed for all concerned and interested bodies for utilization.

It also will be used as references and source for further study on the same or similar topics researches.

CHAPTER THREE

Objectives of the study

3.1 General objective

To assess fertility desire and associated factors among PLWHA attending ART clinics in Fitche Hospital, North Shoa Zone, Oromiya, Ethiopia, 2013.

3.2 Specific objectives

1. To determine the prevalence of fertility desires among PLWHA attending ART clinic of Fitche hospital
2. To identify factors associated with fertility desire among PLWHA attending ART clinic of Fitche hospital

CHAPTER FOUR

METHODS AND SUBJECT

4.1 Study Area and period

The study was conducted from February21st to April 20th 2013, in Fitche Hospital ART clinics which found in Fitche town ,North shewa Zone, Oromiya Regional State in Northern part of Ethiopia and 115 Kms North of Addis Ababa.

According to the national population and housing census of Ethiopia, the projected population of the zone for 2007/2008 was estimated to be 1,388,617 and from those 6, 951, 87 (50.06%) were males. The estimated to be pregnant women annually were 51,379 in the zone.

The area has 2 hospitals, 48 health centers and 268 functioning health posts with estimated potential health service coverage of 91.6% (55 56). The total numbers Reproductive ages currently on HAART and Pre-ART in north shoa zone was 8821(55).

There were different governmental and non-governmental organizations working on HIV/AIDS in the town. There were 13 health centers and two hospitals ART sites in North shewa Zone and Fitche Hospital is one of the oldest public Hospitals. Fitche Hospital was provides different services like OPD, IPD MCH, and TB and ART services by different disciplines.

The total numbers of reproductive age PLWHA in Fitche Hospital is 2131(from those 1211 on ART and 920 Pre-ART respectively) at the end of October 2012 reports of Fitche Hospital ART clinic(56).

4.2. Study Design

A facility based cross-sectional study design with both quantitave and qualitative data collection methods was employed to assess fertility desire and associated factors of PLWHA attending ART clinics in Fitche Hospital.

4.3. Population

4.3.1. Source population:-

All Reproductive age PLWHA in North shoa Zone attending ART clinic in Fitche Hospital.

4.3.2. Study Population

All Sampled reproductive age PLWHA in North shoa Zone attending ART clinic in Fitche Hospital fulfills inclusion criteria.

4.3.3 Study unit:-The study units were the individual ART and Pre-ART clients fulfills inclusion criteria.

Inclusion criteria

- Those within the reproductive age (18- 49) years for women and 18 years and above for men.
- PLWHA who had no history of hysterectomy, bilateral tubal ligation and vasectomy.
- On ART or Pre-ART for a period of at least 6 months prior to data collection (the six month duration.

Exclusion criteria:-

- All PLWHA: who were unable to hear, mentally disabled and seriously ill were excluded.

4.4. Sample size determination and sampling techniques:-

4.4.1. Sample size determination

For the quantitative study sample size determined using single population proportions. A study conducted in Addis Ababa on Fertility Desires among PLWHA in Addis Ababa ART Units in 2007 indicated that fertility desire was 40.2% (36).

$$\frac{(z^2\alpha/_2)pxq}{D^2} = \frac{(1.96^2)40.2x59.8}{5^2} = 370$$

Where:- ni = the required sample size

Z $^{a/2}$ = 1.96 (95% confidence interval)

P = HIV +Ve individuals fertility desire proportion was taken (40.2%).

D = the margin of error (precision) 5%

Since the total numbers of reproductive age (source populations) ART & Pre-ART clients in Fitche Hospital were less than 10,000 (which is 2131) correction formula was used to adjusted the final sample size was

$$nf = \frac{ni}{1+\frac{ni}{N}} = \frac{370}{1+\frac{370}{2131}} = 315$$

By considering 10% non-response rate, the total sample size calculated was 347.

Where: - N = total numbers of reproductive age ART& Pre-ART clients at Fitche Hospital.

nf = final corrected sample size

4.4.2. Qualitative method-

For qualitative method the purposive nominee groups of key informants of mother supporting and peer educators recruited by ICAP, who are PLWHA was included.

The total 10 individual was considered has saturation of required information of which 4 from mother supporting group and the rest 6 from peers educator.

4.5. Sampling technique:-

A list of reproductive age(18-49 women and 18 years & above men) PLWHA was prepared and entered into computer SPSS window 16.0 version from ART and Pre-ART registration book /HMIS data base then:-

The sample technique was simple random sampling technique selected randomly by computer generated ART and Pre-ART number.

Before data collection was started the data collectors (ART trained nurses) cross check the ART and Pre-ART card numbers of individual PLWHA with sampled card numbers.

For qualitative:-purposive sampling technique was used to selected key Nominee groups of mothers supporting 4(four) and 6(six) two men and four women peer educators which are PLWHA.

4.6. Data Collection instruments and Method of Data Collection

4.6.1. Data Collection instrument:

The data collection tools was adapted from different relevant literatures published sources (23,26, 36) and modified to the local context.

The quantitative questionnaires were included different study variables and consist of four sections:

I, Socio-demographic data:

II. Individual related factors.

III. Community related factors

IV. Disease related factors.

For the qualitative study open ended semi structured interview guide was used.

4.6.2. Data collection procedures:-

Quantitative data was collected by two trained clinical nurses who working in the ART clinics of the Hospital collect through face to face interview method using semi-structured questionnaire.

Data collectors were trained for one day on the objective, relevance and benefits of the study, confidentiality of information, respondent's right, informed consent and technique of interview supported with demonstration. Data collectors were selected based on their ability to speak the local language both Afan Oromo and Amharic fluently.

Qualitative data was collected from key informants of mother supporting group, and peer educators who are PLWHA by ART focal person through in-depth interview using semi-structured interview guide. Voice recorder and field-notes were used to capture the information obtained from the in-depth interview.

4.7. Study Variables

4.7.1. Independent Variables

Socio-Demographic factors variable:- age sex, educational status, marital status & length, living place/residence and economical status of study participants**.**

Disease related factors variable:-WHO staging**,** CD_4 count, ART status, partner sero-status and duration of ART Rx

Community factors variable:-Religious beliefs, Family/Societal pressure for births/fertility desires and partner fertility desire.

Individual factors variable:-Personal preference, Fertility history, number& Sex of children alive, infant death due to HIV/AIDs, Contraceptive use, Sexual active, perceived efficacy and perceived consequences.

4.7.2. Dependent Variable

Fertility Desire of PLWHA

4.8. Data Quality management:-

The questionnaires for data collection were initially prepared in English, and translated to Afan Oromo and Amharic and back to English to check for its consistency by language expert.

Finally the corrected Afan Oromo and Amharic version was used to collect the data.

To ensure the quality of data appropriate training was given to data collectors for one day.

Before the actual data collection, the quantitative questionnaire was pre-tested on 5% of the sample (17 ART/ Pre-ART clients).

Participants of the pilot test were in ART clinic of Kuyu district Hospital that located in Gerba guracha town 45Kms from Fitche town and find in the same zonal administration.

The purpose of the pre-testing was to ensure that the respondents are able to understand the questions and to check the wording, logic and skip order of the questions in a sensible way to the respondents. The questionnaire was then assessing for its clarity, length and completeness. Some skipped patterns were then corrected, questions difficult to ask were rephrased and facility services related questions were removed to avoid information bias. The data collection was supervised by one BSc nurse and the principal investigator. The principal investigator and the supervisor were closely following the data collection process throughout the data collection period.

All filled/completed questionnaires were reviewed each night and morning sessions were conducted every day with the data collectors and any observed errors were corrected accordingly.

To ensure quantitative data quality; privacy, confidentiality of the respondents, good interaction During analysis 10% of collected data was entered, and cross checked for errors by running simple descriptive analysis using SPSS version 16.0 before analysis of the whole data.

For qualitative data the interview was guided by interview guide and conducted in separate audio visual confident room. The participant was strongly assured that the data and the process are confidential and as well as unnamed.

4.9. Operational definition and definition of terms:-

Fertility desires: - a psychological state in which someone has the personal motivation to have a child. Those who have motivation to have more children in the future have fertility desire (yes/intended to have).

Those who have no motivation to have more children have no fertility desire (not intended /No).

Fertility intention: - represent a conscious commitment to act or try to achieve a particular goal- in this case, childbearing.

Fertility needs: A want of PLWHA to have desired family size, number of children, intended or unintended pregnancy, wanted or unwanted pregnancy.

Fertility desire among PLHIV: The wish/ intention to have more children despite the diagnosis of HIV.

Mother to child transmission: - refers to the transmission of HIV from the mother to the child through various mechanisms like delivery, breast feeding, and pregnancy.

Prevention of mother to child transmission: - refers to the methods that help to decrease the chance of transmission of the virus to the born by a certain percent

MTCT and PMTCT knowledgeable:-Ten questions were asked about PMTCT. For a possible maximum score of ten; correct answers scored 1 while incorrect or unsure answers scored 0. Using Bloom's criteria, a total score of 80% or more indicated good knowledge; 60% - 80% indicated moderate knowledge; and a score of less than 60% indicated poor knowledge (23).

Changed sexual desire: PLWHA who reported that they had increased or decreased sexual desire after receiving ART drugs compared to sexual desire prior to diagnosis.

Sexual active:-A client who has had sexual intercourse at least once in the last 6 months (14)

Sexual desire: Refers to a wish or expressions of PLWHA drawing one sex toward another.

Perceived efficacy means that, those who perceived able to achieve their fertility desire.

Perceived consequence means that, those who perceived fear of negative consequences or unable to achieve their fertility desire in the future.

Anti Retroviral (ARV):- drugs that have suppressive effect on HIV.

Anti Retroviral Therapy (ART):- is an anti HIV treatment using a combination of a minimum of at least three ARVs.

4.10. Data processing and Analysis:-

4.10.1. Quantitative data

After data collection, each questionnaire was checked for completeness and code was given before data entry. Data was edited, entered, sorted, cleaned (explored) for outliers, missed values and missed variables and analyzed using SPSS version 16.0 statistical packages for analysis and the analysis was started with simple descriptive summaries like frequencies, mean, median etc. Before the variable was entered in to logistic regression model multicollinearity between the variables was assessed and if correlated variables identified independently analyzed. Logistic regression analysis was used to seen the association of independent variables with the dichotomize dependent variables was tested using binary logistic regression. Adjustment was made for predictor variables that were significantly related to the outcome variable at the bivariate level.

All variables, find to be associated with the main outcome variables by having P< 0.25 in the bi-variate model were candidates for the multivariable model at 95% C.I (P-value < 0.05).

The result was presented using tables, figures and narratives.

4.10.2. Qualitative data:-Initially transcript of data was prepared with the language of interview from the audio record and written notes of the in-depth interview.

Data captured using tape records was translated word by word into English language and color coded, organized and summarized manually under the main thematic area and presented the result by extracted concepts from main themes and triangulated with the quantitative result.

4.11. Ethical Consideration:-

Ethical clearance letter was initially obtained from Jimma University College of Public Health and Medical Sciences Ethical Committee. Then written consent was secured from Fitche hospital medical director and matron office which was provided to head nurses and staff nurses to get permission. Further, study participants was briefed about the study by the data collectors by stating the main objective and any unclear points related to the study was explained, after which the interview was begun. Moreover, to ensure confidentiality the name of respondents was not written on the consent form. Telling that his/her participation in the study was very important, every client to been interviewed was been informed that he/she has a full right to discontinued the interview.

4.12. Dissemination of the Study Result:-

The result of the study will be disseminated to Jimma University College of Public Health and Medical Sciences, Department of Nursing and different institutions working with PLWHA through presentation to scientific community and by giving copies of the research. Further, the result will be accessed for all concerned and interested bodies for utilization.

It will also be published on peer reviewed journal

CHAPTER FIVE

Result

5.1 Socio demographic characteristics

Of 347 sampled PLWHAs, data were collected from 340 which a response rate of 97.98%. Among study participants majority 214 (62.9%) were females. Of all respondents 144 (42.4%) were between the age 30-39 years and 111(32.6%) were age 40± years. The range was from 18-70 years for males and 18-49 years for females with a mean age of 36.2 ± 9.2 years.

Concerning ethnicity, majority of the respondents 265(77.9%) were Oromo followed by Amhara which account, 73 (21.5%). regarding religion 325(95.6%) of the respondents were Orthodox.

More than half of respondents 195(57.4%) were married with marital duration of 54(26.6%) was 5-9 years and 70(34.5%) was greater than 15 years marital length.

With regard to educational status, 184(54.1%) were attended primary to secondary school. Concerning occupational status 78(22.9%) were daily labour, 77(22.6%) merchants, and 43(12.6%) governmental employments and 20(5.9%) were unemployment.

With regarding to family monthly income distribution of respondents, 105(30.9%)had an income between 501-999 and only 60(17.6%) more than 1000 Ethiopian birr per month as showed in table 1. Their median monthly income was 539.48 Ethiopian Birr (1 US$ = 18.42 Birr) with average monthly income was 735.9±631.48 SD birr.

Of 340 respondents about 271(79.7%) were living in Urban area (table 1)

Table:1 Sociodemographic characteristics of PLWHA attending ART clinic in Fitche Hospital, North shoa Zone, Ethiopia , 2013.

Socio-demographic variables	Categories	Frequency (n= 340)	Percent (%)
Sex	Male	126	37.1
	Female	214	62.9
Age	18-29 years	85	25.0
	30-39years	144	42.4
	> 40+ years	111	32.6
Ethnicity	Oromo	265	77.9
	Amhara	73	21.5
	Others**	2	0.6
Religion	Orthodox	325	95.6
	Others*	15	4.4
Occupation	Daily labor	78	22.9
	Merchant	77	22.6
	Gov't employed	43	12.6
	House wife	65	19.1
	Farmer	57	16.8
	Unemployment	20	5.9
Level of school	Illiterate	132	38.8
	Primary and secondary (1-8)	118	34.7
	High school and preparatory school(9-12)	66	19.4
	College and above	24	7.1
Marital status	Married	195	79.1
	Single	19	8.8
	Windowed	56	12.1
	Divorced/separated	70	20.5
Family Income	<=350 birr	94	27.6
	351-500 birr	81	23.8
	501-999 birr	105	30.9
	>=1000birr	60	17.6

5.2 Individual related factors of PLWHAs

5.2.1. Sexual activity and contraceptive use information of PLWHA

The majority of respondents 234(68.8%) were sexually active of which 187(79.9%) had sex with regular partner (husband/wife). From these sexually active PLWHA about 207(88.5%, were had one sexual partner.

The majority of them 169(60.8%) were used condom, of which 120(71.0%) used always, 81(48.0%) used dual methods of contraceptive by themselves or their partners of which majority, 73(90.1%) were used Depo-Provera in addition to condom.

The main reason mentioned for use of condom, 115(33.8%) were said that for dual protection (pregnancy/STI/HIV), 35(10.3%) to protect a negative partner, 15(4.4%) fear of re-infection with new stain of HIV and 4(1.2%) advised by health professionals.

From those not used condom reasons mentioned were partner objection, feeling it was not comfortable and desired to conceived which account 59(17.4%), 25(7.4%) & 24(7.1%) respectively.

Table 2: Sexual Activity and contraceptive use information of PLWHA attending ART clinic in Fitche Hospital, North shoa Zone, Ethiopia, 2013.

Variables	Frequency(n)	Percent (%)
Sexual active in the last six months(n=340)		
Yes	234	68.8
No	106	31.2
Sex with whom	**n= 234**	
Regular partner(husband/ housewife)	187	79.9
multiple sexual partners	47	20.1
Have had partner	**n=340**	
Yes	203	59.7
No	137	40.3
change sexual partner since HIV diagnosis	**n=340**	
Yes	87	25.6
No	253	74.4
Condom use	**n = 234**	
Yes	169	72.2
No	65	27.8
Number of sexual partner	**n=234**	
One	207	88.5
Two& more than two	27	11.5

5.2.2. Reproductive history of PLWHA:-

From a total interviewed PLWHAs, the majority 290(85.3%) had living children of which 59.4% had 1 - 3children and 25.9% had more than 4 children where as only 50(14.7%) had no biological living children and in-depth interviews discussants supported this, for example: - as "*A 28 year woman narrates that I'm still young and has not yet achieved my reproductive goals. I want another child, a son, for her husband to carry the paternal lineage forward and strength marital bond"*.

From those who had biological children 24(8.3%) were previously died related to HIV/AIDS or others diseases after learnt their or their partners' serostatus. On the other hands about 58(17.1%) had non biological children of which 48(82.8%) have one and the rest 10(17.2%) have more than two non biological children.

From the total interviewed PLWHAs' about 83(24.4%) had at least one pregnancy by themselves or their partners post-HIVdiagnosis of which 62.7% was intentional/ planned. The outcomes of these pregnancies were:-66.3% alive birth, 14.5% abortion, 7.25% still birth and 12.0% currently pregnant.

Table:3: Reproductive history of PLWHA attending ART clinic in Fitche Hospital North shoa Zone, Ethiopia, 2013.

Variables	Frequency(n)	Percent (%)
Number of living children	**n=340)**	
No living child	50	14.7
1 to 3 children	202	59.4
≥ 4 children	88	25.9
Child died related HIV before	**n=290**	
Yes	24	8.3
No	266	91.7
Pregnant or partner pregnancy since HIV-Dx	**n= 340**	
Yes	83	24.4
No	257	75.6
Intentional pregnancy	**n=83**	
Yes	52	62.7
No	31	37.3
Outcome of pregnancy	**n = 83**	
Alive birth	55	66.3
Still birth	6	7.2
Abortion	12	14.5
Currently pregnant	10	12.0

5.2.2.1. Fertility desire of PLWHA:-

Out of 340 PLWHAs interviewed 133(39.1%) with 95% CI of (34.3% -44.3%) have fertility desire of which 24(18.0%), 18(13.5%), 33(24.8%) and 58(43.6%) were desired to have child within next 12 months, within one to 3 years, after three years and did not decided the time when

to have children respectively and also the majority of in-depth interviews discussants supported this for example:-as one *man explained:" I need a child strongly. It gives me self esteem and value so, no loneliness. I proved PLWAs can get negative child that is why I desire strongly after five years. I have a three and half year old negative child which I got after started ART and happy now".40years/Male married, 10th grade.*

5.2.3. Perceived efficacy and consequence of PLWHA about their fertility desire:-

From those who have fertility desire about 77(57.9%) and 56(42.1%) will have future desire number of a child, one and more than two children in the future and ranges from 1 to 4 children to achieved their fertility desire respectively. With regarding to the preference of sex of child born in the future about 69(51.9%) were not preferred any sex as God known and 41(30.8%) was preferred male sex. The main reasons mentioned for their current fertility desire were 36.8% wanted at least one child to replaced themselves, 38.3% did not have desired number of children and 20.3% believed that by using ART/PMTCT to get HIV free baby (perceived efficacy of PMTCT and ART) and others reasons like to strength their marriage and replacing previously died baby (table 4).

Of the total respondents 35(10.3%) were taken action to been pregnant or their partner's of which 17(48.6%) were stopped taken contraceptive methods.

Out of the total study participants only 137(40.3%) were discussed about fertility intentions and others reproductive health needs with health professionals during follow up care (table 4).

With regarding PLWHAs who have no fertility desire 207(60.9%) were mentioned their main reasons for not having fertility desire of which 69(33.3%), 59(28.5%), 34(16.4%) and 45(21.7%) were lack of adequate income, already achieved desired numbers of children, child bearing compromised their or their partner's health and the rest mentioned fear of MTCT and fear of infected their partner while try to conceive respectively. This finding is supported by most of in-depth interview discussants, for instance: - as one woman discussant *explained: "I have three children, me and the smallest are on ART but my husband is negative. Now I feel very sorry for the suffering of my baby hence I do not repeat the same sin by bearing positive child. Moreover my health shall be kept well by avoiding birth as my husband and ART providers advised me"*.36/Female, from peer educator, having three children and one on ART).

Table:4 Fertility desire of PLWHA attending ART clinic in Fitche Hospital North shoa Zone, Ethiopia,2013.

Variables	Frequency(n)	Percent (%)
Do you have fertility desire	**n= 340**	
Yes	133	39.1
No	207	60.9
When do you desire to have a child	**n= 133**	
Within next 12 months	24	18.0
Within one to three years	18	13.5
After three years	33	24.8
Not decided when to have a child	58	43.6
Take action to become pregnant /your partner's	**n=340**	
Yes	35	10.3%
No	305	89.7%
What kinds of action did you take	**35**	
stop take contraceptive methods	17	48.6%
discussed fertility intentions with caregivers	11	31.4%)
approach to their partner	7	20.0%
Number of children desire to have in the future	**n=133**	
One child	77	57.9
≥ 2 children	56	42.1
Reason for their current fertility desire	**n= 133**	
Want at least one child	49	36.8
I did not have desired number	51	38.3
To strengthen marriage	4	3.0
Perceived efficacy of ART/PMTCT	27	20.3
To replace died baby before	2	1.5
Preference of sex for future fertility desire	**n=133**	
Male	41	30.8
Female	23	17.3
No preference(God knows)	69	51.9
Reason for not have fertility desire	**n=207**	
Achieved desired no of child	59	28.5
Fear of MTCT	16	7.7
Don't have adequate income	69	33.3
Child bearing may further compromise my health	34	16.4
Fear of orphanage	18	8.7
fear of infection partner while try conceive	11	5.3
Disscuss fertility intention with health profession	**n=340**	
Yes	137	40.3
No	203	59.7

5.3. Disease related factors of PLWHA:-

Out of the total respondents almost all 310(91.2%) were on ART of which 50(14.7%) were 6months to 1 year, 130(38.2%) were 2-4 years and 160(47.1%) were more than 5(five years) since enrolled to ART clinic.

With regarding to partner's /spouse's ART status from total who have had partner 203 about 143(70.4%) were HIV-positive and of which 100(70.0%) were on ART.

From the total study participants about 87(25.6%) of them were changed their sexual partner since HIV diagnosis

Of total on ART, PLWHA almost all 307(99.0%) reported that their health status was improved after started HAART and their recent CD_4 counts more than half 187(55.0%) was $\geq$350cells/m^3.

From the total ART started PLWHA reported that about 103(33.2%) their fertility desire was different after started ART and 204(60.0%) were believed that their current health status affected their future fertility intentions.

Out of the total respondents the majority 222(65.3%) were stage three at the time of enrolled to ART clinic (table 5).

About 195(87.4%) of PLWHA who have partner and 254(74.7%) of total respondents were disclosed their HIV-status to their partner and family respectively.

Knowledge about prevention from mother-to-child transmission (PMTCT) 209(61.5%) had good knowledge of which 136(63.6%) women and 73(57.9%) men and also knowledge about mother to child transmission 298(87.6%) were knowledgeable about HIV transmission from mother to child while time of transmission of virus from mother to child 140(41.2%), 163(47.9%) and 224(65.9%) were answered correctly during breast feeding, labor and pregnancy respectively.

About 216(63.5%) PLWHAs were have information PMTCT and of which 202 (59.4%) have positive attitude for PMTCT.

Regarding to their sources of information about PMTCT majority of them 212(62.4%) were from health care providers and the rest 128(37.6%) were from mass medias and friends/peers. Of total PLWHA the main reasons mentioned was not used PMTCT 281(82.6%) had no awareness about availability of PMTCT and 52(15.3%) were fear of stigma and discrimination

Table 5: Disease related factors of PLWHA attending ART clinic in Fitche Hospital North shoa Zone, Ethiopia, 2013.

Variables	Frequency(n)	Percent (%)
HIV transmits from mother to child	**n= 340**	
Yes	298	87.6
No	42	12.4
Time of MTCT	n= 340	
During pregnancy	224	65.9
During labor	163	47.9
During breast feeding	140	41.2
Have information about PMTCT	n=340	
Yes	216	63.5
No	124	36.5
Sources of information on PMTCT	**n=340**	
Health care providers	212	62.4
Mass media	65	19.1
From friends/peers	63	18.5
Knowledge about PMTCT	**n=340**	
good Knowledge	209	61.5
poor knowledge	131	38.5
Start ART	**n=340**	
Yes	310	91.2
No	30	8.8
Partner HIV status	**n=203**	
Positive(concordant)	143	70.4
Negative(discordant)	60	29.6
Duration of time since enrolled to ART	**n=340**	
6 months to 1 year	50	14.7
2 to 4 years	130	38.2
≥5 years	160	47.1
Current CD_4 count	**n= 340**	
≤350 cells/m^3	153	45.0
≤350 cells/m^3	187	55.0
WHO stage when enrolled to ART	**n= 340**	
Stage 1	59	17.4
Stage 2	48	14.1
Stage 3	222	65.3
Stage 4	11	3.2

Disclosed HIV status to partner	**n=223**	
Yes	195	87.4
No	28	12.6
Disclosed HIV serostatus to family	**n= 340**	
Yes	254	74.7
No	86	25.3
Difference in fertility desire after started HAART	**n= 310**	
Yes	103	33.2
No	207	66.8
Current health status affected future child bearing intention	**n=340**	
Yes	204	60.0
No	136	40.0

5.4. Community related factors of Fertility desire of PLWHA:-

Regarding to partner's fertility desire more than half 104(51.2%) have fertility desire.

Of total respondents about 99(29.1%) and 80(23.7%) reported that they were faced their partner's or their family's' pressure and community pressure for having children respectively. This finding is supported by 90% of in-depth interview discussants, for example: - as one man *explained: "Bearing children is important as one with no children is forgotten when died. Wealth shall be transferred to children otherwise it is lost. My parents and community will not respect me and my property. One without child is not considered born and the community called them as mule/infertile endwodi (ፍሬ የማያፈራ እንደድ ወይም በቅሎ ብሎ ይጣራሉ)"* 45 yrs/Male, Married 12th grade completed.

Concerning social support only 40(11.8%) were got of which 25(62.5%) were received food and 15(37.5%) were psychosocial support and sources of these support was 20(50.0%) NGOs and 15(37.5%) were from family and the rest was from governmental institutions.

Table 6: Community related factors of Fertility desire among PLWHA attending ART clinic in Fitche Hospital North shoa Zone. Ethiopia 2013.

Variables	**Frequency (n)**	**Percent (%)**
Desire of a partner to have child	**n= 203**	
Yes	**104**	51.2
No	**99**	48.8
partners or family pressure for having children?	**n=340**	
Yes	99	29.1
No	241	70.9
community pressure for having children	**n=340**	
Yes	82	24.1
No	258	74.9
get support	**n= 340**	
Yes	40	11.8
No	300	88.2

5.5.1. Socio-demographic Factors associated with fertility desire of PLWHA:-

In the bivariate analysis, age, marital status, educational status, occupational status, duration of stay with current partner and monthly income were found significantly associated with fertility desire.

Table7: Socio-demographic Factors associated with fertility desire in bivariate logistic regression analysis of PLWHA attending ART clinic in Fitche Hospital, North shoa zone, Ethiopia 2013.

	Fertility desire (N=340)		COR (95% CI)	P-value
Variables	**Yes (%)**	**No (%)**		
Age				
18-29 years	46 (13.5)	39 (11.5)	4.513(2.412,8.445)***	< 0.000
30-39years	64(18.8)	80 (23.5)	3.061 (1.740, 5.383)***	< 0.000
> =40 years	23 (6.8)	88 (25.9)	1.00	
Marital status				
Married	90 (26.5.3)	105 (30.9)	1.00	
Single	14(4.1)	5(1.5)	0.306(0.106, 0.883)**	< 0.028
widow/widowed	9(2.6)	47 (13.8)	4.476(2.08,9.636)***	< 0.000
divorced/separated	20 (5.9)	50 (14.7)	2.143 (1.188, 3.866)**	< 0.011
Marital length (n= 203)				
≤4 years	24(11.8)	13(6.4)	5.333(2.25,12.63)***	P < 0.000
5-9 years	34(16.7)	20(9.9)	2.626 (1.170, 5.896)***	P< 0.000
10-14 years	20(9.9)	22(10.8)	2.031(2.275, 10.603)**	P< 0.019
Educational status				
Illiterate	40(11.8)	92(27.1)	1.00	
primary and secondary school	45(13.2)	73 (21.5)	1.947(1.057, 3.585)	
high school and preparatory school	36 (10.6)	30 (8.8)	2.760(1.499,5.081)***	P< 0.001
college and above	12(3.5)	12 (3.5)	2.30(0.95, 5.557)	
Occupational status				
housewife	24(7.1)	41 (12.1)	1.188 (0.604, 2.337)	
government employee	21(6.2)	22(6.5)	0.73(0.345,1.541)	
daily labour	32(9.4)	46 (13.5)	1.00	
farmer	13 (3.8)	44 (12.9)	2.355(1.095, 5.064)**	< 0. 028
Merchant	34(10.0)	43(12.6)	0.88(0.465,1.664)	
un employment	19(2.6)	11 (3.2)	0.85(0.316, 2.288)	
Family Income (n = 340)				
<=350 birr	28(8.2)	66(19.4)	2.062(1.052, 4.042)**	< 0.035
351-500 birr	35(10.3)	46(13.5)	1.15(0.588,2.25)	
501-999 birr	42 (12.4)	63 (18.5)	1.312(0.692, 2.489)	
>=1000	28(8.2)	32(9.4)	1.00	

Note: ***p<0.001, **p<0.05

5.5.2. Individual factors associated with fertility desire of PLWHA:-

With regarding to individual related factors having sexual partner, sexually active in the last six months, frequency sex, taken action been pregnant, number of biological living children and discussed on fertility intention with health professionals were found significantly associated with fertility desire.

Table 8: Individual factors associated with fertility desire in bivariate logistic regression analysis of PLWHA attending ART clinic in Fitche Hospital, North shoa zone, Ethiopia 2013.

	Fertility desire (N=340)		COR (95% CI)	P-Value
Variables	**Yes (%)**	**No (%)**		
Have had partner (n=340)				
Yes	95(27.9)	108(31.8)	2.292(1.44,3.647)***	P < 0.000
No	38(11.2)	99(29.1)	1.00	
Sexual active in the last six months(N=340)				
Yes	112(32.9)	123(36.2)	3.309(1.92,5.72)***	P < 0.000
No	21(6.2)	84(24.7)	1.00	
Frequency of have had sex in the last six months(n=234)				
At least 3 times per week	31(13.2)	27(11.5)	0.90(0.482,1.68)	
Around once per week	63(26.9)	61(26.1)	1.00	
Around once per month	13(5.6)	22(9.4)	1.748(0.809,3.778)*	P < 0.156
Less than once a month	7(1.7)	6(5.6)	3.357(1.037,10.865)**	P < 0.043
Number of biological living children(N=340)				
have no living child	38(11.2)	12(3.5)	20.056(8.24,48.83)***	P < 0.000
had 1 to 3 children	83(24.4)	119(35)	4.540(2.24,9.207)***	P < 0.000
had greater than 4 children	12(3.5)	76(22.4)	1.00	1.00
Take action to become pregnant /your partner's(n=340)				
Yes	27(7.9)	8(2.4)	6.336(2.781, 14.435)***	P < 0.000
No	106(31.2)	199(58.5)	1.00	
Discuss with health professions fertility intentions(N=340)				
Yes	72(21.2)	65(19.1)	2.579(1.644, 4.044)***	P < 0.000
No	61(17.9)	142(41.8)	1.00	

Note: ***p<0.001, **p<0.05

5.5.3. Community related factors associated with fertility desire of PLWHA:-

Concerning community related factors variables, faced partner's or family pressure for having children and partner fertility desire were found significantly associated with fertility desire.

Table 9: Community related factors associated with fertility desire in bivariate logistic regression analysis of PLWHA attending ART clinic in Fitche Hospital, North shoa zone, Ethiopia 2013.

	Fertility desire (N=340)		COR (95% CI)	P-Value
Variables	**Yes (%)**	**No (%)**		
face partner's or your family pressure for child birth				
Yes	71(20.9)	28(8.2)	7.321(4.334, 12.365)***	P < 0.000
No	62(18.0)	179(52.6)	1.00	
face community pressure for child birth				
Yes	61(18.0)	19(5.6)	8.294(4.633,14.85)***	P < 0.000
No	72(21.3)	186(55.0)	1.00	
Partner fertility desire				
Yes	78(22.9)	26(7.6)	13.043(6.737,25.25)***	P < 0.000
No	20(5.9)	79(23.2)	1.00	

Note: ***p<0.001, **p<0.05

5.5.4. Disease related factors associated with fertility desire of PLWHA:-

Among disease related factors variables, difference in fertility desire after started HAART, Current health status, duration of time since HIV diagnosis, WHO stage, disclosed HIV status to partner, Sources of information on PMTCT, Attitude toward PMTCT, Knowledge about PMTCT, sources of information about PMTCT and partner HIV status were found significantly associated with fertility desire.

Table 10:- Disease factors associated with fertility desire in bivariate logistic regression analysis of PLWHA attending ART clinic in Fitche Hospital, North shoa zone, Ethiopia, 2013.

	Fertility desire (N=340)		COR (95% CI)	P-value
Variables	**Yes (%)**	**No (%)**		
Difference in fertility desire after started HAART IF you start ART?				
Yes	51(15.0)	52(15.1)	1.854(1.159, 2.966)**	P < 0.010
No	82(24.1)	155(45.6)	1.00	
Current health status affected future child bearing intention				
Yes	94(27.6)	110(32.4)	2.125(1.338, 3.375)***	P< 0.001
No	39(11.5)	97(28.5)	1.00	
Duration since HIV Dx(n=340)				
6 months to 1 year	27(7.9)	23(6.8)	2.241(1.176,4.27)**	P < 0.014
2 to 4 years	51(15.0)	79(23.2)	1.818(0.942,3.512)	P < 0.075
≥5 years	55(16.2)	105(30.9)	1.00	
Disclosed HIV status to partner n=223				
Yes	90(40.4)	105(47.1)	3.143(1.22, 8.09)**	P < O.018
No	6(2.7)	22(9.9)	1.00	
Attitude toward PMTCT				
Yes(positive attitude)	97(28.5)	105(30.9)	2.613(1.63,4.2)***	P< 0.000
No(negative attitude)	36(10.6)	102(29.1)	1.00	
Knowledge about PMTCT (n=340)				
Good Knowledge	95(27.9)	114(35.5)	2.039(1.28 ,3.25)***	P < 0.003
poor knowledgeable	65(16.7)	74(21.6)	1.00	
Partner HIV status (n = 203)				
Positive(concordant)	74(36.5)	69(34.0)	1.00	
Negative(discordant)	20(9.9)	40(19.7)	2.15(1.14, 4.02)**	P < 0.017

Note: ***p<0.001, **p<0.05

5.6. Factors associated with fertility desire among PLWHA:-

Associations found to be statistically significant in the bivariate analysis at a p-value <0.25 were included in the multivariable analysis to determine which factors best explained or predicted the fertility desire among reproductive age PLWHA. Using the multiple logistic regression analysis (Table:11 below), factors significantly predictive of fertility desire for PLWHA to have more children included:- Age from 18-29 years and 30-39years were 4 and 3.9 times[AOR, (95% CI), 3.95(1.69, 9.22) and 3.914(1.904, 8.199)] more likely to have fertility desire as compared to age 40± years respectively.

PLWHAs marital length less than 4years, from5-9years and 10-14 years were 5.5, 4.8 and 2.8times [AOR, (95% CI), 5.49(2.08, 14.51), 4.80(2.14, 10.78) and 2.819(1.198,6.63)] more likely have fertility desire as compared to stayed with partner those more than 15years.

PLWHAs who have no biological living children and 1 to 3 children were 11.4times and 3.6 times [AOR, (95% CI), 11.42(3.27, 39.90) and 3.67(1.27, 10.62)] more likely have fertility desire as compared to those who have more than 4 biological living children.

PLWHAs who faced community pressure for having children was 3.7times [AOR, (95% CI), 3.665(1.54, 8.704)] more likely have fertility desire as compared to those not faced community pressure for child birth.

Partner fertility desire was7times [AOR, (95% CI), 7.18(3.39, 15.22)] more likely have fertility desire as compared to those who have no fertility desire partner.

PLWHAs duration of time since enrolled ART less than or equal to ≤1 years was 5 times [AOR, (95% CI), 4.999(1.91, 13.09)] more likely to have fertility desire as compared to those who have more than 5year since enrolled to ART.

PLWHA disclosed HIV-serostatus to their partner was 4times [AOR, (95% CI), 3.9(1.37, 11.10)] more likely have fertility desire as compared to those not disclosed their serostatus to their partner.

PLWHAs partner discordant was 2 times [AOR, (95% CI), 2.049(1.012, 4.147)] more likely have fertility desire as compared to those concordant HIV-serostatus partner (table 11).

Table 11: Factors predicting fertility desire from multiple logistic regression analysis *among* PLWHA attending ART clinic in Fitche Hospital, North shoa zone, Ethiopia, 2013.

Variables	Fertility desire (n=340)		COR (95% CI)	AOR (95% CI)
	Yes (%)	No (%)		
Age				
18-29 years	46 (13.5)	39 (11.5)	4.513(2.412,8.445)***	3.95(1.69, 9.22)***
30-39years	64(18.8)	80 (23.5)	3.061(1.740, 5.383)***	3.914(1.904, 8.199)***
> =40 years	23 (6.8)	88 (25.9)	1.00	1.00
Duration stayed with partner (n= 203)				
≤4 years	24(11.8)	13(6.4)	5.333(2.25,12.63)***	5.49(2.08, 14.51)***
5-9 years	34(16.7)	20(9.9)	2.626(1.170, 5.896)***	4.80(2.14, 10.78)***
10-14 years	20(9.9)	22(10.8)	2.031(2.275, 10.603)**	2.819(1.198,6.63)**
>15years	18(8.9)	52(25.6)	1.00	1.00
Number of living children				
have no living child	38(11.2)	12(3.5)	20.056(8.24,48.83)***	11.42(3.27, 39.90)***
have 1 to 3 children	83(24.4)	119(35)	4.540(2.24,9.207)***	3.67(1.27, 10.615)**
have ≥ 4 children	12(3.5)	76(22.4)	1.00	1.00
community pressure for having children				
Yes	61(18.0)	19(5.6)	8.294(4.633,14.85)***	3.665(1.54, 8.704)***
No	72(21.3)	186(55.0)	1.00	1.00
Partner fertility desire				
Yes	78(22.9)	26(7.6)	13.043(6.737,25.25)***	7.18(3.39, 15.22)***
No	20(5.9)	79(23.2)	1.00	1.00
Duration since HIV Dx				
6 months to 1 year	27(7.9)	23(6.8)	2.241(1.176,4.27)**	4.999(1.91, 13.09)***
2 to 4 years	51(15.0)	79(23.2)	1.818(0.942, 3.512)*	1.54(0.80- 2.93)
≥5 years	55(16.2)	105(30.9)	1.00	1.00
Disclose HIV status to partner n=223				
Yes	90(40.4)	105(47.1)	3.143(1.22, 8.09)**	4.096(1.26, 13.30)**
No	6(2.7)	22(9.9)	1.00	1.00
Partner HIV status (n = 203)				
Positive(concordant)	74(36.5)	69(34.0)	1.00	1.00
Negative(discordant)	20(9.9)	40(19.7)	2.15(1.14, 4.02)**	2.049(1.012, 4.147)**

Note: ***p<0.001, **p<0.05

CHAPTER SIX

Discussions

Reproductive age PLWHA in the Fitche Hospital North shoa zone expected to have children and plan similar with HIV- negative reproductive age group in the general population.

The prevalence of fertility desire of PLWHA in this study was 39.1%, which is lower than study conducted in Cape Town South Africa and southwest Nigeria, which account 51% and 63.3%. (27-29). This may be due to different sociodemographic characteristics and fertility rate.

The current study is also higher than rural Uganda (39.1% vs. 13%) this may be due to different sociodemographic characteristics and consistent with study conducted in south Wollo 36.4% Nekemte 36% and Addis Ababa 40.2% (23,27-30,38) . The current study finding was lower than Ethiopian demographic and health survey of (EDHS2011) (63%) higher than current study and it was for general population and limited to those married only (14).

This will have potential health risks for (re)infections, vertical transmission of HIV and orphaning. Despite these concerns, studies show that some PLWHA still wish to have children for a range of reasons(4, 20).

PLWHA who have fertility desire mentioned the main reasons for their current fertility desire of which 36.8% was wanted at least one child to replaced themselves, 38.3% was did not have desired number of children and 20.3% was believed that by using ART/PMTCT to get HIV free baby (perceived efficacy of PMTCT and ART) and others reasons like to strength their marriage and replacing previously died baby. This is similar with study done in rural Uganda, New Guinea, Rural Malawi, Ethiopia in A.A, and Nekemte(21,23,26,29, 53). This indicates that the need for reproductive health services for clients in HIV care settings in order to meet the PLWHA's diverse reproductive intentions for those who wishing to have children in future and for those not wanted to have children in future.

Multivariable logistic regression indicates that age was significant predictors of fertility desire with age within 18-29 and 30-39 years were 4 and 3.9 times more likely have fertility desire as compared to age 40+years respectively. This is similar with several studies across a range of countries in Brazil, United States, South Africa, Uganda and Nigeria(19, 28, 29, 37,38, 39) have showed that younger PLWHA are more likely to desire (more) children than older PLWHA. There are a number of possible explanations for the inverse relationship between age and fertility

desire. The possible explanation may be that relatively older PLWHA have already achieved, or are closer to achieving, their desired family size than younger PLWHA. This has public health importance as many new HIV infections in Ethiopia are occurring in younger PLWHA.

The number of surviving children was predictor of fertility desires PLWHA who have no biological living children and those who have few or 1 to 3 children were 11.4 and 3.6 times more chance to have fertility desire as compared to those who have more than 4 biological living children. This finding is in line with other studies done in the United States, Brazil; Nigeria and Malawi and in Ethiopia studies in Addis Ababa and Nekemte town (37,31, 35,21,23,36) and South Africa(34, 38), Uganda(41, 42). PLWHA, like anyone else, continue to desire (more) children until they achieve their desired family size. The desire for more children does not just end with the desired number, but sometimes may extend to the sex composition of children. This pressure may become more urgent if the couple does not have sufficient male children, the traditional heir apparent in the patrilineal systems that are common in many SSA settings(42).

PWLHAs marital length less than 4years, within5-9years and 10-14 years were 5.5, 4.8 and 2.8times were more likely have to fertility desire as compared to those marital lengths more than 15years. *The majority of in-depth interview discussants supported this finding, for instance: - as one 30years female discussant stated: "I want to give birth because my husband strongly desire to have children to replace our selves, so I have to get pregnant after one year. I stayed with my husband for 6 six years without having a child and marriage without children is meaningless and does not long last. We must test child love together as we grew up since childhood together"*. This may be due to relatively PLWHA who have longer marital duration have already achieved, or are closer to achieving, their desired family size than shorter marital length PLWHAs'.

PLWHAs' faced community pressure for having children was 3.7times more likely have fertility desire as compared to those not faced community pressure for having children. This finding is consistent with studies in many societies and especially in SSA with those who are childless receiving negative social disapproval. The value of children in the identity and social status of men and women applies to PLWHA as well, and so they are under intense pressure from family, spouses and friends to reproduce (4,45, 46, 47).

This finding is supported by 90% of in-depth interview discussants, for example: - as one man *explained: "Bearing children is important as one with no children is forgotten when died. Wealth shall be transferred to children otherwise it is lost. My parents and community will not respect me and my property. One without child is not considered born and the community called them as mule/infertile endwodi (ፍሬ የማያፈራ እንዶድ ወይም በቅሎ ብሎ ይጣራሉ)"* 45 yrs/ Male, Married 12th grade completed. Moreover, having children may re-establish the PLWHA with higher self-esteem, may help them restore a sense of normalcy in family life and health, and alleviate (mitigate) the potentially dehumanizing effects of living with HIV.

Partner fertility desire was determinant of the current fertility desire in this study 7times more likely have fertility desire as compared to those who have no partner. This is in line with the study done in South Africa and Ethiopia in Addis Ababa, south Wollo and Nekemte town(38,30, 23,26). This suggests that family planning and fertility related issues information should focus on partner as well.

PLWHAs duration since HIV-diagnosis less than or equal to ≤1 years was 5 times more likely to have fertility desire as compared to those who more than 5year and also the majority of in-depth interviews discussants supported this, for example:-*as one man discussant explained:" I need a child strongly. It gives me self esteem and value so, no loneliness. I proved PLWAs can get negative child that is why I desire strongly after five years. I have a three and half year old negative child which I got after started ART and happy now".40years/Male married, 10th grade.* One explanation would be that the PLWHA enrolled to ART for a longer period might have gone through extensive health education that might have influenced their intentions unlike those that have just enrolled to ART. The influence of longer time since diagnosis of infection probably reflects the cumulative effects of decisions made by individuals who had weighed the consequences of their wish for parenthood over several months or years. Individuals with recently diagnosed disease may still be undergoing an adjustment to their serostatus, and childbearing may be a coping method to reject a perception of diminished identity.

PLWHA disclosure HIV-serostatus to partner was 4times more likely have fertility desire as compared to those who do not disclosed their serostatus to their partner. This finding is not in line with study conducted in Uganda found that those PLWHA with higher scores on social support and internalized stigma were less likely to desire children(4, 47).

This may suggest that perhaps PLWHA may want to have children to avoid stigma and secrete their status and social support may help them overcome the pressure from society to have children and this might be also to ensure family continuity in the future, to have offspring of their own to perpetuate their name and lineage after they die, and to be supported in old age.

PLWHA partners serodifference or discordant was 2times more likely to have fertility desire. This is in line with other studies conducted in Uganda and Burkina Faso (39, 57). This observation could be explained by the fact that, as this study shows it, some young people still ignore the modes of HIV infection. Moreover, the issue of conception would be particularly important as means to avoid partner infection should be vital that needs consideration on alternative options/technologies. The majority of in-depth interview discussants supported this finding, for instance: - *as one 24years female discussant stated: "I want to give birth because my husband, negative, need children to replace our selves so I have to get pregnant soon while my health is good enough. We married during very young age and my husband insisted to get child from me because he loves me. He is committing himself to bare sex even though he is negative as he wanted me give birth before my health gets poor and because there is no any assisted reproductive option for discordant but we can get PMTCT and ART help from hospital but I do not have any fear from child birth and currently pregnant"*.

Strength and Limitation of the study

Strength of the study

Study used qualitative method to supplement the result and also to explore factors that are not addressed by quantitative survey.

Limitation of the study

Because of crossectional study cause and effect relation was not assured.

CHAPTER SEVEN

Conclusion and Recommendations

7.1 Conclusion

The prevalence of fertility desire among PLWHA attending ART clinic in Fitche hospital was 39.1% with 95% CI of (34.3% -44.3%) currently or in the near future.

The significant predictors of fertility desire of PLWHA attending ART clinic in Fitche Hospital are:- age, duration of HIV-diagnosis, have fewer or no living children, marital length, community pressure, discordant HIV-test and disclose HIV-serostatus to partner.

This reflects that reproductive decisions of PLWHAs are not only affected by their HIV status but also by social and personal factors in planning future pregnancy.

7.2. Recommendations

Based on the findings, the following recommendations were forwarded:-

1. Policy makers and Ministry of Health need to consider and plan for the implications of increased numbers of PLWHA who may choose to have children and should give greater emphases to address PLWHA's fertility issues in more comprehensive manner.
2. Policy makers and health planners should plan and adapted assisted reproductive option /technologies for discordant partner which contribute to decrease HIV- new infections to sexual partner and new borns.
3. Health professionals should to desist from the conventional systematic advice against pregnancy but, in addition to laying emphasis on the risks, provide adequate information on the efficacy of PMTCT and practicable reproductive options for HIV-positive individuals.
4. Health professional's work in ART clinics should be given attention for those new HIV-diagnosis by providing health messages about fertility in this context is vital to ensuring informed reproductive decisions in these populations and also encourage on disclosure of HIV-serostatus to their partner.
5. Health professionals at ART service point should focus on counseling about vertical transmission of HIV for the discordant couples and help on informed choice.
6. Further prospective studies on large scale of different facilities' are recommended on predictors of fertility desire of PLWHA as part of quality assurance.

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ANNEXES

Annex I: In-depth interview results coding and code merging:-

Primary coding	Tally	Count	Code merged
want to have more children in future	///	4	Have fertility desire
Community pressure for having children	/////////	9	Sociocultural pressure for having children
Importance is attached to having a child in the community	/////	5	
childless couples perceived in the community	///////	7	
Family pressure for having children	///////	8	Family pressure for having children
Perceived efficacy of fertility of PLWHA	/////	5	Reasons to have or not have fertility desire
perceived consequences of fertility of PLWHA	///////	7	
Partner fertility desire	///////	9	Partner fertility desire
Disclosure status HIV-serostatus to partner	///////	8	Diseases and marriage
Partner serodifference or discordant	///	3	
Clients suggestions and improvements in the future	//////////	10	Integration of RH to ART clinics and Assisted reproductive option for discordant couples.

ANNEX-II: Questionnaire English version:-

Jimma University

College of Public Health and Medical Sciences

Department of Nursing

Questionnaire developed to determine fertility desire & associated factors of people living with HIV/AIDS in Fitche Hospital.

Informed consent:-

We would like to start by extending a sincere welcome. My name is ----------I temporarily represent Dereje Bayissa from Jimma University, college of public health and medical sciences, Department of Nursing. This is a study to be conducted with the objective to determine fertility desire & associated factors of people living *with HIV* at this study setting. Therefore your honest and genuine response is crucial for the success of this study. You are going to interviewed on fertility desire & associated factors of people living with HIV and you have a full right not to participate and to withdraw in the mean time. The privacy of your information is also garneted and it is only used for study purpose. We would like to inform you that the responses that you provide to the questions are very essential, not only, for the successful accomplishment of the study, but also for producing relevant information which will be helpful in the planning and implementation of reproductive health and reproductive rights of PLWHA in related to fertility desires. *All information here with provided will be treated confidentially. It is not necessary to indicate your name in this questionnaire.*

1. Do you agree to partake?

- ***Yes***
- ***No***

1. If Yes, start the interview, 2. If No,10Q stop here.

- ✓ ***Completed by ----------***
- ✓ ***Date----------DD----------MM----------YYYY----------***
- ✓ ***Signature----------Time----------***

- ***ART number_____ OR (Pre-ART)no_____***

Table 12; *Face to face interview administered questionnaires:-*

I, Socio-demographic characteristics of the study participants:-			
s.n	**Question item**	**Response category**	**Skip to**
1	Sex	Male Female	
2	Age in years_____		
3	Ethnicity	a) Oromo b) Amhara c) Tigre d) Gurage e) Other (specify)____	
4	Religion	a) Orthodox b) Protestant c) Muslim d) Other(specify)_____	
5	Marital status	a) Single b) Married c) Widow/widowed d) Divorced or separated	
6	Duration of stay with partner____?	a) 0-5 years b) >5 years	
7	Educational status_____?	a) Illiterate: b) Read & write c) 1-6 grade d) 7-8 grade e) Secondary +1 f) Diploma & above	
8	occupational status	a) Government employee b) Merchant c) Private work d) Student e) Farmers	

		f) Other(specify)_____	
9	Monthly income in Eth birr_____?	a) 100 – 300 b) 301 – 500 c) 501 – 1000 d) >1000	
10	Living place/Residence?	a) Urban b) rural	

III. Reproductive history and current fertility desire of PLWHA attending ART units in Fitche Hospital.

11	Age at first marriage if married_____?		
12	Age when participants had first child_____?		
13	Number of living children (biological child) _____?	a) No living child b) 1-2 c) >2 child	
14	Number of non-bio children_____?		
15	Alternative Parenting Options willingness to consider_____?	a) Formal adoption as an alternative to having a biological child. b) Caring for a family member's child as an alternative to biological parenting	
16	Have any of your children died?	a) yes b) No	
17	Pregnancy since HIV diagnosis	a) Yes b) No	
18	If you say yes QNO 20, was it intentional pregnancy?	a) Yes b) No	
19	If you say yes QNO 20, what is outcome of that pregnancy?	a) Alive birth b) Still birth c) Abortion d) Currently pregnant	

20	Did you have fertility desires?	a) Yes b) No	
21	When desire to have a child?	a) Within next 12 months b) Within to one three years c) After three years d) Not decided when to have a child	
22	Number of children future desire to have _____?	a. 1_2 children b. 3-4 children c. >4 children	
23	Did you discussed with your partner about fertility desire?	a) Yes b) No	
24	Reason for their current fertility desire? **(more than one answer possible)**	a) Want at least one child b) I don't have a desired number of children c) To strengthen marriage d) My partner desire to have children e) Believes ART/PMTCT allows for an uninfected baby f) Replacing baby who died g) Others	
25	Did faced any /your partners family pressure for child birth?	a) Yes b) No	
26	Is there community pressure in your area regarding to child birth?	a) Yes b) No	
27	Reasons not desire a child? **(more than one answer possible)**	a) Already achieved desired number of children b) Fear of mother to child transmission c) Don't have adequate income d) Child bearing may further compromise my health e) May not be health in future to care for child f) Fear of orphaning /problems in caring	

		g) Fear of infection partner while try to conceive	
28	Preferred sex?	a) Male b) Female c) No preference (God knows)	
29	Desire of a partner to have a child?	a) Yes b) No c) Don't have a partner	
30	Is there difference in fertility desires before and after started ART? If you start HAART,	a. Yes b. No	
31	Would current health status affect your future child bearing intention?	a) Yes b) No	
32	Did you take action to become pregnant?	a) Yes b) No	
33	If you say yes QNo 34, what kinds of action did you taken?	a) Approached to their partner b) Discussed about future fertility with health professionals c) Stopped to taken contraceptive d) Other specified_____?	
IV. Knowledge of PMTCT among PLWHA			
34	Does HIV transmission from mother to child?	a) Yes b) No	
35	Time of HIV transmission to child? More than one choice possible	a) During breast feeding b) During labor c) During pregnancy d) Don't know	
36	Did you hear that drug prevent/reduce MTCT?	a) Yes b) No c) Don't know	
37	Attitude toward drugs given to reduce MTCT actually reduces transmission?	a) Yes b) No c) Don't know	

38	Sources of information on MTCT and PMTCT?	a) Health care providers b) Mass media c) From friends/peers	
39	What are the reasons for non-attendance PMTCT?	a) Don't know about PMTCT b) Pregnancy was unwanted , c) Fear of stigma/discrimination d) Others(specified)_____	
V. Information on HAART status, social support and disclosure status among PLWHA attending ART units in Fitche Hospital.			
40	Duration of time since diagnosis (years)	a. ≤ 2 years b. >2 years	
41	Did you Starting HAART?	a) Yes b) No	
42	Did your partner Starting HAART? If HIV positive.	a) Yes b) No	
43	Self reported health status after started HAART, if started ART?	a) Improved b) No change/ Aggravated	
44	Recent CD_4 count ____?	a. < 200cells/mm^3 b. >200cells/mm^3	
45	WHO stage when enrolled to ART clinic	Stage I Stage II Stage III Stage IV	
46	Did you get any support?	a) Yes b) No	
47	If you say QNO 48, YES, type of support received?	a) Food b) Psychosocial support c) Home based care	
48	Sources of support?	a) NGOs b) Government c) Others(specifies_____	

49	Does your regular partner know your HIV status?	a) Yes b) No	
50	Did you disclose your status to your family?	a) Yes b) No	

II. Sexual practice and contraceptive use PLWHA attending ART unit

51	Age of sexual debut _____?		
52	Do you have partner	a) Yes b) No	
53	Have you had sex in the last6 months?	a) Yes b) No	
54	Sexual desire	a) Normal b) Decreased c) Increased d) No response	
55	On average, how often did you have sex in the last 6 months?	a) At least 3 times per week b) Around once a week c) About once a month d) Less frequently than once a month	
56	How many sexual partners have you had in the last 6 months?	a) None b) One c) Two d) Three e) More than three	
57	Condom use in the last six months?	a) Yes b) No	
58	Frequency of Condom use in the last six months?	a) Always b) Almost always c) No/inconsistent condom use	
59	Reason for condom use?	a) Dual protection (pregnancy/STI/HIV) b) To protect a negative partner c) Advice by health workers d) Fear of re-infection with new strain	

		e) Fear of other STDS f) No response	
60	Reason for not use condom?	a) Feeling it's not comfortable or reduction of sexual pleasure b) Partner objection c) Desire to conceive	
61	Did you use contraceptive methods in addition to condom?	a) Yes b) No	
62	Which methods if yes to Q no 26?	a) Oral contraceptive pills b) Injectables(Depo-Provera) c) IUD d) Implants e) Abstinence	
63	Is your partner HIV positive?	a) Yes b) No	
64	Have you changed sexual partners since HIV diagnosis?	a) Yes b) No	

Thank You Very Much for Your Participation!!!

Annex III: የአማራኛ ቱሪዙም ቃለመጠይቅ

ጅማ ዩኒቨርስቲ የሕብራተሰብ ጤና እና የሜድከል ሳይንስ ኮሌጅ

የነርሲንግና የሚድዊፈሪ ትምህርት ክፍል

የስምምነት ማስገንዘቢያ ቅጽ

ጤና ይስጥልኝ፤ ስሜ----------

እኔ በጅማ ዩኒቨርስቲ የሕብራተሰብ ጤና እና የሜድከል ሳይንስ ኮሌጅ የነርሲንግና የሚድዊፈሪ ትምህርት ክፍል በጊዚያዊነት ወክዬ ነው ይህ የጥያቄና ምልስ ይገፔ የመጣሁት።

ይህ ጥናት የሚካሄደው ከኤች እይ ቭ ጋረ የሚኖሩ የፀረ ኤች አይ ቪ/ኤድስ ህክምና በፍቼ ሆስፒታል ክትቲል የሚያደርጉ ወንዶች ና ሴቶች ልጅ የመዉለድ ፍላጎታቸዉ ጋሪ ተያዥርይዞዉ የምወስኑ ወይም ልሚታብዩሁ ሚችሉ ነገሮች ና ስለ ግብራ ስጋ ግንኙናት ና የኮኒዳም አጠቀቃም አጠቃለይ የምደስሲ እና ኤች እይ ቭ ከእናት ወደ ልጅ የመታለልፋብት ና መከላክያ መንጋዶችን ያላቸው እውቀት የመፈተሽ ነው።

ይህ ጥናት በመዉለድ እድሜ ክልሊ ዉስጥ የለዉ ከኤች እይ ቭ ጋረ የሚኖሩ የፀረ ኤች አይ ቪ/ኤድስ ህክምና ለይ የለዉ ሰዎች ልጅ የመዉለድ ፍላጎታቸዉ ጋር በቀጥታ የተያያዘ ሰለሆነ በጥናቱ እንዲሳተፉ ከተመረጡ ሰዎች አንዱ/ዲ እርስዎ ነዎት። ስለዚህ እዚህ ጥናት ላይ እንዲሳተፉና አስፈላጊ መረጃ እንዲሰጡን በተህተና እንጠይቃለን። ይሁን እንጂ ማንኛውም ጥያቄ አለመመለስ ይችላሉ። እንዲሁም በማንኛውም ጊዜ ይያቄውን ማቋረጥና በጥናቱ አለመሳተፍ ይችላሉ። በጥናቱ ባለመሳተፍዎ ማግኘት ከሚገባዎ አገልግሎት ከማግኘት አያግድዎትም።ጥያቄና መልሱ 20-25 ደቂቃ ይወስዳል።

ይህ በግልዎ የሚሰጡት መልስም በሚስጥር የሚጠበቅ ስለሆነ ከጥናቱ ውጤት ጋር በምንም የሚያያዝ አይደለም። ላረጋግጥልዎ የምንፈልገው ግን ይህ የሚሰጡት መልስ በጣም አስፈላጊ የሚሆነው ጥናቱን ለማጥናት ብቻ ሳይሆን በመዉለድ እድሜ ክልሊ ዉስጥ የለዉ ከኤች እይ ቭ ጋረ የሚኖሩ የፀረ ኤች አይ ቪ/ኤድስ ህክምና ለይ የለዉ ሰዎች ልጅ ለመዉለድ ፍላጎታቸዉ ና የጤና ችግሮች ለመፍታት እና ከኤች እይ ቭ ነፃ ልጅ ወይም ትዉልድን ለመፍራት አስፈላጊ የሆነ እቅድ ለማውጣትና በተግባር ለማዋል የሚጠቅም አስተያየት ለማግኘትም ነው። ጥያቄ ካልዎት ዳራጃ ባይሳ 0912189560 ይደውሉ።

የተሳታፊ ፊርማ----------

ቀን----------

አመሰግናለሁ።

የ ART ክሪድ ቁጥር----------ወይም Pre-ARTክሪድ ቁጥር----------

Table 13፡ቃለ መጠይቅ

ክፍል 1፡ ስነ ህዝብና ማህበረዊ ጉዳዮች			
1	እድሜ፡----------	በዓመት----------	
2.	ፆታ	___1. ወንድ ___2. ሴት	
3.	የጋብቻ ሁኔታ፡-	___1. ያገባ/ች ___2. ያላገባ/ች ___3. ባል/ሚስት የሞተባት/ችበት ___4. የተፋታ/ች	
4.	ሐይማኖት፡	___1. ኦርቶዶክስ ___2. ካቶሊክ ___3. ፕሮቴስታንት ___4. ሙስሊም ___5. ሌላ ከሆነ ይጠቀስ-----	
5.	ብሄር፡-	___1. ኦሮሞ ___2. አማራ ___3. ትግሬ ___4. ጉራጌ ___5. ሌላ ከሆነ ይጠቀስ--------	
	ስራ፡-	___1. የቤት እመቤት ___2. የመንግስት ሰራተኛ ___3. የግል ተቀጣሪ ___4. ገበሬ ___5. ነጋዴ ___6. ሌላ ከሆነ ይጠቀስ-----	

7	የትምህርት ደረጃ፡-------?	___1. ያልተማረ/ች ___2. ማንበብናመፃፍብቻ የሚችል/ትችል ___3. አንደኛ ደረጃ(1-8ኛ) ___4. ሁለተኛ ደረጃ ያጠናቀቀ/ች(9-12ኛ) ___5. ኮሌጅና ከዚያ በላይ	
8	ወረርሃዊ ገቢ በአመከይ በብር_____	በእትዮ- ብር_____	
9	የሚኖሩበት አካባቢ	___1. ከተማ ___2. ገጠር	

ክፍል ሁለት ፡- ከኤች አይ ቪ ጋር የሚኖሩ በፍቼ ሆሲፒታል የፀረ ኤች አይ ቪ/ኤድስ ህክምና ክትትል ላይ ያሉ ሰዎችን የእርግዝና ታሪክ ና በአሁኑ ጊዜ ለመዉለድ ያላቸዉን ፍላጎት የሚዳስሱ ጥየቄዎች፡-

10	ባለ ትዳር ከሆንክ/ሽ መጀመሪያ ስታገባ/ቢ እድሜህ/ሽ ስንት ነበር በዓመት----------		
11	ልጅወልደሽ ከሆነ የመጀመሪያ ልጅሽን ያወለድሽበት እድሜ ስንት ነበር በዓመት----------		
12	ከአንተ/ቺ የተወለዱት ልጆች ብዛት ስንት ነዉ ----------?	___1. ራሴ የወላድኩት ልጅ የለኝም ___2. 1-2 ልጅ ___3. >2 ልጆች	
13	ከዚህ በፊት በኤች እይ ቪ የሞተበህ/ሽ ልጅ አለ?	___1. አዎ ___2. የለም	
14	የልጅ አበት/እንናት ለመሆን የሚትጣቀሙት አመረጭ ምንድነዉ?	___1. የዘመድ ልጅ መሰደጊ ___2. በእጋዊ መንገድ በጉድፋች ልጅ መሰደግ	
15	ከአንተ/ቺ የለተወለዱት ልጆች የዘመድ/ጉድፋች ልጆች ብዛት ስንት ነዉ ----------?		
16	ከኤች እይ ቪ በምረምራ ዉጤጥ ከአወቅህ/ሽ በኋለ አሪጊዜሽ/አስሪግዜ ተዉቃሌ/ሼ	___1. አዎ ___2. አለዉቅም	
17	ለ16ኛ ጥየቄ አዎ ከልክ/ሽ እረግዝናዉ በእቅድ ነበራ?	___1. አዎ ___2. አይደለም	
18	ለ16ኛ ጥየቄ አዎ ከልክ/ሽ እረግዝናዉ ዉጤት ምን ነበራ?	___1. በእህዎት ተወለደ	

		___2. ደምመተኻ ___3. በዉሪጀ/ ወጣ	
19	ልጅ የመዉለድ ፍላጎት አሌህ/ሽ?	___1. አዎ ___2. የላኝም	
20	ለ19ኛ ጥየቁ አዎ ከሆነ መልስ መቼነዉ ለመዉለድ የፈጊክ/ሽ?	___1. በምቀጥሎ 12 ወራት ዉስጥ ___2. ከምቀጥሎ አንድ ዓመት እሰከ ሶሥት ዓመት ዉስጥ ___3. ከሶሥት ዓመት በኋለ ___4. መቼ እንደ መዉለድ አልወሰንኩም	
21	ለወደ ፍትህ ስንቲ ልጅ ለመዉለድ ፍለጎት አለ/ሽ ----------?	___1. ከ1_2 ልጅ ___2. ከ3-4 ልጆች ___3. ከ>4 ልጆች በለይ ___4. የለኝም	
22	ከጤናበለሞያ ጋር ስለ ልጅ መዉለድ የለቸዉ ፍለጎት ተዋያይተችዉ ተዉቃለችሁ?	___1. አዎ ___2. አይደለም	
23	ለአሁን ልድ መዉለድ ፍለጎትህ/ሽ ምክንያት ምንድነዉ?----------?	___1. ብሐንስ እንድ ልጅ ለመዊኖት ___2. የፋልኩ የልጅ ቁጥሪ አለጌኝዉም ___3. ትደረችን ለመጠነቀሪ ___4. የፀረ ኤች አይ ቪ/ኤድስ መዳዐንት ወይም ከእናት ወደ ልጅ እንደይ ተለላፊ የሚከለከል መዐደንት ከኤች አይ ቭ ነፃ ልጅ መዉለድ እቻለል ብዬ ስለመሚን ___5. የሞተብኝ ልጅ ለመተከቲ ___6. ልሎች ከሉ ይጠቀስ--	
24	ልጅ የመዉላድ እቅድ/ፍላጎት እንድኖራችዉ ከቤተሳባቸዉ ፍላጎ ተጽኖ/ጫና አሰዲሮበል/ሽ?	___1. አዎ ___2. አይደለም	
25	ልጅ የመዉላድ እቅድ/ፍላጎት እንድኖራችዉ ከሕብራተሰቡ ተጽኖ/ጫና አሰዲሮበል/ሽ?	___1. አዎ ___2. አይደለም	

26	ልጅ ለመውለድ ፍለጎት እንደይኖር/ሽ ምክንያት ምንድ ነዉ?	___1. የሚፋልግ የልጅ ቁጥሪ ስለአጌኘዉ ___2. ኤች ኤይ ቪ ከእናት ወደ ልጅ ይተለላፋ ብዬ ስለ ፈራዉ ___3. በቅህ ሀብት/ንብራት ስለሌለኝ ___4. ልጅ መዉለድ የጤና ዉኔተ ይጎደኘል ብዬ ___5. ወለጅ አልበ ወይም ልጅኔ የምአሰድጊ ችግሪዉን ፈሪቼ ነዉ ___6. ለመረገስ በምንሞክርባት ጊዜ ኤች ኤይ ቪ ወደ ጓደኛዬ እንደይተለላፊ ፈሪቼ ነዉ	
27	ከወንድ አና ሴት የትኘዉን ጾታ ትመረጠሌህ/ጨሌሽ?	___1. ወንድ ___2. ሴት ___3. አለመርጥም/እግሐቤሪ የሰጠኝን	
28	የትደረ /ጾታ ጓደኛዎ ልጅ እንዲኖራቸዉ ይፈልጋሉ?	___1. አዎ ___2. አይደለም ___3. ጓደኛ የለኝም	
29	የፀረ ኤች አይ ቪ ኤድስ መዳዐንት መዉሰዲ ከጀመሪክ/ሽ በፊት ና በኋላ ልጅ የመዉለድ ፍላጎት ሊዩነት አለ?	___1. አዎ ___2. አይደለም	
30	የአዉን ጤና ዉኔታ/ሽ የወደፍትህ/ሽ ልጅ መዉለድ ፍላጎት ለይ ተዒኖ አሰድሮቢክል/ሸል?	___1. አዎ ___2. አይደለም	
31	ለመረጋስ የወሰደቹዉት እረምጃ አለ?	___1. አዎ ___2. አይደለም	
32	ለ31ኛ ጥየቄ አዎ ከኖነ ለመረጋስ ምን ኃይነት እረምጃ ወሰደቻዋል?	___1. ከትደሪ ጎደኛ ገሪ ተቃራሪቤነል ___2. ስለ ወደፍህት ልጅ መዉለድ ከጤና በለሞያ ገሪ ምክሪ ወስጃለዉ ___3. የቤታሰብምጣኔ፣መዉሰድ አቆምለሁ ___4. ልለ ከአለ ይጠቀስ ----------	
ክፍል ሶስት፡- ኤች ኤይ ቭ ከእናት ወደ ልጅ መተለላፋያ ና መከለከያ መንገዶች የጥነቱ ተሰታፊዎችን ዕዉቀት የሚደስሲ ጥየቄዎች፡-			
33	ኤች ኤይ ቭ ከእናት ወደ ልጅ ይተለላፋል?	___1. አዎ	

		___2. አይደለም	
34	ኤች ኤይ ቭ ከእናት ወደ ልጅ የሚተለላፊበት ጊዜ ማቼ ነዉ? ከአንዲ በላይ መልስ መምራጥ ይቻለል.	___1. በአሪግዝና ጊዜ ___2. በሚጥ ጊዜ ___3. ጡጥ በመጥበት ___4. አለዉቅም	
35	ኤች ኤይ ቭ ከእናት ወደ ልጅ እንደይተለላፊ የሚከለከሉ ወይም የምቃንሱ መደሐንቶ መኖሩን ሰመቶ የቃሉ?	___1. አዎ ___2. አይደለም ___3. አለዉቅም	
36	ኤች ኤይ ቭ ከእናት ወደ ልጅ እንደይተለላፊ የሚከለከሉ ወይም የምቃንስ የምሰጡ መደሐንቶች በትክኪል ይቀንሰሉ?	___1. አዎ ___2. አይደለም ___3. አለዉቅም	
37	ኤች ኤይ ቭ ከእናት ወደ ልጅ መተለላፋያ ና መከለኪያ መንገዶች መራጀዉን ከዬቲ ነዉ የአገኛቸዉ?	___1. ጤና በለሞያ ___2. ከመገናኘ ቡዚህያን ___3. ከጓዶቼ/ስራበልደረቦቼ	
38	ኤች ኤይ ቭ ከእናት ወደ ልጅ እንደይተለላፊ መከለከያ ክትቲል ተጣቃም ብዙዉዎች የማይ ተጠቀሙበቲ ምኪንያት ምንድ ነዉ?	___1. መከለከያክትቲል መኖሩን አዉቁትም(PMTCT) ___2. የልተፈላገአሪግዝና ሰለሆነ ___3. አድህሎ ና መግለልን ፈረቶ ነዉ ___4. ልለ ከአለ ይጠቃስ--------	

ክፍል አራት፡- ከኤች እይቭ/ኤድስ ገሪ የሚኖሩት ሰዎች .ስለፀረ ኤች አይ ቪ ኤድስ እክምና እና፤ድጋፍህና አንክብካቤ የሚደስሚ ጥያቄዎች መራጀ፡-

39	ተማሪምሮ ኤች እይ ቭ በመደምህ/ሽ መኖሩን ከአወቃቸዉ ምንየል ጊዜ ይሆናል በዓመት------?	___1. ከሁለት ዓመት በታች(‹ 2) ___2. ከሁለት ዓመት በለይ ነዉ(›2)	
40	የፀረ ኤች አይ ቪ ኤድስ መደሐንት መዉሳድ ጀምዋል/ሸል?	___1. አዎ ___2. አይደለም	
41	የትደሪ ጓደኛህ/ሽ የፀረ ኤች አይ ቪ ኤድስ መደሐንት መዉሳድ ጀምዋል/ሌች? HIV ፖዝትቭ ከሆነህ/ች፣	___1. አዎ ___2. አይደለም	
42	በራሴ/ሽ አገላለጽ .የፀረ ኤች አይ ቪ ኤድስ መደሐንት መዉሳድ ከጀምሪክ/ሽ ቦላ የጤና እዉኔታ ለዉጥ ምንይመስለል?	___1. ላዉጥ አለዉ/ተሸሽሎዋል ___2. ላዉጥ የለዉም/ቢሶብኛል	

43	በቅሪብ የ CD_4 መጠን ስንት ነዉ?	___1. ከሁለት መቶ የነሴ ነዉ < 200cells/mm^3 ___2. ከሁለት መቶ በለይ ነዉ >200cells/mm^3	
44	ለመጀመሪያ ስትማራመሪ የ WHO ኤች አይ ቪ ኤድስ ደረጀ ስንት ----------ነዉ	ደረጀ I ደረጀII ደረጀ III ደረጀ IV	
45	ድጋፍህና አንክብካቤ ተጌኝሌሽ/ክህ?	___1. አዎ ___2. አይደለም	
46	ጥያቄ ቁ.45 አዎ ከሆነ መልስክ/ሽ ምነ ዓይነት ድጋፍህና አንክብካቤ ነዉ የሚሰጥ/ሽ?	___1. የምግቢ ___2. ስነሊቦናዊ ና መሐበራዊ ድጋፍህ ነዉ ___3. ቤት ለቤት ድጋፍህ ነዉ	
47	የድጋፍህና አንክብካቤ ምንጭ ?	___1. መንግስታዊየለሆነ ግብስነኤ ድሪጅት ነዉ ___2. መንግስታዊ ታቋም ነዉ ___3. ሌለ ከአለይጠቀስ---------	
48	የትደሪ ጓደኛህ/ሽ የኤች አይ ቪ ምሪምራን ዉጤት የቃል/ተቃለች?	___1. አዎ ___2. አይደለም	
49	የኤች አይ ቪ ምሪምራን ዉጤት ቤታሳቦችህ/ሽ የቃሉዉ?	___1. አዎ ___2. አይደለም	

50 የመጀመሪያ የግብራ ስጋ ግንኙነት የፈፀምክበት/ ሽበት እድሜ		በዓመት----------?	
51. ቋሚ የግብራ ስጋ ግንኙነት ጓደኛ አለዎት?		___1. አዎ ___2. የለኝም	
52	ከትደር /ከጸታ ጓደኛዎ ጋር ምንያል ጊዜ ኖረዋል---?	___1. 0-5 ዓመት ___2. >5 ዓመት	
53	ባለፉት ስድሥት ወራት ዉሰጥ የግብራ ስጋ ግንኙነት ፈጽመሀል/ሻል?	___1. አዎ ___2. አይደለም	

54	የግብረ ስጋ ግንኙነት ከማን ጋር ፈጽመሀል/ሻል?	___1. ከሚስቴ/ከባለቤቴ ወይም ቋሚ ጓደኛየ ጋር ___2. ቋሚ ያልሆነ ጓደኛየ ጋር ___3. መልስ ያልሰጡ	
55	የፀረ ኤች አይ ቪ/ ኤድስ መድሀኒት መውሰድ ከጀመርክ/ሽ በኋላ የግብረ ስጋ ግንኙነት ፍላጎት ሁኔታ ምንይመስላል?	___1. ምንም ለውጥ የለውም ___2. ጨምሯል ___3. ቀንሷል ___4. መልስ ያልሰጡ	
56	በአመከይ ባለፉት ስድሥት ወራት ውስጥ ምንያል ጊዜ የግብረ ስጋ ግንኙነት ፈጽመሀል/ሻል?	___1. ቢያንስ ሦሥት ግዜ በሳምንት ___2. ቢያንስ አንድ ግዜ በሳምንት ___3. ቢያንስ አንድ ግዜ በወር ___4. በወር ከአንድ ጊዜ በታች	
57.	በአሁኑ ጊዜ ስንት ተቀራኒ ጾታ ጓደኛ አለህ/ሽ?	___1. አንድ ብቻ ___2. ሁለት ና ከዚያበለይ ___3. መልስ አልሰጡሙ	
58	ባለፉት ስድሥት ወራት ውስጥ ኮንዶም ተጠቅመሀል/ሻል?	___1. አዎ ___2. አይደለም	
59	ባለፉት ስድሥት ወራት ውስጥ የኮንዶም አተጠቀምህ/ሽ ሁኔታ ምን ይመስላል?	___1. ሁሌበተከተታይ እጠቀማለሁ ___2. አብዘሀኛዉን ጊዜ እጠቀማለሁ ___3. አንዳንድ ጊዜ እጠቀማለሁ	
60.	ኮንዶም የምትጠቀምበት/ሚበት ምክንያት ምንድነዉ?	___1. ከሁለት በለይ ጥቅም ስለአለዉ(ከልተፈለገ እሪግዝና/ከአበላዘረበሽታ/ ከኤች እይ ቪ ስለሚከለከል) ___2. ከኤች እይቪ ነፃ/ነጌት-ቭ ጎደኛ ለመከለከል ___3. በበለሞያዎች ምክሪ	

		___4. በሌለ አድስ ቨይራስ እንዳል ያዝህ ፈሪቼ ነዉ ___5. በሌሎች አበላዘረበሽታዎች እንዳል ያዝህ ፈሪቼ ነዉ ___6. መልስ የለሰጡም	
61	ኮንዶም የማትጠቀምበት/ሚበት ምክንያት ምንድነዉ?	___1. ጡሩ ስሜት ስለማይ ሰማኝ/የግብራ ስጋ ግኑኝናት ስለምቀንስ ___2. ጓደኛዬ ስለሚቋዋመኝ ___3. መረገሲ ስለሚፈልግ	
62	ከኮንዶም በተጨማሪ ሌላ የቤታሰብ ምጣኔ ይጠቀመሉ	___1. አዎ ___2. አልጠቀምም	
63	ለጥያቄ ቁ 62 መልስዎ አዎ ከሆነ፣ የትኛዉን የቤታሰብ ምጣኔ ይጠቀመሉ	___1. በአፍ የሚወሰድ ኪኒን ___2. በየሶስት ወሩ የሚወጋ መርፌ ___3. በክንድ የሚቀበር ___4. በማህጸን የሚቀመጥ(አዩሲዲ) ___5. ሌላ ካለይጠቀስ----------	
64	ጓደኛህ/ሽ ወይም ባልሽ/ሚስትህ የኤች እይ ቪ ፖዝትቭ ነዉ/ች?	___1. አዎ ___2. አይደለም	
65	ጓደኛህ/ሽ ወይም ባልሽ/ሚስትህ ከኤች እይ ቪ ምረምራ ዉጤት በኋላ ሚስት /ባል ቀይረሀል/ሻል?	___1. አዎ ___2. አይደለም	

ይህ የመጠይቁ ማብቂያ ነው እናመሰግናለን፡፡

የቃለመጠይቁ መረጃ የተሰበሰበበት ቀን----------

መረጃውን የሰበሰበው ግለሰብ ስም----------ፊርማ----------

የተቆጣጣሪ ስም---------- ፊርማ------

Annex IV in-depth interview guideline of English version

IN-Depth Interview Guide for key nominee groups of mother supporting and peer educators of PLWHA clients.

Date of interview (DD/MM/YY):__ __/ __ __ / __ __ Name of Interviewer: ……

To begin our conversation, I would like to ask you some information regarding yourself and your life in general

Part I: Socio demographic information

1. ART status_____ if on ART duration on ARV drugs in year's _____?

1. Age……Sex…….. Marital status…… Residence ……....

3 .Educational status_____ Have alive biological child _____ or have no child_____

Part II:-Reproductive intentions and sociocultural questions

- What factors contribute to an explanation of reproductive intentions/desires of men and women living with HIV and AIDS?
- What are the barriers to achieving reproductive intentions/desires of men and women living with HIV/AIDS?

1. Do you want to have more children?
2. Could you please explain why you don't want a child/ more children?
3. *You said that you want to have a child/ more children in the future, right?* Why do you want to have a child/ more children? **Skip this questions for not have fertility desires**
4. What importance is attached to having a child in your community?
5. How are childless couples perceived in this community? How is childlessness perceived differently for men and women? (P*robe for local words used to describe people who do not have children).*
6. *Did face family or your partner pressure for having children? Please explain this*
7. Disclosure status HIV-serostatus to partner
8. Partner serodifference or discordant
9. What do you suggest for future improvement for PLWHA reproduction health needs?

Thank you for your cooperation!!

DECLARATION

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

Name: Dereje Bayissa Demissie

Signature: _____date _____

Name of the institution: Jimma University

Date of submission: 24/06/2013 Gc.

This thesis has been submitted after examination with my approval as university advisor

Name of the 1st advisor:- S/r. Bosena Tebeje (Asst. Prof., MSC/RH, BSC N, RM**)**

Signature of the 1st advisor: _____date_____

Name of the 2nd advisor: - Mr. Temamen Tesfaye (MSc, BSC N)

Signature of the 2nd advisor: _____date _____