ORIGINAL ARTICLE

Knowledge of HIV/AIDS among secondary school adolescents in Osun state, Nigeria

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Abstract

Background and Objectives: This study aimed to assess the knowledge of secondary school pupils in Osun State about HIV/AIDS and the sources of their information.

Materials and Methods: A multistage random sampling technique was used to select 592 secondary school pupils from 5 local government areas of Osun State, Nigeria. A self-administered questionnaire was used which composed of questions on their knowledge and sources of information about HIV/AIDS.

Results: About half believed that HIV can be contracted via mosquito bites and 53.7% believed via kissing. Half of the respondents agreed that a person who looks healthy can be infected and possess the ability to describe the look of an infected person. Majority (92.6%) claimed to have heard about HIV/AIDS prior to the study. More than half (67.8%) agreed that HIV/AIDS is a life-threatening disease, 29.4% said there is a cure for AIDS, and 77.6% thought that the government is doing enough to deal with the disease. The most important sources of HIV/AIDS information among the respondents were the media and the least important sources of information were the traditional healers (35.3%).

Conclusion: This study revealed a high-level misconception among secondary school pupils in Osun State, Nigeria. Mass media was the major source of information with doubtful effectiveness evidenced by obvious erroneous beliefs. An improved multisectorial approach in HIV/AIDS education with greater participation of school and public libraries is advised.

Key words: Adolescents, HIV/AIDS, information, knowledge

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Introduction

Adolescence is a developmental period marked by discovery and experimentation that comes with a myriad of physical and emotional changes. During this time of growth and change, young people get mixed messages. Teens are urged to remain abstinent while surrounded by images on television, movies, and magazines of glamorous people having sex, smoking, and drinking. And in the name of culture, religion, or morality, young people are often denied access to information about their bodies and health risks that can help keep them safe.[1]

In the developing world, improved treatment and care have decreased the number of new cases of HIV/AIDS among children and increased the number and proportion of infected children surviving to and through adolescence, while the number of newly acquired cases among adolescents and young adults continues to rise.[2]

The available statistics do not provide accurate estimates of group prevalence, there is ample evidence to suggest that infection rates are higher in urban areas and among young people aged 15–24 years.[3,4]

Health programs generally make provisions for adults and young children, but adolescents have largely been overlooked. There is a need for governments to focus more

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on adolescents through an integrated approach to their health, education, and social needs.[5]

A case study of Nakuru municipality in Kenya[6] reveals that the provision of HIV/AIDS information in secondary schools was not adequate. It was deduced that several reasons including lack of well-defined policies stipulating how information should be provided and lack of appropriate HIV/AIDS information resources in school were responsible for the inadequacy. It was concluded that pupils in secondary schools need to be informed about HIV/AIDS in order to influence their behavior to avoid HIV infection.

Previous studies about the knowledge of HIV/AIDS among secondary school adolescents in Nigeria concluded that general awareness on the disease may be high but the specific knowledge of the disease is still poor.[7,8] One-third to one-half of the respondents believed that a person can get infected with HIV through mosquito bites, believed that an infected teacher or pupil should not be allowed to continue teaching or attending school, and have not talked about HIV/AIDS with their boy or girl friends or their parents.

Sources of information about HIV/AIDS among pupils were found to be commonly television shows followed by parents,[9] and others sources were electronic media,[10] school,[11] and parents and school.[12]

It is acknowledged that health information messages are thrown at adolescents from many directions and can be infallibly declared that dubious information may result in negative financial, social, or personal consequences; hence, health information with its peculiarity can literally be a matter of life and death. Therefore, having accurate knowledge about AIDS is important "to counter myths, to reduce associated fear and anxiety, to change behavior that puts them at risk, and to create a more humane and compassionate response to individuals with the disease."[13] Consequently, the attempt to understand how secondary school adolescents assess information constitutes the objective of this study.

Materials and Methods

Osun State is one of the states in south-western Nigeria. Five out 30 local government areas (LGAs) were randomly selected for the study. In each of the LGA headquarters are public libraries owned by the local government. One national and the state libraries are situated in Osogbo (state capital). All the libraries were funded by the respective owner governments. The primary users of these public libraries come from the localities surrounding them. One secondary school was randomly selected from each of the five LGAs from a list provided by the Ministry of Education (Source: Guidelines for admission into junior secondary schools and technical colleges 2005/2006 session, Ministry of Education, Osun State). All the randomly selected five schools provided education to pupils of all grades of Junior Secondary Schools (JSS) 1–3 and Senior Secondary schools (SSS) 1–3 with average enrolment of about 20–25 pupils in each class.

From the six grade levels in the schools, one class each was randomly selected with all the available pupils participating in the study. Informed consent was obtained from the school principals and the pupils before the questionnaires were administered and the teachers were not permitted to participate in the study.

A questionnaire consisting of two sections was used. The first section composed of questions that tested their knowledge about causes, mode of transmission, prevention, and treatment of HIV/AIDS. This section was adapted with slight modification from the questionnaire developed by the Horizons and used by the Population Council.[14]

The second part was on sources of information on HIV/AIDS which was adapted from the questionnaire used by the City of Long Beach Department of Health and Human Services.[15] Five hundred and ninety-two questionnaires were administered to the pupils within a 1-month period (January 2008). The questionnaire took about 15 minutes to complete and all of them were retrieved immediately. The filled questionnaires were analyzed using SPSS for Windows, version 9.0 (SPSS Inc., Chicago, IL, USA). The analysis included frequency distribution and categorical variables were tested for association using the chi-square test. The level of significance was set at $P \leq 0.05$.

Results

There were 592 secondary school pupils who participated in this study but 11 questionnaires were inadequately completed which rendered them inadequate for interpretation and therefore discarded. Out of the remaining 581 respondents in the study were 277 (47.7%) males and 304 (52.3%) females. The class distribution showed that there were 97 first year JSS pupils (JSS I), 102 JSS II, 89 JSS III, 112 first year SSS pupils (SSS I), 93 SSS II, and 87 SSS III. Their ages ranged from 11 to 25 years [mean 14.15 (SD±2.447) years].

Table 1 shows that 538 pupils (92.6%) claimed to have heard about HIV/AIDS prior to the study with slightly more females (95.1%) than males (89.9%). Concerning how an HIV agent is transmitted, 15.5% agreed that the virus can be spread by sleeping in the same room with an infected person, 15% said by using the same bathroom, 10.5% said by holding hands, 22.4% said by sharing meal, 16.2% said by touching or hugging, and 9.6% said that it can be transmitted by sitting next to an infected person. Those who agreed that

the virus can be transmitted through kissing and mosquito bites were 53.7% and 48.2%, respectively.

The respondents who noted the virus can be transmitted through kissing were as high as 70.1% among the first year JSS pupils.

Those who agreed that the virus can be transmitted from a pregnant mother to an unborn baby were 73.1%: 83.8% through unsterile instruments and 90.4% through blood transfusion.

On the protective measures to prevent contracting the virus, 76.6% agreed that people can protect themselves by using condoms and 67.5% by avoiding sexual intercourse.

About 52.2% of the respondents agreed that a person who looks healthy can be infected while 51.1% said that they can describe what a person who has AIDS looks like. A total of 67.8% agreed that HIV/AIDS is a life-threatening disease, 29.4% said there is a cure for AIDS, and 77.6% thought that the government is doing enough to deal with the disease [Table 1].

Statistically significant differences were observed in the knowledge on HIV/AIDS among the pupils regarding their classes. The JSS pupils had more correct answers on some knowledge questions about HIV transmission such as questions on getting the virus through sleeping with an infected person, sharing the same bathroom, holding hands, eating together, hugging, sitting together,

Table 1: Gender distribution of their responses

Variables	Gender	Correct	Incorrect	χ^2, df, *P* value
Have you heard of HIV or the disease called AIDS?	Male	249	28	5.66, 1, 0.02
	Female	289	15	
A person can get AIDS by sleeping in the same room with an infected person	Male	50	227	1.95, 1, 0.16
	Female	42	262	
A person can get AIDS by using the same bathroom with an infected person	Male	50	227	3.94,1,0.05
	Female	37	267	
A person can get AIDS by holding hands with an infected person	Male	29	248	0.00, 1, 0.98
	Female	32	272	
A person can get infected with the AIDS virus by sharing a meal with a person who has HIV	Male	68	209	1.44, 1, 0.23
	Female	62	242	
A person can get AIDS by touching or hugging someone with AIDS	Male	50	227	1.37, 1, 0.24
	Female	44	260	
A person get AIDS by sitting next to a person with AIDS	Male	26	251	0.04, 1, 0.84
	Female	30	274	
You can get AIDS from kissing someone who has AIDS	Male	137	140	3.53, 1, 0.06
	Female	174	130	
A person can get infected with the AIDS virus through mosquito bites	Male	133	144	0.01, 1, 0.94
	Female	147	157	
Can the virus that causes AIDS be transmitted from a pregnant mother to her unborn baby?	Male	216	61	6.28, 1, 0.01
	Female	209	95	
A person can get infected with the AIDS virus through unsterile instruments and needle prick	Male	237	40	1.18, 1, 0.28
	Female	250	54	
A person can get infected with the AIDS virus through blood transfusion	Male	251	26	0.04, 1, 0.84
	Female	274	30	
People can protect themselves from the AIDS virus by using a condom correctly every time they have sex	Male	213	64	0.03, 1, 0.87
	Female	232	72	
People can protect themselves from getting infected with the AIDS virus by not having sexual intercourse	Male	183	94	0.48, 1, 0.49
	Female	209	95	
A person who looks healthy can be infected with the AIDS virus	Male	158	119	5.07, 1, 0.02
	Female	145	159	
You can describe what a person with AIDS looks like	Male	138	139	0.36, 1, 0.55
	Female	159	145	
AIDS is a life-threatening disease	Male	185	92	0.26, 1, 0.61
	Female	209	95	
There is a cure for AIDS	Male	80	197	0.08, 1, 0.78
	Female	91	213	
Do you think the government is doing enough to deal with HIV/AIDS?	Male	210	67	1.00, 1, 0.32
	Female	241	63	

and through kissing. These parameters were statistically significant ($P \leq 0.05$) over those of the SSS pupils [Table 2]. The knowledge of SSS pupils was better than the JSS pupils in the following areas: mother-to-child transmission, use of unsterile materials, blood transfusion, protection derived from the use of condoms, and abstinence from heterosexual intercourse. The JSS pupils believed that AIDS has a cure while SSS pupils believed that the government is doing well enough to deal with HIV/AIDS ($P \leq 0.05$).

From Table 3, it can be observed that the major sources of information among the male pupils were television shows (76.9%), radio programs (75.5%), and newspapers/handbills (74.4%), while traditional healers (36.1%) and public library (39.4%) were the least important. Among the females, major sources of information were television shows (78%), newspapers/handbills (76.3%), and radio programs (73.4%) while the least important sources were traditional healers and the public library. It can also be observed in Table 3 that television shows were the major sources of information among the JSS I (72.1%), JSS II (66.7%), SSS I (77.7%), and SSS II (84.9%) pupils. Television shows was the second major source of information among JSS III (69.7%) and SSS III (81.6%) pupils. Generally, the major sources of information for the JSS pupils were television shows, newspaper/handbills, and radio/hospitals and health centers while the senior pupils had newspapers/handbills, and radio and television shows as their major sources of information.

Table 2: Distribution of their responses according to their classes

Variables	Class	Correct	Incorrect	χ^2, df, *P* value
Have you heard of HIV or the disease called AIDS?	JSS	262	26	2.20, 1, 0.14
	SSS	276	17	
A person can get AIDS by sleeping in the same room with an infected person	JSS	60	228	11.56, 1, 0.00
	SSS	31	262	
A person can get AIDS by using the same bathroom with an infected person	JSS	52	23	4.26, 1, 0.04
	SSS	35	258	
A person can get AIDS by holding hands with an infected person	JSS	40	248	6.98, 1, 0.01
	SSS	21	272	
A person can get infected with the AIDS virus by sharing a meal with a person who has HIV	JSS	72	216	2.27, 1, 0.13
	SSS	58	235	
A person can get AIDS by touching or hugging someone with AIDS	JSS	57	231	6.09, 1, 0.02
	SSS	36	257	
A person can get AIDS by sitting next to a person with AIDS	JSS	36	252	6.13, 1, 0.01
	SSS	19	274	
You can get AIDS by kissing someone who has AIDS	JSS	170	118	6.94, 1, 0.01
	SSS	141	152	
A person can get infected with the AIDS virus through mosquito bites	JSS	138	150	0.02, 1, 0.90
	SSS	142	151	
Can the virus that causes AIDS be transmitted from a pregnant mother to her unborn baby?	JSS	198	90	50.19, 1, 0.00
	SSS	227	16	
A person can get infected with the AIDS virus through unsterile instruments and needle prick	JSS	218	70	27.81, 1, 0.00
	SSS	269	24	
A person can get infected with the AIDS virus through blood transfusion	JSS	245	43	16.92, 1, 0.00
	SSS	279	14	
People can protect themselves from the AIDS virus by using a condom correctly every time they have sex	JSS	205	83	8.70, 1, 0.00
	SSS	239	54	
People can protect themselves from getting infected with the AIDS virus by not having sexual intercourse	JSS	181	107	5.56, 1, 0.02
	SSS	211	82	
A person who looks healthy can be infected with the AIDS virus	JSS	121	167	23.52, 1, 0.00
	SSS	182	111	
You can describe what a person with AIDS looks like	JSS	149	139	0.09, 1, 0.77
	SSS	148	145	
AIDS is a life-threatening disease	JSS	195	93	0.00, 1, 0.96
	SSS	199	94	
There is a cure for AIDS	JSS	101	187	9.31, 1, 0.00
	SSS	69	224	
Do you think the government is doing enough to deal with HIV/AIDS?	JSS	214	74	4.46, 1, 0.04
	SSS	239	54	

Table 3: Gender distribution of respondent sources of AIDS information

Sources of information	Gender	Correct	Incorrect	χ^2, df, *P* value
From your parents	Male	120	157	13.46, 1, 0.00
	Female	178	126	
From friend or relatives	Male	130	147	0.25, 1, 0.62
	Female	149	155	
Live testimony of a person infected with HIV	Male	132	145	2.80, 1, 0.09
	Female	166	138	
Doctors/nurses/other hospital workers	Male	201	76	3.11, 1, 0.08
	Female	200	104	
Television shows	Male	213	64	0.80, 1, 0.37
	Female	224	80	
Internet browsing	Male	136	141	5.45, 1, 0.02
	Female	120	184	
Traditional healers	Male	100	177	0.16, 1, 0.69
	Female	105	199	
Radio programs	Male	209	68	0.33, 1, 0.56
	Female	223	81	
Newspapers/handbills	Male	206	71	0.30, 1, 0.59
	Female	232	72	
Hospitals/health centers	Male	203	74	0.47, 1, 0.49
	Female	215	89	
Posters displayed in public places	Male	183	94	8.85, 1, 0.00
	Female	164	140	
School library	Male	131	146	0.09, 1, 0.77
	Female	140	164	
Public library	Male	109	168	0.62, 1, 0.43
	Female	110	194	

The traditional healers, public libraries, and the school libraries remained the least important sources of HIV/AIDS information.

From Table 3, it can be observed that there were statistically significant differences between male and female pupils' sources of AIDS information ($P \leq 0.05$). More males than females pupils utilized information from parents (120, $n=347$), Internet browsing (136, $n=256$), and posters (183, $n=347$). Female pupils tended to access AIDS information from radio, television, newspapers/handbills, school library, friends/relatives, and listening to live testimony of the HIV infected, though these were not statistically significant.

Discussion

The emerging result from this study showed that the awareness on HIV/AIDS of respondents was fairly high (92.6%) [Table 1]. Gender differences were also found for few variables. Several other studies have reported that the level of awareness on HIV/AIDS is high in Nigeria[15-18] and other cultures.[19-22]

Cohall and colleagues[23] have noted that levels of awareness do not necessarily reflect an understanding of how sexually transmitted infections (STIs) such as HIV can be transmitted or prevented. The respondents in this study do not demonstrate a perfect knowledge about AIDS transmission in that significant percentages had incorrect notions about how the virus is not transmitted; 53.7% and 48.2% of the respondents agreed that the virus can be contracted through kissing and mosquito bite, respectively. The observed values were a lot higher among the JSS pupils [Table 2]. This may reflect their poor understanding as a high school junior. Several misconceptions were noted in this study; major among them was the fact that 48.2% of respondents [Table 1] agreed that HIV can be transmitted through mosquito bites, even though it is now a common knowledge that the HIV cannot be transmitted through mosquito bites. In sub-Sahara Africa where mosquitoes are ubiquitous, the expected chance of contracting HIV should be higher than the reality but this is not so. It also poses a compliance challenge for any educational intervention effort targeted at this group.[8] More than half agreed that HIV can be transmitted by kissing an infected person. A casual contact through closed-mouth or "social" kissing is not a risk for the transmission of HIV. Because of the potential for contact with blood during "French" or open-mouth kissing, CDC recommends against engaging in this activity with a person known to be infected. Contact with saliva, tears, or sweat has never been shown to result in

the transmission of HIV.[24] These erroneous beliefs are a clear indication of the poor knowledge of the epidemiology of the disease which might have influenced their attitude and behavioral pattern.

It was concluded that adolescents' baseline knowledge about AIDS in USA indicated a general increase since 1985 and grade level differences existed, with older pupils having more knowledge.[25,26] This was in agreement with the present study. Knowledge has been said to linearly increase with grade level.[27]

In recent years, HIV/AIDS reporting has drastically increased across Nigeria because of the concerted effort to meet the target of halting the spread of disease and other killer diseases by 2015 in consonance with the declaration of Millennium Development Goals (MDGs). Many intervention programs have been devised to confront the prevailing lack of information appropriate to help people in their personal health matters. This may have influenced the high level of awareness among the respondents in this study.

Female participants had slightly higher knowledge scores compared with the male pupils. This is consistent with the findings of Anderson *et al*.[28] which revealed that female participants had slightly higher knowledge scores compared with the male participants.

It is also significant that only about half of the respondents believed that a person who sleeps with an HIV infected can contract the virus while others still believed that a healthy-looking individual can be infected with the virus, while 29.4% still believed that there is a cure for AIDS. It is our opinion that these results provide additional evidence to the dire need for education about HIV/AIDS targeted at young people in Osun State. Reassuring and positive findings are that about two-thirds of respondents noted that AIDS is a life-threatening disease, and the efforts of the government are believed to be enough to deal with the disease. The import of this is that any effort of government at preventing the disease will be accepted and supported.

In agreement with the findings of Yazdi *et al*.,[29] radio and newspapers/handbills were the three main sources of information on HIV/AIDS [Table 3]. This was in agreement with previous studies that said that Nigerian newspapers carry moderate reports on sexually transmitted diseases including HIV/AIDS.[30] Information on AIDS is more frequently reported to be obtained from the mass media which apparently has succeeded in creating awareness on HIV/AIDS.[31,17] It is the opinion of the authors that television, radio, and other medical reporters therefore have a daunting task. They must be accurate, authoritative, and compassionate. They also need to understand the terminology, physiology, epidemiology, study design, and statistical analysis to keep health news in context for the viewer.

Suffice to argue that since this problem is linked with lifestyle and attitude, there is a need to follow up the awareness created by the mass media with a more detailed person-to-person health educational approach. This could be achieved through parents and friends/relatives; this is because more male pupils received AIDS information from parents while more females from the relatives. Also, the male pupils were more active at receiving information from outdoor sources such as poster displays and Internet browsing. This may mean that males have more liberty to go out of homes than the females. The females instead were seen to be more involved in sedentary sources of information such as talking with a relative, reading handbills, using the library, viewing the television, and listening to radio programs. There were chances that the female pupils were more free to discuss sex and related issues with their relatives than they were with their parents. The implicit of this is that attention should be given to designing a HIV/sex education program for adolescents, making sure that all does not depend on the parents alone.

Low utilization of school and public libraries was a significant finding in this study (males=109, females=110). A poor reading culture in pupils may have accounted for this, especially among the male pupils. The habit of reading in children was said to experience a sudden regression when they reach adolescence due to changes in the interests and motivations of children/teenagers. A preference for being with friends and listening to music is indicative of young people's value systems and tastes at this stage of their lives.[32] There is also an unfortunate perception that teens hold a damaged view of public libraries on many fronts according to a research cited by Fisher[33] with over 30% of teens queried saying that no suggested improvements would entice them into one.

Librarians and professionals who understand the psychological and emotional growth of adolescents need to introduce them to public environment that is compatible with their changing interests. It is a serious concern of the authors regarding accessibility and attractiveness of public library services in this part of the world and the quality of information being dispensed to the teeming youths of Nigeria about HIV/AIDS.

Given the near universal availability of access to the Internet from a variety of sources, use of the Internet was poor as a source of personal information about HIV/AIDS in this study which was contrary to the increasing use of Internet services by adolescents and youths in USA who have overwhelmingly adopted the technology as another environment in which they interact and learn.[34]

It is generally agreed that knowledge has a significant positive impact on behavioral change. It is important to build on the present knowledge level of the student by a drastic improvement in the quality and quantity of HIV/AIDS information. Therefore, AIDS education should be incorporated as one of the compulsory general study subjects in all colleges in Nigeria to develop the interpersonal health education approach as suggested by Hammed *et al*.[35] Colleges should ensure that posters containing educational information about HIV/AIDS are conspicuously displayed at strategic places in their schools. The school curriculum should include teaching of HIV/AIDS education to the pupils, and the empowerment of classroom teachers to teach the same will go a long way to better the knowledge base of the pupils.[35] An improved multisectorial partnership of the government, NGOs, civil society groups, media, and teaching institutions in comprehensive HIV/AIDS educational intervention programs in the state is critical. Empathic researchers and leaders-of-thought who are willing to facilitate change must also be identified and occupied with the task of disseminating the lessons learned. These will also dispel counterproductive misinformation and encouraging behavior that can reduce personal risk and further spread of the disease.

Research is needed with all categories of young people at risk in the state to document their attitude, social dynamics of risk, and to develop their capacities to negotiate risk reduction when they are confronted with difficult circumstances.

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