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## The relationship between viral load status and fertility intention of HIV-positive women of reproductive ages in Addis Ababa: A hospital based study

Hirut Alemayehu<sup>1\*</sup>; Chalachew Getahun<sup>2</sup>

<sup>1</sup>Six Selected Public Hospitals, Department of ART, Addis Ababa, Ethiopia.

<sup>2</sup>Center for Population Studies, College of Development Studies, Addis Ababa University, Sidist Kilo Campus 1176, Ethiopia.

\*Corresponding Author: **Hirut Alemayehu**

Six Selected Public Hospitals, Department of ART,  
Addis Ababa, Ethiopia.

Email: hirru.alem@gmail.com

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### Abstract

**Background:** People living with HIV/AIDS (PLHIV), like everyone else want and intend to have children. Although the fertility impact of HIV is already well acknowledged, women's fertility behaviors could also largely be influenced by the level of their viral loads. Being sexually active and not taking contraception, women who never became pregnant had greater HIV viral loads.

**Objectives:** To assess the relationship between viral load status and fertility intentions of HIV positive women of reproductive ages in six selected public health hospitals, in Addis Ababa, Ethiopia.

**Methods:** A sample size of 432 reproductive ages HIV-positive women who got ART service at the selected public hospitals were interviewed. A binary logistic regression analysis was used to assess the relationship between viral load status and fertility intention.

**Results:** Of the total respondents, 196(45.4%) had intention to give birth within the coming 3 years, while the remaining 236(54.6) had no intention. Fertility intention was 2.71 times higher among women of ages 25-34 compared to age >34 years (95% CI: 1.005-7.339). Moreover, married women had fertility intention 6.06 times higher (95% CI: 1.12-32.7) compared to widowed women. Further, fertility was higher among women who knew their partner HIV status. Intention was 5.63 times higher (95% CI: 0.846-37.484) and 19.28 times higher (95% CI: 2.533-148.326) among women who knew their partner HIV status to be positive and negative respectively, compared to those with no knowledge of their HIV status. On the other hand, fertility intention decreased for women with no formal education and primary by 95.1 (95% CI: 0.010-0.252) and 83.9 (95% CI: 0.039-0.662), respectively compared to secondary and above level of education. For women who believed they have enough number of children the odds of fertility intention decreased by 99.7 (95% CI: 0.001-0.011). Further, the odds of fertility intention of women who made decision on pregnancy or contraceptive use alone was lower by 71.5% compared to those who jointly made the decision.

**Conclusion and recommendation:** A high proportion of HIV positive reproductive ages women desire to conceive. However, the finding witnessed that there was no significant association between viral load sta-

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tus and fertility intention. Beside that there was no fertility differentials between women who have undetectable and detectable viral loads. The findings strongly implicate the need for strengthening and proper implementation of the various health policies and guidelines pertaining to HIV/AIDS for increased uptake of reproduction health services by PLHIV women. The government and other stakeholders should reach young women including sexually active with HIV prevention, testing and treatment services.

**Keywords:** Fertility intention; Viral loads; Undetectable/detectable; Durable viral suppression.

**Abbreviations:** AIDS: Acquired immune deficiency syndrome; ART: Antiretroviral therapy; CD4: Count cluster of differentiation 4 count; E-PMTCT: Elimination of mother-to-child transmission; HIV: Human immune deficiency virus; PMTCT: Mother-to-child transmission; PLHIV: People Living with HIV/AIDS; PMTCT: Prevention of mother-to-child Transmission; UVL: Undetectable viral loads; UNAIDS: Joint united nations program on HIV/AIDS; VLs: Viral loads.

## Background

People living with HIV/AIDS, like everyone else, want and intend to have children [1]. Women's desire to have more children is hampered by their HIV status [2]. Further the impacts of HIV on fertility is highest among women who have AIDS-related symptoms, have been infected for a longer period of time and are immune suppressed or have high viral loads [3]. Despite being sexually active and not taking contraception, women who never became pregnant had greater HIV viral loads than those who did get pregnant and gave birth to a live baby [4]. The desire for fertility among PLHIV women may put them at risk of HIV vertical transmission and non-virally suppressed PLHIVs are at a high risk of infection [5].

People living with HIV who take antiretroviral medications, regular medical visit and have consistent Undetectable Viral Loads (UVLs) for at least six months are less likely to transmit HIV sexually and are less likely to transmit HIV to their babies during pregnancy and delivery [6,7].

One-third of patients living with HIV do not begin therapy until they are so sick that their CD4 count falls below 200 cells/mm<sup>3</sup> and they are diagnosed with AIDS [8]. Because roughly 3.5 million out of 25.4 million people living with HIV (PLHIV) on treatment are virally non-suppressed. Immune destruction, disease progression with a higher risk of mortality, and an increased chance of HIV transmission are all outcomes of continuous high viral load [9].

Viral loads larger than 31,623 copies/mL is linked with lower fertility. This is important in HIV-positive communities because increased viral load can bias antenatal surveillance-based estimates of HIV prevalence in reproductive-aged women. Furthermore, antiretroviral medication may improve the likelihood of HIV-infected women having live babies during after pregnancies [4].

In fact, if PLHIVs are on ART and verified virally suppressed

with maintained high levels of adherence over the long term undetectable viral loads reduces the risk of HIV transmission between partners and from mother-to-child to zero [10]. Vertical transmission can be reduced by ensuring HIV positive women have the ability to make decisions about their fertility [11].

Absence of relevant and timely studies in the subject seems to have hindered relevant policies and practices on increasing ART adherence, and hence suppress viral load status, among significant proportion of PLHIV. Further, increased evidences would enable policy makers and the public to understand the benefit of viral load suppression and its impact on fertility dynamics. Thus this study aims to assess the relationship between viral load status and fertility intentions of HIV positive reproductive ages women in selected public hospitals.

## Methods and materials

### Data sources

Primary data were collected through individual survey questionnaire. Secondary data were obtained from health facilities' ART registers, client cards and smart care electronic database. Other facility-specific information was obtained from the institutions concerned.

### Sampling design

As indicated above, the main focus of the study is on fertility intention of HIV-positive reproductive age's women having viral load status. Hence it was important to pick the most suitable indicator for sampling purpose. While indicators varies, previous hospital-based studies commonly used viral load status as a good indicator. Thus, using the proportion of women having fertility intention with undetectable viral load ( $p_1=0.78$ ) and those with detectable viral load status ( $p_2=0.69$ ), the minimum sample size was calculated using the formula for two population proportions

$$n = (Z\alpha/2 + Z\beta)^2 \times (p_1(1-p_1) + p_2(1-p_2)) / (p_1 - p_2)^2$$

Replacing the components of the formula with values, the sample size was computed as:

$$n = \frac{(1.96 + 0.84)2 \times ((0.78(1-0.78) + (1-0.69))}{(0.78 - 0.69)^2} = 373 \text{ women}$$

This is adjusted by finite population formula

$$n' = \frac{1}{(1/n + 1/N)}$$

$$= \frac{1}{(1/373 + 1/7314)} = 355 \text{ women}$$

Adding 20% non-response rate, the sample size yields a total of 433 women who were interviewed at six hospitals (Zewditu Memorial Hospital, Yekatit 12 Hospital, Ras Desta Hospital, Menilik II Hospital, Ghandi Hospital and Trunesh Beijing Hospital). The study participants were selected using a systematic random sampling method. Twenty one case managers and adherence supporters participated in the data collection after receiving intensive training.

### Measure of outcome and exposure variables

The outcome variable was fertility intention. It was measured by binary response (yes/no) on intention to fertility.

For this analysis, explanatory variables were socio demographic characteristics (age: Below 24, 25-34 and above 34; marital status: Never-married, married; separated or divorced and widowed; education: No formal education, primary, secondary and above secondary; occupation: House wife, daily laborer, merchant, government employee, private business and other; religion: Orthodox Christian, Muslim and Protestant; and average monthly income); number of alive children: No child, one child, two children and above two children; knowledge/awareness to VL: Yes/no; children HIV status: Positive result; negative result and not have children; partner's HIV status: Positive result, negative result do not have result and not have partner; last pregnancy outcome: Live birth, dead and not have a child; ART initiation and duration:  $\leq 3$  years/  $>3$  years; ART adherence: Good/poor; disclosure status: Disclosed the result/not disclosed the result; viral load status: Undetectable/detectable; family planning utilization: yes/no and decision on pregnancy and contraceptive use I alone, jointly and others.

### Statistical analysis

The collected data were cleaned, checked for completeness, compiled and entered into SPSS version 26. Simple descriptive statistics such as frequency table were used to report the socio-demographic profiles, fertility related characteristics and HIV viral load status.

Both bivariate and multivariable logistic regression was performed to identify the effects of each independent variable on fertility intention. Those variables with P-value  $< 0.25$  in the bivariate analysis were considered for further analysis in the multivariable logistic regression analysis. Multi-collinearity among the independent variables was checked using correlation matrix. An adjusted odds ratio with a 95% confidence interval along with the coefficients and associated alpha values was used to see the strength of association between independent variables and the outcome variable. A p-value  $< 0.05$  was used to declare significance level.

## Results

Table 1 displays the socio-demographic characteristics of the study participants. Majority (75.5 percent), PLHIV women were above the age of 34, 20.1 percent in the middle age of 25-34 and 4.4 percent below 24 years of age. 73.6 percent married while others 6.9 percent single, 11.6 percent separated/divorced and 7.9 percent widowed. 19.4 percent respondents had no formal education, the majority had primary, secondary and above secondary level 33.3 percent, 32.4 percent, and 14.8 percent respectively. Majority of respondents (62.5 percent), were employed and 37.5 percent unemployed. House wives 33.85 percent, 22.0 percent government employee, 28.5 percent engaged in private business. Three fourth of the respondents (76.9 percent) were Orthodox Christians. With regards to the number children respondents have, 20.4, 32.4, 26.9 and 20.4 percent had no child, one child, two and more children, respectively. A total of 432 respondents (45.4 percent) had intention to have a child and the rest (54.6 percent) had not intentions in the coming 3 years. The average monthly income of respondents was 3,383.23 ETB with standard deviation of 2,531.338.

**Table 1:** Socio-demographic characteristics of respondents, Addis Ababa, six public hospitals (n=432).

Characteristics	n	(%)
<b>Age of the respondent</b>		
Below 24	19	4.4
25-34	87	20.1
Above 34	326	75.5
<b>Marital status of the respondent</b>		
Never-married	30	6.9
Married	318	73.6
Separated or divorced	50	11.6
Widowed	34	7.9
<b>Educational level of the respondent</b>		
No formal education	84	19.4
Primary	144	33.3
Secondary	140	32.4
Above secondary	64	14.8
<b>Employment status of the respondent</b>		
Employed	270	62.5
Not employed	162	37.5
<b>Occupation of the respondent</b>		
House wife	146	33.8
Daily laborer	19	4.4
Merchant	32	7.4
Government employee	95	22.0
Private business	123	28.5
Other	17	3.9
<b>Religion status of the respondent (n=430)</b>		
Orthodox Christian	332	76.9
Muslim	42	9.7
Protestant	56	13.0
<b>Number of children of the respondent</b>		
No child	88	20.4
One child	140	32.4
Two children	116	26.9
Above two children	88	20.4

<b>Intention to have a child</b>		
Yes	196	45.4
No	236	54.6
<b>Average monthly income of the respondent</b>		
Mean(SD)	3383.23(2531.338)	

**Table 2:** Results of bivariable logistic regression (unadjusted) for the relationship between viral load status and fertility intention, Addis Ababa, six Public Hospitals (n=432).

Characteristics	COR	95% CI		P-value
		Lower	Upper	
<b>Age of the respondent</b>				
Below 25	1.357	0.537	3.430	0.519
25-34	2.865	1.747	4.697	<b>0.000*</b>
Above 34 <sup>RC</sup>	-	-	-	-
<b>Marital status of the respondent</b>				
Never-married	6.103	1.952	19.075	<b>0.002*</b>
Married	4.667	1.881	11.579	<b>0.001*</b>
Separated or divorced	1.815	0.619	5.325	0.278
Widowed <sup>RC</sup>	-	-	-	-
<b>Educational level of respondents</b>				
No formal education	0.465	0.239	0.905	<b>0.024*</b>
Primary	0.706	0.391	1.274	<b>0.248*</b>
Secondary	0.857	0.474	1.550	0.611
Above secondary <sup>RC</sup>	-	-	-	-
<b>Employment status of the respondents</b>				
Employed	1.062	0.718	1.570	0.765
Not Employed <sup>RC</sup>	-	-	-	-
<b>Occupation of the respondents</b>				
House wife	0.578	0.208	1.601	0.291
Daily laborer	0.408	0.107	1.563	<b>0.191*</b>
Merchant	1.540	0.454	5.223	0.488
Government employee	0.447	0.456	1.276	<b>0.132*</b>
Private business	0.548	0.196	1.534	0.252
Unemployed <sup>RC</sup>	-	-	-	-
<b>Religion status of the respondents</b>				
Orthodox Christian	0.873	0.495	1.541	0.640
Muslim	1.875	0.830	4.234	<b>0.130*</b>
Other <sup>RC</sup>	-	-	-	-
<b>Number of children of the respondent</b>				
No child	11.803	5.794	24.043	<b>0.000*</b>
One child	5.569	2.977	10.416	<b>0.000*</b>
Two child	1.732	0.892	3.361	<b>0.105*</b>
Above two children <sup>RC</sup>	-	-	-	-
<b>The number of children I have is enough for me; I don't need more</b>				
Yes	0.008	0.004	0.020	<b>0.000*</b>
No <sup>RC</sup>	-	-	-	-
<b>Last pregnancy outcome of the respondent</b>				
Live birth	0.189	0.110	0.326	<b>0.000*</b>
Dead	0.593	0.228	1.539	<b>0.283</b>
Not have a child <sup>RC</sup>	-	-	-	-
<b>Decision on pregnancy/contraceptive use of the respondent</b>				
I alone	0.360	0.176	0.733	<b>0.005*</b>
Jointly	0.638	0.329	1.240	<b>0.185*</b>
Others <sup>RC</sup>	-	-	-	-

<b>Contraceptive use of the respondent</b>				
Yes	1.145	0.784	1.674	0.483
No <sup>RC</sup>	-	-	-	-
<b>Duration on ART (years) of the respondent</b>				
≤3 years	1.407	0.791	2.503	<b>0.246*</b>
>3 years <sup>RC</sup>	-	-	-	-
<b>ART adherence of the respondent</b>				
Good	1.224	0.724	2.070	0.450
Poor <sup>RC</sup>	-	-	-	-
<b>HIV status disclosure of the respondent</b>				
Disclosed the result	0.748	0.448	1.249	0.267
Not disclosed the result <sup>RC</sup>	-	-	-	-
<b>Viral load status of the respondent</b>				
Undetectable level	0.844	0.577	1.233	0.380
Detectable level <sup>RC</sup>	-	-	-	-
<b>Partner HIV status</b>				
Positive result	0.728	0.341	1.553	0.411
Negative result	1.656	0.715	3.834	<b>0.239*</b>
Do not know the result	0.500	0.206	1.214	<b>0.126*</b>
No partner <sup>RC</sup>	-	-	-	-
<b>Children HIV status</b>				
Positive result	0.458	0.209	1.003	<b>0.051*</b>
Negative result	0.181	0.107	0.307	<b>0.000*</b>
Do not have children <sup>RC</sup>	-	-	-	-
<b>Awareness/knowledge to viral loads of the respondent</b>				
Yes	1.396	0.813	2.396	<b>0.226*</b>
No <sup>RC</sup>	-	-	-	-
<b>Average monthly income of the household</b>	0.831	0.687	1.004	<b>0.055*</b>

RC = Reference category

\* = (P≤0.25) significant

Table 2 presents the result of the bivariate logistic regression for the relationship between viral load status and fertility intention. It was noted that age of the respondents, marital status, educational level, occupation of the respondents, religion, number of children, the number of children I have is enough for me; I don't need more, last pregnancy outcome, decision on pregnancy/contraceptive use, duration on ART (years), partner HIV result, children HIV status, awareness/knowledge to viral load and average monthly income of the household had significant bivariate association with the outcome variable (p≤0.25).

**Table 3:** Results of bivariable logistic regression (unadjusted) for the relationship between viral load status and fertility intention, Addis Ababa, six Public Hospitals (n=432).

Characteristics	Fertility intention		COR	P-value	AOR	95% CI		P-value
	Yes	No				Lower	Upper	
<b>Viral load status of the respondent</b>								
Undetectable level	93	122	1		0.949	0.453	1.991	0.890
Detectable level	103	114	0.844	0.380	1			
<b>Age of the respondent</b>								
Below 24	9	10	1		0.253	1.061	7.369	<b>0.136*</b>
25-34	57	30	1.357	0.519	2.716	1.005	7.339	0.049
Above 34 <sup>RC</sup>	130	196	2.865	<b>0.000**</b>	1			
<b>Marital status of the respondent</b>								
Never-married	17	13	1		6.078	0.537	68.788	0.145
Married	159	159	6.103	<b>0.002**</b>	6.066	1.124	32.729	<b>0.036*</b>
Separated or divorced	14	36	4.667	<b>0.001**</b>	1.837	0.279	12.078	0.527
Widowed <sup>RC</sup>	6	28	1.815	0.278	1			
<b>Educational level of the respondent</b>								
No formal education	29	55	1		0.049	0.010	0.252	<b>0.000*</b>
Primary	64	80	0.465	<b>0.024*</b>	0.161	0.039	0.662	<b>0.011*</b>
Secondary	69	71	0.706	<b>0.248*</b>	0.366	0.098	1.371	0.136
Above secondary <sup>RC</sup>	34	30	0.857	0.611	1			
<b>Occupation of respondent</b>								
House wife	66	80	1		1.274	0.170	9.525	0.814
Daily laborer	7	12	0.578	0.291	0.331	0.035	3.090	0.332
Merchant	22	10	0.408	<b>0.191*</b>	6.424	0.540	76.437	0.141
Government Employee	37	58	1.540	0.488	0.970	0.125	7.523	0.976
Private business	54	69	0.447	<b>0.132*</b>	0.672	0.102	4.429	0.679
Other <sup>RC</sup>	10	7	0.548	0.252	1			
<b>Religion status of the respondent</b>								
Orthodox Christian	143	189	1		0.314	0.090	1.097	0.070
Muslim	26	16	0.873	0.640	1.384	0.206	9.313	0.738
Protestant <sup>RC</sup>	26	30	1.875	<b>0.130</b>	1			
<b>Number of children of the respondent</b>								
No child	65	23	1		2.752	0.602	12.574	0.192
One child	80	60	11.803	<b>0.000**</b>	2.147	0.574	8.026	0.256
Two child	34	82	5.569	<b>0.000**</b>	1.037	0.251	4.276	0.960
Above two children <sup>RC</sup>	17	71	1.732	<b>0.105*</b>	1			
<b>The number of children I have is enough for me; I don't need more</b>								
Yes	6	186	1		0.003	0.001	0.011	<b>0.000**</b>
No <sup>RC</sup>	190	50	0.008	<b>0.000**</b>				
<b>Decision on pregnancy/contraceptive use of the respondent</b>								
I alone	46	87	1		0.285	0.078	1.039	<b>0.057</b>
Jointly	123	131	0.360	<b>0.005**</b>	0.351	0.083	1.479	0.154
Others <sup>RC</sup>	25	17	0.638	<b>0.185*</b>	1			
<b>Duration on ART (years)</b>								
≤3 years	28	25	1		1.248	0.388	4.019	0.710
>3 years <sup>RC</sup>	168	211	1.407	<b>0.246*</b>	1			
<b>Partner HIV status</b>								
Positive result	107	147	1		5.631	0.846	37.484	0.074
Negative result	53	32	0.728	0.411	19.385	2.533	148.326	<b>0.004*</b>
Do not know the result	21	42	1.656	<b>0.239*</b>	4.869	0.740	32.030	0.100
Not have partner <sup>RC</sup>	15	15	0.500	<b>0.126*</b>	1			
<b>Awareness/knowledge to viral loads of the respondent</b>								
Yes	171	196	1		0.784	0.273	2.248	0.650
No <sup>RC</sup>	25	40	1.396	<b>0.226*</b>	1			

RC=Reference category

\* = (P<0.05) significant

\*\* = (P<0.01) significant

Table 3 presents the results of multivariable logistic regression analysis for the relationship between viral load status and fertility intentions. It is seen that, the likelihood of having fertility intention was 2.71 times higher among women of age 25-34 compared to the reference category (95% CI: 1.005-7.339). Married women were 6.06 times more likely to have fertility intention compared to widowed (95% CI: 1.12-32.7). The result shows inverse association between educational status and fertility intention of the respondents. The chance of having fertility intention decreases for women with no formal education and primary by 95.1% and 83.9%, respectively (95% CI: 0.010-0.252 & AOR=0.161; 95% CI: 0.039-0.662) compared to those with secondary and above level of education. The likelihood of having fertility intention significantly decreased by 99.7% (AOR=0.003; 95% CI: 0.001-0.011) for women who believed they already have enough number of children. The likelihood of decision on pregnancy or contraceptive use significantly decreased by 71.5% (AOR=0.285; 95% CI: 0.078-1.039) for women who made decision alone. Women with partners having positive and negative results were 5.63 (AOR=5.631; 95% CI: 0.846-37.484) and 19.28 (AOR=19.385; 95% CI: 2.533-148.326) times more likely to have fertility intention, respectively, compared to those with no knowledge of their HIV status. There was no significant association between the viral load status of the respondent and fertility intention ( $P>0.05$ ).

## Discussion

This study has primarily sought to examine the relationship between viral load status and fertility intention of women of PLHIV on ART treatment in the reproductive age group, drawn from six hospitals of Addis Ababa. Of the total respondents 196 (45.4%) of them had fertility intention and the rest 236 (54.6%) had not fertility intention whether their viral load status is undetectable or detectable. The findings revealed that being HIV positive has no significant effect on one's desired to fertility. The fertility intention computed from the present study is higher compared to previous studies conducted in western Ethiopia which was found 42.1% having intention [12]. The figure is also comparable with systematic review and meta-analysis conducted in China (42.04%) [13] and in Rwanda (40.7%) [14].

The results of the multivariable logistic regression analysis showed significant association between age of the respondents and fertility intention. The findings of meta-analysis conducted in China showed that age of women was a key predictor of fertility intention. However, this study used different methodologies and population [14]. A case control study commissioned by Jimma University, Ethiopia, showed that most women aged 25-34 years had fertility desire [15]. Similar studies conducted in Tigray region, further witnessed that 52.8% in younger age had higher fertility desire compared to older women [16]. Perhaps it's time to start a new life and replace their children at this age. Women over 35 may already have children, which could diminish their enthusiasm in getting pregnant.

Interestingly, women with no formal education and primary level of education had lower likelihood to have fertility intention compared to those in secondary and above level. This could be mainly due to the fact that better educated people have increasingly greater access to information [13]. A systematic review and meta-analysis in Ethiopia showed that educated peoples have better decision making than individuals with no formal education. Another study conducted in Jimma, Ethiopia, reported strong significant association between educational

and fertility desire, suggesting that women who had no education were less likely to have fertility intentions compared to their counterparts [12]. It may be true that no educated mother can have well-organized knowledge about reproduction, and this may lead to anxiety and stigmatization of women who are HIV positive.

Partner HIV status significant with fertility intention the other study in the United State revealed that among sexually active women who desire a child in the future, 73% (67/92) reported a partner with a negative or unknown HIV status result [17]. The husband HIV status may be related to current practice furthermore, to avoid mother-to-child transmission; it may be helpful to know partner's HIV status.

In this study the characteristics the number of children I have is enough for me; I don't need more significant with fertility intention the women may have enough children no intention.

One of the key finding of the study is that viral load status had no significant association with fertility intention of the respondent. Put it differently, there were no significant difference in fertility intention between those having undetectable and detectable viral load status. The finding concurs with previous studies carried out in Canada which include that viral load status and other clinical indicators did not achieve statistical significance between women who intended to have children and those who did not [18]. This may be due to the possibility of intermittent changes in viral load status and other indicators.

While there could be some variations in the methodology used, the very few available evidences in Africa context suggest very weak or no association between knowledge of viral load status and fertility preferences. Given ART provision and viral load status determination is a recent phenomenon in Ethiopia, the extent to which a person's HIV status influences women's fertility desires is not well understood [19]. A systematic review conducted in Ethiopia indicated that initiating ART and improved health status didn't increase the fertility desire of PLHIV [20]. A longitudinal study conducted among 255 HIV-positive Kenyan women (between October 2012 and December 2015) clearly indicated that fertility desire was not associated with detectable viral load in the unadjusted model, or after adjusting for age and education level [21]. Cooper and her colleagues interviewed 60 HIV-positive men and women in Cape Town about their fertility desires and intentions and concluded that the desire to have children remained strong despite their infection and load status [22]. Studies in Africa generally found that the considerable cultural, economic and social importance of childbearing in most of sub-Saharan Africa, particularly in rural areas, are still driving forces for continued fertility regardless of HIV/AIDS status [23]. HIV-positive women continued to want more children [24]. A study conducted in Côte d'Ivoire reported that the desire to have children surpassed health concerns even among HIV-positive women who knew their HIV status [25].

## Limitation

This study relies on viral loads statuses amongst HIV-positive women which could lead to bias results in terms of the time to viral load status. The cross sectional design nature of the study, which uses a snapshot data on fertility intentions limit the ability of the study to examine casual association between the predictors and the outcome.

## Conclusion

A high proportion of HIV-positive reproductive age women desire to conceive. However, the finding witnessed that there was no significant association between viral load status and fertility intention. Beside that there were no fertility differentials between women who have undetectable and detectable viral loads. It is recommended to implicate the need for strengthening and proper implementation of the various health policies and guidelines pertaining to HIV/AIDS for increased uptake of reproduction health services by PLHIV women. The government and other stakeholders reached young women including sexually active with HIV prevention, testing and treatment services.

## Declarations

Ethics approval and consent to participate: Ethical clearance was obtained from the Institution Review Board of the University of Addis Ababa. Verbal informed consent was obtained from respondents before administration of the questionnaire.

**Consent for publication:** Not applicable.

**Availability of data and material:** Yes.

**Competing interest:** The authors declare no competing interest.

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