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Research Article

Disclosure and Safe Sex Practices Among People Living with HIV/AIDS Attending Art Clinic at The University of Ilorin Teaching Hospital, Ilorin, Nigeria

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Abstract

Disclosure is an important aspect of HIV/AIDS control. Reduced surveillance on disclosure may make unsafe sex practices go unnoticed among HIV positive clients, thus precipitating new infections. This survey was designed to assess HIV-status disclosure and safe sex practices among HIV positive clients attending Anti-retroviral Therapy Clinic at the University of Ilorin Teaching Hospital, Ilorin, Nigeria and determine the association between them. The survey was cross-sectional in design and a systematic random sampling technique was used to recruit 454 respondents. A semi-structured interviewer-administered questionnaire was used to collect relevant information. Safe sex practice was measured as “proportion of HIV positive clients who or the partner used condom during the last sexual intercourse”. Data were analyzed using descriptive statistics, Chi-square test and logistic regression at $p < 0.05$. Respondents’ mean age was 43.3 ± 10.3 years, females accounted for 73.8% and 81.1% were currently married. Sixty-five percent had disclosed their HIV-status to their sexual partners. Forty-eight percent had sexual intercourse in the preceding three months and 43.4% engaged in safe sex practices. Predictors of safe sex practices were male (OR: 1.938; CI=1.191–3.156; $p=0.008$) and knowledge about partners’ HIV status (OR: 2.163; CI=0.502–1.505; $p=0.01$). Many HIV positive clients had disclosed their HIV-status to their sexual partners. However, disclosure was not associated with safe sex practices. More innovative strategies are needed to promote disclosure rate and safe sex practices among HIV positive clients.

Key Words: HIV-status disclosure, Sexual partners, Safe sex practices, Condom use

INTRODUCTION

Human immunodeficiency virus infection (HIV) and acquired immunodeficiency syndrome (AIDS) epidemic remains a serious health and developmental challenge globally (WHO, 2013). The burden is still high (UNAIDS, 2014; UNICEF, 2016) and it is worse among women and adolescent girls all over the world (UNICEF, 2018). In Nigeria, the HIV burden in adults aged 15-49 years was 2.9% (UNAIDS, 2016). Among the nations of the world, Nigeria has the second highest HIV burden and has one of the largest new infections in sub-Saharan Africa (UNAIDS, 2017). Despite the high burden, about 30% of those infected are not aware of their HIV-status.

The negative effects of HIV/AIDS on the world are on the increase due to rising new infections and this will continue to challenge the primary aim of HIV control/prevention programme (Yadeta *et al.*, 2011). Globally, approximately 5,700 people were newly infected with HIV (UNICEF, 2016). Several reasons may account for high new infection rate. First, lack of awareness of HIV-status among infected individuals. A report revealed out of the 35 million people living with HIV/AIDS, 19 million were ignorant of their status (UNAIDS,

2014). Unsafe sex among people living with HIV/AIDS (PLWHA) accounts for another reason for new infections. Many people further engage in risky sexual behaviours which may continue to drive transmission of the virus (Yadeta *et al.*, 2011). The association between Voluntary Counselling and Testing (VCT), and reduction in risky sexual behaviours has been documented, with consequential benefit of prevention of HIV transmission and infection (Group VH-CaTES, 2000). Risky sexual practices among PLWHA remains a public health challenge due to the risk of HIV transmission to sero-discordant partners (Abiyot and Abebaw, 2017). Risky sexual behaviours include premarital sex, multiple sexual partners, unprotected sex, and others. Many studies had reported that risky sexual practices were prevalent among PLWHA in Africa including Ethiopia, South Africa, Togo, Ghana and Nigeria (Deribe *et al.*, 2008; Dessie *et al.*, 2011; Madiba & Letsoalo, 2014; Yaya *et al.*; Ncube *et al.*, 2012; Ikechebelu *et al.*, 2009). Third, non-disclosure of HIV-status to sexual partners may lead to new and high infection rates. Refusal to disclose HIV-status has often been associated with risky sexual behaviours (A Moran, 2012). Conversely, disclosure may facilitate debate on safe sexual practices or enhance negotiation of protection to prevent HIV (Simoni *et al.*, 2004).

Few studies have been conducted on the relationship between HIV-status disclosure and safe sex practices (Adebiyi and Ajuwon, 2015). Previous research in the study area showed that disclosure rate was low (39.5%) among PLWHA who were assessing HAART clinic in the study site (Salami *et al.*, 2011). This may increase risky sexual practices and new HIV infection rate and development of resistant strains. Safe sex practices among the clients/patients assessing treatment have not been assessed since ART commencement at the comprehensive treatment and care centre in Ilorin, Nigeria. In addition, little is known about the relationship between disclosure and safe sex practices among PLWHA at the site. A lot of HIV positive clients/patients especially those on treatment do not pay attention to the social implications of disclosure in relation to safe sex practices (Mondal and Shitan, 2013). Some even blame their partners for contracting the disease and as such, they feel no obligation to disclose their status to them or engage in safer sex (Larkins *et al.*, 2005). High disclosure rate of HIV-status and increased safe sex practices will help decrease the transmission rate of HIV and also make prevention and control programme more effective. Efforts at determining association between HIV disclosure and safer sex practices among this group may inform interventions that will promote healthy sexual behaviours and will also provide a template for developing specific skills and tools and skills for promoting disclosure of HIV-status among PLWHA. Therefore, this study was conducted to assess disclosure and safe sex practices among HIV- positive ART clinic attendees in University of Ilorin Teaching Hospital (UIITH), Ilorin, Nigeria, and determine the association between disclosure and safe sex practices.

MATERIALS AND METHODS

A cross-sectional study design was used among HIV positive persons aged 18 years and above attending the UIITH Highly Active Ante-Retroviral Therapy (HAART) clinic. HIV positive patients who have known their status for up to six months were included. The HAART Clinic at the UIITH is situated in Ilorin, Kwara State, Nigeria. The UIITH is a referral centre to surrounding states including Oyo, Ekiti, Oyo, Osun, Kogi, Ondo and Ekiti states. The hospital runs a HAART clinic, formerly supported by the Institute of Human Virology, Nigeria (IHVN), but now by the Management Science for Health (MSH), Nigeria. The clinic was established on 3rd September 2008. PLWHA attending this clinic are routinely counselled at every clinic visit on HIV care and prevention including medication adherence and disclosure to sexual partner.

The estimated minimum sample size (n=408) was derived with Leslie Kish formula ($\frac{Z\alpha^2 pq}{d^2}$) for single proportion; using 39.5% as the proportion (p) of people who disclosed their HIV-status to their sexual partner in a previous similar study conducted in Ilorin, Nigeria (Salami *et al.*, 2011), standard normal deviate ($Z\alpha$) corresponding to 2-sided 5% level of significance of 1.96, level of precision (d), 5% and non-response rate, 10%.

Respondents were selected using a systematic random sampling method. The clinic runs four times per week with an average number of fifty clients being seen per day. This gives an average of 200 patients per week giving a total of 800

clients/patients per month. The sampling fraction (1/k) was estimated based on the total number of clients/patients (N) attended to on a monthly basis. The starting point for selecting the first respondent was determined by using simple random sampling. The random number was chosen between 1 and 2 using a balloting method. Subsequently, every 2nd individual was recruited.

A semi-structured interviewer-administered questionnaire was used for data collection. The questions were adapted from WHO data collection tool used among HIV positive clients (www.who.int/hiv/pub/operational/or generic clients). The WHO questionnaire consists of different modules including testing and counselling, follow up care and support, stigma and discrimination, disclosure of HIV-status, adherence, safe sex practices' etc. Only disclosure and safe sex practices components were adapted for use in this survey. The questionnaire consisted of sections including HIV transmission and prevention knowledge, perception of disclosure and disclosure of HIV-status to significant others, disclosure to regular sexual partner and safe sex practices. Four research assistants (RAs) were recruited, trained and engaged in data collection, and they were supervised by the investigator. The RAs were student nurses of the University of Ilorin Teaching Hospital who just completed their ordinary national diploma. They were trained for three days on the rationale for the study, instrument administration, use of informed consent, ethical procedures and review of study instrument.

Several steps were taken to validate the instrument for data collection. Firstly, content validity was ascertained by consultation of relevant literatures and studies on HIV-status disclosure and safe sex practices. Secondly, the instrument was critically reviewed for content and structure validity by experts in the field of reproductive health research, consultants, senior registrars, registrars and other MPH colleagues during the departmental proposal presentation. Finally, the instrument was pretested in a state-owned HIV comprehensive treatment centre in the study area. In addition, the instrument was translated to Yoruba and back translated to English to ensure retention of the original meaning of the questions. Cronbach's alpha was used to measure the reliability coefficient of perception of disclosure Likert scale at 0.67.

Instrument for data collection was assessed for completeness and accuracy immediately after collection. Data obtained were edited and entered into computer and analysis was done with Statistical Package for Social Sciences (SPSS) version 20 statistical software. Descriptive statistics were reported using frequency tables and charts. Chi-square test was used for association between independent categorical and outcome variables. Binary logistic regression model was employed to determine independent predictors of safe sex practices. Independent variables significant on bivariate analysis at 10% were included in the multivariate logistic analysis. All level of statistical significance was set at $p < 0.05$.

Safe sex practice was the primary outcome variable, and it was measured as “proportion of HIV positive clients who or the partner used condom during the last sexual intercourse”. About 11% of the respondents who reported desire to have children were excluded on safe practices assessment using condom use.

The independent variables were: 1) **Respondents’ socio-demographic characteristics** - This included information about respondents such as age, marital status, duration of marriage, family type, educational status, ethnicity, religion, occupation etc. 2) **Alcohol use:** This was measured according to the questions; “During the past month how often have you had a drink containing alcohol?” The responses were daily, early every day, 3 to 4 times a week, once or twice a week, 1 to 3 times a month, never. Alcohol use was further categorized into “never” and “ever”. 3) **Knowledge about HIV transmission and ART:** Overall knowledge of HIV transmission and ART was computed using the questions in section B. A point was awarded for each correct answer. There were twelve questions, giving the maximum obtainable score of 12. The mean score (8.7) was used to classify overall knowledge into good knowledge if it was ≥ 9 and poor knowledge if it was < 9 . 4) **Knowledge about HIV transmission:** Knowledge about HIV transmission was assessed with the following questions: “List two ways HIV is transmitted.” Responses such as blood transfusion, sexual intercourse, sharing of infected objects e.g needle, blade mother to child transmission were recoded as correct listing and responses such as eating with someone, shaking of hands were recoded as incorrect listing. “List two ways HIV is not transmitted” Responses such as handshake, use of toilet, sleeping on same bed, hugging were recoded as correct listing while responses such as cleanliness, self-protection taking of drugs were recoded as incorrect listing. 5) **Disclosure of HIV status:** Disclosure of HIV status to sexual partner(s) was determined if respondents answered “Yes” to “Have you told your sexual partner your own HIV status?” 6) **Awareness of partners’ HIV status:** Knowledge about partners’ HIV status was determined if respondents answered “yes” to “do you know your most recent sexual partner’s HIV status?”. 7) **Perception of disclosure:** Overall perception of disclosure was computed using the eight questions in section C. Assessment of respondents’ perception about disclosure was done using three-point Likert scale: “agree, disagree and unsure”. Each of the correct statements in the Likert scale was scored 3 points. Hence, the maximum obtainable score was 24. The mean score (19.8) was used to classify overall perception of the respondents into positive perception if it was ≥ 20 and negative perception if it was < 20 .

Ethical approval for the study was obtained from the UITH Ethics Review Committee (ERC PAN/2018/09/1827). Permission was obtained from the matron in charge of the ART clinic after detail purpose of the research had been explained to them. Written informed consent was obtained from all respondents after detailed explanation of the research purpose and procedure has been made.

Information gathered during the course of the study was kept confidential from the point of data collection to the level of data analysis. Serial numbers instead of names were used to identify each respondent, and research assistants were trained to keep to respondents’ information confidential. Great care was taken to minimize any form of risks to the respondents particularly manifested in that time that was spent in responding to the questions in the instruments used for data collection. Participation in the study was made entirely voluntary, respondents were allowed the right to withdraw from the study at any point during data collection without suffering any consequence.

RESULTS

A total of four hundred and fifty-four participants were recruited for this study and all questionnaires were completely filled, giving a response rate of 100%. The respondents’ sociodemographics are shown in table 1. The mean age was 43.3 ± 10.3 years and 335 (73.8%) were females. Majority of the respondents were married (81.1%), of Yoruba ethnicity (77.1%) and were employed (93.0%). About fifty-two percent (51.8%) were Christians, 32.2% had secondary level of education and 12.8% had no formal education. Thirty-eight percent of respondents were skilled workers and 48% earned less than ₦30,000 as their monthly income.

Table 1:
Socio-demographic characteristics of respondents (N=454)

Variable	Frequency	Percentage
Age (years)		
20-29	38	8.4
30-39	126	27.7
40-49	159	35.0
50-59	93	20.5
≥ 60	38	8.4
Mean age	43.3 \pm 10.3	
Sex		
Male	119	26.2
Female	335	73.8
Marital status		
Single	34	7.5
Married	368	81.0
Separated	14	3.1
Divorced	3	0.7
Widowed	34	7.5
Cohabiting	1	0.2
Family type (N=420)		
Monogamy	280	66.7
Polygamy	129	30.7
Non-response	11	2.6
Religion		
Christianity	235	51.7
Islam	215	47.4
Traditional	4	0.9
Ethnicity		
Yoruba	350	77.1
Ibo	38	8.4
Hausa	17	3.7
Level of education		
No formal education	58	12.8

Primary	99	21.8
Secondary	146	32.2
Tertiary	142	31.2
Others*	9	2.0
Occupational category		
Professionals	45	9.9
Intermediate	63	13.7
Skilled	153	38.3
Partly skilled	30	2.4
Unskilled	126	27.5
Unemployed	13	2.9
Non-response	24	5.3
Employment n=423		
Self employed	288	68.1
Government	83	19.6
Private	52	12.3
Average monthly income (Naira)		
≤29999	218	48.0
30000-49999	47	10.4
≥50000	64	14.1
Non-response	125	27.5
Alcohol intake		
Never	419	92.3
Ever	35	7.7

*Edo, Delta, Kogi, Ghanian; *Islamic school

For overall knowledge of PLWHA, 64% had good knowledge about HIV transmission and ART. Eighty-eight percent correctly listed route of HIV transmission. Ninety percent of the respondents reported that regular and consistent use of condom could reduce the risk of HIV transmission to another person through sexual contacts. However, only 68.7% were able to list correctly ways HIV cannot be transmitted while only 42% were able to tell if ART could remove the virus from the body.

Three hundred and thirteen (68.9%) of the respondents agreed that disclosure of HIV-status might lead to rejection. It was agreed by 66.3% of the respondents that disclosure of HIV-status might lead to sexual partner ending the relationship. Also, 57.9% of respondents believed that disclosure of HIV-status will bring their sexual partners and them closer. Three hundred and eighty-four (82.4%) of the respondents agreed that their sexual partners should know their HIV-status. A little above half (53.7%) believed that disclosure of HIV-status to their partner could lead to refusal of sex by sexual partner. Twenty-five percent of the respondents were aware of family members or close friends who had HIV or had died of HIV.

Table 2 shows the proportion of respondents who had disclosed their HIV-status to sexual partner. Majority 88.6% reported spouses as their sexual partners while 6.4% reported

boyfriends/girlfriends. Sixty-five percent of the respondents had disclosed their HIV status to their sexual partners.

Table 2:

Disclosure of HIV status to sexual partners

Variable	Yes n (%)	No n (%)
Respondents' sexual partners		
Spouse	393	88.6
Boyfriend or girlfriend	29	6.4
Casual sex worker	4	0.9
Commercial sex worker	1	0.2
None	27	5.9
Disclosure to regular sexual partners	295 (65.0)	159 (35.0)
Know your most recent regular sexual partners' HIV status	315 (69.4)	139 (30.6)
Regular partners' HIV status		
	Frequency	Percentage
Positive HIV status	165	36.3
Negative HIV status	184	40.5
Decline to answer	105	23.1

Fig 1 represents the significant persons the respondents had disclosed their HIV-status to. Of these, 35.8% disclosed to siblings, followed by children (34.1%), parents (28.2%), friends (12.9%) and other relatives (7.8%).

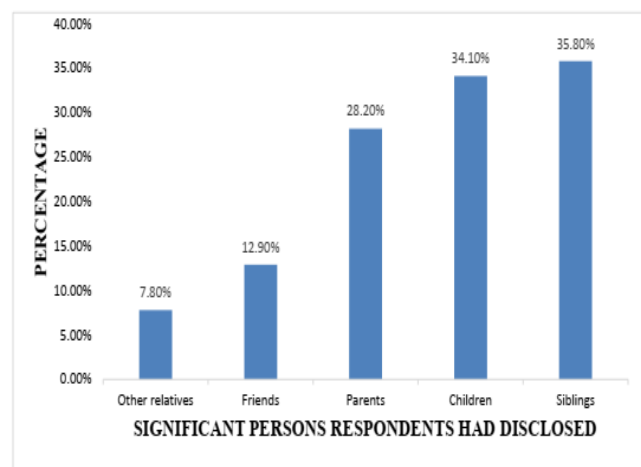


Figure 1:

Disclosure to significant other persons

Table 3 shows the proportion of those who have had sexual intercourse in the preceding 3 months and those who used condom. Less than half (48.0%) had sexual intercourse in the preceding 3 months while (26.7%) did not engage in sexual intercourse in the preceding 3-month because they had no desire or interest. Forty-six percent of the respondents had one sexual partner in the preceding months. Only 5 of the respondents had 2 or more sexual partners which were their other wives. Less than half (43.6%) had safe sex practices being the proportion of HIV positive clients who used condom during the last time they had sexual intercourse while (11.2%) did not use condom during the last time they had sexual

intercourse because they wanted to have children. Other reasons for not using condom during their last sexual intercourse were partners dislike condom (26.4%), partners'

refusal to use (17.3%) and partners also living with HIV/AIDS (12.7%).

Table 3:
Safe sex practices (N=454)

Variable	Frequency	Percentage
Ever had sexual intercourse during the last 3 months		
Yes	218	48.0
No	236	52.0
No of sexual partners in the preceding three months		
0	236	52.0
1	213	46.9
2	5	1.1
Used condom when had sexual intercourse the last 3 months, would you say you use condom		
Every time	56	12.3
Almost every time	31	6.8
Sometimes	66	14.5
Rarely never	68	15.0
Declined to answer	233	51.3
Ever had sexual intercourse in the preceding 3 months with a spouse or live in partner		
Yes	218	48.0
No	236	52.0
No of regular sexual partners in the preceding three months		
0	236	52.0
1	213	46.9
2	5	1.1
Used condom when had sexual intercourse the last 3 months with a regular sexual partner, would you say you use condom		
Every time	56	12.3
Almost every time	31	6.8
Sometimes	66	14.5
Rarely never	68	15.0
Declined to answer	233	51.3
Partner and respondent used condom the last time they had sexual intercourse.		
Yes	197	43.4
No	257	56.6

Table 4 shows the association between respondents' socio-demographic characteristics and safe sex practices. More males (59.6%) practiced safe sex with their sexual partners than their female counterpart (40.6%) (p<0.001). A higher proportion (48.9%) of respondents in the monogamous family

practiced safe sex compared with 35.0% of those in the polygamous category (p=0.011). There was no significant association between religion, marital status, age, duration of marriage, ethnicity, level of education, occupation, employment status and monthly income, and safe sex practice.

Table 4:
Association between socio-demographic characteristics and safe sex practices

Variables	Safe Sex Practices		χ^2	p-value
	Yes n (%)	No n (%)		
Age				
<30	17 (50.0)	17 (50.0)	2.738	0.254
30 -39	60(51.3)	57(48.7)		
40+	120 (42.7)	161 (57.3)		
Sex				
Male	68 (59.6)	46 (40.4)	12.319	*<0.001
Female	129 (40.6)	189 (59.4)		
Marital Status				
Currently married	163 (46.8)	185 (53.2)	1.104	0.293
Not currently married	34 (40.5)	50 (59.5)		
Duration of marriage (years)				
<15	121 (50.8)	117(49.2)	4.609	0.100
16-30	55 (39.3)	85 (60.7)		
31+	21 (38.9)	33 (61.1)		
Family type				
Monogamy	132 (48.9)	138 (51.1)	6.485	*0.011
Polygamy	42 (35.0)	78 (65)		
Religion				

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Christianity	106 (46.9)	120 (53.1)	3.532	0.171
Islamic	91 (45.0)	111 (55.0)		
Traditional	0 (0.0)	4 (100)		
Ethnicity				
Yoruba	146 (44.1)	185 (55.9)	4.504	0.212
Ibo	15 (39.5)	23 (60.5)		
Hausa	10 (62.5)	6 (37.5)		
Others	26 (53.1)	21 (44.7)		
Level of education				
No of formal education	21 (36.2)	37 (63.8)	7.494	0.117
Primary	43 (46.2)	50 (53.8)		
Secondary	58 (42.0)	80 (58.0)		
Tertiary	73 (54.1)	62 (45.9)		
Others	2 (25.0)	6 (75.0)		
Occupation				
Professionals /intermediate	55 (50.5)	54 (49.5)	3.159	0.206
Skilled/partly skilled	82 (47.4)	91 (52.6)		
Employment status				
Employed	184 (45.8)	218 (54.2)	0.067	0.796
Unemployed	13 (43.3)	17 (56.7)		
Average monthly income (Naira)				
<18000	66 (41.2)	94 (58.8)	6.976	0.073
18000-29999	18 (39.1)	28 (60.9)		
30000-49999	24 (53.3)	21 (46.7)		
≥50000	35 (58.3)	25 (41.7)		
Alcohol intake				
Never	179 (45.1)	218 (54.9)	0.521	0.470
Ever	18 (51.4)	17 (48.6)		

*Significant at 5%

Table 5:
Other factors associated with safe sex practices

Variables	Safe sex practices		χ^2	P value
	Yes n (%)	No n (%)		
Alcohol intake				
Never	179 (45.1)	218 (54.9)	0.521	0.470
Ever	18 (51.4)	17 (48.6)		
Knowledge and attitude towards HIV and ART				
Poor	65 (41.7)	91 (58.3)	1.524	0.217
Good	132 (47.8)	144 (52.2)		
Perception of disclosure				
Negative	66 (42.0)	91 (58.0)	1.263	0.261
Positive	131 (47.6)	144 (52.4)		
Know your sexual partner HIV status				
Yes	154 (51.3)	146 (48.7)	13.002	*<0.001
No	43 (32.6)	89 (67.4)		
Disclosure of HIV status				
Yes	141 (50.9)	136 (49.1)	8.744	*0.003
No	56 (36.1)	99 (63.9)		
Duration on ART (years)				
<5	102 (45.7)	121 (54.3)	2.322	0.677
6-10	73 (46.2)	85 (53.8)		
11-15	0 (0.0)	2 (100.0)		
16-20	20 (43.5)	26 (56.5)		
20-25	2 (66.7)	1 (33.3)		

Table 5 shows other factors associated with safe sex practices. A significant higher proportion (51.3%) of those who were aware of their partner's HIV-status practiced safe sex compared with 32.6% of those who were not aware of their partner's HIV-status ($p < 0.001$). A significant higher proportion (50.9%) of those who had disclosed their HIV-status to their sexual partner practiced safe sex compared with 36.1% of those who had not disclosed their HIV-status to their sexual partner ($p = 0.003$). There was no significant relationship between alcohol intake, knowledge, perception of disclosure, duration on ART and safe sex practices.

Table 6 shows the predictors of safe sex practices. The model include sex, family type, knowledge of partners' HIV-status and disclosure of HIV status to sexual partner. The predictors of safe sex practices were sex, family type, knowledge of partners' HIV-status and disclosure of HIV-status to sexual partner. Male respondents were 1.9 times more likely to practice safe sex than female respondents (OR: 1.938; CI=1.191–3.156; $p = 0.008$). Respondents who knew about their partners' HIV-status were 2.1 times more likely to practice safe sex than those who did not know about their partners' HIV-status (OR: 2.163; CI=0.502-1.505; $p = 0.010$).

Table 6:
Predictors of safe sex practices

Variables	OR	95% CI	p value
Sex			
Male	1.938	1.191-3.156	*0.008
Female (ref)	1.000		
Family Type			
Monogamous	1.435	0.900-2.287	0.129
Polygamous (ref)	1.000		
Awareness of partners' HIV status			
Yes	2.163	1.206-3.879	*0.010
No (ref)	1.000		
Disclosure of HIV status to sexual partner			
Yes	0.869	0.502-1.505	0.616
No (ref)	1.000		

*Significant at 5%

DISCUSSION

This cross-sectional study was conducted to assess HIV-status disclosure and safe sex practices, and practices and determine the association between disclosure and safe sex practices among PLWHA attending ART clinic in UITH, Ilorin using quantitative data collection approach. This study revealed 65% had ever disclosed to their sexual partners. This is similar to a study in the southwest Nigeria, Sagamu in Ogun state where disclosure rate was 68% (Daniel *et al.*, 2006). Adebayo *et al* (2014) reported a higher disclosure rate in a study conducted in southwest, Nigeria. However, recent findings in some part of Africa and high-income countries have shown far higher disclosure rates compared to the report from this study. Deribe *et al.* (2008) and Natae and Negawo (2016) in Ethiopia reported a disclosure rate of 95% and 84.9% respectively. Wong *et al.* (2009) in South Africa had a rate of 87.0% and Ateka (2006) in Houston, Texas, USA found a disclosure rate of 85.7%.

The lower disclosure rate in this study compared to others may be because most of our respondents were females who were in monogamous setting. They will rather keep their status to themselves due to the fear of stigma and discrimination; being labelled as promiscuous; and societal rejection couple with possible threat of divorce. In addition, women who are single or separated and are employed may not depend on any spouse or family for their livelihood and so may choose not to disclose their HIV-status to anybody. Even though disclosure rate in this study is above average, the implication of four in ten not disclosing has serious implications on HIV prevention and control. One of the goals of SDG 3 is to end HIV/AIDS epidemics by 2030 and non-disclosure of HIV-status to sexual partners will make the goal difficult to achieve.

Majority of the respondents had disclosed their HIV-status to at least one significant person. In this regard, disclosure was mostly among siblings, followed by children. This means PLWHA are more comfortable to confide more in their siblings and children than their sexual partners. Not many studies had depicted this pattern of disclosure.

The rate of disclosure to immediate family members was higher than disclosure among friends which is consistent with findings from a study on HIV infected patients in Niger delta,

Nigeria (Akanni and Erhabour, 2006). This is contrary to what was found in a study conducted among HIV positive patients in Uganda where it was reported that disclosure to friends was higher compared to family members (Isaac *et al*, 2009). Disclosure to significant persons could bring about financial and social support, however, disclosure to sexual partners is more critical for HIV prevention. Therefore, education intervention to increase disclosure of HIV-status to sexual partners should be further intensified by partners and stakeholders. This will help to further reduce the risk of transmission to sexual partners.

This study revealed that below one-half of the respondents were sexually active and 43.6% used condom during the last sexual act preceding the study. This report is supported by findings from a study conducted in Ogun state where even a lower prevalence of condom use among PLWHA at 30.5% (A Moran & Ladi-Akinyemi, 2012). However, this finding and that of Amoran and Ladi-Akinyemi were quite lower than the findings from studies conducted among HIV-positive women in Italy (60%) (Cicconi *et al.*, 2013) and African countries such as rural Uganda (53%) (Miner *et al.*, 2002; Bunnell *et al.*, 2006) and Kampala (55%) (Bateganya *et al.*, 2005). Another finding in Nigeria by Adebayo *et al* (2014) had a higher consistent condom use prevalence of 75.9%. Similarly, Wilson *et al* (2004) in India reported 87% of respondents used condom consistently. The lower rate of condom use reported in this study could be because the respondents might have assumed no risk of transmission because they are on antiretroviral therapy. There is no doubt the advent of anti-retroviral therapy and treatment access has greatly improved the quality of life and life expectancy of PLWHA. Unsafe sex practice remains a serious menace to HIV transmission. A few studies have shown that risk from unsafe sex has become greater among patients who are on antiretroviral drugs, because their viral load is under control and they experience improved immune status, leading to elimination of symptoms and better patients' quality of life, thus discouraging safe sexual practices (Granish, 2010; Joseph *et al.*, 2010). There is need for more health education intervention to emphasize on the need to use condom correctly and consistently to maximize the gains in HIV prevention and control.

A range of reasons were mentioned by the respondents for not using condom. These include partner dislike and refusal of condom, partner being HIV positive, desire for children and respondents' dislike for condom. Another reason reported among respondents was partner being suspicious of their HIV-status if asked to use condom. Mehta *et al* (2013) in a study done in Baroda, India reported similar reasons including desire for a child, partners dislike for condom, both partners being seropositive and non-availability of condom were the reasons given by the respondents for not using condom. There is still a gap in providing adequate knowledge to PLWHAs regarding safer sex because many of the respondents believed there is no need for condom use as their partners are also seropositive. Majority of the reasons mentioned for unsafe sex practices can be discussed during their counselling sessions. The use of condom at every sexual encounter is an important tool in fighting against the spread of HIV/AIDS. It reduces the risk of virus transmission and spreading of other sexually transmissible diseases. (Kalichma *et al.*, 2008; Allen *et al.*, 2011). In case of desire for children, PLWHA are required to seek the support of obstetricians who are in the position to

counsel them based on best practices to avoid mother-to-child transmission.

The study revealed no significant association between disclosure of HIV-status and safe sex practice. However, significantly higher proportion of respondents who had disclosed their HIV-status practiced safe sex compared to respondents who had not disclosed. Consistent with findings from other studies on association between disclosure and safe sex, Marks and Crepaz (2001) reported disclosure was not associated with safer sex and they found out that those who had disclosed and discussed safe sex had a higher prevalence of practicing safe sex compared to those who disclosed only. Adebayo *et al* (2014) in a study conducted among PLWHA attending a comprehensive Health Centre at a Federal Medical Centre in Ondo State, Nigeria also reported no association between disclosure of HIV-status and condom use. The fact that there is no significant association between disclosure of HIV-status and safe sex practices does not necessarily mean that disclosure is irrelevant to the practice of safer sex. According to Crepaz and Marks (2003), disclosure of status does not always correlate with safer sex because disclosure is a relatively general communication. It was reported by Ciccarone *et al* (2003), Deribe *et al* (2008) and Amoran (2012) that risky sexual behaviour without disclosure of HIV-status is not uncommon among PLWHA. More efforts to raise awareness and accomplish safer sexual behavioural practices should be encouraged.

The predictors of safe sex practices in this study included respondents' sex and awareness of partners' HIV-status. It was revealed that male respondents were 1.9 times more likely to practice safe sex than female respondents. This finding is in support of other Nigerian studies which reported condom use being higher among males (Sabitu *et al.*, 2007; Asekun-Olarinmoye & Oladele, 2009). This can be partly explained by the stigma of promiscuity attached to females when they suggest condom use to their sexual partners (Maguire, 2014). Another reason for low condom use among females is their inability to negotiate use if their partners do not desire to (Asekun-Olarinmoye & Oladele, 2009). Condom awareness and promotion among females should be increased, this will help to obtain higher and more consistent levels of condom use. Also, empowerment programs for females should be encouraged.

This study showed a significant relationship between knowledge about partners' HIV-status and safe sex practices. Respondents who knew about their partners' HIV-status were 2.1 times more likely to practice safe sex than those who did not know about their partners' HIV-status. This is like a study conducted in Tanzania, where knowledge of partners' HIV-status was strongly associated with condom use (Donaldson *et al.*, 2012). The same study shows that among the respondents who were aware of their partners' HIV-status, individual with an HIV positive partner were more likely than those with an HIV-negative partner to consistently use a condom. Being aware of partner's HIV-status may help to reduce the risk for re-infection and also take necessary precautions.

Limitations

Causality could not be inferred due to the study design being cross-sectional. There were chances of recall bias because some questions were retrospective in nature. Information and social desirability biases were other limitations. However,

respondents were assured of confidentiality and anonymity to overcome these biases.

CONCLUSION

A good proportion of PLWHA had disclosed their HIV-status to their regular sexual partners. The practice of safe sex was low among PLWHA. Disclosure did not have significant effect on safe sex practices. The predictors of disclosure of HIV status were marital status, monthly income and knowledge about HIV partners' status. The predictors of safe sex practices were respondents' sex and knowledge about HIV partners' status.

Our recommendations include provision of behaviour change communication on the importance of disclosure and safe sex practices to PLWHA. This will reduce new infections and prevent the scourge of HIV/AIDS. There should be condom awareness and promotion programmes for both genders to enhance consistent use of condom. HIV/AIDS programmes should be integrated into family planning services. This will promote access to contraceptives especially condom among PLWHA. The government should consider giving incentives to PLWHA who disclose their HIV-status.

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