Received: 25 August 2017 | Revised: 6 December 2017 | Accepted: 8 January 2018 | First published online: 31 January 2018

DOI: 10.1002/ijgo.12440

CLINICAL ARTICLE

Gynecology

WILEY International Journal of Gynecology & Obstetrics FIGO

Modern contraceptive use among women living with HIV/AIDS at the Korle Bu Teaching Hospital in Ghana

Ali Samba[1,*] | Kareem Mumuni[1] | Joseph A. Adu[2] | Promise E. Sefogah[1] | William Kudzi[3] | Edmund T. Nartey[3]

[1]Department of Obstetrics and Gynecology, School of Medicine and Dentistry, College of Health Sciences, Accra, Ghana

[2]Department of Obstetrics and Gynecology, Korle Bu Teaching Hospital, Accra, Ghana

[3]Centre for Tropical Clinical Pharmacology and Therapeutics, School of Medicine and Dentistry, College of Health Sciences, Accra, Ghana

*Correspondence
Ali Samba, Department of Obstetrics and Gynecology, School of Medicine and Dentistry, College of Health Sciences, Accra, Ghana.
Email: abmasa@yahoo.com

Abstract

Objective: To examine factors influencing contraceptive use among women living with HIV/AIDS.

Methods: The present cross-sectional study included a randomly selected sample of sexually active females aged 15–60 years who were living with HIV/AIDS and receiving care at the HIV Clinic, Korle Bu Teaching Hospital, Accra, Ghana, between September 1 and November 31, 2016. Data were collected via a structured interviewer-administered questionnaire.

Results: Among 202 women who completed the survey, 50 (24.7%) were using contraceptives. Of the women using contraception, 39 (78%) were married and 6 (12%) were cohabiting. Twenty-eight (56%) reported that their primary sexual partners were HIV-positive, 14 (28%) had HIV-negative partners, and 8 (16%) did not know their partner's HIV status. Condoms were used by 42 (84%) women and the majority (41 [82%]) wanted to have more children; almost all (47 [94%]) had received counseling on contraceptive use. Overall, 133 (65.8%) and 45 (22.3%) women reported that they would prefer to share their family planning concerns with a doctor and nurse, respectively, at the HIV clinic.

Conclusion: Women living with HIV/AIDS desired more children but preferred to share their family planning concerns with their clinician at the HIV clinic. Integrating HIV care and reproductive health services could help these women achieve childbearing goals safely.

KEYWORDS

Antiretroviral; Contraception; Family planning; HIV

1 | INTRODUCTION

HIV infection and the resultant immune suppression in an affected individual contribute hugely to the global health challenge, particularly in resource-constrained countries such as Ghana. The availability of effective antiretroviral therapy (ART) as the standard treatment in most settings has significantly reduced morbidity and mortality linked to HIV infection. ART has also helped to reduce vertical transmission during gestation, delivery, and breastfeeding.[1] Individuals infected with HIV are living longer and healthier in an era of effective combined therapy and expanded treatment access.[2]

Individuals infected with HIV now live a normal life with the ability to work and acquire education, which has contributed immensely to reducing poverty in affected regions.[3] In addition, women living with HIV/AIDS are sexually active and have a normal desire for children. Globally, women of childbearing age between 18 and 30 years living with HIV/AIDS across Sub-Saharan Africa account for more than 13 million (61%) women living with HIV/AIDS.[4] Family planning

education and sensitization to contraceptive use, coupled with effective prevention of mother-to-child transmission therapy, have led to a reduced fear of motherhood.

Several reports have confirmed the aspiration of women living with HIV/AIDS to start a family and have children even after knowing their HIV status.[5,6] The desire for children among HIV-infected women has been attributed to strong traditional values and pressure from the society. In some cultural societies, childlessness can be more stigmatizing than the HIV condition itself.[7,8]

Historically, many HIV-prevention efforts have focused on reducing the risk of HIV acquisition among the uninfected population or those of unknown status. UNFPA's prevention of mother-to-child transmission strategy has recommended the prevention of unwanted pregnancies among women with HIV infection as its second pillar.[9] There are many factors that influence the decision of HIV-infected women and men to have children, including knowledge of status, socio-cultural expectations of motherhood, awareness of the reduced risk of mother-to-child transmission, availability of ART, knowledge of partner's HIV status, and the stigmas associated with HIV status and childlessness.[10,11] Infected women and their partners need to make various reproductive health decisions that pertain to pregnancy, childbearing, and contraception. These decisions should be made by themselves, just as other women and couples do.[12]

Many sexually active women with HIV/AIDS might not want to have children and therefore use a contraceptive for the same reasons as women who are not HIV-positive. In Sub-Saharan Africa, however, family planning services are usually separate from clinics providing HIV-related care.[13] This arrangement institutes a structural barrier for affected women seeking family planning services. Contraceptive options for women with HIV/AIDS are similar to those for individuals without HIV and include barrier methods, hormonal methods, the intrauterine device (IUD), female and male sterilization, the lactational amenorrhea method, and fertility awareness-based methods.

Condoms are the only type of contraceptive that reduces the risk of all sexually transmitted infections (STIs), including HIV. They are most effective in preventing STIs that are transmitted through bodily fluids such as HIV.[12,14,15] In general, most contraceptive methods can be safely used by women with HIV/AIDS on ART. It is widely accepted that contraceptives and ART medications do not interfere with each other.[15] Countries in Sub-Saharan Africa are facing the challenge of successfully providing reproductive health services including family planning in a cost-effective manner to women living with HIV/AIDS. The aim of the present study was to determine the prevalence of contraceptive use among women living with HIV/AIDS and identify the factors that inform their contraceptive choices.

2 | MATERIALS AND METHODS

The present cross-sectional questionnaire-based study was conducted from September 1 to November 31, 2016, among women infected with HIV attending the Fever's Unit of Korle-Bu Teaching Hospital (KBTH) Accra, Ghana, a large referral hospital with approximately 19 000 registered individuals living with HIV/AIDS and receiving care at the Fever's Unit. Study participants were randomly selected, using computer-generated random numbers, from all HIV-positive women aged 15–60 years who were attending follow-up clinic visits at the Fever's Unit at the KBTH; those with a history of treatment default or hospitalization were excluded from the study. The study was approved by the Ethical and Protocol Review Committee of the School of Medicine and Dentistry, University of Ghana (CHS-Et/M 7C/2015-2016). Written informed consent was obtained from all participants. Women who were not fluent in written and spoken English were given a brief explanation of the research in their native language.

Data were collected from consenting participants using an interviewer-administered structured questionnaire. The respondents completed the questionnaire in a secured private room while waiting for their turn to see a clinician. Data on socio-demographic characteristics, age, educational level, marital status, employment, and place of residence were collected, in addition to HIV-related information including the duration of infection, partner awareness of the participant's HIV status, partner's HIV status, and ART medication. The participant's knowledge and awareness of available contraceptive types and methods, and their current contraceptive use were also assessed via the questionnaire.

All data were entered into SPSS version 17.0 (SPSS, Chicago, IL, USA) and imported into Stata version 10 (StataCorp, College Station, TX, USA) for analysis of the population characteristics. Data were summarized as median (interquartile range [IQR]) or number (percentage).

3 | RESULTS

During the study period, 202 participants aged between 20 and 60 years completed the survey. The socio-demographic characteristics of the study participants are summarized in Table 1. Overall, 50 (24.7%) of these women were using contraceptives. The median (IQR) age of the participants using contraceptives was 36.5 years (30.8–42.3 years), which was higher than that of the participants who did not use contraception (32 years [28.0–38.0 years]). Among the 50 women using contraception, 39 (78%) were married and 6 (12%) were cohabiting with a partner. The use of contraception was higher among women who had basic (18/50 [36%]) and secondary (13 [26%]) education than among those with no basic education (11 [22%]) (Table 1).

Almost all participants using contraception (42 [86%]) had been on ART since HIV diagnosis (Table 2). Among those who were using a contraceptive, 28 (56%) had HIV-positive partners, 14 (28%) had HIV-negative partners, and 8 (16%) did not know the status of their partners. Forty-two (86%) had disclosed their HIV status to their partner.

In total, 41 (82%) of the participants using contraception had children, and 29 (58%) intended to have more children (Table 3). Twenty-nine (58%) participants reported that they and their partners desired to have more children. Almost all of the participants using contraception (47 [94%]) had been counseled on the use of modern contraceptives.

TABLE 1 Socio-demographic characteristics of the study participants (n=202).[a]

Characteristic	Using modern contraception (n=50)	Not using modern contraception (n=152)
Age, y	36.5 (30.8–42.3)	32.0 (28.0–38.0)
Age group, y		
20–30	12 (24)	69 (45)
31–40	22 (44)	55 (36)
41–50	14 (28)	27 (18)
51–60	2 (4)	1 (1)
Marital status		
Married	39 (78)	90 (59)
Single	2 (4)	20 (13)
Divorced, widowed, separated	3 (6)	9 (6)
Cohabiting, sexually involved	6 (12)	33 (22)
Education[b]		
None	11 (22)	53 (35)
Basic	18 (36)	37 (25)
Secondary	13 (26)	33 (2)
Tertiary	8 (16)	27 (18)
Residence type[b]		
Urban/peri-urban	36 (73)	126 (85)
Rural	13 (27)	23 (15)

[a]Values are given as median (interquartile range) or number (percentage).
[b]Data were missing in the following categories: education (n=2) and residence type (n=4).

The majority of women using contraception (40 [80%]) reported that they obtained contraception education from an HIV clinic (Table 4). These women were happy to use the modern contraception methods available and to pay a token for the service at the HIV clinic.

Condom use (42 [84%]) was the most common contraceptive and the preferred method of choice by the participants. Overall, 24 (57%) participants reported that they used condoms to prevent HIV transmission to their partner (Table 5).

Participants' preferences for sharing their family planning-related issues and concerns were investigated (Fig. S1). Among the whole study population, most participants reported currently sharing their reproductive health concerns mainly with the doctor, followed by the nurse, at the HIV clinic. They reported a general preference to share family planning concerns with a doctor (133 [65.8%]) and a nurse (45 [22.3%]) at the HIV clinic. Only 23 (11.4%) of respondents were willing to share their reproductive health concerns with health providers at other family planning units.

Participants' reasons for not using available contraceptives were also discussed (Fig. S2). Seventy-nine (52%) of 174 women reported a fear of adverse effects as the reason for not using any modern contraceptive, and 39 (25.7%) reported that it was because they would like to have a child.

4 | DISCUSSION

The present study assessed the prevalence and factors influencing contraceptive use among women living with HIV/AIDS attending an HIV clinic visit at KBTH. Of the 202 HIV-infected women interviewed, 50 (24.7%) used at least one of the available contraceptive methods; a majority of these women were either married or cohabitating. More than 80% of the respondents had disclosed their HIV status to partners and knew their partner's status, and only a few of the women reported having partners who did not have HIV. A large proportion of the women had received counseling on available modern contraceptives, and there was a high desire for children, although most of the women were already mothers with children. Condom use was the predominant contraceptive among the study population, and the most common reason reported for not using any contraceptive was fear of adverse effects.

The finding that most study participants were in a monogamous heterosexual relationship with children and plans for more is consistent with a study by Chemaitelly et al.,[16] which concluded that women

TABLE 2 HIV/ART-related characteristics of study participants (n=202).[a]

Characteristic	Using modern contraception (n=50)	Not using modern contraception (n=152)
Duration of HIV infection, y		
<1	16 (32)	45 (30)
1–2	10 (20)	35 (23)
3–4	7 (14)	25 (16)
5	3 (6)	12 (8)
>5	14 (28)	35 (23)
Partner aware of HIV status[b]		
Yes	42 (86)	120 (79)
No	7 (14)	32 (21)
Partner's HIV status[b]		
Positive	28 (56)	95 (63)
Negative	14 (28)	31 (21)
Unknown	8 (16)	25 (17)
On antiretroviral medication		
Yes	42 (86)	168 (86)
No	7 (14)	28 (14)
Duration of ART, y		
<1	15 (37)	46 (35)
1–2	10 (24)	36 (27)
3–4	3 (7)	16 (12)
5	3 (7)	9 (7)
>5	10 (24)	26 (20)

[a]Values are given as number (percentage).
[b]Data were missing in the following categories: partner aware of HIV status (n=1), partner's HIV status (n=1), on antiretroviral medication (n=6), and duration of ART (n=28).

TABLE 3 Reproductive profile and childbearing characteristics of study participants (n=202).[a]

Characteristic	Using modern contraception (n=50)	Not using modern contraception (n=152)
Has a child/children[b]		
Yes	41 (82)	110 (73)
No	9 (18)	41 (27)
Desire for more children[b]		
Yes	29 (59)	102 (68)
No	17 (35)	46 (30)
Not sure	3 (6)	3 (2)
Desire to have child now[b]		
Yes	29 (58)	102 (68)
No	21 (42)	49 (32)
Partner has a child on his own[b]		
Yes	26 (52)	61 (41)
No	23 (46)	81 (54)
Don't know	1 (2)	8 (5)
Partner wants child now[b]		
Yes	28 (57)	97 (64)
No	21 (43)	54 (36)
Partner wish to have child with me[b]		
Yes	26 (54)	101 (67)
No	22 (46)	45 (30)
Not sure	0 (0)	4 (3)
Counselled on modern contraceptive use		
Yes	47 (94)	136 (89)
No	3 (6)	16 (11)

[a]Values are given as number (percentage).
[b]Data were missing in the following categories: has children (n=1), desire's more children (n=2), desires a child now (n=1), partner has child of own (n=2), partner desires a child now (n=2), and partner wishes to have child with me (n=4).

living with HIV in Sub-Saharan Africa are in stable relationships. A large proportion of the women interviewed in the present study had been on combined ART since HIV diagnosis, which might explain the high number of participants in stable relationships. Partners of women living with HIV can now access and use effective and reliable post-exposure prophylaxis and contraceptives to prevent HIV transmission, leading to stability in relationships. In Ghana, prior to the initiation of ART, patients are taken through two sessions of adherence counseling as per the standard treatment guideline issued by the Ghana Health Service. This practice might have increased the awareness, sensitization, and knowledge of patients on available methods of transmission prevention, which in turn might explain the high number of stable relationships recorded in the current study.

Among the married women in the study, there was a relatively low percentage of modern contraceptive use. This observation confirms the drop in contraceptive use from 19% to 17% among married women in the general population reported by the Ghana Health Service.[17] This finding is also similar to a study reporting a lower percentage of contraceptive use among married women aged between 15 and 49 years, ranging from 12% in Mozambique and 14% in Ethiopia to 27% in Rwanda.[18] However, the current finding contrasts with a previous report of an increased likelihood of contraceptive use among HIV-infected married women relative to infected single women.[19] That study proposed an increase in sexual intercourse among married or cohabitating women relative to single women as the possible reason for this observation.[19] Their finding was also replicated by a study in southwestern Uganda that reported a higher likelihood of contraceptive use among married HIV-infected women as compared with single and unmarried HIV-infected women.[20]

Educational level seemed to influence the percentage of contraceptive use among respondents. A higher percentage of respondents with no education were not using contraception relative to those with some education. Habte et al.[1] reported that, among HIV-infected women with no education, secondary education, and tertiary education, 60.3%, 47.1%, and 45.2%, respectively, were not using contraception, as compared with 35.3%, 24.7%, and 20.0% recorded in the current study. Although women's education has received a considerable boost in most low-resource countries, the proportion of uneducated women using contraceptive was low in the present study. Women with HIV and no basic education are likely to have difficulties in accepting the reliability of available contraceptive methods, leading to the low level of contraceptive use among this population. Women with some education may understand the basis of the available modern efficient contraceptive methods more easily than those with no education. This might have contributed to their willingness to use contraceptives to prevent both transmission and unwanted pregnancies.

TABLE 4 Study participants' responses on family planning integration into HIV clinic (n=202).[a]

Characteristic	Using modern contraception (n=50)	Not using modern contraception (n=152)
Given education on contraception at HIV clinic		
Yes	40 (80)	128 (84)
No	10 (20)	24 (16)
Happy to have modern contraception at HIV clinic		
Yes	43 (86)	136 (89)
No	6 (12)	14 (9)
Maybe	1 (2)	2 (1)
Willing to pay for family planning service at HIV clinic[b]		
Yes	33 (67)	86 (57)
No	16 (33)	64 (43)

[a]Values are given as number (percentage).
[b]Data were missing for one participant.

TABLE 5 Type of contraception used and reasons for using contraception (n=50).[a]

Type of modern contraceptive	Total	Reasons for using type of contraceptive	
		Prevent pregnancy	Prevent HIV transmission
COC	2 (4)	2 (100)	
Condom	42 (84)	15 (43)	24 (57)
Emergency contraceptive	5 (10)	5 (100)	
Implants	5 (10)	5 (100)	
Injectable	6 (12)	6 (100)	
IUD	3 (6)	3 (100)	
POP	2 (4)	2 (100)	

Abbreviations: COC, combined oral contraceptive; IUD, intrauterine device; POP, progestogen-only pill.
[a]Values are given as number (percentage).

Overall, 59% of the HIV-positive women using contraception desired to have more children in the near future, which is higher than the value of 46% reported in an Ethiopian study.[13] This observation may be due the positive effects of ART on their health (reconstitution of the immune system) and the effective prevention of mother-to-child transmission strategy available to these prospective mothers. Among women with HIV/AIDS, the fear of vertical transmission has been a barrier to having children because no mother wants to transfer the infection to her child. Thus, increased awareness of reliable and effective mother-to-child prevention therapy might have led to the current increase in the reported desire to have children, similar to uninfected women in the general population.

The level of condom use reported among sexually active women in the current study (84%) is consistent with that reported previously in a study of women with HIV at two treatment centers in Kumasi, Ghana (77%).[21] A study in neighboring Nigeria also found condom use to be the most common contraceptive among women with HIV infection.[22] Increasing information on the effectiveness and reliability of condoms as a contraceptive and their efficiency in the prevention of STIs, especially HIV, might account for this observation. Among the modern contraceptives available, condom use is the most reliable and efficient method for preventing transmission of HIV. The condom provides dual protection (HIV transmission prevention and pregnancy prevention), which might explain the high proportion of respondents using it in the present study population. However, this finding contradicts observations from southern Uganda, where the use of contraception was 27.8% and the most common method was injectable hormones (51.7%), followed by condoms (29.6%), and oral contraceptives (8.7%).[9] The high percentage of condom use observed in the present study might be due to increased sensitization and education on contraceptive use in the general population overall. Fear of adverse effects of contraceptive use was the main reason assigned by respondents for not using any contraceptives in the present study.

Of the women using contraceptives, 28% had HIV-negative partners and 8% did not know the status of their partners. This finding is consistent with a study reported that most new infections in Sub-Saharan Africa occur among couples of individuals with different HIV statuses.[23] A previous study involving such couples reported increased condom use and joint couple counseling in this group.[24]

The current study found that 80% of participants received contraception education from the HIV clinic. However, contraceptive services can be accessed only outside HIV care clinics and participants reported that this was a constraint to their contraceptive use. Participants reported currently sharing their reproductive health concerns with a doctor or nurse on their scheduled visit to the HIV clinic. Generally, the majority of participants would prefer to share their family planning concerns with a doctor at the HIV clinic rather than go to another family planning facility because they received empathetic advice from the former healthcare provider. This emphasizes the need to integrate modern family planning services into HIV care, as advocated by several authorities and stakeholders to improve contraceptive use.[2,4] However, this is not the situation in most health facilities in Ghana.[8,25] Infrastructure, logistic, and human resource constraints have been cited as the main barriers to implementation of this policy. Patients seeking HIV services and those seeking reproductive health services share common needs and concerns, and integrating these services would enable healthcare providers to address this challenge efficiently and comprehensively.[11] A better evidence-based understanding of fertility intentions and demand for contraception is needed to protect women and men living with HIV/AIDS and to encourage them to make informed sexual and reproductive health-related decisions.[21]

The present study has some limitations. First, its cross-sectional design meant that it was not possible to make definitive conclusions on cause and effect. Second, participants were asked to remember past events, which might have introduced recall bias.

The present findings suggest that women living with HIV/AIDS desire to have more children with their partners, and prefer to share their family planning concerns with a clinician at the HIV treatment center. Family planning services should be tailored to the specific requirements of individuals infected with HIV.

AUTHOR CONTRIBUTIONS

AS contributed to conception of the study and manuscript writing. KM contributed to data collection, data interpretation, and manuscript writing. JAA and PES contributed to the literature review, development of the data-collection instrument, data collection, and manuscript revision. WK and ETN contributed to data analysis, data interpretation, and manuscript writing. All authors reviewed and approved the final draft of the manuscript.

CONFLICTS OF INTEREST

The authors have no conflicts of interest.

REFERENCES

1. Habte D, Namasasu J. Family planning use among women living with HIV: Knowing HIV positive status helps - results from a national survey. *Reprod Health*. 2015;12:41.
2. Gordon CM, Stall R, Cheever LW. Prevention interventions with persons living with HIV/AIDS: Challenges, progress, and research priorities. *J Acquir Immune Defic Syndr*. 2004;37(Suppl.2):S53–S57.
3. Foundation T.H.J.K.F. *The multisectoral impact ofthe HIV/AIDS epidemic—a primer*. 2007.
4. UNAIDs, UNICeF and WHO. *Global HIV/AIDS response. Epidemic update and health sector progress towards Universal Access*. Progress report 2011.
5. Homsy J, Bunnell R, Moore D, et al. Reproductive intentions and outcomes among women on antiretroviral therapy in rural Uganda: A prospective cohort study. *PLoS ONE*. 2009;4:e4149.
6. Schwartz SR, Rees H, Mehta S, Venter WD, Taha TE, Black V. High incidence of unplanned pregnancy after antiretroviral therapy initiation: Findings from a prospective cohort study in South Africa. *PLoS ONE*. 2012;7:e36039.
7. McCarraher D, Cuthbertson C, Kung'u D, Otterness C, Johnson L, Magiri G. Sexual behavior, fertility desires and unmet need for family planning among home-based care clients and caregivers in Kenya. *AIDS Care*. 2008;20:1057–1065.
8. Beyeza-Kashesya J, Ekstrom AM, Kaharuza F, Mirembe F, Neema S, Kulane A. My partner wants a child: A cross-sectional study of the determinants of the desire for children among mutually disclosed sero-discordant couples receiving care in Uganda. *BMC Public Health*. 2010;10:247.
9. UNFPA. *The Glion call to action on family planning and HIV/AIDS in women and children*. 2004. http://www.unfpa.org/resources/glion-call-action-family-planning-and-hivaids-women-and-children. Accessed October 8, 2017.
10. Kisakye P, Akena WO, Kaye DK. Pregnancy decisions among HIV-positive pregnant women in Mulago Hospital, Uganda. *Cult Health Sex*. 2010;12:445–454.
11. Cooper D, Harries J, Myer L, Orner P, Bracken H, Zweigenthal V. "Life is still going on": Reproductive intentions among HIV-positive women and men in South Africa. *Soc Sci Med*. 2007;65:274–283.
12. International, F.H. *Increasing Access to Contraception for Clients with HIV: A Toolkit. Dual Method Use*. The ACQUIRE Project/Engender Health, 2008.
13. Mutiso SM, Kinuthia J, Qureshi Z. Contraceptive use among HIV infected women attending Comprehensive Care Centre. *East Afr Med J*. 2008;85:171–177.
14. Farrell BL. *Family planning–integrated HIV services: A framework for integrating family planning and antiretroviral therapy services*. EngenderHealth/The ACQUIRE Project, 2007.
15. World Health Organization Department of Reproductive Health and Research (WHO/RHR) and Johns Hopkins Bloomberg School of Public Health Centre for Communication Programs (CCP), Knowledge for Health Project. *Family Planning: A Global Handbook for Providers*. Baltimore and Geneva: CCP and WHO; 2011:280–281.
16. Chemaitelly H, Cremin I, Shelton J, Hallett TB, Abu-Raddad LJ. Distinct HIV discordancy patterns by epidemic size in stable sexual partnerships in sub-Saharan Africa. *Sex Transm Infect*. 2012;88:51–57.
17. Ghana Statistical Service (GSS), G.H.S.G., and ICF Macro. *Ghana Demographic and Health Survey, 2008*. Accra, Ghana: G. GSS, and ICF Macro; 2009.
18. FMoHE. *Health and Health Related Indicators*. 2011.
19. Boakye HA. *Predictors of Contraceptive Utilisation Among HIV Positive Women in Kumasi Metropolis, Ghana, in Department of Population, Family & Reproduction Health*. Kumasi, Ghana: Kwame Nkrumah University of Science and Technology; 2015:92.
20. Muyindike W, Fatch R, Steinfield R, et al. Contraceptive use and associated factors among women enrolling into HIV care in southwestern Uganda. *Infect Dis Obstet Gynecol*. 2012;2012:340782.
21. Gyimah AA, Nakua EK, Owusu-Dabo E, Otupiri E. Fertility preferences of women living with HIV in the Kumasi Metropolis, Ghana. *Afr J Reprod Health*. 2015;19:125–133.
22. Oraka CO, Egbunu TS, Ani SC. Pregnancy and contraception - the perspective of HIV-positive and negative women. *Retrovirology*. 2012;9(Suppl.1):P78.
23. Dunkle KL, Stephenson R, Karita E, et al. New heterosexually transmitted HIV infections in married or cohabiting couples in urban Zambia and Rwanda: An analysis of survey and clinical data. *Lancet*. 2008;371:2183–2191.
24. Roth DL, Stewart KE, Clay OJ, van Der Straten A, Karita E, Allen S. Sexual practices of HIV discordant and concordant couples in Rwanda: Effects of a testing and counselling programme for men. *Int J STD AIDS*. 2001;12:181–188.
25. Maier M, Andia I, Emenyonu N, et al. Antiretroviral therapy is associated with increased fertility desire, but not pregnancy or live birth, among HIV+ women in an early HIV treatment program in rural Uganda. *AIDS Behav*. 2009;13(Suppl.1):28–37.

SUPPORTING INFORMATION

Additional Supporting Information may be found online in the supporting information tab for this article.

Figure S1. Sharing of family planning concerns among the study participants (n=202).

Figure S2. Reasons for not using modern methods of contraception among the study participants (n=174).