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Knowledge of HIV/AIDS, attitudes and contraception among university students in Port Harcourt, Nigeria

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Abstract
HIV/AIDS remains a serious health challenge in Nigeria. In spite of public enlightenment, new cases of infection are being reported among university students. This study was undertaken to evaluate the knowledge of HIV/AIDS and level of contraception as measures of sexual attitude of university students in Port Harcourt. A 20-item questionnaire was administered to 230 students of Rivers State University of Science and Technology, and University of Port Harcourt. Drug outlets within two-kilometre radius of each campus were visited and the volume of sale of condoms and oral contraceptive pills was quantified. Statistical analysis was done using Fisher's exact test and Pearson's rank correlation. Respondents comprised 57.0% males and 43.0% females and the majority were single (78.0%). Knowledge of transmission and ways prevention was quite high (63.2%, $P < 0.0001$). The news media was the main source of knowledge (34.0%). Sexually active respondents were 75.3%. Condom was used regularly by 53.5% and contraceptive pills by 27.1%. Between the first and last quarter of 2006, the sale of oral contraceptives, emergency contraceptives and condoms increased by 68.4%, 50.2% and 32.7% respectively. There was no correlation between knowledge of HIV infection and contraceptive practice ($P = 0.2723$, $r = 0.0820$). Although university students were knowledgeable about transmission and prevention of HIV, this knowledge did not reflect in the attitude of students towards sex. More intense awareness campaigns to promote abstinence and safe sex practices are recommended.

Keywords: HIV/AIDS, knowledge, attitude, condom, contraceptives, university students

INTRODUCTION

The human immunodeficiency virus (HIV) has been of public health concern for more than two decades. The infection has remained highest in the poorest regions of the world including Sub-Saharan Africa (UNAIDS and WHO, 2005). Since HIV is mainly transmitted through heterosexual intercourse (Kristensen *et al*., 2002), abstinence from sex, faithfulness to a sexual partner and use of condoms have been promoted in public enlightenment campaigns (Mboup *et al*., 2006).

The infection is most prevalent among age group 15 – 29 years which is also the bracket that majority of university students fall within. These students live away from parental influence and control and often have dual personality in which the character known at home is different from the one exhibited in campuses. This is supported by cohabitation with their sexual partners without the knowledge of their parents and guardians (Soyinka, 1979; Silverman, 1977). Many are engaged in multiple sex partnership (Adeyinka *et al*., 2009; Vail-Smith *et al*.,

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2010; Yan *et al*., 2009). These factors promote the spread of HIV with the implication that measures aimed at reducing prevalence must be targeted at this subset of the population.

Since the students are subsumed within the most sexually active age group, the use of condoms and contraceptive pills is expected to be highest among them. While condom prevents against infections and pregnancy, contraceptive pills only prevent against pregnancy. Due to their literacy level, it is generally assumed that students in tertiary institutions are sufficiently knowledgeable about HIV/AIDS and its mode of prevention. Studies and anecdotal reports seem to suggest that knowledge of HIV/AIDS does not correlate positively with sexual activities of these students. For example studies in Ethiopia (Fitaw and Worku, 2002) and Brazil (Caetano *et al*., 2010) have shown that students in medical sciences who were believed to have acquired knowledge of the virus and its mode of transmission through formal lectures still engaged in unsafe sex. Similarly, Adeyinka *et al*. (2009) showed that although students of tertiary institutions in Ibadan (South-west Nigeria) were quite knowledgeable about HIV/AIDS, only a few of the sexually active ones took precaution to prevent infection.

Several factors such as poverty, ignorance, inability of women to negotiate safe sex constitute the main drivers of the infection (Essien *et al*., 2010; Lopman *et al*., 2007). Therefore, a key component of prevention programmes is the promotion of condom use that is known to reduce the incidence of infection substantially (Vera *et al*., 2008). As a non-prescription barrier method for the prevention of sexually transmitted diseases and the prevention of unwanted pregnancy, condoms are openly advertised and are also accessible to university students. Contraceptives are also freely bought in Nigeria but owing to fears of side effects they are less commonly used (Utoo *et al*., 2010).

The success or otherwise of awareness programmes aimed at prevention of HIV infection can be assessed by the level of use of condoms and contraceptives pills. This study was designed to assess the knowledge of HIV/AIDS and its correlation with safe sex practices using sales volume of condoms and contraceptive pills as an index of sexuality by university students in a metropolitan city.

EXPERIMENTAL

The study location. Port Harcourt is the Capital of Rivers State, Nigeria. According to the 2006 Nigerian census, the city has a population of about 1.4 million people (Hudgens and Trillo, 2011). The city has two universities, a School of Health Technology, and a School of Nursing and Midwifery. There are at least six hospitals, numerous private health centres and institutional clinics. Many of the residents are civil servants and blue-collar workers in the petroleum industry.

Study design, participants and instrument. The design was a retrospective study of the knowledge of HIV/AIDS in relation to the use of condom and contraceptive drugs in 2006. A structured and validated questionnaire was administered to 230 students of the campuses of Rivers State University of Science and Technology, and the University of Port Harcourt. The number of questionnaire administered per institution was determined using Epi-Info values of baseline population of students in each institution. The items in the questionnaire were aimed at obtaining some sociodemographic characteristics of respondents, basic knowledge of HIV/AIDS, sexual activity and contraception. Each respondent was allowed sufficient time to complete the questionnaire and could ask for clarification on any item that was deemed not sufficiently clear. The questionnaire was completed anonymously. Out of the 230

questionnaires administered, 200 (87.0%) were found usable after retrieval.

Visits were made to 40 government approved drug outlets (pharmacies and patent medicine stores) within two-kilometre radius of each campus. We confirmed from the proprietors of these drug outlets that no less than 80% of their clientele were students of these institutions. Sales volumes (number of packets) of condoms and contraceptive pills in the first and last quarters of the year were extracted from stock cards and sales notebooks. The percentage increase in sales volume of the items was calculated using the formula:

$$\frac{\text{Q sold in } 4^{th} \text{ quarter} - \text{Q sold in } 1^{st} \text{ quarter}}{\text{Q sold in } 1^{st} \text{ quarter}} \times 100$$

(where Q = quantity)

Ethical consideration. The questionnaire was administered by an unbiased pharmacist who did not live in Port Harcourt and had very little chance of knowing the respondents. Pieces of information obtained from the questionnaire were treated in strict confidence. The study was approved by institutional ethical committee of the Faculty of Pharmacy, University of Benin, Benin City.

Data analysis. Data were first entered into Microsoft Excel Software 2007 before using GraphPad Prism software (USA) for the analysis. Data are presented as simple percentages of the number of respondents (N) to an item. Inferential statistics was by use of Fisher's exact test and Pearson's rank correlation coefficient. $P < 0.05$ was regarded as significant.

RESULTS

Sociodemographic characteristics of respondents. Sociodemographic data of respondents are presented in Table 1. The age group 20 – 29 constituted the highest respondents (60.0%). Respondents comprised of 57.0% females and 43.0% males. Christians were the main respondents (87.0%). Regarding the marital status of respondents, 78.0% were single, 20.5% were married and 1.5% were divorced.

Basic knowledge of HIV/AIDS and sources of information. In Table 2 a significantly high percentage ($P < 0.0001$) of respondents (63.2) indicated they knew all the modes of transmission and prevention while 36.8% indicated that they did not. Knowledge was also assessed by asking respondents whether there was availability of cure. While 36.8% indicated there was no cure, 63.2% said there was ($P < 0.0001$). The news media (print and electronic) were overwhelmingly the source of information on HIV/AIDS (34.0%) compared to parents (3.5%), friends (8.0%), health workers (9.5%) and teachers (4.5%) (Table 2). Most respondents (79.7%) believed they were educated on sexual matters while 20.3% indicated they lacked sex education.

Sexual activity and contraception. Measures of sexual activity and preferred method of contraception are shown in Table 3. A significantly high ($P < 0.0001$) proportion of the respondents (75.3%) claimed they were sexually active compared to 24.7% who indicated they were not. A very high proportion (53.5%) used condoms regularly while 27.1% used contraceptive pills regularly. Only 7.0% used intra-uterine device while 12.4% used other methods including practicing "safe periods" and *coitus interruptus.*

Respondents gave various reasons why they might consider the use of condoms. Most of them expressed fear of contracting HIV and other sexually transmitted infections (61.0%), prevention of pregnancy (26.3%) and a combination of reasons (12.7%). Respondents did not use condom for various reasons: reduction in sexual pleasure (39.2%), belief in the fidelity of the sexual partner (34.6%), desire for pregnancy (16.3%), and a combination of reasons (9.8%).

Table 1. Demographic characteristics of respondents

		No of Respondents	Percentage
Age Range (N = 200)	15 – 19	37	18.5
	20 – 29	120	60.0
	30 – 39	23	11.5
	40 – 49	20	10.0
Sex (N = 200)	Male	86	43.0
	Female	114	57.0
Religion (N = 200)	Christian	174	87.0
	Islam	10	5.0
	Others	16	8.0
Marital Status (N = 200)	Single	156	78.0
	Married	41	20.5
	Divorced	3	1.5

Table 2. Knowledge of HIV/AIDS and sources of knowledge by respondents

		Number of respondents	Percentage
Mode of transmission & prevention N = 190; $P < 0.0001$	Not knowledgeable	70	36.8
	Knowledgeable	120	63.2
Availability of cure N = 190, $P < 0.0001$	No	70	36.8
	Yes	120	63.2
Sources of knowledge N = 200	Parents	7	3.5
	Friends	16	8.0
	Teachers	9	4.5
	News Media	68	34.0
	Posters	4	2.0
	Health Workers	19	9.5
	Multiple Sources	77	38.5
Sex education N = 197; $P < 0.0001$	Sex educated	157	79.7
	Not sex educated	40	20.3

Table 3. Sexual activity and contraceptive practices by respondents

		Number of Respondents	Percentage
Sexual activity N = 170; $P < 0.0001$	Sexually active	128	75.3
	Not sexually active	42	24.7
Method of Contraception N = 129	Contraceptive pills	35	27.1
	Condoms	69	53.5
	Intra-uterine device	9	7.0
	Others	16	12.4
Reasons for condom use N = 118	Fear of contracting STIs	72	61.0
	Fear of pregnancy	31	26.3
	Multiple reasons	15	12.7
Reasons for non-use of condoms N = 153	Reduction in sexual pleasure	60	39.2
	Sexual partner is faithful	53	34.6
	Need for pregnancy	25	16.3
	Multiple reasons	15	9.8

Table 4. Sales volume (packets) per quarter of contraceptive drugs and condoms in drug outlets within 2-kilometre radius of the campuses

Drugs	Volume of sale in first quarter	Volume of sale in the last quarter	Percentage change in sale volume
Oral contraceptives (daily pills)	266	448	68.4%
Emergency contraceptives	1679	2522	50.2%
Condoms	852	1131	32.7%

Sales volume of contraceptive drugs and condoms. Table 4 shows that between the first and last quarter of the year there was increase in the volume of sales of contraceptive pills and condoms. While the sales of daily oral contraceptive pills increased by 68.4%, the sales of post coital contraceptives increased by 50.2% and condoms increased by 32.7%.

Correlation between knowledge of HIV/AIDS and condom/contraceptive use. There was no correlation between the acclaimed knowledge of HIV transmission and the use of condoms and contraceptive pills (r = 0.0820; *P* = 0.2723). Thus, the high level of knowledge of the mode of transmission of the virus did not significantly influence the sexual practices of respondents.

DISCUSSION

Governments and non-governmental organizations have been involved in awareness campaigns on HIV/AIDS particularly through the electronic media. This study suggests that knowledge of the mode of transmission and ways of prevention is quite high among these students although most thought there was a cure. A similar study among university students of the United Arab Emirates found that 34.0% knew there was no cure (Gańczak *et al*., 2007). This compares with 36.8% in the present study. This suggests that awareness campaigns may have lacked this salient message which should be an attitude modifier.

In this study the news media was the major source of information on HIV/AIDS and this corroborates findings in other settings (Bhatia *et al*., 2004; Bertrand and Anhang, 2006) on the effectiveness of mass media in public enlightenment campaigns. With only 9.5% of respondents getting their information on HIV from health workers, there is a gap which must be filled in the dissemination of HIV related information. Posters are a medium for the propagation of health messages but their effectiveness has been rated low by other studies (Quek and Li, 2002; Ross and Scott, 1993). This is possibly because most people are never patient to read and internalize the messages contained in them. Although communication between parents and children has been associated with safer sexual behaviours (Atienzo *et al*., 2009; Martino *et al*., 2008), our study has shown that only few students learnt about HIV/AIDS from their parents. Cultural barriers, low literacy level in the population and perhaps most importantly, feeling of embarrassment may account for our finding (Ahlerg, 1994; Fuglesang, 1997; Ogle *et al*., 2008). In spite of this, most respondents believed they were sex educated.

Many previous studies have shown that students of higher institutions are very sexually active despite of their awareness of HIV/AIDS (Adeyinka *et al*., 2009; Arowojolu *et al*., 2002). Our finding is similar to those of Adeyinka *et al*. (2009) who found that 65.1% of students in tertiary institutions were sexually experienced. The quest for sexual activity is assumed to be highest within the age that the students are in school. It can thus be inferred that although the majority of the respondents subscribed to religions which abhor pre-marital sex, this does not positively influence their sexual attitude (Soyinka, 1979). In the circumstance, these students would be expected to practice some form of

contraception in order to prevent interruption of their academic programmes as a result of unwanted pregnancies.

Of the contraceptive methods, condom use was the most popular and respondents' main reason for using condom was to prevent sexually transmitted infections including HIV rather than to prevent pregnancy. Although both STIs and pregnancy are reasons for use of barrier contraceptives (Olugbenga-Bello *et al*., 2010), the availability of other methods of contraception especially the pills makes the fear of STIs the main reason for the choice. Emergency contraceptive pills are quite popular among students in some universities (Borges *et al*., 2010; Vahratian *et al*., 2008; Virtala *et al*., 2007; Ebuehi *et al*., 2006). The students may use them because of perceived fidelity of the sexual partner, condom failure in the course of intercourse or because of quest for maximum sexual pleasure (Borges *et al*., 2010; Virtala *et al*., 2007).

In the present study some respondents would not consider using condoms because they presumed that it reduced the pleasure of sexual activity. This appears to be a very important explanation for the low popularity of condoms (Daniyan *et al*., 2010). Perceived fidelity of the sexual partner was also a major reason why respondents would not consider the use of condoms and this reinforces the findings in another study (Baumgartner *et al*., 2010).

Abstinence from sex is generally accepted as the best method for the prevention of HIV although its effectiveness among the youths has been doubtful (Ott and Santelli, 2007). Therefore if respondents were to abstain, there would be gradual reduction in the volume of sale of contraceptive pills and condoms. The high percentage increase in the sale of contraceptive pills between the first and the last quarter of 2006 suggests increased sexuality by individuals without regard to the possibility of HIV infection. Emergency contraceptives which contain ethinylestradiol and levonorgestrel are marketed in Nigeria. Verbal interviews with students suggest that they use these emergency pills for many reasons: to derive maximum sexual pleasure, when condom bursts or when a condom is not immediately within reach.

Conclusion

We conclude that although students of these universities may have basic knowledge of HIV/AIDS and would consider themselves sex educated, these do not correlate with their sexual attitude as there is increased usage of condoms and contraceptive pills. This calls for intensification and focusing of awareness campaigns on university campuses with a view to influencing their sexual attitude towards abstinence.

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