Kenkyu Journal of Epidemiology & Community Medicine 10:01-13 (2024)

Research

Determinants of fertility desire among Human Immune Deficiency Virus positive reproductive age women attend antiretroviral therapy clinic of public hospitals in north shewa, Ethiopia

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Received January 01, 2024**; Accepted** January 09, 2024**; Published** January 10, 2024

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Abstract

Background: The desire to give birth is the intention that both men and women will give birth to more offspring, despite being diagnosed with human immune virus. The desire of people living with HIV to have children can have major impact on public health. Despite the increasing importance of infertility problem in people living with HIV, little is known about their determinants.

Objectives: the aim of this study is to identify determinants of fertility desire among HIV positive reproductive age women who attend Anti-retro viral therapy clinic of public hospitals in north shewa, Amhara, Ethiopia, 2022.

Methods: Facility based unmatched case control study was conducted among 376(case=188, control=188) women in 4 selected hospitals in North shewa Zone. Finally, data was entered in to Epi Data version 4.6.0.0 and exported to SPSS version 20 for further analysis. Adjusted odds ratio with 95% Confidence interval was computed and P-value ≤ 0.05 was considered as statistically significant with fertility desire.

Results: A total of 188 cases and 188 controls completed the interview which made the response rate was 100% and the median age of the respondents were 35years (SD±6.9). Being married (AOR=3.5, 95%CI (1.72-6.94)), having fewer child (AOR=5.2, 95% CI (2.68-10.13)), awareness about Prevention mother to child transmission (AOR=7.9, 95%CI (3.41-18.22)) and currently not contraceptive use (AOR=3.1, 95% CI (1.74-5.70)) were independently associate with fertility desire.

Conclusion: Marital status, having fewer children, awareness about prevention mother to child transmission and current contraceptive use were significantly associated with fertility desire. Health care providers who are working on an Antiretroviral therapy clinic should try to discuss on sexual and reproductive health issues and provide proper counseling for those currently having fewer child, married couples and currently contraceptive use to have HIV free child with their clients.

Key words: Antiretroviral Treatment Clinic, Fertility Desire, Human Immune Deficiency Virus Positive Women,

Background

The desire to give birth is the intention that both men and women will give birth to more offspring, despite being diagnosed with human immune virus, and the intention means a commitment to satisfy the desire [1, 2].

The desire to have a child is an expression of an HIV-infected person having a child in the future. One of the unexpected effects of antiretroviral therapy is that most people infected with human immune virus are of childbearing age, so one of the unexpected effects of ART could increase the desire of those affected by the disease to have children [3].

An estimated 36.7 million people worldwide live with HIV/AIDS. More than 25.5 million of them live in Africa, and 76% of all HIV-positive women live in sub-Saharan Africa [4].

Before the availability of antiretroviral therapy (ART) in Africa, women infected with HIV not only had reduced fertility, but also reduced fertility aspirations as many women, men, and health providers were opposed childbearing by persons infected with HIV. As access to ART increased, several studies documented a rebound increase in fertility desires [5, 6].

The desire of people living with HIV (PLWHA) to have children can have major impact on public health. Over 90% of HIV infections in infants worldwide are due to mother-to-child transmission (MTCT). Without proper intervention, HIV/AIDS infection rate ranges from 15% to 45%. This transmission rate can be reduced to less than 5% with effective interventions during the time of pregnancy, delivery, childbirth and lactation [7].

In Ethiopia, the prevalence of HIV was 1.8% for males and 2.8% for females. HIV prevalence among women of the reproductive age (15–49 years) was 0.9% and the most affected group are those who are sexually active and economically productive falling within the 25–49 age group [8].

Human immune virus and Acquired immune deficiency syndrome infection contributes to the decrease of fertility among PLHIV by causing abortion and stillbirth or through decreased sexual desire and marital disruptions among other ways [9, 10].

Despite the increasing importance of infertility problem in people living with HIV, little is known about their actual fertility needs and their determinant. It is important to help infected individuals who needs to have children and it serve as a benchmark for incorporating fertility-related counseling and services like PMTCT as appropriate, in to HIV treatment services [8]. The current study is designed to gain insight into the women's fertility desire and its determinants.

Methods and Materials

Study Period and Area

The study was conducted from June 6 to July 24, 2022 in North Shewa, Ethiopia. North Shewa is situated 2,840m above sea level and 130 KM in Northeast of Addis Ababa.

A total of 3221 HIV-positive individuals were on ART follow-up at Debre Berhan ComprehensiveSpecializedHospital(DBCSH) ART clinic, of whom 1288 were females and 994 were women in the reproductive age, a total of 697 HIV positive individuals are on ART follow up at Enat General Hospital(EGH) ART clinic, of which 430 are females and 343 are women in reproductive age, a total of 472 HIV-positive individuals are on ART follow up at Mehal Meda General Hospital (MGH)ART clinic, of which 306 are females and 242 are woman in reproductive

age and a total of 297 HIV-positive individuals are on ART follow up at Ataye Primary Hospital(APH) ART clinic, of which 181 are females and 160 are women in reproductive age.

Study design

Facility based unmatched case control study was employed.

Sample Size Determination

Sample size was calculated using Epi Info version 7 for unmatched case control study. By taking 95% confidence interval, 80% power, 48.5% proportion of control and 51.5% proportion of case for HIV positive women with current sexual partners, an odds ratio of 1.9(4). Using 1:1 case to control ratio.10% was added to the initial sample size to accommodate for none response rate, final sample size is 376(188 cases, 188 controls).

Sampling Technique

In North Shewa Zone there are 10 public hospitals; so, by using simple random sampling technique four public hospitals were selected, which are Debre Birhan comprehensive specialized hospital, Mehal Meda general hospital, Ataye primary hospital and Enat general hospital.

Hence, the total respondents of 108 cases and 108 control, 26case and 26 controls, 17 cases and 17 controls and 37 case and 37 controls in DBCSH, MGH, APH and EGH were selected proportionally respectively. The sample size of each Hospital was collected by proportional to sample size. The respondent from each hospital registered in registration book and Smart care were selected through simple random sampling technique.

Operational definitions

Sexually Active Women who had at least one sexual practice during the last six months before the interview were labeled as sexually active [11].

Reproductive age group is defined as a woman within age ranges between 15-49 years and had started ART.

Fertility Desire is defined as having a wish or interest with capability to be pregnant at least once or more than one time within a definite time period after getting HIV infection [4].

The outcome variable for the study (fertility desire) was measured by answers to the question: “Are you currently planning to have (more) children in the near future? “Women’s were free to respond “Yes”, “No”, or “Do not know”, the small proportion of women who respond “Do not know”(if 5%)were included in the “No” category(7). Finally positive (“Yes”) response to the above question was observed as fertility desire.

Data Collection Procedures and Tools

The questionnaire was adapted by reviewing different literatures and some modification was done by considering the local situation and study area.

For the identification of cases and control Data base 2 and Smart care was used since all HIV positive reproductive age women were registered in registration book and smart care so, they were listed in their age. Participants were interviewed face-to-face by trained data collectors using semi structured pre-tested questionnaires.

Data was collected by trained nurse and clinical pharmacist that were worked at ART clinic each hospital.

Training was given for 9 data collectors’ nurses and pharmacy. The questionnaire constitutes information on socio-demographic, socio-economic variables and HIV pregnancy-

related knowledge, reproductive health related characteristics, clinical characteristics of participants and fertility desire related characteristics. Medical records of HIVpositive women were reviewed to confirm HIV status and other relevant medical history, including date of HIV diagnosis, recent CD4 count, ART status, date of ART start.

Data quality control

The questionnaires were designed carefully. A designed questionnaire was translated first in to Amharic and back to English to assure it consistency.

The questionnaire was pretested 5% of total sample size in Debre Sina Primary Hospital and the necessary modification was accommodated. The collected data was checked for completeness, accuracy, clarity, and consistency by supervisor and the principal investigators on daily basis. Any error or ambiguity and incompleteness were corrected. The patients' response was checked with medical records and in case of inconsistent finding, patients' response was taken.

Data processing and analysis

Following accomplishment of data collection activities, the data was entered to Epi Data version 4.6.0.0 and then, exported to SPSS version 20 for further analysis. Descriptive statistic was done to summarize data and the result was reported using frequency and percentage. Then bi-variable logistic regression analysis was carried out to see the association between predictor variable and fertility desire. Variables which had p-value ≤ 0.25 were candidate for multi-variable logistic regression analysis to see the potential confounding variables. Multi collinearity test was done using variance inflation factor (VIF), which were <10 for each variable interaction.

Moreover, before using the model for further interpretation, the model adequacy was checked using Hosmer Lemenshow goodness of the fit statistical method, p-value >0.05.

Finally, variables with P-value, ≤ 0.05 in the multivariable logistic regression model was taken as statistically significant and adjusted odds ratio along with its 95% confidence interval was considered to see the association.

Ethical consideration

The ethical clearance letter was obtained from Institutional review board of Debre Berhan University, Asrat Woldeyes Health Science Campus. All aspect of basic ethical research principle is addressed, and so the study participants were selected based on the research requirement.

To ensure confidential, the data taken from respondent was kept in confidentially.

RESULT

Socio-demographic characteristics of participants

The study included a total of 376 (188 cases and 188 controls) with response rate of 100%. Ninety-nine (49.5%) cases and 101(50.5%) controls among the respondents were urban residents. The median age of the respondents was 35 years old (SD±6.9). Among the respondents, 119(61.3%) of cases and 75(38.7%) of controls were married. Regarding educational status, 28 cases (36.4%) and 49 controls (63.6%) were illiterate (Table 1).

Sexual and Reproductive characteristics

One hundred twenty-one (53.3%) of cases and 106(46.7%) of controls knew the status of their partner. Approximately two-thirds of 112(54.4%) of cases and 94 (45.6%) of controls were positive for the result of their partner.

Twenty-eight (23.9%) of cases and 89(76.1%) of controls had two or more children given birth in the past. Sixteen (76.2%) of cases and five (23.8%) of controls had no children at the moment. One hundred twenty eight (48.1%) of cases and

138(51.9%) of controls had undergone their first pregnancy at the age of 25 or older.

One hundred fifty-seven (47.7%) of cases and 172 (52.3%) of controls had been pregnant in the past. One hundred five (54.7%) cases and 87(45.3%) controls were pregnant after they had known their HIV status (Table 2).

Variables	Category	Cases (n=188)No. (%)	Controls (n=188) No. (%)
Place of residence	Rural	89(50.6%)	87(49.4%)
	Urban	99(49.5%)	101(50.5%)
Age	15-24	15(51.7%)	14(48.3%)
	25-34	94(62.3%)	57(37.7%)
	35-49	79(40.3%)	117(59.7%)
Marital status	Married	119(61.3%)	75(38.7%)
	Single	27(61.4%)	17(38.6%)
	Widowed	16(27.6%)	42(72.4%)
	Divorced	26(32.5%)	54(67.5%)
Religion	Orthodox	155(48.9%)	162(51.1%)
	other*	33(55.9%))	26(44.1%)
Educational status	Illiterate	28(36.4%)	49(63.6%)
	Read and write	28(48.3%)	30(51.7%)
	Primary school	53(52%)	49(48%)
	Secondary school and above	79(56.9%)	60(43.1%)
Income	<599	27(45%)	33(55%)
	600-1499	60(44.4%)	75(55.6%)
	1500-2399	43(53.8%)	37(46.2%)
	2400 and above	58(57.4%)	43(42.6%)
Occupation	Gov. Employee	41(58.6. %)	29(41.4%)
	Housewife	19(45.2%)	23(54.8%)
	Daily laborer	20(45.5%)	24(54.5%)
	Private employee	85(53.8%)	89(46.2%)
	other*b	23(50%)	23(50%)
Ethnic	Amara	151(47.9%)	164(52.1%)
	other***	34(61.8%)	21(38.2%)

NB: other*(Muslim, catholic and protestant), other*b (unemployed, student, house servant and sex worker), other*** (Oromo, Guarage and Tigray)

Table 1:- Socio-demographic characteristics of cases and controls among HIV positive in the selected public hospitals of North Shewa Zone, Amhara region, Ethiopia 2022

Variables	Category	Cases (n=188) No. (%)	Controls (n=188) No. (%)
HIV status of your partner	Yes	121(53.3%)	106(46.7%)
	No	0(0.00%)	2(100.0%)
what is HIV status of your partner	HIV positive	112(54.4%)	94(45.6%)
	HIV negative	9(47.4%)	10(52.6%0
how many live child did you give birth	<2	129(60.8%)	83(39.2%)
	≥2	28(23.9%)	89(76.1%)
how many live child do have now	<2	72(67.9%)	34(32.1%)
	≥2	85(38.1%)	138(61.9%)
Age first pregnancy	15-24	128(48.1%)	138(51.9%)
	≥25	27(46.6%)	31(53.4%)
Have you ever been pregnant	Yes	157(47.7%)	172(52.3%)
	No	31(66.0%)	16(34.0%)
Pregnant after you had known your HIV status	Yes	105(54.7%)	87(45.3%)
	No	53(38.4%)	85(61.6%)
Abortion	Yes	38(48.1%)	41(51.9%)
	No	150(50.5%)	147(49.5%)

Table 2: Sexual and reproductive characteristics of study participants in selected public hospitals in North Shewa, Amhara, Ethiopia, 2022

Family Planning and Reproductive characteristics of respondent

Regarding CD4, twenty-one (61.8%) of cases and 13 (38.2%) of controls had a CD4 count of less than 350. Twenty five (67.6%) of cases and twelve (32.4%) of controls had started ART service less than one year. Fifteen (57.7%) of cases and eleven (42.3%) of controls hadn't disclosed their HIV status to their partner.

Thirteen seven (40.2%) of cases and 55 (59.8%) of controls were believe that people living with HIV must be replace themselves.

Seven (24.1%) of cases and 22(75.9%) of controls hadn't awareness about PMTCT for their decision to have desired for children. Eighty one (43.1%) of cases and 107(56.9%) of controls were using contraceptive. Forty three (52.4%) of cases and 39 (47.6) of controls were using inject able as contraceptive. Regarding contraceptive decision, 43(50.6%) of case and 42(49.4%) of controls had joint decision (Table 3).

Variables	Category	Cases(n=188) No. (%)	Controls(n=188) No. (%)
CD4	<350	21(61.8%)	13(38.2%)
	>=350	98(53%)	87(47%)
How long had you known HIV	<5years	22(68.8%)	10(31.2%)
	5-9 years	96(54.9%)	79(45.1%)
	10 and above	70(41.4%)	99(58.6%)
How long have you started art in years	<5 years	25(67.6%)	12(32.4%)
	5-9 years	108(53.7%)	93(46.3%)
	10 and above	55(39.9%)	83(60.1%)
Current health statuses	Improved	119(55.1%)	97(44.9%)
	Not improved	0(0.0%)	3(100.00%)
Disclosed to your husband/partner	Yes	104(53.9%)	89(46.1%)
	No	15(57.7%)	11(42.3%)
Did you know/heard about PMTCT	Yes	119(54.3%)	100(45.7%)
Where did you get information about PMTCT			
During HIV testing	Yes	95(54.8%)	115(45.2%)
	No	87(56.1%)	68(43.9%)
During follow up of antenatal visit	Yes	50(58.1%)	36(41.9%)
	No	132(47.1%)	148(52.9%)
During ART clinic follow up	Yes	84(55.6%)	67(44.4%)
	No	98(45.6%)	117(54.4%)
From mass media(radio, TV)	Yes	29(50.9%)	28(49.1%)
	No	153(49.5%)	156(50.5%)
From friends(peers)	Yes	19(48.7%)	20(51.3%)
	No	51.3%	48.7%
awareness on PMTCT service	Yes	112(58.9%)	78(41.1%)
	No	7(24.1%)	22(75.9%)
Currently using any contraceptive	Yes	81(43.1%)	107(56.9%)
	No	107(56.9%)	81(43.1%)
which methods are you using	Injectable	43(52.4%)	39(47.6%)

currently	Norplant	32(35.2%)	59(64.8%)
	Other**	6(40%)	9(60%)
what are the reason for not using for contraceptives			
Fears of side effects	Yes	13(35.1%)	24(64.9%)
	No	94(62.3%)	57(37.7%)
Husband /partner opposed	Yes	2(66.7%)	1(33.3%)
	No	105(56.8%)	80(43.2%)
Parents opposed	Yes	2(18.2%)	9(81.8%)
	No	104(59.1%)	72(40.9%)
Religious prohibition	Yes	22(35.5%)	40(64.5%)
	No	85(67.5%)	41(32.5%)
Lack of knowledge	yes	20(29.4%)	48(70.6%)
	No	87(72.5%)	33(27.5%)
Others	yes	74(76.3%)	23(23.7%)
	No	113(40.6%)	165(59.4%)
Would you say that using contraceptive is mainly your decision or your spouse,	Female decision	39(37.9%)	64(62.1%)
	Joint decision	43(50.6%)	42(49.4%)

NB: other ** (pills, condom and IUCD)

Table 3: Family planning and reproductive health related characteristics of study participants in the selected public Hospitals of North Shewa Zone, Amhara region, Ethiopia , 2022

One hundred and eighty eight (50%) of study subjects desired to have children. Of these fifty, sixty and seventy eight of them wants to have child one, two and three and above respectively .in parallel to this fifty seven (30.5%) of them intended to fulfill their desired children with in less than one year, 69(36.9%) within 1-2 years and only 61(32.6%) of respondents intended within three and above (Table4).

Variable	**Time to Have all Desired Children**			
Number of Desired Children in Future		< 1 year	1-2 years	≥3years
	1	17(34. %)	14(28%)	19(38%)
	2	20(33.3%)	14(23.3%)	26(43.4%)
	≥3	2o (26%)	41(53.2%)	17(20.8%

Table 4: Summary number of children Desired by Time among HIV positive Women who want to have children in the future in North Shewa Zone public Hospitals, Amhara, Ethiopia, 2022.

Determinant of fertility desire

Age of respondent, marital status, income, CD4, current child, pregnancy after HIV status, awareness about PMTCT, and current contraceptive use were candidates for multivariable-logistic analysis. During multivariable analysis, only four variables showed a statistically significant association with the outcome variable.

During multivariable analysis, the variables that remained statistically significant were being married (AOR= 3.5, 95%CI (1.72-6.94)), current who had fewer child (AOR=5.2, 95%CI (2.68-10.13)), awareness of PMTCT for decision to have children (AOR=7.9, 95%CI (3.41-18.22)), and being not used current contraceptive (AOR=3.1, 95%CI (1.74-5.70)) (Table 5).

Variables	Category	Case (n=188) No. (%)	Controls(n=188) No. (%)	COR(95%CI)	AOR(95%CI)	p-value
Age	15-24	15(51.7%)	14(48.3%)	1 .6(.95-2.65)	.7(.17-3.28)	0.699
	25-34	94(62.3%)	57(37.7%)	2 .4(1.837-3.25)	1.5(.81-2.62)	0.208
	35-49	79(40.3%)	117(59.7%)	1	1	
Marital status	Married	119(61.3%)	75(38.7%)	3.3(1.901-5.71)	3.5(1.72-6.94)	.000*
	Single	27(61.4%)	17(38.6%)	3.3(1.53-7.09)	1.9(.49-8.08)	0.341
	Widowed	16(27.6%)	42(72.4%)	.8(.38-1.67)	.7(.27-1.78)	0.445
	Divorced	26(32.5%)	54(67.5%)	1	1	
Educational status	Illiterate	28(36.4%)	49(63.6%)	.4(.29-.63)	.98(.43-2.25)	0.973
	Read and write	28(48.3%)	30(51.7%)	.7(.47-1.06)	2(.83-5.11)	0.122
	Primary school	53(52%)	49(48%)	.8(.59-1.15)	1.1(.53-2.29)	0.798
	Secondary school and above	79(56.8%)	60(43.2%)	1	1	
Income	<599	27(45%)	33(55%)	.6(.39-.92)	.96(.38-2.45)	0.936
	600-1499	60(44.4%)	75(55.6%)	.6(.42-.83)	.7(.32-1.45)	0.322
	1500-2399	43(53.8%)	37(46.2%)	.8(.59-1.27)	1.03(.44-2.39)	0.945
	2400 and above	58(57.4%)	43(42.6%)	1	1	
CD4 of respondent	<350	38(58.5%)	27(41.5%)	1.5(1.06-2.15)	1.6(.76-3.23)	.
	>=350	150(48.2%)	161(51.8%)	1	1	
Pregnant after you had known your HIV status	Yes	105(54.7%)	87(45.3%)	1.9(1.45-2.59)	1.4(.747-2.60)	0.296
	No	53(38.4%)	85(61.6%)	1	1	
how many live child do have now	<2	72(67.9%)	34(32.1%)	3.4(2.49-4.73)	5.2(2.68 -10.1)	.000*
	≥2	85(38.1%)	138(61.9%)	1	1	
awareness on PMTCT services	Yes	167(58.%)	121(42%)	6(3.89-8.64)	7.9(3.41-18.22)	.000*
	No	15(19.2%)	63(80.8%)	1	1	
	Yes	81(43.1%)	107(56.9%)	1	1	
Currently contra used	No	107(56.9%)	81(43.1%)	1.7(1.34-2.28)	3.1(1.74-5.70)	.000*

NB:- COR =crude odds ratio, AOR =adjusted odds ratio, reference 1

Table 5: Multivariable logistic regression analysis of determinants of fertility desire among reproductive HIV positive women in the selected Public hospitals of North Shewa zone, Amhara, Ethiopia 2022

DISCUSSION

This study aimed to identify determinant of fertility desire among HIV positive women who attend ART clinic of selected public hospitals in north shewa, Ethiopia from June 6 to July 24, 2022.

Marital status, current child, awareness PMTCT and current contraceptive use were found to be determinant of fertility desire.

The odds of being married were 3.5 times more likely to have fertility desire than mothers who were divorced. This study is consistence with facility base case control study conducted in Afar [6] which revealed that, the odd of being married were 5.5 times more likely to have fertility desire than the women who were un married and facility based cross sectional study conducted in AmhararegionalReferralHospitals[12], Hosannatown[13],Fitche Hospital[14],Uganda[15], which revealed that women who were married had higher odds to fertility desire than women who were divorced. This might be due to factor that better opportunity to discuss fertility related issue among couples and participants believe that the women with HIV positive can gave birth HIV free child and they want replace themselves and the women might get support from her husband at any time.

Being married created sense of security and reliable support to raise children. In Ethiopian society having children is highly valued and getting respectable in the society. In contrast, cross sectional study conducted in Addis Ababa show that being single women positive associated with fertility desire [16].This might be due to socio demographic difference, difference in study design, study period and sampling size.

Women who have fewer children 5 times higher odds to have fertility desire than women who had two or more children.

This finding is in line with cross sectional study conducted in Awi zone [12], Addis Ababa[16], Felege Hiwot Referral Hospital[17], South Africa (Cape town)[18], Uganda[19],which shown that women who had fewer child higher odds to have fertility desire as compared to women who had three or more children. This might be due to those who did not have a child need to replace themselves and as in the culture of developing; they need someone to taker of them when they become old age and weak. Those who had no children had strong desire for parenthood and desire children to achieve their social status by being a father or a mother.

Women who had awareness on PMTCT were 8 times higher odds to have fertility desire than women who did not have awareness on PMTCT to want to have a child. This study is in accord with a cross sectional study done in Hosanna town [13], which shown that women who had awareness on PMTCT had higher odds to have fertility desire than women who had not. This might be due to those who had awareness on PMTCT had service counseling when receiving follow up to reduce the likely hood of transmission to the new born and having good information by their health care giver.

Regarding contraceptive used, the odds fertility desire among women, who had not used contraceptive were three times higher compared to those who were used contraceptive. This study is consistent with a facility based case control study conducted in Jimma University Medical Center[4],which revealed that , the odd of fertility desire among the women who had not used family planning were two times higher as compared to those women living with HIV who had used family planning and cross sectional study conducted in Hosanna town[13] and Northern Nigeria[20], which revealed that women who had no used contraceptive higher odds to have fertility desire than those who used. This might be due to the fact that they have not attained their desired family size

and unmet need of family planning service. The fact that contraceptive use is significant for HIV positive clients to space and limit births. In contrast, cross sectional study conducted in Finoteselam [21] showed that having not used contraceptive negatively associated with fertility desire. The possible reason for discrepancy might be due to poor economic status having less fertility desire.

Conclusion

This study revealed that married women, having fewer children, awareness about Prevention mother to child transmission (PMTCT) and currently not using contraceptive were the independent determinants of fertility desire among HIV positive reproductive age women who attend ART clinic of public hospitals in North Shewa, Amhara Region, Ethiopia, 2022.

Recommendations

As this study has identified different determinant factors of fertility desire, the problem may be alleviated by integrated collaboration of different stake holders.

For health care professional, who work with HIV positive women in HIV care and treatment units, can play a crucial role to provide accurate, nonjudgmental reproductive health information and appropriate counseling that includes safer sex practices and methods to decrease the risk of HIV transmission. For researcher further study including men and qualitative methods can help deepen understanding fertility desire among women living with HIV on ART follow up.

Consent for Publication: not applicable.

• Availability of Data and Material: the datasets during and/or analyzed during the current study is available from the corresponding author on reasonable request.

• Financial Disclosure: Wollo University was funded the research. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

• Competing interest: The authors declare that they have no competing interest.

• Author's contribution

BZ: Consult the research proposal, conducted the research, and analysis and wrote the manuscript.

KD: Involved in the write up of the methodology of proposal, did data entry and research work.

Acknowledgment

We would likely to thank Debre berhan University, Asrat woldyes of health science campaus for giving this opportunity and support to conduct this research. Last but not least our appreciation goes to reproductive age women study participants.

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