

Full Length Research Paper

Human immunodeficiency virus/Acquired immune deficiency syndrome (HIV/AIDS), Related knowledge, risk perception and practice of confidential counseling and testing for HIV among patients in a tertiary health institution in North Western Nigeria

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Acquired immune deficiency syndrome (AIDS) caused by the human immunodeficiency virus (HIV) is the leading cause of death in sub-Saharan Africa. A major focal point of the epidemiology and spread of HIV infection and AIDS is HIV/AIDS related knowledge, especially as these affect AIDS risk behaviors in vulnerable populations of Africa. While HIV testing serves as the gateway to treatment, care, and prevention of HIV/AIDS; uptake of HIV testing is very low in sub-Saharan Africa. This study was conducted to assess the HIV/AIDS related knowledge, risk perception and practice of HIV confidential counseling and testing among patients in Sokoto. A descriptive cross-sectional study among 184 randomly selected patients attending the medical outpatient clinic of Specialist Hospital Sokoto, Nigeria was conducted in September 2010. Informed consent was taken and information was collected by a pre-designed questionnaire, data analysis was done using computer software, SPSS version 17. Almost all the patients (97.8%) have heard about HIV/AIDS. Although only 18.3% knew the causative agent, majority had adequate knowledge of transmission (71.1%) and prevention (62.2%) of the disease, with a few among them having some misconceptions. Most (89.4%) perceived the disease to be a serious threat to them, but some still engaged in sharing needle with another person (12.2%), and casual sex (8.3%). Barely half (57.2%) knew where to do HIV test, and only 23.9% have been tested for HIV. Inadequate awareness and poor practice of HIV testing was demonstrated in this study despite adequate knowledge and perception of risk of HIV/AIDS. This suggests the need for all the stakeholders to intensify health education aimed at removing misconceptions about the disease and improving uptake of HIV testing.

Key words: Acquired immune deficiency syndrome/human immunodeficiency virus (HIV/AIDS), knowledge, risk perception, confidential counseling and testing.

INTRODUCTION

Acquired immune deficiency syndrome (AIDS) caused by the human immunodeficiency virus (HIV) is the leading cause of death in sub-Saharan Africa. In 2007, the African

region contained an estimated 68% of all people living with AIDS and recorded 76% of all AIDS deaths, with 1.7 million new infections, bringing the number of people

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living with HIV to 22.5 million, and with 11.4 million AIDS orphans living in the region (Joint United Nations Programme on HIV/AIDS (UNAIDS) and World Health Organization (WHO), 2007). Nigeria has the third largest population of people living with HIV, after India and South Africa (Joint United Nations Programme on HIV/AIDS (UNAIDS), 2006). Similar to the situation in most countries in the region, AIDS continued to be the leading cause of mortality among adults in Nigeria with a cause specific mortality rate of 132 deaths per 100,000 population (World Health Organization (WHO), 2013).

The 2008 HIV sentinel survey shows that Sokoto state, the study area had a relatively low prevalence of 6.0% when compared with the other states in Nigeria, but it was still above the national average of 4.6%. Contrary to the situation in the other states in Nigeria where the prevalence of HIV was higher in urban than rural areas, Sokoto and the neighboring Kebbi state recorded a higher prevalence of HIV in rural areas compared to urban areas. In Sokoto state the rural prevalence of HIV was 10.1% while the urban prevalence was 3.9% (National Population Commission (NPC) and ICF Macro, 2009).

A major focal point of the epidemiology and spread of HIV infection and AIDS is HIV/AIDS related knowledge, especially as these affect AIDS risk behaviors in vulnerable populations of Africa. Many people are unaware that they are infected with HIV. Less than 1% of the sexually active urban populations in Africa have been tested, and the proportion is even lower in rural populations. The large population of people who are unaware of their status is of concern, especially considering situations where such people had to donate blood in settings without reliable HIV screening kits. Also not knowing that they are infected with HIV especially if they are free of symptoms is likely to cause a lower perception of vulnerability among them and this could result in more risk-taking behaviors (Kumaranayake et al., 2001).

Universal precautions are frequently not followed in sub-Saharan Africa, because of both a shortage of supplies and inadequate training. HIV transmission through the transfusion of blood and blood products is highly efficient (about 90% efficient) and this is significant in Africa and other developing countries where HIV screening facilities for blood transfusion are not adequate. Patients therefore constitute a special group at risk of the disease through iatrogenic transmission of the virus (Ofosu-Barko, 1998).

An integrated care for HIV/AIDS and chronic medical conditions like diabetes and hypertension has been found to result in efficiency gains for the services and satisfactory outcome for patients by promoting adherence to care and lifestyle changes for these disease conditions (Janssens et al., 2013). Also, the prevalence of HIV co-infection with other infectious diseases such as tuberculosis is high in Nigeria, with a tuberculosis/HIV co-infection rate of 25% in 2010 (United States Agency for International Development (USAID)/Nigeria, 2012); the medical outpatient clinic in essence provides an avenue

for access to patients at high risk of HIV/AIDS. A study in Ibadan reported that, despite the high awareness of HIV/AIDS, 19.5 and 34.3% of diabetic and schizophrenic patients respectively, engaged in casual sex without using condom (Ogunsemi et al., 2006).

While HIV testing serves as the gateway to treatment, care, and prevention of HIV/AIDS, uptake of HIV testing is very low in sub-Saharan Africa where only about 12% of men and 10% of women in the general population have been tested for HIV and also received the results (World Health Organization (WHO), 2007). Reports from studies show a wide gap between willingness to undergo HIV testing and uptake of the test. In a study among patients with tuberculosis, while 73% were willing to undergo the test, only 35% have been tested (Degu et al., 2007). In another study among pregnant women, while almost all of them were willing to undergo the test, only few of them said they would undergo the test if the result would be shared with their relatives (Ekanem et al., 2004). Inaccurate risk perception, fear of possible outcome, stigmatization, divorce, isolation, and other problems have been identified as barriers to uptake of voluntary counseling and testing (VCT) for HIV (Deborah et al., 2002). Just as knowledge of HIV/AIDS influences uptake of HIV testing, HIV counseling and testing intervention has been found to significantly increase AIDS related knowledge and reduce risk behavior among patients attending tuberculosis clinics in Abidjan, Cote d'Ivoire (Wiktor et al., 2004). This study was conducted to assess the HIV/AIDS related knowledge, risk perception and practice of HIV confidential counseling and testing among patients in Sokoto.

MATERIALS AND METHODS

This cross-sectional descriptive study was carried out among patients attending the medical outpatient clinic of Specialist Hospital located in Sokoto town of Sokoto state, North Western Nigeria, in September 2010. Sokoto has a predominantly Hausa-Fulani population, while the non-natives belong to Igbo, Yoruba and Igala ethnic groups among others. The natives are predominantly Moslems, among the non-natives some are Moslems while some are Christians. The hospital provides health services to the population in Sokoto and those referred from the other local government areas in the state. The department of medicine of the hospital runs the medical outpatient clinic thrice a week, and sees an average of 170 patients daily. The sample size was estimated at 184 using the statistical formula for calculating the sample size for descriptive studies (Ibrahim, 2009), 13% acceptance rate of HIV testing from a previous study (Enosolease et al., 2004), precision level of 5% and an anticipated response rate of 95%. After explaining the objectives of the study to them, one in every four patients seen in the clinic was recruited over a four day period to obtain the required sample size of 184.

A set of pretested, semi-structured, interviewer administered questionnaire was used to obtain information on respondent's socio-demographic characteristics, knowledge of causative agent, transmission and prevention of HIV/AIDS, risk perception and exposure, awareness of where HIV testing is done, willingness to do the test, barriers to doing it, and previous HIV testing. The questionnaire was adapted from the survey tool used for the 2007

Table 1. Socio-demographic profile of respondents.

Socio-demographic profile	Frequency (%)
Age groups (in years)	
15-29	43 (23.3)
30-39	57 (31.0)
40-49	43 (23.4)
50-59	34 (18.5)
60 and above	7 (3.8)
Sex	
Male	110 (59.8)
Female	74 (40.2)
Marital status	
Single	22 (12.0)
Married	142 (77.2)
Separated	5 (2.7)
Divorced	7 (3.8)
Widowed	8 (4.3)
Education	
None	2 (1.1)
Quranic only	114 (62.0)
Primary	8 (4.3)
Secondary	32 (17.4)
Tertiary	28 (15.2)
Religion	
Islam	161 (87.5)
Christianity	23 (12.5)
Occupation	
Housewife	61 (33.2)
Artisan	15 (8.2)
Farmer	29 (15.8)
Civil servant	17 (9.2)
Business woman	47 (25.5)
Professional	15 (8.2)

National HIV/AIDS and Reproductive Health Survey (Federal Ministry of Health (FMoH), 2008). The questionnaire was pretested among 10 patients attending the general outpatient unit of the hospital; appropriate modification was made based on the observations made during the pretest. Four student nurses assisted in questionnaire administration after pre-training on conduct of survey research, the objectives, selection of study subjects and questionnaire administration. Ethical permission to carry out the study was obtained from the Management of the hospital, and informed written consent was also obtained from the study subjects before questionnaire administration.

Data was analyzed using the Statistical Package for Social Sciences (SPSS) version 17 computer statistical software package. Knowledge of HIV transmission was scored on a 9 item scale, while a 6 item scale was used for scoring knowledge of HIV prevention. Correct response was scored one and incorrect response or none-

response was scored zero. Respondents scoring less than 65% were considered to have inadequate knowledge while those with scores of 65% and above were graded as having adequate knowledge. Descriptive statistics and Chi-square test were done to explore associations between demographic characteristics, knowledge, risk perception and practice of HIV testing. Logistic regression analysis was used to determine the variables that predict adequate knowledge of HIV transmission and prevention. All levels of significance were set at $p < 0.05$.

RESULTS

The age of the respondents ranged from 19 to 73 years with a mean of 41.6 ± 12.5 years. Majority of the respondents were male (59.8%), married (77.2%), Moslem by religion (87.5%) and had only quranic education (62.0%) as shown in Table 1.

Knowledge of HIV/AIDS

One hundred and eighty (97.8%) of the 184 respondents have ever heard of HIV/AIDS. Radio/television was the most common source of information (49.4%), followed by health workers (22.2%), friends/relatives (14.4%), while only a few (13.9%) obtained information through newspaper/magazines.

While 129 (71.7%) of the 180 respondents that have ever heard of HIV/AIDS were aware that the disease could be asymptomatic, knowledge of its causative agent was poor. Only 33 (18.3%) knew the disease to be caused by a virus. Majority, 80 (44.4%) attributed it to prostitution, 43 (23.9%) attributed it to homosexuality, 15 (8.3%) had no idea of the cause, while 5 (2.8%), 3 (1.7%) and 1 (0.6%) attributed the disease to promiscuity, God's punishment and juju/witchcraft, respectively.

Most of the respondents (71.1%) had adequate knowledge of transmission of HIV, 96.1% knew that the virus could be transmitted through sexual intercourse with an infected person, 83.9% knew that transmission could follow transfusion with an infected blood. About 74.4% of the respondents knew that HIV could be transmitted from an infected mother to her unborn child, 87.8% were aware of transmission through sharing sharp objects like razor and needles, while 65.0% knew that it could be transmitted from an infected mother to her baby through breast feeding. About 23.9% of the respondents had misconceptions on the transmission of the disease through mosquito bites, while some also misconceived the virus to be transmissible by shaking hand with an infected person (11.1%), and sharing clothes (10.0%) or toilet (10.0%) with an infected person (Table 2).

Adequate knowledge of HIV transmission was found to be statistically significantly associated with secondary/tertiary education ($\chi^2 = 19.788$, $p < 0.001$). In logistic regression models, secondary/tertiary education was the only predictor of adequate knowledge of HIV transmission (odds ratio (OR) = 4.917, 95% confidence interval (CI) = 0.193 – 0.453) as shown in Table 3.

Table 2. Knowledge of routes of HIV transmission.

Can HIV be transmitted through the following ways?	Response		
	Yes [No. (%)]	No [No. (%)]	I don't know [No. (%)]
Sexual intercourse with an infected person	173 (96.1)	0 (0)	7 (3.9)
Transfusion with an infected blood	151 (83.9)	4 (2.2)	25 (13.9)
From an infected mother to her unborn child	134 (74.4)	10 (5.5)	36 (20.0)
Sharing sharp objects like razor and needles	158 (87.8)	6 (3.3)	16 (8.9)
Breast feeding by an infected mother	117 (65.0)	24 (13.3)	39 (21.7)
Shaking hand with an infected person	20 (11.1)	130 (72.2)	30 (16.7)
Sharing clothes with an infected person	18 (10.0)	123 (68.3)	39 (21.7)
Sharing toilet with an infected person	18 (10.0)	118 (65.6)	44 (24.4)
By mosquito bites/bed bugs	43 (23.9)	102 (56.7)	35 (19.4)

Table 3. Predictor of adequate knowledge of HIV transmission.

Variable	Odds ratio	Sig.	95% CI	
			Lower	Upper
Male versus female sex	1.812	0.072	-0.010	0.240
Age 40 years and above versus age below 40 years	0.272	0.786	- 0.111	0.146
Single versus married, separated, divorced and widowed	0.402	0.688	- 0.242	0.160
Secondary and tertiary education versus primary education and below	4.917	< 0.001	0.193	0.453

Majority of the respondents (62.2%) had adequate knowledge of HIV prevention, 91.7% knew abstaining from sex, 74.4% knew limiting sexual intercourse to only one HIV negative partner, and 62.2% knew use of condom daily as ways of preventing HIV infection. Other preventive measures known to them included avoiding sharing of sharp objects such as razor and needle (83.9%), treating HIV positive mother during pregnancy (61.1%), and feeding an HIV positive mother's baby with substitute milk (59.4%) as shown in Table 4.

Adequate knowledge of HIV prevention was also found to be statistically significantly associated with secondary/tertiary education ($\chi^2 = 22.781$, $p < 0.001$). Similarly, in logistic regression models, secondary/tertiary education was the only predictor of adequate knowledge of HIV prevention (OR = 5.392, 95% CI = 0.227 – 0.488) as shown in Table 5.

HIV/AIDS risk perception

One hundred and sixty one (89.4%) of the 180 respondents that were aware of HIV/AIDS considered the disease to be a serious threat to them, only 3 (1.7%) did not see it as a threat, while 16 (8.9%) were unsure if it constitutes a threat to them or not. Only a few of the respondents engaged in risky behaviors related to HIV/AIDS, 22 (12.2%) had shared needle with another person, while 15 (8.3%) had engaged in casual sex within the past 12 months. While condom use was low (9.8%) during sex with marital partners, 13 (86.7%) of the 15

respondents that had engaged in casual sex reported use of condom.

Practice of VCT for HIV

Barely half, 103 (57.2%) of the 180 respondents who have ever heard of HIV/AIDS knew where to get VCT for HIV done, and only 43 (23.9%) had done the test. Reasons given for not undergoing the test included fear of rejection by family and friends (26.3%), lack of privacy where test is done (20.4%), fear of divorce by partner (19.0%), fear of discrimination at work (18.2%), and fear of death (16.1%). Eighty five (62.0%) of the 137 respondents that have not done the test were willing to do it.

DISCUSSION

This study shows that almost all the respondents (97.8%) were aware of HIV/AIDS; this is in concordance with the high level of awareness (99.0%) reported in the study by Igwegbe et al. (2005). A larger proportion of the respondents obtained information on HIV/AIDS through radio and television (49.4%) than from health workers in this study; this is similar to the findings in the study by Ayankogbe et al. (2003), that reported higher contribution from the mass media than the health workers in the dissemination of information on HIV/AIDS. This could mean that health workers did not consider disseminating information on HIV/AIDS an important component of the

Table 4. Knowledge of HIV prevention.

Can HIV be prevented through the following ways?	Response		
	Yes [No. (%)]	No [No. (%)]	I don't know [No. (%)]
By abstaining from sex	165 (91.7)	5 (2.8)	10 (5.6)
By limiting sexual intercourse to only one HIV negative partner	134 (74.4)	12 (6.7)	34 (18.9)
Use of condom every day	112 (62.2)	21 (11.7)	47 (26.1)
Avoid sharing of sharp objects such as razor and needle	151 (83.9)	3 (1.7)	26 (14.4)
By treating HIV positive mother during pregnancy	110 (61.1)	13 (7.2)	57 (31.7)
By feeding an HIV positive mother's baby with substitute milk	107 (59.4)	17 (9.4)	58 (31.1)

Table 5. Predictor of adequate knowledge of HIV prevention.

Variable	Odds ratio	Sig.	95% CI	
			Lower	Upper
Male versus female sex	1.688	0.093	-0.018	0.232
Age 40 years and above versus age below 40 years	0.547	0.656	-0.093	0.164
Single versus married, separated, divorced and widowed	1.300	0.156	-0.068	0.331
Secondary and tertiary education versus primary education and below	5.392	< 0.001	0.227	0.488

primary preventives services to be offered to their patients, especially those presenting with other medical conditions. Even though most of the respondents had adequate knowledge of HIV transmission (71.1%) and prevention (62.2%), a good proportion still had misconceptions on the transmission of the virus through mosquito bites (23.9%), shaking hand with an infected person (11.1%), and sharing clothes (10.0%) or toilet (10.0%) with an infected person. A study by Iliyasu et al. (2006), also reported similar levels of misconceptions, and this could influence their attitude to people with the disease. The relatively low prevalence of casual sex (8.3%) among the respondents in this study could be due to their high perception of risk (89.4%) in contrast to the findings in a study by Adegun et al. (2013) that reported a much lower risk perception (53.0%) and higher prevalence of casual sex (80.6%).

The marginal level of awareness of HIV testing (57.2%) and the poor practice of HIV testing (23.9%) recorded in this study is similar to the findings in a study by Ikechebelu et al. (2006), that reported only a slightly higher level of awareness (63.2%) and practice of HIV testing (26.4%). Other studies reported discrepancies between awareness of HIV testing, willingness to be tested and those that actually had the test done. While Charles et al. (2009) in Tanzania, reported high awareness of VCT (100.0%) but poor practice (34.6%) of HIV testing, Daniyam et al. (2010), reported high awareness of VCT (83.1%) and a relatively good practice (50.7%) of HIV testing. The low risk perception of HIV/AIDS (37.2%) among the respondents in the Tanzania study could have contributed to the poor practice of HIV testing recorded in the study, and it highlights the fact that other factors apart from awareness or willingness to be tested play

significant roles in uptake of HIV testing. The barriers to uptake of HIV testing recorded in this study, such as fear of rejection by family and friends (26.3%), lack of privacy where test is done (20.4%), fear of divorce by partner (19.0%), fear of discrimination at work (18.2%) and fear of death (16.1%), were also recorded in studies by Adewole et al. (2004) and Mbamara et al. (2013).

Conclusion

Though majority of the patients had adequate knowledge of HIV/AIDS and perceived the disease to be a serious threat to them, misconceptions and involvement in high risk behavior persist among them. Also there was inadequate awareness and poor practice of confidential counseling and testing for HIV. This suggests the need for all the stakeholders to intensify health education aimed at removing misconceptions about the disease and improving uptake of HIV testing.

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