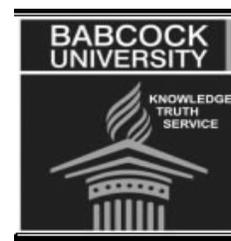




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**Research**

## **HIV/AIDS Preventive Measures among In-school Adolescents in a Sub-Urban Community in Southwestern Nigeria**

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### **Abstract**

*This study assessed the knowledge, attitude and practice of preventive measures of HIV/AIDS among in-school adolescents in a sub-urban community in southwestern, Nigeria. In a descriptive cross-sectional study design, a multistage sampling technique was used to choose the sample size from two out of three public secondary schools in the community. Data was analyzed with SPSS version 11. Frequencies and Chi-square values were generated and significance level was set at 0.05. The study revealed that there were 248 (55.1%) males and 202 (44.9%) females, median age of respondents was 17years, mean age was  $16.6 \pm 1.2$  years with majority in the age group 15-19, and males were more sexually active than females. Majority, 92.0% of the respondents were aware of the existence of HIV/AIDS; commonest source of information being electronic media though their knowledge of routes of transmission and modes of prevention of the disease was erroneous and inadequate due to several misconceptions. There was generally an intolerant attitude towards HIV infected people and many respondents will like to know their status if the test was free. There was poor practice of preventive measures among the respondents. Our recommendations include provision of free/affordable HIV counseling and screening test centers in or near secondary school campuses, inclusion of sex education in secondary school curriculum, and organization of health education/HIV preventive programmes for school.*

**Keywords:** Preventive measures; HIV/AIDS; In-school adolescents; Nigeria

## Introduction

The HIV/AIDS pandemic is without doubt the greatest health problem challenging science and may remain so for a long period of time (Salako, 2003). While not yet recognized at the onset, the HIV/AIDS epidemic is considered an important health risk for morbidity and mortality among adolescents which should not be disregarded. An estimated 10.3 million young people aged between 15 and 24 are living with HIV/AIDS and half of all new HIV infections- almost 6000 per day occur amongst this age group (United Nations, 2006). More than 15.2 million children under the age of seventeen had been orphaned by HIV/AIDS in 2005 and this number is expected to double by 2010 (United Nations, 2006). The prevalence of HIV/AIDS among young people varies widely among regions and countries. The Sub-Saharan Africa region contains almost three quarters of the worlds youth living with HIV/AIDS (WHO & UNAIDS, 2006).

Prevalence of HIV/AIDS in Nigeria ranks second in the number of HIV infected adults in the sub-Saharan region with adult HIV prevalence rate of 4.4% (The International Planned Parenthood Federation (IPPF) *et al.*, 2006). Over 40% of Nigeria's population is under 15 years old (IPPF *et al.*, 2006). Young people account for over 30% of HIV cases, with prevalence nearly three times higher among 15-24 year old females than males (United Nations,

2006). The many factors that increase girls' and young women's vulnerability include early marriage, early sexual debut, polygamous relationships and multiple partners with nearly a third of 15-24 year olds been involved in high-risk sexual behavior in the last 12 months (National Population Commission (Nigeria), 2004). Furthermore, poor economic opportunities, lack of negotiation skills for sex and condom use, mixed messages around public acceptability of condom use, and lack of basic information with only 18% of females aged 15-24 years able to identify ways to prevent HIV are additional factors contributing to the higher prevalence of HIV/AIDS among female youths (IPPF, 2006).

The periodic sentinel sero-prevalence surveillance using specific, interest groups and geographical distribution showed that the national sero-prevalence increased from 1.8% in 1991 to 3.8% in 1993, 4.5% in 1995, 5.4% in 1999 and 5.8% in 2001 but most recently, there has been a fall to 5.4% in 2003, 5% in 2005 and 4.4% in 2007 (FMOH, 2002; NACA, 2000; Crosby *et al.*, 2001; UNAIDS, 2004). Although the current sero-prevalence rate of HIV/AIDS in Nigeria is reducing, about 2.9million adults between ages 15 and 49 years are still harboring the virus in their system and this is bound to have major socio-economics impact on the Nigerians society including reduction of life

expectancy, increased burden of medical care, and increase in the number of orphans and declines in economics growth (IPPF, 2006).

HIV spreads fastest and farthest in conditions of poverty, powerlessness and lack of information, the condition in which many young people especially in rural areas live (FMOH, 2002). Adolescents tend to experiment with little awareness of danger. In fact, risky sexual behaviors often are part of a larger pattern of adolescent behaviours (Hoffman & Futterman, 1996). Most young people have only limited knowledge about HIV/AIDS especially in the sub-urban areas (DuRant et al, 1992; Li et al, 2004; Oyo-Ita et al, 2005; Otte et al, 2008). Billions of Dollars is spent yearly by both national and international organizations towards educating people about the prevention of HIV/AIDS since the infection doesn't have any cure presently. Newer strategies are evolving everyday to keep the scourge at bay. This study aims to assess the knowledge, attitude and practice of preventive measures of HIV/AIDS among in-school adolescents in a sub-urban community in Nigeria with a view to suggesting strategies for strengthening efforts aimed at preventing HIV/AIDS among Nigerian young people.

### **Materials and Methods**

The study was descriptive in nature and utilized cross-sectional survey method to gather

information about awareness of HIV/AIDS preventive measures among in-school adolescents in Ilobu town is a sub-urban community in Orolu local government area of Osun State, Nigeria. The community has both public and private schools. The inhabitants are 85% Muslim, 13% Christian and 2% traditional. The Leslie Fischer's formula for population less than 10,000 (Araoye, 2003); with the expression  $n_f = n/1 + n/N$ ; where  $n = Z^2 pq/d^2$ , confidence interval set at 95%, normal deviation  $Z=1.96$  and  $d=0.05$  was used to calculate a minimum sample size of 336 participants for the study.

### **Sampling Technique**

In a multi-stage sampling technique, simple random sampling was utilized to select two out of three secondary schools in this community by ballot method. The students were then stratified along line of year of study. A systematic random sampling technique was employed to select the respondents from the school register into the study. The number selected was proportional to the total population of students in the two schools that have been selected into the study.

### **Study Instrument**

A semi-structure pre-tested questionnaire was administered to the secondary school students to gather information about their socio-demographic characteristics, knowledge about the means of transmission of the infection and modes of prevention of the infection, perception

of self-vulnerability to HIV infection and attitude towards HIV prevention, infected people and voluntary counseling and testing, and practice of preventing measures.

### **Scoring of Outcome Variables**

**Awareness and knowledge score:** Twenty-three questions on the study instrument were used to assess respondents' awareness of existence of HIV/AIDS and knowledge about its route of transmission and modes of prevention. One mark was awarded for every correct answer and 0 marks awarded for every wrong answer. All score were added and the mean score calculated. Respondents that scored below the mean value were categorized as having poor knowledge while those that scored above the mean value were categorized as good knowledge.

**Attitude score:** Seven questions on the study instrument were used to assess the respondents' attitude. One mark was awarded for positive attitude and 0 mark for negative attitude. All scores were added and the mean score calculated. Respondents that scored below the mean value were categorized as having poor attitude while those that scored above the mean value was equivalent to good attitude.

**Practice score:** Five questions on the study instrument were used to assess respondents' practice of preventive measures. One mark was awarded for every correct practice and 0 marks awarded for every wrong practice. All score were added and the mean score calculated.

Respondents that scored below the mean value were categorized as having to poor practice while those that scored above the mean value were categorized as good practice.

### **Data Management**

Data was collated manually, checked for errors and entered into the computer. Computer software Statistical Package for Social sciences (SPSS) version 11 was used for the analysis. Chi-square test of independence was applied to test whether preventive measure for HIV/AIDS was independent of demographic characteristics, awareness of preventive measures and attitude towards the disease and its prevention with a cut-off at p-value <0.05 level of significance and a confidence interval of 95%.

### **Ethical Consideration**

Ethical clearance and approval for the study was given by the ethical committee of the Department of Community Medicine, LAUTECH Teaching Hospital, Osogbo.

### **Results**

A total of four hundred and fifty respondents were surveyed. The age of the students ranged from 9 to 23years; most (57.8%) were between 15 and 19 years old with mean age of  $16.6 \pm 1.2$  years. Two hundred and forty-eight respondents were males (55.1%); 97.1% belonged to the Yoruba ethnic group. Majority, 420 (93.3%) respondents were single, 22 (4.9%) were

married and 8 (1.8) did not give any response. Three hundred and four (67.6%) respondents were Moslems and 133 (29.6%) were Christians. Two hundred and thirty-five (52.2%) were from monogamous family setting while 215 (47.8%) were from polygamous family type.

Awareness of the existence of HIV/AIDS was very high with only 8.0% of respondents not aware. The electronic media [i.e. Radio/TV] was the most frequent source (59.9%) of information about HIV/AIDS among the respondents; other sources include school /teachers (55.1%), parents (35.0%), peers/friends (26.7%) and posters/magazines (28.8%).

Table 1 shows respondents' knowledge of routes of transmission of HIV. Sharing of sharp object (84.9%), blood transfusion (85.6%) and sexual intercourse (83.6%) were the most known routes of transmission of HIV among the respondents. However, there were misconceptions about other routes of transmission like sharing clothing, mosquito bite, hand shake and use of toilet in 53.3% to 63.6% of respondents.

Majority of the respondents (86.3%) reported that HIV is preventable, while 6.6% and 7.1% of them think it is not preventable or do not know whether it is preventable or not respectively.

Table 1: Respondents' knowledge of the routes of transmission of HIV/AIDS.

Routes of transmission of HIV	Knowledgeable frequency (%), N=450	Not Knowledgeable frequency (%), N=450
Sharing of sharp object	382 (84.9)	68 (15.1)
Blood Transfusion	385 (85.6)	65 (14.4)
Sexual Intercourse	376 (83.6)	74 (16.4)
Breast-feeding	315 (70.0)	135 (30.0)
Mother to child (vertical transmission)	317 (70.4)	133 (29.6)
Sharing of clothing	164 (36.4)	286 (63.6)
Mosquito bite	180 (40.0)	270 (60.0)
Hand shake	207 (46.0)	243 (54.0)
Using of toilet	210 (46.7)	240 (53.3)

Table 2 shows respondents' knowledge of preventive measures against HIV/AIDS. Avoidance of sharing of sharp objects (65.1%), use of condoms (63.3%), health education (60.0%), abstinence from sex (60.2%) and faithfulness (56.4%) were the commonly known preventive measures. There was a general

misconception among the respondents (64.9%) that personal hygiene is a preventive measure; other misconceptions about preventive measures against HIV/AIDS exhibited by the respondents include avoidance of hugging (44.2%), use of insecticides (46.0%), use of herbs (34.4%) and use of native charms (3.8%).

Table 2: Respondents' knowledge of preventive measures against HIV/AIDS.

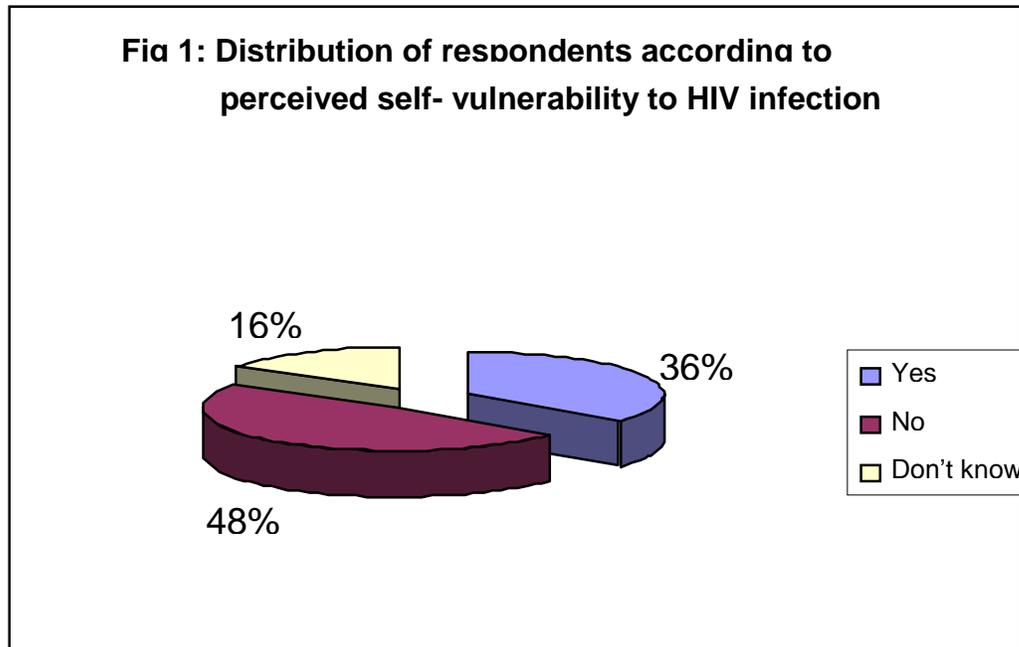
Preventive measures against HIV	Knowledgeable frequency (%), N=450	Not Knowledgeable frequency (%), N=450
Avoid sharing of sharp object	293 (65.1)	157 (34.9)
Use Condom	285 (63.3)	165 (36.7)
Health education	270 (60.0)	180 (40.0)
Abstinence from sex	271 (60.2)	179 (39.8)
Faithfulness	254 (56.4)	196 (43.6)
Personal hygiene	158 (35.1)	292 (64.9)
Avoid hugging	251 (55.8)	199 (44.2)
Using Insecticide	243 (54.0)	207 (46.0)
Use of drugs and herbs	295 (65.6)	155 (34.4)
Use of native charms	433 (96.2)	17 (3.8)

About 6.4% of the respondents believe HIV/AIDS does not exist while 13.8% do not believe it exists in Nigeria. Many respondents (78.2%) would like to be screened for HIV if the test was free. Only 93 (20.7%) respondents know their HIV status and 135 (30.0%) would

not want to know their HIV status. Discriminatory and intolerant attitudes towards HIV positive persons were prevalent as 25.6% to 48.0% of respondents cannot shake hands, hug, sleep on same bed, live in same house, share same office, be friends with or eat in same plate

with people living with HIV/AIDS (PLWHA). About one third of respondents exhibited at least four stigmatizing behavior towards PLWHAs. Figure 1 shows respondents' perception of self vulnerability to HIV/AIDS. Only 35.7% of

respondents perceived that they are vulnerable to HIV infection while 48.3% believe that they are not vulnerable irrespective of their behaviour and 16.0% did not know whether they are vulnerable or not.



Furthermore, 37.4% of respondents believe that HIV/AIDS is curable while 17.8% did not know whether it is curable or not. Perceived curative measures among these respondents include drugs, herbs, surgery, prayers/miracles and native charms. One hundred and twenty four (27.6%) of the respondents reported having ever had sex (sexual exposure). A greater proportion of sexually exposed respondents (37.1%) had their first sexual experience between the ages 15 and 19 years (Table 3). Sixty (48.4 %) respondents among the sexually active have multiple sexual partners while 15 (12.1%) have 4 or more sexual partners (Fig 2). Of these

sexually active respondents, 69 (55.6%) were sexually active as they reported sexual activity within the last six months. Eighty nine (71.8%) of them used condom, 49 (55.1%) of those who used condom use it occasionally. Forty seven (37.9%) of those who have had sexual exposure patronizes commercial sexual workers; out of this 35 (74.5%) use condom with the commercial sexual workers. Furthermore, 158 (35.1%) shares sharp objects while 113 (25.1%) can share unsterilized clipper and 42 (9.3%) of respondents can use already used needle & syringe (Table 4).

Table 3: Distribution of respondents according to age at first sexual exposure

Age group in years	Frequency (%), <i>N</i> =124
<10	13 (10.5)
10 – 14	30 (24.2)
15– 19	46 (37.1)
>19	7 (5.6)
No response	28 (22.6)

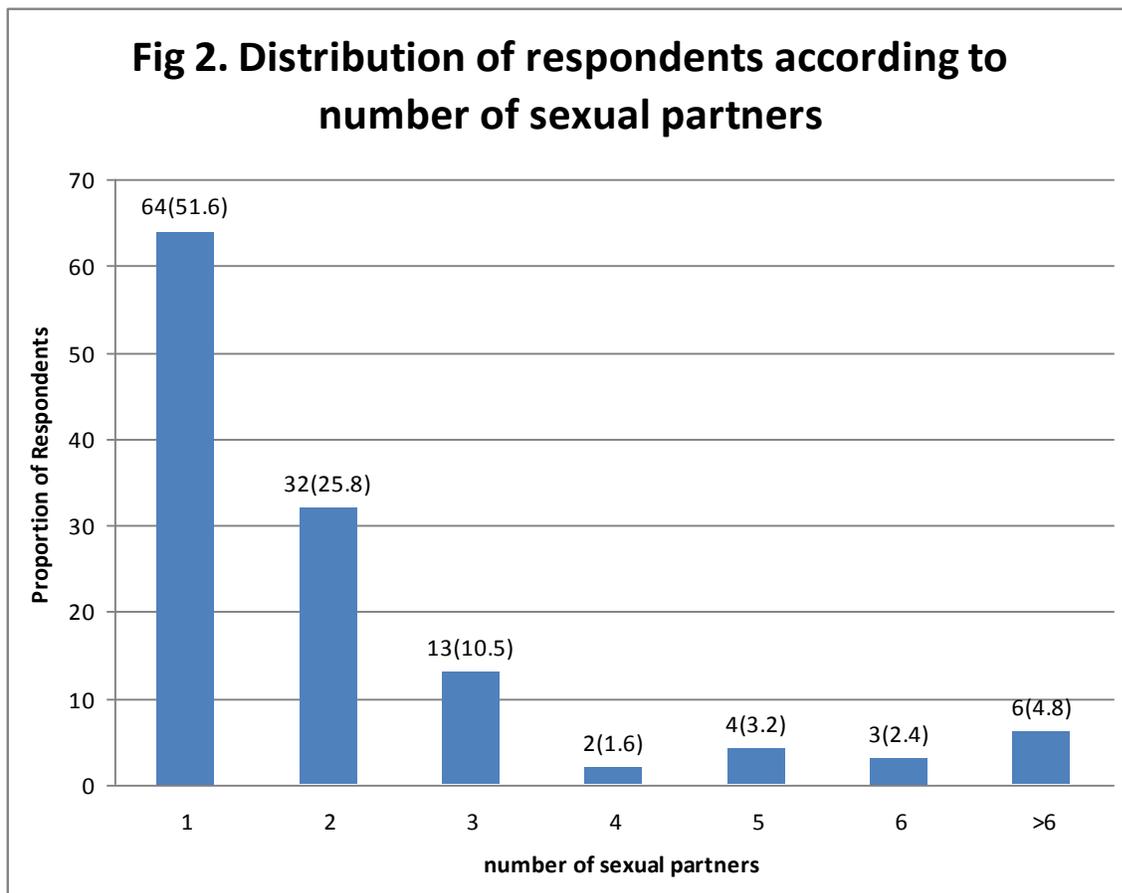


Table 4: Distribution of respondents according to sexual behavior and practice of HIV preventive measures.

Variables	Yes (%)	No (%)	No Response (%)
Sexual exposure	124(27.6)	287(63.8)	39 (8.7)
Sexual exposure in the past			
six months (n=124)	69(55.6)	55(44.4)	
Use condom	89(71.8)	35(28.2)	
Occasionally	49 (55.1)		
Always	40(44.9)		
Use condom in the last sexual exposure	64(51.6)	60(48.4)	
Patronizes commercial sexual			
workers n = 124	47(37.9)	77(62.1)	
Use condom with commercial sexual			
workers (n=47)	35(74.5)	12(25.5)	
Shares sharp objects	158(35.1)	271(60.2)	21(4.7)
Insist on sterilization of clipper before use	302(67.1)	113(25.1)	35(7.8)
Can use already used Needle & Syringe	42(9.3)	378(84.0)	30 (6.7)

The study found a significant association between male gender and sexual exposure (94 (38.4%) vs. 30 (14.9%);  $\chi^2=29.63$ ;  $df =1$ ;  $p=0.0000001$ ). There were no statistically significant association found between respondents' socio-demographic characteristics and knowledge of HIV transmission and prevention, attitude towards HIV/AIDS and practice of HIV preventive measures ( $p>0.05$ ). Table 5 shows the distribution of respondents

according to categories of knowledge of HIV/AIDS transmission and prevention, attitude towards PLWHAs and practice of HIV/AIDS prevention. Two hundred and ninety-two (64.9%) respondents were categorized as having good knowledge, while 219 (48.7%) and 213 (47.3%) were deemed to have poor attitude towards HIV/AIDS and PLWHAs and poor practice of preventive measures respectively.

Table 5: Distribution of respondents according to categories of their knowledge of HIV/AIDS, attitude towards PLWHAs and practice of HIV preventive measures.

Categories of Variables	Frequency (%), N=450
<b>Knowledge Categories</b>	
Good	292 (64.9)
Poor	158 (35.1)
<b>Attitude Categories</b>	
Good(Positive)	231 (51.3)
Poor (negative)	219 (48.7)
<b>Practice Categories</b>	
Good	237 (52.7)
Poor	213 (47.3)

## Discussion

HIV awareness among the respondents was very high (92%). This is similar to the findings among secondary school students elsewhere in Nigeria (Okediji *et al.*, 1989; Fawole *et al.*, 1999; Anochie *et al.*, 2001; Ayankogbe *et al.*, 2003; Oyo-Ita *et al.*, 2005;) but it is contrary to the finding from other developing countries where low awareness of HIV has been documented (Dassir *et al.*, 2003). Radio/Television ranks highest as the source of information on HIV, this is consistent with findings from other studies (Anochie and Ikpe, 2001; Ayankogbe *et al.*, 2003; Anahita *et al.*, 2004; Oyo-Ita *et al.*, 2005). This is important in view of the fact that mass media can reach most people in Nigeria most especially in the suburban community and as

such, there is need for more media-driven health education campaigns. However, it is apparent that the mass media has succeeded in creating awareness on HIV/AIDS but is inefficient to impact sufficient comprehensive knowledge that will aid in controlling the disease. Since this problem is linked with a persons' life style and attitude, there is need to follow up the awareness created by the mass media with a more detailed person to person health educational approach.

Majority of respondents were fairly knowledgeable about the various routes of transmission, however, almost two-thirds of the respondents have some misconceptions about HIV route of transmission. They alleged

that sharing of clothes and cutlery, mosquito bite, handshake, hugs and kissing and sharing toilets are also routes of transmitting HIV. Similar misconceptions have been documented elsewhere (Anahita *et al.*, 2004; Oyo-Ita *et al.*, 2005; Lawoyin, 2007). Furthermore, respondents also exhibited various other misconceptions about preventive measures. For example, personal hygiene, use of insecticides and use of herbs were some of the preventive measure identified by the respondents. These knowledge gaps were consistent with other HIV studies carried on in other parts of the world (Goodman and Cohall, 1989; Hingson *et al.*, 1990a; Maticka-Tyndale *et al.*, 1994). According to UNAIDS, only 44% of men and 38% of women aged 15 to 24 correctly identify ways to prevent HIV (UNAIDS, 2007) and about only 1 out of 5 had what can be classified as having high knowledge. This is consistent with the findings in this study. Also, there was generally an intolerant attitude toward HIV positive persons. This may be responsible for the observed social stigmatization toward people living with HIV/AIDS (PLWHA). Similar negative attitudes towards PLWHAs have been documented elsewhere corroborating our findings (Anahita *et al.*, 2004; Lawoyin, 2007). Discrimination against PLWHA impacts negatively on HIV preventive measures and most especially on voluntary counseling and testing (VCT) since individuals may be overly concerned about who will see their test results

and what can happen to them especially when there is no universal ARV treatment.

The negative attitudes towards PLWHAs were not surprising, as one could reasonably assume that the misperceptions and misconceptions were in part responsible for the negative attitude towards PLWHAs. This finding is consistent with observations about adolescent respondents in other studies (Walrond *et al.*, 1992; Lau and Tsui, 2005). Thus it is imperative that the educational messages in the HIV/AIDS prevention programme/campaign are correct and in-depth, so that individual and societal obstacles that impede AIDS prevention efforts (i.e. misconceptions, stigma and discrimination) will become limited. It is also essential that individuals and organizations involved in future intervention programmes for this target group tackle these misconceptions if the millennium goals are to be achieved.

About one in ten respondents still believe that HIV is not communicable and that it does not exist in Nigeria. Moreover, almost half (47.6%) of the respondents think they are not vulnerable to HIV infection. One of the major factors causing the spread of HIV/AIDS in Africa is the failure to accept the gross reality of the pandemic; the acceptance of prevention messages depend largely on the degree to which the target population actually feels that AIDS is a real threat to them. This low perception of self

vulnerability to HIV infection is significant as it may likely influence the attitude of the respondents towards risky sexual behavior and uptake of preventive measures. It should be a major point of focus in mass media health/HIV prevention campaigns among this target group.

A very low percentage of respondents (20.7%) knew their HIV status but the willingness shown towards free screening is a pointer to the fact that government and non-governmental agencies involved in HIV prevention programmes should site HIV counseling and testing centers in or near secondary schools especially in sub-urban and rural areas. One third of the sexually active respondents had their first sexual exposure between age 15 and 19, the age group found to be at highest risk of the HIV (UNAIDS & WHO, 2001). The age group at first sexual exposure is similar to that reported by the National Demographic Health Survey (NDHS, 2008) and Uthman (2008). The age of initiation of sexual intercourse is an increasingly important issue to study given that sexually active young women are at risk of multiple outcomes including early pregnancies, vesico-vaginal fistula, and sexually transmitted infections. This study equally showed a significant association between gender and sexual exposure ( $p < 0.05$ ). The study found a high level of risky sexual behaviors reported among most of the sexually active respondents. Almost half of the respondents with sexual

exposure (48.4%) have multiple sexual partners and about one tenth patronize commercial sex workers (CSW). The practice of these high risk behaviors is in contrast to the high level of awareness and fair knowledge of routes of transmission of the infection amidst the respondents and at dissonance with their low level of practice of preventive measure i.e. only 44.9% use condom consistently. This is consistent with another Nigerian study among adolescents that found the prevalence use of condom to be low at only 46.9% (Danesi, 2004) and other studies elsewhere (Adih, 1999; Thato et al, 2004; Adedimeji et al, 2008; Richards et al, 2008; Urassa et al, 2008).

Many other risk behaviors like sharing sharp objects were reported amidst the respondents. This shows that the respondents' practice of preventive measures is still poor. Although knowledge about a disease is a prerequisite for change (Fawole et al, 1999), however, it has been demonstrated that increased knowledge about AIDS is not a predictor for behavioral change (Hingson et al, 1990a and b; Diclemente, 1991; Keller et al, 1991; Onah et al, 2004). There is therefore an urgent need to review the intervention strategies that are in place to prevent HIV/AIDS among the youths in this environment especially with the necessity to include behavioral communication change strategies.

## Conclusion

The study found high level of HIV awareness coupled with a fair level of knowledge of its route of transmission and prevention though misconceptions about means of transmission and preventive measures needs to be addressed urgently. Respondents' practice of preventive measures against HIV was found to be poor and many of them have stigmatizing attitude towards HIV infected people. Low risk-perception can hinder commitment to behavior change. Strategies that focus on influencing risk-perception are recommended to prevent further transmission of the virus in young people. The failure to perceive HIV/AIDS as a personal risk has prevented majority of the youths from making commitment to sexual behavioral change. Today's youths are still vulnerable to HIV/AIDS, better methods of distributing information, education and communication about HIV/AIDS which is very well synchronized with their lifestyles is urgently needed as well as effective and creative strategies to reach and attract these groups. The most important methodology is youth's participation in thinking, designing, implementing programmes for their own target group. We recommend that HIV prevention campaign should be strengthened by including a comprehensive HIV education into the secondary school curriculum and employing behavior change communication strategies for

this target group. HIV counseling and testing centers should be made accessible to these youths by locating them in or near secondary schools in sub-urban and rural areas at free/affordable cost.

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