

Fertility Desire and Associated Factors among Sexually Active HIV Positive Women at Felege Hiwot Referral Hospital, Bahir Dar, Ethiopia: Institution-Based Cross-Sectional Study

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Abstract

Background: Many HIV-positive women continue to want to have children in spite of knowledge of their HIV status and the risk it imposes. This study aimed to assess the level of fertility desire and associated factors human immune-deficiency-positive women at Felege Hiwot referral Hospital.

Methods: An institution based cross-sectional study was conducted among randomly 308 HIV positive reproductive age women at Felege Hiwot referral Hospital from June 01st -30th, 2018. Data were collected using structured interviewer-administered questionnaire. Data were analyzed using SPSS version 20. Descriptive, bivariate and multivariate logistic regression statistics were carried out. Statistical significance was declared at P -value <0.05.

Results: Out of 308 of participants, 45.5% reported a desire to have children in the near future. Being sexually active (aOR=2.62, 95%CI; 1.58- 6.73), family planning use (aOR=7.62, 95%CI; 3.23-17.98), consistent condom use (aOR=2.6, 95%CI; 1.37- 4.94), and absence of children (aOR=4.43, 95%CI; 1.85- 10.64) were predictors of fertility desire.

Conclusion: A considerable proportion HIV-positive women in the study area reported to have children in the future. Integration of family planning and ART services, attention to sexually active HIV positive women and supporting HIV positive women with unmet need of family planning could have significant impact.

Introduction

Human immune deficiency virus (HIV) infection remains the leading cause of morbidity and mortality throughout the world. Since the start of the epidemic, around 76.1 million people have become infected and 35 million people have died of HIV/AIDS related illness. Studies estimated that 75% of all HIV positive population in world are of reproductive age group [1]. Globally in 2017, there were 36.9 million people living with HIV and 940,000 HIV related deaths. Among the total number of people living with HIV (36.9 million), 18.2 million were women 15 years and above and 1.8 million were children less than 15 years. The number of new infection globally continued to decline in 2007. Modelled estimates show that new infection (all ages) declined from a peak of 3.4 million in 1996 to 1.8 million in 2017. However, progress is so far slower than what is required to reach in the 2020 milestone of less than 500,000 new infections [2].

Sub-Saharan African (SSA) contributed 76% of the total HIV-infected people, 76% of the total new infections, and 75% of the total HIV/AIDS related deaths in 2015 [1]. As one of the Sub-Saharan country the case in Ethiopia is not different. Ethiopia has a generalized epidemic with an estimated adult (15 years and above) prevalence of 0.9 percent. HIV prevalence ranges from 4.7% in Gambella regional state to below 0.1% in Somali regional state [3, 4]. In 2017, there were about 615,000 people living with HIV, of whom 65% were female, in the country. Of these, almost one-third (30%) were from Amhara Regional State. Prevalence of HIV among women of reproductive age is 1.2% which is higher than men

(0.6%) in the same age [4]. Accordingly, to end HIV/AIDS epidemic in 2030, intervention to meet the need of reproductive health; specifically the need related to fertility desire of these population group must be prioritized as many HIV-positive women continue to want to have children despite knowledge of their HIV status [5–9]. Consequently, the desire of HIV-positive women to have children has important implication for transmission of HIV to sexual partners and newborns [6].

Evidences from different studies indicate that HIV-positive women continue to desire more children in the future. In studies conducted in Rwanda, Cameroon, and Democratic Republic Congo, for example, the proportion of HIV-positive women who desired to have children in the future were 45.8%, 65% and 83% respectively [10–12]. In Ethiopia, a few studies have revealed different level of fertility desire among women living with HIV. Studies in Addis Ababa, West Ethiopia, and Jimma, Ethiopia indicated that 40.8%, 42% and 46.8% of HIV positive women had fertility desire respectively [8, 9, 13]. Studies in different settings have pointed out different factors which determine the fertility desire of HIV-positive women. For example, family planning use in HIV positive women was found to be significantly associated with fertility desire [6, 13, 14]. An increased fertility desire is found to be associated with absence of living children in several studies across the world [5, 6, 14–17]. However, a study in the United States showed a decreased fertility desire among women of HIV-positive with absence of living children [18]. In Ethiopia, although few studies are conducted in different health care institutions regarding fertility desire of HIV-positive women and associated factors with it, the information is inadequate. Furthermore, the extent of fertility desire among HIV-positive women receiving HIV care and how reproductive issue are affected by sociodemographic characteristics and reproductive related factors is not well understood in the study area. This research is therefore aimed to assess level of fertility desire and factors associated with it among HIV-positive women at Felege Hiwot Referral Hospital, Northwest Ethiopia. Accordingly, the findings of this study could be used to improve reproductive health of HIV-positive women, decrease vertical transmission of HIV to children, decrease maternal and child mortality, and ultimately eliminate Mother-to-Child Transmission of HIV.

Methods

Study design, setting and period

A cross-sectional study was conducted at Felege Hiwot referral Hospital ART clinic which is located in Bahir Dar city, capital city of Amhara regional State, from June 01th -30th, 2018. The city is located 564 km northwest from Addis Ababa, the capital city of the Ethiopia. The hospital provides different inpatient and outpatient services to the population of the region including ART and family planning services for clients referred from all district and zonal health care facilities in the Regional State.

Participants

Source population

- All people living with HIV/AIDS who were attending Felege Hiwot referral Hospital, ART clinic.

Study population

- All randomly selected sexually active HIV positive between 15 and 49 years old available at the time of study and having at least one visit.

Exclusion criteria

- Women with surgical removal of uterus and unable to communicate for any reason
- Women who were pregnant and infertile.
- Women below age of 18 without guardian or family (consent issue).

Sample size and sampling procedure

A total sample size of 308 was estimated using single population formula; assuming a p-value $p=76\%$ from a previous reported prevalence in Addis Ababa Ethiopia[19]; [19]; a 95% confidence interval (CI); a tolerable margin of error (d)= 5% ; $Z_{\alpha/2}=1.96$ and 10% Non-response rate.

A total of 11,120 people living with HIV were enrolled in ART of the hospital during the study period. Out of this, a total of 5644 sexually active HIV positive women aged 15-49 years old in ART clinic were enumerated and sampling frame was developed. Finally, study participants were selected using simple random sampling method i.e., lottery method.

Measurement

Variables

The dependent variable was self-reported fertility desire. Independent variables were age of woman, religion, educational level, number of living children, drinking habit, partner HIV status, HIV status disclosure to partner, having stable sexual partner, contraceptive use experience, condom use, and having sexual activity.

Operational definition

Fertility desire: This refers to when women have a desire to have a child in the near future[20].
Consistent condom use: Use of female or male condoms in all vaginal sexual relationships with casual and/or steady partners[20].

Family planning use: Respondents who responded positively being asked whether they are currently using any method of contraception to delay or avoid pregnancy.

Sexually active: A client who had sexual intercourse in the last six months.

Data collection and data quality assurance

Trained data collectors collected the data using structured interviewer administered questionnaire which we adopted from earlier studies [19, 21]. The questionnaire had the following contents; Socio-demographic characteristics, reproductive and sexual characteristics, HIV and fertility related factors. First, we prepared English version of the questionnaire then language experts translated it to local language (*Amharic*) and back to English to check consistency and accuracy. We recruited four diploma nurses and two Bachelor of Science nurses as data collectors and supervisors. Assigned supervisors closely managed the data collection process. In addition, we gave training for data collectors and supervisors on the overall content of questionnaire and data collection process for two consecutive days. We have carried out pre-test study on 5% of the calculated sample size of women in *Adiss Alem Hospital* ATR clinic which is out of study area and readjusted the questionnaire. We also reviewed medical records of participants to get clinical information on anti-retroviral treatment and CD4 count.

Data processing and analysis

The collected data were checked manually for completeness and consistency. Then, coded and entered into EPI Info version 3.5.3 and transferred to SPSS version 20 for analysis. We used descriptive statistics to summarize socio-demographic characteristics of participants and proportion of fertility desire. To show factors associated with fertility desire, we carried out binary logistic regression analysis at two levels. We performed bivariate logistic regression to each independent variable with the outcome variable. Then, variables with p-value < 0.05 were included in multivariate analysis. We measured strength of association using odds ratio, and 95% confidence intervals. Finally, we declare statistical significance at p-value < 0.05.

Result

Socio-demographic characteristics of participants

A total of 308 sexually active reproductive age HIV positive women participated in the current study making a response rate of 100%. The mean age of women was 26 years (SD±4.08). Majority of participants were aged between 25 and 34 years. Regarding to religion, more than three fourth of participants 241(78.2%) were Orthodox Christians. Only one –fifth 66(21.4%) participants were married while more than one-third 114(37%) were single. All participants were urban dwellers (not mentioned in table) .Less than half of participants 144(46.7%) attained primary school and above; about one fifth of participants (18.1%) were commercial sex workers and majority of participants (84.4%) had drinking habit (**Table1**).

HIV, Reproductive and Fertility Related Profile of Participants

Prevalence of fertility desire was 45.5 % (95%CI: 39.6-51.0). Out of 308 participants, recent CD4 count of 142 participants was accessed. Out of this, 47.2% had CD4 count of more than 500cells/m³. More than half (55.8%) had sex in the last 6 months, 118 (38.3%) had used any method of contraception, and 146(44.2%) were practicing consistent condom use. More than one-fourth 80(26%) of participants had

used dual contraceptive method. The most commonly used contraceptive was injectable 97 (52.2%) followed by implant 35 (18.85) and pills 30 (16.1%). Majority 224(72.7%) had known their partners' HIV status and 182(81.3%) reported that their partners were sero-positive. Almost one-fifth (21.5%) had disclosed their status to their sex partner. About one-fifth participants 67(21.8%) reported that they faced child death. Most of participants 251(81.8%) had one and above children. Almost one-third of participants 75 (24.4%) had changed their sexual partner since their diagnosis (**Table2**).

Factors Associated With Fertility Desire

After adjusting for potential confounders, family planning use, consistent condom use, sexual activity, sexual partner change, living children were found to be significantly associated with fertility desire in multivariate analysis at p-value <0.05. The study revealed that participants who were using family were seven times less likely to desire children compared to women who were not using family planning (aOR=7.62, 95%CI; 3.23-17.98). Similarly, participants who were using condom consistently were two times less likely to desire children compared to their counterparts (aOR=2.6, 95%CI; 1.37-4.94). Furthermore, participants who did not have children were four times less odds of fertility desire (aOR=4.43, 95%CI; 1.85- 10.64) compared with participants who had one or more children unexpectedly. However, participants who had sexual activity six months prior to the study were three times more likely to desire fertility (AOR=2.62,95%CI; 1.58- 6.73) compared to their counter parts(see Table3).

Discussion

Reproductive health issue including fertility desire among women enrolled in HIV care and treatment programs in the study area has important implications for the health of women, their partners, and their infants. This study revealed that the prevalence of fertility desire among HIV positive reproductive age women in the study area was 45% .The finding was exactly consistent with the study done in Tigray Region, Ethiopia which has reported that 45% of women living with HIV/AIDS had desire to have children in the future [20].The finding was also consistent with studies done in Rwanda (45.8%), Jimma Town, South West Ethiopia (46.8%) respectively [10, 13]. On the other hand, the finding of the current study was lower than evidences from Addis Ababa, Ethiopia(54.6%) [22],Cameroon (83.3%) [12],Democratic Republic Congo(64%)[11]. However, prevalence of this study was higher than the study done in Hosanna Town ,southern Ethiopia(36.3%) [6], Ababa, Ethiopia(40.8%) [8],Central Brazil (25.9%) [23],Kenya (26.4%) [24].The difference could be explained in terms of dissimilarities in sociodemographic of study populations and cultural concerns about having family and fertility desire.

According to the result of this study, factors that associated with fertility desire in bivariate analysis were age of participant, drinking habit, current family planning use, consistent condom use, sexual activity at the time of study, sexual partner change, and number of living children. Even though the abovementioned factors have demonstrated significant association with fertility desire; age, sexual partner change, and drinking habit lost their significance in multivariate analysis (see Table3).

Participants who were using family planning during the study were found to have fertility desire about seven times less likely than their counterparts. The finding is in line with studies done in Jimma town, Ethiopia and Harari Regional State, Eastern Ethiopia but in contrast with the study done in Hosanna Town, Southern Ethiopia. [6, 13, 14]. This could be also due to the influence of health care providers counselling and awareness of study participants about vertical transmission of HIV. Increasing awareness about vertical transmission of HIV among HIV-positive clients is powerful means of fostering family planning use to reduce HIV transmission[25].

Participants who were using condom consistently in the last six months prior to the study were almost two times less likely to desire children compared to their counterparts. The finding is supported by G. J. Wagner et.al. which has reported that consistent condom use was greater among those with no fertility desire[26]. Actually, consistent condom use is one of the contraceptive method to avoid pregnancy. Use of male and female condoms could provide dual protection. It could protect acquisition or transmission of HIV and contribute to PMTCT of HIV [27].

Furthermore, participants who were sexually active in the last six months were three times more likely to desire children in the near future which is similar with studies done in Ethiopia and Tanzania [14, 28]. This could be explained in terms of that being sexually active meant desiring pregnancy. When women has desire to become pregnant they engaged in sexual activity.

Unexpectedly, participants who had no child were four times less likely to desire children compared to participants who had one or more children. The finding is in line with study done in the United States[18]. Otherwise, it is in contrast with other several studies done in different areas of the world [5, 6, 14-17]. This could be explained in terms of differences in sociodemographic, socioeconomic status, health condition, and culture between study populations. The level of fertility is partly influenced by demographic, health status, prevailing social-economic conditions and cultural factor[29]. It could be also due to in this study, majority (81.8%) of participants had at least one child (see Table2).

Conclusion

The results of this study showed that a considerable proportion of women living with HIV/AIDS in the study area reported the desire to have children in the near future. Family planning use, consistent condom use, being sexually active, and absence living children were predictors of fertility desire. Therefore, Health care providers working in HIV care centers should discuss the issue of reproductive desire with HIV-positive women. Supporting HIV positive women with unmet need of family planning could have significant impact. In addition, addressing the issue of health concerns related to fertility desire and risky sexual behavior among HIV infected reproductive age women is essential as it could play a significant role in struggling to eliminate mother-to-child HIV transmission. Furthermore, it is important to integrate family planning services and HIV/AIDS care and treatment service.

Limitations

The first limitation of this study is men were not included in the study in despite they have important role to play in deciding about fertility issues and family size. Critically ill women and pregnant and women were not also included in this study. Fertility desire among this women might be very different than women participated in this study. Since it is a single institution study we can't generalize it for the general population. As fertility issue is a sensitive topic, social desirability bias cannot be avoided. Another limitation for this study was reasons for fertility desire were not investigated.

Declarations

Ethics approval and consent to participate

Ethical clearance obtained from Bahir Dar University, department of nursing research committee and college of health science institutional review board. Each study participant was adequately informed about the aim of the study and anticipated benefit and risk of the study by their data collector. Written consent sought from all study participants for protecting autonomy and ensuring confidentiality.

Consent for publication

Not applicable.

Availability of data and materials

The data of this study cannot be shared publically due to presence of sensitive (confidential) participants' information.

Competing interests

There are no competing interests among authors

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Not applicable

Author's contributions

Both authors conceived, designed study. TA analyzed and interpreted data, and drafted the manuscript for important intellectual content. Both authors read and approved the last manuscript.

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Abbreviations

AIDS: Acquired Immunodeficiency Virus Syndrome; ART: Anti-Retroviral Therapy; BDU: Bahir Dar University; CMHS: Collage Of Medicine And Health Science; FHRH: Felege Hiwot Referral Hospital; HAART: Highly Active Anti-Retroviral Therapy; HIV: Human Immunodeficiency Virus; IUD: Intra Uterine Device; MTCT: Mother to Child Transmission; PMTCT: Prevention of Mother to Child Transmission; STI: Sexually Transmitted Infection; SPSS:Statistical Package For The Social Sciences; AOR:Adjusted Odds Ratio;CI:Confidence Interval.

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Tables

Table1. Socio-demographic characteristics of participants attending ART clinic in FHRH, Bahir Dar City, North west Ethiopia, 2018.

Variables	Category	Frequency	Percent (%)
Age (in years)	15-24	50	16.2
	25-34	135	43.8
	35-49	123	39.9
Religion (n=306)	Orthodox	241	78.2
	Muslim	45	14.6
	Others 1*	20	6.5
Marital status	Married	66	21.4
	Single	114	37.0
	Others*2	128	41.6
Educational level	Can't read and write	105	34.1
	Can read and write(no grade)	59	19.2
	Primary and above	144	46.7
Occupation	Unemployed3*	184	59.7
	Government employed	63	20.5
	Private organization employed	61	19.8
Drinking habit	Yes	260	84.4
	No	48	15.6

1* protestant, catholic, Jehovah witness; 2* divorced, cohabitated, separated

3* Unemployed includes, daily laborers, commercial sex workers, students and others who are not formally employed.

Table 2.HIV, Reproductive and Fertility Related Profile of Participants Attending ART clinic in FHRH, Bahir Dar City, North west Ethiopia, 2018.

Variable	Category	Number	Percent (%)
Recent CD4 count (n=142)	≤350	44	31.0
	351-500	31	21.8
	≥500	67	47.2
Had sexual activity in the last 6 months	Yes	172	55.8
	No	136	44.2
Do you know your partner HIV status?	yes	224	72.7
	No	84	27.3
Partner HIV status(n=224)	Positive	182	81.3
	Negative	42	18.8
Partner disclosure of your HIV Status	Yes	65	21.1
	No	243	78.9
Have you changed sexual partner since diagnosis?	Yes	75	24.4
	No	233	75.6
Currently using family planning(any method)	Yes	118	38.3
	No	190	61.7
Use dual contraceptive method	Yes	80	26.0
	No	228	76.0
Methods of contraception used	Pills	30	16.1
	Injection	97	52.2
	Implant	35	18.8
	Others	24	12.9
	Yes	210	77.8
Condom consistently for the last 6 months?	Yes	136	44.2
	No	172	55.8
Number of living children	No child	56	18.2
	≥1	251	81.8
Child death	Yes	67	21.8
	No	241	78.2
Desire to have a child in the future	Yes	140	45.5
	No	168	54.5

Abbreviation: CD4, cluster of differentiation 4

Table3. Multivariate analysis of factors associated with contraception use among participants attending ART clinic in FHRH, Bahir Dar City, North west Ethiopia, 2018.

Variable	Fertility desire		COR (95%CI)	AOR (95%CL)	P-value
	Desired (N& %)	Not desired (N& %)			
Age (in years)					
24	28(56.0%)	22(44.0%)	0.7(0.36-1.36)	0.78(0.31-1.93)	0.587
34	54(40.0%)	81(60.0%)	1.34(0.82-2.19)	2.01(0.79-5.13)	0.146
49	58(47.2%)	65(52.8%)	Ref	Ref	
Do you have drinking habit?					
No	16(33.3%)	32(66.7%)	1.82(0.95-3.50)	1.53(0.62-3.80)	0.356
Yes	124(47.7%)	136(52.3%)	Ref	Ref	
Are you currently using family planning?					
No	43(36.4%)	75(63.6%)	Ref	Ref	
Yes	97(51.1%)	93(48.9%)	1.82(1.14-2.91)	7.62(3.23-17.98)	0.000*
Do you use condom consistently (always) for the last six months?					
No	52(38.2%)	84(61.8%)	Ref	Ref	
Yes	88(51.2%)	84(48.8%)	1.69(1.07-2.67)	2.60(1.37- 4.94)	0.003*
Current CD4 count					
>500 cells/mm3	12(27.3%)	32(72.7%)	0.84(0.48-1.48)	0.67(0.30-1.47)	0.313
350-500 cells/mm3	13(41.9%)	18(58.1%)	3.00(1.01-5.20)	2.82(0.92-8.64)	0.070
<350 cells/mm3	31(46.3%)	36(53.7%)	Ref	Ref	
Do you have sexual activity in the last 6 months?					
Yes	91(52.9%)	81(47.1%)	2.00(1.26-3.16)	3.26(1.58- 6.73)	0.001*
No	49(36.0%)	87(64.0%)	Ref	Ref	
What is your partner HIV status?					
Unknown	86(47.3%)	96(52.7%)	1.81(0.912-3.607)	2.33(1.00-5.46)	0.051
Positive	26(61.9%)	16(38.1%)	Ref	Ref	
Have you changed sexual partner since diagnosis?					
No	40(53.3%)	35(46.7%)	1.52(0.901-2.56)	2.55(1.18- 5.51)	0.17*
Yes	100(42.9%)	133(57.1%)	Ref	Ref	
Number of living children					
1 child	21(37.5%)	35(62.5%)	Ref	Ref	
>1 child	119(47.2%)	133(52.8%)	1.49(0.82-2.71)	4.43(1.85- 10.64)	0.001*

Supplementary Files

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