

# Factors associated with childbearing intention of women on Antiretroviral Therapy in Northwest Ethiopia: A cross sectional study

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## Research

**Keywords:** HIV/AIDS, Antiretroviral Therapy, Childbearing Intention, Reproductive age

**Posted Date:** June 5th, 2020

**DOI:** <https://doi.org/10.21203/rs.3.rs-27438/v1>

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# Abstract

**Background:** Though, childbearing intention is normal, it is imperative in Human Immune Virus positive women and identifying their intention has significant in reducing mother to child transmission. This study was intended to assess childbearing intention and associated factors among women on antiretroviral therapy in South Gondar Hospitals, Northwest Ethiopia.

**Methods:** Institution based cross sectional study was employed. The sample for each Hospitals was allocated proportionally. Systematic random sampling method was used to select the study participants. Data were coded and entered into epidata 4.2 software and exported to statistical package for social sciences version 25 for analysis. Binary logistic regression was used to saw the association between each independent variable and dependent variable. All variables with P-value < 0.25 during bi-variable analyses were considered for multivariable logistic regression analyses. Odds ratio along with 95%CI were estimated to measure the strength of the association. Level of statistical significance was declared at p value less or equal to 0.05.

**Results:** - A total of 418 women on antiretroviral therapy participated in the study. Child bearing intention was 42.6%. History of pregnancy after HIV diagnosis [Adjusted Odd Ratio (AOR) =5.19, 95% CI: (1.83, 14.7)], Partners fertility desire [AOR=10.99, 95% CI: (4.34, 27.86)], having alive children [AOR=0.23, 95% CI: 0.23(0.81, 0.63)] were significantly associated with childbearing intention.

**Conclusion.** Childbearing intention of women on antiretroviral treatment was low. Having partner's fertility desire, had pregnancy after HIV diagnosis and have alive child were significantly associated with childbearing intention. Information needs to be shared for the clients by using counseling protocols developed to achieve their desired reproductive goals.

## Background

An estimated 17.8 million women living with Human Immune Virus (HIV), constituting 51% of all adults living with HIV. In 2015, almost 8 out of 10 pregnant women living with HIV received antiretroviral medicines to prevent the transmission of HIV to their children. But, about 1.8 million children worldwide are living with HIV. In the absence of any intervention, transmission rates range from 15–45% (1, 2).

Worldwide, less than one-third of women of childbearing age visit the health institutions and speak with a health care provider prior to pregnancy about their health status and its potential impact on pregnancy outcome (3). Research has documented high fertility intentions among HIV-positive women and live births have increased among women living with HIV since the availability of antiretroviral therapy (ART) (4–6). A majority of pregnancies, however, remained unintended with subsequent risks for poor maternal outcomes (7–11).

Furthermore, up to 50% of People living with human immune virus (PLWH) are in ongoing relationships with an HIV-negative partner(12). Such data underscore the importance of providing services through

preconception care that reduce the risk of transmission. There is a need to optimize women's immunologic status and address common comorbidities (e.g., depression, diabetes, tuberculosis malaria, and anemia that affect maternal health and contribute to adverse pregnancy and perinatal outcomes (e.g., fetal growth restriction, birth defects) (13–16).

Preconception care is client education, evaluation, and management aimed to prevent unplanned pregnancies, decrease the risk of adverse health effects for the woman, fetus, and neonate by optimizing the woman's health and knowledge before planning and conceiving a pregnancy(17).

In the past two decades, significant breakthroughs have occurred in the area of HIV and pregnancy, largely centered on the prevention of vertical transmission. However, there are other important factors to consider for an HIV-positive woman wanting to become pregnant, including the prevention of horizontal transmission between partners, the optimization of antiretroviral therapy (ART), including the discontinuation of potentially teratogenicity drugs, and the promotion of a healthy pre-conception lifestyle to reduce maternal and fetal complications (18, 19).

In spite of understanding HIV-infected women experiences and perceptions of reproductive counseling in the health care context is critical to inform design of effective pharmaco behavioral interventions that minimize preconception HIV risks, realize their fertility goals and maximize maternal and child outcomes(20), the previous efforts done on improving maternal and child health with special emphasis on preconception care among HIV positive women were not felt across the country. Therefore; this study was intended to assess childbearing intention and its associated factors among HIV positive women attending highly active anti retro viral therapy (HAART) South Gondar Hospitals, Amhara region.

## Methods

### Study design, setting, period and population

An institution based cross sectional study was conducted in south Gondar Hospitals from January to April 2018. Based on the 2007 Census conducted by the Central Statistical Agency of Ethiopia (CSA), the Zone has a total population of 2,051,738 of whom 49.3% are female. Currently there are four hospitals in south Gondar zone which provides ART service. All reproductive age women (15–49 years) attending highly active antiretroviral therapy (HAART) in south Gondar zone Hospitals were included. Finally, 418 reproductive age women attending HAART were included in the study.

### Data Collection Methods

Data were collected by using interview technique. The tool was composed of three parts i.e. Sociodemographic characteristics, Reproductive history, and contraceptives use. The data were collected by eight BSc Midwifery and two MSC supervisor. Completeness of each recording format was checked before collecting the data. Based on proportional allocation participants from, Este primary hospital 94,

Addis Zemen Hospital 104, Gayint Hospital 110 and Debre Tabor general hospital 116 were selected. Systematic random sampling method was used to select the study participants.

## Variables

Dependent variable

Childbearing Intention

Independent Variables

Sociodemographic characteristics: - Age, Residence, Educational level, Marital status

Reproductive History: Number of live birth, Number of children, Husband desire to have a child, current pregnancy status

Contraceptive use: current contraceptive use, reason not to use contraceptive

Operational definitions

### **Childbearing Intention**

The desire of the client to have child in the future and measured as a dichotomous variable (Yes/No).

Data Quality Control

Pretest was done on 5% of the sample size. One day training was given for data collectors and supervisors on data collection tools and data collection procedure. Data collectors had been supervised closely by the supervisors and the principal investigator. Completeness of each data collection tools had been checked by the principal investigator and the supervisors in a daily base. The questionnaire was prepared in English and translated to "Amharic". 'Forward and backward translation' was done. Double data entry was done by two data clerks and consistency of the entered data was cross-checked.

Data processing and analysis

Data were entered, coded, cleaned and checked by EpiData statistical software version 4.2.0.0 and analysis was done by using SPSS Version 25 statistical software. Descriptive statistics such as proportions, percentages, ratios, frequency distributions and appropriate graphic presentations were used for describing the data. Binary logistic regression was used to saw the association between each independent variable with dependent Variable. All variables with a p-value  $\leq 0.25$  in the bivariate analysis was entered into the final model for multivariable analysis. Variables with p values  $\leq 0.05$  in multivariable logistic regression model analysis were considered as statistically significant.

Ethical Considerations

Ethical clearance was obtained from Debretabor University, College of Health Sciences, Institutional Health Research Ethics Review Committee (IHRERC). Then Official letter had been written to each Hospitals for permission and support. Permission letter was obtained from the selected hospitals'. Oral consent was taken from each participants. Data collected was used for the study purpose only and confidentiality was assured.

## Results

### Socio-demographic characteristics of the study participants

In this study, a total of 418 Women living with Human immune virus (WLHIV) were participated making a response rate of 99%. The mean age of the participants was 34.4 years (SD  $\pm$  6.5). Majority, 354(84.7%) were from urban(Table 1).

Table 1  
Socio demographic characteristics of the study participants in the hospitals of South Gondar Zone, Northwest Ethiopia, 2019 (n = 418).

Variables	Frequency	Percentage
Age	33	7.9
18–24 years	61	14.6
25–29 years	94	22.5
30–34 years	112	26.8
35–39 years	118	28.2
≥40 years		
Marital status	88	21.1
Unmarried	216	54.1
Married	56	13.4
Divorced	48	11.5
Widowed		
Residence	64	15.3
Rural	354	84.7
Urban		
Educational status	192	45.9
No education	96	23
Primary(1–8) education	56	13.4
Secondary(9–12) education	74	17.7
More than secondary education		

#### Reproductive history of the study participants

Ninety eight (23.4%) of women had pregnancy after HIV diagnosis. Almost all, 368 (88.0%) had no pregnancy during the study period.

#### Reasons not to desire children and reasons not to use contraceptives

Being unmarried (20.6%) is the leading cause not to desire children in the future (Fig. 1).

Among the eligible participants, 28.7% used contraceptives either for spacing or limiting. Being unmarried (32.1%) and infertile (16.3%) are the major reasons for those who didn't use contraceptives (Fig. 2).

## Child Bearing Intention

A total of 418 women on HAART were participated in the study. The finding showed that overall childbearing intention was 42.6%.

### Factor associated with childbearing intention

A binary logistic regression was done to identify the association between fertility desire and independent variables. In bivariable logistic regression *marital status, pregnancy* after HIV diagnosis, current pregnancy status, partner fertility desire, year of HIV diagnosis, have alive child and contraceptive use were met the criteria to be fitted into a multivariable analysis ( $P$  value  $\leq 0.25$ ). But, in multivariable analysis history of pregnancy after HIV diagnosis, partner fertility desire and having alive child were found to be significantly associated with childbearing intention.

Those who have history of pregnancy after HIV diagnosis were 5.2 times more likely to have childbearing intention than their counterparts [AOR = 5.19 ,95% CI: (1.83,14.7)]. Those women whose partners have fertility desire were 11 times more likely to have childbearing intention than women whose partners had no fertility intention [AOR = 10.99 ,95% CI: 10.99(4.34,27.86)]. Women who have alive children were 0.23 times less likely to have childbearing intention than women who have no alive child [AOR = 0.23 ,95% CI: 0.23(0.81,0.63)] (Table 2).

Table 2

*Logistic regression output for childbearing intention among HIV positive women attending ART at Hospitals of South Gondar zone, Northwest Ethiopia, 2019.*

Variables	Childbearing Intention		COR(95% CI)	AOR (95% CI)
	Yes	No		
Marital status	52(59.1%)	36(40.9%)	1	1
Unmarried	106(46.95)	120(53.1%)	0.61(0.37,1.01)	0.95(0.303,2.982)
Married	20(19.2%)	84(80.8%)	0.17(0.86,0.32)	0.61(0.135,2.734)
Dissolved				
Pregnancy after HIV diagnosis	62(63.3%)	36(36.7%)	3.03(1.89,4.84)	5.19(1.83,14.7)*
Yes	116(36.2%)	204(63.8%)	1	1
No				
Current pregnancy status	36(70.8%)	14(29.2%)	3.81(1.98,7.35)	2.61(0.57,11.93)
Yes	144(38.9%)	226(61.1%)	1	1
No				
Partner fertility desire	104(76.5%)	32(23.5%)	11.74(6.83,20.17)	10.99(4.34,27.86)**
Yes	36(21.7%)	130(78.3%)	1	1
No				
Year of HIV diagnosis	68(54%)	58(46%)	1	1
< 2 years	80(44%)	102(56%)	0.67(0.42,1.06)	0.84(0.31,2.27)
2–4 years	30(27.3%)	80(72.75)	0.32(0.19,0.55)	0.72(0.199,2.61)
> 4 years				
Contraceptive use	70(58.3%)	50(41.7%)	1	1
Yes	108(36.2%)	190(63.8%)	0.41(0.26, 0.63)	0.62(0.25,1.14)
No				
Have alive child	90(32.1%)	190(67.9%)	0.27(0.18,0.41)	0.23(0.81,0.63)***
Yes	88(63.8%)	50(36.2%)	1	1
No				
P-value - * 0.002, ** 0 .000, ***0 .004				

## Discussion

Identifying childbearing intention of women living with Human Immune deficiency Virus has an important input for prevention of mother to transmission strategy. In current study, childbearing intention among HIV positive women in this study was 42.6%. This is similar to the studies conducted in South Florida (39%), Northeast Brazil (40%), Malawi (33.3%), Tanzania (37.1%)(21), Southwest Ethiopia (40.3%) (22–26). But, higher than the findings in Atlanta (29.4%), West Gojjam Ethiopia (33.4%) (27, 28). The difference might be due to sample size differences, difference in target population, the study in Atlanta took the samples only less than one third of the sample sizes of this study. However, the finding of the study is lower than the findings from USA (56%), South Africa, African American women in USA (65%),Canada (69%), Northern Nigeria (75.8%),Cameron (83.3%) (24, 25, 27, 29–33). The possible reason could be difference socio-cultural/socio economic factors, study settings and service provision.

In this study, childbearing intention of women on antiretroviral therapy was associated by different factors such as pregnancy after HIV diagnosis, partner fertility desire and having alive child.

The study revealed that those who have history of pregnancy after HIV diagnosis were more likely to have childbearing intention than their counterparts. This study is in contrast with study conducted in Jamaica(34). This could be difference in sample size, study setting, study participant selection. The other reason might be ART use increase incidence of pregnancy an fertility desire (35, 36).

Those women whose partners have fertility desire were more likiliy to have childbearing intention than women whose partners had no fertility intention. The study is agreed on studies conducted in Malawi (26),India(37) .This could be due to discussion with spouse decision-making in relation to the cost ,PMTCT and utility of children.

Women who have alive children were less likiliy to have childbearing intention than women who have no alive child .This finding is agreed with previous findings from Finoteselam Hospital(28),Addis Ababa(38),South west Ethiopia(39), Ethiopia(40), South Africa (33), Malawi (26),Tanzania(21) .This could be discriminative attitude face by the mother i.e. 48% of women thought that children living with HIV should not be able to attend school with children who are HIV negative(41),fear of stigma and discrimination (42). The other reason could be fear of mother to child transmission, care of alive child.

Limitation of the study

The study participants were only women on ART

## Conclusions

Though a significant number of participants discussed an important preconception care practices with their care providers, much is needed to improve and hasten their discussion. Pregnancy after their HIV diagnosis, partner fertility desire and having alive child were factors associated with child bearing intention.

## Abbreviations

AOR: Adjusted Odds Ratio; HAART (Highly Active Antiretroviral Therapy); HIV/AIDS: Human Immune Virus/Acquired Immune Deficiency Syndrome; IHRERC: Institutional Health Research Ethics Review Committee; USA: United States of America; WHO: World Health Organization.

## Declarations

*Ethical approval and consent to participate:* Ethical clearance was obtained from Debretabor University, College of Health Sciences, and Institutional Health Research Ethics Review Committee (IHRERC).

*Consent to publication:* Not applicable

*Availability of data and materials:* Data will be available upon request from the corresponding author.

*Competing interests:* The authors declare that they have no competing interests.

*Funding:* Not applicable

*Authors' Contribution:* AS worked on designing the study, training the data collectors, supervising the data collectors, interpreting the result. BM, DM analyzed the result and wrote the manuscript. All authors involved starting from design, data interpretation, to critically review the manuscript.

*Acknowledgments:* The authors acknowledged mothers who participate in the study and data collectors.

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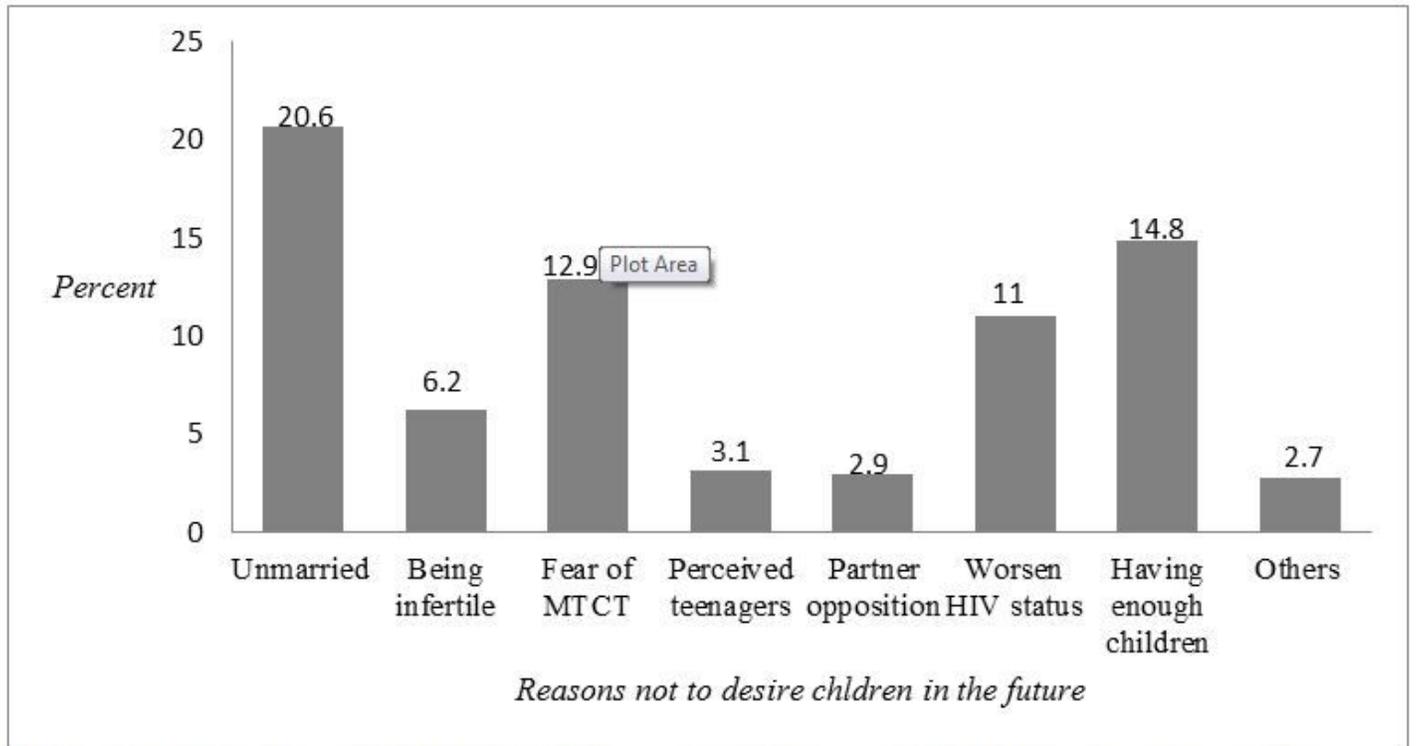
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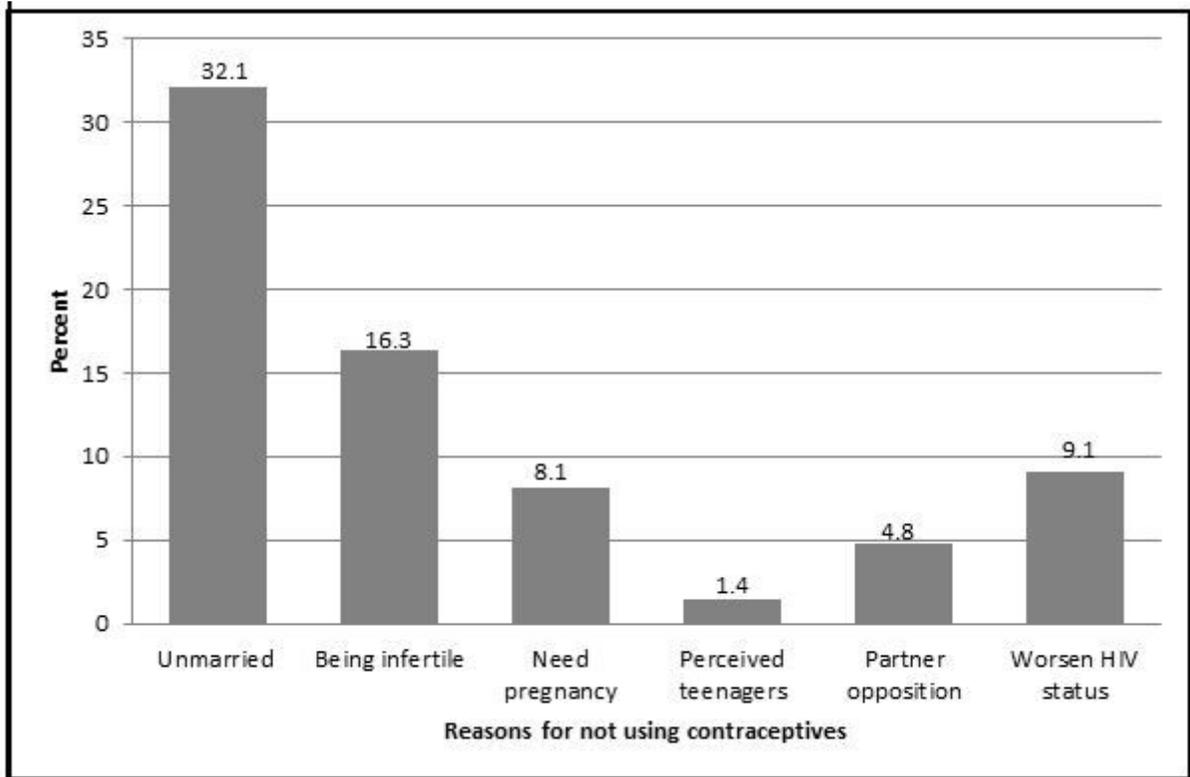
## Figures



*\*Others: Advice from neighbors, health care workers, perceived low economic status*

**Figure 1**

Reasons not to desire children in the future among women on ART care in the hospitals of South Gondar Zone, Ethiopia, 2019



## Figure 2

Reasons for the participants not to use contraceptives among women on ART care in the hospitals of South Gondar Zone, Ethiopia, 2019