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## PUBLIC HEALTH RESEARCH

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### Risk Taking Sexual Behaviors among Antiretroviral Therapy Patients in Lafia, Nigeria; A Cross Sectional Survey

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#### ABSTRACT

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**Introduction** The HIV Prevalence in Nasarawa State, Nigeria is 7.5% which is above the national average of 4.1%. HIV prevention efforts have however not sufficiently targeted HIV-positive individuals partly due to inadequate data on their risk taking behaviours. The objective of the study was to determine sexual behaviours of Persons living with HIV (PLHIV) receiving antiretroviral therapy at the Dalhatu Araf Specialist Hospital, Lafia, Nigeria.

**Methods** The study was a cross-sectional survey among PLHIV receiving antiretroviral therapy. Structured questionnaire was administered to randomly selected 320 Patients on antiretroviral therapy at Dalhatu Araf Specialist Hospital, Lafia, Nigeria. Data was collected on sociodemographic characteristics and sexual behaviours such as use of condom and sex with non spousal partners.

**Results** About eighty seven percent (87.2%) of men and 34.4% of women were sexually active. Almost two third of the male participants (65.5%) and 6.7% of female participants reported having sex with a non regular partner in the previous six months. Participants who were males ( $P < 0.001$ ), younger age ( $P < 0.001$ ), who had primary education or lower ( $P < 0.001$ ), who did not disclose their HIV status ( $P < 0.001$ ) and who were unmarried ( $P < 0.001$ ) were more likely to engage in sex with non-regular partners. Among the sexually active participants, 60.7% of females and 17.5% of males had unprotected sex at last sexual intercourse with their regular sexual partners.

**Conclusions** Sexual risk taking behaviours are high among persons receiving antiretroviral therapy in Lafia, Nigeria. Age, gender, level of education and disclosure of HIV positive status are associated with risk taking behaviours of PLHIV. People living with HIV need to be targeted for prevention interventions including peer education and interpersonal communication.

**Keywords** People Living with HIV - Condom use - sexual partner.

## INTRODUCTION

Estimates from the Antenatal care HIV sentinel survey of 2010 show that Nasarawa State has an HIV Prevalence of 7.5% placing the state above the national average of 4.1% and as the seventh highest in the Nigeria<sup>1</sup> while survey of the general population estimates HIV prevalence to be 8.1% compared to the national average of 3.6%.<sup>2</sup> The state had witnessed a steady increase in HIV prevalence from 6.5% in 2003 to 6.7% in 2005 and 10% in 2008<sup>3,4,5</sup>. Accordingly, the state, with support from International Development partners is providing treatment to persons living with HIV/AIDS in a number of Health facilities<sup>6,7</sup>.

Recently the Nasarawa State AIDS Control Agency (NASACA) and its partners have decided to focus more attention on the prevention of new infection to reduce the treatment and prevention gap as well as to reduce the incidence of new infections in the state. This became more imperative following the HIV Transmission modelling which has suggested that close to half of new HIV infections in the state would occur amongst persons who reported low risk behaviour, a sub-population that includes cohabiting or married sexual partners.<sup>8</sup>

Studies on the risky behaviours among persons living with HIV (PLHIV) showed varying results. In Zimbabwe, among sexually active PLHIV, 83% of last sexual acts were unprotected, and less than 48% of sex with a non-spousal partner in the previous year were protected.<sup>9</sup> Individuals in HIV discordant partnerships in Brazil and PLHIV accessing antiretroviral therapy (ART) in Eastern Uganda also shown to continue to engage in frequent HIV transmission risk.<sup>10,11</sup> However, in a study in Canada, there was no increase in sexual activity among PLHIV after 12 months of ART initiation.<sup>12</sup>

HIV prevention efforts such as Information, Education and Communication interventions, HIV Counselling and Testing, condom programming and creation of conducive legal and policy environment in Nasarawa state have not yielded the desired results partly due to paucity of data including risk taking behaviours among the different target groups.<sup>13</sup> HIV positive persons require knowledge and skills to protect themselves and others from re-infection and infection respectively. In order to mount evidence-based Prevention interventions among HIV-positive adults, there is a need to assess HIV risk behaviours among this population as well as to determine factors associated with such behaviours.

The study was aimed at determining the prevalence of risky sexual behaviors and the factors associated with such behaviors among Persons living with HIV (PLHIV) attending ARV clinic at the Dalhatu Araf Specialist Hospital, Lafia, Nigeria (DASH)

## MATERIALS AND METHODS

### *Study Settings*

The study was conducted at the Dalhatu Araf Specialist Hospital, Lafia, Nasarawa State, the only state owned tertiary Health institution in Nasarawa State, Nigeria. Patients attending the Hospital were from the southern and northern senatorial zones of the state as well as from the neighbouring Benue and Taraba states of Nigeria. The ARV Programme of the Hospital, supported by Institute of human Virology Nigeria, was commenced in 2006. As at the time of this study, cumulative enrolment was over 9,000 PLHIV and about 5,000 of them were on antiretroviral therapy.

### *Study Design/Population*

The study was an analytical cross-sectional study conducted among persons living with HIV (PLHIV) registered at the Antiretroviral Clinic of Dalhatu Araf Specialist Hospital, Lafia. All PLHIV who aged 18 years and above, who had been on ART for at least six months at the time of the study and who gave informed consent were included in the study. PLHIV who were severely ill necessitating admission at the time of the study were excluded from the study.

### *Sample Size Estimation*

The sample size was calculated based on assumptions of a prevalence of reported 40.4% of PLHIV who engage in unprotected sex in a previous study<sup>14</sup> and a significance level of 0.05 using the formula below:

$$n = \frac{Z^2 P (1-P)}{d^2} \quad 15$$

### *Data Collection*

The instrument of data collection was a structured questionnaire which was administered by research assistants drawn from the membership of support groups of PLHIV, a group of people living with HIV and AIDS to minimise the impact of stigma on data collection. The questionnaires were administered on clinic days, Mondays and Thursdays to a randomly selected sample of 320 PLHIV on ART at the Dalhatu Araf Specialist Hospital between November 2011 and January 2012. The purpose of the research was explained to each of the respondents who were then asked to provide a signed consent before the administration of the questionnaire. Information was obtained on patient's socio-demographic profile, disclosure of HIV status to partner, duration on ARV treatment, sexual practices such as condom use and sex with non spousal partners. A short training was conducted for the research assistants on the interview skills, methodology of the study, ethical issues and the process of collecting good quality data.

**Data Analysis**

Data was summarized in a spreadsheet, collated and analyzed using SPSS statistical package (version 17). The prevalence of sexual activity in the previous one year, risky behaviours such as sex with non regular partner and non condom use in the last sexual act were determined. Association between the above and sociodemographic characteristics such age, gender, and occupation was determined using chi square test. P-value of 0.05 or less was considered statistically significant. Logistic regression was conducted to determine the association between having sex with non spousal partner and a number of factors including gender, age, and duration on ART, disclosure, marital status and educational attainment.

**Ethical Consideration**

Approval for the study was obtained from the Research and Ethical Committee of Dalhatu Araf

Specialist hospital, Lafia. Written consent was obtained from all respondents after explaining the aims and objectives of the study to all participants in English and translated into Hausa and other languages where necessary. In order to guarantee anonymity of each participant, the names of respondents, addresses and other identification information were not indicated in the questionnaire.

**RESULTS****Socio-demographic Characteristics**

Majority of the study subjects were females (60.9%) and more than half (55%) were aged 34 years or less. About half of the participants (49.9%) had secondary education or above while 23.9% had no formal education. Majority of the participants were married (62.2%) and employed (73.1%). (Table 1).

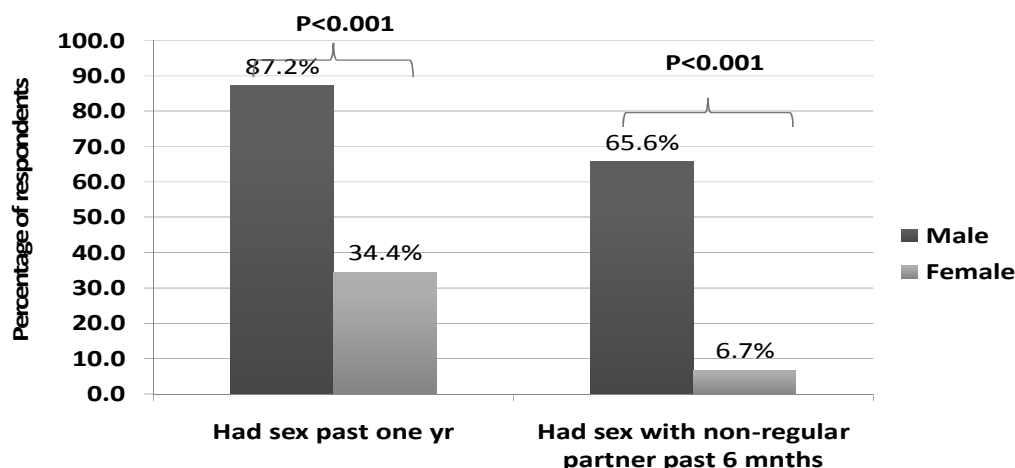
**Table 1** Socio-demographic Characteristics

Variable	Frequency (n)	Relative Frequency (%)
<b>Gender</b>		
Male	125	39.1
Female	195	60.9
<b>Age group (yrs)</b>		
- 15-24	32	10.0
- 25-34	144	45.0
- 35-44	104	18.4
- ≥45	40	19.7
<b>Educational Level</b>		
- No formal education	76	23.8
- Primary	84	26.3
- 2 or above	160	49.9
<b>Currently Employed</b>		
- Yes	234	73.1
- No	86	26.9
<b>Marital Status</b>		
- Divorced	35	10.9
- Married	199	62.2
- Single	35	10.9
- Widow	51	16.0

**Sexual Activity by gender among PLHIV on ART in Lafia, Nigeria**

Majority of the males participants (87.2%) have had sex in the previous one year while 34.4% of female respondents had sex in the previous one year. Among the male participants, 65.6% had sex with a non regular partner in the previous six months while among the females, 6.7% had sex

with a non-regular partner in the previous six months. There was a statistically significant difference between male and female respondents with respect to having sex in the previous one year and sex with non regular partner in the past six months. ( $P < 0.001$ ). Figure 1.



**Figure 1:** Sexual Activity by gender among PLHIV on ART in Lafia, Nigeria

**Condom use by PLHIV on ART in Lafia, Nigeria**

Majority of the male respondents used condom at last sexual encounter with a regular partner (80%) while only 39.3% of female used condom at their last sexual encounter. The difference in condom used last sexual encounter between male and

female respondents was statistically significant ( $P < 0.001$ ). In the previous one year prior to the study, only 28% of males, and 14% of females used condom with regular partners consistently. The difference was significance ( $P < 0.001$ ). Table 2.

**Table 2** Condom use by PLHIV on ART in Lafia, Nigeria

Condom use with regular partner during the last Sexual encounter*	Female		Male		P value
	n	%	n	%	
- No	91	60.7	17	17.5	$< 0.001$
- Yes	59	39.3	80	82.5	
Condom use with regular partner in last one year**					
- Consistent	14	7.2	28	22.4	$< 0.001$
- No or inconsistent	114	58.5	65	52.0	
- Not applicable	67	34.4	32	25.6	

\*Participants who had regular partners only

\*\*Participants who had regular partners and had sex in the last one year only

**Factors associated with sex with Non-regular partner in the last six months among PLHIV on ART in Lafia, Nigeria**

Respondents who were older than 29 years were more likely to have had sex with a non-regular partners (28.6%) compared those aged 29 years or below (9.7%) the difference was significant ( $P = 0.003$ ). Male respondents were significantly more likely than female to have had sex with a non-regular sexual partner (39.4.6% versus 10.2%,  $P < 0.001$ ), while those with secondary education and above were more likely than those with primary or

no formal education ( $P < 0.001$ ). Respondents who shared their HIV status with their partners and those who were unmarried were less likely to have sex with non regular partner in the past six months. Employment status and membership of support were not significantly associated with sex with non-regular partner ( $P=0.524$  and  $P=0.426$  respectively). About 1/3<sup>rd</sup> of the respondents who had ART for 2years or less had sex with a non spousal partner in the previous six months while 20.3% of those had been on ART for more than 2 years had sex with non spousal partners in the

previous six months. There was a statistically significant difference between sex with non spousal

partner and duration on ART. The difference was statistically significant (0.041). Table 3.

**Table 3** Factors associated with sex with Non-regular partner in the last six months among PLHIV on ART in Lafia, Nigeria

Variable	Had sex with Non-regular partner in the last six months*				P-value	
	Yes		No			
	n	%	n	%		
<b>Age (yrs)</b>						
-	≤ 29 years	6	9.7	56	90.3	0.003
-	≥ 30 years	50	28.6	125	71.4	
<b>Sex</b>						
-	Female	13	10.2	115	89.8	<0.001
-	Male	43	39.4	66	60.6	
<b>Education Status</b>						
-	Primary or below	12	11.3	94	88.7	<0.001
-	Secondary or above	44	33.4	87	66.4	
<b>Marital status</b>						
-	Unmarried	29	15.5	158	84.5	<0.001
-	Married	27	54.0	23	46.0	
<b>Employment status</b>						
-	Employed	47	24.5	145	75.5	0.524
-	Unemployed	9	20.0	36	80.0	
<b>Shared HIV positive status partner</b>						
-	No	10	71.4	4	28.6	<0.001
-	Yes	46	20.6	177	79.4	
<b>Duration on HAART</b>						
-	≤ 2yrs	20	33.3	40	66.7	0.041
-	> 2yrs	36	20.3	141	79.4	

\* Sexually active respondents only

#### Factors associated with sex with Condom use at last sexual encounter with regular partner

Among participants aged 30 years and above, 68.6% used condom at last *sexual encounter* with a regular partner while 51.7% of those aged 29 years and below used condom at last sex with a regular partner. The association between condom use at last sexual encounter with a regular partner and age was significant. More males than females used condom at last sex with a regular partner (83.9% vs 48.8% respectively), ( $P < 0.001$ ). There was no statistically significant association between

condom use at last sex with regular partner and employment status, membership of support group and duration on ART. Participants whose partners were HIV negative were more likely to use condom at their last sexual encounter (72.1%) compared to 65% among those whose partners were HIV positive. Among those who did not know their partners status, only 25% use condom at last sexual encounter. There was a statistically significant association between condom use at last sex with a regular partner and HIV status of the partner. (0.037, Table 4).

**Table 4** Factors associated with sex with condom use at last sexual encounter with regular partner\*

Variable	No		Yes		P-value	
	n	%	n	%		
<b>Age (yrs)</b>						
-	≤ 29 years	28	48.3	30	51.7	0.022
-	≥ 30 years	49	31.4	107	68.6	
<b>Sex</b>						
-	Female	62	51.2	59	48.8	<0.001
-	Male	15	16.1	78	83.9	
<b>Employment Status</b>						
-	Employed	63	38.7	100	61.3	0.146
-	Not employed	14	27.5	37	72.5	

## Sexual Risks Taking Behaviors

<b>HIV Status of Partner</b>						
-	Positive	57	35.0	106	65.0	0.037
-	Negative	12	27.9	31	72.1	
-	Don't know	6	75.0	2	25.0	
<b>Membership of Support Group</b>						
-	No	43	35.5	78	64.5	0.877
-	Yes	34	36.6	59	63.4	
<b>Duration on HAART</b>						
-	≤ 2yrs	22	37.9	36	62.1	0.717
-	> 2yrs	55	35.3	101	64.7	

\* For respondents with regular sex partners only

### Logistic regression model of factors predicting sex with non regular partner in the last six months among patients on antiretroviral treatment in DASH, Lafia, Nigeria.

In bivariate analysis, the odds of having sex with a non regular were more likely among males compared to females (OR=9.8, P< 0.001), those aged 30 years and above (OR=28.33, P< 0.001) and those currently married when compared to those not currently married ( OR= 9.36, P< 0.001). Participants who had secondary education and

above were more likely to have sex with non regular partner compared to those with primary education and less (OR=14.63, P< 0.001) while respondents who did not share their HIV status were more likely to have sex with non regular partner than those who shared their status (OR= 11.07, P=0.001). Those who had been on ART for more than two years were less likely to engage in sex with non regular partner when compared with those who have had been on ART for less than two years. (OR= 0.37, P=0.018).

**Table 5** Logistic regression model of factors predicting sex with non regular partner in the last six months among patients on Antiretroviral treatment in DASH, Lafia, Nigeria

	OR	95% CI	P-value
<b>Age</b>			
-	Reference		
-	28.3	7.46	107.56
<b>Gender</b>			
-	Reference		
-	9.8	3.74	25.80
<b>Marital status</b>			
-	Reference		
-	9.4	3.20	27.34
<b>Education status</b>			
-	Reference		
-	14.6	4.94	43.32
<b>Shared HIV positive status</b>			
-	Reference		
-	11.1	2.55	48.08
<b>Duration on HAART</b>			
≤ 2yrs	Reference		
> 2yrs	0.4	0.17	0.85

## DISCUSSION

Majority of the participants were female which is in agreement with several previous studies conducted among PLHIV on antiretroviral therapy in Ibadan, Nigeria<sup>16</sup> and in Uganda.<sup>17</sup> Sexual activity in the previous one year was high in men and lower in female (P< 0.001). This is similar to findings from Wales (76%), Zimbabwe (90% among men and 74% among women). Men were also more likely to have had sex with non-regular

sex partner in the past six months (P< 0.001). This finding is similar to findings from previous studies in Zimbabwe which showed that men living with HIV were significantly more likely than women to have sex with non- spousal partners<sup>10</sup> and in Ogun State, Nigeria, where men were significantly more likely to have multiple sexual partners in the previous six months than women.<sup>18</sup>

Our study therefore show that men who are on ART are more likely to engage in risky

sexual practices (65.6%) than females (6.7%). The proportion of men who had sex with non spousal partner in our study is higher than finding from the Nigeria National HIV/AIDS and Reproductive Health survey which revealed that 29.7% of males in the general population and 11.0% of females had sex with a non spousal partner in the previous one year.<sup>2</sup> Control of HIV transmission can only be successful if the scale up of antiretroviral therapy is combined with sexual risk reduction particularly among people living with HIV.<sup>19</sup> The high rate of sexual activity with non spousal partners among male PLHIV on ART as observed in our study as is therefore a wakeup call on implementers of HIV prevention interventions as well as policy makers to intensify efforts aimed at sexual risk reduction among PLHIV on ART.

Majority (82.5%) of male respondents used condom at last sex with a regular partner while only 39.3% of females used condom at last sex with their regular partner. Men were also more likely to use condom consistently with their regular partners in the last one year. Condom use was higher in our study than in Enugu, Nigeria, where it was observed that among the sexually active PLHIV, 27.9% used condom consistently.<sup>2</sup> In Zimbabwe, only 14% of HIV-Positive men who had sex in the past year reportedly used condom consistently with women less likely to use condom than men.<sup>9</sup> The relatively high condom use among our respondents may be as a result of increased condom programming including demand creation and availability of condoms in the state. In many developing countries, the male partners are the main decision makers. However consistent condom use among female respondents is low and is a pointer to inability of women to take decisions concerning matters related to reproductive health in our environment due mainly to cultural factors. The man is the head of the household and also takes decisions in sexual matters especially in a marital relationship. This is worsened by resistance by some religious groups towards condom use among their members. There is need to target women living with HIV in condom promotion. Religious leaders should be involved in the campaigns to promote condom use among people living with HIV while free condom distribution should be intensified.

This study also found that 27.9% of respondents did not use condom at the last sexual encounter with their HIV negative regular partners while 75% of those who did not know their partners' HIV status did not use condom at their last sexual encounter. These findings imply that condom use was higher among partners who were aware of their partners HIV status. Lack of knowledge of partners HIV status among people living with HIV therefore poses a great risk of HIV transmission among the couples. Also important is

the fact that among discordant couples, some of them still do not use condom during sex. These call for couple counselling, intensification of condom promotion among people living with HIV and measures to reduce stigma against living with HIV. People on ART should be encouraged to disclose their HIV status to their partners and to use condoms consistently.

Logistic regression modelling revealed that older age, male gender, being married, having secondary education or above, non disclosure of status and duration on ART less than 2 years were associated with sex with non regular partner in the past six months. This finding is similar to study in Zimbabwe PLHIV who knew their partners HIV status were less likely to have sex with a non spousal partner, and that females were significantly less likely to have sex with a non spousal partner.<sup>9</sup> Our findings were however in disagreement with the Zimbabwean study which revealed that PLHIV with secondary education or higher were significantly less likely to have sex with a non spousal partner compared with primary or no education and that those aged 25 – 34 years HIV positive were less likely than 15 – 19 years to have sex with non-spousal partner.<sup>9</sup> Respondents who had been on ART for more than two years were more likely to engage in sex with non regular partner. This may be because they had regained health substantially to lead a normal life. It therefore implies that as HIV patients on ART regain their health, we should begin to worry about risk taking behaviours among them.

A major strength of this study was that interview was conducted by trained people living with HIV thus reducing the changes of holding of information by the respondents. However, one limitation of this study is that because of the low literacy level of most respondents, the questions were interviewer administered therefore liable to some information bias especially as some of the questions were very sensitive. In addition, the culture is generally more tolerant on men's sexual behaviours, so women would tend to under report sexual behaviours than men.

## CONCLUSION

The findings of this study provide a window of opportunity to policymakers and implementers of HIV prevention programmes. The relatively high level of sexual activity including risky sexual behaviours among people living with HIV/AIDS in this study suggests that more pragmatic interventions should be targeted at them. The risk of acquiring new variants of HIV as well as other sexually transmitted infections and perhaps more importantly the risk of transmitting HIV to non-infected partners needs to be appropriately communicated to PLHIV. The importance of disclosure of HIV positive status to partners cannot

be overemphasized. HIV positive women should be encouraged to be more assertive while consistent condom use by all PLHIV should be encouraged. Ongoing interventions such as interpersonal communications and peer education programmes should be scaled up among PLHIV. Laws prohibiting all forms of stigma and discriminations against PLHIV should be put in place and enforced accordingly to encourage disclosure of HIV status and increase access to HIV services.

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