# ST PAUL'S HOSPITAL MILLENNIUM MEDICAL COLLEGE

# FERTILITY DESIRE AMONG HIV POSITIVE MEN AND WOMEN IN FOLLOW UP CARE AT SPHMMC ART UNIT.

**PREPARED BY: DR. MOWLID BEDEL**

**A STUDENT RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF PUBLIC HEALTH, SPHMMC, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF MEDICINE**

**OCTOBER, 2017**

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ACKNOWLEDGEMENT
I would like to show my deepest gratitude to SPHMMC, Public Health department for giving me the chance to conduct this educational research and also for their sponsorship. Especial thanks to my Public health advisor Mr. Hailemicheal for assisting me with devotion and concern in each and every step of the study to succeed my research paper. And also to my clinical advisor Dr. Birhanu kebede who guided me to do this paper. My acknowledgment also goes to my beloved families for their support and encouragement throughout the years of my study.

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## ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| AIDS | Acquired Immune Deficiency Syndrome |
| ART | Anti-Retroviral therapy |
| CI | Confidence Interval |
| DCH | Department of community health |
| HAART | Highly Active Anti-Retroviral Therapy |
| HBC | Home Base HIV Care |
| HIV | Human Immune Deficiency Virus |
| PLWHA | People Living With HIV/ AIDS |
| OR | Odds ratio |
| PMTCT | Prevention Mother to Child HIV Transmission |
| SD | Standard Deviation |
| SPSS | Statistical package for social sciences |
| SPHMMC | St. Paul's hospital millennium medical college |
| USAID | United States Agency for International Development |

# ABSTRUCT

**Background:** Globally, studies estimate that 75% of all HIV-positive people are of reproductive age. Sub-Saharan Africa is home to 60% of all people living with HIV/AIDS, and more than half of these are females.

In Ethiopia HIV adult prevalence is estimated at 1.5% in 2011, However prevalence varies according to age, sex, gender and geographical location. According to the 2011 DHS adult prevalence was high among females compared to males at 1.9% versus 1.0% respectively. Thus, interventions to meet the reproductive health needs, and specifically the needs relating to a desire to have children of this population group need to be prioritized as many HIV-positive women continue to want to have babies despite knowledge of their HIV status.

Now days, studies have shown that HIV infection may affect fertility by influencing desires and intentions for having children. On the other hand, studies of fertility intentions among HIV-positive individuals have found ambivalence and mixed results while some studies reporting a strong desire to have children, consistent with the high social value placed on children and others doesn't.

Studies in number of settings have pointed to different factors which determine the fertility desire of HIV-positive women. For example, young age of HIV infected individuals is significantly associated with increased fertility desire. Decreased fertility desire is associated with divorce or separation, as well as having at least one child.

**Objective:** The aim of this study was to assess fertility desire in HIV positive men and women on follow up care in SPHMMC ARV treatment units.

**Methods:** The study was undertaken from May- June 2017 at SPHMMC ART unit, using quantitative cross-sectional study with sample of 260 PLWHA on follow up care. A pre- tested structured questionnaire was used to collect the data. The data was entered and analyzed with SPSS version 22.

**Result:** One hundred nine (44.7%) of women and 76(35.2%) of men, overall 51.2% of HIV positive individuals receiving care at SPHMMC desired to have children. Generally HIV positive individuals who desired children are younger (18-29) (adjusted OR: 2.733(0.540-13.827), have no children (adjusted OR: 4.428(0.810-24.208) and had partner who also desire children (adjusted OR: 85.746(23.403-314.166) than those who do not desire children.

**Conclusion:** A high proportion of HIV positive individuals who received medical care expressed a wish for parenthood and want to have children. In general young age, having no children and partners desire for children were highly associated with fertility desire.


**Keywords**: Fertility Desire, People living with HIV, Antiretroviral Treatment.

# 1. Introduction

## 1.1 Background

AIDS was first recognized in the United States in the summer of 1981, when the U.S. Centers for Disease Control and Prevention (CDC) reported the unexplained occurrence of *Pneumocystis jiroveci*(formerly *P. carinii*) pneumonia in five previously healthy homosexual men in Los Angeles and of Kaposi's sarcoma (KS) with or without *P. jiroveci*pneumonia and other opportunistic infections in 26 previously healthy homosexual men in New York, San Francisco, and Los Angeles. In 1983, human immunodeficiency virus (HIV) was isolated from a patient with lymphadenopathy, and by 1984 it was demonstrated clearly to be the causative agent of AIDS. In 1985, a sensitive enzyme-linked immunosorbent assay (ELISA) was developed; this led to an appreciation of the scope and evolution of the HIV epidemic at first in the United States and other developed nations and ultimately among developing nations throughout the world.
HIV infection/AIDS is a global pandemic, with cases reported from virtually every country. At the end of 2013, an estimated 35.0 million individuals were living with HIV infection, according to the Joint United Nations Program on HIV/AIDS (UNAIDS). An estimated 95% of people living with HIV/AIDS reside in low- and middle-income countries; ~50% are female, and 3.2 million are children <15 years [24].

HIV infection can be transmitted from an infected mother to her fetus during pregnancy, during delivery, or by breast-feeding. This remains an important form of transmission of HIV infection in certain developing countries, where the proportion of infected women to infected men is ~1:1. Virologic analyses of aborted fetuses indicate that HIV can be transmitted to the fetus during the first or second trimesters of pregnancy. However, maternal transmission to the fetus occurs most commonly in the perinatal period. Two studies performed in Rwanda and the Democratic Republic of Congo (then called Zaire) indicated that among all mother-to-child transmissions of HIV, the relative proportions were 23–30% before birth, 50–65% during birth, and 12–2`0% via breast-feeding.
In the absence of prophylactic antiretroviral therapy to the mother during pregnancy, labor, and delivery, and to the fetus following birth, the probability of transmission of HIV from mother to infant/ fetus ranges from 25% to 35% in developing countries. These differences may relate to the adequacy of prenatal care as well as to the stage of HIV disease and the general health of the mother during pregnancy. Higher rates of transmission have been reported to be associated with many factors—the best documented of which is the presence of high maternal levels of plasma viremia, with the risk increasing linearly with the level of maternal plasma viremia[24].

Prolonged interval between membrane rupture and delivery is another well-documented risk factor for transmission. Other conditions that are potential risk factors, but that havenot been consistently demonstrated, are the presence of chorioamnionitis at delivery; STIs during pregnancy; illicit drug use during pregnancy; cigarette smoking; preterm delivery; and obstetric procedures such as amniocentesis, amnioscopy, fetal scalp electrodes, and episiotomy[24].

HIV may induce sterility, increase fetal mortality, decrease production of spermatozoa and sometimes decrease frequency of sexual intercourse all contributing to declining of fertility rates (9).

HIV infected women experience reduced pregnancy rates, higher rates of menstrual irregularities, planed abortion and miscarriage (9, 10). Women infected with HIV at the stage of AIDS may face lower fertility rates. In addition, HIV may indirectly affect fertility due to co-infection with another sexual transmitted diseases and complications of HIV, such as increased risk of cervical carcinoma, early menopause and severe wasting may also contribute to infertility in women (9).

## 1.2 Statement of Problem

In 2015, 36.7 million people were living with HIV Globally and 2.1 million people became newly infected with HIV, 1.1 million people died from AIDS-related illnesses, 18.2 million people were accessing antiretroviral therapy [3].

In 2015, there were 19 million people living with HIV in eastern and southern Africa, Women account for more than half the total number of people living with HIV in eastern and southern Africa. In 2015, there were an estimated 960 000 new HIV infections in eastern and southern Africa. It declined by 14% between 2010 and 2015, Eastern and southern Africa accounts for 46% of the global total of new HIV infections. In eastern and southern Africa, 470 000 people died of AIDS-related causes in 2015. Between 2010 and 2015, the number of AIDS-related deaths in eastern and southern Africa fell by 38%. In eastern and southern Africa, 10.3 million people were accessing antiretroviral therapy, 54% of all people living with HIV in the region. 59% of adult women (aged 15 years and over) and 44% of adult men were accessing antiretroviral therapy in eastern and southern Africa in 2015. Six out of 10 people on antiretroviral therapy live in eastern and southern Africa. There were 56,000 new HIV infections among children in eastern and southern Africa in 2015, since 2010, there has been a 66% decline in new HIV infections among children in the region [3].

In Ethiopia HIV adult prevalence is estimated at 1.5% in 2011, However prevalence varies according to age, sex, gender and geographical location. According to the 2011 EDHS adult prevalence was high among females compared to males at 1.9% versus 1.0% respectively (1). The distribution of HIV prevalence also varies by age, peaking earlier in females in the 30-34 years' age group compared to 35-39 years in males. Looking at the younger age groups it can be seen that young women have a two to six-fold higher HIV prevalence than young men. Marked variation in urban rural prevalence is also reported in the 2011 EDHS with urban areas showing higher HIV prevalence compared to rural areas (4.2% versus 0.6%)[1].

Thus, interventions to meet the reproductive health needs, and specifically the needs relating to a desire to have children of this population group need to be prioritized as many HIV-positive women continue to want to have babies despite knowledge of their HIV status [2, 12, 13and 14].

Decreased fertility desire is associated with divorce or separation, as well as having at least one child [21, 13, and 17]. HIV disclosure to a woman's sexual partner has also been associated with her having increased fertility desire [11, 17].

Sero-discordance could also/ affect fertility desire of couples [18]. A further study indicated that educational status was not significantly associated with fertility desire among HIV-positive women [16], while good perceived health status, and CD4 count more than or equal to 200 cells/mm3 were found to be significantly associated with increased fertility desire [17,19].

Now days, studies have shown that HIV infection may affect fertility by influencing desires and intentions for having children. On the other hand, studies of fertility intentions among HIV-positive individuals have found ambivalence and mixed results while some studies reporting a strong desire to have children, consistent with the high social value placed on children and others doesn't. The relative strength of these conflicting findings varies according to individual and contextual factors. Since Fertility desire in HIV is major way of increasing maternal to fetal transmission of the disease and further increase maternal and child mortality rate and there is no recent study done in this topic at SPHMMC showing the magnitude and factors affecting fertility desire among HIV positive individuals. This study aims to assess fertility desire among HIV positive men and women at ART clinic in SPHHMC.

## 1.3 Significance of the study

The main aim of this study was to assess the extent of, and the factors associated with fertility desire among HIV-positive women in SPHMMC ART clinic, Ethiopia. Specifically, it is important to ensure that the necessary resources and programs for improved reproductive health services, such as Prevention of Mother-to-Child Transmission (PMTCT) of HIV and family planning services for HIV-positive women, are in place, and that they are as integrated into AIDS care services. With this study the SPHHMC Hospital will benefit in allocating the necessary number of trained personnel, material and improve the ANC Care which are all important for increasing the efficiency of PMTCT of this hospital.

Federal ministry of health could also use this study to formulate policies and decrease child mortality rate at large. Other researchers could also use this research as a baseline to do further studies.

It is hoped that this will lead to a better quality of life for HIV-positive women, decrease levels of vertical HIV transmission to children, and ultimately reduce maternal and child mortality.

# 2. Literature Review

The HIV/ AIDS pandemic continued to spread worldwide. Today some 36.7 million people are living with the virus, and over 20 million have died since the first case of AIDS was identified in 1981. Sub Saharan Africa, with only 10% of the world population is carrying the burden of 80% of world HIV infection and AIDS cases (9, 10).

Ethiopia is one of the hardest hit Sub-Saharan African countries by the HIV pandemic with an estimated 1.5 million people living with HIV/AIDS. National HIV/AIDS prevalence in Ethiopia estimated to be 1.5% in 2011 [1].

Various studies showed different results concerning fertility desire, in studies conducted in Tanzania, showed that 36% of the clients had desire [17]; Uganda, 29% [11], and Malawi, 17% [27].

In Ethiopia, various studies have reported different level of fertility desire. Study done in Addis Ababa (44%) [22]; a lower level was reported in Northern Ethiopia (24%) [28] and South Wollo (15.7%) [15]. Higher rate of fertility intention (92 .3 %) was also reported in Oromia region [12]. A study in Harari region indicated that 52.9% of women had fertility desire [2].

## 2.1 Factors associated with fertility desire among PLWHA

### 2.1.1 Socio-Demographic Factors

Fertility desire among PLWHA is affected by a multitude and interrelated factors. Socioeconomic factor is one of those factors.

Sex difference between male and female clients had effect on fertility desire, male clients had higher desire compared to female clients in a study conducted in South Africa [5]. In a Study done at Northwest Ethiopia had shown that male clients (37.8 %) had higher desire than females (28.8 %) [14]. This finding was similar with a study conducted in Nekemte (West Ethiopia) which found 40.5 % of men and 30.7 % of women had fertility desire [8]. Also similar results were found in studies conducted in Northern and Southern parts of Ethiopia [6, 7].

Age was a significant predictor of fertility desires in a study done at Kenya, the likelihood of not wanting more children increased with age. This finding is consistent with previous studies which found that older women were less likely to want more children compared to younger women [20]. Another study done at Tigray region, Ethiopia, showed that women in the age groups of 15– 24 and 25– 34 years had 2.6 and 2.4 higher odds of fertility desire compared to women in the age group of 35– 49 years, respectively [13].

Another Study done at Northwest, Ethiopia showed that A high desire for having children was seen in the age group 20–29 which was 42.1 % followed by the age group of 30–39 which was 32.8 %. The rest 25.2 % desire were among age group ≥40 years [14].

Education level and household socioeconomic status were associated with fertility desires. Women with secondary and higher education were more likely to want more children compared to their counterparts with primary education and lower [14].

A further study indicated that educational status was not significantly associated with fertility desire among HIV-positive women [20].

### 2.1.2 Number of alive children

Study done at Northwest, Ethiopia showed that Current number of children was significantly associated with fertility desire. Participants who had no child were 6.7 times more likely to have desire for children than those who had three or more children [14]. This finding was in line with the findings of studies conducted in Western, Eastern and Southern Ethiopia and also with South African study [5, 6, 7, and 8].

Study done in Tigray region, Ethiopia, showed that Women who had no children had 26 times higher odds of desiring children as compared to women who already had three or more children; and women who already had one or two children had five times higher odds of desiring more children [14].

This may be due to the reason that those who did not have child need to replace themselves and as in culture of developing countries, they need someone to taker of them when they get old and weak. Studies indicate that respondents by whom the number of children ever born in their life time was one child, two children and greater than or equals to three children have lesser fertility desire when compared with those respondents who have no child in their life time.

### 2.1.3 Duration on ART

In study done at Northwest Ethiopia showed that duration on ART (in years) was also independently associated with fertility desire. client s who had been on ART less or equal to two years were 3.6 times more likely to have a desire for having children than those who had been more than two years on ART [14].

This finding was similar with the association seen in a study conducted in Nekemte (Western Ethiopia) [8]. This could be due to the reason that access to ART would improve their health status in the first years of follow up compared to their pre-ART status. This wellbeing feeling, in turn, may lead them to desire for having child/children.

### 2.1.4 Partner's desire for children

Partner fertility desire was also another determinant of fertility (child) desire in study done at Harar, Ethiopia showed that individuals whose partner had no fertility desire were 1.2% lesser fertility desire when compared with clients whose partners had fertility desire [2].

In a study done at Addis Ababa Hospitals Showed that partner desire for fertility was positively and significantly associated with desire for children ($p \leq 0.05$).[4]

Study done in West Shewa Ethiopia showed that Almost one-fourth 20.1% of the respondents expressed that their partner/spouse desire for children [23].

So Most of the studies done in Ethiopia show that respondents whose partners had no fertility desire were less likely to have fertility desire when compared with their counterparts. [2, 23, 4] This is because if their partner desire for children they want to satisfy their partner interest they intended to have children and also the support is not left only on them

### 2.1.5 Effect of HIV on fertility

One effect of HIV/AIDS on individual and society at large is change in the fertility level (9, 10). Different Studies in Sub Saharan African countries have found that behaviors that have been largely influenced by AIDS education such as increased condom use, delayed on set of sexual relations, older age at first union and fewer premarital sexual relation have driven down fertility rates (9, 10, 11,).

In societies with high HIV/AIDS prevalence rates behavioral influences may led HIV positive couples to limit family size due to concern about living orphans behind after an early death or transmitting infection to the child, though others may desire large family to ensure survival of children (9,11). Biological mechanism also influences fertility rates in HIV positive men and women.

# 3. Objective

## 3.1. General objective

**-**To assess fertility desire in HIV positive men and women on follow up care in SPHMMC ARV treatment unit.

## 3.2. Specific objective

- To assess the prevalence of fertility desire in HIV positive men and women on follow up care at SPHMMC ART unit.
- To identify factors that influence fertility desire in HIV positive men and women on follow up care.

# 4. Methodology

## 4.1 Study area

Addis Ababa is the capital and largest city of Ethiopia. It has a population of 3,384,569 according to 2007 population census, with annual growth rate of 3.8%. The city is populated by people from different regions of Ethiopia.

The study was conducted in one of the largest hospitals of the city, St. Paul's Hospital Millennium medical college. It was established in1969, by Emperor Haile Selassie in collaboration with German evangelical church, as a source of medical care for underserved populations. It currently has 329 beds, with an annual average of 200,000 patients and a catchment population of more than 5 million [25].

Approximately 75% of the patients receive medical services for free of charge. There are over 1300 clinical and non-clinical staff on over 13 departments, most recently launching is its hemodialysis [26].

## 4.2 Study design

A cross sectional study that employed quantitative data collection method was carried out in SPHHMC ARV treatment unit.

## 4.3 Source population

The source population was all PLWHA who were on follow up at SPHMMC ARV unit at the time of study.

**Study Unit**

The study subject was all PLWHA who had at least one visit to the selected hospitals ARV treatment units during the study period.

**Inclusion criteria**

People living with HIV/AIDS: those in reproductive age group (18-49 for women and 18-54 for men): and had at least one visit to SPHHMC ARV treatment unit.

**Exclusive criteria**

All PLWHA: who are unable to Hear

Mentally disabled and

Seriously ill will be excluded from the study

## 4.4 Sample Size

The sample size was determined from study done on fertility desire and family planning of HIV positive men and women at Black lion, St. Paul's, Zewditu, St, Peter and ALERT Hospitals in Addis Ababa in 2006 and 40% of HIV positive individuals desired children[4], 5 %marginal error and 95% confidence ($\alpha = 0.05$).

Based on this assumption, the actual sample size for the study was determined using the formula for single population proportion.

n= the required sample size
Z=Standard score corresponding to 95% confidence interval
p= Assumed proportion of fertility desire = 40%
d = the margin of error (precision) 5%

$$n_0 = \frac{(Z\alpha/2)^2 \, P\,(1-P)}{d^2}$$

$$n_0 = \frac{(1.96)^2 \times 0.4(1-0.4)}{(0.05)^2}$$

$n_0$ =369

Since the average number (N) of HIV positive men and women visiting the ART clinic of SPHMM in three months is estimated to be 660. So the corrected sample size (n) is:

n= $n_0$/1+ ($n_0$/N)

n= 369/1+ (369/660)

n= 236

None response rate 10% = 24
24+236= 260 required sample size

## 4.5- Sampling Method

for quantitative study simple random sampling method was used. The calculated sample size was used to recruit study subjects from the selected ARV treatment unit proportional to the unit's client size.

First the average numbers of clients who visit the ARV treatment unit daily during data collection period was estimated based on the previous daily client flow of the unit. This was obtained by referring client registration book/ record from Oct- Dec 2016.

## 4.6 Data collection

a structured questionnaire was used for quantitative study. It was prepared in English, and translated into Amharic and then retranslated in to English. The structured questionnaire was pre-tested in 5% of the study subjects and subjects who were involved in the pre-test were excluded from the study.

Trained nurses who were working in ART clinic at SPHMMC collected the data using structured questionnaire under daily supervision and follow up.

Main points that include in the questionnaire were socio demographic characteristics, HIV and treatment conditions, child desire information, reproductive characteristics.

The main issue addressed was decisions on child desire, impact of HIV on child desire, community value for children. After verbal consent, subjects were interviewed.

## 4.7 Variables

**The independent variables were**

- Socio demographic characteristics (age, sex, income, marital/relationship status, education, religion, occupation, ethnicity)
- Number of alive children
- Partners desire for children
- Duration on ART

**Dependent/outcome/ variables**:

-fertility desire.

**Operational definition**

PLWHA on follow up care: - all PLWHA who had at least one visit to the SPHMMC ARV treatment unit for care who may be Receiving ARV treatment or not.
Desire for a child /children: - PLWHA on follow care would like to have a child in the future.

## 4.9 Data Analysis

The date was entered using SPSS 20 software. Analysis was carried out for difference variables, frequencies, odd ratio was computed to assess the presence and degree of association between dependent and independent variables.

Logistic regression was done to assess the relative effect of various explanatory variables on the dependent variable.

## 4.10 Ethical consideration

Official permission was secured from different authorities like department of Public Health, Medical Director of the Hospital and Department of Internal Medicine and Head of ARV Unit of SPHMMC. The respondents were informed about the objective and purpose of the study and verbal consent was obtained from each respondent. Confidentiality of the information was assured and information will be collected anonymously

## 4.11 Dissemination of the results

The results of this study will be disseminated or communicated with the Public Health Department of SPHHMC and other concerned bodies through reports and publication on an appropriate journal.

# 5. Results

260 eligible clients seen in the ARV treatment unit during the study period agreed to participate in the study, giving response rate of 100%.

## 5.1. Socio-demographic Characteristics of the study subjects

The study subjects consisted of 148(56.9%) females and 112(43.1%) males.
One hundred twelve (43.1%) of the respondents were in their 3rd decade of life. The age range of the study subjects were 18-54 years. Respondents were mainly orthodox Christians 171(65.8%) by religion. One hundred seven (41.2%) and 101 (38.8%), of the study subjects were from Amhara and Oromo ethnic groups respectively.

The majority 70(30.4%) of the respondents were private employee, while 20.8% were government employee. The median monthly income among participants was 2000 Ethiopian birr. Hundred sixty-eight (64.6) had at least Primary/secondary education, while 20(7.7%) been illiterate and12 (4.6) were only able to read and write. Hundred forty seven (56.5%) of the respondents had no children, while 84(32.3%) and 29(11.2%), had one to two, three or more children respectively. [Table 1]

**Table 1: Socio-demographic Characteristics of PLWHA at SPHMMC ART unit 2017**

| Characteristics | No (%) |
|---|---|
| **SEX** | |
| Female | 148(56.9) |
| Male | 112(43.1) |
| **Age(years)** | |
| 18-29 | 112(43.1) |
| 30-39 | 109(41.9) |
| >40 | 39(15) |
| **Religion** | |
| Orthodox | 171(65.8) |
| Muslim | 34(13.1) |
| Protestant | 51(19.6) |
| Others | 4(1.54) |
| **Educational status** | |
| College and above | 60(23.1) |
| Primary and secondary | 168(64.6) |
| Able to read and write | 12(4.6) |
| Unable to read and write | 20(7.7) |
| **Ethnicity** | |
| Oromo | 101(38.8) |
| Amhara | 107(41.2) |
| Gurage | 29(11.2) |
| Tigray | 11(4.2) |
| Others | 12(4.6) |
| **Relationship status** | |
| Married | 160(61.1) |
| Single | 62(23.7) |
| Widowed | 24(9.2) |
| Divorced | 14(5.3) |
| **Estimated Monthly Income ETH Birr** | |
| <1000 | 44(16.9) |
| 1000-3000 | 126(48.5) |
| >3000 | 73(28.1) |
| **Occupation** | |
| Unemployed | 29(11.2) |
| Student | 3(1.2) |
| Housewife | 41(15.8) |
| House servant | 5(1.9) |
| Daily laborer | 24(9.2) |
| Merchant | 24(9.2) |
| Government employee | 54(20.8) |
| Private employee | 79(30.4) |
| Others | 1(0.4) |

## 5.2 HIV related characteristics

Recent CD4 count < 200 cells /mm3 was reported by 56(21.5%) of the respondents (Table2). Almost all of the respondents were on HAART. Two hundred forty-nine (95.8%) of those who were on HAART described their health condition improved after the treatment, while 11(4.2%) said did not improve. Almost all of those on HAART obtained the drugs free from the ART unit, One hundred four (40%) of the respondent attended the ART unit for five to ten years median duration (Table2).

One Fourth (23.1) of the respondents have had psychosocial support, while 200(76.9%) claimed not to have support. The source of the support were mainly from families/relatives and the non-governmental organizations48 (80%) and 8(13.3%) respectively. The most commonly received kinds of support were money 59(98.33%), followed by home base care 42(70%) (Table2).

**Table2: HIV related characteristics of PLWHA attending ART unit At SPHMMC 2017**

| Characteristics | No (%) |
|---|---|
| **Duration Of Treatment** | |
| <1year | 12(4.6) |
| 1-5years | 66(25.4) |
| 5-10years | 109(41.9) |
| >10years | 73(28.1) |
| **Recent CD4+ Count** | |
| >800 | 20(7.7) |
| 500-800 | 53(20.4) |
| 200-499 | 107(41.2) |
| <200 | 56(21.5) |
| I Don't know | 24(9.2) |
| **ART Unit Attendance Duration** | |
| <1year | 17(6.5) |
| 1-5years | 69(26.5) |
| 5-10years | 104(40.0) |
| >10years | 69(26.5) |
| Don't Remember | 1(0.4) |

## 5.3 - Fertility desires

Eighty-one (54.72%) of the female and 52(46.42%) of the male respondents expressed the desire for children, giving a total of 133(51.2%) of all respondents. Out of those desiring children 49(36.84%) desired to have <2 children while, 68(51.12%) desire to have two or more children. ninety nine (38.1%) of the respondents did not plan when to have a child while, 24(9.2%) planned to have children after one year. Out of those participants who had partners, 42(28.57%) women and 28(25.0%) men have partners who also desire children.

**Table 3: Percentage distribution of HIV positive men and women at SPHMMC ART unit by fertility Desire and number of children desired 2017**

| Characteristics | Women n (%) | Men n (%) |
|---|---|---|
| Fertility Desire | | |
| Yes | 81(54.72) | 52(46.42) |
| No | 67(45.27) | 60(53.57) |
| Number of children desired | | |
| <2 | | |
| >2 | 30(37.03) | 19(36.53) |
| | 35(43.20) | 33(63.46) |
| Partners fertility Desire | | |
| Yes | 42(28.57) | 28(25.00) |
| No | 40(27.21) | 39(34.82) |

## 5.4 Factors associated with Fertility Desire among PLWHA

Of all the variables modeled in Bivariate logistic regression, P value <0.05 was used as a cutoff point to check statistical significance, and it was found that Age, monthly Income, Number of live children, and partner's fertility desire were positively and significantly associated with fertility desire with P value of <0.05.

Sex and marital status were not found to be significantly associated with fertility desire with (P =0.186 and P=0.8) respectively. There was no statistically significant difference between those who had recent CD4 count <200 and >200/mm3 (P=0.316).

In the multivariate binary logistic regression analysis, respondents in age group 18-29 and 30-39 had 2.8 [AOR: 2.733 (95%CI: 0.540-13.827)] and 1.1[AOR: 1.132 (95%CI: 0.25-5.787)] higher odds of fertility desire compared to those in the age group of >40 years, respectively. Study subjects who had no children had 4.4 times [AOR 4.428(95%CI: 0.810-24.208)] higher odds of desiring children as compared to those who had >3 children. Moreover those whose partners desired children had 85 times [AOR: 85.746, (95%CI: 23.403-314.166)] higher odds of desiring children than those whose partners don't desire children. (Table 4).

**Table 4. Association of desire for children by selected Characteristics, among PLWHA at SPHMMC ART unit 2017**

| Characteristics | Desire children N (%) | Don't desire children N (%) | Crude OR (95 CI) | Adjusted OR (95 CI) | P-value |
|---|---|---|---|---|---|
| **Age** | | | | | |
| 18-29 | 71(53.4) | 41(32.28) | 4.408(1.988-9.775) | 2.733(0.540-13.827) | <0.0001 |
| 30-39 | 55(38.34) | 58(45.62) | 2.238(1.013-4.944) | 1.132(0.225-5.787) | 0.046 |
| >40 | 11(8.27) | 28(22) | 1 | 1 | |
| **Monthly income** | | | | | |
| <1000 | 17(12.78) | 27(21.26) | 0.194(0.054-0.693) | 0.040(0.003-0.529) | 0.012 |
| 1000-3000 | 69(51.87) | 57(44.88) | 0.372(0.115-1.205) | 0.115(0.018-0.757) | 0.099 |
| >3000 | 34(25.56) | 39(30.71) | 0.268(0.080-0.901) | 0.141(0.022-0.913) | 0.033 |
| Don't know | 13(9.77) | 4(3.15) | 1 | 1 | |
| **No Children alive** | | | | | |
| 0 | 104(78.19) | 43(33.85) | 11.609(4.157-32.419) | 4.428(0.810-24.208) | <0.0001 |
| 1-2 | 24(18.04) | 60(47.24) | 1.920(0.656-5.617) | 0.578(0.098-3.416) | 0.023 |
| >3 | 5(3.75) | 24(18.89) | 1 | 1 | |
| **Partners Fertility Desire** | | | | | |
| Yes | 67(85.89) | 8(10) | 54.818(20.789-144.547) | 85.746(23.403-314.166) | <0.0001 |
| No | 11(14.10) | 72(90) | 1 | 1 | |

# 6. Discussion

The availability of ART and effective prevention of mother to child transmission makes fertility desire a great reproductive health issue for persons living with HIV. This study tried to assess the level of fertility desire among HIV positive men and women at SPHMMC ART follow up care and identify factors associated with it.

The study subjects consisted of 148(56.9%) females and 112(43.1%) males. This could be explained the fact that females are affected by HIV more than males and unlike men they have follow-up for different purposes like during pregnancy or after delivery.

Hundred sixty-eight (64.6) had at least Primary/secondary education, this could be explained by the fact that most of the respondents were from outside Addis Ababa and most of them were females who described that they had withdrawals from the school and got married

About eighty-one (54.72%) of the female and 52(46.42%) of the male respondents expressed the desire for children, giving a total of 133(51.2%) of all respondents. This may be explained the fact that most of respondents were female.

This was consistent with study conducted at harar, which reported that more than half of men (59.5%) and women (52.9%) living with HIV have fertility (child) desire (2).But study conducted at finoteselam Hospital is quite different from our study which reported that 33.4% of PLWHIV had a fertility desire (14).

The proportion of the present study population who had fertility desire was also higher than those reported in studies from developing nations. In one study conducted in Tanzania showed that 36% of the clients had desire to have children (17). And also study done in Uganda showed that 29% of the clients desired to have children [11], these numbers is lower than our finding, which is 51.2%. These may be due to socio-cultural difference between these countries with Ethiopia. It is also important to note that unlike in other studies, we recruited subjects within wide reproductive age limits because child bearing among Ethiopians tend to continue within much of their reproductive life span.

Despite the fact that, 43.46 % of respondents already had one or more children 51.2% of study subjects desired children. This is a cause for concern considering its implication for controlling vertical as well as heterosexual transmission. Moreover in our study population 21.5 % of clients reported recent CD4 count less than 200/mm3. These low CD4 count which may be a reflection of high viral load, would place at risk for near term clinical prognosis for women and in vitro transmission for fetus. Therefore the potential implication for vertical transmission of HIV appears high from this study. In the absence of medical intervention the risk of mother to child transmission of HIV is up to 25-40% in Africa (23).

Though combination antiretroviral treatment, breastfeeding substitution and elective caesarean section have been shown to reduce the risk of transmission to less than 2%(29), but still in resource limited poor setting like ours, the risk of prenatal transmission of HIV is still high.

Furthermore, more than 48.5% of our study population has monthly income less than 3000 Ethiopian birr. This shows that many of these people are from low socio economic status and also are not able to access optimal care for themselves and to reduce the likely hood of transmission to the new borne. This implies fertility desire of HIV positive women have important implications on their health and that of their new borne.
An important factor associated with fertility desire identified in this study was the age of the respondent. The present study shows that age groups (18-29) desired children more than the other age groups. This is the same with studies done in northeast Ethiopia, tigrey region, and harar, Ethiopia (14, 13 and 2).These may be attributed to the expected norms of Ethiopian society. That is because child bearing is preferred and believed to be good if it happened at younger age. However this relationship between age and fertility desire has significant consequence on a disease that is most prevalent among youths.

Number of children is one of the factors identified from this study associated with child desire. Those who had no children were more likely to desire children than who had one or more children. This finding is in agreement with the result from study done at northeast Ethiopia which states that participants who had no child were 6.7 times more likely to have desire for children than those who had three or more children (14). It may be explained that those who had no children had strong desire for parenthood and desire children to achieve their social status by being a father or a mother and need to replace themselves and as in culture of developing countries , they need someone to taker of them when they get old and weak.

Partner fertility desire was also another determinant of fertility (child) desire i.e. respondents whose partners had no fertility desire were less likely to have fertility desire when compared with their counter parts. Similar study done in Harar Ethiopia came up with similar findings [2]. This could be because of the better opportunity to discuss about fertility related decisions among couples.

## 7. Limitation of the study

It is important to note some limitations of this study, health service providers, whose attitudes and perceptions could have a direct or indirect influence on fertility desire in this population, were not also included. Structural components of the health system and service provision quality would also be important considerations in future studies on this topic. Lack of comparison to HIV-negative women may also be seen as a limitation.

# 8. Conclusion

This study showed that a high number of HIV positive men and women desired children. Reproductive decisions in HIV positive individuals are not only affected by their HIV status but depend on different factors.

in general those who are younger had higher desire of fertility than those who are older, also income was one of fertility desire affecting factors found in this study, those who had no children or 1 child desired more than those who had >3 children, and more over partners fertility desire was also major affecting factor. Sex, marital status and CD4 count or duration of ART were not found as factors affecting fertility desire among HIV positive male and female on follow-up at SPHMMC ART unit.

# 9. Recommendation

The counseling services should emphasize on the meaning of the fertility desire within the particular context of being sero-positive and the need to take in to account not only the risk of transmission to the child but also of the difficulty of combining being a parent with the constraint of their illness. However considering the high premium put on child bearing by Ethiopian society and the percentage of this study population with no children and desired children, it may be wise to desist from conventional systematic advise against pregnancy, but in addition to laying emphasis on the risk, provide adequate information on practicable reproductive options for individuals affected by HIV.

Counseling services should be fully integrated into existing HIV/ART care and it is important that this integration is maintained and strengthened in practice. This strengthening could include ensuring that  health workers are well informed about the possible effect of the factors identified in this study that are associated with HIV-positive individual's desire to have children This would assist them in making an informed reproductive choice rather than risk taking behavior..

Full information about the possible risks of having a baby should be provided to all HIV-positive individuals, but in a way that protects their reproductive rights, and ensures that any decision to conceive is supported all the way through the pregnancy, birth, and post-natal period.

Further research on this topic should include qualitative studies that would provide a deeper understanding of HIV-positive men and women's fertility desires. One important aspect of this would be the possible role of health care workers in ensuring that the rights of HIV-positive individuals are protected, and that their desires and decisions to have children, or not to have children, are supported. In addition, further studies should consider including a comparison with HIV-negative women.

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# Annexes

## Annex –I Consent

**SPHMMC faculty of medicine department of community health individual consent form for the study on fertility desire in HIV positive men and women on follow up care in SPHMMC ARV treatment unit.**

My name is Dr. Mowlid Bedel, I am 6th year medical student Hear at SPHMMC Hospital and I am interviewing men and women LWHA on follow up care at SPHMMC ARV unit to evaluate their fertility desire .I believe that this study would help to bring change in fertility desire for HIV positive people on ARV treatment.

I would like to assure you that your name will not be mentioned in the questionnaire and the information that you will give us will be kept confidential and only used for research purpose. You have full right to refuse to take part or to interrupt the interview at any time. But the information that you will give us is quite useful to achieve the objective of the study and to bring change in the fertility desire provision for HIV positive people on ARV treatment.

Are you willing to participate in the study?
1- Yes 2 – No

If the answer is yes, thanks!
If the answer is no, Thanks!

Interviewer's code ---------name ------------------ signature -------
Date of interview ----------- date ---------------month/2009 E. C.
Supervisor's name ----------------signature --------------
Checked on ----------- date---------------month/2009 E.C.
Complete 1
Incomplete 2
Other (specify) -----

**Annex –II Questionnaire**

**SPHMMC Faculty of Medicine Department of Public Health Structured Questionnaire On Fertility Desire among PLWHIA in follow up care at SPHMMC ART**

**PART 1- Socio-Demographic characteristics**

| No | Questions | Categories |
|---|---|---|
| **101** | How old are you? | …………. Years |
| **102** | What is your Sex? | Male…………1<br>Female………2 |
| **103** | What is your religion? | Orthodox……………….1<br>Muslim…………………2<br>Protestant…………..….3<br>Catholic………………..4<br>Others(Specify)……….89 |
| **104** | What is the highest educational level you completed? | College and above………………84<br>Primary and secondary school….85<br>Able to read and write…………86<br>Unable to read and write ……...87<br>No response………………..…99<br>Other (Specify)………………89 |
| **105** | What ethnic group do you belong to? | Oromo……………………1<br>Amhara…………………..2<br>Gurage……………………3<br>Tigray……………………4<br>Other (Specify)………...89 |
| **106** | What is your currently marital/relationship status? | Married……………………..1<br>Single………………………2<br>Widowed………..………….3<br>Divorced……………………4<br>Non married partner………..5 |

| | | |
|---|---|---|
| | | No Response……………… 99 |
| **107** | What is your total monthly Income? | ……………ETH Birr<br>No income………………1<br>Don't know……………. 2<br>No response………..….99<br>Others specify……………89 |
| **108** | What is your current Occupation? | Unemployed…………….……….1<br>Student………………..……….2<br>Housewife………………………..3<br>House servant……………………4<br>Daily Laborer……………….……5<br>Merchant………………….……...6<br>Sex worker………………………..7<br>Government employee…………….8<br>Private employee…………...……..9<br>Other (specify)………………..…..89 |

**PART II- Information on Child Desire**

| | | |
|---|---|---|
| **109** | How many life births have you had in your life? | -----------------Live births<br>I did not give birth at all------- 97<br>I do not have any live birth -------- 98<br>No response ----- 99<br>Other (specify) -----89 |
| **110** | How many alive children do you have now? | No of alive children --------<br>I do not have children at all ------97<br>I do not have alive children ------ 98<br>No response --------- 99<br>Other (specify) -------89 |
| **111** | Do you like to have children in the future? | Yes ------------- 1<br>No -------------- 2 |

| | | |
|---|---|---|
| | | Don't know -------- 3<br>No response --------- 99<br>Other (specify) -------89 |
| **112** | If the answer for Q 111 yes, when do you prefer to have a child? | ----------months /----------years<br>Don't know---------98<br>No response --------- 99<br>Other (specify) -------89 |
| **113** | If the answer for Q 111 yes, How many (more) children would you like to have in the future? | No of children desired ----------<br>None ---------- 97<br>Don't know ----------- 98<br>No response ----------- 99<br>Other (specify) -------89 |
| **114** | (If the answer for question 111 No) why do you not want to have children in the future? | have desired number of children -…..-1<br>fear of mother to child HIV transmission risk ------ 2<br>don't have adequate income to add another child ------------ 3<br>Health care providers advise not to have a<br>child ----------- 3<br>Child bearing may further compromise partner health --------------------------- 5<br>No response -------- 99<br>Other (specify) -----------------89 |
| **115** | Does your husband /wife/ partner want to have a child in the future? | Yes ----------- 1<br>No ------------ 2<br>Don't know ----------3<br>Don't have partner ------- 4<br>No response ----------- 99<br>Other specify --------------89 |

**PART III- Information on HIV/AIDS and treatment conditions**

| | | |
|---|---|---|
| **116** | Did you start Receiving ARV treatment? | Yes ------------- 1<br>No ------------- 2<br>No response ------------- 99<br>Other (specify) ------- |
| **117** | When did you start receiving ARV treatment? | Before -------- month or------years<br>Don't remember ------------------ 1<br>No response ----------- 99 |
| **118** | Who cover the cost of the Drugs? | My self ------- 1<br>Free access from the Government ---- 2<br>Covered by care and support NGO's-- 3<br>My parents/ Relatives ----------------- 4<br>No Response ------------ 99<br>Other (specify) ------------------ |
| **119** | How is your overall health condition after you start receiving ARVT? | Improved -----------------1<br>No change ----------------2<br>Deteriorated -------------- 3<br>No Response ------------ 99<br>Other (specify) ------- |
| **120** | How much is your recent CD4 count? | ----------------------- |
| **121** | How long did you attend in this ARV treatment unit? | -------------- Months and ------- years<br>Don't remember ----------- 1<br>No response ------------------ 99<br>Other specify --------------- |
| **122** | Did you get support from different community groups? | Yes ------------------- 1<br>No ---------------- 2<br>No Response ------------ 99<br>Other specify -------------------- |
| **123** | If yes for question 122, From where did you get the support? | Relatives/neighbors and friends ----------1<br>NGO's ------------- 2<br>GO' s ----------- 3<br>FB'Os-------------- 4<br>Other (specify) ------------- |
| **124** | If yes for question 123, What kind of support did you get? | Money ---------------------------- 1<br>HBC (Home Based Care) ---------- 2<br>Counseling ------------------------ 3 |

| | | |
|---|---|---|
| | | Food/ Health care ---------------- 4<br>No Response ------------ 99<br>Other (specify) ----------------------- |
| **125** | Did Your counselor /ART provider discuss about sexuality, child bearing and family planning? | Yes ----------- 1<br>No ----------- 2<br>No response ---------- 99 |
| **126** | Would you like to discuss with your counselor/ART provider about sexuality, child bearing and family planning? | Yes ----------- 1<br>No ------------ 2<br>Don't know ---------- 3<br>No response --------- 99 |
| **127** | If yes for question 127, did your counselor/ART provider adequately cover issues like child bearing, sexuality and family planning? | Yes ------------- 1<br>No------------ 2<br>Don't know ----- 3<br>No response --------- 4<br>Other specify --------------89 |