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# FERTILITY DESIRE AND ASSOCIATED FACTORS AMONG ADULT ON ANTI-RETROVIRAL THERAPY USERS IN BALE ZONE HOSPITALS, OROMIA REGIONAL STATE, SOUTH EAST ETHIOPIA, 2017

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## ABSTRACT

**Background:** Globally, there were an estimated 36.7 million people living with HIV with a prevalence of 0.8% in 2015. In Ethiopia, the prevalence of HIV is 1.14 with 15700 new infections reported in 2014 EDHS report. Despite the presence of wide spread ART service and improvement in quality of life, the reproductive desire to have children by HIV infected individuals and couples has not been addressed adequately.

**Objective:** To assess the fertility desire and associated factors among adult ART users in Bale Zone hospitals from April 1-30/2017.

**Methodology:**-Institution based cross sectional study design was implemented. Four hundred sixteen study participants were selected using simple random sampling technique. Data were collected through a pre- tested structured questionnaire and analyzed using SPSS version 20 statistical software package. Bivariate and multivariate logistic regression were used to identify associated factors at P value <0.05 was taken as significant value with 95% confidence level.

**Result:** The prevalence of fertility desire in this study was 46.2%. This study identified that factors found to be associated with fertility desire were partner fertility desire(AOR= 10.7,95%CI: 5.53 -21.25), child died by HIV (AOR=13,95%CI:3.62-47),discussion with health worker on fertility intention (AOR=2.4,95% CI:1.22-4.65), sexual partner pressure (AOR=2.6,95% CI:1.11-4.79),respondent or partner current pregnancy[AOR=6.69,95%CI:(1.04,42.87)],had no biological live birth[AOR=2.9,95%CI:((1.16,7.26)] were significantly associated with fertility desire of adult ART users [AOR=13,95%CI:(3.62-47),discussion with health worker (AOR=2.4,95%CI:1.22-4.65),Sexual partner pressure (AOR=2.6,95%CI:1.11-4.8),Current pregnancy (AOR= 6.69,95%CI:1.04-42.87), had no biological live births (AOR=2.9,95%CI:1.16-7.26) were significantly associated with fertility desire of adult ART users.

**Conclusion:** The prevalence of fertility desire in this study was 46.2% while factors associated with fertility desire were partner fertility desire, having child died by HIV, discussion with health worker about fertility intention, current pregnancy, and sexual partner pressure. Therefore, these factors should be emphatically considered for PLHIVs during reproductive health service provision.

**KEY WORDS :** Anti-Retroviral Therapy, PLHIVS, REPRODUCTIVE HEALTH SERVICE

## 1. INTRODUCTION

### 1.1 Background

Human immunodeficiency virus continues to be a major global public health issue for which an estimated 36.7 million people were living with HIV AIDS according to 2015 report. The vast majority of these numbers found in low and middle income countries. In sub Saharan Africa, an estimated 25.5 million people living with HIV of which 2.1 million are new infections. About 150, 000were infected via mother to child transmission during pregnancy, child birth or breast feeding(UNAIDS 2016).

According to 2014 mini EDHS report, the national HIV prevalence rate in Ethiopia is 1.14%. Annual new HIV infections have also declined by 90% and AIDS related deaths by 53%in the last decades (NCSS 2012).

The majority of new human immunodeficiency virus (HIV) infections that occur in children worldwide occur among children born to HIV positive mothers, who acquire the HIV infection from their mothers. Through HIV treatment and support centers, HIV-infected persons and their partners are provided with the required information about the HIV prevention and treatment strategies being available. Despite counseling, studies from different contexts worldwide in both developed and developing countries in the era of wide access to antiretroviral drugs indicate that many HIV positive individuals continue to exhibit high risk sexual behavior characterized by fertility intentions(Bankole, Ann EB et al. 2009)

According to EDHS 2016 report, knowledge of mother-to-child transmission (MTCT), 74% of women and 73% of men know that HIV can be transmitted through breast feeding while 51% of women and 61% of men know that the risk of MTCT can be reduced if the mother takes special drugs during pregnancy and breast feeding.

Widespread availability of anti-retroviral therapies and the resultant improvement in the longevity and quality of life of people affected by HIV and AIDS has brought attention to the reproductive health needs of people living with HIV/AIDS. Fertility preferences within the context of HIV and AIDS have received particular consideration from research and program perspectives in conjunction with calls for more comprehensive reproductive health services for people affected by HIV/AIDS (Fisha H. 2014).

Providing antiretroviral prophylaxis to pregnant women living with HIV has prevented more than 350,000 children from acquiring HIV infection since 1995.Eighty-six percent of the children who prevent HIV infection live in sub-Saharan Africa, the region with the highest prevalence of HIV infection among women of reproductive age (UNAIDS/WHO.2007).

Antiretroviral Therapy (ART) restores health and fertility in people living with HIV and drastically reduces Mother-to-Child Transmission (MTCT) of HIV. As major efforts are under way to expand access to this life- saving treatment in sub-Saharan Africa, thousands of men and women on ART are resuming a socially productive and sexually active lives involving protected and unprotected sex with or without having desire for children (Wossenyelesh T 2006).

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### 1.2 Statement of the problem

Despite the intention of public health policies that provide universal access to reproductive healthcare services, the reproductive desire to have children by HIV infected individuals and couples has not been adequately addressed. Furthermore, access to safe assisted fertility interventions has been neglected within the global reproductive health agenda and 'family planning' discussions for HIV Sero-discordant couples (Vander Poel S., 2012).

HIV-positive individuals in Africa have additional considerations to take into account when deciding whether or not to have children. These include the possibility of passing HIV from mother-to-child and the likelihood that one or both parents could die before the child reaches adulthood (Walter K 2011) In Nigeria disclosure is one of the predictor of fertility desire and it also shows that disclosure has importance in ensuring that the PLHIV take the necessary care to protect themselves and their partners from re-infection and prevent vertical transmission to new babies (Ajuba, 2013).

Studies conducted in Ethiopia on fertility desire among PLWHIV are not consistent in different parts of the country because fertility varies by different characteristic like religion, culture, educational status and residence urban/rural, marital status, partner fertility desire, community pressure and being ART user. The Study done in Harari region indicates that females had 58% times less fertility desire than men due to women had fear of vertical transmission of the virus to new born and think that HIV infection aggravated and worsen due to pregnancy but men want to have more children specially sons because they want to have something of themselves (Demise et al., 2014).

At the International Conference on Population Development in 1994, the accepted definition of reproductive health, implied that women and men have the right to be 'informed about accessibility to safe, effective, affordable and acceptable methods of family planning and appropriate healthcare services that will enable women to go through pregnancy and childbirth and provide couples with the best chance of having a healthy infant.

Therefore, addressing the fertility need of PLWHA especially for those sero discordant should be a concern of government especially for developing countries with high prevalence of HIV infection and transmission.

Many researches done on fertility desire among people living with HIV/AIDS are tried to assess factors affecting fertility desire which are related to individual determinant factors and they are not considering the social factors like pear group pressure, community pressure, delay in marriage due to HIV positive Sero status. ART provider have to discuss and counsel on reproductive health issue including fertility desire specially with sero discordant couples and HIV positive patients in order to assist for reproductive need of their patients. This study tried to address those factors which have association with fertility desire among adult ART users at the study area.

### 1.3 Significance of the study

A realization of the study objective will be of both theoretical and academic significance. A number of studies have addressed the issue of fertility regulation and the possible incorporation of AIDS prevention activities in to family planning programs. This study is important since, first it supplies base-line data on fertility desire among PLWHAs in Bale Zone. Secondly, the findings of the study will contribute to the formulation and execution of health education programs on fertility desire issues for PLWHAs in the study area in particular and in Ethiopia in general. Thirdly, it will provide the current information on the fertility desire among HIV positive patients in Bale Zone.

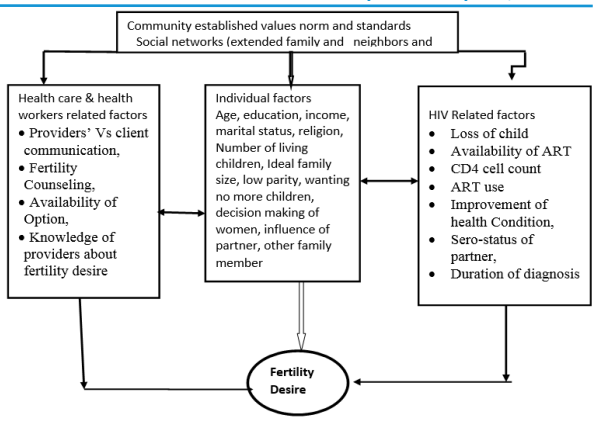


**Figure 1** Conceptual frame work for fertility desire among PLWHA of Bale zone Hospitals, South east Ethiopia, 2017.Source: partially adapted from (Hussein, 2015)

## 3. Objectives

### 3.1 General objectives

To assess fertility desire and associated factors among adult anti-retro viral therapy users in Bale Zone hospitals, oromia regional state, south East Ethiopia, 2017.

### 3.2 Specific objectives

- To identify the magnitude of fertility desire among adult anti retro viral therapy (ART) users in Bale Zone hospitals, Oromia regional state, south east Ethiopia 2017.
- To determine factors affecting fertility desire among adult anti retro viral therapy (ART) users in Bale Zone hospitals, Oromia national regional state, south east Ethiopia 2017.

## 2. Methodology

### 2.1 Study area and period

This study was conducted from April 1-30,2017in Bale Zone hospitals. Bale zone is among twenty zones found in Oromia Regional State in South East of Ethiopia among four hospitals; Bale Robe, Goba referral hospital, Dellomena and Ginner hospitals. According to the health management information system report of the hospitals, the total number of ART users of reproductive age group and getting clinical care and treatment are 3652.

### 2.2 Study design

Institutional based cross sectional study design was conducted among adult anti-retroviral therapy (ART) in Bale Zone hospitals.

### 2.3 Source Population

All adult HIV positive individuals who were started anti retro viral therapy in Bale zone hospitals.

### 2.4 Study population

All adult HIV positive individuals who visit ART clinic of the hospitals and whose age of 18 years and above during data collection period.

### 2.5 Sample size determination

The sample size determination was based on Hawasa city hospitals and health center proportion of 0.44 (Dememew,2014) the assumption that of HIV positive individuals may desire and intend to have children with 5% margin of error and 95% confidence interval (alpha=0.05). A non-response rate was assumed to be 10%. Based on this assumption the actual sample size determined using the formula for single population proportion.

$$n = \frac{(Z\ a/2)^2 P\ (1-P)}{d^2} = \frac{(1.96)^2\ 0.44(1-\ 0.44)}{(0.05)^2} = 378$$

Where:

- Proportion of fertility desire (p) = 0.44

Level of Confidence 95 %
Margin of error (d) = 5%

Non-response rate =10%
Total sample size = 416

### 2.6 Sampling technique

All four hospitals of Bale zone were included in the study and the number of samples needed for each hospital was allocated based up on their patient load proportionally using sampling proportion. Sampling frame was prepared from ART registration book log based up on their appointment date and card number (those whose appointment date is in the data collection period). Respondents were selected by lottery method from the prepared list of patients as sampling.

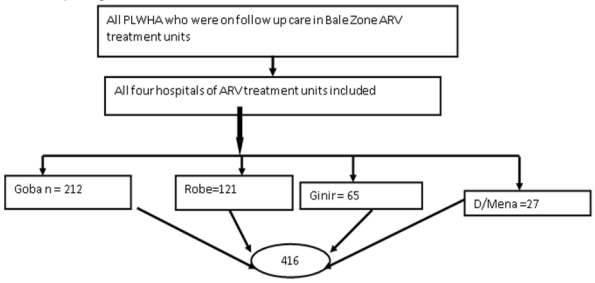


Figure 2 Schematic representation of Sampling Procedure used in the study in Bale Zone hospitals, 2017G.C

### 2.7 Inclusion and exclusion criteria

#### *2.7.1 Inclusion criteria*

All HIV patients' men above 18 years and women of age 18-49 years and those who stared HAART and who had at least one visit to the selected four hospitals of ART clinic were included.

#### *2.7.2 Exclusion criteria*

Adult HIV positive patients those on ART and who are unable to hear, mentally disabled were excluded from the study.

### 2.8 Study variables

#### *2.81 Dependent variable*

Fertility desire

#### 2.82 *Independent variable*

**Socio demographic characteristics:** Age, sex, marital status, educational level, number of children, marital status, educational level, income

**Socio cultural: -** Community/friends pressure, and disclosure of HIV sero status, partner fertility desire, sex preference

**Health related variables: -**ART users, contraceptive use, and self-reporting health status after initiation of treatment, duration since HIV positive, length of being on treatment

### Operational Definition

Fertility desire: 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.

### 2.9 Data collection methods and techniques

Data were collected using structured questioner which is first prepared in English then translated in to Amharic and Afan Oromo version and back to English language and checked for consistency during translation. The data collectors were ART providers in the selected hospitals assigned by the investigator. During the data collection time the data collector interviewed in a separate room to keep the privacy of the respondent and data collectors briefly explains the aim of the study and the contribution of the research finding to the quality of the service for the respondents. Participants were interviewed after getting informed written consent from the respondents.

### 2. Data quality control

Pretest of questionnaire was done and checked on 5% of adult reproductive age group of ART users of the sampled population. In addition to this training was given on prepared questionnaire for data collectors and supervisors for one day. Supervisors and principal investigator were closely following the data collection process. Questionnaires were checked daily for completeness.

### 2.1 Data processing and analysis

After data collection each questioner was checked for completeness and coded, entered and cleaned by the investigator by using SPSS version 20. Different frequency tables, graphs and descriptive summaries were used to describe the study variables. Bivariate analysis was conducted primary to check variables which had an association with the dependent variables individually. Variables associated with the dependent variables at p-value < 0.2 were entered in to multivariate analysis for controlling the possible effect of confounders. Finally, variables which had significant association with fertility desire were identified on the bases of adjusted odds ratios (AOR), with 95% CI and P value < 0.05 was used to declare statistically significance.

### 2.2 Ethical clearance

Ethical approval was obtained from the ethical review committee of Madda Walabu University. A formal letter was obtained from Madda Walabu University, Goba referral hospital. In addition, informed written consent was obtained from each respondent.

### 2.3 Dissemination of finding

The research finding was presented to Madda Walabu University, Goba referral hospital, school of health science and Zonal health office and to stakeholders who were working on HIV/AIDS program.

## 4. RESULT

### 4.1 Socio-demographic characteristics of study participants

A total of 416 participants were included in the study of which 100% response rate. Of these 263(63.2%) were female and 153(36.8%) and 170(40.9%) women and 124(29.8%) men were married. The mean age of the respondent was 35 (SD± 6.9) years old. Among female respondents the majority of respondents were in the age group of 30-39 (51%).Concerning ethnicity, majority of the respondents were Oromo 266(63.9%) and more than half of the study participants 275(56.5%) were Orthodox religion followers. Regarding about occupational status and average monthly income of the study participants, majority of them were housewives 102(24%) and monthly income of less than 1000birr respectively. Concerning educational level of respondents 125(47.5%) women and 41(26.8%) men were at primary educational level and more than half of them were living in urban 278 (66.8%).

**Table 1 Socio-demographic characteristics of Adult ART users of Bale Zone hospitals, Oromia regional state, south east Ethiopia, 2017 G.C**

| Variables | category | Frequency | Percent |
|---|---|---|---|
| **Sex** | Male | 263 | 63.2 |
| | Female | 153 | 36.8 |
| **Age** | 18-29 years | 86 | 20.7 |
| | 30-39 years | 195 | 46.9 |
| | > 40 years | 135 | 32.5 |
| **Ethnicity** | Oromo | 266 | 63.9 |
| | Amhara | 135 | 32.5 |
| | others | 15 | 3.6 |
| **Religion** | Orthodox | 275 | 56.5 |
| | Muslim | 131 | 31.5 |
| | Protestant | 45 | 10.8 |
| | Other | 2 | 0.5 |
| **Occupation** | Gov't employer | 79 | 19 |
| | Daily laborer | 88 | 21.2 |
| | Merchant | 77 | 18.5 |
| | Farmer | 70 | 16.8 |
| | House wife | 102 | 24.5 |

| | | | |
|---|---|---|---|
| **Educational level** | no formal education | 60 | 14.4 |
| | Primary | 166 | 39.9 |
| | Secondary | 122 | 29.3 |
| | preparatory | 15 | 3.6 |
| | College and above | 53 | 12.7 |
| **Marital Status** | Married | 294 | 70.7 |
| | single | 23 | 5.5 |
| | Widowed | 45 | 10.8 |
| | Divorce/separated | 54 | 13 |
| **Average monthly income** | <1000 | 170 | 40.9 |
| | 1001-1500 | 108 | 26.0 |
| | 1501-2000 | 64 | 15.4 |
| | 2001-2500 | 45 | 10.8 |
| **Residence** | Urban | 278 | 66.8 |
| | Rural | 138 | 33.2 |
| **Family size** | 1 - 4 | 307 | 73.8 |
| | 5 - 10 | 109 | 26.2 |

### 4.2 Fertility history of study participants of adult ART in Bale zone hospitals

From 416 participants 342(42.2%) had live children and among these respondents those who gave birth before they knew their HIV status were 259 (62.2%) and those who gave birth after they knew their sero status were 156(37.5%). From 342 study participants those who have HIV positive child and those who had one child HIV positive and taking ART treatment were 58(13.7%) and 48(11.5%) respectively.

**Table 1Distribution of fertility history among adult ART users of Bale Zone hospitals, Oromia regional state, South East Ethiopia, 2017 G.C**

| Variables | Response | frequency | % |
|---|---|---|---|
| Children availability | Yes<br>No | 342<br>74 | 82.2<br>17.8 |
| Number of live birth | No live birth<br>1-3 live birth<br>>4 live birth | 74<br>272<br>70 | 17.8<br>65.4<br>16.8 |
| Number of living birth before HIV diagnosis | No living children<br>1-3 children<br>>4children | 83<br>212<br>47 | 45<br>51<br>11.3 |
| Number of live birth after HIV diagnosis | No living children<br>One child<br>2-3 children<br>4 and above | 187<br>119<br>36<br>1 | 45<br>28.6<br>8.7<br>0.2 |
| Number of children born after ART Initiation | No living children<br>One child<br>2-3 children | 181<br>127<br>34 | |
| Having children taking ART | Yes<br>No | 58<br>284 | 13.7<br>68.3 |
| Number of children taking ART | One<br>>2 children | 48<br>10 | 11.5<br>2.4 |

### 4.2 HIV and ART history of study participants

From 416 participants of ART users ,majority of them 223(53.6%) were diagnosed and knew their Sero status before six years ago and those respondents who were on treatment for more than six years and have got improvement on their health status were 168(40.4%) and 338(81%) respectively.

**Table 2 Distribution of HIV and ART history among Adult ART users of Bale Zone hospitals, Oromia regional state, South East Ethiopia, 2017 G.C**

| Variables | Response | frequency | % |
|---|---|---|---|
| Duration of HIV diagnosis | < 6 years<br>> 6years | 223<br>193 | 53.6<br>46.4 |
| Duration of since ART initiation | <6 years<br>> 6years | 248<br>168 | 59.6<br>40.4 |
| Perceived Health status | Improved<br>Aggravated<br>No change | 338<br>5<br>73 | 81.3<br>1.2<br>17.5 |

### 4.3 Partner characteristics of study participants

From 416 respondents of adult ART users 330(79.3%) have sexual partner of these 64(15%), 88(21.2), 106(25.5%), 71(17.3%) <or=4 years, 5-9 years, 10-15 years and greater than or equal to 15 years had length of stay in marriage or in a relationship together respectively.

Concerning HIV test result, disclosure to their partner 325(75.7%) disclosed their result to their partner and 249 (60%) of them had concordant result with their partner and 64(15.4%) have discordant result and 17(4.1%) did not know their partners HIV test result. From these participant's partners those who had fertility desire were 147(35.3%)and partners with discordant result and those who have fertility desire were 30(46.9%).

### 4.3 Family planning utilization

From 416 respondents of the study 267(64.2%) were used contraceptive by participant or by their partner. Of these respondent or partner contraceptive users 157(37.7%) were used condom and 60(14.4%) were used dual contraceptive (condom plus other contraceptive method).

### 1.1 Reproductive history and fertility desire of Adult ART users of Bale zone hospitals

From the total interviewed adult ART users those who had current pregnancy or partner pregnancy were 24(5.8%) and those who had pregnancy or partner pregnancy after HIV diagnosis were 152(36.5%).

Regarding fertility desire of 192(46.2%)had fertility desire of whom 37(8.9%),62(14.9%),20(4.8%),73(17.5)were desired to had a child within the next 12 months, within 1-3 years, after 3 years , and did not decided the time when to have a child respectively.

The main reason mentioned for their current fertility desire 72(17.3%) wants to have at least one child, 43(10.3%) wants to have more children, 57(13.7%) to strengthening marriage, and 20(4.8%) were to replace died baby due to HIV/ AIDS. From those planned to have child in the future104 (25%) had sex preference and of these 71(17.1%) had male sex preference, 33(7.9%) had female preference. From the total interviewed women and men ART users 147(35.3%) had partner or family pressure and 32(7.7%) had community pressure to give birth and of these respondents 124(62%) had discussion with their care provider or health workers about their fertility desire.

**Table 3. Distribution of reproductive history and fertility desire of Adult ART users of Bale zone hospitals, Oromia regional state, south east Ethiopia, 2017G.C**

| Variables | Response | Frequency | % |
|---|---|---|---|
| Respondent/ partner current pregnancy | Yes<br>no | 24<br>380 | 5.8<br>91.3 |
| History of respondent/partner pregnancy after HIV diagnosis | Yes<br>no | 152<br>257 | 36.5<br>61.8 |
| Respondent fertility desire | Yes<br>no | 192<br>224 | 46.2<br>53.8 |
| Respondent time of fertility desire | Within the next 12 months<br>Within 1-3 years<br>After 3 years<br>Not decided | 37<br>62<br>20<br>73 | 8.9<br>14.9<br>4.8<br>17.5 |
| Number of children decided to have in the future | One<br>Greater than | 94<br>98 | 22.6<br>23.6 |

**Table 4 Distribution of reproductive history and fertility desire of adult ART users of Bale zone hospitals, Oromia regional state, south east Ethiopia, 2017G.C (Continued)**

| Variables | Response | Frequency | % |
|---|---|---|---|
| Reason for current fertility desire | I want to have at least one child<br>I want to have more child<br>To strengthening marriage<br>To replace died baby before | 72<br>43<br>57<br>20 | 17.3<br>10.3<br>13.7<br>4.8 |

| | | | |
|---|---|---|---|
| Respondents sex preference for future pregnancy | Yes<br>No | 104<br>88 | 25<br>21.2 |
| Type of ex preference | Male<br>Female | 71<br>33 | 17.1<br>7.9 |
| Discussed with health worker about fertility intention | Yes<br>No | 200<br>216 | 48.1<br>51.9 |
| Having partner pressure for child birth | Yes<br>No | 147<br>269 | 35.3<br>64.7 |
| Having community pressure for child birth | Yes<br>No | 32<br>384 | 7.7<br>92.3 |
| Having child died due to HIV | Yes<br>No | 56<br>360 | 13.5<br>86.5 |

### 4.5 Multivariate analysis of factors associated with fertility desire of men and women ART users

PLWHA those who have partners fertility desire have 10.7 times (AOR= 10.7, 95%CI: 5.35- 21.25) more likely to have fertility desire as compared to those who have no fertility desire partners. Those PLHIVs who lost their children by HIV AIDS have 13 times more likely to have fertility desire as compared to those who had live child due to HIV AIDS(AOR=13.0, 95%CI: 3.62- 47.0). Those who had faced partner pressure to have child birth in the future have 2.3 times more likely to have fertility desire than those who had no partner pressure(AOR=2.3, 95%CI 1.11, 4.79).

PLHIVs those who have discussion about their fertility intentions with health workers or service providers have 2.4 times more likely to have fertility desire than those who had no discussion with their health workers or service providers of ART clinic (AOR= 2.4,95%CI: 1.22-4.65).

Among adult ART users those who currently pregnant or partner pregnancy have 6.7 times had fertility desire than those who have no current pregnancy (AOR=6.69, 95% CI: 1.04- 42.87). PLHIVs those who have no their own biological live birth children were 3 times have fertility desire than those who have four or more live birth (AOR=2.9, 95%CI: 1.16-7.26).

**Table 4 Factors associated with fertility desire among Adult ART users of Bale Zone hospitals, Oromia regional state, South East Ethiopia, 2017 G.C**

| Variable | | Fertility desire | | | | |
|---|---|---|---|---|---|---|
| | | yes | No | COR ( 95%CI) | AOR (95%CI) | P- value |
| Partner fertility desire | Yes | 119 | 28 | 11.95(7.06-20.25) | 10.7 (5.35, 21.25) | <0.001** |
| | No | 48 | 135 | 1 | 1 | |
| Having child died by HIV | Yes | 37 | 19 | 2.58(1.43-4.65) | 13.0 (3.62, 47.0) | <0.001** |
| | No | 155 | 205 | 1 | 1 | |
| Discussion with health worker | Yes | 124 | 76 | 9.5(5.89-5.32) | 2.4 (1.22, 4.65) | 0.011* |
| | No | 68 | 148 | 1 | 1 | |
| Partner pressure | Yes | 116 | 31 | 9.5(5.89-15.31) | 2.3 (1.11, 4.79) | 0.025* |
| | No | 76 | 193 | 1 | 1 | |
| Parents current pregnancy | Yes | 23 | 1 | 30.3(4.05-226.62) | 6.69 (1.04, 42.87) | 0.045* |
| | No | 164 | 216 | 1 | 1 | |
| Number of live birth | No living children | 60 | 14 | 13.3(6.01-29.68) | 2.9 (1.16, 7.26) | 0.023* |
| | 1-3 children | 115 | 157 | 2.28(1.26-4.15) | _ | _ |
| | >4children | | | 1 | 1 | |

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

### 4.2 DISCUSSION

The study tried to assess fertility desire among adult ART users who are on follow up care. In this study partner fertility desire, having loss of child by HIV, discussion about fertility intention with health workers, partner pressure to have future child birth, respondent or wives current pregnancy and having currently alive child were identified determinant factors of fertility desire among adult ART users.

The prevalence of fertility desire in this study was 192(46.2%) which is lower than study done in Nigeria(73.2%), Kenya Nairobi slums(52.9%), in Ethiopia Harari regional state (59.5%) and slight difference with research done in Ethiopia (Nekemte hospital) which was 42%. The relative similarity between study done in Nekemte and this study was both done in the same region and there may be cultural similarity and similar Ethnic dominance. A similar study done in South Africa had consistent result with this study finding which had 46% fertility desire among PLHIVs. From 192 adult ART users of this study 113(43%) of females and 79 (52%) of men have fertility desire which is higher fertility desire than study done in Ethiopia (Addis Ababa and Fiche).This result difference may be due to different socio demographic characteristics of the population, educational level difference, socio economic difference, and fertility rate difference (Nesredine et al. 2015)

Out of 192(46.2%) adult ART users interviewed those respondents planned to have a child within the next 12 months, within 1-3 years, after 3 years and not decided when to have a child were 37(8.9%),62(14.9%),20(4.8%)and 73(17.5%) respectively. The main reasons for their current fertility desire was wants to have at least one child, wants to have more children, to strengthening marriage and to replace died baby before. This study finding have similar with study done in Ethiopia (Nekemte, Harari), in Nigeria in which their main reason was want to have at least one child, to strengthen marriage, to replace died baby before. From this study finding more than half of adult ART users reported that they did not want to have children in the future. The possible reasons may be due to insufficient financial security evidenced by 40.9% of the study participants were earn average monthly income less than 1000 birr and fear of transmission, fear of deterioration in their health and they have got ideal family size could be a possible reasons.

In the current study 64(15.4%) of respondent partner were found to be HIV negative and of these 30(46.9%) had fertility desire. If the women are infected and the man is not, artificial insemination would avoid the risk of transmitting HIV to him. When a man has HIV and his partner does not, the only way to avoid the risk of transmitting HIV is artificial insemination using semen from a donor who does not have HIV. But in a resource poor setting like developing countries including Ethiopia, those interventions are difficult(MabileauG. 2015)

Partner fertility desire, out of those who have fertility desire 147(35.3%) of respondent partners have fertility desire. The study also revealed that, it was significant association with the fertility desire of the respondent. Those whose partner had fertility desire were 10.7 times have fertility desire than partner had no fertility desire. This research finding have similar finding with study done in Cameron, Ethiopia (Harari) in which partner fertility desire have significant association with men and women of ART users (Sarah A. 2014)

The other predictor of fertility desire among adult ART user was the number of alive birth they have. Adult ART users that have no alive birth have 3 times fertility desire than those who have four or more

live birth. This study finding has similar result with research done in Ethiopia in Fiche hospital, Tanzania, and in India. The possible explanation for this association was, HIV patients' wants to have their own biological child to replace themselves and desire to continue their generation and the value of having a child in the community. In some communities such as Ethiopia a child is thought of as a pre- requisite for a full filled and happy life (Demise B 2014)

In ART users of men and women having child died due to HIV/ AIDS have 13 times more fertility desire than those who did not have child loss due to HIV /AIDS. This study finding have similar research finding done in Nigeria (Ajuba Miriam.2013).

This may be PLHIV want to have HIV free child and to forget the post trauma due to loss of their child and social impact. PLHIVs with current pregnancy or partner pregnancy had 12 times more fertility desire than those who had no current pregnancy. This study finding may be due to advance of ART treatment and improvement of quality of service increases the fertility desire of PLHIVs those who have no their own biological child, those who lost their child due to HIV and those who wants to have their ideal family size.

Adult ART users those who had discussion with health workers about their fertility intention had 2.4 times fertility desire than those who had no fertility discussion with health workers. This study finding have similar finding with research done in Finoteselam hospital (North West Ethiopia). The possible explanation for this association may be that those clients who had fertility desire seek advice from service provider and had discussion to approve their desire in relation to their health status (Abebaw et al., 2015)

### 5. Limitation of the Study

**Social desirability bias-** even though the data collectors trained on confidentiality and respondents right and to read the consent form before they start an interview and explained to the participants the purpose of the study, the respondents might have given a desired answer by the health worker (data collectors).The other reason is fertility issue is a sensitive topic social desirability bias cannot be excluded.

### Acronym

| | |
|---|---|
| AIDS | Acquired- Immune Deficiency Syndrome |
| AOR | Adjusted Odds ratio |
| ART | Anti-Retroviral Therapy |
| COR | Crud Odds Ratio |
| EDHS | Ethiopian Demographic Health Survey |
| FP | Family Planning |
| HIV | Human Immune Virus |
| HMIS | Health Management Information System |
| PLHIV | People living with Human Immune Virus |
| PMTCT | Prevention of Mother to Child Transmission |
| UNAIDS | Joint United Nation Program on HIV/AIDS |
| WHO | World Health Organization |

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