

Fertility desire and associated factors among HIV positive women attending ART clinics, Afar region, northeast Ethiopia

Etsay Woldu (✉ etsaywold@gmail.com)

Department of public health, Collage of medical and health science Samara University

Aydahis Ali

Afar regional health bureau, Ethiopia

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Abstract

Background

The desire of human immune deficiency virus infected person to have children in the future has significant implication for the transmission of human immune deficiency virus to sexual partner and new born. However, fertility desire has given little attention and the uptake of PMTCT services is limited. Therefore, this study aimed to assess fertility desire and associated factors among HIV positive women attending ART clinics, Afar region, northeast Ethiopia

Methodology

Institution-based cross-sectional study was conducted on 402 HIV positive women attending ART clinic in selected Hospitals in Afar region. A systematic random sampling technique was employed to identify and enroll women. Logistic regression analysis was employed to identify the factors associated with fertility desire. Statistical association was measured and p-value < 0.05 was considered statistically significant.

Result

In this study a total of 391 HIV positive were participated with a response rate of 97.3%. The prevalence of fertility desire was 63.9 % (95 % CI, 59.1 %, 68.8 %). Young age between 15–24 (AOR = 11.98, 95% CI (4.04, 35.5) and 25–34 years (AOR = 2.93, 95% CI (1.46, 5.86), women who were not had live children (AOR = 5.1, 95% CI (1.31, 20.2) and women that had 1 or 2 live children (AOR = 2.7, 95% CI (1.39, 5.27), disclose sero status to their partner (AOR = 5.89, 95% CI (2.33, 14.9) were associated with increased odds of fertility desire. However, women who use contraceptive were associated with decreased odd of fertility desire (AOR = 0.11, 95%, CI (0.05, 0.22).

Conclusion

This study showed that six in ten HIV positive women attending ART clinic were had fertility desire. Young age, not having live child, and having 1 or 2 live number of children, disclosing sero status to partner, and contraceptive use were predictors of fertility desire. Therefore, efforts should be made to increase fertility desire among young HIV positive women attending ART clinic. Moreover, awareness creation on the importance of disclosing sero status to partner is mandatory as it helps to increase fertility desire.

Introduction

Fertility desire is the intention to have children in the fertile ages from 15–49 years[1]. Human immuno virus (HIV), is the virus that causes acquired immunodeficiency syndrome (AIDS), which one of the world's most public health problem and development challenges [2]. High number of new human immunodeficiency virus (HIV) infections in children occurs among children born to HIV positive mothers [3]. PLHIV like the general population, might desire to have children [4–5].

Globally, more than 34 million people living with HIV and nearly 30 million people have died by AIDS-related causes since the beginning of the epidemic [6]. An estimated 75% of all HIV-positive people were reproductive age. Sub-Saharan Africa account 60% of all people living with HIV/AIDS and more than half of these were females [7]. In Ethiopia, the prevalence of HIV/AIDS among women of reproductive age was 1.9% [8].

Studies in a number of settings showed different factors which determine the fertility desire of HIV-positive women. Young age [9–11], HIV disclosures [12], perceived health status and CD4 count more than or equal to 200 cells/mm³ were found to be significantly associated with fertility desire [13, 14].

Unsafe sex among PLHIV has the risk of transmitting HIV to sexual partners and subsequently to children during, pregnancy, birth and breastfeeding. The fertility decisions made by PLHIV and their partners have long-term consequences for the survival and wellbeing of their families and society at large [15]. The desire and intent to have children among HIV infected individuals may increase because of improved quality of life and survival following commencement of anti-retroviral treatment and reproductive health service as well [5]. The relationship between fertility and HIV/ AIDs threatens the preventive strategies against the HIV epidemic in countries like Ethiopia, where the fertility rate is still high and PMTCT utilization is low [16]. Moreover, unlike the general population, HIV infected people have additional issues to consider, like potential health risks for infections, and mother to child transmission of HIV [5, 17].

In Ethiopia, though studies have been conducted to investigate fertility desire of people living with HIV/AIDS [18–20] and WHO/UNICEF prevention of Mother to Child Transmission of HIV (PMTCT) strategy was adopted [21], fertility desire has given little attention though the pastoral community has weak health care delivery system, and the uptake of PMTCT services is limited. Moreover, there was a limited study specifically in Afar region. Therefore, this study aimed to assess fertility desire and associated factors among HIV positive women attending ART clinics, Afar region, northeast Ethiopia to reduce human immunodeficiency virus infections among children born to HIV positive mothers while desire to have children.

Methods

Study design and participants

Institution based cross sectional study was conducted among HIV-positive women in Afar region, Ethiopia in May 2018. Afar region is one of nine region in Ethiopia and it has population projection of 1.8 million [22]. The region has five hospital: Dubti General Hospital, Aysaita primary hospital, Yalo primary hospital and Mohammed Akle general Hospital. The study was conducted in Dubti and Mohammed Akle General Hospital after simple random selection method. The hospitals provide Adult and Pediatric ART clinic, and Voluntary Counseling and Testing services.

Debuti general hospital is located in zone one of Afar region and 605 km Northeast of Addis Ababa (the capital city of Ethiopia). According to the hospital administration report, Dubti general hospital has a total

of 2329 people living with HIV (PLHIV) were ever enrolled in the ART clinic, and a total of 785 women were on ART during the data collection period. It provides health care services for a catchment population of approximately 500,000 people in semera city administration and adjacent districts

Mohammed Akle general hospital is located in zone three of Afar region and 350 km Northeast of Addis Ababa. It has a total of 1824 populations living with HIV (PLHIV) ever enrolled in the ART clinic, and a total of 527 women were on ART during the data collection period. It provides health care services for a catchment population of approximately 250,000 people in zone three and adjacent districts.

Sample Size Determination and Sampling Techniques

The sample size was determined using single population proportion formula with assumption: 5% type one error, 95% confidence interval (CI), 52.9% proportion of fertility desire among reproductive age women in Harare Hospital [20]. Then, we added 5% to compensate for the nonresponse of participants and the final sample size was 402.

$$n = \frac{(Z_{\alpha/2})^2 p (1-p)}{d^2}$$

d^2

Where: n= required sample size, $Z_{\alpha/2}$ = critical value for normal distribution at 95% confidence level (1.96), p=proportion of fertility desire among reproductive age women, d= 0.05 (5% margin of error)

Out of the five hospitals in Afar region, Dubti and Mohammed Akle General Hospital were selected by simple lottery method. The samples were proportionally allocated to each hospital. A systematic random sampling technique was employed to enroll the study participants. Accordingly, every three participant was selected using a systematic random sampling technique till the required sample size reached.

Study variables

Dependent variable: In this study the dependent variable was 'fertility desire' among reproductive age women enrolled in ART clinic. Fertility desire is the intention to have children between fertile ages from 15-49 years (1). Women who were desire to have children was coded as '1', while those who didn't have desire was coded as '0' for logistic regression analysis.

Independent variables: The independent variables were socio-demographic characteristics (residence, age, religion, marital status, educational status, and community influence), and clinical and reproductive characteristics (previous life birth, , number of children, time since HIV diagnosed, current CD4 count, partner HIV status, and disclosure status to partner)

Data collection tools and techniques

Data were collected using a pre-tested, structured and interviewer administered questionnaire adapted from literature reviews and the Ethiopian Demographic and Health Survey [EDHS]. Women were interviewed, at the hospitals during their follow up visit. The questionnaire was prepared first in English and translated in to Amharic then back to English to check for consistency. The Amharic version of the questionnaire was used to collect the data. The tool was pretested on 5% of women on ART clinic other than selected hospital in Aysaita primary hospital. The data was collected by four diploma Nurses. The data collectors and the supervisors (two BSc nurses) were trained for 2 days by the principal investigator on the study instrument, objective, consent form, how to approach study participants, and confidentiality.

Data quality control

Diploma Nurses who can speak the local language were recruited as data collectors. The questionnaire was pretested on 5 % of the participants before the initiation of the study. The pretest was done to ensure wordings, logical sequence, clarity, and skip patterns of the questions. Then the pretest amendments on the questionnaire were made accordingly. The supervisors checked the day to day activities of data collectors regarding the completion of questionnaires, clarity of responses and proper coding of the responses.

Data management and Analysis

The data was checked for completeness, coded, recoded, and entered into Epi data version 3.1 software and exported to SPSS version 20 for analysis. The descriptive analysis was done and the results were presented using texts, frequency tables, and mean with standard deviation.

A binary logistic regression analysis was done to assess the association between the outcome variable with each explanatory variable. socio-demographic characteristics (residence, age, religion, marital status, educational status, community pressure), and reproductive and health services characteristics (previous life birth, , number of children, time since HIV diagnosed, Current CD4 count, partner HIV status, and Disclosure status to partner) were the explanatory variables included in the binary analysis. Thus, independent variables with p -value less than 0.25 were considered in the final model. Correlation between independent variables was assessed but we did not find any correlation between independent variables. The model fitness was also checked using Hosmer-Lemeshow model fit-ness test. Finally, multivariable logistic regression analysis was done to control potential confounders and to identify the factors associated with fertility desire among reproductive age women on ART. A statistical significance level was declared at a p -value of less than 0.05.

Ethical consideration

The study was approved by the Ethical Review Committee (ERC) of Samara University. An official letter was written from Samara University to Afar regional Health bureau. Then permission and support letter was written to Dubti and Mohammed Akle general hospitals. The participants enrolled in the study were informed about the study objectives, expected outcomes, benefits and the risks associated with it. A

signed written consent was taken from the participants before the interview. Illiterate women were consented with their thumb print. Confidentiality of responses was maintained throughout the study.

Result

Socio demographic characteristics

In this study, a total of 391 women were included in the study with a response rate of 97.3%. The mean age of women was 29.7s (with standard deviation of ± 7.56) and about 168 (74.5%) of women were in the age group of 25–34 years. In this study, 285 (72.9%) of women were urban residents, 242 (61.9%) of women were Muslim, and 281 (71.9%) were married (Table 1).

Table 1: Socio demographic characteristics of HIV positive women attending ART clinics, Afar region, northeast Ethiopia, May, 2018

Variables	Category	Frequency (n), percentage (%)	
Age	15-24	101	25.6
	25-34	168	43.1
	>34	122	31.3
Mean age (±SD)	Mean age 29.75		
Residence	Urban	285	72.9
	Rural	106	27.1
Religion	Muslim	242	61.9
	Orthodox	118	30.2
	Protestant	31	7.9
Educational status	No education	94	24
	Primary	87	22.3
	Secondary	168	43
	Higher	42	10.7
Marital status	Married	281	71.9
	Single	54	13.8
	Widowed	21	5.3
	Divorced	35	9
Community influence to have children	Yes	285	72.9
	No	106	27.1

Reproductive and clinical characteristics

In this study, 250 (63.9 %) of women were desire future pregnancy, 216 (55.2%) were had 1–2 live number of children, 163 (41.7%) of them use contraceptive, and 246(87.5%) were disclose sero status to their

partner. In this study, 197(50.4%) of women partner were fertility desire and 57 (14.76 %) of women were currently pregnant (Table 2).

Table 2: Reproductive and clinical characteristics of HIV positive women attending ART clinics, Afar region , northeast Ethiopia, May, 2108

Variables	Category	Frequency (n)	Percentage (%)
Number of live children	0	55	14.1
	1-2	216	55.2
	>2	120	30.7
Desire future pregnancy	Yes	250	63.9
	No	141	36.1
Use Contraceptive	Yes	163	41.7
	No	228	58.3
Sexual intercourse in the last six months	Yes	295	75.4
	No	96	24.6
CD4 count	<=200	49	12.5
	201-499	117	29.9
	>=500	225	57.6
Partner tested for HIV	Yes	253	64.7
	No	19	4.9
	I don't know	9	2.3
Partner HIV test result	Positive	224	88.5
	Negative	29	11.5
Disclose sero status to partner	Yes	246	87.5
	No	35	12.5
Partner fertility desire	Yes	197	50.4

	No	84	21.5
Currently pregnant	Yes	57	14.6
	No	334	85.4

Factors that affect fertility desire among HIV positive women

Binary logistic regression analysis showed that young age, not having live child and having 1 or 2 live number of children, disclosing sero status to partner, and contraceptive use were statistically associated with fertility desire at p -value < 0.05 (Table 3). In multivariable logistic regression analysis young age, not having live child and having 1 or 2 live number of children, and disclosing sero status to partner were statistically associated with fertility desire at $p < 0.05$. In contrast, use contraceptive was associated with decreased odds of fertility desire (Table 3).

In this study, the odds of fertility desire among young age 15–24 and 25–34 years were 11.97 (AOR = 11.98, 95% CI (4.04, 35.5) and 2.93 (AOR = 2.93, 95% CI (1.46, 5.86) times more likely compared to age > 34 years respectively. Women who were not had live children and women that had 1 or 2 live children were 5.1 (AOR = 5.1, 95% CI (1.31, 20.2) and 2.7 (AOR = 2.7, 95% CI (1.39, 5.27) more likely fertility desire than women that had more than two children respectively. The odds of fertility desire among HIV positive women who disclose sero status to their partner were nearly six-fold hold higher compared to their counterparts (AOR = 5.89, 95% CI (2.33, 14.9). Women who use contraceptive were 89% less likely fertility desire than their counterpart (AOR = 0.11, 95%, CI (0.05, 0.22).

Table 3: Binary and multivariable logistic regression on factors that affect fertility desire among HIV positive women attending ART clinics, Afar region, northeast Ethiopia, May, 2108

Variables	Category	Fertility desire		COR (95% CI)	AOR (95% CI)
		Yes n (%)	No n (%)		
Age	15-24	80(32)	21(14.9)	11.98(4.04, 35.5)*	3.81(2.1, 6.9)*
	25-34	109(43.6)	59(41.8)	1.85(1.15, 2.97)	2.93(1.46, 5.86) *
	>34	61(24.4)	61(43.3)	1	1
Live children	0	40(10.6)	15(16)	5.1(1.31, 20.2)*	2.76(1.3, 5.76)*
	1-2	149(59.6)	67(47.4)	2.21(1.39, 3.5)*	2.7(1.39, 5.27)*
	>2	61(24.4)	59(41.8)	1	1
Use contraceptive	Yes	82(32.8)	81(57.4)	0.11(0.05, 0.22)*	0.36(0.24, 0.5)*
	No	168(67.2)	60(42.6)	1	1
Disclose HIV status to partner	Yes	178(94.7)	68(73.1)	5.89(2.33, 14.9)*	6.5(2.9, 14.3)*
	No	10(5.3)	25(26.9)	1	1

Discussion

This study aimed to determine fertility desire and associated factors among HIV positive women attending ART clinics. The prevalence of fertility desire was 63.9 % (95 % CI, 59.1 %, 68.8 %). Furthermore, multivariable logistic regression analysis revealed that young age, not having live child and having 1 or 2 live number of children, and disclosing sero status to partner were statistically associated with fertility desire. In contrast, use contraceptive was associated with decreased odds of fertility desire.

In this study, fertility desire among HIV positive women attending ART clinic was 63.9 % (95 % CI, 59.1 %, 68.8 %). This study was similar to study conducted in Uganda, 59% [10] and Nigeria, 63.3% [23]. This might be due to the fact that intervention has been made in expanding access to antiretroviral therapy (ART) and comprehensive care for HIV infected men and women.

However, the study finding was higher than study done in Tigray region, 45% [24], Tanzania, 36% [12], Malawi, 17% [25], south wollo, 15.7% [26], Adama, 46.6 % [27] and Harare regional state, 52.9% [20]. On the other hand, this study finding was lower than study done in Oromia region, 92.3 % [28]. This may be due to different in socio-demographic characteristics of the populations and cultural difference towards having large family size and fertility rate. Moreover, the difference might be the level of difference in health services provision or awareness particularly about prevention of mother to child transmission (PMTCT) across the study settings. It was noted those previous efforts to discourage child bearing among PLWHA in most countries [29–30].

In this study, the odds of fertility desire among young age 15–24 and 25–34 years were 11.97 and 2.93 times more likely compared to age > 34 years respectively. This finding was in line with study done in Ethiopia, Uganda, and Brazil [10, 26, 31–32]. This might be the fact that older women living with HIV have already relatively achieved their desire family size compared to the younger.

The number of surviving children was predictor of fertility desires among HIV positive women attending ART clinics. Women who were not had live children and women that had 1 or 2 live children were 5.1 and 2.7 more likely fertility desires than women that had more than two children respectively. This was similar with study done in Harrer region, Addis Ababa, Oromia region, Malawi, and Nigeria [20, 33, 34]. This might be due to HIV positive women like anyone else might have desire to have children until they achieve their desired family size. Moreover, access to antiretroviral therapy has improved quality of life, healthier and more productive lives, and survival for HIV infected people, many will anticipate child bearing [35–36]. Furthermore, studies suggest that PLWHA desire and continue to have children equally to those without HIV infection [4, 37].

The odds of fertility desire among HIV positive women who disclose sero status to their partner were nearly six-fold hold higher compared to their counterparts. This is in line with study done in Uganda, Tanzania and Ethiopia [3, 12, 20]. This might be the fact that those who disclosed their status might have more discussion on their desired number of children and also HIV positive women may want to have children to ensure family continuity in the future, to have offspring of their own to perpetuate their name and to be supported in old age. It has been noted that disclose sero status to their partner helps communication between partners and may play an important role in pre-conception planning behaviors [38].

In this study, women who use contraceptive were 89% less likely fertility desire than their counterpart. This was in line with study done in Harare regional state, Oromia region and Province of Papua New Guinea [20, 38, 27]. This might be the fact that contraceptive use is significant for HIV positive patients to

space and limit births and to prevent unplanned pregnancy, in order to reduce HIV positive births irrespective of their fertility desire, and want to optimize the number of their children.

Limitation: This study was facility-based study that couldn't generalizable to the general population in the community. Cause and effect relation was not guaranteed because of cross-section study design. Moreover, reported behaviors particularly those associated to sexual life may be affected by desirability bias. Finally, the study was not supplemented with qualitative methods since the FGD or other qualitative methods increase risk of ethical confidentiality.

Conclusion

This study showed that six in ten HIV positive women attending ART clinic were had fertility desire. Young age, not having live child, and having 1 or 2 live number of children, disclosing sero status to partner, and contraceptive use were predictors of fertility desire. Therefore, efforts should be made to increase fertility desire among young HIV positive women attending ART clinic. Moreover, awareness creation on the importance of disclosing sero status to partner is mandatory as it helps to increase fertility desire.

Abbreviations

AOR: Adjusted Odds Ratio; BMI: Body Mass Index; CI: Confidence Interval;

COR: Crude Odds Ratio; EDHS: Ethiopian Demographic and Health Survey;

HIV/AIDs: Human immunodeficiency virus/ Acquired immune deficiency syndrome

ART: Anti retro viral therapy

Declarations

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Authors' contributions

AA has apprehended the study, conducted the overall design and execution of the study, and made data collection and statistical analysis. AA and EW has critically revised the design of the study, data collection techniques and helped the statistical analysis. EW has drafted the manuscript. Both authors read and finally approved submission of the manuscript and agreed personally accountable for the author's own contributions and ensure questions related to the accuracy or integrity of any part of the work, even ones in which the author was not personally involved, were appropriately investigated, resolved, and the resolution documented in the literature.

Availability of data and material

Not applicable

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Ethics approval and consent to participate

The study was approved by the Ethical Review Committee (ERC) of Samara University on 20, 2018 with RE ERC 0079/2018. An official letter was written from Samara University to Afar regional Health bureau. Then permission and support letter was written to Dubti and Mohammed Akle general hospitals. The participants enrolled in the study were informed about the study objectives, expected outcomes, benefits and the risks associated with it. A signed written consent was taken from the participants before the interview. Illiterate women were consented with their thumb print. Confidentiality of responses was maintained throughout the study.

Consent for publication

Not applicable.

Competing interests

The authors declare that they no competing interests.

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