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Emerging determinants of contraceptive practices among HIV-positive women on antiretroviral therapy in Nigeria

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Abstract

Objectives: To determine the prevalence of contraceptive use, preferences and determinants amongst HIV-positive women on anti-retroviral therapy. **Methods:** In this observational, analytical, cross-sectional study, participants were selected by systematic random sampling in Nnamdi Azikiwe University Teaching Hospital, Nnewi, Nigeria. They completed pretested standardized questionnaires. Univariate logistic regression was used to analyze the data. Statistical significance was accepted when P- value is <0.05. **Results:** A total of 301 women were successfully interviewed. Of the 301 participants, 165 (54.8%) used contraception. The mean age of the participants was 38.9 ± 4.7 years. Seventy seven (25.6%) had four or more living children. The majority of the respondents were aware (279; 92.7%) of contraceptives but only 63 of the 279 (22.6%) women had good knowledge of contraception and contraceptive methods. Condom (alone or combined with any other) 96/165 (58.2%) and injectable contraceptives 29/165 (17.6%) were the most common methods used by the respondents. There was statistically significant association between the use of various contraceptive methods (condoms, injectables, pills, coitus interruptus and abstinence) before and after the diagnosis of HIV ($p < 0.05$, for all). Thirty two (10.6%) women reported having been pregnant since commencement of ART but 19 out of 32 (59.4%) had unplanned pregnancies. **Conclusion:** Approximately half proportion of HIV positive women were utilizing contraception at time of survey indicating an unmet need of 50% for effective contraception amongst HIV-positive women in Nigeria. Age and marital status are identified as significant determinants of contraceptive use among HIV positive women.

Keywords: HIV/AIDS; Contraception; Unmet need, Anti-retroviral therapy.

INTRODUCTION

The global human immunodeficiency virus (HIV) pandemic is increasingly becoming a burden of the female population. Sub-Saharan Africa, the hardest hit region, is home to 71% of people living with HIV but only about 13% of the world's population [1-3]. Women remain disproportionately affected by the HIV epidemic particularly in this part of the world, where women comprise 58% of the adults living with HIV, most of them being of fertile age [1], according to the Joint United Nations Programme on HIV/AIDS (UNAIDS), 2013. This is because; young women aged 15–24 have a 4- to 7-fold increased risk of becoming infected with HIV, when compared with young men of the same age [4]. Gender inequalities, differential access to service, and sexual violence increase women's vulnerability to HIV, and younger women are biologically more susceptible [2]. Moreover, an estimated 420 000 HIV-infected children are born annually, and most of these infections could and should be prevented [1,2]. These unfavorable statistics in sub-Saharan Africa, underscore the need for HIV interventions focused on ART and family planning (FP) to avoid unintended pregnancies.

To impel accelerated HIV treatment scale-up, some countries including Uganda has begun systematically offering lifelong antiretroviral therapy to pregnant women living with HIV (Option B+), leading to a 7.5-fold increase in the number of such women receiving therapy over a 15-month period in 2011–2012 [5]. In 2013, WHO issued new consolidated guidelines for use of antiretroviral medicines for HIV treatment and prevention, recommending initiation of lifelong antiretroviral therapy for all pregnant and breastfeeding women living with HIV, regardless of their CD4 count.

Despite all these progress in ART, the unmet need for family planning services among women living with HIV continues to undermine efforts to eliminate new HIV infections among children. Women with unmet need are those who are fecund and sexually active but are not using any method of contraception, and

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report not wanting any more children or wanting to delay the birth of their next child. For women globally, unmet need for family planning declined from 15.4% in 1990 to 12.3% in 2010, according to a recent review of nationally representative surveys [6]. In East Africa and West Africa, however, more than 20% of women had an unmet need for family planning services, with no reduction in unmet need reported for 1990–2010. This means that more than one in five women in the East and West Africa express the desire to delay or stop childbearing, but are not using contraception [6]. In addition to reducing the risks of HIV acquisition among children, rights-based prevention of unintended pregnancies also helps improve maternal morbidity and reduces maternal deaths.

However, current data suggest that, in high-prevalence countries, HIV contributes significantly to pregnancy-related mortality, and points at the urgent need to ensure that eligible women living with HIV receive optimal treatment, and that HIV treatment services be integrated into sexual and reproductive health services including contraception. Recent research by Zaba *et al* demonstrates that provision of antiretroviral therapy would avert much of the maternal mortality in countries with a heavy HIV burden [7]. Zaba *et al* concluded that HIV-infected pregnant or post-partum women had around eight times higher mortality than did their HIV-uninfected counterparts. On the basis of this estimate, we predict that roughly 24% of deaths in pregnant or post-partum women are attributable to HIV in sub-Saharan Africa, suggesting that safe motherhood programmes should pay special attention to the needs of HIV-infected pregnant or post-partum women [7].

In the light of vastly different cultures and contraceptive practices, several contraceptive options should ideally be available. According to world population counter of 2014, the total births per second worldwide is 4.17, total deaths per second is 1.80 while the net growth is 2.37 per second [8]. Nigeria has a total fertility rate of 5.9 births per woman, yet only 8% of married women use modern contraceptive device [9]. Thus HIV positive women in these regions are likely to have a low contraceptive prevalence rate and a high prevalence of unwanted pregnancies. The knowledge of contraceptive choices among women living with HIV/AIDS is therefore necessary.

In the past, the recommendation was that HIV positive women should avoid pregnancy, opt for a permanent form of contraception or terminate the pregnancy to avoid transmitting the virus to their newborn. However, with the introduction of highly active antiretroviral therapy, the subsequent improvement of survival of HIV positive women and significant reduction in the rate of mother to child transmission, these recommendations have changed [10,11]. Currently, HIV-infected women and women at risk of HIV infection can use all available contraceptive methods¹² with correct and consistent use of condoms in order to prevent pregnancies and sexually transmitted infection (STI) [12]. Male condoms represent the only contraceptive method effective in prevention of horizontal transmission of HIV [13]. The effectiveness of low-dose hormonal contraceptives may be reduced by ART, which accelerates the breakdown of the hormones, necessitating the use of condoms to compensate for this [12]. Intrauterine devices can be inserted if HIV-positive women are clinically stable and on ART [12]. Diaphragms and cervical caps are not recommended by WHO because of their use of spermicides which contain nonoxynol-9, [14] which is reported to cause epithelial damage, thereby increasing the risk of STI and HIV when used frequently [15]. Sterilisation is an excellent option for HIV-positive women who have completed their families, but barrier methods would still need to be used to protect against STI [12,13].

Local empirical data on contraceptive choices and utilization among HIV positive women continues to be rare as the result of various challenges. Thus, contraceptive knowledge and practice amongst HIV-positive women attending ART clinics in Nnamdi Azikiwe University Teaching Hospital, Nnewi, south-east Nigeria remain largely uninvestigated. This study therefore determined contraceptive use amongst HIV-positive women attending an ART clinic by determining prevalence of

contraceptive use, contraceptive preferences and factors associated with contraceptive use.

MATERIALS AND METHODS

Study area

The study was performed at the antiretroviral therapy (ART) clinic of the Nnamdi Azikiwe University Teaching Hospital (NAUTH) Nnewi from June 2014 to June 2016. NAUTH Nnewi is a university teaching hospital that serves as the major referral center for other public and private health facilities in Anambra state. In addition, it is also one of the hospitals in the country that offers free care and support with respect to HIV prevention and treatment [17]. The hospital provides free 24-hour care for HIV-positive patients. There is, however, a coordinator who oversees all patients' management. Approximately 1000 women of childbearing age attend the ART clinic on a monthly basis.

Study Design

This was a cross-sectional observational study. Patients completed a pilot-tested questionnaire. The questionnaire consisted of two parts, Part 1 dealing with socio-demographic characteristics and Part 2 exploring contraceptive practices.

Inclusion criteria

The study included HIV-positive women 18 to 49 years of age on antiretroviral therapy and attending the ART clinic and gave an informed consent to participate in the study.

Exclusion criteria

Excluded from the study were women below 18 years and above 49 years of age including women who had a hysterectomy.

Population and sampling method

All HIV-positive women between 15 and 49 years of age attending the HIV clinic were considered part of the study population. A systematic random sampling method was used in selecting study participants who met the inclusion criteria. A number between one and three was randomly selected by the researcher and then, starting with this number, every third patient who met the inclusion criteria was chosen. Participants who had been chosen were informed of the details of the study and the content of the patient information booklet was explained in a language understandable to them, mostly Igbo. They were encouraged to ask questions to address whatever concerns they had. Thereafter a signed consent was obtained from them, and the process of completing the questionnaires initiated. All these were performed on individual basis.

Sample size

The sample size was obtained using the Fishers formula¹⁸; $N = Z^2 \alpha PQ / d^2$ where: Z = standard normal deviation at 95% confidence interval; P = prevalence of the problem (contraceptive prevalence of young women in a previous study in Nigeria was put at 15.3%²); standard normal deviation set at 1.96, (which corresponds to 95% confidence interval), $Q = 1 - p$ and $d = 0.05$. A minimum sample size of 196 was obtained and rounded up to 216 to cater for 10% attrition or non response.

Ethical Considerations

Study participants were told that part of the benefits to be derived from the research would be a better understanding of contraception as it relates to women living with HIV or AIDS, and that the information gathered from the study would help healthcare personnel to appreciate

the difficulties being faced by patients as regards contraceptive practice so that better contraceptive care could be provided. They were told that there were no risks involved in participating in the research and that any information given by them would not be used against them.

Participants were advised that participation was entirely voluntary. They were told that they reserved the right to decide whether or not to participate, and that they might withdraw from the study at any time without giving a reason.

Participants received explanations on what the study entailed in a language they could understand. They were given the opportunity to ask questions and thereafter a signed consent was obtained from them. Participants were advised against giving their names, and their identities were not documented. This was performed to ensure confidentiality.

Data Analysis

Data were entered into a Microsoft Office Excel spreadsheet and analysed using Epi info 2013 version 7.0 (v 7; Epi Info, Centers for Disease Control and Prevention, Atlanta, GA). Data were analysed descriptively. The Student *t*-test and Fisher exact — tests were used as appropriate. Univariate logistic regression was also used to analyze the data. A *p*-value of <0.05 was considered to be significant.

RESULTS

A total of 301 women were successfully interviewed. The socio-demographic characteristics of the respondents are shown in Table 1. The mean age of the mothers was 38.9 ± 4.7 years with a range of 18-49 years.

Table 1: Socio-demographic characteristics of the women living with HIV/AIDS in Nauth

Variables	Frequency (N=301)	Percentage
Educational level Completed		
21-25	6	2.0
26-30	23	7.6
31-35	112	37.2
36-40	48	15.9
41-45	77	25.6
46-50	35	11.6
Parity		
0	83	27.6
1	23	7.6
2-4	131	43.5
≥5	64	21.3
Educational level Completed		
None	5	1.7
Primary	56	18.6
Secondary	167	55.5
Tertiary	73	24.3
Marital Status		
Single	52	17.3
Married	184	61.1
Separated/Divorced	12	4.0
Widow	53	17.6
Partner HIV Status		
Positive	76	32.3
Negative	156	67.7
Duration of HIV Care		
≤1 Year	32	10.6
>1 Year	269	89.4

Majority of the women were within the age group of 31-35 (37.2%) years, and majority had two or more previous deliveries (64.8%). The median and mean parity were 3 and 3.1 ± 0.7 respectively. Of the 301 women, 77 (25.6%) had four or more living children.

The women were mostly married 184 (61.1%), 52 (17.3%) single and majority (55.5%) had secondary education. Of the 52 women that were single, 17 (32.7%) do not have sexual partner. All other women 284 (94.4%) have sexual partners. Of the 284 women with sexual partners, 49 (17.3%) were not aware of partners HIV status, while 235 (82.7%) were aware. Of the 235 women aware of their partners HIV status, 76 (32.3%) were HIV positive while 159 (67.7%) were HIV negative (serodiscordant). While 269 (89.4%) respondents have been receiving HIV care at the hospital for more than 1 year, only 22 (7.3%) were not on antiretroviral drugs.

The majority of the respondents were aware (279; 92.7%) of contraceptives but only 63 of the 279 (22.6%) women had good knowledge of contraceptive and contraceptive methods. The use of contraception for pregnancy prevention and HIV protection were acceptable to 268 (89.0%) respondents. Only 59.1% (178) and 54.8% (165) of the women, respectively, had ever used and are currently using modern contraceptive methods. One hundred and thirty six participants (45.2%) were not currently using any contraceptives at all.

The pattern of current use of various forms of modern contraception is shown in Table 2. Condom (alone or combined with any other) 96/165 (58.2%) and injectable contraceptives 29/165(17.6%) were the most common methods used by the respondents. Male condom 87/96 (90.6%) was more commonly used than the female condom 9/96 (9.4%). There was statistically significant association between the use of various contraceptive methods (condoms, injectables, pills, coitus interruptus and abstinence) before and after the diagnosis of HIV ($P < 0.05$). A combination of condoms and injectable contraceptives was reported by 28(17.0%) participants, a combination of condoms and pills was reported by four (2.4%) participants, whilst two (1.2%) study participants reported using a combination of condoms and IUCD. Condom use was highest amongst patients in serodiscordant relationships 66/96 (68.8%) and lowest amongst patients whose partners' HIV status was unknown 13/96 (13.5%).

Study participants showed significant changes in the contraceptive methods used before and after HIV diagnosis. Significantly, more women used condoms after HIV diagnosis or initiation of ART: 74 (73.3%) compared to 16 (15.8%) prior to HIV diagnosis ($p < 0.001$). Fewer used contraceptive injections after diagnosis: 25 (20.0%) compared to 51 (64.0%) prior to HIV diagnosis ($p = 0.007$) (Table 2).

Table 2: Current and previous contraceptive use with respect of diagnosis of HIV

Contraceptive method	Current contraceptive use	Previous contraceptive use	p-value
Condoms	96	16	<0.001
Injectables	29	51	0.011
Pills	8	19	0.035
IUCD	4	1	0.163
Coitus interruptus	4	11	0.074
Abstinence	9	2	0.023
No contraceptive	136	-	-

There is statistically significant association between contraceptive use amongst the patients who are less than 35 years and marital union ($p < 0.001$) (Table 3).

Table 3: Association between Contraceptive practices and some socio-demographic status of the women

Variable	Not currently using contraceptive	Currently using contraceptives	p-value
Age (Years)			
≤35	40	101	*<0.001
>35	96	64	
Educational status			
None	4	1	0.296
Some	120	161	
Marital Status			
Ever or currently married	135	115	*<0.001
Single	1	50	

Thirty two (10.6%) women reported having been pregnant since commencement of ART. Of the 32 women who reported pregnancies, 19 (59.4%) said that the pregnancies had been unplanned, whilst 23 (40.6%) had desired the pregnancies.

DISCUSSION

Women living with HIV/AIDS (WHA), like other women, may wish to avoid unplanned or unwanted pregnancies. Women should be offered a wide range of contraceptive methods in order to make informed choices regarding reproduction. More importantly, contraceptive methods must not increase the risk of HIV transmission to women at risk of HIV, increase disease progression or mortality rate in WHA, or increase incidence of sexually transmitted infections (STIs) and/or other related infections in this already vulnerable population.

In this study, 54.8% of HIV-positive women were using contraceptive methods at time of survey. This finding is comparable with prior study in Nigeria by Ezechi *et al* [10] which gave a contraceptive prevalence of 56.2%. This prevalence rate is high in comparison to the contraceptive prevalence in our environment of 11-15.3% [9,19]. When compared with ours, the contraceptive prevalences of women living with HIV/AIDS in Uganda of 66.4% [20] and 80% [21] and in South Africa of 89.8% [22] were very high. This could be due to high quality and strong integration of sexual reproductive health services with ART/HIV services in these countries [20-22]. As expected, low level of contraceptive consumption by HIV positive women will lead to high rate of unintended pregnancy, vertical and sexual transmission of the virus [23]. Negative attitude of HIV positive women towards contraceptive utilization as a result of misconception, culture and religious barriers could be responsible for this low trend [24] and although contraceptive awareness was higher (82.7%), accurate knowledge is low (22.6%).

In our study, condom was the most commonly used type of contraceptive method which account for 58.2% and male condom (90.6%) was more commonly used than the female condom (9.4%). A previous report in Nigeria by Ezechi *et al* [11] reported similar finding. The above findings are in quite contrast with studies by Melaku and Zeleke [25] in Ethiopia and Crede *et al* in South Africa [22] where injectable was the most commonly used type of contraceptive method. Other studies in Ethiopia [26] (70%) and Uganda [20] (90%) have reported that higher proportions of women were using condom. More women were interested in using condoms because to date, male condoms are the only means proven to significantly reduce the risk of HIV transmission in heterosexual intercourse [27]. According to a Cochrane review, consistent use of male condoms results in 80% reduction in the risk of HIV transmission among HIV-serodiscordant couples [12] of which our sample had 67.7% serodiscordance. Another recent non-Cochrane systematic review revealed that condoms reduce HIV transmission by more than 70% when used consistently by HIV serodiscordant heterosexual couples [28].

Additionally, the fact that there was statistically significant association between the use of condom before and after the diagnosis of HIV ($P<0.001$), may portray that more women desire to use condom for dual protection on the use of contraception after HIV diagnosis.

Women living with HIV/AIDS in our study who did not desire to have more children were often unable to access the family planning services they needed. There is significant association between age <35 years and marital status with regard to the current utilization of contraceptives. This association could be explained by the fact that women less than 35 years will more likely use contraceptive to avoid unintended pregnancy. Additionally, women who are ever or currently married are more likely to be in more stable sexual relationships with their partners and thereby more likely to be current users of contraceptive methods.

Condom use was highest amongst patients in serodiscordant relationships (68.7%) and lowest amongst patients whose partners' HIV status was unknown (13.5%). This finding is quite understandable. In a relationship where partners knew their status and were serodiscordant, there is greater tendency for each partner to use condom to protect oneself from the infection from other strain of the virus. Nevertheless, in a relationship in which both partners are HIV positive (seroconcordant), the zeal to use contraception to protect the partner from HIV infection is no longer there and thus irregular use of condom [11,29]. However, considering the possibility of transmitting other strains of HIV and drug resistance strains to an infected partner more effort need to be put in place to correct the wrong notion. Although up to 13.5% of patients had their partners' HIV status unknown, disclosing one's human immunodeficiency virus (HIV) status helps in reducing the spread of the disease [17]. Intimate partners are encouraged to reveal their status to each other as previously reported by Ezeama *et al* [17] in Nnewi, Nigeria.

The study shows that factors not associated with contraceptive use were level of education and use of intrauterine contraceptive device (IUCD). Regarding education, our findings do differ from those in the general population in Uganda according to Uganda Bureau of Statistics [30] and that of Kakaire *et al* [31] also in Uganda, where use of both modern and traditional contraceptive methods increases with educational attainment. Our findings support the need for increased attention to better integration of reproductive health services such as family planning and HIV and AIDS services for women who are HIV positive.

It is of concern that the HIV status of partners is not known by up to 13.5% of the study participants and suggests that intimate matters such as HIV status may not be discussed. It may be a result of problems associated with disclosure and its attendant risks. Male partners who are already aware of their HIV-seropositive status may deliberately withhold such information from their female partners to maintain their dominance in the relationship.

Of note, hormonal contraception may interact with some antiretroviral medications, potentially affecting CD4 counts and viral loads detrimentally [32]. This may also explain why there is a fall in the number of women utilizing a particular hormonal agent like the pills after diagnosis of HIV in comparison with prior diagnosis. Thus women should be prescribed a contraceptive that is compatible with their antiretroviral regimen. Generally in this study, IUCD use pre and post diagnosis is low. IUCD use among WHA has not been shown to be associated with increased risk of transmission to sexual partners [32]. Until 2004, WHO revised its recommendations and promoted broader use of the intrauterine devices by WHA. Complication rates of IUCDs were similar among HIV-positive and uninfected users [33,34].

A major limitation of this study was that it was cross sectional in nature and for the validity of information, we relied on self-report. This may under-estimate or overestimates the real contraceptive rate in this population. The inference of the findings is that it is necessary to provide

a comprehensive approach to HIV care, which includes couple counseling for individuals in steady or marital relationships, contraceptive counseling and services for suitable people living with HIV/AIDS, and ongoing support to ensure adherence to contraception, antiretroviral therapy and treatment for opportunistic infections.

CONCLUSION

In conclusion, approximately half proportion of HIV positive women were utilizing contraception at time of survey indicating 50% an unmet need for effective contraception amongst HIV-positive women. Age and marital status are identified as significant determinants of contraceptive use among HIV positive women. Through prevention of unintended pregnancy, integrated services are likely to benefit maternal and child health, prevent vertical transmission, and decrease incidence of conception-related sexual transmission to discordant sexual partners.

Recommendations from this study include the integration of family planning services into ART programmes for HIV-positive women, and an emphasis on correct and consistent use of available contraceptive methods. A vigorous campaign should be made to advocate the adoption of dual protection as a way of not just reducing horizontal transmission of HIV and other STIs, but also reducing vertical transmission of HIV. Dual methods provide extra protection against pregnancy beyond the ability of condom use only to do so. Adequately addressing the contraceptive needs of these patients would serve a major public health purpose by reducing the burden of disease posed by HIV and AIDS.

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Conflict of Interest

The authors report no conflict of interest.

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