



## Research Article

# Fertility intentions and associated factors of HIV positive women of reproductive age in JOS, Northcentral Nigeria

Gabriel Adah<sup>1\*</sup>, Ruth Adah<sup>2</sup>, Hadiza Agbo<sup>3</sup> and Ayuba Zoakah<sup>3</sup>

<sup>1</sup>National Primary Health Care Development Agency, Port-Harcourt Crescent, off Gimbiya Street, Area 11, PMB 367, Garki, Abuja, Nigeria

<sup>2</sup>Department of Pediatrics, Jos University Teaching Hospital, Jos, Nigeria

<sup>3</sup>Department of Community Medicine, College of Health Sciences, University of Jos, Nigeria

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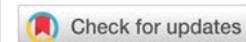
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**\*Corresponding author:** Gabriel Adah, National Primary Health Care Development Agency, Port-Harcourt Crescent, off Gimbiya Street, Area 11, PMB 367, Garki, Abuja, Nigeria, Tel: +234-7036768700; E-mail: drgabadah@yahoo.com

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## Abstract

**Background:** With the improvement in the quality of life of women living with Human Immunodeficiency Virus /Acquired Human Immune deficiency syndrome (HIV/AIDS) in recent times, their fertility desires have been shown to be changing. In spite of this, not much has been documented of the fertility intentions of these women in Jos. Therefore, our study aims to determine the fertility intentions and associated factors among HIV positive women of reproductive age accessing care in Jos University Teaching Hospital +(JUTH) Plateau State.

**Methods:** It was a hospital-based cross-sectional study conducted in the APIN Centre of the Jos University Teaching Hospital in Plateau State. An interviewer-administered questionnaire was used to collect information on socio-demographics and fertility intentions from 335 HIV positive women of reproductive age from June to July 2018. Data was analyzed using SPSS version 23 software package. Univariate and bivariate statistical analysis were carried out to identify the fertility intentions and the related factors.

**Results:** The age range was 18- 49 years with mean age of  $37.44 \pm 6.40$  years. Fertility intentions of HIV positive women of reproductive age varied with 47.5% expressing desire for more children. Majority (92.5%) wanted to have two or more children. More than half (56%) wanted the next child within two years but 44% wanted them delayed till after two years. Although age, marital status, duration of marriage, number of living children and contraceptive use were found to be significantly associated with fertility intentions, the predictors of fertility desires were number of living children (AOR=11.00, P-value=0.026), age (AOR=2.231, P-value=0.033), use of contraceptives (AOR=0.397, P-value=0.001) and duration of marriage (AOR=5.46, P-value=0.001).

**Conclusion:** Women living with HIV have varied fertility intentions. The desire for more children was highest among women in the early phase of marriage and those with few surviving children. Health Care providers and policy makers need to consider increasing services and support for family planning for HIV positive women with different fertility desires.

## Abbreviations

AIDS: Acquired Immunodeficiency Disease Syndrome; APIN: APIN Public Health Initiative in Nigeria; HAART: Highly Active Anti-Retroviral Therapy; HIV: Human Immunodeficiency Virus; JUTH: Jos University Teaching Hospital; LGA: Local Government Area; NDHS: Nigerian Demographic and Health Survey; PLWHA: People Living with HIV AIDS; SPSS: Statistical Package for Social Sciences; WORA: Women of Reproductive Age

## Introduction

The Human Immunodeficiency Virus Infection /Acquired Immunodeficiency Syndrome (HIV)/AIDS is a disease of public health importance because of the associated high morbidity and mortality among people that are affected [1]. However, with the advent of the Highly Active Anti-Retroviral Therapy (HAART), this is beginning to change in many high burden countries, especially in sub-Saharan Africa. Globally, it is estimated that women living with HIV constitute about 50% of the burden of HIV and in Nigeria, over 57% of the number of people living with HIV/AIDS (PLWHA) are women of reproductive age [1,2]. The desire of women within the reproductive age group to have children is universal and this is more so in developing countries with resultant high fertility rates [3-5]. Studies among HIV positive women have shown that there is a growing desire to bear children in spite of their status [6-8]. The desire to have children and the previously declining fertility rates of HIV infected women have been reported to be increasing in many nations such that little or no difference exists between HIV infected persons of reproductive age and those who are uninfected [9-11]. This is a cause for concern as it has the potential of increasing the population of paediatric HIV cases in the world. With the improved quality of life resulting from the use of Highly Active Antiretroviral Drugs (HAART), HIV positive women of reproductive age on the Plateau may not only have increased fertility but may also desire more children too. This has implications for planning towards related health services. Studies from all over the world have shown certain factors to be associated with the fertility intentions of women living with HIV [12-16]. However, these factors have not been extensively studied among PLWHA in Plateau state. Consequently, this study was aimed at determining the fertility intentions and associated factors of women living with HIV in JUTH, Plateau state.

## Materials and methods

The study was carried out at the APIN centre of the Jos University Teaching Hospital (JUTH) which is located in Jos North Local Government Area (LGA) of Plateau State in north-central Nigeria. The Centre caters for about 5000 women, out of which 1052 are women of reproductive age seen on the average monthly. For treatment naïve patients, clinic visits and follow up are usually monthly until one year and after which it can be adjusted depending on the patient's adherence and clinical outcomes. Study design was a facility-based cross-sectional and the study population consisted of HIV positive women of reproductive age (18-49) years, married or in union who were

accessing services at the HIV clinic in JUTH. The sample size was 335 calculated using Cochrane's formula,  $n = Z^2pq/d2$  and increased by 10% to account for non-response bias [17]. The Jos University Teaching Hospital (JUTH) which was the largest of seven health facilities in Jos North LGA offering comprehensive HIV treatment, care and support services was selected [18]. Then a systematic sampling technique was used to select the study participants.

From the monthly booking register of all clients accessing treatment, care and support services, a list of all Women of Reproductive Age (WORA) was teased out and serialized to form the sampling frame for the study. The sampling interval was estimated and simple random sampling technique by balloting was used to select the first study participant from within the sampling interval and the interval was maintained subsequently on the list until the sample size was met. The facility unique Identification number corresponding to the serial number of the selected WORA on the list was used to track and sample the participants on their respective clinic appointment days within the period of data collection, which took place between June-July 2018. In the event that the selected client declines consent for participation, the next contiguous client on the list was selected without distorting the sampling interval.

A semi-structured interviewer administered questionnaire was adapted from the Nigerian Demographic and Health Survey (NDHS) 2013 survey questionnaire [19]. The questionnaire consisted of 25 questions used to obtain information on socio-demographics characteristics, parity, use of contraception and fertility intentions from the respondents. The instrument was pretested to clarify any ambiguity in the questions and to assess ease of administration on 30 subjects in a HIV/AIDS care and treatment centre in another LGA. Ethical clearance was obtained from the Jos University Teaching Hospital (JUTH) Health Research and Ethics Committee.

## Statistical analysis

All data generated was analyzed using SPSS statistical software version 23. (IBM). The outcome variable in this study was the fertility intention among HIV positive women of reproductive age, which were the desire to have children, how soon and how many. The exposure or independent variables included socio-demographic factors (such as age, educational level, ethnicity, religion, and occupation), use of contraception, partner support and parity. Respondents' sociodemographic characteristics, contraceptive use, and fertility intentions were presented in frequencies and percentages. The relationship between the fertility desires and other independent variables was determined by Chi-Square test. The Odd Ratios (OR) at 95% confidence intervals and p-values were obtained and used to identify significant associations using bivariate analysis. This was then subjected to multivariable analysis and identified Adjusted Odds Ratio (AOR) with 95% confidence interval,  $p\text{-value} \leq 0.05$  were taken as statistically significant.

## Limitations

HIV/AIDS is a disease with a lot of stigma .while issues surrounding sexual behaviour and practices are very sensitive



in our environment. Consequently, this could introduce some form of bias in the reporting of sexual behaviour such as use of contraceptives. This was minimized by ensuring that these women were reassured on the issue of confidentiality and the interview conducted in a private conducive environment where information flow was uninhibited. Secondly, as only married women or those in union were used in this study, a major limitation is that the findings are not representative of women of reproductive age living with HIV as a whole. Finally as with most cross-sectional studies, causality could not be ascertained.

## Results

Table 1 displays the socio-demographic characteristics of the respondents. Three hundred thirty five participants with age range from 18 to 49 years were recruited. The mean age of the respondents was  $37.44 \pm 6.40$  years. Majority (92.5%) of the respondents were educated with secondary level education being the largest (34.6%). Over three-quarter (76.7%) of the subjects were Christians while the commonest (34.9%) occupation observed was trading. The largest majority consisted of women with 2 or more children.

Table 2 shows that a little less than half (47.5%) of the respondents desired to have more children, with over half (56%) of those who desired to have children wanted to have the next child in less than two years' time. Out of the respondents who were desirous to have more children, the least proportions (0.6% & 6.9%) of the respondents desired only 1 or 2 children only, the largest majority desired more than 2 children.

Table 3 shows that the intention to have more children among respondents was significantly associated with age. It was highest (100%) among the age group less than 20 years and lowest at  $\geq 40$  years. ( $p < 0.006$ ). while smaller percentages of divorced and widowed subjects (23.8%, 16) significantly more married respondents intended to have more children (50.3%  $P < 0.022$ ). the desire to have more children It was also statistically significantly associated with duration of marriage ( $p = 0.001$ ).

Table 4 shows a binary logistic regression model table for predictors of fertility intentions among respondents. Those women who had no living children were 11 times more likely to desire more children compared to those who had two or more living children (AOR = 11.000; CI = 1.334– 90.688;  $P < 0.026$ ). The desire for more children is 5 times more likely in those who have been married for 1–5 years compared to those married for more than 15 years. (AOR = 5.46; CI = 2.700– 11.041;  $P < 0.001$ ).

## Discussion

Being HIV positive was found not to have affected the women's fertility desire as almost half of the women had a desire for more children. This finding may be related to the fact that, in most African societies, children occupy a very special place or position in the family as well as the society at large. This was lower than other previous studies carried out in Jos, north-central Nigeria (60%), Sagamu - southwest Nigeria (63.3%), Abia, south-east Nigeria (63.7%) and Maiduguri,

**Table 1:** Socio-demographic characteristics of study participants.

Demographic characteristics	Frequency n=335	Percentage(%)
<b>Age group</b>		
<20	4	1.2
20-29	33	9.9
30-39	163	48.7
$\geq 40$	135	40.3
<b>Religion</b>		
Christianity	257	76.7
Islam	78	23.3
<b>Educational level</b>		
Informal	25	7.5
Primary	85	25.4
Secondary	116	34.6
Tertiary	109	32.5
<b>Current marital status</b>		
Married	308	91.9
Widowed	21	6.3
Divorced/Separated	6	1.8
<b>Order of marriage (n =308)</b>		
1	244	72.8
2	60	17.9
3	4	1.2
<b>Number of living children</b>		
0	8	2.4
1	57	17.0
$\geq 2$	270	80.6
<b>Type of marriage</b>		
Polygamous	77	23.0
Monogamous	258	77.0
<b>Occupation</b>		
Unemployed	52	15.5
Trading	117	34.9
Farming	28	8.4
Civil servant	77	23.0
Employed in private establishment	22	6.6
Artisan	39	11.6
<b>Husband educational level</b>		
None	29	8.7
Primary	46	13.7
Secondary	97	29.0
Tertiary	163	48.7

north-east Nigeria (71.5%) [20–23]. However, it was consistent with results obtained from studies in Oromia region and Addis-Ababa in Ethiopia where similar proportion of women from the two studies expressed desire for more children [24,25]. On the other hand, it was higher than that observed in a study in the USA where less than a third of the women were desirous of more children [26]. The U.S.A being a developed country with



high female literacy level and a high child survival rates may have played a key role. This difference may be due to the fact that in this study, a significant proportion of the respondents (40.3%) were ≥ 40 years and this may mean that most of them would have completed their family size given the practice of early marriages that is common in this region. The finding in this study that a slightly larger proportion of women did not desire more children may be due to the fact that most (42.9%) of the respondents had completed their family size.

This study showed that 56% of those respondents who desired more children wanted them as soon as within 2 years but 44% wanted to start having children after 2 years. This may be because nearly three-quarters of these women are in the early phase (1-5years) of their marriages when the desire to procreate is highest. This is similar to a study in Ethiopia where, out of the respondents who desired children, 60% planned to have children within 2 years [24]. It may suggest that the women in this study have similar aspirations with regards to future fertility desires as other women living with HIV from other African countries. In addition, it is pertinent to point to the sub-group who desired children but wanted to have them after two years were at risk of having unmet needs especially if they fail to use contraceptives to achieve their desired reproductive intentions.

This study showed that age was significantly associated with desire for more children. This is in keeping with the findings in several other studies in Nigeria, Ghana, Ethiopia and in the developed world [8,13,16,20,26-28]. [8,13,16,20,26-28]. This pattern cuts across both developing and developed countries, various cultures and races. It is not surprising as this is the peak age of reproductive potential of a woman. This has serious public health implications as this is the age group with the greatest risk of transmission of the disease [29]. Another factor that was significantly associated with desire for more children in this study was duration of marriage. This is consistent with a study in Ethiopia [30]. In this study, the association was

**Table 2:** Fertility desires of HIV positive women.

Variables	Frequency	Percentage
Fertility desire (n=335)		
Yes	159	47.5
No	176	52.5
Time within which you want next child (n=159)		
<2 yrs	89	56.0
2-4 yrs	53	33.3
>4 yrs	17	10.7
Desired number of children (n=159)		
1	1	0.6
2	11	6.9
3	47	29.6
4	54	34.0
≥5	46	28.9

**Table 3:** Association between demographic characteristics and respondents' intention to have more children.

Demographic characteristics	Intention for more children n=159(%)	No Intention for more children n=176(%)	χ <sup>2</sup>	P
Age group				
<20	3(100.0)	0(0.0)	12.398	0.006*
20-29	18(52.9)	16(47.1)		
30-39	88(54.0)	75(46.0)		
≥40	50(37.0)	85(63.0)		
Religion				
Christianity	125(48.6)	132(51.4)	0.612	0.434
Islam	34(43.6)	44(56.4)		
Educational level				
None	17(58.6)	12(41.4)	6.329	0.097
Primary	39(45.9)	46(54.1)		
Secondary	46(39.7)	70(60.3)		
Tertiary	57(54.3)	48(45.7)		
Current marital status				
Married	153(49.7)	155(50.3)	7.598	0.022*
Widowed	5(23.8)	16(76.2)		
Divorced	1(16.7)	5(83.3)		
Type of marriage				
Polygamous	38(49.4)	39(50.6)	0.143	0.705
Monogamous	121(46.9)	137(53.1)		
Order of marriage (n=308)				
1 <sup>st</sup>	119(48.8)	125(51.2)	0.401	0.818
2 <sup>nd</sup>	32(53.3)	28(46.7)		
3 <sup>rd</sup>	2(50.0)	2(50.0)		
Duration of marriage (yrs)				
1-5	37(69.8)	16(30.2)	28.474	0.001*
6-10	43(55.8)	34(44.2)		
11-15	43(51.2)	41(48.8)		
Occupation				
Unemployed	22(42.3)	30(57.7)	7.457	0.189
Trading	54(45.8)	64(54.2)		
Farming	14(50.0)	14(50.0)		
Civil servant	33(42.9)	44(57.1)		
Employed in private org.	16(72.7)	6(27.3)		
Artisan	20(52.6)	18(47.4)		
Husband education				
None	15(50.0)	15(50.0)	0.961	0.811
Primary	19(41.3)	27(58.7)		
Secondary	45(46.9)	51(53.1)		
Tertiary	80(49.1)	83(50.9)		
Income				
<19,000	44(47.3)	49(52.7)	2.578	0.631
19,000-29,000	30(45.5)	36(54.5)		
30,000-40,000	19(46.3)	22(53.7)		
41,000-50,000	21(60.0)	14(40.0)		
>50,000	45(45.0)	55(55.0)		

\*statistically significant

**Table 4:** Logistic regression of predictors of intention to have more children among HIV positive women.

Variables	AOR	95% C.I.	P-value
Age			
≤29	2.231	1.066-4.668	0.033*
30-39	1.995	1,252-3.178	0.004*
≥40	1.0		
Marital status			
Married	4.935	0.570-42.737	0.147
Widowed	1.563	0.146-16.719	0.712
Divorced	1.0		
Number of living children			
0	11.000	1.334-90.688	0.026*
1	7.386	3.577-15.251	0.001*
≥2	1.0		
Use of contraceptives			
Yes	0.397	0.255-0.618	0.001*
No	1.0		
Duration of marriage (yrs)			
1-5	5.460	2.700-11.041	0.001*
6-10	2.986	1.647-5.415	0.001*
11-15	2.476	1.388-4.417	0.002*
>15	1.0		

\*Statistically significant

strongest with women in their earliest phase (1–5 years) of marriage. This may be because in the African context, children are expected to follow immediately after marriage and so most women may be under pressure to produce an offspring for their spouses. The implication will be that programme managers should direct interventions more towards women in the early phase of marriage.

This study also found out that the intention to have more children was significantly associated with the number of living children. It was found that those who had no living children had the strongest association and this decreased with increasing number of living children among these women. This is similar to findings from other studies in Nigeria, Ghana, Kenya, Ethiopia and even in the developed world [13,26–28,31]. This may be because of the high mortality among infants and under-fives in most developing countries and the low life expectancies in these regions. Consequently, these women try to give birth to as many children as they believe would survive to adulthood so that they can have someone to support them in the latter part of their life.

The intention to have children was negatively associated with the use of contraceptive. This is in keeping with studies in Ethiopia and Papua New Guinea [24,32]. Similarly, a multi-centre study conducted in some peri-urban communities in sub-Saharan Africa among women in the general population, showed that women who didn't want more children reported more contraceptive use compared to those who wanted more

children [33]. In spite of the differences between the study population (HIV positive women versus general population of women), the findings from our study suggest that WORA living with HIV have understood the importance of family planning practices which is being taught at each clinic visit and are practicing it. In contrast, a study conducted in Ontario, Canada did not show any significant association between current contraceptive use and fertility intention [34]. Similarly the current study revealed a substantial proportion of women who didn't desire children yet were not using contraceptives, this unmet need for family planning in this group is crucial as it affects maternal health, Maternal to child transmission of HIV and it contributes in no small measure to healthcare cost to the individuals, families and governments [35].

The number of living children, use of contraceptives and duration in marriage were identified as determinants of the fertility intentions of women living with HIV. The number of living children as a predictor of the desire for more children among HIV positive women is corroborated in several other studies in Nigeria, Kenya and Ethiopia [13,30,31]. The reasons are not far-fetched as in most African societies, the presence of children determine to some degree, the success or otherwise of a union. Furthermore, the ability to bear children in most African societies, influences a woman's identity, position and status [36]. The use of contraceptives was a determinant of fertility intentions. A significantly higher proportion of those who used contraceptives had less desire for more children. This is consistent with the finding in a study in Ethiopia [24]. On the other hand, the use of contraceptives did not emerge as a reliable predictor of fertility intention in another study in Ontario, Canada [34]. This differences in findings influencing fertility intention may be a reflection of the different reasons why contraception were needed, either for spacing or for limiting family size. The duration of marriage was found to be a predictor of fertility intentions of HIV positive women in this study. It revealed that HIV positive women who were in the early phase of their marriage (1–5 years duration) were five times more likely to desire more children compared to those who had been married for over 15 years. This is consistent with a study conducted in Ethiopia where it was found that marital length less than 4 years, within 5–9 years and 10–14 years were 5.5, 4.8 and 2.8 times more likely to have fertility desire as compared to those with marital length more than 15 years [31]. This may be due to the fact that most of those women who have been married for longer duration may have completed or are close to completing their family size compared to those with a shorter duration of marriage. It is also important to note that this could guide programme managers to direct specific interventions towards women in the earlier category so that they can be fully informed of their choices towards achieving reproductive health. Some studies in Ethiopia and Burkina Faso have shown that duration of HIV diagnosis, disclosure of HIV sero-status to partner and partner's sero-difference or discordance was a significant predictor of fertility desire [29,37]. This was, however, in contrast to the findings in this study as no significant association was found between these variables.



## Conclusion

The study highlighted the fact that women living with HIV have varied fertility intentions. The desire for more children was highest among women in the early phase of marriage and those with few children. While most that desired children wanted the next child within 2 years. Predictors of fertility desire found were contraceptive use, women less than 30 years, marriages of 1–5 years and those without children. Although the prevalence of contraceptive use among HIV positive women of reproductive ages in this study was found to be high, a substantial percentage of those who did not desire children did not use any form of contraceptives. Consequently, healthcare providers and policy makers need to pay greater attention to improving family planning services for HIV positive women while supporting those that desire pregnancies achieve healthy outcomes for mother and the unborn children.

## Author contribution

A G conceived the presented idea, AH and ZA developed the theory and supervised the intellectual content. AG was responsible for data acquisition, analysis and along with AR interpretation and writing of the manuscript. All authors discussed the results and contributed to the final manuscript.

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