

Fertility Desires and its Predictors among Persons Living with HIV in a Secondary Health Facility in Northcentral Nigeria

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Abstract

Introduction: Among people living with HIV (PLHIV), fertility desire which is the desire to have more children is increasing due to the improvement in quality of life and survival resulting from anti-retroviral treatment and also improved sexual and reproductive health services. Fertility desires can result in increased risk of HIV transmission, especially in unprotected heterosexual intercourse. There is limited information regarding the fertility desires and predictors among PLHIV in our environment. **Methods:** This study was aimed at assessing the fertility desires and predictors in PLHIV in Northcentral Nigeria. Study was descriptive cross-sectional. Semi-structured interviewer administered pretested questionnaires was used to get information from 170 PLHIV accessing care in a secondary health-care facility selected by the systematic sampling technique. Data were analyzed using the SPSS software version 23.0. At 95% confidence interval (CI), a $P < 0.05$ was considered to be statistically significant. Chi-square and logistic regression. **Results:** Fertility desire was found among 64.1% of the respondents. Younger age (odds ratio [OR] = 0.2270; 95% CI = 0.0662–0.7791, $P = 0.0184$), having no child or a smaller number of children (OR = 0.0432; CI = 0.0046–0.4050; $P = 0.0059$) and suppressed viral loads (OR = 4.1069; CI = 1.1650–14.4784; $P = 0.0280$) were the predictors for fertility desire. **Conclusion:** This study showed that PLHIV had high fertility desires but do not know any safe method of conception, hence intensified effort should be made by primary care providers and other health-care workers to include sexual and reproductive health counselling during routine HIV clinic visits to enable PLHIV make informed decision about their fertility desires.

Keywords: Antiretroviral treatment, fertility desire, health-care workers, HIV infection, Nigeria, PLHIV, predictors, reproductive health

INTRODUCTION

Among people living with HIV (PLHIV) fertility desire is increasing and this is associated with improvement in quality of life and survival due to anti-retroviral use and adequate reproductive health service.^[1,2] There is increased risk of HIV transmission associated with achieving fertility desires, especially with unprotected sexual intercourse. Information regarding the fertility desires and its predictors among PLHIV in our environment is limited; hence, the rationale of this study to provide information to guide health-care workers in providing reproductive health information to PLHIV, so they can make informed decision about their fertility desires to reduce risk of HIV transmission.

METHODS

Study design and study area

This study was a cross-sectional study to assess the fertility desires and its predictors among PLHIV who access care at one of the secondary healthcare facilities which provides

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comprehensive HIV/AIDS care in Plateau state, Northcentral Nigeria. Adult persons living with HIV (PLHIV) who were on ART and who were eligible to participate in the study were 1146. The HIV programme in this facility is integrated into the routine daily outpatient care of the health facility, so PLHIV is seen alongside with clients seeking care for other medical condition.

Bassa local government areas (LGAs) where this study was conducted are one of the 17 LGAs in the Plateau state. It has an area of 1743 km² and a population of about 200,000.^[3] Plateau state is the twelfth largest state out of 36 in Nigeria and has a population of about 3.5 million people with an area of 30,913 km².^[4]

Inclusion criteria

This study involved males and females who were aged 18 years and above and have been on antiretroviral (ARVs) for 6 months and above before time the study was conducted. This is a period expected for viral suppression to have taken place. Females who were outside the reproductive age group were however excluded since the study involved fertility desire.

Study sample size determination

Sample size formula for cross-sectional study was used to determine the minimum sample size^[5] with the component parts, $Z\alpha$ as the value of alpha error at 95% confidence level given as 1.96, P as prevalence of PLHIV with fertility desires which in a previous study was found to be 54.6%^[6] and d is the precision which was set at 15% of 54.6. A 15% possible nonresponse was considered and a minimum sample size of 170 was gotten.

Selection of study participants

Study participants were selected using the systematic sampling technique out of the 1146 PLHIV who were eligible to participate in the study. A sampling interval of 7 was derived by dividing the number of eligible participants by the minimum sample size. After the selection of the first participant using simple random sampling technique by balloting, the sampling interval of 7 was applied to select subsequent participants until the required sample size of 170 for the study was attained.

Data collection procedure

Prior to commencement of the study, advocacy visits were paid to both the administrators of hospital and the leaders of the PLHIV in the hospital to brief them on the rationale for the study and solicit their support in carrying out this study. A day training on how to administer the questionnaire was conducted for two doctors and three nurses who were staff of the hospital attached to the ART clinic in the hospital. They served as research assistants, on how to administer the questionnaires. The questionnaire used for this study was adapted^[6,7] and pretesting was done among PLHIV accessing HIV care in another comprehensive HIV care site in order to correct for any ambiguity and also for the assessment of face validity. Data collection was done from March to April 2019. Respondents were reassured of confidentiality and written

consents obtained from each of them before questionnaire administration.

Variables and grading of responses

The explanatory variables are sociodemographic characteristics and medical-related conditions (HIV status disclosure, partner's HIV status, and perceived current health status).

Their most recent viral load results were abstracted from the hospital record for each of the respondents and it was considered as suppressed if <1000 copies of HIV ribonucleic acid (RNA)/millilitre of plasma and unsuppressed if >1000 copies of HIV RNA/millilitre of plasma.^[8]

"How is your health in general?" was the question used to assess their perceived health status. Fair was scored 1, good scored 2, and very good was scored 3.^[9]

Fertility desire was the outcome variable. A respondent who intends to have a child or more children in future was considered to have fertility desire and respondents who do not intend to have a child or more children in future were considered as not to have fertility desires.^[10]

Predictors for fertility desires were the factors found to have statistically significant association following logistic regression.

Data processing and analysis

Data were processed and analysed using the Statistical Package IBM SPSS version 23.0 International Business Machines Corporation, Armonk, New York, United States of America. Age of the respondents was summarized using mean and standard deviation. Explanatory variables categorized as sociodemographic and medical-related characteristics were presented in frequency table expressed in frequencies and percentages. Furthermore, the outcome variable expressed as having fertility desire and not having fertility desire was presented in frequency table as frequencies and percentages.

Sociodemographic and medical-related characteristics found to have statistically significant association with fertility desires following Chi-square test were further subjected to logistic regression analysis to determine the predictors for fertility desires.

Using odds ratio (OR) and a confidence interval (CI) of 95%, a probability value of <0.05 was considered as statistically significant.

RESULTS

This study had a total of 170 PLHIV participants with females more (108 [63.5%]) than the males (62 [36.5%]). The average age of the study participants was 39.35 ± 8.32 years, with the age group 35–44 years having the highest frequency (79 [46.5%]) [Table 1].

About two-third (109 [64.1%]) of the respondents had the desires to have a child or more children and more than half (63 [58.7%]) of these desired to have 1–2 child/children

Table 1: Sociodemographic and medical-related characteristics and fertility desires

Variable	Frequency (%)
Sex	
Male	62 (36.5)
Female	108 (63.5)
Age group (years)	
≤34	56 (32.9)
35-44	79 (46.5)
≥45	35 (20.6)
Educational status	
No formal education	61 (35.9)
Primary	43 (25.3)
Secondary	44 (25.9)
Tertiary	22 (12.9)
Marital status	
Married	122 (71.8)
Single	10 (5.9)
Widowed	14 (8.2)
Divorced	17 (10)
Separated	7 (4.1)
Duration of marriage (years)	
≤4	25 (15.6)
5-9	27 (16.9)
≥10	108 (67.5)
Reasons for fertility desire	
Due to family pressure	9 (8.3)
To replace myself	26 (23.9)
Yet to achieve desired family size	59 (54.1)
In a new relationship	17 (15.6)
Duration since knowing HIV status (years)	
≤4	45 (26.5)
≥5	125 (73.5)
Duration on ARVs (years)	
≤4	55 (32.4)
≥5	115 (67.6)
ART use increased fertility desire	
No	80 (47.1)
Yes	90 (52.9)
Discussed fertility desire with healthcare provider	
No	168 (98.8)
Yes	2 (1.2)
Knowledge of any safe method of conception	
No	170 (100)
Yes	0
HIV status disclosure	
Disclosed	159 (93.5)
Not disclosed	11 (6.5)

ARVs: Antiretroviral, ART: Antiretroviral therapy

and their reason for fertility desires was yet to complete desired family size. Treatment with ARV drugs increased the fertility desire in more than half (90 [52.9%]) of the respondents. Only 2 (1.2%) of the respondents have ever discussed their fertility desires with their health-care providers while none of the respondents had an idea on any method of conception that is safe to reduce HIV transmission risk [Table 1].

More than half (93 [54.7%]) of the respondents had 1–3 children, and more than one-third (69 [40.6%]) of the respondents had partners with sero-discordant and unknown HIV status. Almost all (166 [97.6%]) respondents considered their health status to be good and very good while majority (145 [85.3%]) had their viral loads suppressed [Table 2].

The factors found to be associated with fertility desire in this study included age, marital status, number of children, current viral load, duration of marriage, and duration since knowing HIV status [Table 2].

With regard to predictors of fertility desires, the odds of having fertility desire among respondents with age ≤34 years were 0.23 times more than those with age ≥45 years ($P = 0.0184$; OR 0.2270; 95% CI 0.0662–0.7791). Furthermore, respondents with no child had 0.13 times fertility desires compared to those with 1–3 child/children ($P = 0.1281$; OR = 0.0144–1.1364; CI = 0.0650). Furthermore, respondents with unsuppressed viral loads were 4.11 times with less fertility desire compared to those with suppressed viral load (OR = 4; 1069; 95% CI = 1.1650–14.4784; $P = 0.0280$) [Table 3].

DISCUSSION

Most of the studies on fertility desires among PLHIV focused on pregnant women in ante-natal clinic settings but this study included men, nonpregnant women and persons who are not married to get a broader understanding of the subject matter. In this study, majority of the respondents had disclosed their HIV status to their partners. HIV disclosure is important for care and support for PLHIV since they will likely get the necessary support and care from their partners following disclosure and this can result in retention in care and improved treatment outcome, with a resultant reduction in the risk of horizontal transmission and also vertical transmission for those having fertility desires. Some of the respondents were in a HIV discordant relationship and another few did not know the HIV status of their partners, and this can consequently increase the risk of HIV transmission to their partners. These findings were similar to the results of studies done in Ethiopia, Uganda and Tanzania, and Nepal.^[6,10-12] The findings on disclosure of HIV status in this study were however higher than that observed in Togo.^[13] This may be due to the effect of repeated counseling done for patients on ART on their clinical visits to the hospital.

About two-third of the respondents in this study had fertility desires and this finding was consistent with reports in similar studies conducted in Canada, Congo DR and Jamaica.^[14-16] With this knowledge about the fertility desires of PLHIV, health-care providers will be better equipped to provide counseling and information on sexual and reproductive health to PLHIV to prevent unplanned pregnancies and also HIV transmission. Fertility desires were found more in the females compared to the males in this study and this finding was similar to findings in Osogbo South-west Nigeria.^[17] Respondents in other similar studies done in Addis Ababa Ethiopia, Eastern Ethiopia, Uganda, Tanzania, Brazil, Kenya, Southern Ethiopia,

Table 2: Relationship between social demographic characteristics, medical-related conditions, and fertility desires

Variables	Fertility desires		Total	X	P
	Yes	No			
Sex					
Female	72 (66.7)	36 (33.3)	108	2.35	0.1255
Male	34 (54.8)	28 (45.2)	62		
Age					
≤34	45 (80.5)	11 (19.6)	56	22.02	0.0000
35-44	50 (63.3)	29 (36.7)	79		
≥45	11 (31.4)	24 (68.6)	35		
Education status					
No formal education	35 (57.4)	26 (42.6)	61	1.78	0.6191
Primary	30 (69.8)	13 (30.2)	43		
Secondary	28 (63.6)	16 (36.4)	44		
Tertiary	13 (59.1)	9 (40.9)	22		
Marital status					
Divorced	11 (64.7)	6 (35.3)	17	12.11	0.0165
Married	71 (58.2)	51 (41.8)	122		
Separated	7 (100)	0	7		
Single	10 (100)	0	10		
Widowed	7 (50.0)	7 (50.0)	14		
Disclosure of HIV status					
No	8 (72.7)	3 (27.3)	11	0.54	0.4627
Yes	98 (61.6)	61 (38.4)	159		
Partners HIV status					
Negative	22 (48.9)	23 (27.3)	45	4.51	0.1048
Positive	64 (65.3)	34 (34.7)	98		
Unknown	17 (70.8)	7 (29.2)	24		
Perceived health status					
Fair	3 (75)	1 (25)	4	3.59	0.1659
Good	31 (73.8)	11 (26.2)	42		
Very good	72 (58.1)	52 (41.9)	124		
Current viral load					
Suppressed	85 (58.6)	60 (41.4)	145	5.58	0.0155
Unsuppressed	21 (84)	4 (16)	25		
Duration of marriage (years)					
≤4	21 (84)	4 (16)	25	14.06	0.0009
5-9	54 (50)	54 (50)	108		
≥10	21 (77.8)	6 (22.2)	27		
Number of children					
0	21 (95.5)	1 (4.5)	22	28.34	0.0000
1-3	65 (69.9)	28 (30.1)	93		
≥4	20 (36.4)	35 (63.6)	55		
Duration since HIV infection (years)					
≤4	34 (75.6)	11 (24.4)	45	4.54	0.0330
≥5	72 (57.6)	53 (42.4)	125		
ART duration (years)					
≤4	40 (72.7)	15 (27.3)	55	3.73	0.0535
≥5	66 (57.4)	49 (42.6)	115		

ART: Antiretroviral therapy

Table 3: Multiple logistic regression analysis of predictors of fertility desires

Variables	OR	95% CI	P
Age			
35-44/≤34	0.7648	0.2911-2.0094	0.5865
≥45/≤34	0.2270	0.0662-0.7791	0.0184
Number of children			
1-3/0	0.1281	0.0144-1.1364	0.0650
≥4/0	0.0432	0.0046-0.4050	0.0059
Duration of marriage			
≥10/≤4	0.4903	0.1304-1.8435	0.2915
5-9/≤4	0.7433	0.1725-3.2026	0.6905
HIV duration			
≥5/≤4	0.4128	0.1606-1.0612	0.0663
Current viral load			
Suppressed/unsuppressed	4.1069	1.1650-14.4784	0.0280
Marital status			
Married/divorced	2.3278	0.5671-9.5547	0.2409
Separated/divorced	682680.477	0.000->1.0E12	0.9611
Widowed/divorced	0.7889	0.1318-4.7210	0.7951

OR: Odds ratio, CI: Confidence interval

Uganda and Western Ethiopia were found to have lower fertility desires compared to those of this study.^[6,7,10,11,18-22] This may be due to the high fertility rate in the Northern Nigeria^[17] and may also be related to the practice of marrying more than one wife which is prevalent in the Northern part of Nigeria where this study was done.

Although this study found that age, marital status, number of children, current viral load, duration of marriage, and duration since knowing HIV status were the factors associated with fertility desires; however, multiple regression analysis of these factors showed age, number of children, and current viral loads as the predictors of fertility desires. Respondents with age ≤34 years were 0.23 times more likely to have fertility desires compared to those ≥45 years and also 0.76 times more likely to have fertility desires compared to those from 35 to 44 years. Furthermore, respondents with no child had 0.13 times fertility desires compared to those with 1–3 child/children and 0.04 times more compared to those with ≥4 children. In addition, respondents who had unsuppressed viral loads were 4.11 times less likely to have fertility desire compared to those with suppressed viral loads. These findings were similar with that of other studies in Uganda, Tanzania, Nepal, Canada, Congo DR, Jamaica, Western Nigeria, Central Brazil, Nairobi Kenya, Ethiopia, and Northern Nigeria, Southwest Ethiopia, South Africa and other parts of the world.^[10-12,14-19,23-27] Respondents who were of the younger age group may not have achieved their desired family size, hence the desire for more children found to be associated more in this group. Furthermore, those of the respondents with suppressed viral load may have considered their health status as very good following the use of ARVs and this may also explain the increased odds of having fertility desire

found to be associated with suppressed viral load in this study. Moreover, knowing the factors associated with fertility desires in PLHIV could be a determinant for health-care providers to adopt targeted counseling approach to meet the needs of providing information to clients who present with these identified associated factors, especially where there are insufficient human resources for health.

Some other reasons found in this study for having fertility desire were family pressure, to replace oneself, and new relationship. This was similar to a study done in Ethiopia.^[7,12] These findings may be associated with cultural practices in Nigeria where the society and family members have influences in deciding family sizes. Social and family pressure maybe as a result of nondisclosure of HIV status. Health-care providers can be of help by providing support for PLHIV to disclose their status to their partners to improve retention in care and treatment outcomes and ultimately reduce the risks of vertical and horizontal transmissions of HIV among those with fertility desires.

Although the respondents in this study had fertility desires, none of them knew any safe method of conception that could reduce the risk of transmission of HIV to their uninfected partners and also prevent infection with different strains of HIV. Also, almost all of the respondents have never discussed their fertility desires with their health-care providers. This may be attributed to the attitude of the health-care workers and also increased workload which can hinder the health-care providers from giving sufficient time to their clients during routine clinic visits. This finding from this study is a concern and health-care providers should intensify efforts in providing information on safer methods of conceptions to PLHIV, especially those in sero-discordant relationships as part of care during routine clinic visits to protect uninfected partners and also encourage PLHIV to discuss their fertility desires and make informed decisions.

CONCLUSION

This study revealed that there was high fertility desire among PLHIV with the predictors of fertility desires as younger age, no or small number of children and suppressed viral load. However, PLHIV do not know any safe method of conception and also did not discuss their fertility desires with their care providers. Consequently, intensified effort should be made by health-care providers to include sexual and reproductive health counseling during routine clinic visits and also dedicate sufficient time to allow PLHIV to discuss their fertility desires during such visits to reduce the risk of HIV transmission.

Research quality and ethics statement

This study was approved by the Institutional Review Board/Ethics Committee of the Jengre Seventh-day Adventist Hospital (JSDAH/IRB/002/2019-02). The authors followed applicable EQUATOR Network (<http://www.equator-network.org/>) guidelines during the conduct of this research project.

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Conflicts of interest

There are no conflicts of interest.

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