



Received on 20 February, 2013; received in revised form, 24 April, 2013; accepted, 24 May, 2013

DESIRE FOR FERTILITY AND ASSOCIATED FACTORS AMONG PEOPLE LIVING WITH HIV/AIDS (PLWHA) IN SELECTED ANTIRETROVIRAL THERAPY (ART) CLINICS OF HORRO GUDURU WOLLEGA ZONE, NORTH WEST OROMIA, ETHIOPIA- A CROSS SECTIONAL STUDY

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Keywords:

Fertility, Desire, Mother to child transmission, People living with HIV/AIDS

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QUICK RESPONSE CODE



DOI:

10.13040/IJPSR.0975-8232.4(6).2312-21

Article can be accessed online on:
www.ijpsr.com

ABSTRACT:

Background: Most recently fertility issues in HIV positive men and women are becoming increasingly important. Because of ART access and its good life effect, it is expected that the need and desire to get married, to have children and to have sexual partners for PLWHA would change with the regard to reproductive health. In Ethiopia HIV positive individuals may or may not have desire to have children. And the extent of this desire and how it varies by individual, health and demographic characteristics is not well known.

Objective: the aim of the study was to assess desire for fertility and associated factors among PLWHA in selected ART clinics of Horro Guduru Wollega Zone, Oromia National Regional State, Ethiopia

Methods: A cross-sectional, institutional-based study that employed quantitative and qualitative in-depth interviews was conducted. Three hundred twenty one study subjects were selected using systematic random sampling technique and the data was collected using interviewer administered structured questionnaire. Data entry and analysis were performed using EPI Info version 3.5.1 and SPSS version 16. P-value <0.05 was taken as statistically significant and logistic regression was used to control potential confounding factors.

Results: Seventy three (57.9%) of the males and seventy six (39%) of the females desired to have children, giving a total of 149(46.4%) of all study participants. PLWHA who desired children were younger (AOR: 3.3, 95%CI: 1.3-8.9), married (AOR: 5.8, 95%CI: 2.7-12.8), had no children (AOR: 75, 95%CI: 20.1-273.3) and males (AOR; 1.9, 95%CI: 1.02-3.62) compared with their counter parts. The major reason for those people who did not desire children were having desired number of children 80 (46.5%) followed by fear of HIV transmission to child reported by 42 (24.4%) of them.

Conclusion: A considerable number of PLWHA wants to have a child currently or in the near future. Many variables like socio demography, partner related, number of alive children and HIV related disease condition were significantly associated with fertility desire.

INTRODUCTION: An estimated 34 million people worldwide were living with HIV at the end of 2010. Out of these an estimated 22.9 million HIV infected people live in Sub-Saharan Africa ¹. The infection rate among pregnant women in Sub-Saharan Africa is also alarmingly high, where 90% of global new child infections through mother-to-child transmission (MTCT) occur ². With 1,320,000 million people living with HIV/AIDS (PLWHA), Ethiopia is one of the country's most heavily affected by the epidemic, heterosexual HIV transmission being the main route followed by mother to child transmission ³

Mother to child transmission is the largest source of HIV infection in children under the age of 15. In countries where blood products are regularly screened and sterile syringes and needles are widely available, it is virtually the only source of infection in young children. In sub Saharan Africa, MTCT is contributing substantially to raise child mortality rates. Most studies estimate the probability that an HIV positive women's baby will have the virus as ranging from 15% to 25% in an industrialized country and 25% to 35% in developing country. There were an estimated 72,945 children less than 15 years old living with HIV, out of which 20,522 needed ART. Due to the combined effect of poverty and AIDS, more than 5.4 million children under the age of 18 years were orphaned out of which 855,720 (16%) lost at least one parent due to AIDS in Sub-Saharan Africa ⁴

Most recently fertility issues in HIV positive men and women are becoming increasingly important. Advance in treatment such as zidovudine and other drugs together with cesarean section and breast milk substitution has decreased vertical transmission to about 2%, making positive parenting a viable option at least in countries where anti-retroviral (ARV) treatment is widely available. In these countries HIV positive or affected individuals are exercising their reproductive choice in ways that pose new medical, ethical and legal challenges ^{5,6}

Reproductive choice in HIV affected individuals are changing. Because of ART access and its good life effect, it is expected that PLWHA need and intention would change with the regard to reproductive health like getting married, desiring to have children, and to have sexual partners among others ^{6,7}

In a study done in southwestern Nigeria on 164 males and 209 females HIV positive people to assess fertility desire and sexual behavior of people living with HIV/AIDS, about 65.8% of them desired for more children, and 63.6% of the total respondents have been sexually active. Similarly, study done on 498 HIV positive men and women following ART clinic in North Shewa Zone, 222(94.4%) of the females and 168(70.9%) of the male respondents expressed the desire for biological children giving a total of 390(79.9%) respondents ^{6,8}. A study done in Addis Ababa on 460 HIV positive people showed that 50.2% have been sexually active with in past six months and 40% of all the respondents expressed desire for children ⁷

The desire of HIV infected person to have children in the future has significant implication for the transmission of HIV to sexual partner and new born. In addition many children of infected parents are likely to need social services including income supplementation, housing, and child care and for those who lose one or both parents bereavement support, foster care or adoption ⁹.

In Ethiopia, HIV positive individuals may or may not have desire to have children. But the extent of these desires and how it varies by individual, social, health and demographic characteristics is not well understood ⁷. Thus, it is the purpose of this study to assess desire for fertility and associated factors among PLWHA in selected ART clinics of Horro Guduru Zone, Ethiopia so that it is essential to design intervention aimed at promoting safer sexual and reproductive health among these populations.

MATERIALS AND METHODS:

Study setting: The study was conducted in Horro Guduru Wollega (HGW) Zone; Oromia National Regional State, Ethiopia. HGW is one of twenty zones of Oromia National Regional State found 330 Km North West of capital city, Addis Ababa. It has ten Woredas with different climatic conditions and has a total population of 576,567. Shambu is the capital town of the zone. HGW zone has a total of 37 health facilities including ten ART care units Data was collected from March 12 to April 20, 2012. The site was selected because of many numbers of PLWHAs following ART unit we observed during our stay in the area.

A cross sectional institution based study that employed both quantitative interviewers administered structured questionnaire and qualitative in-depth interview was used. The source populations were all adult PLWHA following ART care unit in selected HGW zone during the study period. The study populations were all adult PLWHA who were in reproductive age and had taken at least one visit at ART care from the selected ART care unit during the study period and fulfilling the inclusion criteria. For the quantitative part of the study, sample size was determined using single population proportion formula and correction formula was also used. For the qualitative part of the study, participants were interviewed based on their socio demographic characteristics (i.e. sex, marital status and number of children) until data saturation occurred. These variables were selected because they were assumed to affect the fertility desire differently and to see the results from different socio demographic characteristics of the study participants.

There were ten health care institutions (one hospital and nine health centers) providing ART services in HGW zone. Among these, one hospital and two health centers (namely Shambu Hospital, Fincha health center and Wayu health center) were selected based on their daily patient flow such that among 1450 people following ART care units in the HGW zone, 1050 of them were found within the selected ART clinics. Data was collected from March 12 to April 20, 2012 using structured questionnaire with closed and open ended questions. The questionnaire was adapted from literatures after getting permission and translated to Afan Oromo language and then after translated back to English by language experts to keep its consistency. The questionnaire contained questions on socio-demographic characteristics, child desire information, and ART treatment conditions. In depth interview and semi structured questionnaire were used for the qualitative part of study which addressed decisions on child desire, and impact of HIV on child desire.

Data was collected by three health care providers working in the selected ART clinics and three supervisors were also selected from each site and closely followed the data collection process with principal investigator. The qualitative questionnaire was collected by the principal investigator from the three sites and tape recorded. Field notes were taken from those who refused to be tape recorded

The questionnaire was pre- tested on about 10% of the total sample size and necessary corrections and amendment was considered. Socio demographic characteristics, number of a live children, partners desire for children and duration since HIV diagnosis were independent variables and the outcome variable was desire for fertility. To assure the quality of data, structured data collection was used and data collectors and supervisors were trained for one and half day. During the data collection procedures, all the collected data were reviewed and checked daily for its completeness and after the questionnaire was collected from the study sites, manual editing and coding were undertaken to enhance data quality.

The quantitative data was coded, cleaned and entered in to a computer and analysis was made using EPI Info version 3.5.1 and SPSS version 16.0 statistical software. Univariate analysis such as frequency distributions, and percentages were used including measures of central tendency and measures of variation.

Bivariate analysis of demographic variables and fertility desire was described and Odds ratio was used to check significant association between dependent and independent variables. Logistic regression model was employed to control confounding factors and variables included in the logistic regression model were restricted to those significantly associated to outcome variable at the bivariate level. Association of the variables were checked at $p < 0.05$.

Ethical clearance was obtained from the Institutional Review Board (IRB) of department of Nursing and Midwifery, Faculty of Medicine of Addis Ababa University. A formal letter was written to HGW zone Health Bureau and permission to carry out the study was obtained from the zonal health bureau to deal about the selected ART clinics of HGW zone. Verbal and written consent was obtained from the study participants after explaining the objective and benefits of the study.

Privacy and confidentiality were maintained during interview. The subjects were told any information they provided would be kept confidential. Their names never appeared on data collection tools and the study subjects were also informed that their responses would not bring any harm to them

RESULTS:

Quantitative study results:

Socio-demographic characteristics: Out of 321 studies participants, 195(60.7%) were females and 126(39.3%) were males. The majority 156(48.6%) of the respondents were between thirty and thirty nine years of age. The mean age (SD) of females and males were 31.4(5.8) and 35.6(7.9) respectively. The age range of the study subjects were from 19 to 58 years. The majority of the respondents were orthodox Christians 165(51.4%) and Protestants 136 (42.4%) by religion.

About half of the study participants were illiterate or only able to read and write. And the majority 272(84.7%) of the study participants were from Oromo ethnic group followed by Amhara 45(14%). One hundred eighty six (57.9%) and fifty seven (17.8%) of the study participants were married and single/never married respectively while 40(12.5%) and 38(11.8%) were widowed and divorced respectively. one hundred thirty five (42.1%) of the respondents were house wives while 51(15.8%) were farmers. About eighty five percent of the respondents had no income or earned below or equal 445 birr which is the government’s lowest salary.

TABLE 1: SOCIO DEMOGRAPHIC CHARACTERISTICS OF PLWHA ATTENDING ART CLINICS, HORRO GUDURU WOLLEGA ZONE, ETHIOPIA, 2012. (N=321)

Characteristics		Frequency	Percentage (%)
Age (years)	18-29	106	33
	30-39	156	48.6
	40-60	59	18.4
sex	female	195	60.7
	Male	126	39.3
religion	orthodox	165	51.4
	Protestant	136	42.4
	Muslim	13	4
	Others*	7	2.2
Educational status	Illiterate	95	29.6
	Read and write	100	31.2
	Primary	57	17.8
	Secondary	52	16.2
	Post-secondary	17	5.2
Ethnicity	Oromo	272	84.7
	Amhara	45	14
	Others**	4	1.3
Marital status	Married	186	57.9
	single/never married	57	17.8
	widowed	40	12.5
	divorce	38	11.8
occupation	House wife	135	42.1
	Farmer	51	15.8
	Daily laborers	46	14.3
	Government/private employee	33	10.3
	jobless	33	10.3
	merchants	23	7.2
Income	No regular income	126	39.3
	≤ 445	147	46.0
	> 445	48	14.7

445 ETB- government’s lowest salary, others* religions like catholic, Wakefata , Others** Guraghe, Tigre

HIV related characteristics: The median duration since HIV diagnosis and receiving the ARV treatment were 36 and 24 months respectively. Recent CD4 count ≥ 200 cells/mm³ was reported by 235(73.2%) of the respondents. One hundred seventy

four (54.2%) of the respondents attended the ARV treatment unit for ≤ 24 months. All of the respondents were receiving the ART drugs from government’s free access and described their health improved after they started the treatment.

Two hundred ninety seven (92.5%) of the respondents know about the transmission of HIV/AIDS from mother to child. Among these people 220(68.5%) of them know at least one mode of transmission of HIV/AIDS from mother to child and 291(90.7%) of the respondents agree the effectiveness of the preventive ARV medications.

Two hundred ninety seven (92.5%) of the respondents had previously discussed on personal issues such as sexuality, family planning and child bearing with their ART providers. Three hundred sixteen (98.4%) of the respondents wanted to have discussion on sexuality, fertility desires and contraception with their ART providers (**table 2**)

TABLE 2: HIV RELATED CHARACTERISTICS OF PLWHA ATTENDING ART CLINICS OF HORRO GUDURU WOLLEGA ZONE, ETHIOPIA, 2012 (N = 321)

Characteristics		Frequency	Percentage (%)
HIV diagnosis Duration (In months)	≤36		
	>36	212	66
Treatment duration (in months)	≤24	109	34
	>24		
Treatment duration (in months)	≤24	174	54.2
	>24	147	45.8
Recent CD4 count (cells/mm3)	≤200	86	26.8
	>200	235	73.2
ART unit attendance duration(in months)	≤24		
	>24		
	≤24	174	54.2
	>24	147	45.8

Desire for fertility: Seventy three (57.9%) of the males and seventy six (39%) of the females desired to have children, giving a total of 149(46.4%) of all study participants. Out of those who desired to have children, 78(52.3%) of them desire to have two or more children, while 69(46.3%) and 2(1.4%) desired to have one child and don't know the number of children to have respectively. Among those who expressed the desire for children, 78(52.3%) of them planned to have child/ren with in one or two years, while forty six (30.9%) didn't know when to have a child.

From bivariate analysis (table 3) men were significantly more likely to desire children compared to women. (Crude OR; 2.2, 95%CI; 1.4-3.4 P= 0.001). Those who were age group of 18-29 or 30-39, married or never married, those who have no children or 1-2 children, and those respondents who attended the ART units for less or equal to 24 months were positively and significantly associated with desire for children (p<0.001). On other hand, there was no statistically significant difference between the proportions of those who desire children among illiterate or read and write and primary and above (p=0.14). Likewise, there was no statistically significant difference between those who had recent CD4 count ≤200 and >200 cells/mm³ (p= 0.79).

From multivariate analysis (table 3), respondents of age group 18-29 and 30-39 were more likely to desire children than those above forty (adjusted OR: 3.3, 95%CI: 1.3-8.9 and 3.3, 95%CI: 1.4-7.9) respectively.

Male respondents were 1.9 (95%CI: 1.02-3.62) times more likely to desire children than female respondents. Study participants who were married were more likely to desire than others (adjusted OR: 5.8, 95%CI: 2.7-12.8). Those who had no children were more likely to desire children than who had at least one child. (Adjusted OR: 75, 95%CI: 20.1-273.3).

Similarly, those who had one or two children were more likely to desire children than who had more than two. (Adjusted OR: 4.5, 95%CI: 2.4-8.5). Study participants who had attended the ART units for less or equal to two years were more likely to desire children than who attended for more than two years.

Among 99 respondents whose partners wanted child desire, 98 (99%) of them wanted to have children. Only one person (1.2%) wanted to have children though his/her partner did not want to have child.

TABLE 3: ASSOCIATION OF DESIRE FOR CHILDREN BY SELECTED CHARACTERISTICS AMONG PLWHA IN HORRO GUDURU WOLLEGA ZONE, ETHIOPIA, 2012, (N=321)

Characteristics	Desire children n (%)	Don't desire children n (%)	Crude OR (95 % CI)	Adjusted OR (95 % CI)
Age				
18-29	67 (45.0)	39 (22.7)	5.5 (2.7, 11.3)*	3.3 (1.3, 8.9)*
30-39	68 (45.6)	88 (51.2)	2.5 (1.3, 4.9)	3.3 (1.4, 7.9)*
≥ 40	14 (9.4)	45 (26.2)	1	1
Sex				
Male	73 (49.0)	53 (30.8)	2.2 (1.4, 3.4)*	1.9 (1.02, 3.62)*
Female	76 (51.0)	119 (69.2)	1	1
Marital status				
Married	95 (63.2)	91 (52.9)	4.4 (2.3, 8.2)*	5.8 (2.7, 12.8)*
Single/never married	39 (26.2)	18 (10.5)	9.1 (4.1, 20.1)	0.97 (0.3, 3.3)
Others	15 (10.1)	63 (36.6)	1	1
Number of alive children				
0	54 (36.2)	7 (4.1)	29.2 (12.0, 71.2)*	75 (20.1, 273.3)*
1-2	67 (45.0)	59 (34.3)	4.3 (2.5, 7.4)	4.5 (2.4, 8.5)*
>2	28 (18.8)	106 (61.6)	1	1
Duration of ART attendance (in months)				
≤24	97 (65.1)	77 (44.8)	2.3 (1.5, 3.6)*	2 (1.14, 3.60)*
>24	52 (34.9)	95 (55.2)	1	1
Recent CD4 count				
≤200	41 (27.5)	45 (26.2)	1.1 (0.7, 1.8)	-----
>200	108 (72.5)	127 (73.8)	1	-----
Educational status				
Illiterate/read & write	84 (56.4)	111 (64.5)	0.7 (0.4, 1.1)	-----
Primary and above	65 (43.6)	61 (35.5)	1	-----

* Statistically significant association (p<0.05)

Reason for not to desire Children: The major reason for those people who did not desire children were having desired number of children 80 (46.5%)

followed by fear of HIV transmission to child reported by 42 (24.4%) of them (**fig. 1**).

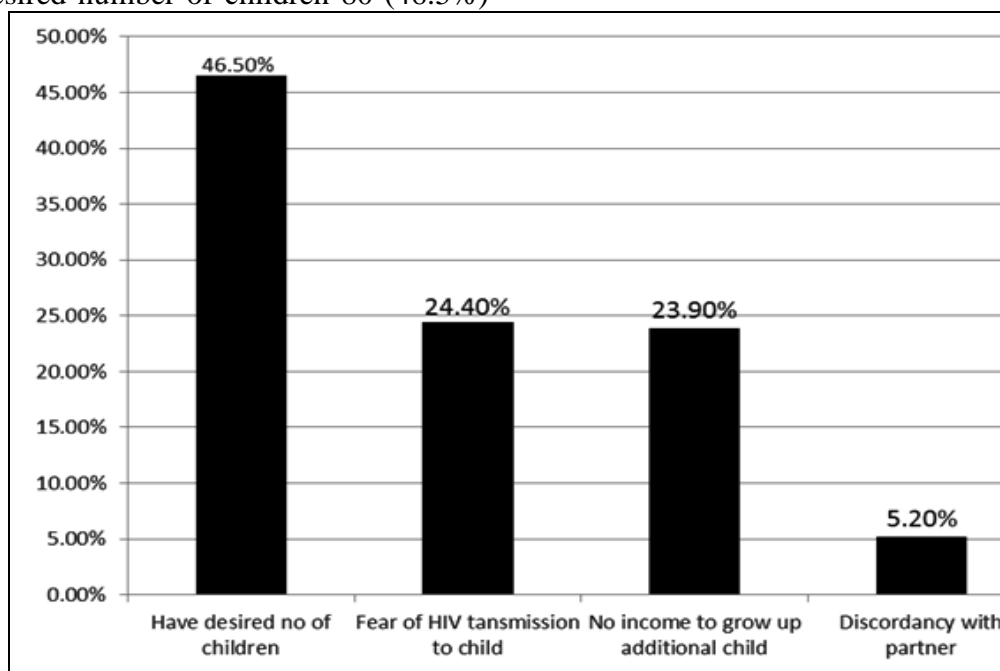


FIGURE 1: SHOWING THE REASON FOR NOT DESIRING CHILDREN AMONG PLWHA IN SELECTED ART CLINICS OF HORRO GUDURU WOLLEGA ZONE, ETHIOPIA, 2012

Qualitative study result: Ten respondents, equal number of males and females were interviewed. The age range of the respondents was from 25-45. Their educational status varied from illiterate to first degree graduates. Out of ten, six of them were married, three of them were divorced and one single. Six of them have children.

Out of ten respondents, two males and two females a total of four respondents reported child desire. They all described improvement of their health as a result of ARV medications. Counseling services with their ART providers and ARV medications which help to reduce mother to child HIV transmission had initiated them to plan for having children. A man explained, *"In the future I want to have one additional child. Now I do have two children. Since my health is getting improved after I started the ART treatment, I hope I will have a healthy child with the help of my ART providers."*(45 years old, male police with two children)

Others thought, having children is very important for perpetuating their descendants. A man explained, *"When I heard as I am living with HIV/AIDS for the first time, the first thing that came to my mind was the sorrow of not having a child. I started the ARV treatment after a year of HIV diagnosis and now I am fully healthy. My ART providers told me as I can have a healthy child with the help of this ARV medication after marrying with woman similar to my sero status. Thus, I am planning to get married and have a child."*(28 years old male with no children)

Female respondents also expressed their desire because of different reasons; a woman explained, *"When I started this ARV medication, the sister discussed with me about the issue of sexuality and having a child. At that time, I didn't want to talk about that because I decided not to have sex with anyone since the major concern was about my health for me. But later, my CD4 count increased and my health get very much improved. And even some times I forget as I am living with the virus. My desire for sex is also increasing; I think the medication has the function to do that, ha ha ha... I am discussing with the sister about having a child in the future too and I hope I will have a child free of HIV virus. (30 years old divorced woman with no child).*

Similarly a 33 years old female who lost her child as a result of AIDS said, *"My ART provider told me*

that I have to discuss with him when I wanted to have children. Now I have no children. I lost one child due to AIDS. If God allows me, I want to replace my lost child in the future."

Did not desire to have children: Six out of ten respondents reported not desiring children. Of these three were males and three females. Respondents' reason for not desiring children was varied, a woman explained,

"I think no one hates to have children because it's a God who gives us children. Now I do have two children thanks to Him. But because of this disease, I don't want to have a child in the future plus I don't have income to have additional child. Let God grow them up those kids I have."(25 years old female with two children said)

Some do not fully trust the reduction role of ARV medication in preventing HIV transmission from mother to child. A man explained, *"In fact the ARV medication may help to reduce the chance of transmission of the virus from mother to child. But it is not hundred percent protective. To have healthy child, close follow up is needed from you and your health care provider. After that you may get a healthy child if you are chanceful. Therefore, it's better for me not to have a child in the future."*(36 years old male-government employee with one child said)

Others still fear the transmission of the disease from mother to child regardless of the ARV medications. They put it as the main reason for not desiring children. A woman explained, *"I don't want to talk about having a child because I am living with the virus. Indeed, after I started the ARV treatment my health is improved. But, I don't believe about the transmission of this disease- I sometimes think this disease may be transmitted by air. Its transmission from mother to child is quite sure and the new child will be borne with HIV virus and after a time, she will end up with death. That's way I don't want to have a child."*(34 years old woman and have one child). *"I think for those people living with HIV/AIDS, talking about having children is not important because the child to be born is also going to be HIV positive which makes the coming generation HIV positive generation. Therefore it is better for us even to abstain from sex."*(42 years old male and have two children)

DISCUSSION: Addressing fertility issues among PLWHA is crucial for prevention of unwanted pregnancies and PMTCT especially with advance in treatment which changes views of fertility intention and childbearing despite having the disease. The study was intended to assess fertility desire and family planning need among people living with HIV/AIDS attending ART clinics in selected sites of Horro Guduru Wollega Zone.

Among 321 PLWHA in the reproductive age interviewed, 73 (22.7%) men and 76 (23.7%) women desire to have children giving a total of 149 (46.4%) of the total participants. This study is similar to a study conducted in South Africa among 459 women and men which revealed 57% men and 45% women were open to the possibility of having children¹⁰. Similarly, this study coincided with study done in Addis Ababa by Wossenyelesh Tamene in which 40% of the 460 respondent's desire for children. On other hand, the result of the present finding is lower than study conducted in Nigeria (66%) and northern shewa Zone (79.9%)^{6,7}

In the present study, the proportion of men desiring children was higher (56%) than women (39%). This result was similar with study done in Brazil and South Africa. In a study conducted in Brazil, 50% (men) and 19.2% (women) desire for having children. While 57% men and 45% women desire to have children in South Africa^{10,11}. Men more likely desire children compared to women in this study may be because; the greater burden of growing up and caring for children is plunged on the shoulders of women than men in the Ethiopian context.

In this study, more than 80% of the respondents had no calculated monthly income or earned less than 445 ETB which is below the government's lowest salary. But regardless of their income, about 46.4% of them desire to have children in the future and are not able to access optimal care for themselves and to reduce the likely hood of transmission to the new born; Therefore the likely hood of preventing HIV/AIDS transmission from mother to child by breast milk substitution is very low among these populations.

According to this study there were many factors associated with fertility desire. Among these age of the respondents was one of the important factors. In this study, those age group below forty was three

times more likely to desire children than those above forty. This was similar to study conducted in Brazil, Nigeria, Addis Ababa and North shewa Zone^{6,7,8,12}. This association may be due to a belief of having children at younger age will be good and acceptable. The qualitative results of this study also support that those younger age respondents need to have children than others.

Other significantly associated factor with fertility desire among these populations was the number of alive children they had. Those who had no children were more likely to desire children than who had one or more children. The qualitative result also supported the idea that those who had no any child had desire to have at least one child to perpetuate their descendents and wish to be fatherhood or motherhood. This finding was consistent with studies done in Nigeria and Brazil^{8,12}.

The results of studies conducted in other regions of Ethiopia (South Wollo Zone, Southern Nations Nationalities and Peoples Republic, and Addis Ababa) were also similar to our study result such that the childless were more likely to desire to have children than others^{6,13,14}

Marital status was another significant factor identified from this study associated with child desire. Those who were married were more likely to desire children than other groups. The result of this study was similar to studies conducted in Addis Ababa by Wossenyelesh in which married or in relationship were three times more likely to desire children than others. On the other hand, studies conducted in Nigeria and Uganda revealed that marital status had no association with the desire to have children in the future. This difference may be due to the socio cultural values of Ethiopians that having children before marriage is unacceptable thus they prefer to have child after they get married^{8,15}

Partner fertility desire was also an important determinant of the current fertility decision in this study; those people whose partners' desire children were more likely to desire children than those who were their partner did not want to have. This was congruent with the study conducted in Addis Ababa, South Africa, Mozambique^{6,16,17}. This could be due to better opportunity to discuss on fertility related decisions among couples

Strengths and limitations of the study: The strengths of the study were it was supplemented by qualitative result to identify factors that were not addressed by the quantitative result and the study has high response rate of 99.4%. The limitation of the study were social desirability bias and like other cross sectional studies this study shares the drawbacks of the design which is difficulty in determining causal relationship.

CONCLUSION: In this study high numbers (61%) of people living with HIV/AIDS were sexually active and many 149 (46.4%) need to have children in the future. Those who desire children were males, younger age, those who have no children and married or single in marital status.

Generally, considerable number of PLWHA wants to have a child currently or in the near future. Many variables like socio demography, partner related, number of alive children and HIV related disease condition were significantly associated with fertility desire

RECOMMENDATIONS: Regardless of educational status, the childless as well as the youngest should be regarded as groups to be particularly targeted by counseling, and to be provided with information about reproductive rights and options. Horro Guduru Wollega Zone, HAPCO office should promote intervention efforts that can effectively assist PLWHA in maintaining safer sex practices.

ACKNOWLEDGEMENTS: We are grateful to acknowledge Addis Ababa University, College of Health Sciences, Department of Nursing and Midwifery for funding this project. We would also like to acknowledge Horro Guduru Wollega Zone health bureau, and Woreda health offices for facilitating things without difficulty. Our special thanks go to Ms Munaye Seifu (DKT Ethiopia research officer) for her support in facilitating the logistic support done for the study and DKT Ethiopia for its logistic support to undertake this study. We sincerely acknowledge supervisors, and data collectors, without their kind support, this research would not have been completed successfully as desired and planned. Our last but not least acknowledgement goes to the study participants for their willingness to be enrolled in the study.

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How to cite this article:

Gayesa RT, Mengistu D and Moorhead C: Desire for fertility and associated factors among people living with HIV/AIDS (PLWHA) in selected antiretroviral therapy (ART) clinics of Horro Guduru Wollega Zone, North West Oromia, Ethiopia- A cross sectional study. *Int J Pharm Sci Res* 2013; 4(6); 2312-2321. doi: 10.13040/IJPSR.0975-8232.4(6).2312-21