

# Reproductive desires and intentions of HIV-positive women of reproductive age attending the adult HIV clinic at the Jos University Teaching Hospital, Jos, Nigeria

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## ABSTRACT

**Background:** The advent of highly active antiretroviral therapy (HAART) in the medical management of human immunodeficiency virus (HIV) infection has modified the natural history of HIV, resulting in improvements in the quality of life and life expectancy of women living with HIV. Consequently, many HIV-positive women of reproductive age are considering the possibility of having their own biological offspring.

**Materials and Methods:** This was a cross-sectional study conducted among HIV-positive women of reproductive age attending the adult HIV clinic at the Jos University Teaching Hospital, Jos, Nigeria. Equal numbers of HIV-positive women of reproductive age in serodiscordant and seroconcordant relationships, who met the selection criteria, were recruited using convenience sampling technique. Data were collected using a pretested questionnaire in a face-to-face interview, and were analyzed using the Statistical Package for the Social Sciences statistical software (version 17) to determine their reproductive intentions using Chi-square and *t*-test. Multiple logistic regressions were used to determine the relationship between independent variables and the intentions of respondents to have children.

**Results:** A total of 500 women were recruited for the study (250 in serodiscordant relationship and 250 in seroconcordant relationship). The overall reproductive desires and intentions were 60% and 56.4%, respectively. The reproductive intentions among those in serodiscordant and seroconcordant relationships were 63.2% and 49.6%, respectively. The difference was statistically significant.

**Conclusion:** The reproductive intentions among the HIV- positive women in this study were high, the intentions being much higher among those in serodiscordant relationship. With a compelling intention to exercise their parenthood, there is a need for us to provide appropriate reproductive and sexual health services and support for all HIV-positive women of reproductive age.

**Key words:** HIV-positive women of reproductive age; Jos; reproductive intention; serodiscordant or seroconcordant relationship.

## Introduction

Human immunodeficiency virus (HIV) infection mostly affects men and women in their reproductive years.<sup>[1]</sup> Sub-Saharan Africa, the region with the largest burden of the acquire immunodeficiency syndrome (AIDS) epidemic, accounts for nearly two-thirds of the global HIV/AIDS patients. HIV transmission among adults is mainly heterosexual in

Africa and occurs in most cases within stable relationships. Over 60% of people living with HIV (PLWHIV) in Africa are women in their reproductive years.<sup>[2,3]</sup>

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Access to highly active antiretroviral therapy (HAART) has shifted the course of HIV infection from a lethal to a chronic disease, allowing individuals to live longer and to have healthier lives. As a consequence, HIV-infected individuals can look forward to an active and productive life style, and many are considering the possibility of having their biological offspring. Reported studies have demonstrated that HIV-infected individuals desire children. Evidence from studies has shown that the risk of mother-to-child-transmission (MTCT) of HIV is reduced to less than 2% in women who commence antiretroviral therapy early in pregnancy.<sup>[1,4-12]</sup>

In high fertility societies, the high premium attached to childbearing may be greater than the burden associated with HIV infection. However, pregnancy requires unprotected intercourse. This is associated with the risk of vertical and horizontal transmission in serodiscordant couples and the additional risk of transmission of a drug resistant strain of HIV in seroconcordant couples.<sup>[13,14]</sup>

Although assisted reproductive technologies, in conjunction with plasma viral RNA suppression with HAART, can reduce the risk of transmission without preventing pregnancy,<sup>[15,16]</sup> such technologies are usually too expensive and largely unavailable in resource-limited settings.

In addition to the risk of transmission, reproductive intentions among HIV-infected individuals are associated with additional health, social and financial burdens on the individuals, their children and the society at large.<sup>[17]</sup> The high premium attached to having one's own biological offspring in our setting and pressure from relatives may force HIV-positive into child-bearing. Furthermore, woman's place in marriage is secure only if she gives her man children (especially a male child).<sup>[18]</sup> Studies have been conducted on the reproductive intentions of HIV-infected women in various settings. To our knowledge, no previous studies conducted in Jos University Teaching hospital (JUTH) have addressed the issue of reproductive intentions among HIV-positive women. It is to fill the gap in knowledge in this very important reproductive component among this cohort that has led to this study. This will provide some evidence that will aid in the development of strategies to address the socioeconomic, psychological and health implications of the reproductive decisions of women of reproductive age living with HIV infection in Jos, Nigeria.

### Aim

To assess the reproductive intentions and desires of HIV-positive women of reproductive age attending the adult HIV clinic at the JUTH, Jos. We hypothesized that "there is no difference in the reproductive intentions among

HIV-positive women of reproductive age in seroconcordant or serodiscordant relationship."

### Objectives

- To determine the reproductive desires and intentions of HIV-serodiscordant and HIV-seroconcordant women among the cohort of HIV-positive women selected for the study and factors, which influence their intentions to have biological children
- To use the results of the research to recommend strategies that will assist in the integration of reproductive and sexual health policy into HIV care for women of reproductive age at JUTH.

### Materials and Methods

The study was conducted at the JUTH in Jos, Plateau State, North-Central Nigeria.<sup>[19,20]</sup> Located in JUTH premises is the AIDS Prevention initiative Nigeria (APIN)/PEPFAR Centre. Since its inception in 2002, it has been providing PMTCT intervention to HIV-infected antenatal patients in collaboration with the Obstetrics and Gynaecology Department. In addition, it provides comprehensive services which include voluntary counselling and testing, psychosocial counselling, outpatient treatment facilities, laboratory monitoring and nutritional support for people living with HIV. The centre presently has over 14000 HIV-positive adults of reproductive age receiving on-going care.

This was a cross-sectional clinic-based study or survey. The study population comprised HIV-positive women of reproductive age attending the adult HIV clinic at the JUTH, Jos-Nigeria.

A non-probability, convenience sampling technique was employed for recruiting HIV-infected women of reproductive age attending the adult HIV clinic at JUTH, Jos, Nigeria until the required sample size was obtained on both sides (i.e., equal numbers of women of reproductive age in seroconcordant and serodiscordant relationships).

Only HIV-positive women of reproductive age (15–49 years) who had been attending the adult HIV clinic in JUTH for 6 months or longer for treatment and who had given an informed written consent were included in the study.

The sample size was calculated using the formula:<sup>[21]</sup>  

$$n = z^2pq/d^2 \text{ (where } z = 1.96, P = 0.18,\text{[22]} q = (1.0 - 0.18) \text{ and } d = 0.05\text{)} \text{ to arrive at a value of 227.}$$

A minimum of 500 HIV infected women of reproductive age were recruited for the study (i.e. comprising 250 of women in seroconcordant and 250 of women in serodiscordant relationship)

The study objective was explained to the participants, and informed (written) consent obtained from each of them.

Data were collected from a pretested proforma containing questions regarding the women's sociodemographic characteristics, reproductive history, reproductive desires and intentions, reasons for intention to have children and concerns about bearing children, health-related and HIV-related characteristics (e.g., viral load and CD4+ levels) and knowledge or awareness of reproductive options for reduction of vertical and horizontal transmission. The proforma was administered in a face-to-face interview by counsellors, peer educators and people living with HIV/AIDS (PLWHA) employed in the centre, in the language best understood by the participating women, using interpreters/translators when necessary. Further information pertaining to the women's health was retrieved from their medical records.

Statistical analysis was performed using the Statistical Package for the Social Sciences statistical software (version 17, SPSS Inc., 233 South Wacker Drive, 11th Floor, Chicago, IL). Frequency tables were generated, and test of associations between variables was performed using Chi-square and *t*-test conducted on categorical and continuous variables, respectively. Logistic regression was performed to determine the relationship between the various independent variables, namely sociodemographic characteristics, health-related characteristics and knowledge about reproductive methods to reduce transmission of HIV among women who intended to have children compared to those who did not. A *P* value of less than 0.05 was considered to be statistically significant.

Ethical clearance was obtained from the Ethical Committee of the JUTH, Jos.

## Results

Analysis of the data showed that 182 (36.4%) of the respondents had tertiary education, 172 (34.4%) had secondary education, 100 (20.0%) had primary education, 26 (5.2%) had quranic education and 20 (4.0%) had no formal education, as shown in Table 1. Three hundred and thirty-five (67%) were married, 105 (21%) were single, 40 (8%) were widowed and 20 (4%) were divorced. Three hundred and eighty-five (77%) of the respondents were of the Christian faith while 115 (23%) were of the Islamic faith. Four hundred and thirty-five (87%) of the respondents had undetectable viral load; 410 (82%) had CD4 count of  $\geq 350$  cells/mm<sup>3</sup> (mean  $552 \pm 154$ ).

Three hundred and ninety-five (79%) of the respondents were receiving HAART for their disease. Four hundred and fifty (90%) of the respondents had knowledge of at least one

method of childbearing that reduced the risk of vertical transmission [Figure 1].

The overall reproductive desires and intentions of the respondents to have children were 60% and 56.4%, respectively [Table 2]. The reproductive intentions of the serodiscordant and seroconcordant groups were 63.2% (158/250) and 49.6% (124/250), respectively. There was a statistically significant difference in the reproductive intentions of the two groups ( $\chi^2 = 9.4020$ ; *P* = 0.0022; OR = 0.5730; 95% CI = 0.4009–0.8190) [Table 3]. The reasons given by respondents, with no reproductive intentions, for not wanting children are shown Figure 2.

Using univariate analysis, a statistically significant relationship was found between the intention to have children and the following independent sociodemographic variables: age (*P* = 0.0000), parity (*P* = 0.0000), educational status ( $\chi^2 = 12.2708$ ; *P* = 0.0005; OR = 0.4724; 95% CI = 0.3091–0.7220).

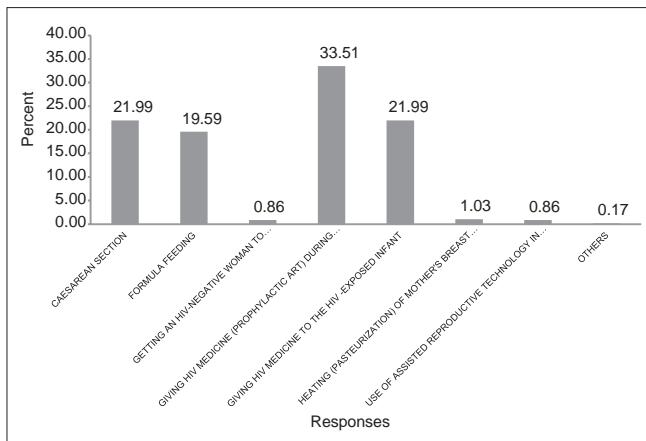
There was also a statistically significant relationship between the following independent variables and intentions of respondents to have children: "not having an AIDS-defining

**Table 1: Socio-demographic characteristics of HIV-positive women of reproductive age attending the adult HIV clinic at JUTH**

Characteristic	Frequency	Percentage
<b>Education status</b>		
Non-formal	20	4.0
Quranic	26	5.2
Primary	100	20.0
Secondary	172	34.4
Tertiary	182	36.4
<b>Marital status</b>		
Single	105	21.0
Married	335	67.0
Widowed	40	8.0
Divorced	20	4.0
<b>Religion</b>		
Islam	115	23.0
Christianity	385	77.0

**Table 2: Distribution of the desires and intentions to have children of all respondents**

Parameter	Responses	Frequency	Percentage intentions
Desires	No	218	43.6
	Yes	282	56.4
	Total	500	100.0
	No	200	40
	Yes	300	60
	Total	500	100



**Figure 1: Knowledge of participants regarding vertical transmission risk reducing methods of childbearing**

illness" ( $\chi^2 = 6.5639$ ;  $P = 0.0104$ ; OR = 2.2693; 95% CI = 1.1962–4.3053) and "not having an HIV-infected child" ( $\chi^2 = 22.1519$ ;  $P = 0.0000$ ; OR = 0.2521; 95% CI = 0.1374–0.4623).

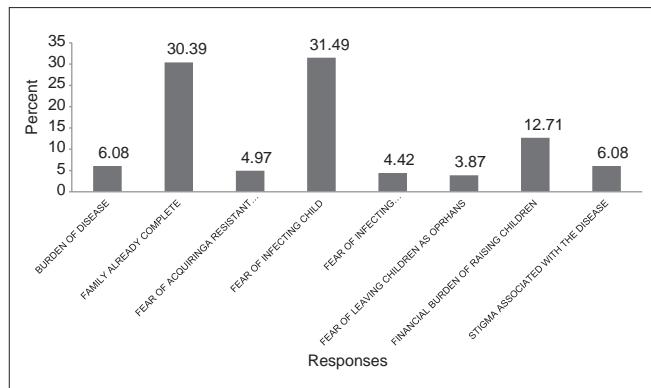
There was no statistically significant correlation between the intention of respondents to bear children and the following independent variables: mean attendance at the adult HIV clinic ( $P = 0.9419$ ); "being on HAART" ( $\chi^2 = 1.1585$ ;  $P = 0.2818$ ; OR = 1.2908; 95% CI = 0.8103–2.0561) and viral load status (i.e., detectable or undetectable) ( $\chi^2 = 0.5019$ ;  $P = 0.4787$ ; OR = 0.8387; 95% CI = 0.5154–1.3649).

There was statistically significant correlation between the respondents' intentions to have children and their knowledge or awareness of methods that reduce the risk of vertical transmission of HIV infection ( $\chi^2 = 19.7535$ ;  $P = 0.0000$ ; OR = 2.9869; 95% CI = 1.8173–4.9093).

When the independent variables that showed statistically significant association with the intention to have children on univariate analysis were subjected to multiple logistic regression analysis, only the following showed a statistically significant correlation: age ( $\leq 29.5$ ) ( $r = 1.1123$ ;  $P = 0.003637$ ; OR = 1.1189; 95% CI = 1.0373–1.2088), parity ( $\leq 2$  living children) ( $r = 0.1638$ ;  $P = 0.01032$ ; OR = 3.2022; 95% CI = 1.3159–7.7926) and awareness of vertical transmission risk reduction methods ( $r = 0.1457$ ;  $P = 0.0246$ ; OR = 2.4000; 95% CI = 1.8695–3.4890) [Table 4].

## Discussion

The reproductive desires of 60% were close to those reported from Sagamu (68.4%), southwestern Nigeria, the United States (59%) and Canada (69%).<sup>[23–25]</sup> The reproductive



**Figure 2: Respondents' reason for not wanting to have children**

**Table 3: Intentions to have children according to respondents' HIV serostatus**

Responses	Frequency (percentage)		Total
	Serodiscordant	Seroconcordant	
Yes	158 (63.2)	124 (49.6)	282 (56.4)
No	92 (36.8)	126 (50.4)	218 (43.6)
Total	250 (100)	250 (100)	500 (100)

$\chi^2=9.4020$ ;  $P=0.0022$ ; OR=0.5730 (95% CI=0.4009–0.8190)

intention of 56.4% in this study was much lower than those reported from Sagamu (93.8%)<sup>[23]</sup> and the United States (66%).<sup>[24]</sup> However, it was similar to the value of 57% reported from Canada.<sup>[25]</sup>

The reproductive intention of the HIV-positive women in serodiscordant relationship (63.2%) was significantly higher than that of those in seroconcordant relationship (49.6%). This may be due to bias introduced by the convenience sampling method used in the selection of the participants. However, the statistically significant difference noted in the reproductive intentions of the two groups may be due to the fact that a majority of those in serodiscordant relationship were younger ( $\leq 29.5$  years) and had fewer children ( $\leq 2$  living children) compared to their seroconcordant counterparts. These were two major predictors of fertility intentions reported by several other studies on the reproductive intentions of HIV-positive women or individuals of reproductive age.<sup>[8,15,26]</sup>

Sociodemographic variables such as age ( $\leq 29.5$  years), parity ( $\leq 2$  living children), being a Christian and having attained secondary education or more were positive correlates of the intention to have children. This observation may be attributed to the fact that majority of the respondents were of the Christian faith (77.2%), had higher education and had fewer children than those of the Islamic faith and were yet to complete their family. This may be explained by the fact that majority of the respondents of the Christian faith

**Table 4: Multiple logistic regression analysis of the relationship between intention to have children and independent variables**

Variable	Coefficient of regression	Standard error	Odds ratio	95% Confidence interval	P
Age	0.1123	0.03862	1.1189	1.0373-1.2068	0.003637
Parity	0.1638	0.45370	3.2022	1.3159-7.7926	0.010320
Awareness of vertical transmission risk reduction methods	0.1457	0.04899	2.400	1.8695-3.4890	0.024600
Not having an AIDS-defining illness	0.4786	1.2684	1.6095	0.6796-1.9679	0.907300
Not having an HIV-infected child	0.0004	0.0017	1.0004	0.8255-1.5184	0.81100

had postponed childbearing in favour of pursuit of their academic career whereas those of the Islamic faith started their reproductive career at a much earlier part of their reproductive age.

Absence of an AIDS-defining illness and not having had an HIV-infected child were associated with increased intention to bear children by the respondents. This may be a reflection of the assessment of their state of health or physical wellbeing and their ability to cope with the stress of pregnancy and child bearing. Most of them were in a state of good health as reflected by the following indices: 87% had undetectable viral load ( $\leq 50$  copies/ml) and 82% had CD4 counts of  $\geq 350$  cells/mm<sup>3</sup> (mean  $552 \pm 154$ ).

Majority of the respondents (90%) were aware of the methods that reduce the risk of vertical transmission of HIV infection. This might have boosted the confidence or morale of those who indicated intention to have children. Kirshenbaum *et al.* reported a similar result among HIV-positive women in a study carried out in the United States in 2004.<sup>[5]</sup>

Multivariate analysis showed that the significant predictors of reproductive intentions in this study were younger age ( $\leq 29.5$ ), low parity ( $\leq 2$  living children) and awareness of methods that reduce the risk of vertical transmission of HIV infection. This corroborated with similar findings from other studies on reproductive intentions of HIV positive women or individuals of reproductive age.<sup>[5,25,27]</sup>

## Conclusion

In conclusion, the study shows that the reproductive intentions and desires of HIV-positive women of reproductive age attending the adult HIV clinic of JUTH were high. There was a statistically significant difference between the reproductive intentions of the respondents in serodiscordant relationship and those in seroconcordant relationship. The significant predictors of reproductive intentions among the respondents were younger age, low parity and awareness of methods that reduce the risk of vertical transmission of HIV infection.

Because the majority of respondents have a compelling intention to have their own biological children, it is imperative

that such intention is supported by reproductive and sexual health measures to minimize the risk of vertical transmission while at the same time ensuring maternal health.

These should include pre-pregnancy counselling for every HIV-positive woman of reproductive age attending the adult HIV clinic, provision of family planning and contraceptive services and suppression of viral RNA with antiretroviral drugs. Emphasis should be placed on the production of HIV negative children and maintenance of maternal good health which will allow HIV-positive mothers to live long enough to bring up their children.

The major limitation encountered in this study was the reluctance of some of the respondents to participate in the face-to-face interview. Such respondents preferred telephone interview and had to be excluded from the study. Participant selection in this study was based on convenience sampling and might have introduced a bias. Finally, a clinic-based study of this nature would not be generalizable to the entire population of HIV-positive women of reproductive age in Nigeria, thus necessitating a larger multi-centre study.

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## Conflicts of interest

There are no conflicts of interest.

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