International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Modern Family Planning Utilization and Associated Factors Among HIV Women of Reproductive Age Attending At Care And Treatment Clinics (CTC) in Mwanza City, Tanzania

Abdallah M. Mmbaga[1], Happiness Mbena[2], Alphaxard, Kajura[3], George R. Alcard[4]

[1,3,4]Consultant Obstetrician and Gynaecologist, Department of Obstetrics and Gynecology Mbeya Regional Referral Hospital, P.O. Box 259, Mbeya, Tanzania
[2]Catholic Sr and Consultant obstetrician & gynecologist, Department of Obstetrics and Gynecology Catholic University of Health and Allied Sciences, P.O. Box 1464, Mwanza, Tanzania

ABSTRACT

Background: In Sub-Saharan Africa HIV/AIDS prevalence remains high and makes it the world's most severely affected region. The use of family planning helps to prevent unplanned pregnancies among HIV positive women of reproductive age. There is a dearth of evidence on the preferred methods, reasons for use and non-use and discontinuation of the use of family planning among HIV positive women of reproductive age appearing at HIV Care and Treatment Clinics (CTCs) in Mwanza City. Therefore this study was conducted to determine family planning uptake, methods preferred and the reasons for discontinuation of the use of family planning among HIV positive women of reproductive age appearing at HIV Care and Treatment Clinics (CTCs) in Mwanza City.

Objective: To determine family planning uptake, methods preferred and reasons for discontinuation among HIV positive women of reproductive age appearing at HIV Care and Treatment Clinics (CTCs) in Mwanza City.

Methodology: This is a hospital based cross-sectional study involving 440 HIV positive reproductive age women (18 – 49 years) who were attending Bugando Medical Centre, Sekou Toure Regional Referral Hospital and Buzuruga Health Centre HIV Care and Treatment Clinics was carried out. A structured pre tested questionnaire was used to collect data on socio-demographic characteristics, information on current family planning use, health service related factors, family factors, disclosure and ART status, and factors associated with modern family planning use. Data analysis was done using STATA version 13 according to objectives.

Results: A total of 440 participants were enrolled in the study and their median age was 36 [IQR 30 – 42] years. Majority, 246(56.2%) of the participants were aged 35 to 49 years. Majority 279 (63.4%) of women attained primary education. Factor associated with family planning discontinuation were not been counseled on FP(AOR 5.5; 95% CI 2.0 – 15.1; p-value 0.001), Partner has desire of children AOR

0.3; 95% CI 0.1 – 0.8;p-value=0.029), Advanced stage of HIV(AOR13.4; 95% CI 5.1 – 35.0; p-value<0.001), Divorced women(AOR 3.2; 95% CI 1.1 – 9.7; p-value=0.038) and women's age ≥35 years(AOR 6.8; 95% CI 2.2-20.9 p-value=0.001).

Conclusion: The overall uptake of modern family planning methods was low. Integration of modern family planning services within the CTCs was low too in all the facilities. Furthermore, the proportions of HIV positive women using dual family planning methods were very low. Factor associated with family planning discontinuation were not been counseled on FP, Partner has desire of children, Advanced stage of HIV, Divorced women and women's age ≥35 years.

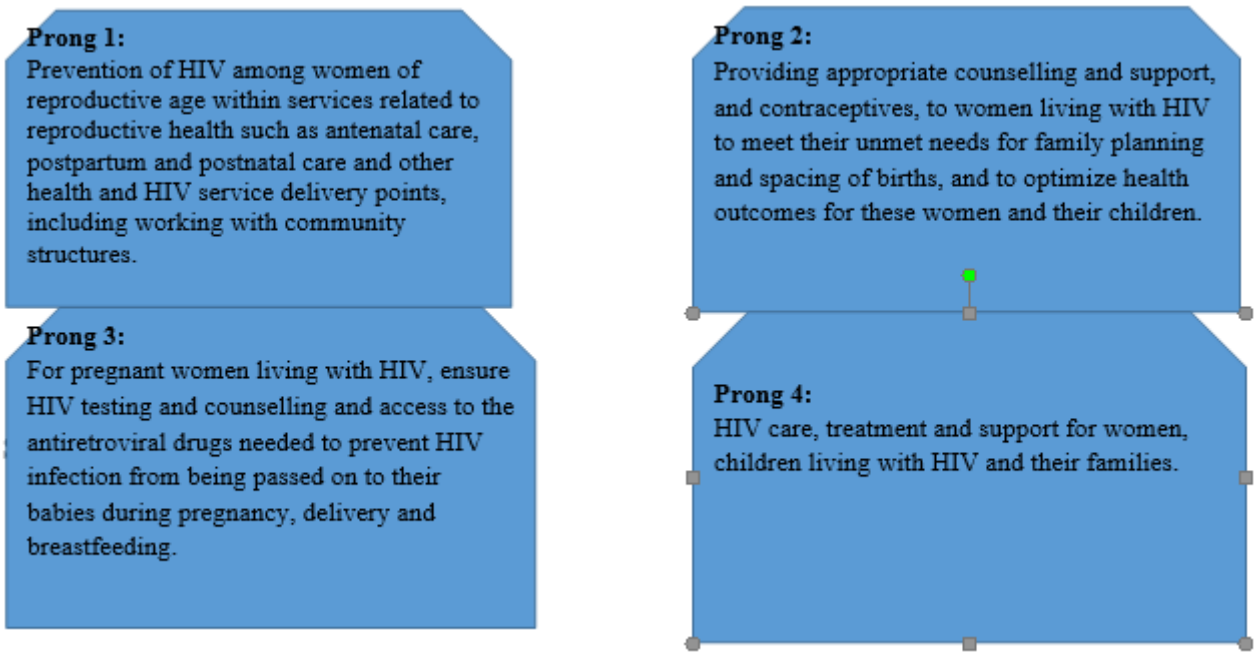
Keywords: Modern Family planning utilization, associated factors, HIV positive women.

INTRODUCTION

For decades HIVAIDS has continued to be one of the primary health issues of our time, especially among women and children(1). The global estimation of people living with HIV (PLHIV) was about 36.7 million by the year 2015(2).In Sub-Saharan Africa HIV/AIDS prevalence remains high and makes it the world's most severely affected region despite being home to only 10% of the world's population, it shelters about two thirds of the total number of people living with HIV globally(3).It was estimated that by 2016 around 1.35 million people in Tanzania would be infected with HIV and that Tanzania mainland is currently experiencing a generalized HIV epidemic, with a prevalence of 5.3% in the general population(2). The prevalence is higher in sub-groups such as mobile populations and sex workers (14-35%), people who inject drugs (16-51%) and men who have sex with men (22-42%). Women are disproportionally more affected, with a prevalence of 6.3% as compared to 3.9% among men (2).

Most interventions for prevention of mother-to-child transmission (PMTCT) of HIV have focused on the prevention of secondary transmission by means of peripartum antiretroviral therapy (ART).It was determined, however, that a strategy focusing on family planning rather than on ART alone could avert 28.6% more HIV-positive births at the same level of expenditure. In line with these findings, the World Health Organization (WHO) listed ''preventing unintended pregnancies among HIV-infected women'' as one of its key strategies for decreasing the proportion of infants infected with HIV. The strategy involves improving access to family planning (FP) programs, providing FP and supporting HIV-infected women in making informed choices about their reproductive lives(4).

Tanzania abides with a four-pronged strategy for the elimination of new HIV infections among children and keeping their mothers alive which encompasses a range of HIV preventive and treatment measures for mothers and their children together with essential maternal, newborn and child health services as well as family planning(5)



Safe and effective family planning (**Prong-2**) is a highly cost-effective strategy that primarily helps to prevent vertical transmission of HIV through unintended pregnancies.(6, 7) People living with HIV may have lower fertility desires compared to the general population (8-10)

It was estimated by the (Global Burden of Disease Study 2015) that there were approximately 1.2 m HIV/AIDS deaths worldwide, of which 859,000 were in sub-Saharan Africa(11).

Tanzania has a Total Fertility Rate (TFR) of 5.2 which is still high. Currently, 38% of married women in Tanzania use some method of family planning. Of these, 32% use a modern method and 6% use traditional methods. The most commonly used methods among married women in Tanzania are injectables, pills and female sterilization(12).The TFR ranges from lows of 3.8 children in Southern Zone and 3.9 children in Eastern Zone to highs of 6.4 children in Lake Zone and 6.7 children in Western Zone. Family planning discontinuation rate among women who began an episode of family planning use in the 5 years before the survey, one out of every four times (26%) that women began using a [contraceptive] method and discontinued the method in less than 12 months; Also there was pattern of decreasing fertility with increasing education and with increasing wealth(3).

There are diversities of fertility intentions among women living with HIV like there are in all women of reproductive age, that can change over time and that could be influenced by interrelated factors at the individual, couple, family, and community levels .In addition, factors such as stigma and discrimination, gender inequality, violence, lack of community empowerment, coercion and lack of informed choice from health care providers, and unsupportive laws and policies influence sexual and reproductive health and rights (SRHR) of women living with HIV among PLWH(13-15).

Methods

This was a hospital based cross-sectional study that was conducted among HIV positive reproductive age women (18 – 49 years) who were attending three selected HIV Care and Treatment Clinics. The study was conducted at BMC, STRRH and Buzuruga Health Centre, HIV Care and Treatment Clinics in Mwanza City. BMC is a consultant/referral and teaching hospital for the Lake and Western zones of the United Republic of Tanzania. It is situated along the shores of Lake Victoria in Mwanza City; it has 947

bed capacity and approximately 900 employees. It is a referral centre for tertiary specialist care for seven regions, including Mwanza, Mara, Kagera, Shinyanga, Simiyu, Tabora and Kigoma. It serves catchments population of approximately 13 million people. SRRH is a regional referral hospital located in Northern western part of Tanzania main land along the shores of the Lake Victoria in Mwanza city. It has 375 bed capacities, 11 wards with 406 health workers with different qualifications. It has approximately 178women attendees of reproductive age per month in the CTC. Its catchment area includes Nyamagana, Ilemela, Misungwi, Kwimba, Sengerema, Ukerewe, Buhosa and Magu with a population of 3,250,817. Buzuruga Health Centre is located in Ilemela municipality; it saves people from Buzuruga, Mecco, Nyambiti Nundu and Nyasaka. It also receives approximately 50 women patients of reproductive age at the CTC. The study population was all HIV positive reproductive age women (18 – 49 years) who were attending HIV Care and Treatment Clinics in selected facilities. The study included all sexual active HIV positive woman aged between18– 49 years who were attending Care and Treatment Clinics in selected facilities and have gave an informed consent to participate in the study. Sample size of this study was calculated using Kish leslie (1965) formula for cross sectional studies (21). Using the prevalence of 53% from the previous study in Kenya (22), $N = \underline{Z^2\ P\ (1\text{-}P)}/D,^2$ where: Z= Z score for 95% confidence interval = 1.96, P = prevalence= 53%, D= tolerable error =5% which was 440 number of participants. Therefore, a minimum sample size of 440HIV positive reproductive age women who attended selected CTCs during the time of the study was enrolled. The sample from each hospital was allocated proportionally to the number of clients on ART. Patients who attended clinic on the day of interview were selected using a systematic random sampling method by giving them numbers; those who picked even numbers only were enrolled for interview. Also patients CTC Cards were marked with a label to avoid repetitions of interview in the course of the study and later on removed. Data collection technique was done by direct interview using structured pre-tested questionnaires were conducted to participants. The demographic and medical information were collected through interview, a structured questionnaire was used to collect data on socio-demographic characteristics, information on Current family planning use, health service/clinical related factors, family factors, disclosure and ART status, factors associated with modern family planning use. The questionnaire was pretested in CTCs by the principal investigator two weeks before commencing the study in order to establish the suitability, practicability and reliability of the study questions. Modifications and adjustments of the questionnaire were made to ensure the reliability and validity of the data collected. The collected data were verified at the end of each day by the principal investigator to check for errors or omissions made while filling in the questionnaires. The verified filled in questionnaires were kept in the safe custody of the principal investigator in a locked cabinet.Data collected in this study were entered into the computer using a unique study number for each participant instead of the study participants' names so as to ensure confidentiality. The data are stored in a password protected database in a computer accessible to the principal investigator. Data collected were checked, cleared and entered into computer Microsoft excel 2007 and later analysed by using STATA version 13. Continuous variable were summarized using median with interquartile ranges (IQR) and categorical variable were summarized as proportions. Test for association was done using Pearson's Chi- squire test according to the data collection results. Multivariate logistic regression model will be used to determine the predictors for utilization of modern family planning and 95% confidence interval has been noted. P-values of less than 0.05 have been considered statistically significant.

RESULTS

Socio-demographic characteristics of HIV positive women of reproductive age appearing at HIV Care and Treatment Clinics

A total of 440 participants were enrolled in the study their median age was 36 [IQR 30 – 42] years. Majority, 246(56.2%) of the participants were aged 35 to 49 years. Majority 279 (63.4%) of women attained primary education, 75 (17.1%) women had attained secondary education, with only 6 (1.4%) participants who reached a college level and 80 (18.2%) were illiterate. There were 178 (40.5%) women who were married and 23(28%) were divorced. Majority 377 (85.7%) of the respondents were living in relatively good socioeconomic status despite being financially dependent on others 226 (51.4%).

Socio-demographic characteristics of HIV positive women of reproductive age appearing at HIV Care and Treatment Clinics

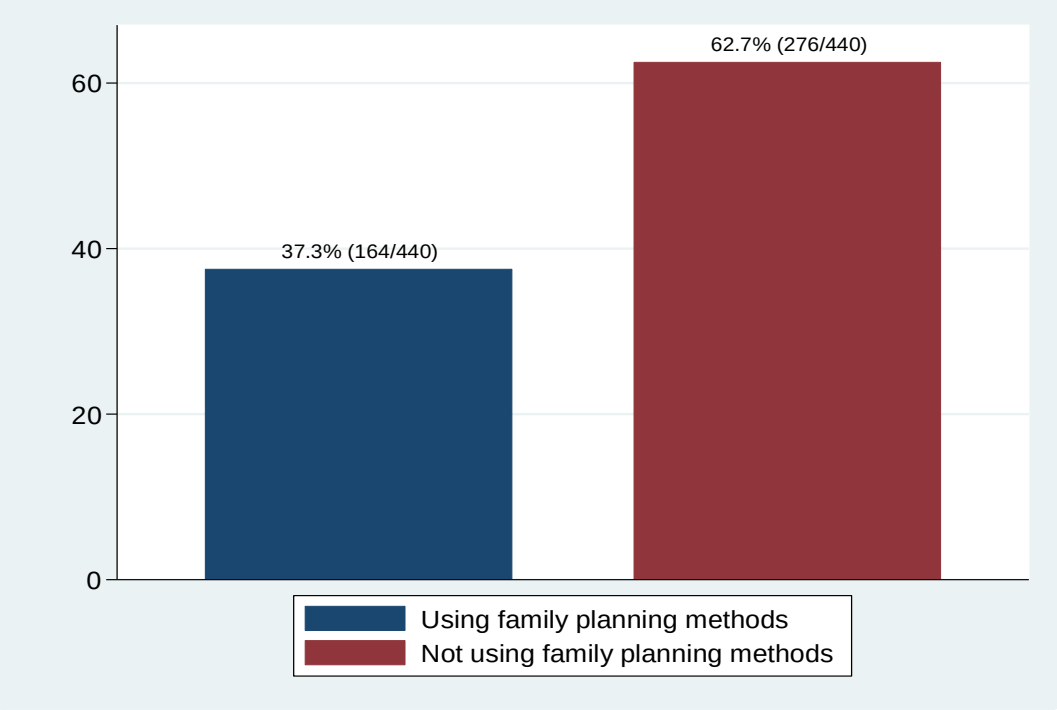
Table 1:

Client characteristics	Number (n)	Percent (%)
Age group		
<35 years	192	43.8
≥35 years	246	56.2
Level of education		
Illiterate	80	18.2
Primary	279	63.4
Secondary	75	17.1
College	6	1.4
Marital status		
Married	178	40.5
Single	64	14.6
Divorced	123	28.0
Widowed	75	17.1
Daily expenditure		
<3000	32	7.3
3000-10000	377	85.7
>10000	31	7.1
Financial dependency on others		
Yes	226	51.4
No	214	48.6

Current family planning uptake among HIV positive women of reproductive age attending HIV Care and Treatment Clinics

Of 440 study participants, only 165(37.5%) were currently using modern family planning methods whereas a large number of the participants 275(62.5%) not using any modern method of family planning. Figure 1 summarizes.

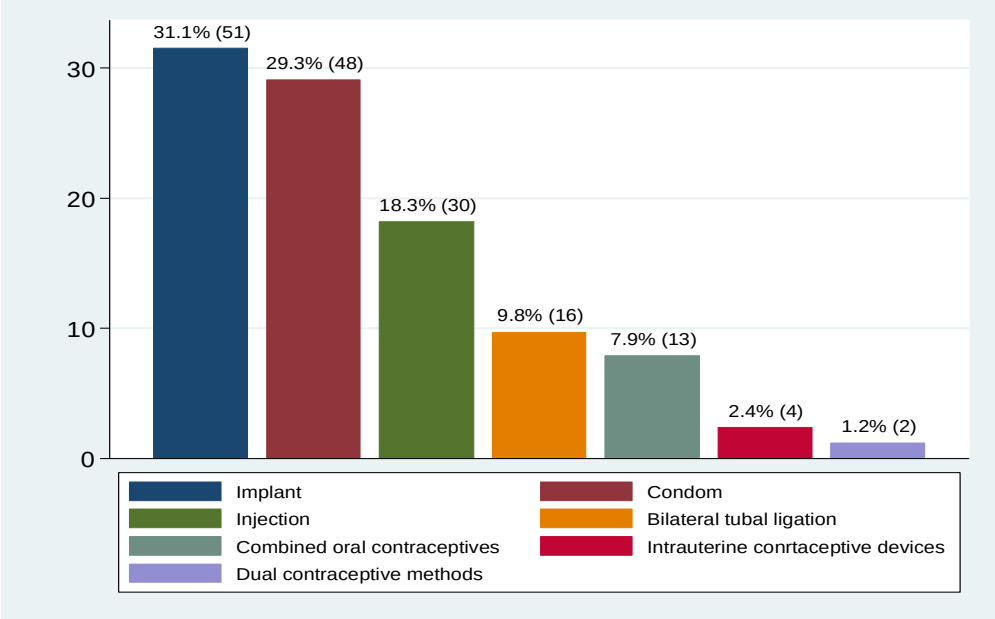
Figure 1.



Types of the current modern family planning methods being utilized among HIV positive women of reproductive age attending HIV Care and Treatment Clinics

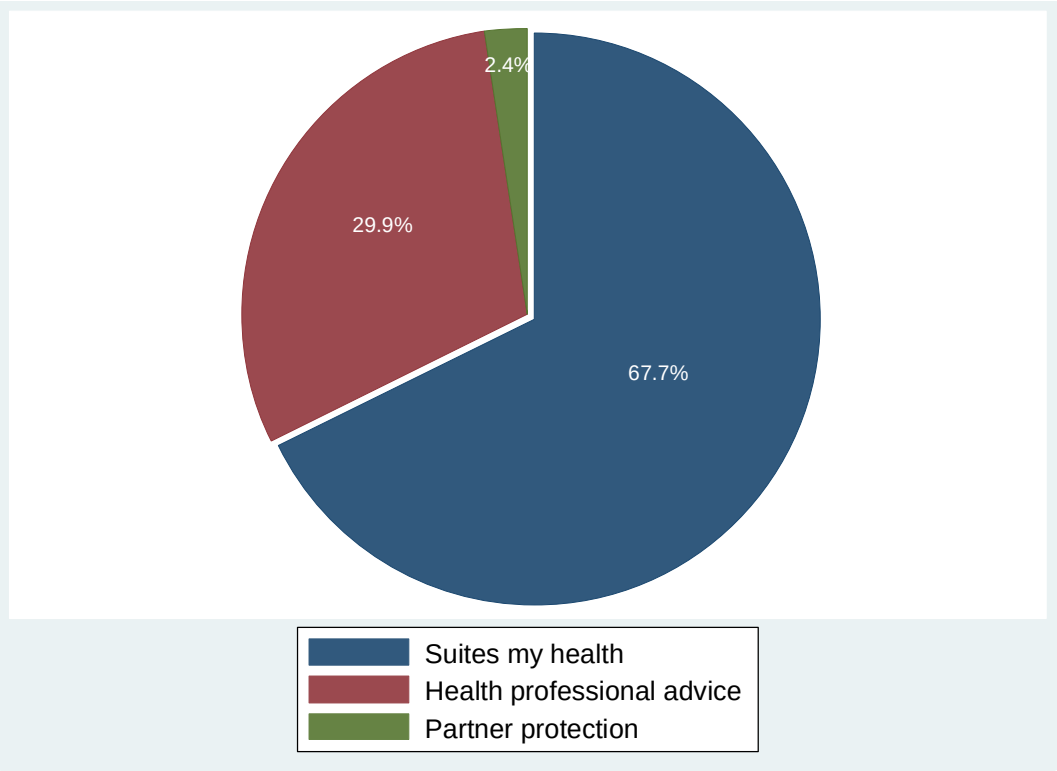
Among 164 women utilizing modern methods of family planning, implant 51(31.1%) was the most preferred method followed by condoms 48 (29.3%). Those who were using injection contraceptives were 30(18.3%) ,followed by those who underwent bilateral tubal ligation 16 (9.8%), combined oral contraceptives 13(7.9%) and intrauterine contraceptive devices 4(2.4%) respectively. Dual method was the least used method with only 2 (1.2%) participants reporting on it. Figure 2 below shows the modern family planning methods according to preferences

Figure 2.



Reasons for uptaking of the types of the current modern family planning methods among HIV positive women of reproductive age attending HIV Care and Treatment Clinics

Of the 164 clients utilizing methods chosen, the main reasons of their choice for currently used methods was that a particular method suited one's health 111(67.7%), health professional's advice 49 (29.9%) and only 4(2.4%) reported using condom for partner's protection.



Clinical related factors of HIV positive women of reproductive age appearing at HIV Care and Treatment Clinics.

Of the total study participants, 299/440 (67.9%) women reported not being counseled about modern family planning methods, 90.7%(399/440) reported that modern family planning methods were not available at ART units, 102/165 of modern family planning users reported getting them from another government health institution, whereas only 0.5% (2/165) condom users reported taking them from the ART unit. Majority of the participants 427/440(97.1%) were on ART with CD4 counts of ≥ 200 cell/ mm3 and reported improved health304/440(69.1%) after been on ART despite being in WHO stage II or III of the disease. Shown in table 2 below are the clinical related factors.

Table 2.

Client characteristics	Numbers	Percent %
Counselling on FP utilization		
Yes	141	32.1
No	299	67.9
Availability of FP in ART unit		
Yes	42	9.3
No	399	90.7
Place where FP was received		

At ART treatment unit	2	0.5
Another governmt health institution	102	23.2
FP unit in the hospital	18	4.5
Private clinic	40	9.1
Na	278	63.2
Side effects of current FP		
Yes	15	3.4
No	118	26.8
Na	307	69.8
Main concern(side effects)		
No	3	0.7
Headache	4	0.9
Menstrual change	12	2.7
Na	421	95.7
HIV stage		
I.	1	0.2
II.	188	42.7
III.	241	54.8
IV.	10	2.3
Client characteristics	Numbers	Percent %
On ART		
Yes	427	97.1
No	13	2.9
Time started ART		
>1 Year	373	84.8
<1Year	54	12.3
Not started	13	2.9
Overall health condition after ART		
Improved	304	69.1
No change	109	24.8
Deteriorated	27	6.1

Family social related factors of HIV positive women of reproductive age appearing at HIV Care and Treatment Clinics.

Out of 440 women, 209(47.5%) of them had desire of children, 221 (50.2%) of their sexual partners also had future desire of children. Regarding sexual partners discussion, only 43(9.8%) of them had discussed family planning with their partner's, Majority, % of the participants had disclosed their HIV nmstatus to their family 371(84.3%) and 273 (62.1%) to their partners. Table 4.below elaborates more on these factors.

Table 3.

Client characteristics	Number (n)	Percent (%)
Desire of children		
Yes	209	47.5
No	182	41.4
Undecided	49	11.1
Partner's desire of children		
Yes	221	50.2
No	106	24.1
Na	113	25.7
Discussed contraceptives with partner		
Yes	43	9.8
No	325	73.9
Na	72	16.4
Partner tested for HIV		
Yes	230	52.3
No	47	10.7
Don't know	70	15.9
Na	93	21.1
Partner's HIV status		
Positive	140	31.8
Negative	90	20.5
Na(Don't want to mention)	114	25.9
Disclosed to the family		
Yes	371	84.3
No	69	15.7
Disclosed to the partner		
Yes	273	62.1
No	85	19.3
Na	82	18.6
Reason for non-disclosure		
Fear of stigma/discrimination	54	12.2
Other	43	9.8
Na	343	78
On ART		
Yes	427	97.1
No	13	2.9
Time started ART		
>1 Year	373	84.8
<1 Year	54	12.3
Not started	13	2.9

Factors associated with nonuse of modern family planning of HIV positive women of reproductive age appearing at HIV Care and Treatment Clinics.

Clients who were not counseled on uptake of modern family planning were less likely to use modern family planning methods than those who were counseled (74.6% [223/229] versus 36.9%[52/142]; p-value = 0.001).Not using modern family planning methods was observed more commonly among clients in whom there was unavailability of family planning in the care and treatment clinics than it was when there was availability of family planning(66.9% [267/399] Versus 19.5%[8/41]; p-value =0.001).Clients who had partners with no desire of children were likely not to be using modern family planning compared to those who had a partner with desire of children(52.8% [56/106] versus 62% [137/221]p-value0.010). Not currently using modern family planning was commonest among women who wanted to become pregnant now followed by those who did not want to become pregnant forever, and even least with those who wanted to become pregnant after 2 years(83.3% [55/66], 61.2% [120/196] versus 56.2% [100/178]; p-value = 0.001).Clients who had no children were most likely not to be using modern family planning followed by those who had 1-3 children and at the least in those who had more three than children(78.5% [59/65], 60.9% [165/271] and 56.7% [59/104]; p-value = 0.012). Table 5 below shows the association of factors and their significance.

Factors associated with nonuse of modern family planning of HIV positive women of reproductive age appearing at HIV Care and Treatment Clinics.

Table 4.

Patients factor(Variables)	Use of FP		Total	P-value
	No n (%)	Yes n (%)		
Counseling on FP utilization				
No	223 (74.6)	76 (25.4)	299	
Yes	52 (36.9)	89 (63.1)	141	<0.001
Availability of FP in ART unit				
No	267 (66.9)	132 (33.1)	399	
Yes	8 (19.5)	33 (80.5)	41	0.001
Desire of children				
No	110 (60.4)	72 (39.6)	182	
Undecided	27 (55.1)	22 (44.9)	49	0.275
Yes	138 (66.0)	71 (33.9)	209	
Partner Desire of children				
Na	82 (72.6)	31 (27.3)	113	
No	56 (52.8)	50 (47.2)	106	0.010
Yes	137 (62)	84 (38.0)	221	

Discussed Family planning with partner				
Na	53 (73.6)	19 (26.4)	72	
No	199 (61.2)	126 (38.8)	325	0.064
Yes	23 (53.5)	20 (46.5)	43	
Timing of pregnancy				
Don't want	120 (61.2)	76 (38.8)	196	
Want now	55 (83.3)	11 (16.7)	66	0.001
Wanted in 2 years	100 (56.2)	78 (43.8)	178	
Number of children				
No children	59 (78.5)	14 (21.5)	65	0.012
1-3 Children	165 (60.9)	106 (39.1)	271	
>3 Children	59 (56.7)	45 (43.3)	104	
Level of education				
College	6 (100)	0 (0.00)	6	
Illiterate	51 (63.8)	29 (36.3)	80	0.248
Primary	174 (62.4)	105 (37.6)	279	
Secondary	44 (58.7)	31 (41.3)	75	

Factors associated with discontinuation of family planning methods

Following univariate analysis, factors associated with family planning discontinuation were secondary education (COR 0.3; 95% CI 0.1 – 0.8; p-value=0.015), Women who were counseled on FP (COR 6.0; 95% CI 3.0 – 12.4; p-value<0.001), Availability of FP (COR 0.3; 95 CI 0.1-0.7; p-value=0.012), Women who wanted to be pregnant now(COR 3.4; 95% CI 1.1-19.4; p-value=0.028) and those who did not want to become pregnant forever (COR 2.9; 95% CI 1.5-5.6; p-value=0.001), Majority of HIV stage III and IV (COR 9.7; 95% CI 5.0-19.1;p-value<0.001), Divorced (COR 3.0; 95% CI 1.5-6.1; p-value=0.002), Widowed (COR 4.0; 95% CI 1.8-8.8; p-value=0.001) and Age≥35 years (COR 9.8; 95% CI 4.2-22.6; p-value=0.001). When these factors were subjected to multivariate analysis, factors associated with family planning discontinuation were not been counseled on FP (AOR 5.5; 95% CI 2.0 – 15.1; p-value 0.001), Partner has no desire of children (AOR 0.3; 95% CI 0.1 – 0.8;p-value=0.029), Stage III&IV of HIV (AOR13.4; 95% CI 5.1 – 35.0; p-value<0.001), Divorced women (AOR 3.2; 95% CI 1.1 – 9.7; p-value=0.038) and women's age ≥35 years (AOR 6.8; 95% CI 2.2-20.9 p-value=0.001).Table 6, below shows these findings.

Factors associated with discontinuation of family planning methods

Table6.

	Discontinuation of family planning		ODDS RATIO			
			CRUDE		ADJUSTED	
Patients factor(Variables)	**No**	**Yes**	**COR [CI = 95%]**	**p-value**	**AOR (CI = 95%)**	**P-value**
Level of education						
Illiterate	28 (60.9)	18 (39.1)	1.0		1.0	
Primary	105 (70.5)	44 (29.5)	0.7[0.2-1.3]	0.223	1.3[0.5-3.6]	0.574
Secondary	31 (86.1)	5 (13.9)	0.3[0.1-0.8]	0.015	1.4[0.3-6.9]	0.648
Counseling on FP utilization						
Yes	89 (89.0)	11 (11.0)	1.0		1.0	
No	75 (57.3)	56 (42.8)	6.0[3.0-12.4]	<0.001	5.5[2.0-15.1]	0.001
Availability of FP in ART unit						
No	131(67.5)	63 (32.5)	1.0			
Yes	33 (89.2)	4 (10.8)	0.3[0.1-0.7]	0.012	0.5[0.1-2.2]	0.394
Partner Desire of children						
Yes	83 (75.5)	27 (24.6)	1.0		1.0	
No	50 (76.9)	15 (23.1)	0.9[0.4-1.9]	0.826	0.3[0.1-0.8]	0.029
Na	31 (55.4)	25(44.6)	2.5[1.3-4.9]	0.009	0.6[0.1-3.5]	0.556
Timing of pregnancy						
Want in 2 years	79(83.2)	16 (16.8)	1.0		1.0	
Want now	10 (58.8)	7 (41.2)	3.4[1.1-10.4]	0.028	4.4[0.7-29.4]	0.118
Don't know	75 (63.0)	44 (37.0)	2.9[1.5-5.6]	0.001	2.8[0.9-9.1]	0.079
Discussed FP with partner						
Yes	20 (83.3)	4 (16.7)	1.0		1.0	
No	125 (73.1)	46 (26.9)	1.8[0.6-5.7]	0.288	1.4[0.2-7.7]	0.712
Na	19 (52.8)	17 (47.2)	4.5[1.3-15.7]	0.020	4.0[0.4-36.2]	0.216
HIV Disclosed to partner						
Yes	109 (76.2)	34 (23.8)	1.0		1.0	
No	34 (70.8)	14 (29.2)	1.3[0.6-2.7]	0.457	1[0.3-3.3]	0.980
Na	20 (52.5)	19 (47.5)	3.0[1.5-6.3]	0.003	0.8[0.1-5.5]	0.836
Stage of HIV						
II	121 (89.0)	15 (11.0)	1.0		1.0	
III & IV	43 (45.3)	52 (54.7)	9.7[5.0-19.1]	<0.001	13.4[5.1-35.0]	<0.001

Marital status						
Married	78 (82.1)	17 (17.9)	1.0		1.0	
Divorced	44 (60.3)	29 (39.7)	3.0[1.5-6.1]	0.002	3.2[1.1-9.7]	0.038
Widowed	23 (53.5)	20 (46.5)	4.0[1.8-8.8]	0.001	1.8[0.5-6.9]	0.374
Single	19 (95.0)	1 (5.0)	0.2[0.03-1.9]	0.180	0.2[0.0-2.7]	0.230
Age						
<35	88 (92.6)	7 (7.4)	1.0		1.0	
≥ 35	76 (56.3)	59 (43.7)	9.8[4.2-22.6]	<0.001	6.8[2.2-20.9]	0.001

DISCUSION

Family planning uptake among HIV positive women of reproductive age

Family planning utilization is important for HIV positive women as it is important to HIV negative women for spacing and limiting birth and to prevent unintended pregnancies irrespective of their fertility desire. In addition, avoiding unintended pregnancies among HIV positive women is one way of reducing vertical transmission of HIV and a prevention strategy as outlined by WHO in 2002. In this study the overall proportion of modern family planning uptake was 37.3% irrespective of the ART status where as a large proportion of the participants in the counterpart 62.7% were not using any method of modern family planning because they either discontinued using them or never used. This uptake is very low compared to the findings from previous studies in South Africa, Uganda and Kenya where the uptake of methods of modern family planning was higher with prevalence of 95%, 85% and 53% respectively(26, 38, 39).The lower contraceptive practice amongst these study participants may be due to the lack of active promotion of contraceptives during the pre-initiation counseling classes and subsequent follow-up visits and unavailability of methods of family planning of their choices in the CTCs. This is reflected by the reasons given for choice of a particular method of family planning that, a particular method suited one's health 67.7%, health professional's advice 29.9% and only 2.4% reported using condom for partner's protection. Regarding reasons given above, if proper counseling and active promotion will be offered to these women they will obviously use any modern FP method. On the other hand our findings is similar a study done in the Democratic Republic of the Congo (DRC) where 20.4% was observed by the year 2015(40).

Patterns of the use of family planning among HIV positive women of reproductive age

Regarding the patterns of family planning uptake, findings in this study reveals an inconsistent use of modern family planning as evidenced by 37.3% of users against 62.7% of nonusers. Commonly used family planning methods according to preferences were implant, male condom, injections, combined oral contraceptives and those who had undergone bilateral tubal ligation with very few who used dual method. Implant 31.1% was the most preferred method followed by male condoms 29.3%. Those who were using injection contraceptives were 18.3%, followed by those who underwent bilateral tubal ligation 9.8%, combined oral contraceptives 7.9% and intrauterine contraceptive devices 2.4% respectively. With the advocacy of the use of modern family planning for the purpose of PMTCT of HIV, the effective and consistent use of condom together with another contraceptive method has the potential to offer dual protection. Different from barrier methods, hormonal and permanent contraceptive methods are highly effective at preventing pregnancy but have not been found to play a role in the prevention of HIV transmission(41). To the contrary, in this current study, dual method was the least

used method with only 1.2% participants reporting using it despite the fact that there was 29.3% of male condoms users among those who reported use of modern family planning methods. Unfortunately, no participant reported use of the female condom, though it has the higher risk of unintended pregnancy compared to male condom(42), it has the advantage of being under the control of the woman and should be encouraged in combination with a modern contraceptive for dual protection. The non-use of female condom observed in the present study might be due to the non-availability of the female condom in most health facilities or lack of counseling on FP methods. Dual contraceptives has been reported relatively high in some studies-(ETHIOPIA) (43). 38.5% in Kenya if they were aware of dual contraception, used non-barrier contraceptives, and if had disclosed their HIV status(44). Overall the predictors of using or not using family planning were, counseling on FP, availability of FP on CTCs, partners desire of children, timing of pregnancy and number of children. These patterns are consistent with findings from other studies across sub-Saharan Africa (Kenya, Malawi and Zimbabwe) included in the analysis of the nine countries studied, where HIV-positive women who knew their status were less likely to be current modern contraceptive users with some variations in the predictors with the current study (26, 45). Notably lower use of dual contraception has been reported elsewhere in previous studies in Uganda in which 3.5% were using dual contraceptives (8), In Soweto, South Africa only 33% were on dual contraceptive despite high proportion-84% of clients who were on FP(46), 27% in India(47) and 25% in Nigeria(48) though the last three are higher than in Uganda. Some surveys have even gone further to reveal that use of condoms in particular promises to yield fewer unintended pregnancies and reduced risks of vertical and sexual HIV transmission(46).

Factors associated with discontinuation of modern family planning

A continued unmet need for family planning among HIV-positive women of reproductive age in the settings of this study seems to be an ongoing challenge. A large proportion of HIV-positive reproductive age women of 29% who are not currently using any modern method of family planning actually were FP users prior to HIV diagnosis or in the course of HIV care and treatment .Having noted that the modern contraceptive prevalence in study population is low, it is not surprising that a good number of women in our study reported prior use of FP methods. However, it is concerning that so many discontinued FP after they have been enrolled to CTC, and that as a result, these HIV positive women have significantly lower rates of FP use. Focusing on the study participants who discontinued use of modern FP methods, not been counseled on modern family planning methods was significantly associated with discontinuation of uptake of modern family planning methods, where by individuals who were not counseled had 5.5 more times likelihood of discontinuation than those who are counseled . Providing appropriate counseling and support, and contraceptives, to women living with HIV to meet their needs for family planning and spacing of births, and to optimize health outcomes for these women and their children is an important strategy. Preconception counseling offers important information to HIV individuals who are normally receptive to sexual and reproductive counseling when attended by health care workers. This has been found in some studies as reported by United Nations and in a South African survey respectively(5, 49). In the study women who had partners who did not desire to have more children 23.1% were less likely to discontinue using FP as compared to their counterpart 24.6% who had desire for more children. This is an uncommon observation, that someone who does not desire to get more children discontinues using FP. It is likely that these women will end up getting unwanted pregnancies. Male partners influence is of great importance in supporting their wives/female sexual

partners to use FP so as to either limit number of children or spacing of children and also to allow a woman evaluate her health before she conceives. This has also been observed in various surveys where most women stated that neither they did not desired more children in the future same as their partner and that their partner wanted them to use a contraceptive method(50). Studies elsewhere in South Africa have also shown the influence of partners desire of children on family planning to her spouse (38, 51, 52). If family planning is made available in the CTCs, 89.0% of HIV positive women would be 2.9 times less likely to discontinue uptake of methods of modern family planning. A good number of participants (67.5%) reported lack of availability of FP in the CTCs and even for those who reported using FP they were getting them from either private clinics or other government institutions. Studies have shown that making FP methods available within the CTCs increases the proportion of HIV women using them (53, 54). Stage of disease according to W.H.O was significantly associated with discontinuation of modern family planning. Women with HIV stage III and stage IV were 12 times more likely to discontinue uptake of modern family planning methods as compared to those in stage II. Contrary to expectations in which women with advanced disease 54.7% were expected to continue using modern family planning, instead they were observed to discontinue FP than their counterpart 11.0%. In addition to the anticipated clinical effects of the disease, advanced HIV disease may influence the sexual and reproductive behaviors of women who are HIV infected. Other surveys had findings different from this study, where there was no significant relationship between the stage of HIV and FP use(55). HIV positive women who aged ≥ 35 year 43.7%s were 6.7 times more likely to discontinue uptake of modern family planning as compared to those aged ≤ 35 years (43.7% versus 7.4%). However, our finding is different from a study done in Brazil where most discontinuers were aged below 25 years(56).As it could be expected that women in advanced age would be the ones uptaking FP methods quite often due to either having attained the number of children they wanted or avoid pregnancy complications associated with advanced age, instead they are observed as the majority who were discontinuing FP.

Ethics approval and consent to participate

The ethical clearance was obtained from the joint CUHAS-Bugando/BMC Ethics and Review Committee and the permission to carry out the study will be sought from the Head of BMC Obstetrics and Gynecology Department. The participants were informed about the study a language that they understand and requested to give an informed consent. Literate and coherent participants were requested to sign the informed consent form. Non-literate participants who give consent were requested to provide thumb imprint. To ensure confidentiality, no questionnaire bears the patient name or other personal identifying information. Confidentiality of individual client information was ensured by use of unique identifiers for study participants and limiting access to the principal investigator of study information by storing the completed questionnaires and all documents with participant information in a lockable cabinet. Participants who reported complications/side effects due to using modern family planning methods, and that were confirmed were managed according to the protocols of standard treatment guidelines after assessment and counseling

Availability of data and material

The dataset used and analyzed during the current survey is available from the corresponding author on reasonable request

Availability of data and material

The dataset used and analyzed during the current survey is available from the corresponding author on reasonable request

References

1. Hoffman IF, Martinson FE, Powers KA, Chilongozi DA, Msiska ED, Kachipapa EI, et al. The year-long effect of HIV-positive test results on pregnancy intentions, contraceptive use, and pregnancy incidence among Malawian women. JAIDS Journal of Acquired Immune Deficiency Syndromes. 2008;47(4):477-83.
2. TANZANIA NATIONAL GUIDELINES FOR THE MANAGEMENT OF HIV AND AIDS. May, 2017 Sixth Edition ed. DAR ES SALAAM: TANZANIA MINISTRY OF HEALTH AND SOCIAL WELFARETANZANIA MINISTRY OF HEALTH AND SOCIAL WELFARE; 2017.
3. Lawi JD, Mirambo MM, Magoma M, Mushi MF, Jaka HM, Gumodoka B, et al. Sero-conversion rate of Syphilis and HIV among pregnant women attending antenatal clinic in Tanzania: a need for re-screening at delivery. BMC pregnancy and childbirth. 2015;15(1):3.
4. Organization WH. Strategic approaches to the prevention of HIV infection in infants: report of a WHO meeting, Morges, Switzerland, 20-22 March 2002. 2003.
5. UNAIDS U. Countdown to ZERO: global plan towards the elimination of new HIV infections among children by 2015 and keeping their mother alive. UNAIDS; 2011.
6. Halperin DT, Stover J, Reynolds HW. Benefits and costs of expanding access to family planning programs to women living with HIV. Aids. 2009;23:S123-S30.
7. Reynolds H, Janowitz B, Wilcher R, Cates W. Contraception to prevent HIV-positive births: current contribution and potential cost savings in PEPFAR countries. Sexually transmitted infections. 2008;84(Suppl 2):ii49-ii53.
8. Heys J, Kipp W, Jhangri GS, Alibhai A, Rubaale T. Fertility desires and infection with the HIV: results from a survey in rural Uganda. AIDS. 2009;23:S37-S45.
9. Johnson KB, Akwara P, Rutstein SO, Bernstein S. Fertility preferences and the need for contraception among women living with HIV: the basis for a joint action agenda. Aids. 2009;23:S7-S17.
10. Keogh SC, Urassa M, Kumogola Y, Mngara J, Zaba B. Reproductive behaviour and HIV status of antenatal clients in northern Tanzania: opportunities for family planning and preventing mother-to-child transmission integration. Aids. 2009;23:S27-S35.
11. Wang H, Wolock TM, Carter A, Nguyen G, Kyu HH, Gakidou E, et al. Estimates of global, regional, and national incidence, prevalence, and mortality of HIV, 1980–2015: the Global Burden of Disease Study 2015. The lancet HIV. 2016;3(8):e361-e87.
12. Ministry of Health CD, Gender, Elderly, Children - MoHCDGEC/Tanzania Mainland, Ministry of Health - MoH/Zanzibar, National Bureau of Statistics - NBS/Tanzania, Office of Chief Government Statistician - OCGS/Zanzibar, ICF. Tanzania Demographic and Health Survey and Malaria Indicator Survey 2015-2016. Dar es Salaam, Tanzania: MoHCDGEC, MoH, NBS, OCGS, and ICF, 2016.
13. Nattabi B, Li J, Thompson SC, Orach CG, Earnest J. A systematic review of factors influencing fertility desires and intentions among people living with HIV/AIDS: implications for policy and service delivery. AIDS and Behavior. 2009;13(5):949-68.
14. MacCarthy S, Rasanathan JJ, Ferguson L, Gruskin S. The pregnancy decisions of HIV-positive wo-

men: the state of knowledge and way forward. Reproductive health matters. 2012;20(sup39):119-40.
15. Auvinen J. A Description of Male Participation in Prevention of Mother to Child Transmission of HIV Programmes, as Viewed by Luba-Kasai Men and Midwives in the Lusaka District of Zambia. 2014.
16. Kimani J, Warren C, Abuya T, Mutemwa R, Mayhew S, Askew I. Family planning use and fertility desires among women living with HIV in Kenya. BMC public health. 2015;15(1):909.
17. Berhane Y, Berhe H, Abera GB, Berhe H. Utilization of modern contraceptives among HIV positive reproductive age women in Tigray, Ethiopia: a cross sectional study. ISRN AIDS. 2013;2013.
18. Wodajo BS. HIV and AIDS-related stigma and discrimination reduction-intervention strategy in health care settings of Amahara Region, Ethiopia 2015.
19. Loutfy MR, Hart TA, Mohammed SS, Su D, Ralph ED, Walmsley SL, et al. Fertility desires and intentions of HIV-positive women of reproductive age in Ontario, Canada: a cross-sectional study. PloS one. 2009;4(12):e7925.
20. Nóbrega AA, Oliveira FA, Galvão MT, Mota RS, Barbosa RM, Dourado I, et al. Desire for a child among women living with HIV/AIDS in northeast Brazil. AIDS patient care and STDs. 2007;21(4):261-7.
21. Egzeabher SG, Bishaw MA, Tegegne TK, Boneya DJ. Modern Family Planning Utilization and Associated Factors among HIV Positive Reproductive Age Women in Debre Markos Referral Hospital Northwest Ethiopia, 2014 GC. Open Journal of Epidemiology. 2015;5(01):32.
22. Habte D, Namasasu J. Family planning use among women living with HIV: knowing HIV positive status helps-results from a national survey. Reproductive health. 2015;12(1):41.
23. Elul B, Delvaux T, Munyana E, Lahuerta M, Horowitz D, Ndagije F, et al. Pregnancy desires, and contraceptive knowledge and use among prevention of mother-to-child transmission clients in Rwanda. Aids. 2009;23:S19-S26.
24. Wanyenze RK, Wagner GJ, Tumwesigye NM, Nannyonga M, Wabwire-Mangen F, Kamya MR. Fertility and contraceptive decision-making and support for HIV infected individuals: client and provider experiences and perceptions at two HIV clinics in Uganda. BMC public health. 2013;13(1):98.
25. Nattabi B, Li J, Thompson SC, Orach CG, Earnest J. Family planning among people living with HIV in post-conflict Northern Uganda: A mixed methods study. Conflict and Health. 2011;5(1):18.
26. Njuguna E, Ilovi S, Muiruri P, Mutai K, Kinuthia J, Njoroge P. Factors influencing the utilization of family planning services among HIV infected women in a Kenyan health facility. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. 2017;6(5):1746-52.
27. Mmbaga EJ, Leyna GH, Ezekiel MJ, Kakoko DC. Fertility desire and intention of people living with HIV/AIDS in Tanzania: a call for restructuring care and treatment services. BMC public health. 2013;13(1):86.
28. Leyva-Moral JM, Palmieri PA, Feijoo-Cid M, Cesario SK, Membrillo-Pillpe NJ, Piscoya-Angeles PN, et al. Reproductive decision-making in women living with human immunodeficiency virus: A systematic review. International journal of nursing studies. 2018;77:207-21.
29. Girum Z. Unmet Reproductive Health Care Needs and Occurrence of Unintended Pregnancy among HIV Positive Women in Antiretroviral Treatment Units in Addis Ababa, Ethiopia. 2011.
30. Mekonnen T, Moges A, Mengesha B. Assessment of family planning use and associated factors among people living with HIV in Addis Ababa, Ethiopia. The Lancet. 2013;382:S10.

31. Stephenson R, Baschieri A, Clements S, Hennink M, Madise N. Contextual influences on modern contraceptive use in sub-Saharan Africa. American journal of public health. 2007;97(7):1233-40.
32. Asfaw HM, Gashe FE. Contraceptive use and method preference among HIV positive women in Sddis Ababa, Ethiopia: a cross sectional survey. BMC public health. 2014;14(1):566.
33. Worke MD, Bezabih LM, Woldetasdik MA. Utilization of contraception among sexually active HIV positive women attending art clinic in University of Gondar Hospital: a hospital based cross-sectional study. BMC women's health. 2016;16(1):67.
34. Magadi MA, Magadi WA. HIV/AIDS and contraceptive use: factors associated with contraceptive use among sexually active HIV-positive women in Kenya. Contraception. 2017;95(3):312-21.
35. Nyanja TAN, Tulinius C. Relationships matter: contraceptive choices among HIV-positive women in Tanzania. African Journal of AIDS Research. 2017;16(2):109-17.
36. Keogh SC, Urassa M, Roura M, Kumogola Y, Kalongoji S, Kimaro D, et al. The impact of antenatal HIV diagnosis on postpartum childbearing desires in northern Tanzania: a mixed methods study. Reproductive health matters. 2012;20(sup39):39-49.
37. Inc Jwas. Kish,leslei. Survey sampling new York. 1965.
38. Oni EE, Ross A, Van der Linde S. Contraceptive practices amongst HIV-positive women on antiretroviral therapy attending an ART clinic in South Africa. African Journal of Primary Health Care and Family Medicine. 2013;5(1):1-6.
39. Andia I, Kaida A, Maier M, Guzman D, Emenyonu N, Pepper L, et al. Highly active antiretroviral therapy and increased use of contraceptives among HIV-positive women during expanding access to antiretroviral therapy in Mbarara, Uganda. American journal of public health. 2009;99(2):340-7.
40. Bertrand JT, Kayembe P, Dikamba N, Mafuta E, Hernandez J, Hellen J, et al. Using mapping of service delivery sites to increase contraceptive availability in Kinshasa, Democratic Republic of the Congo. International perspectives on sexual and reproductive health. 2014;40(2):95-9.
41. UNAIDS U. United Nations (UN) (2007) World Contraceptive Use. New York: Department of Economic and Social Affairs, Population Division. PloS one. 2007;5(11):e13868.
42. Agboghoroma CO. Contraception in the Context of HIV/AIDS: A Review. African journal of reproductive health. 2011;15(3):15-24.
43. Demissie DB, Girma T, Abdissa G. Dual contraceptive utilization and associated factors among people living with HIV attending ART clinic in Fitche Hospital, Ethiopia. SM J Community Med. 2015;1(2):1010.
44. Mulongo AM, Lihana RW, Githuku J, Gura Z, Karanja S. Factors associated with uptake of dual contraception among HIV-infected women in Bungoma County, Kenya: a cross-sectional study. Pan African Medical Journal. 2017(ARTISSUE).
45. Mumah JN, Ziraba AK, Sidze EM. Effect of HIV status on fertility intention and contraceptive use among women in nine sub-Saharan African countries: evidence from Demographic and Health Surveys. Global health action. 2014;7(1):25579.
46. Kaida A, Laher F, Strathdee SA, Money D, Janssen PA, Hogg RS, et al. Contraceptive use and method preference among women in Soweto, South Africa: the influence of expanding access to HIV care and treatment services. PloS one. 2010;5(11):e13868.
47. Chakrapani V, Kershaw T, Shunmugam M, Newman PA, Cornman DH, Dubrow R. Prevalence of and barriers to dual-contraceptive methods use among married men and women living with HIV in India. Infectious diseases in obstetrics and gynecology. 2011;2011.

48. Ezugwu EC, Nkwo PO, Agu PU, Ugwu EO, Asogwa AO. Contraceptive use among HIV-positive women in Enugu, southeast Nigeria. International Journal of Gynecology & Obstetrics. 2014;126(1):14-7.
49. Matthews L, Crankshaw T, Giddy J, Kaida A, Psaros C, Ware N, et al. Reproductive counseling by clinic healthcare workers in Durban, South Africa: perspectives from HIV-infected men and women reporting serodiscordant partners. Infectious Diseases in Obstetrics and Gynecology. 2012;2012.
50. Haddad LB, Feldacker C, Jamieson DJ, Tweya H, Cwiak C, Chaweza T, et al. Pregnancy prevention and condom use practices among HIV-infected women on antiretroviral therapy seeking family planning in Lilongwe, Malawi. PloS one. 2015;10(3):e0121039.
51. Cooper D, Harries J, Myer L, Orner P, Bracken H. "Life is still going on": reproductive intentions among HIV-positive women and men in South Africa. Social science & medicine. 2007;65(2):274-83.
52. Gutin SA, Namusoke F, Shade SB, Mirembe F. Fertility desires and intentions among HIV-positive women during the post-natal period in Uganda. African journal of reproductive health. 2014;18(3):67-77.
53. Tsegaye R. Family planning need of people living with HIV/AIDS in antiretroviral therapy clinics of Horro Guduru Wollega zone, Ethiopia. BMC research notes. 2017;10(1):581.
54. Mutalemwa PP, Kisinza WN, Urassa JA, Kibona SN, Mwingira U, Lasway C, et al. Integrating reproductive and child health and HIV services in Tanzania: Implication to policy, systems and services. Tanzania journal of health research. 2013;15(2).
55. Muyindike W, Fatch R, Steinfield R, Matthews LT, Musinguzi N, Emenyonu NI, et al. Contraceptive Use and Associated Factors among Women Enrolling into HIV Care in Southwestern Uganda. Infectious Diseases in Obstetrics and Gynecology. 2012;2012:9.
56. Stifani BM, MacCarthy S, Nunn A, Benfield N, Dourado I. From Pill to Condom, or Nothing at all: HIV Diagnosis and Discontinuation of Highly Effective Contraceptives Among Women in Northeast Brazil. AIDS and Behavior. 2017:1-8.