

Contraceptive use and associated factors among women of reproductive age on antiretroviral therapy in Awabel Woreda health centers, Northwest Ethiopia

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Abstract

Background: The family planning options for reproductive-age women who are in antiretroviral therapy should consider different types of contraceptive methods including condom use. There is a high unmet need and unplanned pregnancies in Ethiopia among HIV-positive women. Attention was not given towards contraceptive use for HIV women in Ethiopia including the study area. The study aimed to assess contraceptive use and associated factors among women of reproductive age (15–49 years) on Antiretroviral therapy in Awabel Woreda, Northwest Ethiopia.

Methods: A facility-based cross-sectional study was conducted among 572 women of reproductive age who were receiving HIV care and treatment. Data were collected using interviewer-administered questionnaire, entered by Epidata3.1 and exported to IBM SPSS for statistics version 20 for analysis. Multivariable logistic regression was used to identify factors associated with contraceptive use and the presence of significant association was declared at p -value < 0.05 and 95% confidence level.

Result: A total of 526 out of 572 women have responded, with a response rate of 91.9%. Two-thirds (66.5% (95% CI: 63.5, 69.5)) of the study participants were using contraceptive methods at the time of the survey. Women living in areas (Adjusted Odds Ratio = 1.95; 95% CI: 1.16, 3.72), and those who disclosed their HIV status to their partner (Adjusted Odds Ratio = 2.61; 95% CI: 1.37, 4.95) were more likely to use contraceptives. While Women (Adjusted Odds Ratio = 0.41; 95% CI: 0.24, 0.69) and their partners (Adjusted Odds Ratio = 0.57; 95% CI: 0.34, 0.97) who had desire to have a child were less likely to use contraceptives.

Conclusions: The prevalence of contraceptive use among reproductive-age women who were on antiretroviral therapy (ART) was lower than a systematic review done in Ethiopia and higher than the national target. Intervention targeting on implementation of contraceptive methods, and counseling about contraceptives to address their question of fertility desire and knowledge were recommended.

Keywords

Contraceptive use, Awabel, women, HIV

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Introduction

Contraceptive use is, one of the major ways to harmonize population growth with socioeconomic developments as well as ensuring women's human, economic and political rights and their full participation in development process. Contraceptive use makes it possible for a couple to have children when they want to have, to have desired number of children and to space their pregnancies.^{1,2}

Contraceptive use is also used as a strategy to prevent HIV transmission between sexual partners, and it can also

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prevent HIV transmission from mother to child by preventing unintended pregnancy.³ Combining ART and contraceptive use prevents HIV transmission by 28.6% than using only ART for HIV preventive purpose.^{3,4}

The initiation of Highly Active Antiretroviral Therapy results in improvements in the lives of people living with HIV.⁵ However, after the beginning of ART, a significant number of HIV-positive women showed an increased desire to become pregnant. But using only ART has reduced the risk for infection by less than 1%.⁶

Although contraceptives have significant importance in reducing HIV transmission and unwanted pregnancies, their use remains low in sub-Saharan Africa.^{7–9} Studies have indicated that, correct and consistent contraceptive use among women of childbearing age living with HIV can avert unplanned pregnancies, maternal death and mother to child HIV transmissions. According to data from the global burden of disease study, 5–25% of pregnancy-related deaths globally were due to HIV/AIDS.¹⁰ Contraceptive use among women of reproductive age living with HIV in Africa was low.^{11,12} The median contraceptive prevalence among women of reproductive age was 63.6% and 28.8% worldwide and in sub-Saharan Africa, respectively.¹³ A study conducted in South Africa shows that 96% of HIV-positive women were using contraceptive method.¹⁴ The prevalence of contraceptive use among HIV-positive reproductive-age women (15–49 years) in Ghana and Zambia were 40% and 38%, respectively.^{15,16} A study conducted in Tigray and Addis Ababa revealed that the prevalence of contraceptive use among women who were on ART was 34.5% and 40.8%, respectively.^{17,18} In Ethiopia, Injectable method is the most predominantly used contraceptive than others.^{19,20}

Parity,²¹ marital status,²² wealth index,²³ age,²⁴ women's educational status, residence,²⁵ and culture²⁶ were the factors that affect contraceptive use of reproductive age women who were on ART. In addition, factors related to women's and their partners' fertility desire,¹⁷ knowledge of birth control methods,¹⁸ knowing risk factors of Mother to Child Transmission (MTCT),²⁷ HIV status of the partner,²² disclosure of HIV status to partner²⁸ and CD4 count²⁹ affects contraceptive use of HIV-positive women. Furthermore, integration of family planning services with ART clinic is one of the service-related factors for contraceptive use in Ethiopia.^{19,30}

To improve Sexual and Reproductive Health (SRH) of HIV-infected women and to reduce the transmission of HIV, Ethiopia is implementing a four-pronged Prevention of Mother to Child Transmission (PMTCT) and integration of the two services (family planning and HIV care services). Despite these, many unintended pregnancies were observed and majority of unintended pregnancy was risky for MTCT.^{30,31} Even though contraceptives are an effective method for reduction of HIV spread, there was no special attention given towards its use among women living with HIV (PLWH) in Ethiopia and Awabel Woreda. Therefore, the

aim of this study was to assess the contraceptive use and its associated factors among reproductive-age woman who were on ART at Awabel Woreda, which in turn could help to prepare the necessary resources and establish programs for better family planning services.

Methods

Study design

A facility-based cross-sectional study design was employed to conduct the study.

Study setting and period

The study was conducted in two health centers found in Awabel district namely Wojel and Lumame Health Centers. Awabel district is located 259 km to the Northwest of the capital city Addis Ababa in Amhara Regional State of Ethiopia. There were 572 reproductive-age women receiving HIV care and treatment. We took all of HIV-positive women on ART. The study was conducted from March 28 to May 07, 2017.

Study participants and selection procedures

Study population

All reproductive-age women who were on HIV care and treatment follow up during the study period.

Eligibility criteria

Inclusion criteria. HIV-infected women of reproductive age group (18–49 years) who came for follow up at ART clinics during the data collection period, had at least 6 months of follow up in selected health facility were included in the study.

Exclusion criteria. Clients who are known to be infertile, and mentally ill or critically ill were excluded from the study.

Selection procedure

Two health centers giving HIV care and treatment in the district were included in the study, that is, Lumame and Wojel.

All HIV-positive women aged 15–49 years on care and treatment who were eligible were included in the study. Based on data of health institutions, there were 572 reproductive-age women who were on HIV care and treatment at the time of study

Data collection

Questionnaire-based interview was used to collect data. Structured questionnaire was adapted from different literature.^{12,14,18,32,33} The questionnaire was first prepared in English

translated to Amharic and then translated back to English to check for consistency by the principal investigator.

The main points included in the questionnaire were socio-demography, information on contraceptive utilization (ever use, current use), information about HIV diagnosis and ART treatment (time since diagnosis of HIV, current CD4 count), knowledge about MTCT and PMTCT and information regarding reproductive and sexual health history (parity, sexual practice).

Information on knowledge of MTCT and PMTCT was addressed by a “Yes” or “No” response to the four knowledge assessment items (Q1: The virus is transmitted from the mother to her child through breast feeding, Q2: The virus is transmitted from the mother to her child during pregnancy, Q3: The virus is transmitted from the mother to her child during child birth and Q4: The risk of MTCT can be reduced by taking ART drugs during pregnancy).²⁹ Contraceptive awareness was addressed by seven items including awareness of contraceptive pills, injectables, implants, intrauterine contraceptive device (IUCD), permanent, traditional methods and barrier methods including condom.^{12,32,33} In addition chart review was done to collect data such as CD4 count and date of HIV diagnosis

Study variables

Dependent variable

Contraceptive use.

Independent variables

It includes: age, educational status, number of living children, awareness of contraceptive use, partner’s HIV status, HIV status disclosure to partner and fertility desire.

Operational definition

Contraceptive Use. Current use of any type of contraceptive method by women to delay or avoid pregnancy. Traditional methods, female sterilization, intrauterine device, injectables and implants, pills, condoms and emergency contraception.¹

Good knowledge of PMTCT and MTCT. Women who respond at least 50% of questions that assess knowledge of PMTCT/MTCT correctly were classified as having good knowledge.

Data quality management

The questionnaire passed through a pretest to make sure whether it measure what it intended to measure. The pretest was conducted on 10% of the study participants prior to the performance of the study at Dejen Health Center. The data were collected by five trained clinical nurses, and data

collection was supervised by the principal investigator. To ensure the quality of the data, training was given for data collectors for two consecutive days on the objectives, relevance of the study, methods interviewing, confidentiality of information and informed consent by the principal investigator. The supervisors and principal investigator were closely following the data collection process. The filled questionnaires were checked daily for completeness and errors were corrected at the spot.

Data processing and analysis

The data were entered to Epidata3.1 and analysed using SPSS version 20.0. The descriptive analysis such as proportions, percentages, means and measures of dispersion, tables and graphs were used to describe the data. Both bivariable and multivariable binary logistic regression analyses were done to identify factors associated with contraceptive use. Variables with $p < 0.25$ in the bivariable regression model were included in the multivariable regression model. An odds ratio with a 95% confidence interval was calculated to show the strength of the association, and a statistically significant association was declared at $p < 0.05$ with the 95% confidence interval. The goodness of fit for the model was tested with chi-square goodness of fit test, and multi-collinearity was checked with the variance inflation factor.

Ethical considerations

Ethical approval for this study was obtained from Debre Markos University, College of Health Science Ethical Review Committee with an Approval Number of **Pub/375/17**. Verbal informed consent was obtained from each participant after explaining the purpose and nature of the study. Participants were informed of their right to refuse to participate in the study or withdraw after responding to some of the questions. Verbal informed consent for minors was obtained from legally authorized representatives before the study. In addition, verbal consent for those with no educational background was taken, after briefly explaining the purpose of the study by local language (Amharic). All the consent was approved by Debre Markos University, College of Health Science’s Ethical Review Committee.

Results

Socio-demographic characteristics of the study population

Of the total 572 HIV-positive women on ART, 526 participated in this study giving the response rate of 91.9%. The mean (\pm SD) age of the participants was 28 years (\pm 6.316), and 170 (32.3%) of them fall under the age group of 30–34 years. Of the study participants, 99% were from Amhara ethnic group and 84% were orthodox Christians. More than half of the study participants (52.4%) were married. About

Table 1. Socio-demographic characteristics among women of reproductive age and on ART in Awabel, Northwest Ethiopia, 2017 ($n = 526$).

Characteristics $n = 526$	Category	Frequency	Percent
Age	15–24	119	22.7
	25–29	170	32.3
	30–34	116	22.1
	35–39	69	13.1
	40–44	48	9.1
	45–49	4	0.7
Residence	Urban	209	39.7
	Rural	317	60.3
Educational status	Cannot read and write	200	38
	Only read and write	126	24
	Primary education	117	22.2
	Secondary education and above	83	15.8
Ethnicity	Amhara	521	99
	Oromo	5	1
Religion	Orthodox	442	84
	Muslim	84	16
Occupation	Farmer	215	40.9
	Merchant	105	20.0
	Daily laborer	55	10.5
	Commercial sex worker	34	6.5
	Government employee	33	6.3
	Private employee	7	1.3
	Housewife	44	8.4
	Student	33	6.3
Marital status	Married	276	52.4
	Single	40	7.6
	Divorced	56	10.6
	Widowed	51	9.8
	Cohabiting partner	64	12.2
	Separated	39	7.4

38% of the respondents cannot read and write and only 15.8% have an educational status of secondary and above. About 40.9% of the participants were farmers by occupation.

Among those participants who have sexual partner/spouse, 149 (28.3%) partners cannot read and write, and 74 (14.1%) have an educational status of above secondary education (Table 1).

Awareness and source of information about contraception

From the 526 study participants, 93.7% of them heard about family planning methods. About 84.7% of the respondents heard about injection method, followed by implants (78.1%), pills (75.2%), condom (64.7%), IUD

(56.4%), permanent method (41.5%), calendar (34.7%) and withdrawal method (33.9%).

The major source of information about family planning, were health professionals (92.2%) and mass media (79.5%).

Counseling about contraceptive methods during their follow up

Among the total of 526 participants, 484 (92%) have received counseling about family planning methods from the ART provider/counselor. Condom (84.3%) was the most common family planning method counseled by the ART provider/counselor followed by injectable (82%). From the respondents who got counseling, 276 (57%) got counseling sometimes (intermittently), 195 (40.3%) got counseling during all regular visits and the rest 13 (2.7%) got counseling only during diagnosis.

About 47.5% of the respondents have a desire to have a child in the future, while 276 (52.5%) of them do not have fertility desire. In addition, 63.6% of the respondent's partners have fertility desire. From 379 partners tested for HIV, about 352 (92.9%) of respondent's partner's tested positive and 27 (7.1%) tested negative.

The proportion of women who had disclosed their HIV status to their partner and to their family was 70.7% and 31.6%, respectively. More than half of the respondents (68.3%) had one or more children and 19.5% of them have HIV-positive child. Median time since HIV diagnosis and duration on ART use were 36.45 and 31.17 months, respectively. More than half (60.8%) had latest CD4 count >350 cells/mm³ (Median CD4 count 484 cell/mm³) during the study. About 78.3% of respondents had good knowledge about MTCT/PMTCT.

Contraceptive use

Out of the total study participants, 66.5% (95% CI: 63.5, 69.5) of them are currently using at least one type of contraceptive method for the purpose of either limiting or spacing birth.

Among the current contraceptive users, injectable (74.6%) and implant (19.1%) were the most commonly used modern contraceptive methods, while pills (2.3%), calendar method (2.3%), condom only (1.4%) and IUCD (0.3%) were the least commonly used methods. In addition, 14.3% of them use condom with one additional contraceptive method (dual method).

About 43.3% of the respondents ever used contraception before knowing their HIV status. Of the respondents who used contraceptive before knowing their HIV status, 82.9% of them used injectable, followed by pills (48.7%), condom (17.1%), implant (19.7%), calendar method (3.9%) and IUCD (0.4%). Of the 526 respondents, 402 (76.4%) used contraceptives after knowing their HIV status. From 402 respondents, 75.1% of them used injectable followed by implants (53.9%), pills

Table 2. Factors associated with contraceptive use among reproductive age women, on ART in Awabel Woreda health centers, Northwest, Ethiopia $n=526$.

Variables	Category	Contraceptive use		COR (95% CI)	AOR (95% CI)
		No (%)	Yes (%)		
Residence	Urban	96 (45.9)	113 (54.1)	2.52 (1.73, 3.6)	1.99 (1.17, 3.3)*
	Rural	80 (25.2)	237 (74.8)	1	1
Ever use of contraceptive before knowing HIV status	Yes	98 (41.4)	139 (58.6)	1.99 (1.47, 3.07)	1.59 (0.955, 2.6)
	No	78 (26.2)	220 (73.8)	1	1
Counseled on contraceptive methods	Yes	154 (34.6)	291 (65.4)	1.42 (0.84, 2.40)	1.19 (0.58, 2.4)
	No	22 (27.2)	59 (72.8)	1	1
Fertility desire	Yes	69 (27.6)	181 (72.4)	0.60 (0.42, 0.87)	0.41 (0.24, 0.6)
	No	107 (37.8)	169 (61.2)	1	1
Partner's fertility desire	Yes	46 (19.1)	195 (80.9)	0.59 (0.37, 0.98)	0.58 (0.34, 0.9)*
	No	39 (28.3)	99 (71.7)	1	1
Disclosure to partner	Yes	71 (26.5)	197 (73.5)	2.49 (1.34, 4.65)	2.61 (1.37, 4.9)*
	No	14 (12.6)	97 (87.4)	1	1

AOR, Adjusted Odds Ratio; COR, Crude Odds Ratio.

1 = reference.

*=Significant at $p < 0.05$.

(55.7%), condom (32.8%), calendar method (3.7%) and IUCD (1.5%). From all the respondents, 67.1% and 21.3% had been pregnant at least once before and after knowing their HIV status, respectively. From those who were pregnant after knowing their HIV status, 97 (86.6%) had been pregnant once, and 15 (13.4%) became pregnant twice. From those who became pregnant after knowing their HIV status 42%, 33.9% and 24.1% of them had unwanted, wanted and mistimed pregnancies, respectively. Not using contraceptive due to fear of side effect (33.8%) and contraceptive failure (27%) were the major reasons for unwanted and mistimed pregnancy.

Among those who are using contraceptive currently, the most common reason for using contraceptive were fear of MTCT (34.6%), concern about health and quality of life (25.1%), economic problem for rearing (19.7%), for spacing (6.6%), health professional advice (6.6%), having enough number of children (6%) and fear of having an orphan (1.4%).

Among 176 respondents who were not using contraceptives currently, the most common reason for not using any contraceptive method is the desire to have a child in the future (66.5%).

Place for contraceptive use

Among the 342 participants who are using any modern contraceptive methods currently, 34.5% and 41% of clients mentioned ART clinic and family planning clinic as their source of contraceptives, respectively. From those who were using contraceptives, 79.5% of the participants reported positive feeling to use contraceptives from ART clinic.

Out of the 526 participants, 27.2% of them mentioned that they have ever been provided a contraceptive method from the ART clinic, and the most common contraceptive method provided from ART was injectable (52.4%) followed

by both condom and injectable (30.1%), implant (7%) and condom (6.3%) (Table 2).

Factors associated with current contraceptive use

Six variables with p -value < 0.2 on bivariable logistic regression were entered into multivariable binary logistic regression analysis. The multivariable logistic regression analysis showed that those participants who reside in the urban area were two times more likely to use contraceptives than rural residents (Adjusted Odds Ratio (AOR): 1.95, 95% CI: 1.16, 3.72). Those participants whose partners had a desire to have a child were 42.1% less likely to use contraceptives than those whose partners did have desire to have a child (AOR: 0.57, 95% CI: 0.34, 0.97). Those participants who have fertility desire are 59.1% less likely to use contraceptives than those who did not have fertility desire (AOR: 0.40, 95% CI: 0.23, 0.69). Those who disclose their HIV status to their partner are more than two and half times more likely to use contraceptive than those who did not disclose to their partner (AOR: 2.61, 95% CI: 1.37, 4.95).

Discussion

In this study, 66.5% of HIV-positive women who are receiving HIV care and treatment were using contraceptives. This finding is comparable with studies conducted in Nekemite, Ethiopia (66.4%)³⁴ and Amhara region (68.1%) Ethiopia.³⁵ This may be due to similar socio-demographic characteristics and study design. But the finding is lower than study conducted in South Africa 96%,¹² Ghana 84.7%²⁰ and Uganda 80%.²⁶ This could be due to the strong integration of SRH services (especially family planning) with ART/HIV services in these countries than our study area.^{12,20,26,35} In addition, our finding is lower than a study conducted in Bahir

Dar (80%), Ethiopia.³² This might be due to the fact that high proportion (92.3%) of study participants were urban dwellers in the study conducted in Bahir Dar.³²

The finding of this study is higher than the studies conducted in Addis Ababa,³⁶ Tigray,¹⁶ Gimbie²⁷ and Ghan.¹⁴ This might be due to variation in the study period, and high immediate fertility desire of women in these studies may lower contraceptive use. In addition, studies done in those regions were only on modern contraceptive use. However, this study included both modern contraceptives and Natural family planning methods (calendar methods).

Living in urban area were positively associated with contraceptive use in this study which, is consistent with studies in Tigray region.¹⁶ This could be due to the fact that people who reside in urban area can have an opportunity to access all SRH services including contraceptive methods. Besides this, in urban settings, there is more accessibility, quality and a strong integration system of SRH-F/P health service than in health services in rural areas. In addition, there is a high rate of educated people in urban area. Since, the majority of people are educated they can have access about health facility options. The other reason might be due to majority of people in rural area cannot access information due to lack of communication medias.

Disclosure of HIV status to their partner was positively associated with contraceptive use. This is in line with a study conducted in Uganda.³⁷ This is because a woman who discloses her HIV status to her partner might discuss about fertility control methods. In addition, there might be a difference on HIV status between the woman and her partner. This might lead her to use contraceptives for sake of preventing HIV transmission.

Moreover, desire to have a child by women or their partners can affect contraceptive use of women. In this study, HIV-positive women who, desire to have a child remained negatively associated with contraceptive use. The finding was consistent with previously studies in Ghana and South Africa.^{14,38} This implies that a woman who wants children despite her HIV status does not want contraceptive methods. This is because the major purpose of using contraceptive methods is for preventing pregnancy, in addition to its protection from STI, HIV and AIDS. Similarly, this study also found that the fertility desire of a partner had a negative association with contraceptive use. In line with the finding, a study in Bahir Dar³² implied that not only a woman's intention to have a baby affects the use of contraceptives, but also her husband's or partner's' intention matters for the use of contraceptive methods.

Strength and limitation of the study

This study took all women in reproductive age on ART follow up, the study instrument was adopted from previously conducted studies.

This study does not use qualitative methods to explore the societal, cultural norms and values that shape the influence of women's status on contraceptive use behaviour.

In addition, not using power calculations for determining sample size may be a limitation of this study.

Conclusions and recommendations

The prevalence of contraceptive use among reproductive-age women who were on ART was lower than a systematic review done in Ethiopia and higher than the national overall contraceptive use target. Factors such as, residence, fertility desire, partner fertility desire, and disclosure to partner were associated with contraceptive use among reproductive-age women who were on ART.

Improving the prevalence of contraceptive use among reproductive-age women who were on ART, focusing on women who reside in a rural area, have a fertility desire, partner's fertility desire and disclosing their status to partner is recommended for governmental and non-governmental relevant bodies.

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Author's contributions

Menichil Amsalu: Conceptualization, data curation, formal analysis, investigation, methodology, project administration, resources, software, supervision, validation, visualization, writing original draft and writing review & editing.

Kalkidan Worku: Formal analysis, investigation, methodology, resources, software, supervision, validation, visualization and writing review & editing.

Mulugeta Ayalew: Analysis, supervision and writing.

Alehegn Aderaw Alamneh: Formal analysis, investigation, methodology, resources, software, supervision, validation, visualization and writing review & editing.

Availability of data and materials

The dataset analyzed will be available from the corresponding author upon a reasonable request.

Consent for publication

Not applicable.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethics approval and consent to participate

Ethical approval for this study was obtained from Debre Markos University, College of Health Science's Ethical Review Committee with an Approval Number of **Pub/375/17**. Verbal informed consent

was obtained from each participant after explaining the purpose and nature of the study. Participants were informed of their right to refuse to participate in the study or withdraw after responding to some of the questions. Verbal informed consent for minors was obtained from legally authorized representatives before the study. In addition, verbal consent for those with no educational background was taken, after briefly explaining the purpose of the study by local language (Amharic). All the consent was approved by Debre Markos University, College of Health Science's Ethical Review Committee.

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Supplemental material

Supplemental material for this article is available online.

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