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Research Article

Fertility Intention and Associated Factors among Anti-retroviral Treatment User Clients in Awi Zone, Northwest Ethiopia, 2018: A Cross Sectional Study

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ABSTRACT

Background: Even though the desire of HIV infected persons to have children in the future has significant implications for the transmission of HIV to their sexual partners or newborns, both the level of fertility intention and its associated factors among clients receiving ART were not systematically investigated particularly in Awi Zone, Northwest Ethiopia.

Methods: A cross-sectional study design supplemented by the qualitative study was conducted on selected study subjects attending care and treatment in ART clinics in Awi zone; from November 3 to November 25, 2018. A pre-tested semi-structured questionnaire for the quantitative and an in-depth interview guide for the qualitative data collection tools were used. The quantitative data were entered in EPI info version 7 and analysis was carried out using SPSS version 21. Binary and multivariable logistic regression was done to identify factors associated with fertility intention. The qualitative data was coded in themes and analyzed thematically using Open-code software version 4.02.

Results: Three hundred fifty-five clients participated in the study with a response rate of 94.5%, of these 239 (67.3%) were females. The mean age was 36.38 years. A total of 160 (45.1%) of clients had fertility intentions with 95% CI of (39.4%-50.1%). Younger age (AOR: 5.45, 95% CI, (1.37-21.76)), Being married (AOR: 3.18, 95% CI, (1.33-7.62)), Family planning user (AOR: 0.15, 95% CI, (0.07-0.32)), had no child ((AOR: 19.78, 95% CI, (5.48-71.42)), having discussion with health providers (AOR: 1.92, 95% CI, (1.03, 60)), and having sexual practice (AOR: 10.89, 95% CI, (4.48,26.49)), were found to be significantly associated with fertility intention.

Conclusion: The level of fertility intention among PLHIV in the study area was 45.1%. In this study: Age, being married, use of family planning, had no child, having a discussion with a health provider and had sexual practice were predictors and from in-depth interview, improved health condition, partner desire, knowledge about PMTCT, social security and sex preference were described as a factor of fertility intention. Therefore, the health care providers who work at The ART clinic would consider these factors for HIV positive people to decide freely and responsibly on their fertility intention.

Keywords: Fertility intention; PLHIV; Reproductive Age; ART; Ethiopia

Abbreviations: AIDS: Acquired Immune Deficiency Syndrome; ART: Antiretroviral Therapy; HIV: Human Immunodeficiency Virus; MTCT: Mother to Child Transmission; PMTCT: Prevention of Mother to Child Transmission; PLHIV: People living with HIV; PLWHA: People Living HIV/AIDS; RH: Reproductive Health; SPSS: Statistical

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Package for Social Science; SSA: Sub-Saharan Africa; UNAIDS: Joint United Nation Program on HIV/AIDS; WHO: World Health Organization

BACKGROUND

Human Immuno Virus (HIV) is the virus that causes Acquired Immunodeficiency Syndrome (AIDS), which is one of the world's most serious health problem and development challenges. An estimated 36.9 million People were Living with HIV (PLHIV) globally of which and 21.7 million people accessing Anti-Retroviral Therapy (ART) [1].

In sub-Saharan Africa study revealed that antiretroviral therapy access has an influence on fertility intention of people living with HIV, and preventive care [2]. HIV positive women are more at risk of unplanned pregnancies worldwide; two in every five pregnancies were unplanned [3].

Preventing unintended pregnancies among women living with HIV is a critical step towards reducing mother-to-child transmission. All women, irrespective of HIV status, need services that can help them make informed about reproductive decisions and provide them with contraceptive options. By enabling women living with HIV to prevent or delay pregnancies, access to these services could avert HIV infection in infants [3]. For many HIV infected individuals and couples, attempting pregnancy introduce risks of HIV transmission to infants and HIV uninfected partners. Programs to Prevent Maternal to Child Transmission (PMTCT) reduce perinatal transmission to less than 2% for women living with HIV [4].

Fertility intention among PLHIV receiving ART has been faced a major challenge concerning to their sexuality, parenthood desires and family life. The level of fertility intention among PLHIV was different in different parts of the sub Saharan Africa. A study conducted in South Africa indicated a 32.9% prevalence of fertility desire [5], while a study from Tanzania, Kenya and Uganda reported 37.1%, 34% and 28.6% respectively [2,6,7].

Evidence showed in Ethiopia, the current total fertility rate is 4.6% (2.3% in urban and 5.2% in rural) this is because of Ethiopia is expressed as had high value for fertility culturally, high HIV prevalent, and increased intention to have a child, accordingly, 17% of women want to have another child soon (within the next two years) and 38% want to have another child later (in two or more years) and 37% of currently married Ethiopian women want no more children [8]. Even if, no disaggregated data by HIV status, the prevalence of HIV among reproductive age (15-49 years) were 0.9%, (women were 1.2%, and men 0.6%), HIV prevalence by residence, urban is seven times higher than rural areas (2.9% versus 0.4%). Also region prevalence ranges from less than 0.1% in Somali to 4.8% in Gambella, and Amhara region HIV prevalence is 1.2% [8]. With respect to the fertility intention of PLHIV receiving ART in different parts of Ethiopia; about 54.6% in Addis Ababa [9], 44%, Tigray region [10], 43% in Welayeta Sodo [11], 33.4% in Finote Selam [12], and 18.3% in South Wello [13] of the study participants reported a desire to have children in the future.

FACTORS ASSOCIATED WITH FERTILITY INTENTION

Socio-demographic factors

A study from Kenya reported that the male sex, age group of 18-29 and having one child were determinants of fertility desire [7]. Findings of studies from Ethiopia reported that women in the age group of 15-24 and 25-34 years as well as having no children had higher fertility desire [14]. Similarly, another study conducted in Finote Selam, revealed that male sex and have no children were determinants of fertility desire [12]. A study from Afar in Ethiopia has reported that age categories of 20-24 years and 25-29 years, being married and Afar ethnicity were factors independently associated with desire for children [15]. Other study from Southern part of Ethiopia reported that respondents with no children were more likely to desire children [16]. A study from Uganda reported that age of the respondents (old age), marital status (Married), and number of living children were significantly associated with fertility desire [2]. A study from Cape Town, South Africa revealed that those with more years of education and more biological children had lower odds of intending pregnancy [17].

Health services related factors

Regarding the factors related to services those who had ≤ 2 years duration on ART had more desire than those with >2 years duration on ART, Clients who had discussion with ART service provider about sexuality, fertility desire and family planning had more child desire [12]. Similarly, disclosing HIV status to husband/sexual partner was independently associated with fertility desire [14]. In addition, a study from Addis Ababa reported that current health status and partner being tested for HIV were statistically significantly associated factors of fertility intention [9]. Another study from Afar reported that having HIV-positive children, duration on ART more than one year, CD4 count greater than 350 and discussion of reproductive health issues with health providers were determinant factors of fertility desire [15]. Similarly, those who intended to use family planning in the future were more likely to desire children [16]. In addition, a woman relying on hormonal contraception was negatively associated with intent and partner knowing her HIV status was positively associated with intent to conceive [17].

The government works extensively to prevent new HIV infection but there is the possible risk of unprotected sexual practice and mother to child transmission. Yet there is a need to address the reproductive need of people living with HIV for the multifaceted relationship between HIV and fertility. So, this study aimed to assess the level of fertility intension and to identify associated factors among clients receiving ART's in Awi Zone, Northwestern Ethiopia.

METHODS

Study design and settings

A facility based cross-sectional survey design supplemented by a qualitative study was employed to assess the level of fertility intention and its associated factors among People living HIV/AIDS and receiving ART in Awi Zone health care facilities, Northwest Ethiopia 2018.This study design was taken to be appropriate for the objective of the study as its main intention was to determine the level of fertility desire and identify its associated factors simultaneously at single-point data collection period of November 03 to November 25, 2018 for the study. Awi zone is one of the zonal administrative zones at Amhara region. According to the Zone Administration, Finance and Economic development office of 2017, Awi zone is divided into nine ward as with a total population of 1, 282 481 of which female consists 653562. Seventeen health facilities served ART treatment (four hospitals and thirteen health centers). The study population was those clients in reproductive age group (15-49 for women and all age group men) who had a follow up care at selected health facilities of Awi zone.

Population and sample size

The source population was all People living with HIV/AIDS who have follow up care at the selected health Centers and the study population was all people living with HIV/AIDS in the selected health facility, who were meet the inclusion criteria. Sample size was determined using single population proportion formula considering 33.4% level of fertility intention among HIV/AIDS receiving ART (12) with a 95% level of confidence and 5% margin of error and 10% non-response rate as follows:

$$n = \left[\frac{\left(Z_{\alpha/2}\right)^2 * P(1-P)}{d^2}\right] = \left[\frac{(1.96)^2 * 0.334(1-0.334)}{(0.05)^2}\right] = 340$$

By adding 10% non-response rate the final sample size was 374. To complement the quantitative study, in-depth interview was conducted with 11 key informants who were selected purposely among clients based on their socio-demographic characteristics like sex, marital status, and number of children.

Eligibility criteria

All People living with HIV/AIDS in reproductive age group (15-49) years of women and any age group of men as well as for both sex who had at least six month since treatment started to the selected health centers on ART follow up care units and who were voluntary to participate was included in the study.

Sampling procedure

For the quantitative part of the study, following a proportional allocation of the sample size to each health care facility, 374 individuals were selected with a systematic random sampling technique from Injibara-131, Chagni-112, Dangila-93 and Agewgimijabet-38. For the qualitative part eleven key informants of PLHAs who were on ART follow up that were not included in the quantitative part were purposely selected. The qualitative study sample was made based on the level of saturation of information.

Study variables and operational definitions

The dependent variable was fertility intention (Yes/No), while independent variables includes: Socio demographic characteristics such as (Age, Sex, Religion, Education, Marital status, No of children, Residence, Income, Ethnicity, Occupation) Current Health condition related factors (Number of live children he/she had, Duration on ART treatment, CD4 count, Viral load, Perceived health status, HIV disclosure, HIV status of partner, Partner desire for having children, Contraceptive use, having knowledge on PMTCT, Counseling on SRH).

Fertility intention: who desire to have a child and intended to have at least one child in the future.

Mother-to-Child Transmission (MTCT): refers to the transmission of HIV from the mother to child through various mechanisms like delivery, breast feeding and pregnancy

Prevention of Mother-to-Child Transmission (PMTCT): refers to the methods that help to decrease the chance of transmission of the virus to the child by a certain percent.

People Living with HIV (PLHIV) on Chronic HIV care: are people with confirmed and documented HIV test results who have already been enrolled to the ART clinic, had at least one month follow up visit and have got comprehensive HIV care and treatment in the health facilities.

Reproductive age: Age from 15-49 years old for both sexes.

Data collection procedures

A pre-tested and structured data collection tool was used to gather quantitative data on study variables. Four trained nurses who were working at ART clinics collected the data under the principal investigator's daily supervision and follow up. For the in-depth interview, semi-structured questionnaire was used. The in-depth interview was carried out by the principal investigator with one assistant. Tape recorder, checklist, and field notes were used to record the relevant information. The interview was undertaken after quantitative part has been completed.

Data quality control

The questionnaire was prepared in English, first translated to Amharic, and then translated back to English to ensure consistency of the questions. Pre-testing of 5% the questionnaire was done prior to the study. The clarity, understand ability and flow of each question and the time to fill the questionnaire were assessed and found satisfactory. Daily all the collected data were checked for completeness by the principal investigator.

Data processing and analysis

The collected data from the questionnaire were entered and cleaned using Epi-info version 7 and analyzed by SPSS version 23. Frequency, percentage, and mean were used for data description. Tables and figures were used to present the data.

Both Bivariable and Multivariable binary logistic regression were used to identify possible factors associated with the outcome. Adjusted odds ratio with its 95% confidence interval and p-value less than or equal to 0.05 were used to report the statically significant explanatory variables. In qualitative data all, the audio tape record interview will be transcribed and translated. The translated transcript reviewed and examined thoroughly and categorized in to primary themes. Then the data was reviewed and combined in to broader concepts. Finally, the concepts were refined in to major themes using open code version 4.2 software.

RESULTS

Socio-demographic characteristics

Among the total study subjects 239 (67.3) were females. The median age of participants was 36.38 years (± 7.6 SD). Majority of respondents (60%) were aged ≥ 35 years. In marital status, the majority were married contributing about 197 (55.5%). The predominant religion was Orthodox 331 (93.2%). Regarding their educational status of the study subjects 109 (30.7%) was unable to read and write of all interviewed patients. With regard to occupation, merchants and students consists higher and lower number, 79 (22.3%) and 10 (2.8%) respectively (Table 1, Figures 1 and 2).

HIV care, ART and partner characteristics

Two hundred thirty one (65.1%) of the total respondents had ≥ 5 years since they enrolled to chronic HIV care, of them 314 (88.5%) respondents' CD4 count were ≥ 350 cell/mL, regarding to duration lived with partners, 99 (502%) were lived together greater than or equal to fifteen years. Of whom 180 (91.4%) were concordant HIV status. In case of partner desire to have children, 107 (54.3%) of had wants to have children in the future (Figure 3 and Table 2).

Table 1: Socio-demographic characteristics of PLWHAs attending ARV Treatment units, Awi Zone health facilities, Northwest, Ethiopia, 2018.

Characteristics	Frequency	Percent
Age categorized (Years)		
15-24	22	6.20%
25-34	120	33.80%
≥ 35	213	60%
Sex		
Male	116	32.70%
Female	239	67.30%
Religion		
Orthodox	331	93.20%
Muslim	21	5.90%
Protestant	3	0.80%
Educational Status		
Unable to read& write	109	30.70%
Primary	129	36.30%
High school	31	8.70%
Preparatory	32	9%
Colleague and above	54	15.20%
Monthly family income		
≤ 500ETB	36	10.10%

501-1000ETB	99	27.90%
≥ 1000ETB	220	62.00%

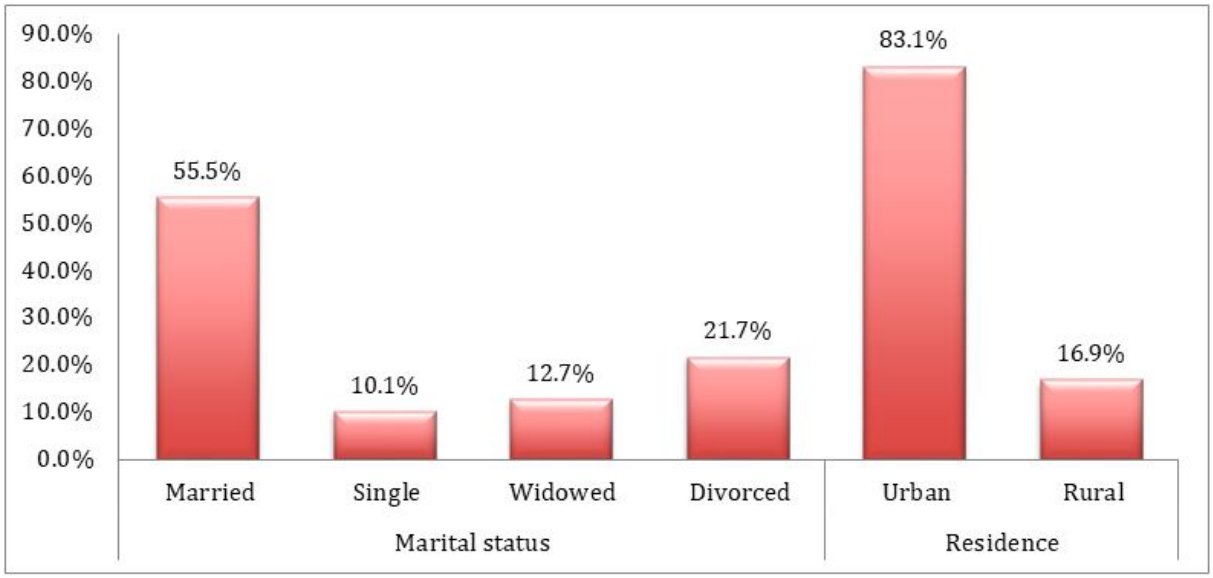

Figure 1: Frequency Distribution of Marital Status and Place of residence of PLWHAs attending ARV Treatment units, Awi Zone health facilities, Northwest, Ethiopia, 2018.

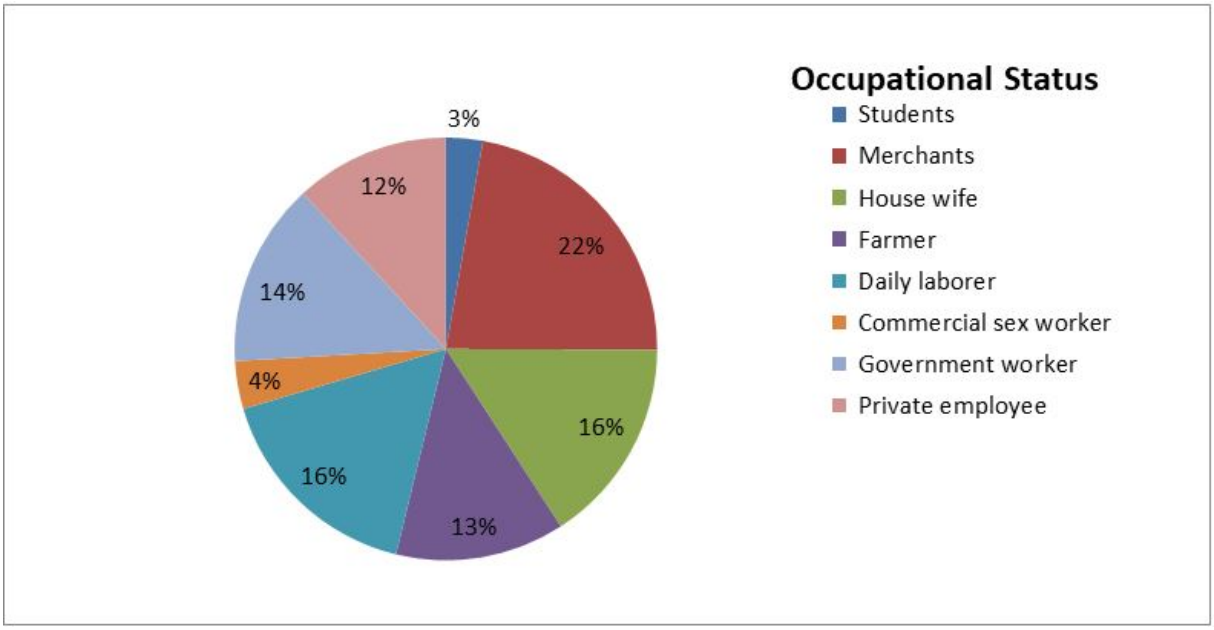

Figure 2: Frequency Distribution of occupational status of PLWHAs attending ARV Treatment units, Awi zone health facilities, Northwest, Ethiopia, 2018.

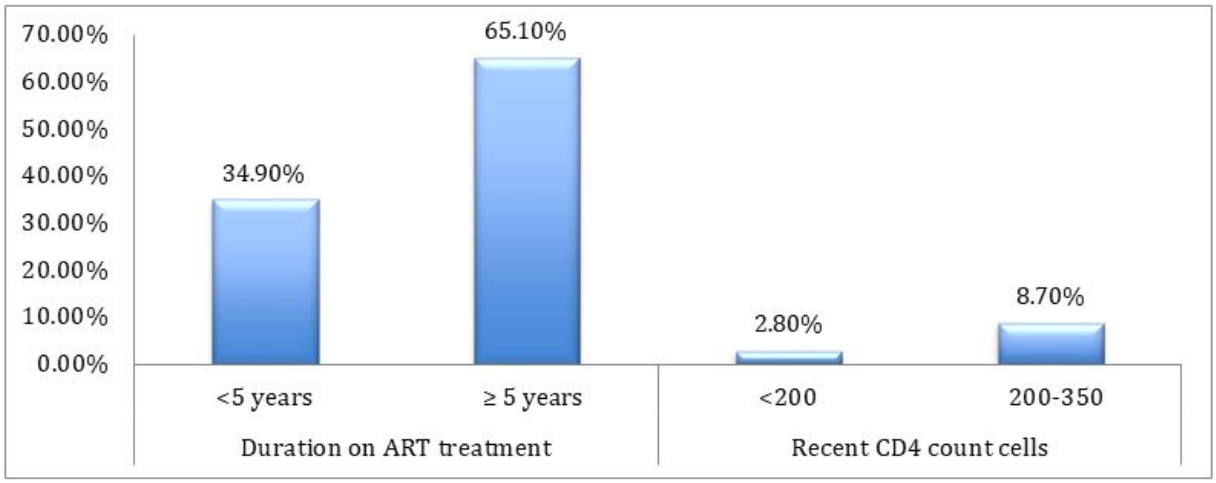

Figure 3: Frequency Distribution of Marital Status and Place of residence of PLWHAs at-tending ARV Treatment units, Awi Zone health facilities, Northwest, Ethiopia, 2018.

Table 2: Frequency distribution of HIV, ART and partner characteristics of PLWHAs attending ARV Treatment units, at selected health facilities in Awi zone, Northwest, Ethiopia, 2018.

Characteristics	Frequency	Percent
Undetectable viral load (<1000 copies/mL)		
Yes	128	36.10%
No	227	63.90%
Married length/duration of stay with partner (n=197)		
≤ 4 years	11	5.60%
5-9 years	36	18.30%
10-14 years	51	25.90%
≥ 15 years	99	50.20%
Partner test for HIV (n=197)		
Yes	196	99.50%
No	1	0.50%
Partner HIV status		
Positive	180	91.40%
No	17	8.60%
Partner desire to have children		
Yes	107	54.30%
No	83	42.10%

Unknown	7	3.60%

Family planning service utilization

One hundred fifty one (42.5%) of the study participants were found using contraceptive, they used mainly injectable contraceptive 61 (40.4%), followed by condom 50 (33.1%) (Figure 4).

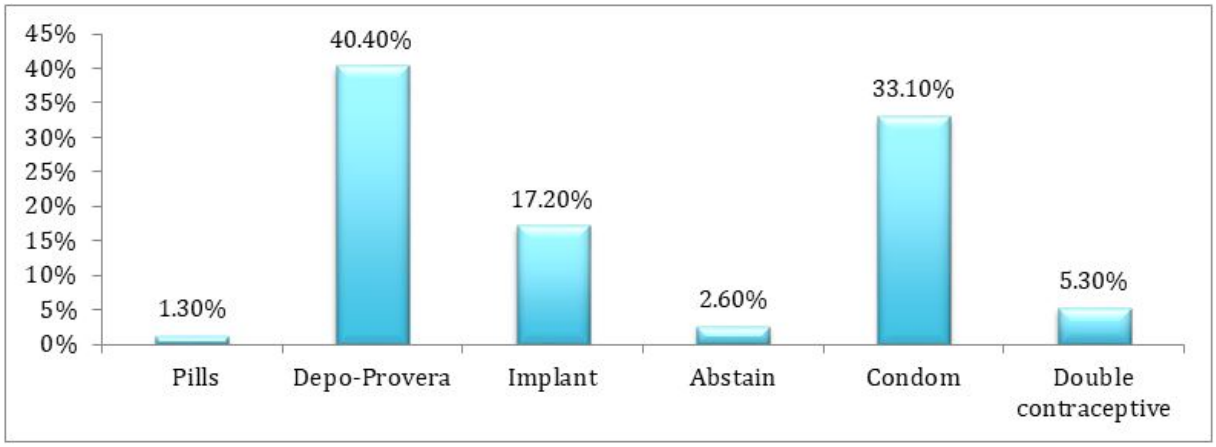

Figure 4: Frequency distribution of family planning utilization among PLWHAs attending ARV Treatment units, at selected health facilities in Awi zone, Northwest, Ethiopia, 2018

Prevention of mother to child transmission (PMTCT)

Largest portion 300 (84.5%) of respondents knew about MTCT out of these 270 (90.0%) of them knew that medication used to prevent mother to child HIV transmission. It is argued that, Public media and health professionals were identified as major sources of information about mother to child transmission. More than three quarter 279 (93%) of them believed that, methods for PMTCT can actually reduce the transmission (Table 3).

Table 3: Frequency distribution of PMTCT among PLWHAs attending ARV Treatment units, at selected health facilities in Awi zone, Northwest, Ethiopia, 2018.

Characteristic	Frequency	Percent
Know MTCT		
Yes	300	84.5%
No	55	15.5%
Know Time of MTCT (n=300)		
During pregnancy	142	47.3%
During labor	95	31.7%
During breast feeding	63	21%
Know Prevention of MTCT (n=300)		
Yes	287	95.7%
No	13	4.3%
Method know about PMTCT (n=300)		

Using medication	270	90.0%
Stop breast feeding	27	9.0%
C/S delivery	3	1.0%
Perceived efficacy PMTCT		
Yes	279	93%
No	21	7%
Information about PMTCT		
Not have info...	67	18.9%
Media	180	50.7%
ART service health provider	86	24.2%
Friends	20	5.6%
PLWHA association	2	0.6%

Sexuality and condom Use

One hundred seventy five (49.3%) of the total respondents had discussed with ART service health providers, out of total PLHIV, 209 (58.9%) of the respondents had sex within the past six months before the data collection time, of whom 113 (54.1%) were used condom. Among those, 92 (81.4%) used condom always (Table 4).

Table 4: Frequency distribution of Sexuality and condom use among PLWHAs attending ARV treatment unit, Awi zone, Northwest, Ethiopia, 2018.

Characteristic	Frequency	Percent
Discuss with ART service provider		
Yes	17	49.3%
No	180	50.7%
Ever had sexual practice in the past		
Yes	209	58.9%
No	146	41.1%
Condom use (n=209)		
Yes	113	54.1%
No	96	45.9%
Frequent of condom used (n=113)		
Always	92	81.4%
Some times	21	18.6%
Reasons not condom used		

I wanted child	74	77.1%
My to partner status is positive	9	9.4%
My partner dislike it	13	13.5%

Fertility intention

Fertility intention of study participants 42 (36.2%) of men and 118 (49.4%) of women, a total of 160 (45.1%) with 95% CI of (39.4%-50.1%) had fertility intention. Among participants who had passion to have children, 50 (31.2%) need to have one child and 94 (58.8%) need to have two children, whereas 16 (10.0%) need three children. Out of those who would like to have children had different reason; the most common frequent reasons given for having a child were have no child before 34%, followed by could get HIV free child due to ARVs 34.2%, importance of parenting 13.1%, partners want to have child 13.1% and improve health status of participants 5.2% (Table 5).

Table 5: Frequency distribution of Fertility intention among PLWHAs attending ARV treatment units, at selected health facilities in Awi zone, Northwest Ethiopia, 2018

Characteristics	Frequency	percent
Number of live children		
No child	75	21.12%
1-2 children	167	47.04%
≥ 3children	113	31.83%
Fertility intention		
Yes	160	45.1%
No	195	54.9%
Reasons to have child in the future		
No child before	55	34.4%
Importance of parenting	21	13.1%
Partner desire to have child	21	13.1%
Healthy status of respondents	10	6.2%
Can get HIV free child due to ARVs	53	34.2%
Number of children wanted in the future		
One	50	31.2%
Two	94	58.8%
≥ Three	16	10.0%

Factors associated with fertility intention of PLHIV

In the multivariate binary logistic regression analysis Age, Marital status, Number of live children, Contraceptive use, Discuss with ART service provider and ever had sexual practice in the past were found significantly associated with fertility intention. Being younger (age category from 15-24 years) was found to be positively associated to have child in the future. Hence, those in this age group were 5.45 times more likely to have fertility intention, compared to older age groups (AOR=5.45, 95% CI: (1.37, 21.76)).

In this finding marital status also was one of associated factor with fertility intention, those who were married 3.18 times more

likely to intend to have children than divorced (AOR=3.18, 95% CI: (1.33-7.62)). But, there was no significant association found between fertility intention and single ((AOR; 1.12, 95% CI; (0.29, 4.39)) as well as widowed (AOR; 0.20, 95% CI: (0.03,1.14)). On the other hand, there was an indirect association between contraceptive use and fertility intention, that is clients who did use contraceptive had shown 85% less likely to have children, compared to none user (AOR=0.15, 95% CI: (0.07, 0.32)).

Marital status had also an association with fertility intention, those who were married 3.18 times more likely to intend to have children than divorced (AOR=3.18, 95% CI: (1.33-7.62)). But, there was no significant association found between fertility intention and single (AOR; 1.12, 95% CI; (0.29, 4.39)) as well as widowed ((AOR; 0.20, 95% CI: (0.03, 1.14)).

There was also positive association found between fertility intentions and having no child. Clients who had no child were 19.78 times more likely to have child/ children than those who had three or more children (AOR=19.78, 95% CI: (5.48, 71.42)).

Also, people living with HIV who had discussed with ART service provider regarding to the issue of SRH, had shown direct association with increased fertility intention, that was, those clients who did have discussion with ART service provider had shown 1.92 times more likely to have child, compared to those clients who didn't have discussion (AOR=1.92, 95% CI: (1.03,3.60)). Conversely, this was supported by in-depth interview, clients on ART follow up care stated; "*ART service providers did not deal about reproductive intention related counseling, rather use of condom*"

In addition there was positive significant association between having history sexual practice and fertility intention. Clients who did sexual practice were 10.89 times higher to have children than those who did not (AOR=10.89, 95% CI: (4.48, 26.49)) (Table 6).

Table 6: Bivariate and multivariate analysis results of associated factors of Fertility desire among PLHIV attending ART at Awi Zone Health Facilities, Amhara National Regional State, North West Ethiopia 2018.

Variables	Fertility intention		OR (95% CI)	
	Yes	No	Crude OR (95% CI)	Adjusted OR (95% CI)
Age				
15-24	17 (4.8%)	5 (1.4%)	10.8 (3.80-30.73)	5.45 (1.37-21.76)
25-34	92 (25.9%)	28 (7.9%)	10.44 (6.16-17.68)	4.54 (2.18-9.45)
≥ 35	51 (14.4%)	162 (45.6%)	1	1
Marital status				
Married	108 (54.8%)	89 (45.2%)	2.85 (1.62-5.00)	3.18 (1.33-7.62)
Single	27 (75.0%)	9 (25.0%)	7.04 (2.87-17.30)	1.12 (0.29-4.39)
Widowed	2 (4.4%)	43 (95.6%)	0.11 (0.02-0.49)	0.20 (0.03-1.14)
Divorced	23 (29.2%)	54 (70.1%)	1	1
Number of children				
No child before	57 (76%)	18 (24%)	22.39 (10.36-48.4)	19.78 (5.48-71.42)
1-2 children	89 (53.3%)	78 (46.7%)	8.07 (4.27-15.25	4.86 (2.09-11.26)
≥ 3children	14 (12.4%)	99 (87.6%)	1	1
Contraceptive use				
Yes	56 (15.8%)	95 (26.8%)	0.57 (0.37-0.87)	0.15 (0.07-0.32)
No	104 (29.3%)	100 (28.2%)	1	1
Discuss with ART provider				

Yes	93 (26.2%)	82 (23.1%)	1.91 (1.25-2.92)	1.92 (1.03-3.60)
No	67 (18.9%)	113 (31.8%)	1	1
Ever had sexual practice				
Yes	131 (31.8%)	78 (22.0%)	6.78 (4.14-11.10)	10.89 (4.48-26.49)
No	29 (8.2%)	117 (33.0%)	1	1

Qualitative findings

Ten respondents, four male and six female, participated in the interview. All of them were married. The respondent's age ranges from 26-40 years. Respondent's educational status varied from unable to read and write to degree in Accounting. Out of ten respondents four were merchants, three government workers, two house wives and one private employer. Eight respondents were Orthodox, one was Muslim and one was Catholic. Six out of ten had children. Five out of them use family planning after they diagnosis. Two out of ten respondents have four, two out of ten have two, and two out of ten have one alive child. Fertility intention of Respondents, Eight out of Ten wants to have children in the future. Reasons to have children, the in-depth interview of key informant clients had shown that the frequently expressed reason for having children were no have child before (four informants), to get someone to help in old ages (one informants), to get female child (one informant), to get male child (one informant) and to give a sister/brother for my child since he only one (one informant)

Like the findings from the quantitative study, the result of the qualitative study similarly proves that Age of respondents, use of contraception, number of live children and discuss with ART service providers were the major causes to affect fertility intention of people with HIV/AIDS. In the following all the factors described here are discussed in detail below;

A 31 years old woman with no children express; "*I did not have children I need at least one child. I have started the treatment and my health condition is getting improved. Now I am working in Cafe, coffee and tea that I get adequate income by doing cafe. We discussed with my husband and decided to have children in the next year and we stopped using FP.*"

A 29 years old man with one child; "*I am Teacher now I have only one daughter, I want to have two children (one male and other female) and my health condition improved, I want to hide myself from other people who know me.*"

A 35 years woman with two daughters; "*I am very interested to have child because I want two children who will support us when we become old age. My husband also wants child because of he has no child before. I know that the virus can be transmitted from mother to child. But I have information that there is a medication to prevent its transmission from mother to child. That is why it inspires me to have a child, and the medication can be reduced by taking ART during pregnancy and seeing the possible options of relevant care, it is possible to limit its transmission and will get HIV free child.*"

A 34 years old Man with no children stated; "*I need to have four children in the future. The reason why I want child is, it helps me to replace myself, my health condition is improved, to get supporter and in general child is very important in life. My wife also wants children. Even though I know the presence of HIV/AIDS with me, the transmission of HIV/AIDS from mother to child is real, by the help of medication possible to get HIV free children.*"

A 30 years old Woman, who had two children described; "*I need another one children a sister for my sons.*" "*Old age people can't live without having children, I have two children, but I need one daughter that is how I get a reason to live and create happiness in the family.*"

A 36 years old female, who had one child described; "*I need a child intensely. To get help when age becomes old enough, to hide my HIV test result in the community and the child will take care of us in old age and children.*"

A 29 years old Man with no children express; "*I have no child in my life. I need three children in the future. My health condition is getting improved, to recognize by community, to get help as age goes old enough and we are also not using contraceptive to have child.*"

A 26 years married old woman, who was secretarial and had no child said; "*I need at least three children who will take care of me and protect me from harm and to replace myself. Having children is important for social dignity and repentance child strongly. It gives us self-esteem, cover our HIV test result in the community and the child will take care of us in old age and children will take care of each other.*"

Key informants those who did not want to have a child, two out of ten respondents absolutely, reported not wanted to have children. Out of those who do not want children, respondents who did not want to have a child considered risk of vertical transmission when making decisions about child bearing.

A 40 years old woman with four children stated: "*I do not want to have additional child it is not important for my family. Because I am living with HIV/AIDS, it might not possible to get fully HIV/AIDS free child. I might die due to the virus before I growth up my child. Even if I have a child with HIV/AIDS, why he/she suffers due to my fault. There for, I decided not to have a child. Even though, I know there is medication to prevent mother to child transmission, i.e. by taking care, by taking prophylaxis in proper way. But I do not think that it reduces the transmission unless God helps us.*"

A 30 years old woman with one son; "*Even if I am living with HIV/AIDS, I did not want to have child in the future, Because of I have much enough children.*" Reasons for not having children expressed by the key informants were age, having children, perceived health condition and discuss with ART provider.

DISCUSSION

The level of fertility intention of PLWHIV in this study was 45.1% with 95% CI of (39.4%-50.1%). This finding is consistent with the previous studies done in the Tigray region 44.5% [10] and Southern parts of Ethiopia, Wolaita Zone which was 43% [11]. This finding showed that the fertility intention was lower than the study done in Addis Ababa 54.6% [9]. However, fertility intention in this study displays higher as compared to the previous studies done in West Gojjam at Finote Selam Hospital 33.4% [12] and South Wollo 18.3% [13]. The possible explanation might be due variation in socio-cultural, intervention activities are higher in this time (changes in ART treatment modality, changes in HIV test and treat program) and the number of study sites included might not be representative of the current situation.

Based on findings from multivariable logistic regression analysis, the younger age group had 5.45 times more likely to have fertility intentions as compared to the older age groups. This is consistent with the studies done in Kenya, and Ethiopia (Tigray, Afar, Oromiya) [7,10,15,18]. The possible explanation might be young married women and men face strong social pressure to prove their fertility as soon as possible after marriage. This also supported by in-depth interview younger people showed higher child intention than older people. Most informants replay, the frequent reasons of they want a child to getting support and replacing themselves.

In this finding marital status also was one of the associated factors with fertility intention, those who were married were 3.18 times more likely to intend to have children than divorced. The finding is consistent with studies conducted in Afar, Addis Ababa and Hosanna [9,15,16]. The possible explanation might be intending children from cultural influence; in the Ethiopian community having children is highly valued and getting respectable in the society and could be because of the better opportunity to discuss fertility related decisions among couples. This is supported by in-depth interview finding, clients those who having discussed with their partner reach on a decision to stop contraception and to have children in the future.

Family planning use was a factor that affects fertility intention of people living with HIV. As a result, respondents who did use family planning was associated with lower odds of fertility intention (AOR=0.15). This is consistent with the study conducted in South Africa [17,19].

Another factor of fertility intention was participants who had no child were 19.78 times more likely to have children than those who had three or more children. This finding is consistent with the studies conducted in different parts of Ethiopia such as Tigray, Oromiya and Wolita Zone [10,11,18]. This might be due to the reason that those who did not have a child need to replace themselves and as in the culture of developing countries, they need someone to taker of them when they become old age and weak. This was similar findings from an in-depth interview in the way that informants' intention to have child/children to replace them and to get care in their old age.

In this finding people living with HIV who had discussed with ART service provider regarding to the issue of SRH, had shown direct association with increased fertility intention, that was, those clients who did have discussion with ART service provider had shown 1.92 times more likely to have child as compared to those clients who didn't have discussion. This is consistent with the study conducted in Finote Selam, Northwest Ethiopia [12]. This was evidenced by the in-depth interview, informants who want to have child/children stated that "currently when we come ART follow up health care, ART service providers tend to advise fertility related counseling as compared to the former ART service providers, meaning that ART service providers were opened and well-coming face to advice, they make inspire and make aware of pregnancy possibilities."

In this study respondents who had to perform sexual practice in the past three months, among clients who had sexual practice was higher to have fertility intentions as compared with respondents who did not. This is consistent with studies done in Tanzania and Ethiopia (Wolaita Zone) revealed that having a history of sexual practice was statistically significant associations with fertility intention [6,11].

CONCLUSION

This study showed that the nearly half (45.1%) of the participants desired to have a child or children in the future. Younger age, Being married, Use of family planning, having no children, having discussion with ART service provider and had history sexual practice were predictors of fertility intention and in additions to qualitative, findings from an in-depth interview, improved health condition, no child before, importance of parenting, partner desire, and knowledge about PMTCT were as reasons of people living with HIV to have children. The findings of this study give the call for more efforts to effectively address fertility intention. Health care workers at ART clinic should openly discuss about the reproductive options for the women living with HIV/AIDS, meaning that fertility intentions related counseling need to be strengthened after deep understanding of clients' fertility need. Health care workers at ART clinic shall continue efforts to integrate reproductive health services (contraception, counseling on decision to have a child and safer conception) in the routine HIV/AIDS care and treatment. The District Health office need to consider the strong predictors found in this study, to plan, and implement MTCT program effectively. Further study should be conducted in large scale at regional or national (country) level

DECLARATIONS

Ethics approval

Ethical clearance was obtained from ethical review committee of Bahir Dar University, College of Medicine and Health Sciences, School of Public Health and Department of Biostatistics and Epidemiology. During data collection, brief explanation was given about the objective and significance of the study to each participant in order to obtain verbal consent. Respondents were not identified by their name and the participant had the right to discontinue the participation at any time. Confidentiality of the information was assured from all the data collectors and principal investigators side. Participants having positive result

were referred to nearby health facilities for further diagnosis and treatment.

CONSENT FOR PUBLICATION

Consent for publication is not applicable- this study did not take individual person's detail such as name, images, or videos.

AVAILABILITY OF DATA AND MATERIAL

All the data generated or analyzed during this study are included in this published article.

COMPETING INTERESTS

The authors declare that we have no competing interests.

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AUTHOR'S CONTRIBUTIONS

Enyew Adane wrote the proposal, participated in data collection, and analyzed the data. Getachew Hailu and Kasawmar Anagaw approved the proposal with some revisions, and participated in data analysis. Getachew Hailu, Kassawmar Anagaw and Taye Abuhay wrote the manuscript. We revised drafts of the paper. All authors read and approved the final manuscript.

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