Fertility Desires and Intentions of HIV-Positive Patients at a Suburban Specialist Center

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Objectives: To determine the extent of fertility desires and intentions of HIV-positive patients receiving care at a suburban specialist clinic and assess how these may vary by their sociodemographic and health-related factors.

Methods: Questionnaire-based interview of a consecutive sample of HIV-positive men (18–55 years) and HIV-positive women (18–45 years) who presented at the HIV clinic of the Center for Special Studies, Sagamu, Nigeria, between November and December 2004.

Results: 63.3% of the 147 studied participants expressed the desire for childbearing, even though 50.4% of them already had ≥2 children. Respectively, 71.5% and 93.8% of men and women who desired children intended to have ≥2 in the near future. Only 4.3% of those who desired children did not intend to have any. All 30 individuals who had no children intended to bear children in the future, and they constituted 32.3% of those who expressed the desire for childbearing. Multivariate logistic regression analyses of associated factors indicated that decreasing age, shorter time since diagnosis of HIV infection and nondisclosure of serostatus to current partner significantly increase the odds of desire for childbearing, while having no children and a poor most-recent CD_4 count significantly increase the odds of intention to have ≥3 children instead of 1–2.

Conclusion: The extent of the fertility desires and intentions of these patients poses a threat to the preventive strategies against vertical and heterosexual transmission of HIV in this region. In view of their compelling desire for parenthood, it may be wise for caregivers to desist from the conventional systematic advice against pregnancy but, in addition to laying emphasis on the risks, provide adequate information on practicable reproductive options for HIV-positive individuals.

Key words: fertility desires ■ fertility intentions ■ HIV ■ developing countries ■ Nigeria

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INTRODUCTION

In spite of the staggering population of over 120 million people in Nigeria, the current total fertility rate of 5.7 ranks among the highest in the world.[1] The complex relationship between fertility and HIV/AIDS threatens the preventive strategies against the HIV epidemic in countries like Nigeria, where the fertility rate is still high and access to antiretroviral therapy remains poor. Due to advances in drug treatment and improved health status of HIV-infected individuals in the developed countries, fertility issues among them have taken a new turn in the last few years.[2] Chen et al.[3] showed that up to 28–29% of HIV-infected men and women receiving treatment in the United States desire children in the future. In a similar study in Switzerland, 38% of HIV-positive men and 45% of HIV-positive women expressed the desire for childbearing.[4] More than for others, reproducing (or "giving life") for HIV-positive individuals means transcending the death that appears near, and these figures may be much higher in low-resource settings, where the disease prognosis is still very poor.

Although the desire of HIV-infected persons to have children has important implications for the transmission of the virus to their sexual partners and newborns, HIV-positive status has not been shown to significantly influence childbearing.[5] Studies conducted in southern Africa indicated that the fertility levels of HIV-positive individuals were not greatly influenced by their understanding of the risks of HIV infection to their partners and children.[6,7] This situation is further compounded by the negative attitudes of health professionals towards childbearing

by people living with HIV, which has continually raised questions on protection of their reproductive rights.[8] In order to assist these individuals to achieve their fertility goals without jeopardizing their own health or that of others, accurate information on their fertility desires and intentions is essential. To the best of our knowledge, there is no published study in Nigeria that has addressed fertility issues among the HIV-infected population. Besides, recent clinical audit meetings in our center indicated an increasing number of pregnancies among our HIV-positive patients, and this called for an investigation. It is against this background that we conducted a survey among HIV-positive patients receiving care at a Nigerian specialist clinic to assess the extent of their fertility desires and intentions and explore how these may vary by individual's sociodemographic and health-related factors. The findings would enable us to understand other reproductive health needs of the HIV-positive Nigerians besides their physical health demands.

THEORETICAL FRAMEWORK

The theoretical structure of this study was based on the Traits-Desires-Intentions-Behavior (TDIB) framework developed by Miller to describe the psychological sequence that culminates in reproductive behaviors.[9] Miller used this framework to trace the sequence of how childbearing motivations lead to fertility desires, fertility intentions and subsequent childbearing. The relevance of this framework to our study is supported by data from other research works on reproductive decisions.[3] This theory indicates that the first step in the sequence leading to childbearing is the formation of motivations, defined as characteristics that make an individual respond in certain ways under particular circumstances. These motivations are in turn activated as

Table 1. Sociodemographic characteristics of study participants

Characteristics	n (%)	Characteristics	n (%)
Sex		*Receiving HAART*	
Male	52 (35.4)	Yes	74 (50.3)
Female	95 (64.6)	No	73 (49.7)
Age (Years)		*Estimated Monthly Income (Naira)*	
<20	4 (2.7)	≤5,000	89 (60.5)
21–30	33 (22.4)	5,001–10,000	22 (15.0)
31–40	64 (43.5)	10,001–20,000	18 (12.2)
41–50	34 (23.1)	>20,000	18 (12.2)
>50	12 (8.2)		
Religion		*Relationship Status*	
Islam	33 (22.4)	Never-married	12 (8.2)
Christianity	114 (77.6)	Married	64 (43.5)
Tribe		Nonmarried partner	18 (12.2)
Yoruba	131 (89.1)	Separated/divorced	21 (14.3)
Ibo	4 (2.7)	Widowed	32 (21.8)
Hausa	0 (0.0)	*Educational Level*	
Others	12 (8.2)	None	2 (1.4)
Duration Since Diagnosis of HIV Infection (Months)		Primary	31 (21.1)
0–12	36 (24.5)	Secondary	96 (65.3)
13–24	33 (22.4)	Postsecondary	18 (12.3)
25–48	50 (34.0)	*Recent CD_4 Count (cells/mm^3)*	
≥49	28 (19.1)	<100	2 (1.4)
Number of Children Alive		100–199	42 (28.6)
0	30 (20.4)	200–499	59 (40.1)
1	43 (29.3)	>500	44 (29.9)
2	16 (10.9)	*Disclosure to Spouse/Partner*	
≥3	58 (39.5)	Yes	54 (65.9)
Currently Employed		No	28 (34.1)
Yes	124 (84.9)		
No	22 (15.1)		

the individual's desires for parenthood, which are then transformed into intentions to bear children. Intentions represent a conscious commitment to act or try to achieve a particular goal—in this case, childbearing. Fertility intentions of sufficient intensity are subsequently transformed into actual childbearing when situation provides opportunities to fulfill them. Childbearing motivational traits in a traditional African society like ours include personal and sociocultural characteristics, such as age, marital status, level of education, income, ethnic background, number of surviving children and high social values placed on childbearing.[1] The social and health concerns of people living with HIV in this environment presents a set of more complex reasons for desiring children that may include their health-related factors in addition to their cultural background and personality traits. HIV-related factors, such as the quality of life, use of antiretroviral drugs, time since diagnosis of infection, disclosure status and stage of disease progression (clinical and laboratory), are possible motivational traits among this population. According to Miller's theory, we expected these factors (which constituted our independent variables) to influence or explain one of the outcome measures for this study—fertility desires.

Fertility intentions, according to the theory, are based on desires that are constrained by others' (especially intimate partners') desire and by reality, i.e., by what is possible in the prevailing situation. On one hand, fertility intentions reflect desires; on the other hand, intentions are always expressed in relation to the actual childbearing context, e.g., the presence of a partner, partner's fertility desire, stability of the union or threat of marital disruption. Therefore, variations of both implicit and explicit motivational traits may present situations or circumstances that determine whether desires are translated into intentions. This explains the relationship between the second outcome measure for this study—fertility intentions—and factors such as partner's fertility desire, current income level, stage of disease progression, quality of life, access to antiretroviral therapy and disclosure status (which may be related to marital disharmony). For this study, we examined the extent of fertility intentions in terms of number of children that an individual intends to bear in the future, believing that such a figure would reflect their commitment to fulfill their reproductive desires. We hypothesized that fertility desires of HIV-positive patients would vary by age, marital status, disclosure status, income level, fertility history, time since diagnosis of HIV infection and health status. Our second hypothesis was that the fertility intentions of HIV-positive patients would vary by their partners' fertility desires, stage of their disease, quality of life, access to antiretroviral drugs, disclosure status and emotional state as shown by previous studies on reproductive decisions.[3,4]

Table 2. Percentage distribution of HIV-positive men and women, by fertility desires and intentions

Characteristics	Men n=95	Women n=52	P
Fertility Desires			
Desires children:			
Yes	53.8	68.4	0.0796‡
No	46.2	31.6	
Fertility Intentions†			
Number of children expected:			
0	14.3	0.0	0.0000‡
1	14.3	6.2	
2	42.9	52.3	
≥3	28.6	41.5	
*Partner's Fertility Desires**			
Yes	47.1	70.8	0.0000‡
No	41.2	16.7	
Do not know	11.8	12.5	

† Among those who desire children (n=93); * Among those with partners (n=82); ‡ By Chi-squared test

METHODS

Study Setting

The survey was conducted among HIV-positive patients attending the HIV specialist clinic of the Center for Special Studies (CSS) situated at Olabisi Onabanjo University Teaching Hospital, Sagamu, Ogun State in southwest Nigeria. This teaching hospital is a publicly funded tertiary institution, which serves as the major referral center for other public and private hospitals within the state and beyond. The HIV clinic, where the survey was conducted, is the project site for the Starfish Project initiative, a partnership between the Center for Special Studies, Sagamu, Nigeria, and the Center for Special Studies, University Hospitals of Columbia and Cornell, NY. The details of this project have been well described elsewhere.[10] Briefly, this clinic offers multidisciplinary but solely outpatient care to HIV-infected individuals in Ogun State and its environs, including free continuous supply of antiretroviral drugs to 58 of them. A number of patients who could not benefit from the free antiretroviral drugs purchased them at a subsidized rate of ₦9,000 per month (approximately $65) from a pharmaceutical company through CSS, Sagamu. The clinic also provides care for patients who are not on antiretroviral drugs either for financial or medical reasons. Those who require inpatient care are managed in the teaching

hospital wards by specialists who are part of the Starfish project. In addition to antiretroviral therapy, the clinic also provides adherence counseling, laboratory monitoring and evaluation, psychosocial assistance, nutritional support and counseling, HIV support group, family-planning services and home-based care. At the end of December 2004, the clinic had 202 registered patients, including children.

Subjects

The target population for this study was all HIV-positive men age 18–55 years and HIV-positive women age 18–45 years who were receiving care at the specialist clinic. Using these age limits, a total of 164 eligible participants were identified through the clinic records. Between November 1 and December 31, 2004, a convenience sample of eligible men and women who presented at the clinic was recruited into the study by their healthcare providers. For each eligible patient, the purpose, general content and confidentiality of the investigation were explained in the language he/she best understood to obtain verbal consent prior to inclusion into the study.

Survey Instrument

Patients who agreed to participate underwent a 30–45 minute, face-to-face interview by trained health personnel (four in all) who were not members of the clinic staff. The interview was guided by a pretested 38-item, structured questionnaire that covered sociodemographic characteristics of the respondents, including time since diagnosis of HIV infection, use of highly active antiretroviral therapy (HAART), disclosure of serostatus to current partner and partner's HIV status. Questions on their fertility desires and intentions as well as their health status and laboratory indicators of HIV progression were included. The variables used to measure the quality of life in this study were self-reported ratings of general health, physical functioning, emotional well-being and the WHO performance scores. Self-ratings of general health and physical functioning were based on adapted questions covering these aspects from the Medical Outcomes Study Short-Form-36 (SF-36).[11] General health reflected the current state of health as perceived by the respondent, while physical functioning was based on the extent to which certain activities were limited.[5] Self-reported general health and physical functioning were separately noted on a scale of 0.0–10.0, where higher scores reflected better general health and physical functioning. Emotional well-being described the state of mind that was most frequently experienced by the respondent in the previous four weeks out of the following: happy, sad, calm and peaceful and depressed. The reported most-recent and lowest-ever CD_4 counts were verified from the clinic's case file of each respondent.

The outcome variables for the study were fertility desires and fertility intentions. For the purpose of this study, fertility desire of the respondents was defined by a "yes" or "no" response to the question: "Would you like to have a/another child in the future?" (framed according to the previous fertility history). Among those who answered "yes" to this question, fertility intention or expectation was defined by the response to a separate question: "How many children do you intend to bear in the future?" The answer 0 was coded as "no intention" and 1 and above as "intends fertility." All the study instruments were approved by the ethical review committee of the teaching hospital.

Statistical Analysis

Data was entered into a computer database and analyses were performed with Epi-Info 2002 statistical package.[12] Using bivariate tests of association, selected sociodemographic and health-related factors were compared in patients who desired children and those who did not, and in patients who intended to bear ≥3 children as against 1–2. Categorical variables were compared with the Chi-squared test, Fisher's exact test and odds ratio (OR) as appropriate. The t test and Mann-Whitney U test were respectively used to compare normally and nonnormally distributed continuous variables. Multivariate logistic regression analyses were separately performed to identify predictors of fertility desire and those of fertility expectation of ≥3 children. Multicollinearity was assessed by conducting a correlation analysis between each of the independent variables. Binary independent variables with insufficient events were excluded from the model. Logistic regression results are presented as ORs and 95% CIs. A p value <0.05 or confidence limits that did not embrace unity were considered as statistical significance.

RESULTS

Out of the 156 eligible patients seen at the clinic during the study period, 147 agreed to participate in the study, giving a response rate of 94.2%. The sociodemographic characteristics of the respondents are shown in Table 1. The percent of participants who were in their fourth decade of life was 43.5%. One-fifth of the participants previously had no children, while 39.5% of them had ≥3 children. Those who had no children were on average much younger than those who had children (29.4 ± 7.5 vs. 37.9 ± 8.3 years; t=5.09, p=0.0000). Respondents were mainly Christians from the Yoruba ethnic background and of low socioeconomic status. Eighty-six (58.5%) of the participants had at least secondary education. More than half of them were married or

Table 3. Percentage distribution and means values of study participants by selected characteristics, according to desire for children

Characteristics	Desire Children	Do Not Desire Children	P Value	Adjusted OR (95% CI)	Adjusted P Value
Age (years): mean ± SD (range)	32.3 ± 7.8 (18–55)	42.8 ± 6.0 (32–55)	0.0000†	0.83 (0.73-0.93)	0.0033
Sex					
Female (%)	69.9	55.6	0.0796‡		
Male (%)	30.1	44.4			
Marriage Status					
Currently married	38.7	51.9	0.1213‡		
Other	61.3	41.1			
Has ≥1 Child					
No	32.3	0.0	0.0000§		
Yes	67.7	100.0			
Estimated monthly income (₦): median (interquartile range)	4,000 (2,000–9,000)	6,000 (4,000–25,000)	0.0009†	1.00 (1.00–1.01)	0.4098
Duration since diagnosis of HIV (months): mean ± SD (range)	23.8 ± 18.5 (1.0–96.0)	33.4 ± 21.1 (3.0–95.0)	0.0076*	0.96 (0.90-0.99)	0.0447
Duration of HIV clinic attendance (months): mean ± SD (range)	16.3 ± 12.9 (1.0–53.0)	26.5 ± 15.3 (3.0–51.0)	0.0001†	1.00 (0.93–1.08)	0.9664
Disclosed to partner (%)	52.0	87.5	0.0009‡	0.01 (0.00–0.17)	0.0010
Receiving HAART (%)	43.0	63.0	0.0196‡	0.18 (0.02–1.82)	0.1476
Physical functioning: mean ± SD (range)	9.3 ± 1.5 (3.0–10.0)	8.4 ± 2.0 (3.0–10.0)	0.0018†	1.04 (0.55–1.96)	0.8922
Self-reported overall health: mean ± SD (range)	9.1±1.3 (5.0–10.0)	8.1± 2.1(3.0–10.0)	0.0045†		
Latest CD_4+ count (cells/mm^3): mean ± SD (range)	209.9 ± 68.9 (60–340)	284.7 ± 151.7 (120–620)	0.0305†		
Lowest CD_4+ count ever (cells/mm^3): mean ± SD (range)	191.4 ± 71.8 (60–340)	209.3 ± 58.0 (120–301)	0.1596†		
Emotional Well-Being (%)					
Happy	50.5	66.7	0.1513‡		
Sad	19.4	11.1			
Calm and peaceful	30.1	22.2			
Depressed	–	–			
WHO Performance Score (%)					
I	65.6	63.0	0.747‡		
II	34.4	37.0			

† By Mann-Whitney U test; ‡ By χ^2 test; § By Fisher's exact test; * By t test; ₦: Naira; Adjusted OR: adjusted odds ratio in logistic regression analysis; CI: confidence interval

in a relationship, while over one-fifth were widowed. Recent CD_4 count of <200 cells/mm^3 was recorded in 28.6% of the participants, and about half of them were on HAART. Seventy-three percent of those on HAART obtained a free supply of antiretroviral drugs from the clinic, while 27.0% of them were on self-purchased drugs. Respectively, 17.1% and 39.0% of those who were married or in a relationship had primary partners who were also HIV-positive and HIV-negative, while 43.9% of them did not know their partners' serostatus. About two-thirds of these individuals have disclosed their HIV serostatus to their spouse or primary partner.

Fertility Desires and Intentions

Sixty-five (68.4%) of the female and 28 (53.8%) of the male respondents expressed the desire for children, giving a total of 93 (63.3%) of all respondents (Table 2). Among those desiring children, only 4.3% did not intend to bear any children in the future. Women were significantly more likely to expect ≥3 children compared to men. Of those participants who had partners, 70.8% of women and 47.1% of men have partners who also desired children. Respectively, 71.5% and 93.8% of men and women who desired children intended to have ≥2 in the near future.

There was no statistically significant difference between the proportions of those who desired fertility among patients who were currently married and those who were not married (56.3% vs. 68.7%; p=0.1213), and among those who had at least a secondary education compared to those who had less-than-secondary education (69.8% vs. 54.1%; p=0.0622). Table 3 shows the distribution of study participants by selected sociodemographic and health variables, according to their desire for children. From bivariate analyses, the characteristics that were positively and significantly associated with desire for children included younger age, having no children, and better self-ratings of overall health and physical functioning. All 30 individuals who had no children desired and intended to have children, and they constituted 32.3% of all the respondents who desired childbearing (not shown). Those whose partners desired fertility were more likely to desire childbearing compared to those whose partners did not desire children (48/52 vs. 0/24; p=0.0000). Factors that were significantly associated with lowered desire for children included higher monthly income, being on HAART, longer duration of HIV clinic attendance, longer period since diagnosis of HIV infection, disclosure of serostatus to partner and better most-recent CD_4 count. The results of the multivariate logistic regression analyses for the predictor variables included in the model for fertility desire are shown in Table 3. The table shows that increasing age of respondents (adjusted OR: 0.83, 95% CI: 0.73–0.93) and time since diagnosis of HIV infection (adjusted OR: 0.96, 95% CI: 0.90–0.99) significantly reduce the odds of fertility desire, while those who disclosed their serostatus to their spouse/primary partner were less likely to desire children than those who did not disclose (adjusted OR: 0.01, 95% CI: 0.00–0.17).

The percentage distribution and mean values of respondents who desired children, by selected characteristics, according to expectation of 1–2 and ≥3 children, are shown in Table 4. Bivariate tests showed that previously having no child, poorer most-recent CD_4 count and emotional well-being were significantly associated with expectation of ≥3 children as against 1–2 children. Those who intended to bear ≥3 children were more likely to be sad or calm and peaceful in the previous one month compared to those who intended to have 1–2 children. Partner's desire was not significantly associated with intention to bear ≥3 children as against 1–2 (p=0.2845). Having controlled for confounding variables, multivariate analysis (Table 4) shows that those who had no children were more likely to expect ≥3 children than those with at ≥1 child (adjusted OR: 5.27, CI: 1.39–19.90), and better most-recent CD_4 count significantly reduces the odds of expecting ≥3 children (adjusted OR: 0.98, CI: 0.96–0.99). Thus, the fertility history and result of the most-recent CD_4 count of the respondents are important determinants of their intention to have ≥3 children as against 1–2 children in the future.

A total of 107 (72.8%) respondents admitted to have been previously counseled on sexuality and fertility issues by healthcare providers at the CSS clinic or elsewhere. The responses to questions on the advice given by their counselors with respect to reproductive decisions are listed in Table 5. Over half of the respondents reported being advised to report to the clinician with their partner for further information when ready for pregnancy. Regardless of their desire for children, 53.1% of all the study participants felt that healthcare providers would not sufficiently address personal issues, such as sexuality and fertility desires.

DISCUSSION

This study suggests that a large percentage of HIV-positive individuals within the reproductive age in southwest Nigeria desires and intends to have children in the future in spite of their unfavorable sociodemographic and health-related characteristics. Those who desire children are generally younger, have shorter time lapse since diagnosis of HIV infection, have fewer or no children and are less likely to disclose their serostatus to their partners

Table 4. Percentage distribution and means values of study participants by selected characteristics, according to expectation of children

Characteristics	Expects 1–2 Children	Expects ≥3 Children	P Value	Adjusted OR (95%CI)	Adjusted P Value
Age (years): mean ± SD (range)	32.3 ± 7.5 (20–55)	30.6 ± 8.5 (18–54)	0.1702*	1.01 (0.92–1.11)	0.8099
Sex					
Female (%)	70.4	77.1	0.4818‡		
Male (%)	29.6	22.9			
Has ≥1 Child					
No	18.5	57.1	0.00016‡	5.27 (1.39–19.90)	0.0141
Yes	81.5	42.9		1.0 (ref)	
Awareness of partner's status	53.3	33.3	0.1475§		
Partner desires fertility	88.2	100.0	0.2845§		
Estimated monthly income (₦): median (interquartile range)	4,000 (2,000–8,000)	3,500 (1,500–5,000)	0.1042†	0.99 (0.99–1.00)	0.3426
Duration since diagnosis of HIV (months): median (interquartile range)	22.0 (13.0–25.0)	23.0 (3.0–42.0)	0.6787†		
Duration of HIV clinic attendance (months): mean ± SD (range)	16.5 ± 12.5 (1.0–53.0)	15.4 ± 14.1 (1.0–42.0)	0.7161†		
Disclosure to partner (%)	60.0	44.4	0.2950‡		
Receiving HAART (%)	48.1	34.3	0.1965‡		
Latest CD_4+ count (cells/mm^3): mean ± SD (range)	224.2 ± 67.1 (100–321)	178.1 ± 54.8(60–250)	0.0040*	0.98 (0.96–0.99)	0.0063
Lowest CD_4+ count ever (cells/mm^3): mean ± SD (range)	201.0 ± 68.2 (90–321)	170.0 ± 64.0 (60–250)	0.0637*		
Self-reported overall health: mean ± SD (range)	9.3 ± 1.1 (5.0–10.0)	8.9 ± 2.2 (5.0–10.0)	0.1123*		
Physical functioning: mean ± SD (range)	9.5 ± 1.0 (7.0–10.0)	8.8 ± 2.0 (3.0–10.0)	0.0843†	0.82 (0.50–1.33)	0.4261
Emotional Well-Being (%)					
Happy	59.3	42.9	0.0000‡	1.0 (ref)	
Sad	14.8	28.6		0.33 (0.11–1.72)	0.0948
Calm and peaceful	25.9	28.6		0.62 (0.14–2.75)	0.5339
Depressed	–	–			
WHO Performance Score (%)					
I	70.4	60.0	0.3120‡		
II	29.6	40.0			

† By Mann-Whitney U test; ‡ By χ^2 test; § By Fisher's exact test; * By t-test; ₦: Naira; Adjusted OR: adjusted odds ratio in logistic regression analysis; CI: confidence interval; ref: reference category

compared to those who do not desire children. The proportion of our study population who desired children was much higher than those reported in the series by other workers in the developed countries.[3,4] Despite the fact that 79.6% of the respondents already had ≥1 children, 68.4% of women aged 18–45 and 53.8% of men aged 18–55 still desire children. This is a cause for concern considering its possible implications for the control of vertical and heterosexual transmission of HIV in this country, where most infected individuals lack access to proper HIV care. It is of interest to note that unlike in other series, we recruited subjects within wider reproductive age limits because childbearing among Nigerians tends to continue within much of their reproductive life span.[1] Since the wish for parenthood often declines with increasing age, this implies that our figure on fertility desire would probably be much higher if the upper age limits for analysis were restricted to 40 years for women and 50 years for men like in previous studies.[4]

Fertility desires and intentions were separately measured in this study population because they are separate but important connections between childbearing motivation and reproductive behavior[9] and may therefore be influenced by different underlying factors. Unlike in the study by Chen et al.,[3] in the United States, fertility desire recorded in this Nigerian population appears to directly translate to fertility expectation of ≥1 child, as there were only four respondents who desired children but did not intend to have any. This suggests that the factors that are theoretically expected to determine fertility intentions have minimal constraints on the transformation of fertility desires into intention to have ≥1 child among this Nigerian population. The similarity between the two outcome variables precluded determination of significant predictors of fertility intention. Of concern, however, is the proportion of men and women who expect ≥3 children in the near future. Independent predictors of these high fertility intentions were identified as poorer most-recent CD_4 count and previously having no children. It appears that the present stage of disease progression is an important situational factor that intensifies the intention to bear children. Contrary to what is expected, patients with poorer CD_4 count (<200 cells/mm^3 on average) intended to have more children than those with higher values. It may be that the reality of advancing illness increases the commitment of these patients to achieve their reproductive desires.

An important determinant of fertility desire identified in this study is the age of the respondents. Similar to the observation of other workers,[3,4] our study shows that fertility desires increase with decreasing age of the patients and vice versa. Though this may be attributed to the expected norms of the Nigerian society, it may be that the pressure to have children becomes more compelling for HIV-positive young adults out of the fear of dying of AIDS, in view of their prevailing sociocultural and economic circumstances. This relationship between age and fertility desire has a significant consequence on a disease that is most prevalent among adolescents and young adults.[13] Other significant predictors of fertility desire among these patients are self-disclosure of serostatus to partner and time since diagnosis of HIV infection. The impact of disclosure of HIV status on fertility desire further underscores its importance in promoting healthy sexual behavior and positive decisions among people living with HIV/AIDS,[14] and our finding was therefore not surprising. The influence of longer time since diagnosis of infection probably reflects the cumulative effects of decisions made by individuals who had weighed the consequences of their wish for parenthood over several months or years. Individuals with recently diagnosed disease may still be undergoing an adjustment to their serostatus, and childbearing may be a coping method to reject a perception of diminished identity. It is important to note that having no children, which was a highly significant variable in the bivariate analysis for fertility desire, could not be entered into the logistic regression model for lack of enough outcome events. It is apparent from the importance of this variable in predicting intention to have ≥3 children that it is likely to be an independent predictor of fertility desire as well.

Table 5. Responses to question on reproductive options given by healthcare providers (N=107)

	n (%)
Not to ever get pregnant/impregnate someone/have more children	15 (14.0)
To have as many children as I wish anytime	2 (1.9)
Not to use condom at midcycle /time of ovulation	2 (1.9)
To get pregnant/impregnate someone only when I am on antiretroviral drugs	10 (9.3)
To come and see the clinician for further information when ready for pregnancy	60 (56.1)
To have children only with an HIV-positive partner	9 (8.4)
To report immediately for antenatal care once pregnant	9 (8.4)

The potential implication for the vertical transmission of HIV is apparent from this study. In the absence of medical intervention, the risk of mother-to-child transmission of HIV is up to 25–45% in Africa.[15,16] Though combination antiretroviral therapy has been shown to reduce this risk to <2%, its use is still limited to the developed countries.[17] Therefore, in resource-poor settings like ours, the risk of perinatal transmission of HIV can only be reduced by 50% or less when peripartum nevirapine is administered to both the mother and neonate as recommended.[18,19] The magnitude of this residual risk causes serious concern in the light of our study findings. More than half (54.9%) of the women who desired children in this study previously had lowest-ever CD_4 count of less than 200/mm^3, and only 36.9% of them were currently on HAART. These low CD_4 counts, which may be a reflection of high viral loads, would place such women at risk of in-utero viral transmission and therefore may further minimize the benefits of peripartum nevirapine. These problems are further compounded by the possibility of developing resistance to nevirapine following its single use for perinatal HIV prevention.[20] This implies that fertility desires and intentions of HIV-positive women in Nigeria have important implications on their health and that of their newborns by also compromising their treatment options in the long term.

With respect to counseling on fertility issues, about half of the respondents in this study have been advised to report to the clinician with their partner for further information when ready for pregnancy. Since a significant percentage of these individuals do not agree that their healthcare providers can sufficiently address sexuality and fertility issues, such advice may be counterproductive especially among those unwilling to disclose their serostatus to their partners. Family-planning counseling services should therefore elaborate on the meaning of their fertility desire within the particular context of being seropositive and the need to take into account not only the risk of transmission to the child but also of the difficulty of combining being a parent with the constraints of their illness. However, considering the high premium placed on childbearing by the Nigerian society and the percentage of this study population with no children, it may be wise to desist from the conventional systematic advice against pregnancy, but in addition to laying emphasis on the risks, provide adequate information on practicable reproductive options for individuals affected by HIV. This would assist them in making an informed reproductive choice rather than engage in risk-taking behaviors.

Although the tradition of asking about future childbearing plans in fertility surveys is well established, its reliability in predicting subsequent fertility level remains under debate. Many researchers agree that attitudinal questions with regards to fertility desire are no good predictors of eventually achieved family size, as considerable disparities exist between the average number of children desired in the course of reproductive cycles and the actual number realized at the end of the reproductive years.[21] However, unlike fertility desire, research has shown that there is a closer link between fertility intentions or expectations and subsequent fertility.[22] This implies that the findings of our study remain very important regardless of these methodological issues.

In summary, many HIV-positive patients in southwest Nigeria are considering parenthood. In view of the health implications for themselves, their partners and newborns as well as the social consequences on the community, HIV caregivers in this region need to address fertility issues more frequently and extensively in the context of the highlighted predictors of fertility desires and intentions. Countries that share similar demographic characteristics with Nigeria should not underestimate the fertility desires and expectations of their HIV-infected population, and steps should be taken to investigate these issues.

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