ASRAT WOLDEYES HEALTH SCIENCE CAMPUS

DEPARTMENT OF PUBLIC HEALTH

DETERMINANTS OF FERTLITY DESIRE AMONG HIV POSITIVE WOMEN WHO ATTEND ART CLINIC OF PUBLIC HOSPITALS IN NORTH SHEWA, AMHARA, ETHIOPIA, 2022: A CASE CONTROL STUDY

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ABBREVIATIONS AND ACRONYMS

AIDs----------Acquired Immune Deficiency Syndrome

ART----------Antiretroviral Treatment

CD4----------Cluster of Differentiation

DBCSH----------Debre Birhan Comprehensive Specialized Hospital

ETB----------Ethiopian Birr

HIV----------Human Immune Deficiency Virus

PLWHIV----------People Living With Human Immune Virus

PMTCT----------Prevention of Mother to Child Transmission

PPS----------Probability Proportion To size

RNA----------Ribonucleic Acid

SRS----------Simple Random Sampling

SSSA----------Survey of Sub-Saharan Africa

TND----------Test Not Done

USA----------United States of America

VIF----------Variance Inflation Factors

ABSTRACT

Background: The desire to give birth is the intention that both men and women will give birth to more offspring, despite being diagnosed with human immune virus. Over 90% of HIV infections in infants worldwide are due to mother-to-child transmission. Despite the increasing numbers of women living with HIV/AIDS, little is known about their actual fertility needs and their determinant. This study is designed to gain insight into determinants of fertility desire.

Objectives: the aim of this study is to identify determinants of fertility desire among HIV positive reproductive age women who attend ART clinic of public hospitals in north shewa, Amhara, Ethiopia, 2022.

Methods: Facility based unmatched case control study was conducted among 376(case=188, control=188) women in 4 selected hospitals in North shewa Zone. Study was conduct from 6/June – July 24 /2022 and Simple random sampling was applied to select each respondent. Data were collected by trained nurse and clinical pharmacy that were worked at public hospitals and one nurse supervisor. Questionnaire was checked for completeness before data entry in to software. Finally, data was entered in to Epi Info version 4.6.0.0 and exported to SPSS version 20 for analysis. Bivariable analysis was done to see the association between predictor variable with outcome variable. Variables with p- value ≤ 0.2 in binary logistic regression analysis were the candidate for multivariable logistic regression to control potential cofounder. Adjusted odd ratio was employed to assess the presence and strength of associations and P-value ≤ 0.05 was considered as statistically significant with fertility desire.

Result: A total of 188 cases and 188 controls completed the interview which made the response rate was 100% and the median age of the respondents were 35years (SD±6.9).Based on the finding being married (AOR=3.5,95%CI(1.72-6.94)), having fewer child (AOR=5.2,95%CI(2.68-10.13)), awareness about PMTCT (AOR=7.9,95%CI (3.41-18.22)) and currently not contraceptive use (AOR=3.1,95%CI(1.74-5.70)) were independently association with fertility desire.

Conclusion & recommendations: In this study marital status**,** having fewer child**,** awareness about PMTCT and current contraceptive use were significantly associated with fertility desire. Health care providers who are working on an ART clinic should try to discuss on sexual and reproductive health issues and provide proper counseling for those currently having fewer child, married couples and currently contraceptive use to have HIV free child with their clients.

Key words: Antiretroviral Treatment Clinic, Fertility Desire, Human Immune Deficiency Virus Positive Women,

1. INTRODUCTION

1.1 Background

The desire to give birth is the intention that both men and women will give birth to more offspring, despite being diagnosed with human immune virus, and the intention means a commitment to satisfy the desire(1, 2). The desire to have a child is an expression of an HIV-infected person having a child in the future. One of the unexpected effects of antiretroviral therapy is that most people infected with human immune virus are of childbearing age, so one of the unexpected effects of ART could increase the desire of those affected by the disease to have children (3).

An estimated 36.7 million people worldwide live with HIV/AIDS. More than 25.5 million of them live in Africa, and 76% of all HIV-positive women live in sub-Saharan Africa(4).

Acquired immune deficiency syndrome related illnesses remain the leading cause of death among women of reproductive age (15–49 years). It is the second leading cause of death among young women aged 15–24 years globally, and the first in Africa(5) .

Since the start of ART treatment, the lives of human immune virus positives have been changed to a chronically ill patient. antiretroviral therapy has also played an important role in decreasing perinatal human immune virus transmission to less than 2%, thereby reducing women's concern regarding HIV transmission to their infants(6) .

Before the availability of antiretroviral therapy (ART) in Africa, women infected with HIV not only had reduced fertility, but also reduced fertility aspirations as many women, men, and health providers were opposed childbearing by persons infected with HIV. As access to ART increased, several studies documented a rebound increase in fertility desires (7-9).

In 2017, there were about 615,000 people living with human immune virus in Ethiopia, of whom 65% were female. 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(10).

A study conducted Amhara regional referral hospitals show that women with the age group of 25–34 years, having their sexual partner and married women had a positive association, whereas having one or more live children and having no formal education had a negative association with fertility desire(11).

A case control study conducted in Afar region with the age categories of 20-24 years and 25-29 years, being married and Afar ethnicity were significantly associated with desire for children(9).

It is important to understand the fertility desires and intentions of the recent generation of HIV-positive women in order to advance programs to upkeep them and their current and future complements in planning safer pregnancies that protect the health of the women, their partners and their children(1).

1.2. Statement of the problem

Acquired immune deficiency syndrome related illnesses remain the leading cause of death among women of reproductive age (15–49 years). It is the second leading cause of death among young women aged 15–24 years globally, and the first in Africa(12).

The desire of people living with HIV (PLWHA) to have children can have major impact on public health. Globally, more than 34 million people living with HIV and nearly 30 million people have died by acquired immune deficiency syndrome (AIDS) related causes since the beginning of the epidemic(13).

Over 90% of HIV infections in infants worldwide are due to mother-to-child transmission (MTCT). Without proper intervention, HIV/AIDS infection rate ranges from 15% to 45%. This transmission rate can be reduced to less than 5% with effective interventions during the time of pregnancy, delivery, childbirth and lactation (14).

In sub-Saharan Africa, the high HIV positive rate, high fertility rate and narrow coverage of modern contraceptive make addressing the fertility rates of PLWHIV becomes increasingly important. Pregnancy can pose additional risks for HIV positive women and their children. Women living with HIV should be aware of these risks if they plan to have children (14).

Several studies that have described pregnancy intention rates in different contexts of people living with HIV have reported that the rate of transmission from mother to child ranges from 17% in Uganda to 63% in Nigeria(13, 15).

In Ethiopia, the prevalence of HIV was 1.8% for males and 2.8% for females (16). HIV prevalence among women of the reproductive age (15–49 years) was 0.9% and the most affected group are those who are sexually active and economically productive falling within the 25–49 age group(15).

In 2007, an estimated 90,000 people receiving ART in Ethiopia. Number of pregnant women with HIV who received ART for PMTCT was 4,888 (13).

Unprotected sex with PLHIV carries risk of transmitting HIV to a sexual partner and then to their children during pregnancy, birth and lactation. The fertility needs made by PLHIV and their partners have long-term implication for the survival and wellbeing of their families and society as a whole(17).

In Ethiopia, the issues of childbirth and childbearing plan have not been extensively studied, despite the increasing numbers of women living with HIV/AIDS (4). Human immune virus and Acquired immune deficiency syndrome infection contributes to the decrease of fertility among PLHIV by causing abortion and stillbirth or through decreased sexual desire and marital disruptions among other ways (18-20).

Thus, HIV infection causes profound changes in the social life, fertility intention, sexual and reproductive behavior of the affected individuals and community as whole (21, 22).

Study will have an implication for PMTCT of HIV/AIDS, the need for counseling to facilitate informed decision-making about reproductive age, and the future demand for services of children born to infected women by identifying factors that determine fertility desire of women. Despite the increasing importance of infertility problem in people living with HIV, little is known about their actual fertility needs and their determinant. It is important to help infected individuals who needs to have children and it serve as a benchmark for incorporating fertility-related counseling and services like PMTCT as appropriate, in to HIV treatment services (16).The current study is designed to gain insight into the women's fertility desire and its determinants.

1.3 significance of the study

After completion of this study, the finding of this study might be importance for North Shoa public hospitals, to use the data for appropriate intervention on fertility desire at the site.

So far, determinants of fertility desire were not studied extensively in the health institutions and no similar researches were done in this study area. Hence, this study interested to find out them and had the following importance:-

It might provide relevant information to health care providers on fertility desire and its determinants, which make them to provide intensive professionally based fertility needs and also has important for base line data for scientific community and other researchers.

It might be valuable input for health information documentation at the institution level.

In addition, it is important for policy makers to identify the determinant factors of fertility desire among HIV positive reproductive age women and it serves as input information for health care providers to create awareness on PMTCT for HIV positive reproductive age women about the main determinant influencing fertility desire.

2. LITERATURE REVIEW

2.1 Fertility desire

Three least developed countries including Bangladesh, Ethiopia and the Democratic Republic of the Congo were among the ten most populous countries in the world. Thus, whereas the population of more developed regions was rising at an annual rate of 0.34 percent, that of the less developed regions was increasing four times as fast, 1.37 per cent annually, and the least developed countries as a group were experiencing even more rapid population growth, at 2.3 per cent per year(23).

A Study conducted among 490 HIV-positive women of reproductive age living in Ontario, Canada, has shown that 69% desire and 58% intend to become pregnant in the future(1).

A study conducted in South Africa revealed that 32.9% prevalence of fertility desire(24) ,while a study from Tanzania, Kenya and Uganda reported 37.1%, 34% and 28.6% respectively had prevalence fertility desire(21, 24, 25).

Another study conducted Malawi showed that the proportions of HIV-positive women who wanted to have children in the future were 17%(26).

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(16).

In a study that looked at the desire for children among HIV-infected women in Uganda, it was found that 33% of participants practiced pregnancy risk behavior, yet only 18% desired more children(27). Of the 33% practicing pregnancy risk behaviors, 73% of those participants did not want more children and were at high risk for unwanted pregnancies(27)

Study conducted in Ethiopia show that had high value for fertility culturally, high HIV prevalent, and increased intention to have a child, accordingly, 17% of women want to have another child soon (within the next two years) and 38% want to have another child later (in two or more years) and 37% of currently married Ethiopian women want no more children(12). Even if, no disaggregated data by HIV status, the prevalence of HIV among reproductive age (15-49 years) were 0.9%, (women were 1.2%, and men 0.6%), HIV prevalence by residence, urban is seven times higher than rural areas (2.9% versus 0.4%)(12)

Studies conducted that level of fertility desire among women living with HIV. For example, in Addis Ababa, West Ethiopia, and Jimma, indicated that 40.8%, 42% and 46.8% of HIV positive women had fertility desire respectively (9, 28, 29).

In Ethiopia, different studies indicated different levels of fertility desire among HIV-positive women. A study done in Nekemt Town(14) , Tigray, (30)and Addis Ababa (31) demonstrated that the proportions of women living with HIV who had fertility desire were 42.1%, 45.5%, and 56.2%, respectively.

In Ethiopian context a study that was carried out in six public hospitals' ART units in Addis Ababa to assess fertility desire showed that the desire to have children among HIV positive women receiving ART care was 44.7% (47).

2.2 Socio-demographic determinant

A study conducted in Canada show that age, ethnicity and residence were significantly associated with fertility desire(1).

A numerous study of settings have pointed those different factors which determine the fertility desire of HIV-positive women. For example, young age of HIV infected individuals is significantly associated with increased fertility desire (1, 32, 33). Decreased fertility desire is associated with divorce or separation, as well as having at least one child (1, 25, 34). Sero-discordance could also affect fertility desire of couples.

The relationship between education attainment of parents and level of fertility generally noted in SSSA countries and other parts of the world has been an inverse one. Groups with high educational attainments (either husband or wife) have lower fertility than low educational groups(30, 31).

A study conducted in Nigeria revealed that predictors like religion, duration of diagnosis, low parity and awareness of partner’s sero-status had significant predictors of fertility desires(6).

A study conducted in Uganda reported that age of the respondents , marital status (married), and number of living children were significantly associated with fertility desire(21).

A study from Cape Town, South Africa revealed that those with more years of education and more biological children had lower odds of intending fertility (1).

A case control study conducted in Jimma University medical college show that age of woman and sexual partner had significant association with fertility desire(4).

A study conducted in Addis Ababa during 2006 aimed to identify the factors of fertility desire among HIV positive reproductive age women with a sample size of 311 revealed that respondent in aged 18 to 29 years were more likely than the >50 age groups to desire having children(35).

A study conducted in Awassa in 2009, educational status of women was mainly found to be associated with high fertility, even after adjustment for other basic socio-demographic variables. Mothers with educational status of above primary school had less risk of having 5 or more child ever born(36).

A study conducted in Amhara regional referral hospitals show that age group of 25-34 and married woman had significant association with fertility desire (37).

A study conducted in Afar show that age categories of 20-24 years and 25-29 years, being married and Afar ethnicity were factors significantly associated with desire for children(9).

2.3. Sexual and reproductive history related determinants

The study done in British Columbia, Canada show that of the 230 surveys completed, 25.8% of women living with HIV indicated an intention to have children. Non-aboriginal ethnicity, 18- 28 and having , and regular partner were associated with an increased likelihood of reporting the intention to have children in the future(38).

An evidence in USA show that women's health plays role and no objective parameters such as a decrease in CD4 count or a high viral load had significant influence in the desire to have children(39).

Evidence indicates that women living with HIV continue with desire of having more children at varying degrees. For example, two studies conducted in Canada and Malawi showed that the proportions of HIV-positive women who wanted to have children in the future were 69% and 17%, respectively(4).

A study done in Uganda show that, majority, of the participants had desired to have children. They belief that their partner wanted children was a major determinant of the desire to have children, irrespective of the HIV sero-status. Among couples in which the woman was HIV-positive, young age and relatives' expectations for children were significantly associated with increased fertility desire; knowledge of ART effectiveness was associated with increased fertility desire. Availability of information on contraception was associated with decreased fertility desire(32).

Study conducted in Malawi Lilongwe contraceptive use and factors associated with not using contraception among participants who did not desire future fertility(26).

Study conducted in northern Nigeria showed those who had not used family planning was significantly associated with fertility desire (40).

A study from South Africa stated that ART increased the fertility desire of couples over time(35) And that the pregnancy rate among women who recently initiated ART with a low CD4 count and a high viral load was high (41). Furthermore, women on ART quickly became pregnant even before their CD4 count improved, both because they wanted to fulfill their social role as women and because they wanted to prove that they were healthy(42).

Study conducted in South Africa, Cape Town shows that participants who had fewer children were significantly associated with fertility desire (43).

A woman whose partner's desire for children is different from hers was associated with about four times higher of desire for more children than women who desire the same as their partners(44).

A study conducted in Amhara regional referral hospitals show that sexual partner had significant association with fertility desire (37).

Study conducted in hosanna town show that the respondent who had no children, being married, family planning user and having knowledge on mother to child transmission plan to fertility desire were significantly associated with fertility desire (45).

HIV disclosure to a woman's sexual partner has also been associated with her having increased fertility desire (21, 25).

Women living with HIV/AIDS should be aware of these risks when considering whether to have children and planning a family(18).

In Ethiopia, different studies indicated different levels of fertility desire among HIV-positive women. A study done in Nekemt Town and Tigray demonstrated that the proportions of women living with HIV who had fertility desire were 42.1%, and 45.5%, respectively(4).

A study conducted in western Ethiopia revealed that ,partner fertility desire and sero-status were significantly associated with fertility desire(14) .

The study conducted in Addis Ababa, Ethiopia, show that, having a sexual partner, being single and having fewer or no children was significantly associated of fertility intentions. The presence

of ART, improvement of health condition and the influence of husband were the main reasons for childbearing intentions of women in the study area(46).

A study conducted in fitche hospital ,Ethiopia revealed that, marital status, family pressure, partner and disclosed HIV sero-status were significantly associated with fertility desired(47).

A study conducted in felege hiwot referral hospital, Bahir dar revealed that, sexual active and absence of children were significantly associated with fertility desire(10).

Another study from Afar reported that having HIV-positive children, duration on ART more than one year, CD4 count greater than 350 and discussion of reproductive health issues with health providers were determinant factors of fertility desire(9).

Study conducted in awe zone show that Family planning use was a factor that affects fertility intention of people living with HIV. As a result, respondents who did use family planning was associated with lower odds of fertility intention (AOR=0.15)(12).

Study conducted in Jimma University Medical Center show that those who were not using family planning had significant association with fertility desire than those who had used family planning(4).

Study conducted in finote salami shows those who had not used family planning currently and those had no child currently were significantly associated with fertility desire (48).

3. CONCEPTUAL FRAMEWORK

The following conceptual frame work was adapted with modification and constructed specifically for this study following a thorough review of pertinent literatures (4, 9, 14).

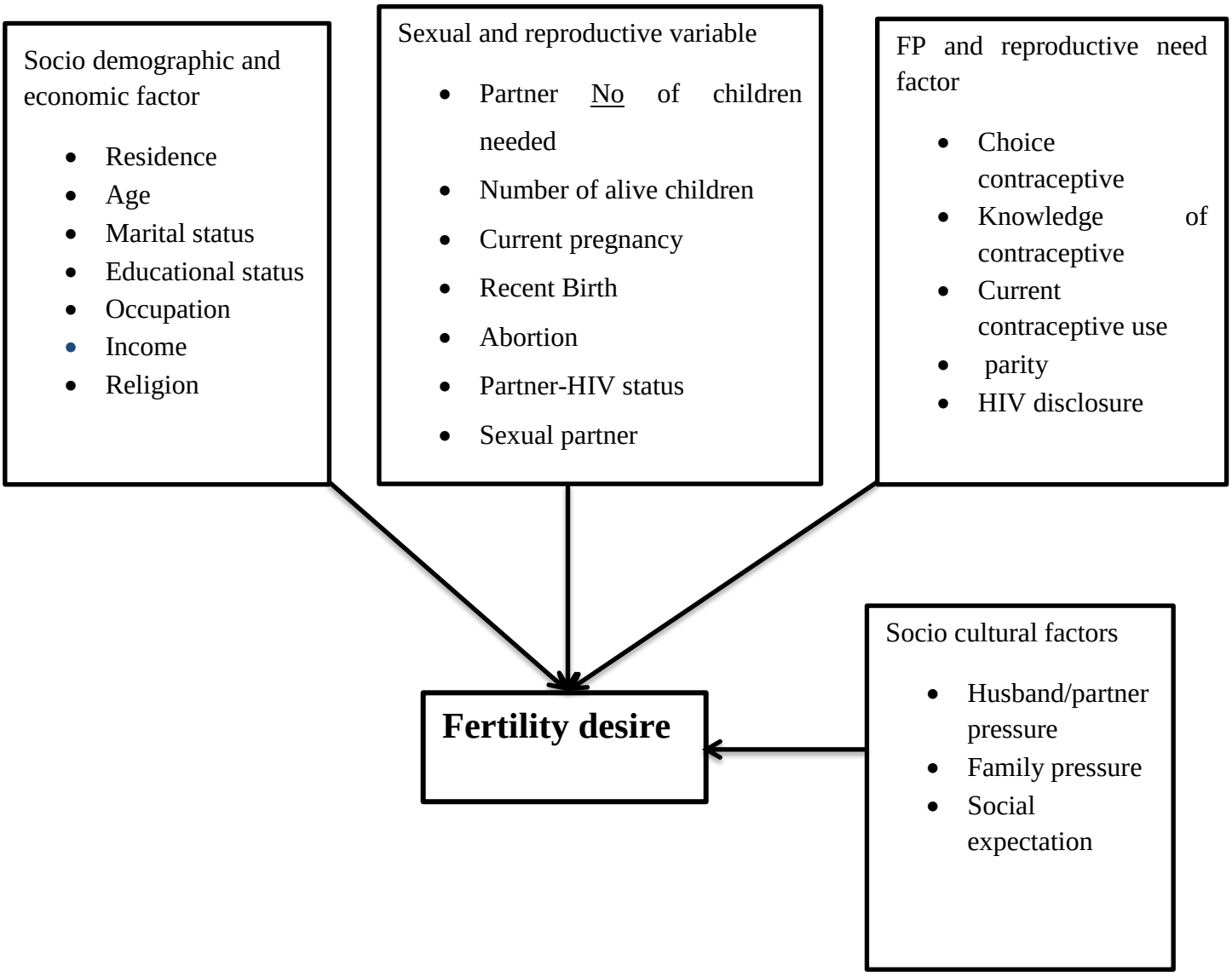

Figure 1: Conceptual frame work adapted and constructed for study on determinants of fertility desire among HIV positive reproductive age women, 2022 .

4. OBJECTIVE

4.1General objective:

To identify determinant factors of fertility desire among HIV positive women who attend ART clinic of public hospitals in North Shewa Zone, Amhara Region, Ethiopia, 2022.

5. METHODS

5.1. Study area and period

The study was conducted in North Shewa, in central of Ethiopia. North Shewa is zone in Amhara regional state of Ethiopia. This Zone is bordered on the South and the west by Oromia Region, on North by South Wollo, on the Northeast by Oromia Zone and on East by Afar Region. North Shewa is situated 2,840m above sea level and 130, 000 m in Northeast of Addis Ababa.

According to the North Shoa Zone plan commission, in the year 2019/2020, the total number of population in the Zone is projected to 2,299,203. Out of these 1,120,398 are female and, 85% of the population lives in a rural area and it was conducted from June 06/2022-July 24/2022.A total of 3221 HIV-positive individuals were on ART follow-up at DBCSH ART clinic, of whom 1288 were females and 994 were women in the reproductive age, a total of 697 HIV positive individuals are on ART follow up at Enat General Hospital ART clinic, of which 430 are females and 343 are women in reproductive age, a total of 472 HIV-positive individuals are on ART follow up at Mehal Meda General Hospital ART clinic, of which 306 are females and 242 are woman in reproductive age and a total of 297 HIV-positive individuals are on ART follow up at Ataye Primary Hospital ART clinic, of which 181 are females and 160 are women in reproductive age.

5.2 study design

The study design was Facility based unmatched case control study.

5.3 Population

5.3.1 Source of population

All HIV- positive women attending ART clinics in North Shewa Zone in hospitals were source of population.

5.3.2 Study population

Case: All HIV-positive reproductive age women who have fertility desire and attending in ART clinic during the study period.

Control: All HIV-positive reproductive age women who have no fertility desire and attending in ART clinic during the study period.

5.4. Eligibility criteria

5.4.1 Inclusion criteria:

Women living with HIV in the reproductive age (15–49) who have a follow-up in the ART clinics and have fertility desire was included as case, while women living with HIV in the reproductive age (15–49) who have a follow-up in the ART clinics and have no fertility desire was included as control.

5.4.2 Exclusion criteria:

Mentally incompetent and had hearing difficulties was excluded from case and control.

5.5. Sample Size Determination

Sample size was calculated using Epi Info version 7 for unmatched case control study. By taking 95% confidence interval, 80% power, 48.5% proportion of control and 51.5% proportion of case for HIV positive women with current sexual partners, an odds ratio of 1.9 (4) . Using 1:1 case to control ratio.10% was added to the initial sample size to accommodate for none response rate, final sample size is 376(188 cases, 188 controls) (Table 1).

Table 1: Sample size calculation to identify determinants of fertility desire among HIV positive reproductive age women who attend art clinic of public hospitals in north shewa, Amhara, Ethiopia, 2022. Using variables from literature

s/no	Factors	CI	Powers of test	Exposure among controls	AOR	Case to controls ratio	Initial sample size	After adding NR	Reference
1	Being 20-24age group	95%	80%	81.9%	6.22	1:1	164	180	(9)
2	Marital status (being married)	95%	80%	38.2%	5.5	1:1	58	64	(9)
3	Having HIV positive children	95%	80%	52.9%	0.23	1:1	80	88	(9)
4	Duration on ART>1	95%	80%	42.2%	3.5	1:1	98	108	(9)

	year								
5	Recent CD4 count>350	95%	80%	20.4%	4.8	1:1	70	78	(9)
6	Age 25-34 category	95%	80%	40.2%	2.3	1:1	204	224	(4)
7	Having sexual partner currently	95%	80%	48.5%	1.9	1:1	340	376	(4)
8	Not utilizing family planning	95%	80%	44.5%	2.3	1:1	206	226	(4)
9	Age 25-34 category	95%	80%	49.8%	2.8	1:1	146	160	(37)
10	Marital status(being married	95%	80%	49.6%	2.3	1:1	212	234	(37)
11	Having regular partner	95%	80%	49.8%	3.5	1:1	106	116	(37)

5.6 Sampling Technique

In North Shewa Zone there are 10 public hospitals; so, by using simple random sampling technique four public hospitals were selected, which are Debre Birhan comprehensive specialized hospital, Mehal Meda general hospital, Ataye primary hospital and Enat general hospital. The list of ART follows up reproductive age women in each hospital obtain from registration book, Smart care and Data base 2. Hence, the total respondents of 108 cases and 108 control, 26case and 26 controls, 17 cases and 17 controls and37 case and 37 controls in DBCSH, MGH, APH and EGH were selected proportionally respectively. The contribution of each Hospital for Sampling drawn by using Probability Proportion to Size (PPS).The respondent from each hospital registered in registration book and Smart care were selected through simple random sampling technique (SRS) (figure 2).

NB: Total HIV positive reproductive age women in selected hospitals are 1739

So depend on this I have calculated sample size in each hospital by using proportional to size

- ✓ Debre Berhan comprehensive specialized hospital has 994 HIV positive reproductive age women in ART clinic follow up

$$\frac{994 \times 376}{1739} = 216 \text{ (108 cases, 108 controls)}$$

- ✓ Enat general hospital has 343 reproductive age women in ART clinic follow up

$$\frac{343 \times 376}{1739} = 74 \text{(37 cases, 37 controls)}$$

- ✓ Mehal meda general hospital has 242 HIV positive reproductive age women in ART clinic follow up.

242x376 = 52(26 cases, 26 controls)
1739

- ✓ Ataye primary hospital has 160 HIV positive reproductive age women in ART clinic follow up

160x376 =34(17 cases, 17 control
1739

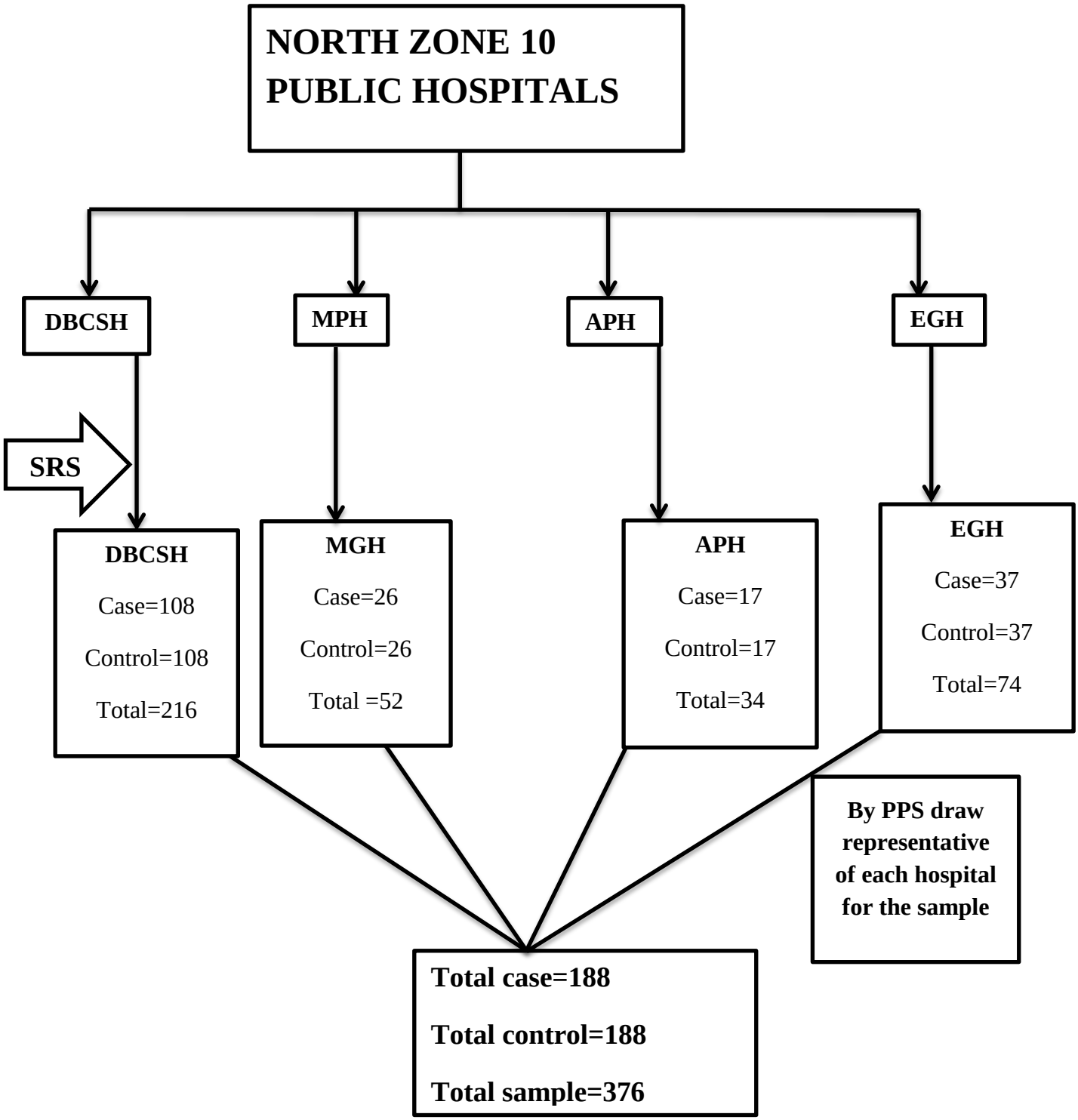

Figure 2: Schematic presentation of sampling technique among HIV positive reproductive age women on ART clinic in public hospitals of north shoa Zone, Amhara region, Ethiopia, 2022.

5.7. Data Collection Procedures and Tools.

The questionnaire was adapted by reviewing different literatures and some modification has done by considering the local situation and study area (4, 9, 20, 37, 49). For the identification of cases and control Data base 2 and Smart care was used since all HIV positive reproductive age women are register in registration book and smart care so, they were listed in their age. Participants were interviewed face-to-face by trained data collectors using semi structured pre-tested questionnaires. Data was collected by trained nurse and clinical pharmacist that were worked at ART clinic and other Out Patient Department of each hospital

Data collectors were selected based on work experiences especially those who were involved in chronic HIV care. Training was given for 9 data collectors (5 male, 4 female degrees) nurses and pharmacy and they had two years and above experience in Governmental Hospitals .The selection of health workers who were involved in ART follow up care was due to the confidentiality and increased their cooperativeness than if data collectors were selected by elsewhere from ART units.

The questionnaire constitutes information on socio-demographic, socio-economic variables and HIV pregnancy-related knowledge, reproductive health related characteristics, clinical characteristics of participants and fertility desire related characteristics. The questionnaire was first prepared in English then translated in Amharic local language and back translated to English. Medical records of HIV positive women were reviewed to confirm HIV status and other relevant medical history, including date of HIV diagnosis, recent CD4 count, ART status, date of ART start.

5.8. Study variables

5.8.1. Outcome variable:

Fertility desire (yes, no)

5.8.2. Predictor variable:

Socio-demographic and economic variables	**Sexual and reproductive**
age	Abortion
marital status	parity
Occupation	sexual partner
educational status	partner's HIV status
residence	number of living children
income	current contraceptive use
Clinical variables	partner's desire for children
CD4 count	HIV disclosure
socio cultural	HIV pregnancy related knowledge
Peer pressure	Choice of contraceptive
husband pressure	
Family/Social expectation	

5.9 Operational definitions

5.9.1. Sexually Active. Women who had at least one sexual practice during the last six months before the interview were labeled as sexually active (31).

5.9.2 Reproductive age group is defined as a woman within age ranges between 15-49 years and had started ART.

5.9.3 Fertility Desire is defined as having a wish or interest with capability to be pregnant at least once or more than one time within a definite time period after getting HIV infection (50).The outcome variable for the study (fertility desire) was measured by answers to the question: "Are you currently planning to have (more) children in the near future? "Women's were free to respond "Yes", "No", or "Do not know", the small proportion of women who respond "Do not know"(if 5%)were included in the "No" category (51). Finally positive ("Yes") response to the above question was observed as fertility desire.

5.10. Data quality controls and data quality assurance

The questionnaires were designed carefully. A designed questionnaire was translated first in to Amharic and back to English to assure it consistency. The questionnaire was pretested 5% of total sample size in Debre Sina Primary Hospital and the necessary modification was

accommodated. The collected data was checked for completeness, accuracy, clarity, and consistency by supervisor and the principal investigators on daily basis. Any error or ambiguity and incompleteness were corrected. The patients' response was checked with medical records and in case of inconsistent finding, patients' response was taken.

5.11 Data processing and analysis

Following accomplishment of data collection activities, the questionnaires was entered to Epi Info version 4.6.0.0 and then, exported to SPSS version 20, to accomplish further data exploration procedures; along with the required statistical data analysis methods. Descriptive statistic was done to summarize data and the result was reported using frequency and percentage. Then bi-variable logistic regression analysis was carried out to see the association between predictor variable and fertility desire .Variables which had p-value ≤ 0.2 were candidate for multi-variable logistic regression analysis to see the potential confounding variables. Multicollinearity test was done using variance inflation factor (VIF), which were <10 for each variable interaction. Moreover, before using the model for further interpretation, the model adequacy was checked using Hosmer- Lemeshow goodness of the fit statistical method, p-value >0.05. Finally, variables with P-value, ≤ 0.05 in the multivariable logistic regression model was taken as statistically significant and adjusted odds ratio along with its 95% confidence interval was considered to see the association. Finally the data were presented using statements, tables and graph.

5.12. Ethical consideration

The ethical clearance letter was obtained from DBU, Asrat Woldeyes Health Science Campus and ethical clearance board. I asked permission from Debre Berhan comprehensive specialized hospital, Enat general hospital, Mehal meda general hospital and Ataye primary hospital to collect the basic information on my title from each hospitals medical directors and health information technology professions .All aspect of basic ethical research principle are addressed, and so the study participants were selected based on the research requirements. The study was conducted by taking into account appropriate information for interview face to face of respondent and does not harm patients. No name or other identifying information will be included in the questioner. To ensure confidential, the data taken from respondent will be kept in confidentially.

6. RESULT

6.1 Socio-demographic characteristics of participants

The study included a total of 376 (188 cases and 188 controls) with response rate of 100%. Ninety-nine (49.5%) cases and 101(50.5%) controls among the respondents were urban residents. The majority of cases and controls were in the age ranges of 25–34(62.3%) and 35–49(59.7%), respectively. The median age of the respondents was 35 years old (SD±6.9). One hundred fifty-five (48.9%) cases and 162(51.1%) controls were followers of the orthodox faith. Among the respondents, 119(61.3%) of cases and 75(38.7%) of controls were married. Regarding ethnicity, 151(47.9%) of the cases and 164 (52.1%) of controls were Amhara. By educational status, 28 cases (36.4%) and 49 controls (63.6%) were illiterate. Of the participants, sixty (44.4%) of cases and 75 (55.6%) of controls had an income category of 600–1499(46, 52). The results showed that, by occupation status, 41(58.6%) of cases and 29(41.4%) of controls were government employees (Table 2**).**

Table 2:- Socio-demographic characteristics of cases and controls among HIV positive in the selected public hospitals of North Shewa Zone, Amhara region, Ethiopia 2022.

Variables	**Category**	**Cases (n=188) No. (%)**	**Controls (n=188) No. (%)**
Place of residence	Rural	89(50.6%)	87(49.4%)
	Urban	99(49.5%)	101(50.5%)
Age	15-24	15(51.7%)	14(48.3%)
	25-34	94(62.3%)	57(37.7%)
	35-49	79(40.3%)	117(59.7%)
Marital status	Married	119(61.3%)	75(38.7%)
	Single	27(61.4%)	17(38.6%)
	Widowed	16(27.6%)	42(72.4%)
	Divorced	26(32.5%)	54(67.5%)
Religion	Orthodox	155(48.9%)	162(51.1%)
	other*	33(55.9%))	26(44.1%)
Educational status	Illiterate	28(36.4%)	49(63.6%)
	Read and write	28(48.3%)	30(51.7%)

	Primary school	53(52%)	49(48%)
	Secondary school and above	79(56.9%)	60(43.1%)
Income	<599	27(45%)	33(55%)
	600-1499	60(44.4%)	75(55.6%)
	1500-2399	43(53.8%)	37(46.2%)
	2400 and above	58(57.4%)	43(42.6%)
Occupation	Gov. Employee	41(58.6. %)	29(41.4%)
	Housewife	19(45.2%)	23(54.8%)
	Daily laborer	20(45.5%)	24(54.5%)
	Private employee	85(53.8%)	89(46.2%)
	other*b	23(50%)	23(50%)
Ethnic	Amara	151(47.9%)	164(52.1%)
	other***	34(61.8%)	21(38.2%)

NB: other*(Muslim, catholic and protestant),Other*b (unemployed, student, house servant and sex worker),Other*** (Oromo, Guarage and Tigray)

6.2 Sexual and Reproductive characteristics.

One hundred twenty-one (53.3%) of cases and 106(46.7%) of controls knew the status of their partner. Approximately two-thirds of 112(54.4%) of cases and 94 (45.6%) of controls were positive for the result of their partner.

Twenty-eight (23.9%) of cases and 89(76.1%) of controls had two or more children given birth in the past. Sixteen (76.2%) of cases and five (23.8%) of controls had no children at the moment. One hundred twenty eight (48.1%) of cases and 138(51.9%) of controls had undergone their first pregnancy at the age of 25 or older. One hundred fifty-seven (47.7%) of cases and 172 (52.3%) of controls had been pregnant in the past. One hundred five (54.7%) cases and 87(45.3%) controls were pregnant after they had known their HIV status. Thirty-eight (48.1%) of cases and 41 (51.9%) of controls had abortions in their past (Table 3).

Table 3: sexual and reproductive determinant of study participant in selected public hospitals in north shewa zone, Amhara region, Ethiopia in 2022.

Variables	Category	Cases (n=188) No. (%)	Controls (n=188) No. (%)
HIV status of your partner	Yes	121(53.3%)	106(46.7%)
	No	0(0.00%)	2(100.0%)
what is HIV status of your partner	HIV positive	112(54.4%)	94(45.6%)
	HIV negative	9(47.4%)	10(52.6%0
how many live child did you give birth	<2	129(60.8%)	83(39.2%)
	≥2	28(23.9%)	89(76.1%)
how many live child do have now	<2	72(67.9%)	34(32.1%)
	≥2	85(38.1%)	138(61.9%)
Age first pregnancy	15-24	128(48.1%)	138(51.9%)
	≥25	27(46.6%)	31(53.4%)
Have you ever been pregnant	Yes	157(47.7%)	172(52.3%)
	No	31(66.0%)	16(34.0%)
Pregnant after you had known your HIV status	Yes	105(54.7%)	87(45.3%)
	No	53(38.4%)	85(61.6%)
Abortion	Yes	38(48.1%)	41(51.9%)
	No	150(50.5%)	147(49.5%)

One hundred and eighty eight (50%) of study subjects desired to have children. Of these fifty, sixty and seventy eight of them wants to have child one, two and three and above respectively .in parallel to this fifty seven (30.5%) of them intended to fulfill their desired children with in less than one year, 69(36.9%) within 1-2 years and only 61(32.6%) of respondents intended within three and above (Table4).

Table 4: No of children Desired by Time among HIV positive Women who want to have children in the future in North Shewa Zone public Hospitals, Amhara region, Ethiopia, 2022.

Variable	Time to Have all Desired Children			
Number of Desired Children in Future		< 1 year	1-2 years	≥3years
	1	17(34. %)	14(28%)	19(38%)
	2	20(33.3%)	14(23.3%)	26(43.4%)
	≥3	2o (26%)	41(53.2%)	17(20.8%

6.3 Family Planning and Reproductive determinant of respondent

Regarding CD4, twenty-one (61.8%) of cases and 13 (38.2%) of controls had a CD4 count of less than 350. Nighty six (54.9%) of cases and 79(45.1%) controls had known their HIV status with in the 5-9 years. Twenty five (67.6%) of cases and twelve (32.4%) of controls had started ART service less than one year. One hundred nineteen (55.1%) of cases and 99 (44.9%) of controls had improved their current health status. Fifteen (57.7%) of cases and eleven (42.3%) of controls hadn't disclosed their HIV status to their partner.

One hundred nineteen (54.3%) of cases and 100(45.7%) of controls had heard about PMTCT. One hundred sixty three (50.2%) and 162(49.9%) of controls didn't get information from friends. Thirteen seven (40.2%) of cases and 55 (59.8%) of controls were believe that people living with HIV must be replace themselves.

Seven (24.1%) of cases and 22(75.9%) of controls hadn't awareness about PMTCT for their decision to have desired for children. Eighty one (43.1%) of cases and 107(56.9%) of controls were using contraceptive. Forty three (52.4%) of cases and 39 (47.6) of controls were using injectable as contraceptive. Regarding contraceptive decision, 43(50.6%) of case and 42(49.4%) of controls had joint decision (Table 5).

Table 5: family planning and reproductive health related determinants of study participants in the selected public Hospitals of North Shewa Zone, Amhara region, Ethiopia 2020.

Variables	**Category**	**Cases (n=188) No. (%)**	**Controls (n=188) No. (%)**
CD4	<350	21(61.8%)	13(38.2%)
	>=350	98(53%)	87(47%)

How long had you known HIV	<5years	22(68.8%)	10(31.2%)
	5-9 years	96(54.9%)	79(45.1%)
	10 and above	70(41.4%)	99(58.6%)
How long have you started art in years	<5 years	25(67.6%)	12(32.4%)
	5-9 years	108(53.7%)	93(46.3%)
	10 and above	55(39.9%)	83(60.1%)
Current health statuses	Improved	119(55.1%)	97(44.9%)
	Not improved	0(0.0%)	3(100.00%)
Disclosed to your husband/partner	Yes	104(53.9%)	89(46.1%)
	No	15(57.7%)	11(42.3%)
Did you know/heard about PMTCT	Yes	119(54.3%)	100(45.7%)
Where did you get information about PMTCT			
During HIV testing	Yes	95(54.8%)	115(45.2%)
	No	87(56.1%)	68(43.9%)
During follow up of antenatal visit	Yes	50(58.1%)	36(41.9%)
	No	132(47.1%)	148(52.9%)
During ART clinic follow up	Yes	84(55.6%)	67(44.4%)
	No	98(45.6%)	117(54.4%)
From mass media(radio, TV)	yes	29(50.9%)	28(49.1%)
	no	153(49.5%)	156(50.5%)
From friends(peers)	Yes	19(48.7%)	20(51.3%)
	No	51.3%	48.7%
awareness on PMTCT service	Yes	112(58.9%)	78(41.1%)
	No	7(24.1%)	22(75.9%)
Currently using any contraceptive	Yes	81(43.1%)	107(56.9%)
	No	107(56.9%)	81(43.1%)
which methods are you using	Injectable	43(52.4%)	39(47.6%)

currently	Norplant	32(35.2%)	59(64.8%)
	Other**	6(40%)	9(60%)
what are the reason for not using for contraceptives			
Fears of side effects	Yes	13(35.1%)	24(64.9%)
	No	94(62.3%)	57(37.7%)
Husband /partner opposed	Yes	2(66.7%)	1(33.3%)
	No	105(56.8%)	80(43.2%)
Parents opposed	yes	2(18.2%)	9(81.8%)
	no	104(59.1%)	72(40.9%)
Religious prohibition	yes	22(35.5%)	40(64.5%)
	no	85(67.5%)	41(32.5%)
Lack of knowledge	yes	20(29.4%)	48(70.6%)
	no	87(72.5%)	33(27.5%)
Others	yes	74(76.3%)	23(23.7%)
	no	113(40.6%)	165(59.4%)
Would you say that using contraceptive is mainly your decision or your spouse,	Female decision	39(37.9%)	64(62.1%)
	Joint decision	43(50.6%)	42(49.4%)

NB: other ** (pills, condom and IUCD)

One hundred seventy four (49%) of cases and one hundred eighty (51%) of controls had discussed on reproductive health needs with ART services providers.

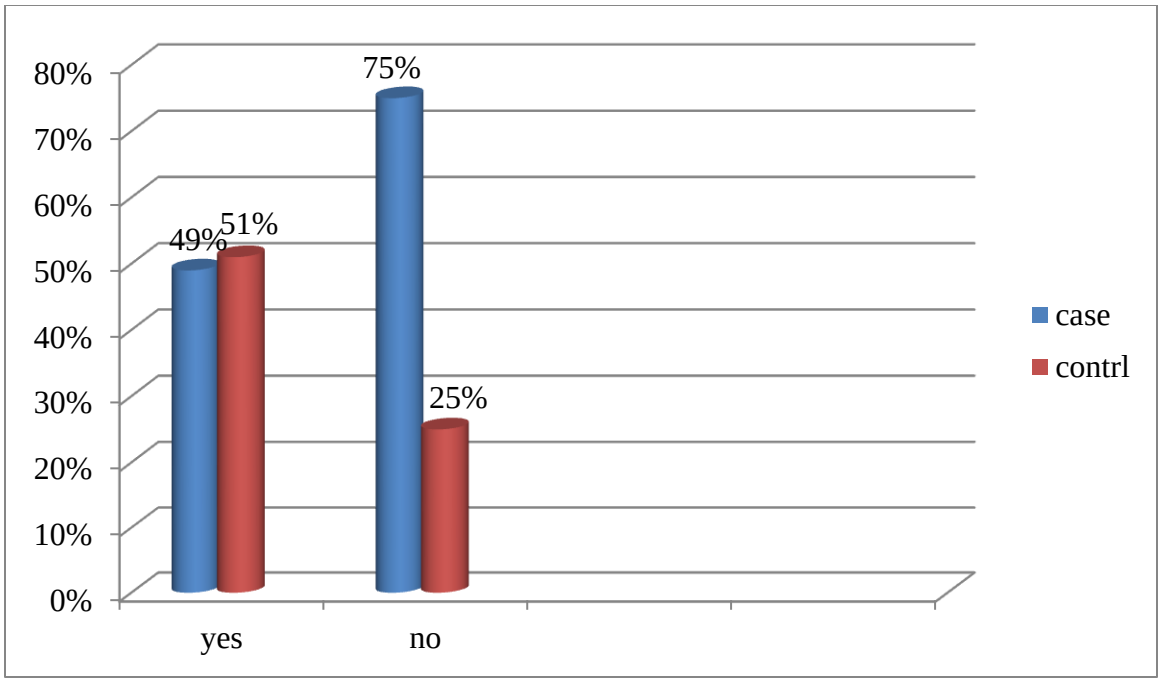

Figure 3: Women who were discussed on reproductive health needs with ART service provider among HIV positive women in selected public hospitals in north shoa zone, Amhara, Ethiopia, 2022

6.4 Socio cultural factors

The major reasons of HIV positive women to have desire for child were since the possibility to have HIV free child 176(62%) of cases.

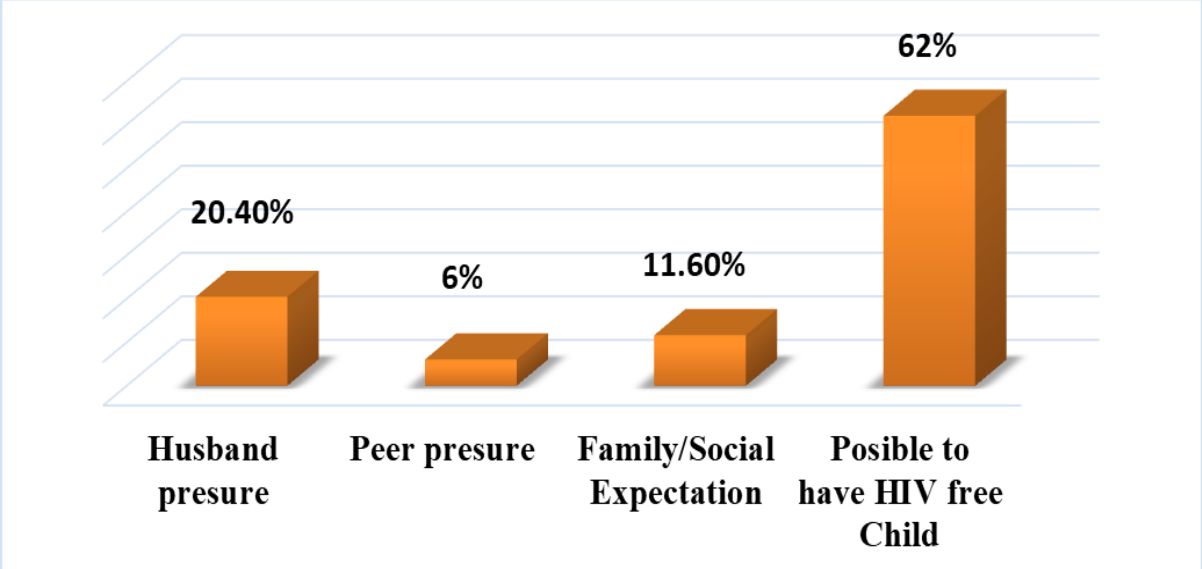

Figure 4: Reasons cited by participants to have more children among reproductive age group women in public hospitals of North Shewa Zone, Amhara region Ethiopia in 2022.

6.6 Determinant of fertility desire

Place of residence, age of respondents, marital status, religion, educational status, income, occupation, HIV status known in years, ART started in years, CD4, HIV status of partner, previous pregnancy, HIV disclosed ,pregnancy after HIV status, age of first pregnancy, a live child give birth, current child , expecting a child from you in future, heard about PMTCT , awareness PMTCT and current contraceptive, ,Would you say that using contraceptive is mainly your decision or your spouse, Discussed with ART service provider ,were entered to Bivariable logistic regression analysis to test their association with the outcome variable. Age of respondent, marital status, income, CD4, current child, pregnancy after HIV status, awareness about PMTCT, and current contraceptive use were candidates for multivariable-logistic analysis. During multivariable analysis, only four variables showed a statistically significant association with the outcome variable. During multivariable analysis, the variables that remained statistically significant were marital status, current child, awareness of PMTCT for decision to have children, and current contraceptive use. The odd of being married were 3.5 times (AOR= 3.5, 95%CI (1.72- 6.94)) more likely to have fertility desire than mothers who were divorced. Women who had fewer child 5 times (AOR=5.2, 95%CI (2.68-10.13)) higher odds to have fertility desire than women who had two or more children women who had awareness on PMTCT service were 8 times (AOR=7.9, 95%CI (3.41-18.22)) higher odds to have fertility desire than women who did not have awareness on PMTCT service to want to have a child The odds being not used current contraceptive 3times(AOR=3.1,95%CI(1.74-5.70)) more likely to have fertility desire than those who were used contraceptive (Table 6).

Table 6: Bivariable and multivariable analysis output on determinants of fertility desire among reproductive HIV positive women in the selected Public hospitals of North Shewa zone, Amhara region, Ethiopia 2022.

Variables	Category	Case (n=188) No. (%)	Controls (n=188) No. (%)	COR(95%CI)	AOR(95%CI)	p-value
Age	15-24	15(51.7%)	14(48.3%)	1 .6(.95-2.65)	.7(.17-3.28)	.699
	25-34	94(62.3%)	57(37.7%)	2 .4(1.837-3.25)	1.5(.81-2.62)	.208
	35-49	79(40.3%)	117(59.7%)	1	1	

Marital status	Married	119(61.3%)	75(38.7%)	3.3(1.901-5.71)	3.5(1.72-6.94)	.000*
	Single	27(61.4%)	17(38.6%)	3.3(1.53-7.09)	1.9(.49-8.08)	.341
	Widowed	16(27.6%)	42(72.4%)	.8(.38-1.67)	.7(.27-1.78)	.445
	Divorced	26(32.5%)	54(67.5%)	1	1	
Educational status	Illiterate	28(36.4%)	49(63.6%)	.4(.29-.63)	.98(.43-2.25)	.973
	Read and write	28(48.3%)	30(51.7%)	.7(.47-1.06)	2(.83-5.11)	.122
	Primary school	53(52%)	49(48%)	.8(.59-1.15)	1.1(.53-2.29)	.798
	Secondary school and above	79(56.8%)	60(43.2%)	1	1	
Income	<599	27(45%)	33(55%)	.6(.39-.92)	.96(.38-2.45)	.936
	600-1499	60(44.4%)	75(55.6%)	.6(.42-.83)	.7(.32-1.45)	.322
	1500-2399	43(53.8%)	37(46.2%)	.8(.59-1.27)	1.03(.443-2.39)	.945
	2400 and above	58(57.4%)	43(42.6%)	1	1	
CD4 of respondent	<350	38(58.5%)	27(41.5%)	1.5(1.06-2.15)	1.6(.76-3.23)	.
	>=350	150(48.2%)	161(51.8%)	1	1	
Pregnant after you had known your HIV status	Yes	105(54.7%)	87(45.3%)	1.9(1.45-2.59)	1.4(.747-2.60)	.296
	No	53(38.4%)	85(61.6%)	1	1	
how many live child do have now	<2	72(67.9%)	34(32.1%)	3.4(2.49-4.73)	5.2(2.68-10.13)	.000*
	≥2	85(38.1%)	138(61.9%)	1		
awareness on PMTCT services	Yes	167(58. %)	121(42. %)	6(3.89-8.64)	1 7.9(3.41-18.22)	.000*
	No	15(19.2%)	63(80.8%)	1	1	
Currently using any	Yes	81(43.1%)	107(56.9%)	1	1	
	No	107(56.9%)	81(43.1%)	1.7(1.34-2.28)	3.1(1.74-5.70)	.000*

contraceptive

NB:-COR =crude odds ratio, AOR =adjusted odds ratio, reference 1

7. DISCUSSION

This study aimed to identify determinant of fertility desire among HIV positive women who attend ART clinic of selected public hospitals in north shewa, Amhara, Ethiopia, 2022.Marital status, current child, awareness PMTCT and current contraceptive use were found to be determinant of fertility desire

The odds of being married were 3.5 times more likely to have fertility desire than mothers who were divorced. This study is consistence with facility base case control study conducted in Afar(9) ,which revealed that, the odd of being married were 5.5times more likely to have fertility desire than the women who were un married and facility based cross sectional study conducted in Amhara regional Referral Hospitals(37), Hosanna town(45), Fitche Hospital(47), Uganda(21) ,which revealed that women who were married had higher odds to fertility desire than women who were divorced . This might be better opportunity to discuss fertility related issue among couples and participants believe that the women with HIV positive can gave birth HIV free child and they want replace themselves and the women might get support from her husband at any time. Being married created sense of security and reliable support to raise children. In Ethiopian society having children is highly valued and getting respectable in the society. In contrast, cross sectional study conducted in Addis Ababa show that being single women positive associated with fertility desire(46) . This might be due to socio demographic difference, difference in study design, study period and sampling size. Social instability might be imposing fear about childbearing.

women who have fewer child 5 times higher odds to have fertility desire than women who had two or more children .This finding is in line with cross sectional study conducted in Awi zone(12), Addis Ababa(46) ,Felege Hiwot Referral Hospital(10), South Africa (Cape town)(43) ,Uganda(21), which shown that women who had fewer child higher odds to have fertility desire as compared to women who had three or more children . This might be due to those who did not have a child need to replace themselves and as in the culture of developing; they need someone to taker of them when they become old age and weak. The fact that those who had no children had strong desire for parenthood and desire children to achieve their social status by being a father or a mother.

women who had awareness on PMTCT were 8 times higher odds to have fertility desire than women who did not have awareness on PMTCT to want to have a child .This study is in line

with cross sectional study done in Hosanna town,(45) ,which shown that women who had awareness on PMTCT had higher odds to have fertility desire than women who had not . This might be due to those who had awareness on PMTCT had service counseling when receiving follow up to reduce the likely hood of transmission to the new born and having good information by their health care giver. I have not got other article that line with or contrast to this variables rather than the one mentioned above.

The odds fertility desire among women, who had not used contraceptive were 3times higher compared to those who were used contraceptive. This study is consistent with A facility based case control study conducted in Jimma University Medical Center(4), which revealed that , the odd of fertility desire among the women who had not used family planning were 2times higher as compared to those women living with HIV who had used family planning and cross sectional study conducted in Hosanna town(45), and Northern Nigeria(40) ,which revealed that women who had no used contraceptive higher odds to have fertility desire than those who used. This might be due to the fact that they have not attained their desired family size and unmet need of family planning service. The fact that contraceptive use is significant for HIV positive clients to space and limit births .In contrast, cross sectional study conducted in Finoteselam showed that having not used contraceptive negatively associated with fertility desire (48).The possible difference might be due to poor economic status having less fertility desire. The health care workers who are working in ART clinic must aware of this and the range of contraceptive option should be made available as well as all associated information.

8. CONCLUSION AND RECOMMENDATIONS

8.1 conclusion

This study revealed that married women, having fewer children, awareness about PMTCT and currently not using contraceptive were the independent determinant factors of fertility desire among HIV positive reproductive age women who attend ART clinic of public hospitals in North Shewa, Amhara Region , Ethiopia, 2022.

8.2 Recommendations

As this study has identified different determinant factors of fertility desire, the problem may be alleviated by integrated collaboration of different stake holders. Taking this into consideration the following recommendations were made.

For health care professional

- ✓ Who work with HIV positive women in HIV care and treatment units can play a crucial role to provide accurate, nonjudgmental reproductive health information and appropriate counseling that includes safer sex practices and methods to decrease the risk of HIV transmission.

For researcher

- ✓ Further study including men and qualitative methods can help deepen understanding fertility desire among women living with HIV on ART follow up.

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QUESTIONNAIRE

Annex: I - PARTICIPANT INFORMATION SHEET

My name is …….I am here on the behalf of Mr. Kassa Darge who is a master's student in Debre Berhan University ,Asrat Woldeyes Campus, School of Public Health in Department Epidemiology .He is working his thesis on Determinants fertility desire among reproductive age group women in selected public hospitals in north shoa . Prior to this I has been explained the information about the study and requesting you to participate in the study.

Purpose: To identify determinant of fertility desire among HIV positive people

Benefit: there is no any financial benefit to you but the response you give me is important to improve maternal health as a whole.

Harm: The study was take time of you and no other harm to you while you participate.

Confidentiality and right of participant: All the responses given by you and results obtained will be kept confidential using coding system whereby no one will have access to your response. You are not expected to give your name or phone number. Your participation in this research is voluntary. You have full right to refuse to a question that you don't want to answer and withdraw from the participation at any time if you don't wish to continue.

Duration of the interview: This interview was taken approximately 20 – 30 minutes.

Have you any question regarding the aim and content of the interview?

Are you willing to participate on the study? 1. Yes 2. No

If you are willing to participate in this study, please sign the agreement form

Address: Mob +251-9-20-87-47-73 or E-mail:kassadargie1919@gmail.com

ANNEX II: INFORMED CONSENT

I have read this form or it has been read to me in the language I understand. I understand that I can continue the interview without any problem. Therefore 1) I agree to participate 2) I refuse to participate

If the participant agrees to participate, skip to the next page. If no, skip to the next participant.

Name of investigator: k Mob +251-9-20-87-47-73 E-mail: kassadargie1919@gmail.com

Supervisor address Tel ……. … Date of interview ……Time started ……

Time completed: ……. ……

Name of data collector……..

Checked by: Supervisor Name: …… Sig……

ANNEX III: ENGLISH VERSION QUESTIONNAIRE

PART one- Socio-Demographic characteristics

	Question	Categories	
100	Residence	1. Urban 2. Rural	
101	How old are you?	--years(age in completed years)	
102	Sex of respondent	1. Male 2. Female	
103	What is your religion?	1. Orthodox 2. Catholic 3. Muslim 4. Protestant	
104	What is your Educational status?	1. Illiterate 2. Read and write 3. Primary school 4. Secondary school 5. Diploma 6. Degree and above	
106	What is your current martial/relationship status?	1. Married 2. Single 3. Widowed 4. Divorced	
107	What is your total monthly income?	----------	

108	What is your current occupation?	1. Unemployed 2. Student 3. Housewife 4. House servant 5. Daily laborer 6. merchant 7. sex worker 8. governmental employee 9. private employee	

Part two. HIV and health status

201	How long had it been you know your HIV status?	----------yrs.	
202	How long have you been started ART?	----------yrs.	
203	How much is your recent CD4 count?	----------	
204	How do you state your current health status after you have been on ART compare to that were not on ART?	1. Improved 2. Slightly improved 3. The same/no change **4.** Deteriorated	
205	Do you know the HIV status of your husband/partner?	1. Yes 2. No	
206	If yes for Q no 205 what is HIV status of your husband/partner?	1. HIV positive 2. HIV negative	
207	If yes for Q no 205 have you ever disclosed your HIV status to your husband/partner?	1. Yes 2. No	
208	If no for Q no 206 what is the reason?	----------	

Part three: Sexual & Reproductive health Characteristics

301	What was your first age when you	---------	

	have had sex with an opposite sex?		
302	Have you ever been pregnant?	1. Yes 2. No	If no skip Q no 307
303	If yes Q no 302 what was your age?	I am---years	
304	If yes Q no 302 how many live child did you give?	--------	
305	How many live children do you have now?	----------	
306	Have you ever been pregnant after you had known your HIV status?	1. Yes 2. No	
307	Are you currently pregnant?	1. Yes 2. No	If no skip Q no 310
308	If yes to Q No 307 is the pregnancy---	1. Wanted 2. Wanted later 3. Unwanted	
309	What is your reason to bear child at this time?	1. Health status improved— 2. Availability of ART services 3. Sine it is possible to have a child free from HIV 4. Husband/partner is discordant and wanted it 5. Other specify	
310	Do want any or more children?	1. Yes 2. No	If no skip Q no 314
311	If yes Q no 310 what is your reason to have any more children?(more	1. Husband pressure 2. Peer pressure	

	than one is possible)	3. Family/social expectation 4. Since it is possible to have HIV free children 5. Other specify	
312	If yes Q no 310 how many children would do you like to have in future?	----------	
313	When would you like intend to have your desired children?	----------	
314	Assume that your partner and /or family are expecting a child from you in future accept, refuse what would you do?	1. Accept 2. Refuse 3. Unsure 4. Other specify	
315	Have you had history of abortion?	1. Yes 2. No	
316	Did you know/heard about PMTCT?	1. Yes 2. No	If no skip Q no 319
317	If yes Q no 315from where did you get information about PMTCT?	1. During HIV testing 2. During follow up of antenatal visit 3. During ART clinic follow up 4. From mass media(radio, TV) 5. From friends(peers) 6. Other specify	
318	If yes Q no 315 could you say that your awareness PMTCT services have changed your decision to have desire for children	1. Yes 2. No	
319	If you could go back to time when you were very sick and feel unhealthy what was your desire for children at that time?	1. Not desire at all 2. Have desire for children 3. Don't know 4. Don't remember 5. Other specify	
320	What would you say about PLHIV like you will have desire for children is due to what reasons?	1. Due to ART access and change in life(healthy) 2. The presence of PMTCT service 3. Family/ social expectation 4. Individual willingness to replace themselves 5. Other specify	

321	Are you currently using any contraceptive?	1. Yes 2. No	If yes skip Q no 323
322	If yes Q no 321which methods are you using currently?	1. Pill 2. Injectable 3. Norplant 4. Condom 5. IUCD 6. Other specify	
323	If no Q no 321 what are the reason for not using for contraceptives ?(more than is possible)	1. Fears of side effects 2. Husband/partner opposed 3. Parents opposed 4. Religious prohibition 5. Lack of knowledge 6. Service not available 7. Other specify	
324	Would you say that using contraceptive is mainly your decision or your spouse, others?	1. Female decision 2. Male decision 3. Joint decision 4. Other specify	
325	Have you ever discussed about reproductive health needs with your ART service provider?	1. Yes 2. No	
326	If yes Q no 324 about which topics?	1. Family planning 2. Dual protection(condom use and contraceptives) 3. PMTCT service 4. ANC and PNC visits 5. Other specify	
327	Do you think health professional /workers provide the clients with adequate and relevant information about their reproductive needs?	1. Yes 2. No	
328	If no Q no 326 why not, what do you think could be the reason?		

ANNEX IV: AMHARIC VERSION QUESTIONNAIRE

ለጥናቱ ተሳታፊዎች መረጃ እና የስምምነት መግለጫ ፎርም

ጤና ይስጥልኝ! ስሜ----------እባላለሁ ፣እዚህ የተገኘሁት አቶ ካሳ ዳርጌ በመወከል ሲሆን፣ እርሱም በደ/ብርሃን ዩኒቨርሲቲ በህብረተሰብ ጤና የሁለተኛ ዲግሪውን በስነ-ተዋልዶ ጤና ትምህርት ክፍል በመማር ላይ ይገኛል።የዚህ ትምህርቱ አካል የሆነ ጥናት የሚያደርግ ሲሆን ይኸውም ከኤይቭ/ኤድስ ጋር የሚኖሩ እናቶች የመዉለድ ፍላጎት ወሳኝ ነገሮች ለመለየት ያጠናል።ስለሆንም በቅድሚያ ስለ ጥናቱና ስለ እርስዎ ድርሻ እንደሚከተለው በማብራራት እጀምራለሁ።

የጥናቱ ዓላማ፡-ከኤይቭ/ኤድስ ጋር የሚኖሩ እናቶች የመዉለድ ፍላጎት ለይቶ ማወቅ

ጥቅም፡- እርስዎ በዚህ ጥናት ሲሳተፉምንም እንኳን በቀጥታ የሚያገኙት ጥቅም ባይኖርም የሚሰጡት ምላሽ በቀጣይ የናቶችን ጤና ለማሻሻል ከፍተኛ አስተዋፅኦ ይኖለዋል።

የጉዳት ሥጋት፡የዚህ ጥናት አካል በመሆንዎ የሚደርስብዎት ምንም አይነት ጉዳት የለም። ምናልባት ጥያቄዎችን ለመመለስ ከ30-40 ደቂቃ ያክል ልንወስድብዎት እንችላለን።

የጥናቱ መረጃ ምስጢራዊነት፡- እርስዎ የሚሰጡት ምላሽ ሁሉ በምስጢር የሚያዝና ለሌላ ሰው ተላልፎ የማይሰጥ ይሆናል። ስምዎም ሆነ የስልክ ቁጥርዎ አይመዘገብም ።

የጥናቱ ተሳታፊዎች መብት፡- በጥናቱ የሚሳተፉ የእርስዎ ፈቃድ እስከሆነ ድረስ ብቻ ነው። በጥናቱ ሲሳተፉ መመለስ የማይፈልጉትን ጥያቄ መዝለልና እንዲሁም በፈለጉት ሰዓት ጥናቱን አቋርጠው የመውጣት መብትዎ የተጠበቀ ነው።

ጥያቄ ካለዎት በየትኛውም ሰዓት ከዚህ በታች በተገለፀው አድራሻ የጥናቱን አድራጊ ማናገር ይችላሉ። እንግዲህ ከላይ ያነሳሁልዎትን ሀሳቦች ከግንዛቤ አስገብተው በጥናቱ ስለመሳተፍዎ ያለዎትን ውሳኔ ከዚህ ቀጥሎ ባለው ፎርም ላይ ይገልፁልኝ ዘንድ በትህትና እጠይቅዎታለሁ።

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<u>የስምምነት ዉሳኔ መስጫ ፎርም</u>

ከዚህ በላይ ያለውን መረጃ አንብቤና በሚገባኝ ቋንቋ ተገልፆልኝ፤ የጥናቱ ዓላማ፣ ጥቅም፣ ጉዳትና ምስጢራዊነት የተረዳሁ ሲሆን በጥናቱ ስለመሳተፌም ያለምንም ግፊት በራሴው ፍላጎት የሚከተለውን ወስኛለሁ ።
1.በጥናቱለመሳተፍወስኛለሁ2.በጥናቱለመሳተፍአልተስማማሁም
የጥናትአድራጊውስም፡- ካሳ ዳርጌ
አድራሻ፡- ስልክ፡ +251-9-20-87-47-73 ኢሜል:- kassa dargie1919@gmail.com
ይህ ቃለ መጠይቅ የተደረገበት ቀን----------
የተጀመረበት ሰዓት----------ያለቀበትሰዓት----------
የመረጃ ሰብሳቢው ስም----------ፊርማ----------
የጥናቱ ተቆጣጣሪ ስም----------ፊርማ----------
በደ/ብርሃን ዩንቨርሲቲ የህክምና ትምህርት ክፍል የህብረተሰብ ጤና ትምህርት ዘርፍ ከኤች አይቪ ቫይረስ ጋር የሚኖሩና በሰሜን ሸዋ የፀረ ኤች አይቪ ኤድስ የህክምና መስጫ ጣቢያዎች ተከታታይ ህክምና የሚያደርጉ ሴቶች የመውለድ ፍላጎታቸን ለማጥናት የተዘጋጀ መጠይቅ፡

ክፍል አንድ - መረጃ ስለ ማህበራዊ ሁኔታ

ተ/ቁ	ጥያቄዎች	መልስ ሊሆኑ የሚችሉ ዝር
100	የትነው ምትኖረው ?	1. ገጠር 2. ከተማ

101	እድሜዎ ስንት ነው?	----------አመት(እድሜ በሙሉ አመት ይገለፅ)
102	ፆታዎ ምንድነው ?	1. ወንድ ---------- 2. ሴት ----------
103	ሐይማኖትዎ ምንድነው?	1. ኦርቶዶክስ ---------- 2. ካቶሊክ ---------- 3. ሙስሊም ---------- 4. ፕሮቴስታንት --------
104	ተምረው ያጠናቀቁት ከፍተኛው የትምህርት ደረጃ ስንት ነው?	1. ማንበብና መፃፍ የማይችል 2. ማንበብና መፃፍ የሚችል 3. የመጀመሪያ ደረጃ (1-8) 4. ሁለተኛ ደረጃ (9-12) 5. ድፕሎማ 6. ድግሪና ከዛ በላይ
105	ብሔረዎ/ዘርዎ ምንድነው	1. ኦሮሞ -------- 2. አማራ -------- 3. ጉራጌ -------- 4. ትግራይ -------
106	በአሁኑ ወቅት ጋብቻ ሁኔታዎ እንዴት ነው?	1. ያገቡ ------ 2. ያላገቡ ------ 3. ባል/ሚስት የሞተባቸው ---------- 4. የተፋቱ ------
107	ጠቅላላ የወር ገቢዎ ስንት ነው?	----------
108	በአሁኑ ወቅት ያሉበት የስራ አይነት ምንድ ነው?	1. ስራ የሌለው ------- 2. ተማሪ ------ 3. የቤት እመቤት ------ 4. የቤት ሰራተኛ -------- 5. የቀን ሰራተኛ ------ 6. ነጋዴ ------- 7. የቡና ቤት ሰራተኛ ----- 8. የመንግስት ሰራተኛ ---- 9. የግል ሰራተኛ ------

ክፍል ሁለት ፡- ከኤች አይቪ ጋር የተያያዘ የጤና ሁኔታ

ተ/ቁ	ጥያቄ	ምላሽ	ምርመራ/ማስታወሻ
201	የኤች አይቪ ፖዘቲቭ መሆንዎን ካረጋገጡ ስንት ጊዜ ይሆናል ?	----------ዓመት	
202	የፀረ ኤችአይቪ መድሀኒት መውሰድ ከጀመሩ ስንት ጊዜ ይሆናል?	----------ዓመት	
203	የቅርብ CD4 መጠንዎ ስንት ነው?	----------	
204	የፀረ-ኤች አይቪ መድሃኒት መውሰድ ከመጀመርዎ በፊት እና አሁን መውሰድ ከጀመሩ በኃላ ያለዎት የጤና ሁኔታ እንዴት ይገልፆታል ?	1. ጥሩ ለውጥ አለ 2. በመጠኑ ለውጥ አለ 3. ምንም ለውጥ የለውም 4. የባሰ እየታመመኩ ነው	
205	የባለቤትዎ ኤች አይቪ ሁኔታ ያውቃሉ ?	1. አዎ 2. አላውቅም	አላውቅም ከሆነ ወደ ጥያቄ 207
206	ለጥያቄ ቁጥር 204 መልስዎ አዎ ከሆነ የባለቤትዎ ኤች አይቪ ሁኔታ(ውጤት) ምንድነው?	1. ኤች አይቪ አለበት 2. ኤች አይቪ የለበትም	
207	የ እርስዎ ኤች አይቪ ውጤት ለባለቤትዎ አሳውቀዋል ?	1. አዎ	

		2. አላውቅም	
208	ለጥያቄ ቁጥር 206 መልስዎ አላሳወቁም ከሆነ ምክንያትዎ ምንድነው ?	----------	
	ክፍል ሶስት ፡ የስነ ተዋልዶ ጤና ሁኔታ		
301	ከተቃራኒ ጾታ ጋር ወሲባዊ ግንኙነት ለመጀመሪያ ጊዜ የጀመሩበት ዕድሜዎ ስንት ይሆናል ?	-------	
302	አርግዘው ያውቃሉ?	1. አዎ 2. አላውቅም	አላውቅም ከሆነ ወደ ጥያቄ 307
303	ለጥያቄ ቁጥር 302 መልስዎ አዎ ከሆነ የመጀመሪያ እርግዝና በስንት አመትዎ ፀነሱ/ ዕድሜዎ ስንት ነበር?	------ዓመት	
304	በህይወት የተወለዱ/የወለዷቸው ልጆች ስንት ናቸው ?	----------	
305	በአሁኑ ሰዓት በህይወት ያሉ ስንት ልጆች አለዎት?	----------	
306	የኤች አይቪ ውጤትዎን ካወቁ በኃላ አርግዘው ያውቃሉ?	1. አዎ 2. አይደለሁም	
307	በአሁኑ ሰዓት ነፍሰጡር ነዎት?	1. አዎ 2. አይደለሁም	ለዚህ ጥያቄ መልስ አይደለም ከሆነ ወደ ጥያቄ ቁጥር 310 ይለፉ
308	ለጥያቄ ቁጥር 307 መልስዎ አዎ ከሆነ እርገዝናዎ ---------- ?	1. የተፈለገ ነው 2. ከአረገዝኩ በኃላ የተፈለገ 3. በጭራሽ ያልተፈለገ 4. ሌላ ካለ ይገለፅ------	
309	ለጥያቄ ቁጥር 308 መልስዎ የተፈለገ እርግዝና ከሆነ በአሁኑ ሰዓት ልጅ ለመውለድ የፈለጉበት ምክንያት ምንድ ነው? (ከ አንድ በላይ መልስ ይቻላል ነገር ግን ምርጫውን ሳያነቡ ተጠያቂው የሚሰጠውን መልስ ያክብቡ)	1. የጤና ሁኔታ በመሻሻሉ 2. የፀረ ኤች አይቪ መድሀኒት አገልግሎት በመኖሩና ተጠቃሚ በመሆኑ 3. ከኤች አይቪ ነፃ የሆነ ልጅ መውለድ ስለሚቻል 4. የባለቤቴ ኤች አይቪ ውጤት ከኔ የተለየ በመሆኑና ባለቤቴ ልጅ በመፈለጉ 5. ሌላ ካለ ይገለፅ -----	
310	ልጅ/ተጨማሪ ልጆች እንዲኖርዎት ይፈልጋሉ?	1. አዎ 2. አልፈልግም	ለዚህ ጥያቄ መልስ አልፈልግም ከሆነ ወደ ጥያቄ ቁጥር 314 ይለፉ
311	ለጥያቄ ቁጥር 310 መልስዎ አዎ ከሆነ ልጅ እንዲኖርዎ የፈለጉበት ምክንያት ምንድን ነው?(ከአንድ በላይ መልስ ይቻላል)	1. የባለቤቴ ፍላጎት 2. በጓደኞች ግፊት 3. የቤተሰብ ፍላጎት 4. ከኤች አይቪ ነፃ የሆነ ልጅ መውለድ ስለሚቻል 5. ሌላ ካለ ይገለፅ -----	
312	ለጥያቄ ቁጥር 310 መልስዎ አዎ ከሆነ ወደፊት ስንት ልጆች እንዲኖርዎት ይፈልጋሉ?	----------	
313	የሚፈልጉትን ልጅ በምን ያህል ጊዜ ውስጥ ማግኘት ይፈልጋሉ?	----------	

314	ለምሳሌ ባለቤትዎ ወይም ቤተሰብዎ ልጅ እንዲወልዱላቸው ቢፈልጉ እርስዎ ይስማማሉ ፣ ወይስ ምን ያደርጋሉ?	1. እስማማለሁ 2. አልስማማም 3. እርግጠና አይደለሁም 4. ሌላ ካለ ይገለፅ -----	
315	ዉሪጃ አጋጥሞት ያዉቃል ወይ?	1. አዎ 2. አያውቅም	
316	ከእናት ወደ ልጅ ኤች አይቪ እንዳይተላላፈ የመከላከል አገልግሎት እንደሚሰጥ ያውቃሉ? /ሰምተዋል ?	1. አዎ 2. አላውቅም	ለዚህ ጥያቄ መልስ አላውቅም ከሆነ ወደ ጥያቄ ቁጥር 319ይለፉ
317	ለጥያቄ ቁጥር 316 መልስዎ አዎ ከሆነ መረጃውን ከየት አገኙት?	1. የኤች አይቪ ደም ምርመራ ባደረኩበት ወቅት 2. የእርግዝና ክትትል ሳደርግ 3. የፀረ ኤች አይቪ መድሃኒት አገልግሎት ስከታተል 4. በሬድዮ ዌም ቴሌቪዥን 5. ከጓደኞች 6. ሌላ ካለ ይገለፅ-------	
318	ለጥ.ቁ 316 መልስዎ አዎ ከሆነ ከእናት ወደ ልጅ ኤች አይቪ እንዳይተላላፈ የመከላከል አገልግሎት እንደሚሰጥ ያለዎት ግንዛቤ ሌላ ልጅ የመውለድ ፍላጎት እንዲኖርዎ አስችልዎታል?	1. አዎ 2. አይደለም	
319	ወ ደ ኃላ ያለውን ጊዜ በማስታወስ እርስዎ በህመም ላይ እያሉ እና ጤንነትዎ ሳይሻሻል በነበረበት ጊዜ ልጅ የመውለድ ፍላጎት ነበረዎት?	1. ምንም ፍላጎት የለኝም 2. ፍላጎት አለኝ 3. ሌላ ካለ ይገለፅ-------	
320	እንደ እርስዎ ቫይረሱ በደማቸው ያለባቸው ሰዎች ልጅ የሚፈልጉበት ምክንያት ምንድን ነው ብለው ያስባሉ?	1. የፀረ ኤች አይቪ መድሃኒት አገልግሎት መኖሩና ረዥም ዕድሜ መኖር ስለሚቻል 2. ከእናት ወደ ልጅ ኤች አይቪ እንዳይተላለፈ የመከላከል አገልግሎት ሰለሚሰጥ 3. የቤተሰብና /ማ/ሰብ የልጅ ፍላጎት መኖር 4. ግለሰቦች እራስን የመተካት ፍላጎት ስላላቸው 5. ሌላ ካለ ይገለፅ-------	
321	በአሁኑ ሰዓት የ ወሊድ መቆጣጠሪያ ዘዴ ይጠቀማሉ?	1. አዎ 2. አልጠቀምም	መልስዎ አልጠቀምም ከሆነ ወደ ጥያቄ ቁጥር 323 ይለፍ
322	መልስዎ አዎ ከሆነ ከሚከተሉት ውስጥ የጥኛውን አይነት የወሊድ መቆጣጠሪያ ዘዴ ይጠቀማሉ?	1. ክኒን 2. መርፌ 3. በክንድ ላይ የሚቀበር 4. ኮንደም 5. በማህፀን ውስጥ የሚቀመጥ 6. ሌላ ካለ ይገለፅ-------	
323	የወሊድ መቆጣጠሪያ ዘዴ ላለመጠቀም ምክንያትዎ ምንድን ነው?(ከአንድ በላይ መልስ ይቻልል)	1. መድሀኑቱን ጎንሽ ጉዳት በመፍራት	

		2. ባለቤቴ ስለተቃወመ 3. የቤተሰብ ተቃውሞ 4. የሀይማኖት ተፅዕኖ 5. የዕውቀት ማነስ 6. አገልግሎቱ አለመኖር 7. ሌላ ካለ ይገለፅ-------	
324	የወሊድ መቆጣጠሪያ ዘዴ ለመጠቀም ውሳኔው ያንቺ ብቻ ነው ወይስ የጋራ ነው ማለት ይቻልል?	1. የእኔ ብቻ ውሳኔ ነው 2. የባለቤቴ ብቻ ውሳኔ ነው 3. የእኔና የባለቤቴ ውሳኔ ነው 4. ሌላ ካለ ይገለፅ-------	
325	ከፀረ ኤች አይቪ መድሀኒት ክትትል ባለሙያዎች ጋር ስለ ስነ ተዋልዶ ጤና ምክክር አድርገው ያውቃሉ?	1. አዎ 2. የለም	
326	ለጥያቄ ቁጥር 325 መልሰዎ አዎ ከሆነ በየትኞች ርዕሶች ላይ ነው ምክክር ያደረጉት?	1. ስለ ቤተሰብ ምጣኔ 2. እርግዝናና ኤች አይቪን ስለ መከላከል 3. ከእናት ወደ ልጅ ኤች አይቪ እንዳይተላለፈ ስለመከላከል 4. ስለ ዕርግዝናና ከወሊድ በኃላ ክትትል ስለማድረግ 5. ሌላ ካለ ይገለፅ-------	
327	የጤና ባለሙያዎች እና አገልግሎት ሰጭዎች ኤች አይቪ ላለባቸው ሰዎች በስነ ተዋልዶ ጤና ዙሪያ በቂ መረጃ ይሰጣሉ ብለው ያስባሉ?	1. አዎ 2. አይደለም	
328	መልስዎ አይደለም ከሆነ ምንክያቱ ምንድ ነው ብለው ያስባሉ?	----------	

የቃለመጠይቁ ቀን ---------- **የጠያቂው ስም** ---------- **ፊርማ** ----------

የተቆጣጣሪው ስም ---------- **ፊርማ**----------