J Behav Health 2012; 1(4):252-259 *ISSN: 2146-8346*

GESDAV

Journal of Behavioral Health

available at www.scopemed.org

Original Research

HIV risk behaviors and knowledge of HIV/AIDS and its prevention among unmarried adolescents in Kano Metropolis, Northwestern Nigeria

Umar Muhammad Lawan[1], Sanusi Abubakar[1], Mahdi Dissi Gambo[2]

[1]Department of Community Medicine, Bayero University/ Aminu Kano Teaching Hospital
[2]Department of Community Medicine, Aminu Kano Teaching Hospital

Received: February 13, 2012

Accepted: July 20, 2012

Published Online: July 27, 2012

DOI: 10.5455/jbh.20120720042617

Corresponding Author:
Umar Muhammad Lawan,
Department of Community medicine, Bayero University/ Aminu Kano Teaching Hospital
drlawanumarus@yahoo.com

Key words: HIV/AIDS, Risk behaviour, Unmarried adolescents, Kano metropolis, Nigeria

Abstract

Background: AIDS has killed more than 25 million people since it was first recognized in 1981, making it one of the most destructive epidemics in recorded human history. HIV is most transmitted sexually and from mother to child during birth or breastfeeding. The epidemic among adolescents is the fastest growing partly because of their vulnerability and low use of preventive services. This study assessed HIV risk-related behaviours and knowledge of HIV/AIDS and its prevention among unmarried adolescents in Kano metropolis. Methodology: A descriptive cross sectional study design was used to examine 288 randomly selected adolescents in Kano from April to June 2011 using a pre-tested interviewer-administered questionnaire. Their responses were collated and analyzed using Epi Info 3.2.05 computer statistical software.
Results: Majority of the respondents were in their late adolescence (80.5%), males (50.7%), Hausa/Fulani (90%), and had at least secondary school education (86.5%). Most had heard of HIV/AIDS (93.3%), and 53.9% had good knowledge of HIV/AIDS and its prevention. Less than a quarter (11.7%) had initiated sexual intercourse before the age of 15 years; 9.2% had multiple sexual partners; and condom at intercourse was inconsistent in 13.1%. Alcohol consumption was reported by 9(3.2%), and 7(2.5%) admitted having sexual intercourse while drunk. Similarly, 8 (2.8%) reported injecting or taking illicit drugs; and 7 (2.5%) reported having sexual intercourse while under the influence of drugs. Conclusion: HIV/AIDS risk behaviours are high among adolescents in Kano despite their fair knowledge of HIV/AIDS and its prevention. There is need for targeted behavioural change interventions for at risk families as well as vulnerable adolescents in schools and out of schools.

INTRODUCTION

Slightly more than three decades after the report of the first clinical case of acquired immunodeficiency syndrome (AIDS), it still remains the most devastating disease human kind has ever faced. The epidemic is fastest growing among adolescents, partly because of their vulnerability and low use of preventive services [1]. Globally, an estimated 31.1 to 35.8 million people were infected with HIV in 2008 and 17% were less than 15 years of age. The epidemic claimed an estimated 1.7 to 2.4 million lives in that year alone [2]. Young people aged 15-24 years account for an estimated 45% of all new infections worldwide [3].

Young people are at high risk of STIs and HIV for a variety of reasons, because of their vulnerability, lack of knowledge about STIs including HIV/AIDS, not perceiving themselves at risk, lack of access to or inconsistent use of condoms, increased number of sexual partners leading to increased risk of exposure, biological factors (a young woman's cervical epithelium is more susceptible to infections); economic factors (adolescents may live or work on the street and participate in "survival sex" or "transactional sex"); and social factors (such as being forced into a sexual

relationship, lacking the skills or power to negotiate condom use, and gender, or cultural/religious norms regarding sexuality and fertility).

Adolescence is a period during which individuals try on new attitudes, roles, and behaviors [4]. For some, the experience will be one of experimentation - a passing phase, while for others it will be the beginning of a path to problems that follow them into adulthood [4]. However, adolescents remain a significant 'window of hope' for the control of the ongoing HIV/AIDS pandemic. Thus, focusing on young people is likely to be the most effective approach to confronting the epidemic, especially in high prevalence countries [1,5]. This study aimed at exploring the prevailing HIV/AIDS risk behaviour of adolescents in Kano, in addition to their knowledge of, HIV/AIDS and its prevention. It is envisaged that the research will provide useful information to policy makers and programme mangers in developing interventions for improving the reproductive health of adolescents, and in curbing the threat posed by HIV/AIDS and other STIs.

METHODOLOGY

Setting

The study was carried out among both in-school and out-of-school adolescents in Kano metropolis. The metropolis is made of eight Local Government Areas (L.G.As) consisting of Kano Municipal, Dala, Gwale, Fagge, Nassarawa, Tarauni, Kumbotso and Ungoggo LGAs.

Kano State is located in north western Nigeria and is one of the oldest and largest states in the country and perhaps also the most traditional. Commerce and agricultural production have been the backbone of the Kano economy. Islam is the dominant religion, though there are significant groups of Christians. Urban drift from rural areas within Kano state, from other states in Nigeria and from West Africa has provided a steady stream of migrants adding to Kano's growing population. There were 9,383,682 people in Kano state according to the 2006 National census [6], and the metropolitan LGAs contributed 2,828,861 (30.1%) of this figure. According to the National Demographic and Health Survey (NDHS), 20.7% of the household residents in Nigeria are within the age group 10-19 years [7]. Majority of Kano residents are traders, civil servants, farmers and students.

Study design/sampling

We used a descriptive, cross-sectional study design. A random sample of 288 adolescents was selected for the study. This was determined using the formula for estimating minimum sample size for descriptive studies [8]; and the proportion of youths that have never used condoms (20%) reported from a previous study [3]. The calculated minimum sample size was inflated to compensate for incomplete responses and non-response. The multistage sampling technique was used for selection of the study subjects: Simple random sampling was used at the first step to select four LGAs from the eight metropolitan LGAs. Thereafter, one ward was picked at random from each of the selected LGAs. In the same vein, one settlement was randomly selected from each of the selected wards by drawing lots and the houses therein were numbered. Applying probability proportionate to size (PPS) based on the number of houses in the settlements, 288 houses were selected from the selected LGAs. Finally, one eligible respondent was selected from each of the sampled houses. Where there were more than one eligible respondent in a house, one was picked by drawing lots.

Instrument description/data collection

The instrument used for data collection contained a mixture of both structured and open ended questions to elicit the socio demographic characteristics of the respondents, HIV/AIDS knowledge and HIV related risk behaviours of adolescents within a recall period of six months. The tool was hitherto pretested on 30 people. The questionnaires were administered by four trained Hausa speaking research assistants (2 males and 2 females for ease of access to both genders), and the interviews were conducted in the local language (Hausa). Informed consent was obtained from prospective respondents. The consent form was in the local language (Hausa), and literate respondents indicated acceptance by signing the consent form, while non-literate participants affixed their thumbprints. Permission and ethical clearance for the study were obtained from the Kano State Ministry for Local Government and Chieftaincy Affairs and the Ethics Committeeof Aminu Kano Teaching Hospital respectively. The data was collected in April to June 2011.

Data analysis

Data was analyzed using Epi Info® 3.5.1 statistical software package (CDC Atlanta, Georgia, USA). Quantitative data were summarized using measures of central tendency and of dispersion, while categorical data were summarized using frequencies and percentages. Respondents' knowledge of HIV/AIDS was assessed and graded using a system adopted from a previous study [9], where each correct answer was given one (1) point and wrong or "don't know" response was allocated no point. Accrued points were subsequently graded in percentages. A score of ≥70% was classified as satisfactory knowledge, while 30–69% was considered fair; and a score of <30% was considered as poor knowledge. The Chi square test (χ^2)

was used to determine relationship between categorical variables. A p value of ≤.05 was considered statistically significant. Binary logistic regression was used to determine the predictors of the adolescent' knowledge of HIV/AIDS and HIV risk behaviours.

RESULTS

A total of 282 subjects out of 288 approached agreed to be interviewed giving a response rate of 97.9 %.

Socio-demographic profile of the respondents

Majority of the respondents (80.5%) were late adolescents (age range of 16-19 years). The mean age of the respondents was 16.7 ± 1.9 years. Their ages ranged from 11–19 years as shown in Table I.

Adolescents' knowledge of HIV/AIDS and its prevention

Table 2 shows the parameters used to assess the adolescents knowledge of HIV and its prevention. Most (93.3%) had heard of HIV/AIDS. About half (53.9%) knew the meaning of the acronym HIV/AIDS, but only one-third (35.8%) knew that HIV is the cause of AIDS. In varying proportions, the respondents knew the routes of transmission of HIV and the ways through which the disease can be prevented. However, only about one-third (37.2%) knew that HIV cannot be prevented or cured with conventional medicines. More than two-thirds knew that unprotected sexual intercourse (71.3%) and multiple sexual partners (71.6%) are high risk behaviours for HIV transmission. Interestingly, less than half mentioned that sharing and/ or use of contaminated syringes and needles, alcoholism; and use of illicit drugs were high risk behaviours for the disease (Table 2).

When the adolescents knowledge was graded, more than half (53.9%) had good knowledge of HIV/AIDS (Figure 1). Electronic media were the commonest source of information through which adolescents obtained their information on HIV/AIDS and its prevention (Figure 2).

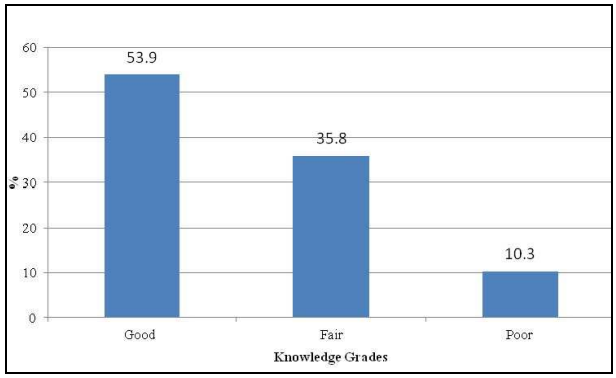

Figure 1. Respondents' Grades on their Knowledge of HIV/AIDS

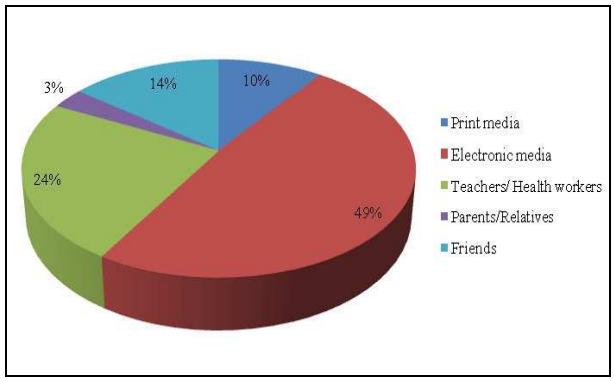

Figure 2. Respondents' most heard source of information on HIV/AIDS

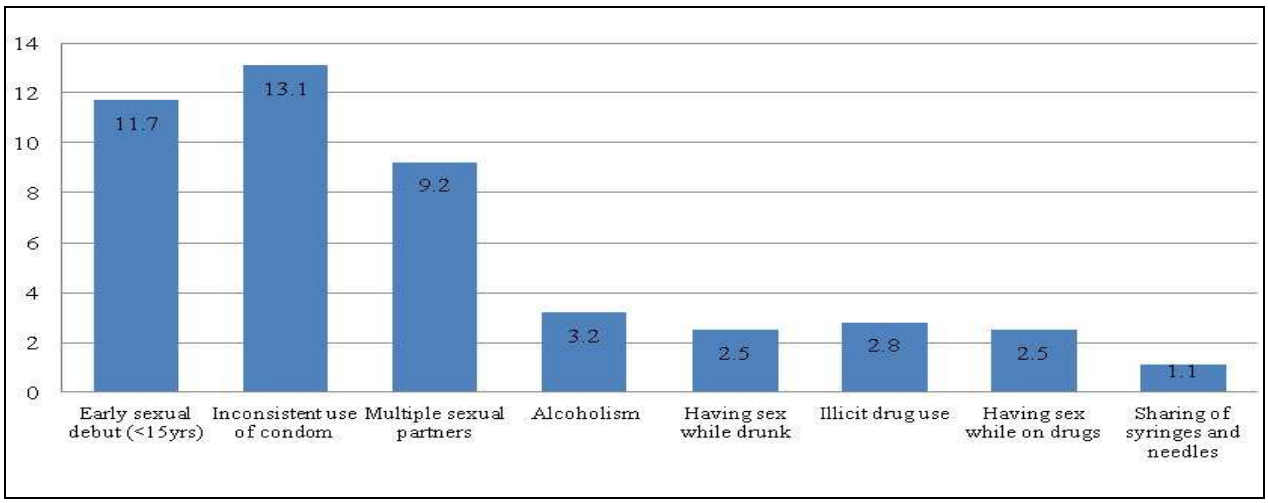

Figure 3. Prevalence (%) of HIV Risk Behaviour among Adolescents in Kano Metropolis

Table 1. Socio-demographic Profile of Respondents

Characteristic	***Frequency (%) (n = 282)***
Age group	
11-15	55 (19.5)
16-19	227 (80.5)
Gender	
Males	143 (50.7)
Females	139 (40.3)
Educational level	
Primary	11 (3.9)
Secondary	206 (73.0)
Tertiary	38 (13.5)
Qur'anic only	27 (9.6)
Religion	
Islam	270 (95.7)
Christianity	12 (4.3)
Ethnicity	
Hausa/Fulani	254 (90.0)
Yoruba	10 (3.6)
Igbo	15 (5.3)
Others (Egbira, Igala)	3 (1.1)
Occupations	
Students	215 (76.2)
Trading	45 (16.0)
Civil service	17 (6.0)
Farming	5 (1.8)

Table 2. Parameters used to assess Respondents' Knowledge of HIV/AIDS and its Prevention

Parameter	***Correct response (n =282) Frequency (%)***
- Had heard of the word HIV/AIDS	263 (93.3)
- Meaning of the acronym HIV/AIDS	152 (53.9)
- Knew that HIV is the cause of AIDS	101 (35.8)
- Knew that a healthy looking person can be a carrier of HIV	137 (48.6)
- Knew about transmission of HIV through:	
- Sexual route	247 (87.6)
- Contaminated syringes and needles	202 (71.6)
- Mother to unborn baby	154 (54.6)
- Breastfeeding	145 (51.4)
- Knew that HIV can be prevented	253 (89.7)
- Knew the ways HIV can be prevented through:	
- Abstaining from sexual intercourse	249 (88.3)
- Limiting sex to one uninfected partner	251 (89.0)
- Use of condom	250 (88.6)
- HIV counseling and testing (HCT)	171 (60.6)
- Knew HIV cannot be prevented through the use of mosquito net	168 (59.6)
- Knew HIV cannot be prevented/ cured with conventional medicine	105 (37.2)
- Awareness of HIV/AIDS risk behaviour	
- Unprotected sexual intercourse	201 (71.3)
- Multiple sexual partners	202 (71.6)
- Alcoholism	119 (42.2)
- Sharing and/ or use of contaminated syringes/ needles	79 (28.0)
- Use of illicit drugs	53 (18.8)

Table 3. Predictors of Adolescents' Knowledge of HIV/AIDS and HIV Related Behaviours

				Bivariate		*Multivariate*	
	Knowledge						
Factor	*Good/Fair (n=253)*	*Poor (n=29)*	*Total*	*Statistical test (p value)*	*O.R (95% C.I)*	*Statistical test (p value)*	*O.R (95% C.I)*
Age							
11-15	31 (12.3)	24 (82.8)	55	χ^2 =82.4	0.03	z=2.24	4.28
16-19	222 (87.7)	5(17.2)	227	(0.001)	(0.01;0.09)	(0.025)	(1.20;15.30)
Education							
Secondary+	243 (96.0)	0 (0.0)	243	Fisher's exact	-	z=5.03	11.67
No secondary	10 (4.0)	29 (100.0)	39	(0.001)			(4.48;30.37)
	Sexual activity						
	Active (n=46	***Not active (n=236)***					
Age							
11-15	2 (4.3)	53 (22.5)	55	Yates χ^2 =6.93	0.16	z=2.64	0.12
16-19	44 (95.7)	183 (77.5)	227	(0.008)	(0.03; 0.69)	(0.008)	(0.03;0.58)
Gender							
Male	30 (65.2)	113 (47.9)	143	χ^2 = 4.63	2.04	z=0.46	-
Female	16 (34.8)	123 (52.1)	139	(0.031)	(1.01; 1.75)	(0.647)	
Knowledge							
Good/fair	40 (87.0)	229 (97.0)	269	Fisher's exact	0.20	z=0.00	-
Poor	6 (13.0)	7 (3.0)	13	(0.027)	(0.06; 0.73)	(0.997)	
Education							
Secondary+	31 (67.4)	212 (89.8)	243	χ^2 = 16.27	0.23	z=0.97	-
No secondary	15 (32.6)	24 (10.2)	39	(0.001)	(0.10; 0.53)	(0.334)	
	Alcohol abuse						
	Abuse (n=9)	***Do not abuse (n=273)***					
Education							
Secondary+	8 (88.9)	57 (20.9)	65	Fisher's exact	30.3	z=0.08	-
No secondary	1 (11.1)	216 (79.1)	217	(0.001)	(3.73; 659.45)	(0.933)	
Knowledge							
Good/fair	5 (55.6)	264 (96.7)	269	Fisher's exact	0.04	z=0.00	-
Poor	4 (44.4)	9 (3.3)	13	(0.001)	(0.01; 0.23)	(0.999)	
	Condom use at last sex						
	Used (n=8)	***Did not use (n = 38)***					
Education							
Secondary+	8 (100.0)	21 (55.3)	29	Fisher's exact	-	-	-
No secondary	0 (0.0)	17 (44.7)	17	(0.016)			
	Sexual partners						
	Multiple (n=26)	***Single (n=20)***					
Education							
Secondary+	23 (88.5)	6 (30.0)	29	Yates χ^2 =14.17	17.89	-	-
No secondary	3 (11.5)	14 (70.0)	17	(0.001)	(3.20; 116.78)		

The adolescents' knowledge of HIV/AIDS and its prevention was significantly associated with their level of education (χ^2 =82.4, $p < 0.05$) and age (Fishers' exact $p < 0.05$). Following binary logistic regression in a model consisting of respondents' age and level of education, both variables were found to predict the adolescents' knowledge of HIV/AIDS and its prevention significantly (Table 3).

Prevalence of HIV risk behavior and HIV/AIDS/ STIs prevention

Forty-six (16.3%) of the adolescents had initiated sexual intercourse. Less than a quarter (11.7%) initiated sexual intercourse before the age of 15 years. The minimum age of sexual debut was 10 years, with an average of 16 ± 2 years. Twenty-six (9.2%) of the adolescents had multiple sexual partners. The average number of sexual partners among the sexually active respondents within the last 6 months preceding this survey was 5 ± 4, and condom use during intercourse was inconsistent in 13.1%. However, condom was used during respondents' last sexual encounter in 8 (2.8%). Alcohol consumption was reported by 9 (3.2%), and 7 (2.5%) admitted having sexual intercourse while drunk. Similarly, 8 (2.8%) reported injecting or taking illicit drugs; and 7 (2.5%) reported having sexual intercourse while under the influence ofdrugs (Figure 3).

Thirty-eight (82.6%) of the sexually active adolescents used condoms inconsistently for protection from sexually transmitted infections (STIs) including HIV/AIDS while the remaining used traditional remedies. However, those that were not sexually active claimed that they abstain from sex in order to protect themselves from HIV/AIDS and other STIs.

The prevalence of HIV risk related behaviours among the adolescents studied were associated with some socio-demographic variables. Sexual activity was significantly associated with the adolescents' age (Yates corrected $\chi^2 = 6.93$, $p < 0.05$), gender ($\chi^2 = 4.63$, $p < 0.05$), education ($\chi^2 = 16.27$, $p < 0.05$), and with their knowledge of HIV/AIDS and its prevention (Fisher's exact $p < 0.05$). The younger adolescents were less likely to be sexually active compared to their older counterparts [O.R = 0.16 (0.03; 0.69). On the other hand, the male adolescents were more likely to be sexually active than the females. Interestingly, the adolescents that had no secondary school level of education [O.R = 0.23 (0.10; 0.53)] and those with poor knowledge of HIV/AIDS [O.R = 0.20 (0.06; 0.73)] were less likely to be sexually active (Table 3).

The educational status of the adolescents was also significantly associated with alcohol abuse (Fisher's exact $p < 0.05$), condom use during last sexual encounter (Fisher's exact $p < 0.05$), and having multiple sexual partners (Yates corrected $\chi^2 = 14.17$, $p < 0.05$). Those with at least secondary school level of education were more likely to have abused alcohol [O.R = 30.3 (3.73; 659.45)] and to have had multiple sexual partners [O.R = 17.89 (3.20; 116.78)]. On binary logistic regression however, only the respondents' age emerged as an independent predictor of sexual activity in the adolescents (Table 3).

DISCUSSION

Sexual and reproductive health issues have continued to pose a challenge to the health of young adults in Nigeria. Improving the situation is therefore essential for the success of contemporary interventions for the global control of the HIV/AIDS pandemic.

The respondents' awareness of HIV/AIDS in this study concurs with the findings of a recent national survey [7] as well as the finding of a past study among adult residents from a rural community in the study state [9]. Interestingly, the adolescents' comprehensive knowledge of HIV/AIDS and its prevention was not as widespread as the awareness of the disease itself, although the majority was adjudged to have good to fair knowledge of the disease. The observed level of knowledge compares well with what was obtained among in-school adolescents in south-east Nigeria [10] but higher than that reported among the adult residents of rural Kano [9]. The observed difference may not be unconnected with socio-cultural and demographic differences of the study populations. The adolescents' knowledge of HIV/AIDS was however found lacking in specific areas. For instance, more than two-thirds were ignorant of the causative agent of AIDS. In addition, barely above half knew about HIV transmission from mother to an unborn child or through breastfeeding, although a high proportion was familiar with the spread of the disease through sharing of contaminated syringes and needles. However, the respondents' knowledge of the spread of the disease through the use of sharp objects is lower than what was reported from Lagos, Nigeria [3].

It is well acknowledged that good health knowledge is crucial to the adoption of healthy lifestyles. Good health information has the potential of reducing exposure and the risk of getting endangered by avoidable behaviours. The urge for sexual relationships among adolescents is inherent and natural and is perhaps exaggerated by observations of sexual relationships of older adults either in real life or through audio visual media such as television. If not properly guided, adolescents will be left at the mercy of their in-experiences which may push them towards the risks of contracting HIV/AIDS and/or other STIs. The behaviour analytic theory of change/ learning theory assert that complex behaviour is learned gradually by imitation and reinforcement through the modification of simpler behaviours [11]. In other words, individuals learn by duplicating behaviours they observe in others, and that rewards are essential to ensuring repetition of desired behaviour.

We observed in this study that a significant number of the adolescents were not only sexually active, but had multiple sexual partners. The findings are in keeping with the reports of the National Demographic, and Health Survey [7] and on a study of a nationally representative sample of adolescent Nigerians [12]. However, the youth risk behaviour surveillance of the United States reported higher figures in 2009 among high school students nationwide: 34.2% were currently sexually active, 38.9% of currently sexually active students had not used a condom during their last sexual intercourse, and 2.1% of students had ever injected an illegal drug [13]. Similarly, among the English speaking Caribbean adolescents it was reported that 38% were sexually active, and 19% had multiple sexual partners [14]. This situation is disturbing considering the fact that most of HIV transmission especially in the developing world occur through the heterosexual route. The situation becomes more alarming with the observation that most of the sexually active adolescents reported being inconsistent with condoms use during intercourse. In addition, few of the adolescents reported

using alcohol and injecting or taking illicit drugs; and most reported having unplanned sexual intercourse while intoxicated and most likely without condoms.

It is worth stressing at this juncture that we observed that the younger adolescents constitute the majority of those that displayed poor knowledge of HIV and its transmission. This, against the back drop of the adolescents' minimum age of sexual debut (10 years) is a clear testimony that the introduction of sex education programme at primary education is a veritable means of reducing the risk. This is corroborated by the finding that the younger adolescents with no secondary education were less likely to be sexually active, and the older ones that constitute the majority of those in secondary schools were more associated with most of the HIV risk related behaviour. This buttresses the fact that the adolescents inadvertently acquire and propagate such practices/ behavior informally. Salvaging this situation will require that the adolescents get special parental guidance on reproductive health ab-initio from home. This is especially so for out of school group that constitutes a significant proportion of adolescents in the northern part of Nigeria[7]. However, the growing concern over the conspiracy of silence that exists over sexual and reproductive health issues between the adolescents and the parents or older adults in northern Nigeria remains a challenge and seems to contribute significantly to the perpetuation of the poor sexual health of adolescents in this region. For instance, the attempt at introducing sexual health education at primary school level in Nigeria was vehemently rejected especially in the northern part of Nigeria. Similarly, educating the youth about condoms is sometimes controversial with some people believing it promotes early sexual initiation [7]. Thus, addressing the sexual and reproductive health of adolescents in Nigeria will require the concerted efforts of researchers, the families, communities, non-governmental organizations (NGOs) and the national health authorities. The health authorities should partner with researchers and relevant development partners to package and implement behavioural change communication initiatives on reproductive health needs of adolescents. These should target familiesas well as vulnerable adolescents in and out of schools.

COMPETING INTEREST

We (the authors) declare that we have no competing interests.

AUTHORS' CONTRIBUTION

Lawan UM, Abubakar S, Gambo MD. All authors read and approved the final manuscript.

REFERENCES

1. Guiella G and Madise NJ. HIV/AIDS and sexual-risk behaviors among adolescents: Factors influencing the use of condoms in Burkina Faso. *African Journal of Reproductive Health* 2007; 11(3): 182-193
2. Joint United Nations Programme on HIV /AIDS and World Health Organisation. AIDS Epidemic Updates 2009. http://www.unaids.org/en/KnowledgeCentre/HIVData/EpiUpdate/EpiUpdArchive/2009/default.asp. Accessed on 16th September 2010.
3. Christopher OD. Knowledge, Perception and Behavior of Nigerian Youths on HIV/AIDS. *The Internet Journal of Health* 2009; 9 (1): 12
4. Unite States Department of Health. The long term impact of adolescents' risky behavior and family environment. 2007. http://aspe.hhs.gov/HSP/riskybehav01/execsum.htm.Accessed on 16th September 2010.
5. World Health Organisation. Child and Adolescents Health and Development: Young people a window of hope in the HIV AIDS Pandemic. http://www.google.co.il/search?hl=iw&source=hp&q=www.who+int%2Fchild-adolescent-health%2FHIV%2FHIV_adolescents.htm.&meta=&aq=f&aqi=&aql=&oq=&gs_rfaiAccessed on 16th September 2010.
6. National Bureau of Statistics. 2006 Population Census. Federal Republic of Nigeria. http://www.nigeriastat.gov.ng. Accessed 7th March 2010.
7. National Population Commission and ICF Macro.Nigeria Demographic and Health Survey 2008. Federal Republic of Nigeria. Abuja, Nigeria. November 2009.
8. Lwanga SK, Lemeshow S. Sample size determination in health studies, a practical manual. Publication of World Health Organization. 1991: 1-3.
9. Iliyasu Z, Abubakar IS, Kabir M and Aliyu MH. Knowledge of HIV/AIDS and attitude towards voluntary counseling and testing among adults in a rural community in Northern Nigeria. *Journal of National Medical Association* Dec.2006; 98(12):1917-1922.
10. Okonta PI, Oseji MI. Relationship between knowledge of HIV/AIDS and sexual behaviour among in-school adolescents in Delta State, Nigeria. *Niger J Clin Pract*2006 Jun; 9(1):37-39.
11. Family Health international. "Behavior Change – A Summary of Four Major Theories." 16 November 2007. FHI.org.
12. Fatusi AO and Blum RW. Predictors of Early sexual initiation among a nationally representative sample of Nigerian adolescents. *Bio Med Central (BMC) Public Health* 2008; 8: 136.
13. Eaton DK, Kann L, Kinchen S,Shari Shanklin MS,James Ross MS, Joseph Hawkins MA et al. Youth risk behaviour surveillance – United States, 2009. Morbidity

and Mortality Weekly Report. June 2010; 59 (SS-5): 20-23.

14. Rohan GM, Paula N and Shamin R. Health risk behaviors among adolescents in English-Speaking Caribbean: A review. *Child and Adolescent Psychiatry and Mental Health* 2009, **3:**10doi:10.1186/1753-2000-3-10. Available at http://www.capmh.com/3/1/10. Accessed on 21st November 2010).