

Fertility Desire and Associated Factors among Women on Anti-Retroviral Therapy in the Lideta Sub-City Health Centers

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Abstract

This study examines fertility desires among women receiving antiretroviral therapy (ART) at Lideta Sub-City Health Centers in Addis Ababa, Ethiopia. A cross-sectional study was conducted with 397 women, achieving a response rate of 97.5%. Data was collected through structured interviews and analyzed using logistic regression to identify factors associated with fertility desire. The results showed that 76.6% of respondents desired fertility in the future, with relationship desire being associated with a lower likelihood of having fertility wishes. College-educated individuals over 55 (13.9%) were 10.24 times more likely to aspire to become parents than primary and uneducated individuals. Respondents preferred a time frame of three to four years. The average age of participants was 37.34 ± 7.20 years, with 43.1% aged 30–39 and 41.8% aged 40–49. Nearly half (49.4%) were married, and the majority (98.2%) lived in urban areas. Factors significantly associated with fertility desire included higher education, partner's desire for children, and preferred timing for live birth within 3-4 years. Married women were less likely to desire fertility. The findings suggest the need for targeted reproductive health counseling, partner involvement in family planning, and support tailored to women with higher educational backgrounds to effectively address their fertility aspirations. Interventions should focus on enhancing reproductive health counseling, involving partners in family planning, and providing targeted support to women with higher educational backgrounds.

Keywords: Fertility Desire; Antiretroviral Therapy (ART); Reproductive Health; Women of Reproductive Age; Sociodemographic Factors; Family Planning and HIV/AIDS

Introduction

HIV/AIDS infection remains a complicated public health issue with 1.5 million new cases of HIV infection and 37.7 million people living with the virus globally. In Sub-Saharan African countries, women of reproductive age account for 60% of all adult infections, and HIV/AIDS is a pandemic in Ethiopia, where the prevalence of HIV is 1.5% among adults (15-49 age) and 1.9% among women of reproductive age [1].

Fertility desire refers to a person's ambition to have additional children despite receiving an HIV diagnosis. Women living with HIV/AIDS (WLWHA) have the freedom to decide for themselves whether and when to have children and to act freely and willingly in relation to those decisions. In sub-Saharan Africa, HIV infection is associated with lower fertility and fertility desires due to both biological and social factors [2].

With increased access to and awareness of PMTCT programs, such as family planning, there is now greater support for HIV--positive women to become pregnant. Since the advent of free antiretroviral medication, there has been a 48% decrease in deaths from AIDS-related causes worldwide. As a result, ART use increases the resumption of fertility desire [3].

Antiretroviral therapy (ART) has allowed more HIV-positive women to live longer, healthier lives worldwide, but they also have to deal with some new and ongoing issues that affect their sexual and reproductive health and rights. A patient survey conducted by a publicly funded HIV clinic in the United States found that approximately one-third of respondents expressed fertility desires and that the initiation of antiretroviral therapy in HIV-positive women correlated with the desire to have a child [4].

The research gap in understanding fertility desires and associated factors among women receiving antiretroviral therapy (ART) in Ethiopia is significant, as previous studies have focused on HIV-positive women but often lack a focus on sociocultural and economic factors that impact them in urban settings like Lideta Sub-City, Addis Ababa. This highlights the need for targeted research to inform healthcare policies and interventions that support these women's reproductive aspiration.

Method and Material

Study Area and Period

This study was conducted in Lideta Sub-City, which is a district situated in the central-western area of Addis Ababa City, close to the center. Lideta Sub-City is one of the 11 sub-cities of Addis Ababa City, bordered to the north by Arada Sub-City, to the west by Kolfe Keranio Sub-City, to the east by Kerkos Sub-City, and to the south by Nefas Silk Lafeto Sub-City.

With ten Woredas, the sub-city has a total size of around 918.4 km². The sub-city has seven government health centers: Teklehaymanot Health Center, Lideta Health Center, Beletishachew Health Center, Dagim Hidase Health Center, Abinet Health Center, Jagma Kelo Health Center, and Hidasie Fire Health Center. As per the 2009 E.C. Census projection, the sub-city has a total population of 265,187 (127,290 male and 137, 897 female).

Over the last three years, there has been an incremental increase in the number of People Living with HIV/AIDS (PLWHA), both newly on ART and currently on ART. Specifically, there was an increase between EFY 2009 and EFY 2011 from 3057 to 3181 for those currently on ART and from 236 to 237 for those newly on ART. The proportion of pregnant women counseled and tested for the prevention of mother-to-child transmission (PMTCT) of HIV increased from 43% at the end of the financial year/EFY 2009 to 96% in EFY 2011[5].

Study Design

From November 2–30, 2023, a cross-sectional study based at a facility was conducted.

Source and Study Population

Source Population

All the women living with HIV/AIDS in the health centers in the Lideta Sub-city were the source population.

Study Population

All women with HIV/AIDS receiving ART from particular health centers in the Lideta Sub-city made up the study population.

Inclusion and Exclusion Criteria

Inclusion Criteria

Women of Reproductive Age: Women aged 15-49 years.

Receiving ART: Women who have been on antiretroviral therapy for any duration.

Regular Attendees: Women who regularly attend the Lideta Sub-City Health Centers for their ART.

Consent to Participate: Women who provided informed consent to participate in the study.

Exclusion Criteria

Non-Reproductive Age: Women younger than 15 years or older than 49 years.

Not on ART: Women who are not receiving antiretroviral therapy.

Irregular Attendees: Women who do not regularly attend the Lideta Sub-City Health Centers for their ART.

Lack of Consent: Women who did not provide informed consent to participate in the study.

Medical Inability: Women with severe medical or mental health conditions that prevent them from participating in the study or providing reliable responses.

Study Variables

Dependent variable: fertility desire

Independent Variables

Sociodemographic traits (age, residence income, marital/relationship status, education), number of children still living, partner's HIV status, and partner's desire for children were among them. Time since HIV diagnosis, HIV testing partner, consistent partner, type of ART medication, viral load, and WHO treatment stage

Operational Definition

HIV-positive women receiving ART care include all women living with HIV/AIDS who have initiated ART and have visited an ART unit at least once for chronic care [6].

Patients undergoing antireproductive therapy (ART) who planned to become parents in the future were considered fertile.

The use of a combination of HIV medications is known as anti-retroviral treatment. ART is a drug that lowers the body's level of HIV, lowers the risk of HIV transmission, stops HIV from progressing to AIDS, and strengthens the immune system [7].

Sample Size Determination

Using a single population proportion formula ($n = (Z\alpha/2)^2 p(1-p)/d^2$), the sample size for the proportion of fertility desire was calculated. Assuming a 95% confidence interval (CI), 5% margin of error, and 10% non-response rate, based on a survey conducted in the Amhara Region [8], the prevalence of fertility desire is assumed to be 40.3%.

Thus, the estimated sample size was 370, and the final sample size was 407 when a 10% non-response rate was added. The following assumptions were made to calculate the sample size for the factors associated with fertility desire: age, marital status, respondent residence, number of current living children, fertility discussion with ART provider, and duration on ART with a 95% confidence interval were significant variables associated with fertility desire. However, all of the factors' computed sample sizes were discovered to be smaller than those for the percentage of desires for fertility. Consequently, 407 was the predicted sample size for this investigation.

Sampling Procedure/Technique

Overall, 11,492 people lived in the Lideta sub-city. Teklehaymanot Health Center, Lideta Health Center, Beletishachew Health Center, Dagim Hidase Health Center, Abinet Health Center, Jagma Kelo Health Center, and Hidasie Fire Health Center were the seven sub-city health centers that had been providing the ART service; of these, fifty-seven percent (57%) of the four health centers were selected using a basic random sampling technique. Each health center's study participant count was calculated by dividing the total number of HIV-positive women registered there by the size of the population.

The method of systematic random sampling was applied to select the participants. Based on the flow pattern of women visiting ART clinics over the preceding six months, the total number of women in the reproductive age range (15–49 years) was approximated. Every participant woman who visited the ART clinics self-reported in accordance with the K interval after the first number was randomly selected. The ART clinic sampling interval (K) was calculated at each chosen health center by dividing the total number of women attending the clinic (n) by the sample size set for each health facility.

Data Collection Tools and Data Quality Assurance

To gather information or data from the respondents regarding sociodemographic characteristics, HIV/clinical factors, and fertility desire factors for women on ART, a self-reported administered structured questionnaire was created. A primary investigator taught two data collectors two health officers and one BSC nurse on the advantages of the study and the questionnaire's items over the course of 2 days. Pretesting on 5% of the sample size was performed in the Kerkos Sub-city health centers (Woredas 11 health center), and adjustments and revisions were made as necessary.

Questions were revised on the basis of the pretest results to guarantee word quality, logical flow, and skip patterns. The data-gathering procedure was constantly monitored by the investigators and supervisors during the entire duration of data collection. The surveys were first written in English and then translated into Amharic using the participant's mother tongue. Lan-

guage experts then checked both translations to ensure that the questionnaires were consistent. After ensuring that the data gathered was accurate, all essential corrections were made, including cleaning, coding, and editing.

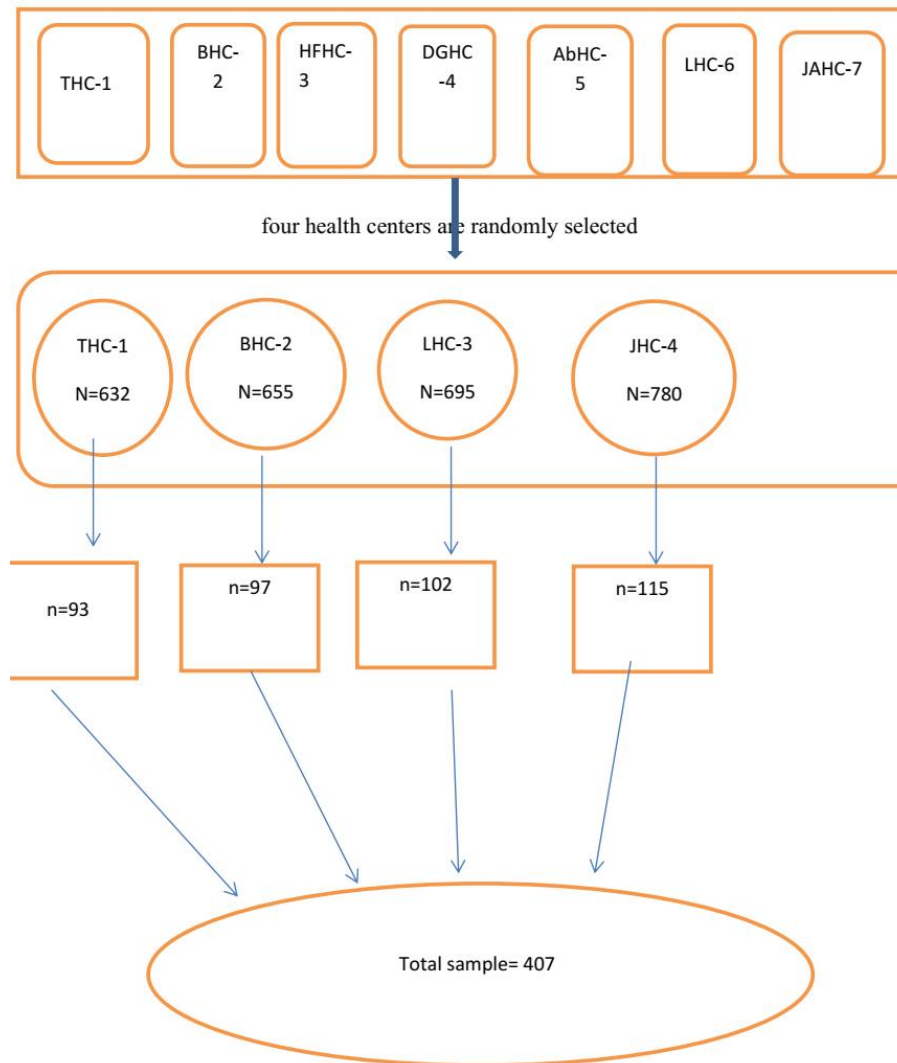


Figure 1: Diagram showing the sampling process for factors related to fertility desire and related variables among women receiving ART in the Lideta Sub-city, Addis Ababa, Ethiopia, in 2023.

Data Analysis

After being cleaned, the gathered data were imported into the Epi 7 data version 4.6.0.2 program and exported to SPSS version 25 for further examination. Frequency tables, figures, and a summary measure based on the mean and standard deviation were used to convey descriptive data. Bivariate and multivariate logistic regression analyses were performed to determine the factors linked to the desire for fertility. To identify the factors influencing fertility desire, multivariate logistic regression analysis considered all variables that had p -values ≤ 0.25 during bivariate analysis. The association between the dependent and independent variables was ascertained using bivariate analysis. The Hosmer and Lomeshow goodness of fit test was used to assess the model's fitness, and a large P -value (p -value larger than 0.05) indicated good fitness. AOR and 95% CI were computed in multivariate analysis to identify factors associated with fertility desire, using a $p < 0.05$ threshold for statistical significance. The existence and direction of the relationship between the independent variable and fertility desire were determined using the crude odds ratio (COR) with 95% confidence intervals. Text, tables, and graphs were used in the presentation and summary of the findings.

Dissemination of the Findings

Following the completion of the study, publishers/journals to be published, health centers, Kea Med College of Health Sciences, Lideta Sub-city Health Office, and other stakeholders were informed or given access to the results.

Ethical Clearance

The College Review Board of KeaMede, College of Health Sciences, approved the study. A permission letter was obtained from the health Bureau and sent to the Lideta Sub-city Health Office. The letter detailed the purpose and contents of the study and included instructions for obtaining oral consent from each respondent before completion of the self-report. In addition, the information gathered was used exclusively for research, and all participants were kept anonymous.

Result

Sociodemographic Characteristics of the Study Participants

A response rate of 97.5% was achieved by 397 out of the 407 estimated eligible reproductive-age women on ART who participated in the trial. The participants' average age was 37.34 ± 7.20 SD years. Thirty-to forty-nine percent (171) of the study participants fell into this age bracket. A total of 166 individuals (41.8%), or less than one-third, were in the 40–49 age range. In terms of the participants' marital status, 390 (98.2%) of the resident women lived in the town, and almost 49.6% of 196 participants were married. Regarding the educational background of the research participants, 135 (34%) had completed secondary school, and 99 (24.9%) did not have a job. Just 242 women (61.0%) of reproductive age had monthly incomes between 1000 and 5000 ETB. (Table 1).

Table 1: Sociodemographic features of women of reproductive age undergoing ART in lideta health institutions under the city administration of Addis Ababa, Ethiopia.2023

Variable	categories'	Frequency (n =397)	Valid percentage
Age	15-29	60	15.1
	30-39	171	43.1
	40-49	166	41.8
Mean age (\pm SD)	37.34(\pm 7.204)		
Marital status	married	196	49.4
	Single	72	18.1
	Divorced	60	15.1
	Widowed	69	17.4
Residence	Rural	7	1.8
	Town	390	98.2
Education	No education	78	19.6
	Primary	129	32.5
	Secondary	135	34
	College and above	55	13.9
Occupation	unemployment	99	24.9

	housewife	79	19.9
	merchant	60	15.1
	Daily laborer	66	16.6
	Government employ	93	23.4
Family Income	≤1000 ETB	19	4.1
	1000–5000 ETB	242	61
	>5000ETB	50	12.6
	Did not respond to the question for such questions	86	21.6

Reproductive Characteristics of the Study Participants

Of the 397 participants in total, 300 (75.6%) were of reproductive age and had previously given birth to children; 97 (24.44%) were childless, and 30 (7.6%) of the respondents carried HIV-positive children. Only 9 (2.3%) of the youngsters with HIV lived; the remaining 388 (96.7%) were unaware that the virus was present. In this survey, 220 participants (55.4%) did not know about live births in the future, whereas 174 people (43.8%) positively responded that they knew 3 (.8%) never had children in the future. Of all the participants, 233 (58.7%) had no need for children in the future for various reasons, 61 (15.5%) had needed two children, and 80 (20.2%) had needed one child in the future. 177 people (46.6%) who were 1-2 years old made the decision to give live birth. 177 people (46.6%) had given birth without a reason, while 62 people (15.6%) needed to give birth but experienced difficulties with their source of income. 9(2.3%) of the participants did not want to have children, whereas 149 (37.5%) did. In the instance of HIV transmission from mother to child, 376 cases (94.7%) were identified, and 213 cases (53.7%) occurred during pregnancy. With medical intervention to stop HIV transmission from mother to child, 390 (98.2%) would have been safeguarded. There were 131 (33%) recognized cases of HIV transmission from mother to child; however, 200 (50.4%) cases were unknown. 388 respondents, or 85.5%, said they had learned about HIV transmission from a different source. Ultimately, 234 individuals (81.2%) who had received an HIV diagnosis more than 24 months ago actively participated in the survey (Table 2).

Table 2: Reproductive features of women of reproductive age receiving antiretroviral therapy (ART) at Lideta city health clinics in Addis Ababa, Ethiopia, in 2023

Variable		Frequency	Percentage
Number of Children	Yes	300	75.6
	no	97	24.4
Children living with HIV	Yes	30	7.6
	no	367	92.4
Number of children with HIV	Yes	9	2.3
	no	388	97.7
Live birth in the future	Yes	174	43.8
	no	220	55.4
	I didn't know	3	.8
Number of children in the future	one	80	20.2
	two	61	15.1
	three	23	5.8

	I didn't know	233	58.7
Time prefers giving live birth	Less than a year	45	11.3
	1-2 years	73	18.4
	3-4 years	44	11.1
	5-6 years	12	3
	More than 6 years	2	.5
	I Dint Know	221	55.7
reason not to give live birth	Childbearing may further compromise me	34	8.6
	Did not have adequate income to add another child	62	15.6
	Fear of mother-to-child HIV transmission risk.	39	9.8
	Have the desired number of children	85	21.4
	I Did not Know	177	44.6
your partner wants to have a child	Yes	149	37.5
	no	108	27.2
	I didn't know	140	35.3
HIV transmission from mother to child	yes	376	94.7
	no	5	1.3
	I didn't know	16	4
How HIV is transmitted from mother to child	During delivery	71	17.9
	During pregnancy	213	53.7
	Through breastfeeding	96	24.2
	I didn't know	17	4.3
medical treatment to prevent HIV transitions from mother to child	Yes	390	98.2
	no	7	1.8
Risk of HIV transition from mother to child	Yes	131	33
	No	66	16.6
	I didn't know	200	50.4
Information on HIV transitions from mother to child	Healthcare provider	7	1.8
	Mass media	32	8.1
	From friends	14	3.5
	Home-based caregivers	6	1.5
	Other	338	85.1

medication provided to reduce mother-to-child HIV transitions	yes	384	96.7
	no	5	1.3
	I didn't know	8	2
HIV diagnosis in a month	≤ 24 months	64	16.5
	>24 month	324	81.2
	I did n't know	9	2.3

Clinical and Health Service Characteristics

334 (84.1%) of the study participants who were women of reproductive age who used ART took it for longer than 24 months. While 76(19.1%) of the participants had viral load counts greater than 50 copies, the bulk of subjects, 321(80.9%), had viral loads identified below 50 copies. 394 research participants (or 99.2%) reported an improvement in their health status after starting ART, 2 reported minimal deterioration, and 1 respondent (or.3%) reported no improvement at all. Of the total study participants, 170 (42.8%) had received help from a separate community, whereas 218 (54.9%) had not received any support from any community. 9 (or 2,3%) were unsure. The majority of participants, 228 (57.4%), were unaware of the supporting community, whereas 169 (42.6%) were aware of it (4.1%) for the government, 85 (21.4%) for non-government, and 80 (20.2%) for friends, family, and neighbors. Of the individuals involved, 295 (74.3%) had discussions with the ART provider counselor, 99 (24.9%) were unaware of the discussions, and 292 (73.6%) had issues covered by ART providers (Table3).

Table 3: Reproductive-age women receiving ART at a Lideta health facility: clinical and health care characteristics, Addis Ababa Municipal Administration, Ethiopia 2023

Variables	Number	Frequency	Percentage
Duration of ART (in months)	≤ 24 months	61	20.4
	>24 month	334	84.1
	I didn't know	2	.5
overall health condition after ART	improved	394	99.2
	Deteriorated	1	.3
	No change	2	.5
Viral load	<50 copies	321	80.9
	>50 copies	76	19.1
support from different communities	yes	170	42.8
	no	218	54.9
	I didn't know	9	2.3
where did you get support?	governmental organization	4	1
	non-governmental organization	85	21.4
	Relatives/neighbors and friends	80	20.2
	I didn't know	228	57.4
Discussion with the counselor ART provider	Yes	295	74.3
	no	99	24.9

	I didn't know	3	.8
Issues covered by the ART provider	Yes	292	73.6
	No	100	25.2
	I didn't know	5	1.3

Fertility Desire of Study Participants

In this study, the percentage of respondents who desired fertility in the future was 76.6% (95% CI, 65.5%, 87.7%). Women who were married or in cohabitation had a higher desire for fertility (196, 49.4%), compared with women who were single (18.1%), divorced (15.1%), and widowed (69, 17.4%). The age group of 30–39 years had the highest desire fertility (171–43.1%), followed by 40–49 years (166–41.8%) and 15–29 years (60–15.1%), which was the lowest age group. Among married or cohabiting women, 174 (43.8%) of their partners wish for children in the future, 220 (55.6%) of their partners do not, and 3 (0.8%) are unaware that they are parents or not.

Factors Associated with Fertility Desire

The following variables were derived from variable logistic regression analysis: age, marital status, education, occupation, partner desire, knowledge of HIV transmission from mother to child, and medication. At a P-value of 0.25, the following factors were strongly correlated with the desire for fertility: monthly income, time off since HIV diagnosis, source of support for mothers, and mother-to-child transmission. The study found a substantial correlation between reproductive desire and marital status, educational status, time preference following HIV infection, and partner desire in multivariate logistic regression analysis.

The results of the multivariate logistic analysis showed that 169 people (49.4%) were married [AOR = 0.009 (95% CI: 0.001, 0.580)]. The likelihood of reproductive desire was 0.009 times lower in married people than in single, divorced, and bereaved people. 140 (35.3%) were not desired as the number of children in the future by the partner [AOR = 0.009 (95% CI: 0.080, 3.037)]. The likelihood of having a fertility desire was not 0.009 times lower in those who had a desire for a relationship than in those who did not. College graduates and older (13.9%) [AOR = 10.24 (95% CI: 5.567, 18.854)] are 10.24 times more likely than the uneducated and primary to desire reproduction. Fertility desire was 0.002 times more common in those who preferred a time frame of 3 to 4 years following HIV infection than in those who preferred a time frame of 5 to 6 years (11.1%). [AOR = 0.002 (95% CI: 0.001, .937)] (Table 4)

Table 4: Display the elements that the Lideta Health Facility's Addis Ababa City Administration found to be related to the desire for conception among women of reproductive age receiving antiretroviral therapy in Ethiopia in 2023.

No	categories	Fertility Desire			COR (95% CI)	AOR (95% CI)	P
		yes	no	Total			
1	age						
	15-29	26.3(21.3%)	33.7(9.5%)	60(15,1%)	1.178(.542,2.558)	1.039(.383,2.820)	0.106
	30-39	74.9(54%)	94.8(34.5%)	171(43.1%)	2.172(0.256,3.04)	.946(.459,1.952)	
	40-49	72.8(24.7%)	92(55,9%)	166(41.8%)	4.85(1.234,5.123)	-	
2	Marital status						
	married	85.9(53.4%)	108.6(46.4%)	196(49.4%)	0.326(.076,1.398)	0.009(0.0001,0.058)	.027
	divorced	26.3(14,4%)	33,2(15.9%)	60(15.1%)	.013(.002,.074)	2.559(0.790,8.524)	
3	education's						

	Primary	56.5(27%)	71.5(37.3%)	129(32.5%)	1.084(.259,4.545)	1.134(0.410,3.133)	
4	secondary	59.2(40.8%)	74.8(28.2%)	135(34%)	.633(.165,2.427)	(0.562,3.965)	
	College	24.1(19.5%)	30.5(9.5%)	55(13.9%)	0.139(0.02,0.35)	10.24(5.567,18.85)	0.009
5	Occupation						
	Daily laborer	28.9(16.1%)	36.6(16.8%)	66(16.6%)	0.391(0.073,2.081)	1.376(0.461,4.108)	
	Government	40.8(27.6%)	51.5(20.5%)	93(23.4%)	0.213(0.039,1.179)	2.420(0.896,6.539)	
	Housewife	34.6(15,5%)	43.8(23.2%)	79(19.9%)	0.482(0.074,3.154)	1.106(0.347,3.523)	
	Marchant	26.3(16.7%)	33.2(14.1%)	60(15.1%)	0.393(0.075,2.060)	1.665(0.606,4.579)	
6	Monthly Income						
	<1000	8.6(7.8%)	10.3(4.8%)	19(6.1%)	.750(0.293,1.920)	.272(0.056,.000)	
	1000–5000	109.7(71.6%)	130.7(82.7%)	242(77.8%)	0.223	.225(5.599,3.47)	
7	Your partner wants a child or not	78.6(56.14%)	61.4(43.39%)	140(35.3%)	0.01(0.002,0.095)	0.009(0.080,3.037)	0.007
8	Time prefers to have a live birth(3-4years)	65.3(82.8%)	82.6(1.8%)	149(37.5%)		0.002(0.001,0.937)	0.048

Statistically Significant at $0.25 > p\text{-value} > 0.001$, $p\text{-value} < 0.25$

Discussions

In most of Africa, having children is highly valued, and being a mother raises one's social standing (Melaku *et al.*, 2014). 76.6% (95%CI, 65.5, 87.7%) of the 397 women of reproductive age who were ART users in the lideta sub-city of Addis Ababa municipal administration participated in this study. We have found more than the research done in the Tigray region (39.1%), Southern India (33.5%) [8, 9]. Fitches Hospital (45.5%), Addis Ababa, Ethiopia (44% & 54.6%), South Africa (44%) [11], Jamaica (66% [12], and Canada (69%). The restoration of fertility and the potential for HIV-negative children born to HIV-positive mothers to become more fertile may result from an improvement in the quality of health treatment. When comparing married couples to single, divorced, and widowed individuals, married couples were 0.009 times less likely to desire future fertility. This result is in line with research conducted in Ethiopia's Oromia and Woreilu. Marrying brought stability and dependable parental support [13]. Similar to Uganda's study, we discovered that educated women desired more children. However, our research revealed that because of many behavioral and other changes, higher education is linked to greater fertility wants than other levels of education [14].

The results of multivariate logistic regression showed that the desire for fertility was substantially correlated with a live birth. Specifically, women who had an expected child between 3 and 4 years after HIV infection were 0.002 times more likely to desire fertility than those who had an expected child beyond five years. This result is corroborated by another Ethiopian study that found that the desire for (more) children is higher in relationships with shorter durations than in those with longer durations [8]. One explanation for this could be that women who have been married or in relationships for longer have a greater likelihood of having the number of children they want.

In this study, the likelihood of having reproductive desire without a spouse was 0.009 times lower than that of having fertility desire with a partner. Evidence from further earlier investigations supports this [11]. Given that women are concerned about re-

production, it is possible that this is because the pair discussed fertility-related topics. Children provide marital relationships, social stability, family lineage maintenance, and emotional need satisfaction, which may account for partner desire [15]. Due to women's reliance on their income and lack of authority in the home, particularly when it comes to making decisions, 78 (19.6%) of the research participants had no formal education, and 55 (16%) had a family income of less than 1000 ETB.

When participants talked with medical professionals about fertility, the likelihood of wanting children decreased by 102 (25.7%) compared with those who did not. Our results are consistent with those of research conducted in the Afar region [12]. The reason could be that, in contrast to those who have not discussed it with a health care provider, women who are enrolled in ART services and have discussed health education, including the risk of HIV vertical transmission and women's reproductive rights may have had a greater desire for fertility. This could encourage women to make educated decisions about having children after weighing the advantages and disadvantages of doing so while living with HIV/AIDS.

Key Finding of the Study

High Response Rate and Demographics: Achieved a 97.5% response rate, with 397 out of 407 eligible women participating. Average age of participants was 37.34 ± 7.20 years. Age distribution: 43.1% were aged 30–39 years. 41.8% were aged 40–9 years.

Marital Status and Residence: 49.4% of participants were married. 98.2% of the women lived in urban areas.

Educational Background and Employment: 34% had completed secondary education. 24.9% were unemployed.

Income Levels: 61% had monthly incomes between 1000 and 5000 ETB.

Factors Associated with Fertility Desire: Education: Women with higher education (college and above) were significantly more likely to desire fertility (AOR = 10.24, $p = 0.009$).

Partner's Desire: Partner's desire for children was a strong predictor of women's fertility desire (AOR = 0.009, $p = 0.007$).

Timing for Live Birth: Preference for having a live birth within 3–4 years was positively associated with fertility desire (AOR = 0.002, $p = 0.048$).

Marital Status: Married women were less likely to desire fertility (AOR = 0.009, $p = 0.027$).

Limitations of this Study

Cross-Sectional Design: The cross-sectional nature of the study limits the ability to establish causality between the identified factors and fertility desire. Longitudinal studies are needed to confirm these associations over time.

Self-Reported Data: Reliance on self-reported data may introduce response biases, where participants might overreport or underreport their fertility desires and associated factors due to social desirability or recall bias.

Generalizability: The study was conducted in urban health centers within Lideta Sub-City, Addis Ababa, which may limit the generalizability of the findings to women on ART in rural areas or other regions of Ethiopia.

Exclusion of Non-Regular Attendees: Women who do not regularly attend the health centers were excluded, potentially overlooking the fertility desires of a segment of the population that might have different experiences and needs.

Unmeasured Confounders: Potential confounding factors, such as detailed health status, cultural beliefs, and access to reproductive health services, were not fully accounted for in the study, which might influence fertility desires.

Conclusion and Future Perspective

Conclusion

We found that a significant percentage of women receiving ART aspire to become pregnant. Fertility desire is statistically and positively correlated with factors such as marital status (married), educational attainment (college and above), partner desire, and preferred time for live delivery. The study’s conclusions can be applied to other comparable contexts when considering the methodologies employed in this investigation.

For reproductively married women using ART, it was crucial to consider the male partner's engagement and family-focused counseling services, allowing them to make informed and responsible decisions regarding their future fertility. When discussing the benefits and drawbacks of fertility among married women receiving antiretroviral therapy (ART), time of preference and partner desire should be considered. Because fertility demands a more deliberate approach to behavior and a qualitative study may be able to explore additional factors, we have advised that future researchers consider facility-related factors as well as a triangulated investigation.

Future Perspective

Longitudinal Studies conduct longitudinal studies to better understand the causal relationships between sociodemographic factors and fertility desire among women on ART over time.

Inclusion of Rural Areas expand the research to include women from rural areas and different regions of Ethiopia to improve the generalizability of the findings.

In-Depth Qualitative Studies utilize qualitative methods, such as in-depth interviews and focus groups, to gain deeper insights into the cultural, social, and personal factors influencing fertility desires among women on ART.

Explore Health Status and Cultural Beliefs investigate the impact of detailed health status, cultural beliefs, and knowledge about HIV transmission on fertility desires to develop tailored interventions.

Assess Impact of Counseling and Support Services evaluate the effectiveness of reproductive health counseling and support services in influencing fertility desires and outcomes among women on ART, aiming to improve these services based on empirical evidence.

Partner Involvements examine the role of male partners in fertility decision-making processes and how their involvement can be enhanced to support the reproductive goals of women on ART.

Annex: Questionnaires

Part I: Socio-demographic information

S. No	Questions	Responses	Remark
1.	How old are you?	_____years (in age completed years)	
2.	What is your residence?	1. Town 2. Rural	
2.	What is your marital status?	1. Single 2. Married 3. Divorced 4. Separated 5. Widowed	
3.	What is your education status?	Unable to read & and write Primary school 3. Secondary school 4. College/University	
5.	What is your occupation?	1. Unemployed 2. Government employee Housewife 4 Merchant 5. Farmer 6.Daily laborer.7. Other specify_____	

6.	How much is your monthly income?	In Ethiopian Birr _____	
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Part II. Information on fertility Desire

S.No.	Questions	Responses	Remarks
7.	Do you have live Births?	1. Yes 2. No	
2.	How many live children do you have now?	_____ no of alive children.	
3.	Do you have a child living with HIV?	1. Yes, 2. No	
4.	Do you have a child that died of HIV?	1. Yes, 2. No	

Part III. Information on Knowledge and Attitude on MTCT and PMTCT

5.	Would you like to have children in the future?	1. Yes, 2. No	
6.	If the answer to Q 5 is yes, how many children would you like to have in the future?	1. One 2. Two 3. Three 4. More than three 5. I don't know	
7.	If the answer to Q 5 is Yes, when do you prefer to have a child?	. less than a year 2.1-2 years 3. 3-4 years 4..5-6 years 5. more than 6 years 7. Don't know	
8.	If the answer to question 5 is No, why do you not want to have children in the future?	Fear of mother to-child HIV transmission risk. Doesn't have adequate income to add another child Have the desired number of children Childbearing may further compromise me. Healthcare providers advise not to have a child.	
9.	Does your partner want to have a child in the future?	Yes No	
		3. I don't have a partner	

Part IV- Information on HIV /AIDS and treatment conditions.

S. No	Questions	Responses	Remarks
10.	Does HIV transmit from mother to child?	1. yes, 2. No 3. Don't know	
11.	If the answer to question 10 is yes, when does HIV transmission occur from mother to child?	1. During pregnancy 2. During delivery 3. Through breastfeeding	
12.	Is there any medication, which may help to prevent mother-to-child HIV transmission?	2. es, 2. No	
13.	How much do you think the risk of HIV transmission from mother to child, if the mothers do not use any preventive medication?	1. children born to infected mothers acquire the infection 2. About 50% of children acquire the infection 3. I don't know the exact figure	
14	From where did you get the information about mother-to-child HIV transmission?	Health care provider Mass media 3. From friends 4. Home-based caregivers 5. Other	
14.	Do you think medication provided to reduce mother-to-child HIV transmission reduces the Transmission?	1.Yes 2.No	

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