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KNOWLEDGE OF HIV/AIDS AND ATTITUDES ABOUT CONDOM USE AMONG NIGERIAN UNIVERSITY STUDENTS

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ABSTRACT

KNOWLEDGE OF HIV/AIDS AND ATTITUDES ABOUT CONDOM USE AMONG NIGERIAN UNIVERSITY STUDENTS

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This study evaluated the knowledge of HIV/AIDS in addition to the attitudes and behaviors regarding condom use in the face of a HIV/AIDS epidemic among a group of students at Imo State University, Nigeria. The study population consisted of 100 students, with 57 males and 43 females with a mean age of 24.1 ± 3.3 years, and mean post-secondary educational level of 3.4 ± 1.6 years. A questionnaire consisting of 25 open-ended and close-ended questions was distributed to the students. Results show that 89% of the students were sexually active, and 65% of the male students reported between 1-5 sexual partners in the last year compared to 79% of the female students. 16% of the male students had no sexual partners in the previous year, compared to 14% of the female students. Seventy-nine percent of students reported using a condom at any time, however 55% of the male students used condoms >75% of the time during sexual encounters compared to 56% of the female students. There was no significant difference in the reported incidence of condom usage between the male and female groups. 40% of both men and women used condoms because of a lack of trust. Respondents tended to overestimate the HIV prevalence in Nigeria, with over 60% of the men and 90% of women indicating that the prevalence was greater than 30%. Both men and women were aware of people who had died from HIV, and that there was no cure for HIV. We conclude that knowledge of HIV does not correlate with the use of condoms to prevent transmission of the disease. Furthermore, HIV prevention programs targeting university students in Nigeria need to focus on ways to make condoms more available, and to correct misconceptions about condoms in order to stop the progression of this epidemic.

ACKNOWLEDGEMENTS

This thesis is dedicated to all the women in Nigeria, Africa and the world who are infected with HIV and are struggling with the devastating effects of AIDS.

"No war on the face of the world is more destructive than the AIDS pandemic. I KNOW OF NO ENEMY IN WAR MORE INSIDIOUS OR VICIOUS THAN AIDS, an enemy that poses a clear and present danger to the world. The war on AIDS has no front line. We must wage on it on every front."
Secretary of State Colin Powell, addressing the U.N. Special Session on AIDS, 7/23/2001

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EKELE DIRI GI CHINEKE, ONYE NA-AGBA M NDU

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INTRODUCTION

HIV/AIDS IN THE WORLD AND IN SUB-SAHARAN AFRICA

In the recently released UNAIDS/World Health Organization annual report, an estimated 5 million people acquired the human immunodeficiency virus (HIV) in 2003, and the acquired immunodeficiency syndrome (AIDS) epidemic claimed an estimated 3 million lives in 2003. The number of people living with the virus globally is presently estimated to be 40 million. These statistics and other data are summarized in Table A, Figures 1 and 2. Although HIV/AIDS is present in all the regions of the world, the region that is most affected by the epidemic is sub-Saharan Africa as shown in Table B. In 2003, an estimated 26.6 million people in this region were living with HIV, including the 3.2 million who became infected during the past year (1).

The leading means of transmitting HIV in sub-Saharan Africa is heterosexual intercourse (1, 2). Unlike women in other regions in the world, African women have a relative risk of 1.2 to be infected with HIV compared to men. Among young people aged 15-24, this ratio is highest; women were found to be two and a half times as likely to be infected with HIV as their male counterparts, according to six recent national surveys (1). These discrepancies have been attributed to several factors. It is known that HIV generally is more easily transmitted from men to women, than from women to men. Moreover, sexual activity tends to start earlier for women, and young women tend to have sex with much older male partners.

HIV prevalence varies considerably across the continent of Africa, with prevalence rates of less than 1% in Mauritania to almost 40% in Botswana and Swaziland. More than one in five pregnant women are HIV-infected in most countries in Southern Africa, while elsewhere in sub-Saharan Africa median HIV prevalence in

antenatal clinics exceeded 10% in a few countries. The country of focus in this paper is Nigeria.

GLOBAL SUMMARY OF THE HIV/AIDS EPIDEMIC AS OF DECEMBER 2003

Number of people living with HIV/AIDS	Total	40 million (34 - 46 million)
	Adults	37 million (31 - 43 million)
	Children under 15 years	2.5 million (2.1 - 2.9 million)
People newly infected with HIV in 2003	Total	5 million (4.2 - 5.8 million)
	Adults	4.2 million (3.6 - 4.8 million)
	Children under 15 years	700 000 (590 000 - 810 000)
AIDS deaths in 2003	Total	3 million (2.5 - 3.5 million)
	Adults	2.5 million (2.1 - 2.9 million)
	Children under 15 years	500 000 (420 000 - 580 000)

Table A - Global Estimates from the AIDS Epidemic Update 2003. The ranges around the estimates in this table define the boundaries within which the actual numbers lie, based on the best available information. These ranges are more precise than those of previous years, and work is under way to increase even further the precision of the estimates that will be published mid-2004.

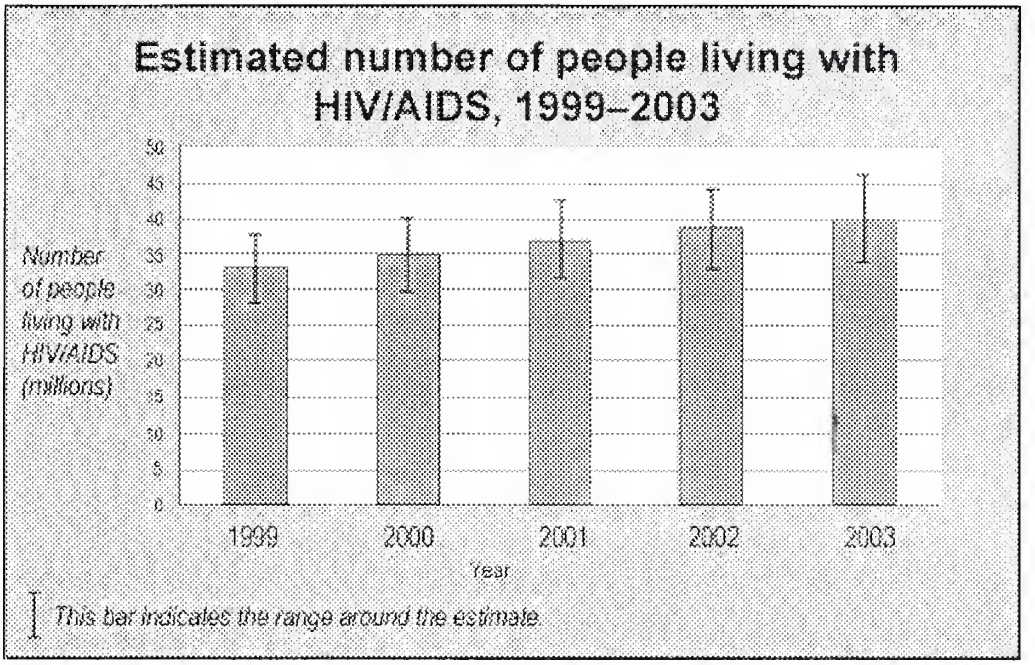

Figure 1 – Graph indicating estimated number of people living with HIV/AIDS. From UNAIDS/WHO AIDS Epidemic Update 2003.

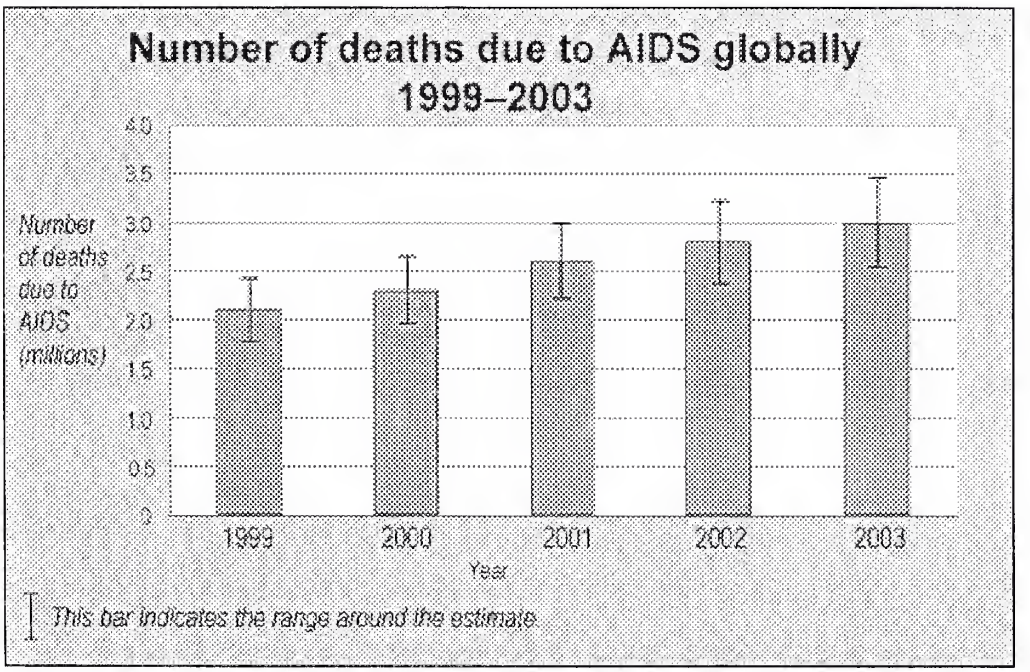

Figure 2 – Graph indicating estimated number of deaths as a result of AIDS all over the world. From UNAIDS/WHO AIDS Epidemic Update 2003.

REGIONAL HIV/AIDS STATISTICS AND FEATURES, END OF 2003

Region	Adults and Children Living with HIV/AIDS	Adults and Children Newly Infected with HIV	Adult Prevalence (%)	Adult and Child Deaths due to AIDS
Sub-Saharan Africa	25.0 – 28.2 million	3.0 – 3.4 million	7.5 – 8.5	2.2 – 2.4 million
North Africa & Middle East	470 000 – 730 000	43 000 – 67 000	0.2 – 0.4	35 000 – 50 000
South & South-East Asia	4.6 – 8.2 million	610 000 – 1.1 million	0.4 – 0.8	330 000 – 590 000
East Asia & Pacific	700 000 – 1.3 million	150 000 – 270 000	0.1 – 0.1	32 000 – 58 000
Latin America	1.3 – 1.9 million	120 000 – 180 000	0.5 – 0.7	49 000 – 70 000
Caribbean	350 000 – 590 000	45 000 – 80 000	1.9 – 3.1	30 000 – 50 000
Eastern Europe & Central Asia	1.2 – 1.8 million	180 000 – 280 000	0.5 – 0.9	23 000 – 37 000
Western Europe	520 000 – 680 000	30 000 – 40 000	0.3 – 0.3	2 600 – 3 400
North America	790 000 – 1.2 million	36 000 – 54 000	0.5 – 0.7	12 000 – 18 000
Australia & New Zealand	12 000 – 18 000	700 – 1 000	0.1 – 0.1	<100
TOTAL	40 million (34 – 46 million)	5 million (4.2 – 5.8 million)	1.1% (0.9 – 1.3%)	3 million (2.5 – 3.5 million)

Table B - The proportion of adults (15 to 49 years of age) living with HIV/AIDS in 2003, using 2003 population numbers. The ranges around the estimates in this table define the boundaries within which the actual numbers lie, based on the best available information. These ranges are more precise than those of previous years, and work is under way to increase even further the precision of the estimates that will be published mid-2004. This table was adapted from the UNAIDS/WHO AIDS Epidemic Update 2003.

Background of HIV/AIDS and Condom Use in Nigeria

Nigeria is one of the five countries projected to have the largest number of HIV/AIDS infected adults by the National Intelligence Officer for Economics and Global Issues in a report entitled "The Next Wave of HIV/AIDS: Nigeria, Ethiopia, Russia, India, and China" (3). According to estimates from the Joint United Nations Programme on HIV/AIDS (UNAIDS), Nigeria has the third fastest growing population in the world, behind India and Pakistan. The current population of 124 million calculated by the 1999 population census is estimated to double in 24 years. English is the official language of Nigeria, but there are over 250 ethnic groups and languages in the country. In Nigeria, about 50% of the population lives in urban areas, 65% of the population lives below the national poverty line, and the adult literacy rate is 55.6%. Deaths of children under five years of age account for 183 per 1,000 live births, about 30% of these cases are attributed to the HIV/AIDS epidemic (2, 4). Life expectancy at birth is estimated at 52 years, and the decrease in life expectancy in 2002 due to HIV/AIDS was 4.5 years (1).

The current president is President Olusegun Obasanjo elected in a democratic process in 1999. Religious and ethnic conflicts have, in recent times, caused disruption in governance in selected parts of the country. The northern part of Nigeria is largely Islamic and the southern part is largely Christian. The conflict between the Muslims in the north and the Christians in the south stem from disagreements about the national institution of Islamic laws called the Sharia laws. Sharia laws govern all elements of life for its followers, from prayers to fasting to donations to the poor. It decrees that men and women should dress modestly, which in some countries is interpreted as women taking the veil and the sexes being segregated (5). Opponents of the Sharia feel that these laws

oppress women and the poor of the society. Presently, twelve out the thirty-six states of Nigeria have adopted Sharia, and this continues to be a very controversial topic that results in the deaths of many people from the north and south of the country. President Obasanjo is against adopting Sharia nationally, but maintains that the federal government would not dispute the rights of individual states that choose to adopt the laws.

Although the north and south of Nigeria are divided on the lines of religion, one thing they do have in common is the high prevalence of HIV among their followers. The fear of HIV/AIDS has been correlated to the rise in religious fundamentalism among the Muslims and Christians. In the Muslim areas, the Sharia law prescribes death by stoning for adultery and public lashing for pre-marital sex. In the Christian areas, evangelists have become more aggressive and strident in their preaching, emphasizing abstinence. Although a large percentage of the seropositive individuals live in the southern areas of the country as could be deduced in Figure 3 below, it is difficult to assign numbers to the prevalence of HIV/AIDS among Christians and Muslims. Moreover, there is no reported study of the prevalence of HIV/AIDS among Muslims and Christians in Nigeria. Fortunately, the government under the current leadership has made HIV/AIDS one of its top priorities and has allocated $157 million for HIV/AIDS prevention and control activities. Early in 2000, the President formed the National Action Committee on AIDS (NACA), which emphasizes a multi-sectoral approach to HIV/AIDS, and this is reflected in its membership. Currently the membership comprises of high-level representatives from various ministries, the private sector, faith-based communities, non-governmental organizations and networks of people living with HIV/AIDS. At the state level, there are State Action Committees on AIDS (SACA), with similar representation as NACA.

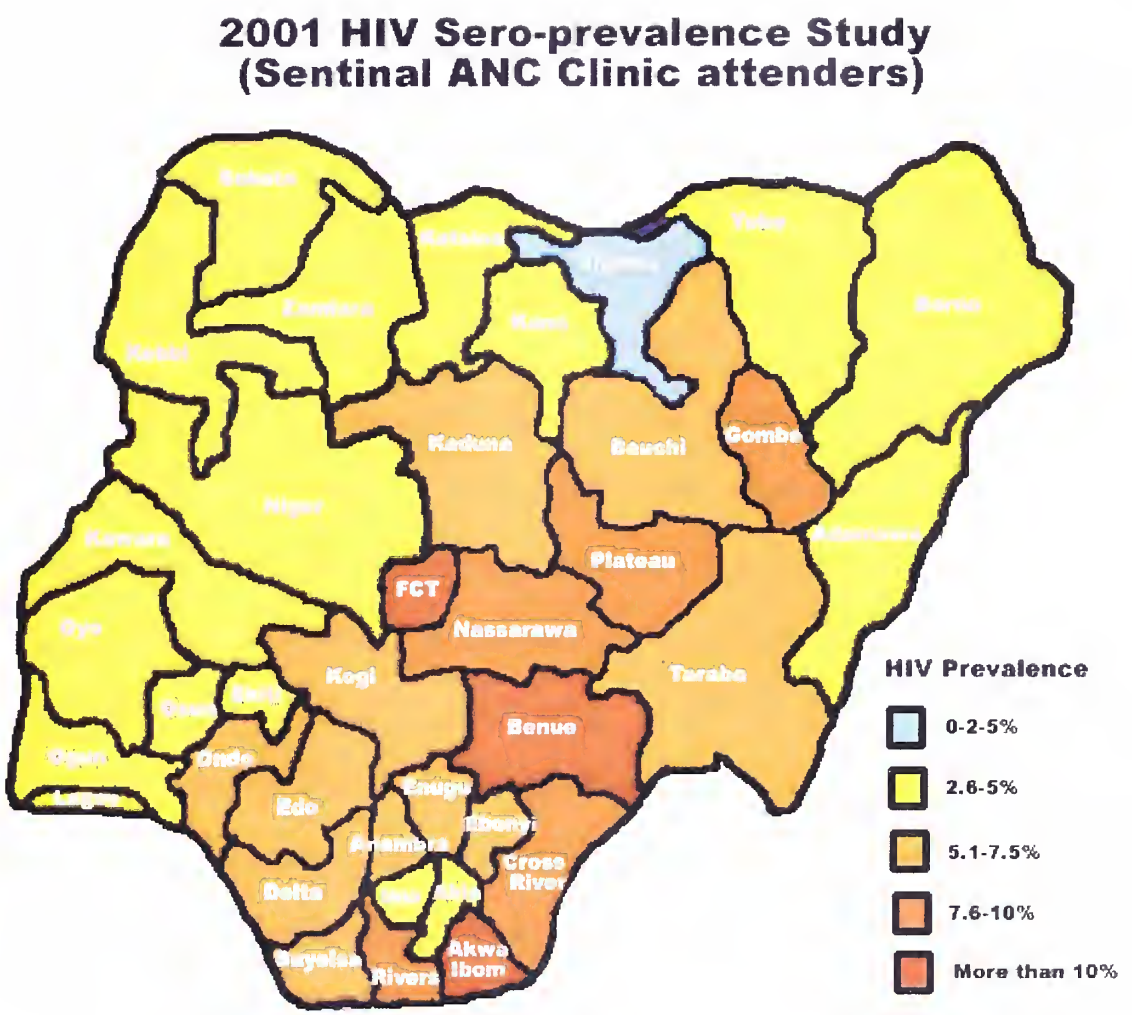

Figure 3 – Map of Nigeria showing the prevalence of HIV in the 30 states as reported by the 2001 HIV Sero-Prevalence Data. FCT stands for Federal Capital Territory, which is Abuja. As could be seen from the map, more of the states with high HIV prevalence are situated in the southern part of the country. Adapted from Nigeria Country Notes on the NACA website http://www.nacanigeria.org/.

The first case of HIV/AIDS was identified in 1984 (6) and the Government of the Federal Republic of Nigeria (GON) conducted the first HIV sentinel seroprevalence survey in 1990. In 1990 to 1991, the national adult prevalence rate was reported as 1.8%, based on infection surveillance of women attending antenatal clinics (ANC). In 1999, this rate increased to 5.4% and to 5.8% in 2001. In 2001, the range of HIV prevalence across the 36 states and Federal Capital Territory ranged between 0.8% to 16.4%. HIV prevalence among the 15-19 year old ANC attendees tested was 5.9%, 6.0% among the 20-24 year olds and 6.3% among the 25-29 year olds. Of the ANC attendees who were HIV positive in 2001, 97.5% had HIV-1, 0.4% had HIV-2 and 0.1% had both HIV-1 and HIV-2 infection (6).

Nigeria is believed to be in the exponential phase of an HIV/AIDS epidemic (7). Currently, there are roughly over 3.5 million Nigerian adults and children living with HIV/AIDS as shown in Table C. In 2001, 170,000 adults and children died of AIDS and an estimated 1 million children orphaned by AIDS were living in Nigeria. Within the sub-Saharan African region, Nigeria has the second highest number of HIV infected adults (8). Moreover, Nigeria has the highest number of HIV/AIDS infected adults in West Africa and accounts for 11% of worldwide HIV/AIDS. By 2004, the number of HIV positive persons is expected to reach 4.9 million (9). By 2010, Nigeria is projected to have 10 to 15 million cases of HIV/AIDS infected adults.

Estimated Number of People Living with HIV/AIDS in Nigeria, end of 2001

Adults and Children	3,500,000	
Adults (15-49)	3,200,000	Adult Rate 5.8%
Women (15-49)	1,700,000	
Children (0-14)	270,000	

Estimated Number of Deaths due to AIDS

Estimated number of adult and children who died of AIDS during 2001

Deaths in 2001	170,000

Estimated Number of Orphans in 2001

Estimated number of children who have lost their mother or both parents to AIDS (while they were under age 15) since the beginning of the epidemic

Current living orphans	1,000,000

Table C – Epidemiological Fact Sheet on Nigeria from www.unaids.org. These numbers are representative of the research conducted in 2001 for the UNAIDS Epidemiological Fact Sheet.

It is estimated that 70% of the HIV infected adults in Nigeria are not aware of their sero status and may be transmitting the virus unintentionally (7). 90% of HIV transmission in Nigeria is estimated to be from heterosexual contact (10). Other sources of infection include mother to child transmission, unsafe blood, tattoos and unsafe traditional cutting, injecting drugs of abuse and homosexual contact. Since the leading means of transmitting HIV in Nigeria is heterosexual intercourse, condoms are known to provide effective protection against HIV infection acquired via this mode of transmission. Effective condom use has the potential to reduce the risk of HIV transmission by up to 70-100% (7), and also reduces the transmission of other sexually transmitted diseases (STDs) such as gonorrhea, chlamydia, syphilis, and herpes. Condoms are also used to prevent pregnancy; it is known that a condom with spermicide is 95% effective in preventing pregnancy compared to 88% efficacy of a condom without spermicide (11). Furthermore, consistent and correct use of the condom has been found to have a high efficacy rate of 98% (12-14). However, condom use in Nigeria has remained very low, especially among Nigerians in stable relationships. In a study by Van Rossem et.al., 90% of the respondents reported never using condoms and only 2% reported consistent use (15). Condom use is promoted by the Nigerian government, non-government associations (NGOs) and international organizations in order to control the spread of HIV/AIDS. Specific NGOs include the Society for Family Health (SFH), Family Health International and the Planned Parenthood Federation of Nigeria (PPFN). Furthermore, the Department for Community Development and Population Activities (DCDPA) provides free condoms for the public.

The main distributor of condoms in Nigeria is SFH. In 1999, it distributed 58 million condoms, compared to 1.2 million by DCDPA and 347,000 by PPFN. The SFH distributes subsidized Gold Circle condoms in all 36 states and the federal capital, Abuja through pharmacies, clinics, supermarkets, street vendors and kiosks. This distribution is promoted via intense mass media and interpersonal advertising. SFH also has programs focusing on behavior changes in order to promote safe sex. There are "Information, Education and Communication" sessions on HIV/AIDS targeted towards students, long distance truckers and commercial sex workers. SFH also developed mass media advertising for TV and radio. These behavior change sessions intend to increase safe sex practices, especially condom use.

In spite of SFH and other organizations' programs intended to promote condom use, there continues to be constraints to safe sex. Social change has eroded the traditional customs regarding sexuality and appropriate sexual practices. There is an increasing level of prostitution, premarital and extramarital sex, as well as earlier onset of sexual activity, later marriage, polygyny, and increased mobility (16). In a report presented by the National Population Commission (NPC) of Nigeria, over 16% of teenage females reported first sexual intercourse by age 15. Among young women ages 20 to 24, 49.4% reported first sexual intercourse by age 18. Furthermore, among teenage males, 8.3% reported first sexual intercourse by age 15. Among young men ages 20 to 24, 36.3% reported first sexual intercourse by age 18. In another survey of sexually experienced teens conducted by the NPC, over 13% of women and over 27% of men reported exchanging money, gifts, or favors for sex in the previous 12 months. Moreover, the median age at first marriage for women has also increased from the traditional norm of a

woman being married around puberty to an older man. Among women ages 20 to 24, 19.8% reported having married by age 15, 39.6% by age 18, and 52.7% by age 20. Among Nigerian men ages 25 to 29, only 15.5% reported having married by age 20 (17).

Earlier sexual onset often leads to a high level of fertility among the young women. In 1999, Nigeria's adolescent fertility rate was 111 births per 1,000 women ages 15 to 19, and Nigerian women averaged more than five births during their lifetime. Teenage mothers were more likely than older women to suffer from serious complications during delivery, resulting in higher morbidity and mortality for teenage mothers (17). Performing or seeking an abortion is illegal in Nigeria, except to save a woman's life. However, experts estimate that more than 600,000 Nigerian women obtain abortions each year and one-third of the women obtaining abortions are adolescents (18).

The numbers reported above indicate the high level of sexual activity among young people in Nigeria. All the aforementioned factors lead to an increase in the risk of STD and HIV infections among people engaging in high-risk sexual practices and in the general population. Improved knowledge of sexual risk and condoms does not necessarily lead to increased condom use as would be evidenced in the literature review below (19). Concerns about reduced sexual pleasure and dislike of condoms among other factors, are important barriers to condom use (20). Therefore, people may be aware of personal risks and fully aware of protection provided by condoms, but social and cultural factors prevent them from acting on and benefiting from that knowledge.

Literature Review

A review of the literature on HIV/AIDS and sexual behavior in sub-Saharan Africa shows that most people in Africa are sexually active starting at an early age, ranging 14.4 to 16.1 years for males and 15.1 to 16.6 years for females (21). They have multiple sexual partners, short-term relationships and rarely use safe-sex protective measures. Studies show that although awareness of AIDS and risk reduction measures such as condom use is high, this knowledge is not transformed into positive attitudes and behaviors such as consistent condom use (22). Research shows that condom use levels are low among young people in sub-Saharan Africa. A national survey on condom use in Nigeria showed that 15% of women and 32% of men reported using condoms to prevent sexually transmitted diseases (STDs), while another 20% of women and 38% of men reported using condoms for pregnancy or disease prevention (7). Other studies show that 23% of sexually active Malawian females with a mean age of 19 years (23), 28% of Ghanaian youth with mean age of 16.1 years, and 34 % of another Ghanaian sample with mean age 20.1 years (22) had ever used a condom during sexual intercourse. In another study of Ghanaian men aged 15-24, 64.9% reported using a condom at least once, but only 24.8% of the overall sample had used condoms at most recent intercourse (24). In a study of 4293 adults from Kenya, Tanzania and Trinidad, only 19% reported consistent condom use with most recent sex partner. These authors reported that 58.7% of their respondents requested condom use with their most recent sex partner, but their sex partner's resistance to using condoms was a big factor that led to a 19% reported consistent condom use (25). Moreover, interviews conducted with 223 Kenyan adults

revealed that although 75% had engaged in intercourse during the preceding month, fewer than 20% had used a condom (26).

Education was found to be a key determinant of condom use in a study of 1000 women and 1000 men in four sub-Saharan Africa cities. Lagarde et al found that in Cotonou, Benin, Kisumu, Kenya and Ndola, Zambia only 27-31% of men and 11-17% of women ever used condoms in the past 12 months. However, educated men were 1 to 3 times more likely to use condoms than their counterparts with lower education, and educated women were 2 to 5 times more likely to use condoms than their counterparts with lower education (27). The authors reported that an association of condom use with education could reflect increased receptiveness to campaigns promoting effective condom use. Education could also lead to having greater skills to negotiate condom use with sex partners. Furthermore, educated people are more exposed to media, discuss AIDS more often, have a better knowledge of modes of transmission of HIV, fewer misconceptions about AIDS, more positive opinions about condoms and have a better perception of their personal sexual risk (27-29).

In Nigeria, the seroprevalence of HIV/AIDS among 15-24 year old men and women is estimated to be roughly 12%, compared to the overall adult prevalence of 5.8%. These statistics emphasize the importance of HIV education and awareness among young adults especially in the university level. A survey of 2388 Nigerian undergraduates revealed that 87% were sexually active, and 66% had more than one sexual partner. All students were quite knowledgeable about HIV/AIDS but only a few sexually active students took precautions to prevent HIV transmission. The majority of students (87.5%) was knowledgeable about contraception and approved of its use, but

only 34.2% were current users of contraceptives (30). Moreover, 92% of the students in another study identified themselves to be high risk, but a majority of them still admitted to engaging in unprotected sexual intercourse (31). According to another study, most sexually active adults around age of 19 who perceived themselves at a high risk of testing positive for HIV have never used condoms (32). A study of Nigerian female university females showed that 75% of all sexually active females had ever used a condom, 16.9% and 39% had used condoms during their first and last sexual encounters respectively, while only 34.3% had used condoms consistently (33). Another study of condom use behavior of university students in Nigeria, 44% of females and 40% of males had ever used a condom (34).

Most higher educational institutions in southwest Nigeria now have student clubs or organizations that offer AIDS education to their members and to the general student population. In some of the institutions such clubs are known as AIDS Awareness Clubs, while in others they are known as AIDS Prevention Societies, and they are recognized by the authorities of their various institutions (35). In 2002, the Nigerian Health Minister Alphonsus Nwosu spearheaded a program to distribute 210 million condoms to Nigerians annually over five years in cooperation with the National Union of Nigerian Students. The condoms were financed by the British government as a bid to stem the HIV/AIDS scourge in Nigeria.

In spite of the perceived awareness and knowledge of Nigerian educated young adults about HIV/AIDS, the incidence of unprotected sex is high. We therefore established this project to assess the attitudes and behavior of university students concerning condom use.

HYPOTHESIS

We hypothesize that education and awareness of HIV infection and AIDS does not correlate with use of condoms during heterosexual intercourse among either male or female Nigerian university students, even in the face of a burgeoning HIV/AIDS epidemic.

SPECIFIC AIMS OF THIS STUDY

The purpose of this study is to investigate whether there was any gender-specific difference in the attitudes of Nigerian university students about condom use in the face of an HIV/AIDS epidemic. The results will aid in the development of educational programs or curricula targeted towards young adults to emphasize the importance of condom use in the face of a serious HIV/AIDS epidemic.

MATERIALS AND METHODS

LOCATION

The questionnaire was administered to university students at the most popular Internet café of a southeastern Nigerian town (Timasy Computer Café, Owerri, Imo state, Nigeria). The respondents were assumed to be computer literate, university level educated and financially able to pay to use Internet services, thereby eliminating some barriers against condom purchase and use. Participation in the study was voluntary. Respondents were given vouchers for one hour of Internet time (cost is ₦120, or $1) for completed questionnaires. The questionnaires were designed to be anonymous, and the responses were submitted in sealed envelopes further protecting the confidentiality of the respondents. 100 completed questionnaires were received at the end of the study.

QUESTIONNAIRE DESIGN

The questionnaire was administered in English to the university students. A sample questionnaire is illustrated in the Appendix. The questionnaire consists of 25 questions and is structured on three dimensions: demographics, attitudes towards condom use and general knowledge about HIV. The first six questions inquire about demographic data: age, sex, university level and department, sexual activity and number of sexual partners within the past year. The questions concerning attitudes towards condom use examine the percentage of time condoms are used, and the reasons they are used or not

used in an attempt to measure barriers to condom use. The questions dealing with knowledge about HIV examine what the respondents' know about HIV, its transmission, how to prevent getting infected and the lack of a cure. The respondents are also asked to estimate the prevalence of HIV in Nigeria. The respondents are required to circle responses to certain questions and to answer open-ended questions. In the questions with multiple answers, the respondents are told to circle all answers that apply but to underline the most important answer to the questions.

DEMOGRAPHIC DATA ABOUT THE RESPONDENTS

All the 100 students in this study were students at Imo State University, Nigeria. This included 57 males (mean age 25.1 ± 3.7) and 43 females (mean age 22.7 ± 1.8) with 100% being of the Igbo ethnic group, Christian religious affiliation and fluent in English. The choice of university students is appropriate in view of their high level of sexual activity (36) . Moreover, students are generally very knowledgeable about the use of condoms to prevent sexual risks, and many might have used them in their sexual encounters. Furthermore, students live in the main city of the state where there is access to many clinics and stores selling condoms, and where they encounter the mass media advertising about condoms. It is important to note that education in Nigeria is dependent on having the financial means to pay for the education. There is no financial aid; hence these students are thought to belong to a higher socioeconomic class.

Statistical Analysis

Data from the completed questionnaires were coded and entered into a computer using Microsoft Excel software. The data were then analyzed using the *Systat Sysgraph 9* software. Simple percentages, descriptive measures and correlation analyses were computed to establish relationships among variables. A p value of less than 0.05 was considered statistically significant. Nunnally's recommendation for the degree of correlation was followed to support or refute the reliability and validity of the data (37). Thus, correlation coefficients greater than 0.6 were taken to indicate validity and statistical significance.

RESULTS

DEMOGRAPHIC DATA AND PERCENTAGE OF CONDOM USE AMONG RESPONDENTS

Of the 100 Nigerian university students who answered the questionnaire, 57 were male and 43 were female. 21% of the male students were less than the age of 21, compared to 47% of the female students. This constituted a significant difference in the age categories between both genders ($p = .002$). 65% of the male students reported having between 1-5 sexual partners in the last year, compared to 79% of the female students who reported having the same number of sexual partners. 16% of the male students had no sexual partners in the previous year, and 14% of the female students had no sexual partners in the previous year. Despite the significant difference in age between the male and the female students, there was no significant difference between the number of sex partners between the male and female groups ($p = .182$). Our study showed that 55% of the male students used condoms >75% of the time during sexual encounters compared to 56% of the female students. There was no significant difference in the reported incidence of condom usage between the male and female groups as could be seen in Table D.

Age	Males	Females	p value
<22 years	21%	47%	p = .002*
22 – 27 years	56%	51%	
>27 years	23%	2%	
Sex partners	**Males**	**Females**	**p value**
0	16%	14%	p = .182
1 – 5	65%	79%	
>5	19%	7%	
% condom usage	**Males**	**Females**	**p value**
<25%	33%	27%	p = .746
25 – 75%	13%	17%	
>75%	55%	56%	

Table D – Demographic data and percentages of condom usage for the male and female university students. * Denotes statistical significance when $p < 0.05$.

To use or not to use Condoms: Reasons given by the Respondents

We attempted to identify the reasons the students used condoms, and to decipher whether there was a difference in the reasons given by the male and female students. 57% of the men reported they used condoms primarily for disease protection compared to 54% of the women ($p = .266$), indicating no significant difference between the males and females. Moreover, 23% of the male students used condoms primarily to prevent pregnancy and for protection against infectious diseases, compared to 10% of the female respondents.

We then tried to elucidate why educated Nigerian students would not use condoms even when they were fully aware of the impact of HIV/AIDS. 25% of the males and 23% of the females reported that they would not use condoms during heterosexual intercourse. When these respondents were asked why they would not use condoms, 57% of men responded that they do not use condoms because they did not like them, compared to 70% of the women. There was no significant difference in the reasons why condoms were not used between the male and female groups. 39% of men used condoms because they did not trust their partner compared to 41% of women. There was no significant difference between male and female groups as far as the degree of trust of their partners. The aforementioned data is summarized in Table E.

Reason to use condoms	**Males**	**Females**	**p value**
Prevent pregnancy	19%	26%	p = .260
Disease protection	57%	64%	
Both reasons	23%	10%	
Reasons not to use condoms	**Males #=14**	**Females #=10**	**p value**
Respondents do not like condoms	57%	70%	
Partners do not like condoms	14%	30%	p = .295
Both reasons	28%	0%	
Trust of partner as reason to use condoms	**Males**	**Females**	**p value**
Yes	39%	41%	p = .350
No	54%	56%	
Multiple reasons	7%	2.3%	

Table E – Reasons for condom usage and reasons for not using condoms among the male and female university students. 14 of the males and 10 of the females reported that they would not use condoms during heterosexual intercourse. * Denotes statistical significance when $p < 0.05$.

KNOWLEDGE OF HIV STATUS OF RESPONDENTS AND THEIR SEX PARTNERS

Since over 57% of the male students and 64% of the female students reported using condoms to protect against HIV and other STD infections, we attempted to elucidate whether the students had knowledge about their HIV sero-status, and the sero-status of their sex partners. 40% of men did not know their HIV status compared to 30% of women. Furthermore, 43% of men knew their partner's status compared with 58% of the women. As could be inferred from the data presented in Table F, there was no statistically significant difference between men and women in regards to knowledge of their partner's status. Significant differences were identified however when patients were asked to rate their level of comfort in asking about their partner's HIV status. 68% of men felt comfortable asking women about their HIV status compared to 91% of women. This indicated that women were more likely to ask men about their HIV status compared to men ($p = .007$).

Know HIV status	**Males**	**Females**	**p value**
No	40%	30%	p = .297
Yes	60%	70%	
Partner's HIV status	**Males**	**Females**	**p value**
No	57%	42%	p = .132
Yes	43%	58%	
Comfortable asking partner about status	**Males**	**Females**	**p value**
No	32%	9%	p = .007*
Yes	68%	91%	

Table F – Knowledge of the students about their HIV sero-status and the status of their sex partners. * Denotes statistical significance when $p < 0.05$.

General Knowledge about HIV/AIDS among the Respondents

An important part of this study was to assess the knowledge of the university students with regards to HIV/AIDS. When asked if there is a cure for HIV, it was interesting to note that 11% of men felt that there was a cure for HIV compared to 0% of women. All the males who responded "yes" to this question cited "God" and "prayer" as the cures for HIV. Moreover, 93% of women felt that there was no cure for HIV and 7% did not know. Although, the difference between the responses of males and females was noteworthy, it was not statistically significant for $p = .080$.

We also attempted to find out whether the respondents knew anyone who was infected with or died from HIV/AIDS. Overall, 37% of the respondents knew someone who was infected with HIV. 40% of men knew someone who was infected with HIV compared to 53% of women ($p = .424$). Moreover, 60% of men knew someone who had died of complications related to HIV compared to 53% of women ($p = .330$). There was no significant difference in personal experience between the males and the females in terms of knowing someone who was infected with or who had died of complications related to HIV/AIDS.

When the students were asked if they could tell whether a person was infected with HIV based on physical appearance, there was a significant gender-specific difference in the responses. 90% of men felt that they could recognize signs of HIV infection, compared to 28% of women who felt that they could tell that someone was infected by changes in appearance. This was statistically significant with $p = .012$.

We also wanted to decipher what the students thought about the prevalence of HIV in Nigeria. In general, the respondents tended to overestimate the number of

Nigerians infected by HIV with over 60% of the men and 90% of women indicating that the HIV infection rate was greater than 30%. This difference between the male and female students was statistically significant with a p value less than zero. All the data presented above is summarized in Table G.

There is a HIV cure	**Males**	**Females**	**p value**
No	81%	93%	p = .080
Yes	11%	0%	
Don't know	9%	7%	
Know people infected with HIV	**Males**	**Females**	**p value**
No	60%	67%	p = .424
Yes	40%	33%	
Know someone dead from HIV/AIDS	**Males**	**Females**	**p value**
No	37%	47%	p = .330
Yes	63%	53%	
Decipher HIV infection by appearance	**Males**	**Females**	**p value**
No	91%	72%	p = .012*
Yes	9%	28%	
Percentage of Nigerians infected	**Males**	**Females**	**p value**
<30%	40%	9%	p < .000*
30 – 70%	57%	50%	
>70%	2%	41%	

Table G – General knowledge of the students about their HIV sero-status and the status of their sex partners, knowing people affected by HIV/AIDS and estimation of the prevalence of HIV. * Denotes statistical significance when p <0.05.

Correlation between Responses of the Students

We attempted to elucidate whether age in either males or female was significantly correlated with the number of sex partners. There was no significant correlation between age in men or women and the number of sex partners, the percentage of condom use nor the knowledge of HIV infection rates. Moreover, there was no significant correlation between the incidence of condom use and the number of sex partners within the past year, or between the number of sex partners and the knowledge of HIV. This information is presented in Table H below.

Correlation between responses	Males	Females
Age + number of sex partners	-0.091	-0.031
Age + % condom use	-0.256	0.041
Age + knowledge of HIV	-0.098	0.045
Number of sex partners +% condom use	0.500	0.428
Number of sex partners + HIV knowledge	0.146	0.073

Table H – Tabulation of the correlation coefficients between selected responses. Coefficients greater than 0.6 were taken to indicate validity.

SYNOPSIS OF THE RESULTS OF OUR STUDY

In summary, our results suggest that in a Nigerian population of university students, there was a high frequency of multiple sex partners with over 80% of the population reporting having more than one sexual partner within the last year. There was only a moderate frequency of condom usage, only 55-65% of both males and females used condoms more than 75% of the time to protect themselves from STD infection. 40% of both men and women did not trust their partners and would use condoms because of lack of trust. Interestingly enough, women felt more comfortable asking men about their HIV status. Both men and women were aware of people who had died from complications related to HIV/AIDS, and that there was no cure for HIV. Nigerian students tended to overestimate the number of Nigerians infected by HIV, with over 60% of the men and 90% of women indicating that the HIV infection rate was greater than 30%. However, this did not translate into an increased use of condoms for protection from HIV infection. The aforementioned results and information leads us to conclude that knowledge of HIV does not correlate with the use of protective measures to prevent dissemination and spread of the disease. To reach these groups, a different dimension in educational programs is very necessary.

DISCUSSION

ANALYSIS OF DATA AND COMPARISON TO OTHER LITERATURE

This study examined the knowledge of Nigerian university students about HIV/AIDS, in addition to the behavioral aspects and attitudes towards HIV and condom use. The condom use behavior observed did not differ significantly from what has been reported in other studies. Moreover, in trying to see if there were any gender differences in condom use behavior or in HIV knowledge, there was no significant difference. The results show that HIV knowledge and awareness of many risk factors did not have any effect on condom use consistency. On the other hand, concerns about unwanted pregnancy, HIV infection and lack of trust of sexual partners made many respondents use condoms during their sexual encounters. These results suggest that HIV prevention programs need to focus on personal risk perception (15), and not just on education about the modes of transmission and ways to prevent infection.

The proportion of respondents in our study who are sexually active (89%) was consistent with existing literature about the numbers of African youth who are sexually active (21, 38, 39). Our study found that 89% of the sexually active students had used a condom at least once. This is similar to the numbers reported in other studies (22, 23, 34, 38, 40). However, the proportion of sexually active students who had ever used a condom (89%) was less than the 92.7% reported from the study of Zimbabwean students (38). This could be due to a heightened awareness in Zimbabwe about HIV/AIDS and the success of their programs aimed at increasing condom use. Our study is also different from most other studies that focused on high school students and street youth (39), and the inconsistency in results could be explained by the discrepancy in

educational level.

Knowing someone with AIDS did not lead to increased condom use as observed in this study. This finding is similar to a study of South African women, where no relationship was observed between personally knowing someone diagnosed with HIV/AIDS or who died of AIDS complications, and the use of condoms at the last sexual encounter (41). This may be because the respondents may not feel that the HIV/AIDS mortality that they are aware of, is high enough to effect conscious behavior change.

The women in this study were more comfortable asking their partners about their HIV status than men. Educated women may use their knowledge about HIV/AIDS to avoid high-risk sexual behavior. In a paternalistic society such as Nigeria, women traditionally do not have much control over much of their sexual lives. It is generally considered inappropriate for a woman to suggest condom use or refuse sex with her husband (15, 42, 43). Many studies have shown that it is common in sub-Saharan Africa for wealthy men to lure women with small gifts and money in exchange for sex (44, 45). In a report by Kapiga and Lugalla on Tanzanian women, 275 (75.3%) out of the 365 women who had casual sex partners in the past year, received money during their last sexual encounter (46). Fortunately, women are being empowered by education and knowledge. Increased level of education is also associated with improved socio-economic conditions that could lead in a decrease of the tendency to exchange money for sex. Moreover, educated women are better equipped with the ability to negotiate with men on issues of safe sex practices and condom use (46). Therefore, programs that foster women's economic independence are very likely to be successful in preventing HIV/AIDS transmission.

It was interesting to note that although most of the respondents knew that there was no cure for HIV, 11% of the male respondents believed there was a cure. Most of these answers were "God" or "prayer" as cures for HIV. This led us to evaluate the role of religion and its impact on HIV/AIDS prevention and condom use. The predominant religion in this part of Nigeria is Christianity. The Christian churches have taken advantage of the alarming rate of HIV/AIDS in the country to deliver messages supporting abstinence. There are many billboards and signs around the state delivering messages such as "Sex kills. HIV/AIDS is real", and "Save yourself for marriage for your body is the temple of the Holy Spirit". The impact of such messages is unknown, but unlikely to be effective towards a large population of sexually active university students. Moreover, there are some factions of the Christian churches that boast of curing HIV/AIDS through prayers and rituals and many people flock to such services. There has not been a documented, scientifically proven cure from these services but many people believe in their abilities. The impact of these religious services on the public consciousness and awareness about HIV/AIDS is definitely a topic that needs further detailed investigation.

LIMITATIONS OF THE STUDY

It is worth noting that a limitation of this study is the small sample size. The selection procedure of the respondents was not systematic, and was limited to the students who came to the Internet café where the study was done. Moreover, the study was conducted at a time that school was not in session due to faculty strikes, so the results cannot be generalized to the entire university population. This population may not be representative of the whole peer group and people from other universities or other

tribes. Moreover, it is difficult to generalize and apply these findings to non-university educated Nigerians. It is also important to note that in gathering the data for this study, we made a few assumptions about the population. We assumed that the population was mainly heterosexual, very educated, financially adept and able to purchase condoms if they desired to do so. Nevertheless, these findings suggest that low condom use among university students is a big problem that needs to be addressed directly. Having a university education could portend an ability to better understand the implications of HIV infection, so programs should focus on formally educating students so that they may learn to take more precautions (24).

Another limitation of the study is in the format of some of the questions. For example, in the question asking whether the respondents would be able to tell infection, we were biased toward asking about the symptomatic phase of HIV/AIDS infection. However, our purpose with the question was to find out if the students know that there is no way to tell that an individual is infected with HIV, just by physical appearance. The answers to the questions suggested that the respondents felt they were being asked to name some physical signs of HIV infection, such as thrush and 'wasting syndrome'.

Furthermore, another limitation of the study could be a reporting bias. As a result of the subject matter, the respondents may not have been comfortable talking about sex and may have given more desirable and socially acceptable answers. We hope that ensuring the students about the anonymity of the responses circumvented this, but it is important to note it as a possible limitation. In spite of all the aforementioned limitations, it is important to note that the results of this study consistently show that there is no correlation between knowledge of HIV and the use of condoms for HIV protection.

PROGRAMS THAT WERE SUCCESSFUL IN INCREASING CONDOM USE AND/OR REDUCING HIV PREVALENCE

Recent studies and experts consulted by *Population Reports* agree that there are five major challenges to which programs must respond in order to effectively promote condom use and reduce HIV prevalence. The following section is adapted from "Closing the Condom Gap" report published in 1999 (47).

- **Changing Norms about Sexual Behavior and Condom Use.** People are unlikely to use condoms when cultural norms encourage sexual risk-taking and discourage condom use. Health programs can help change individual behavior and increase condom use by addressing community norms and other behavioral obstacles to condom use.
- **Assuring Effective Use.** Many people do not use condoms because they do not like or trust them. People need assurance that condoms effectively prevent pregnancy and most STDs, including HIV. Condoms should be high quality when manufactured and when they reach consumers. New designs and new materials have been introduced to make condoms easier and more pleasant to use.
- **Providing Greater Access to Condoms.** For more people to use them, condoms must become almost universally accessible at affordable prices. In some countries condoms are still difficult to obtain. In others distribution and sales are rising as a result of social marketing programs and other efforts to increase the number and kinds of outlets.
- **Promoting Condoms.** Promotion can inform people about condoms and can change people's health behavior. Promotion can do more than warn about the risks of AIDS or teach about condoms. It can engage people's interest, reach

them emotionally, and persuade them that using condoms is easy, important, and socially approved.

- **Changing Restrictive Policies Concerning Condoms.** The condom gap is a global public health crisis. Despite rising awareness of HIV/AIDS, not all governments support programs to provide and promote condoms widely. Encouraging condom use is a good investment. Further efforts and financing are necessary.

There are a few programs that have been successful in increasing condom use and/or decreasing the prevalence of HIV/AIDS. Four examples will be highlighted. These are the programs that were effective in Thailand, Nepal, Senegal and Uganda.

In Thailand, the 100 Percent Condom Program has been one of the world's most successful condom promotion campaigns. The program's targets were commercial sex workers (CSWs), and the goal was to increase the rate of condom use. The program instructed CSWs to demand that their clients use condoms in their sexual encounters. If a client refused to use a condom, the CSW was supposed to refuse sex and to return the money. The government closed brothels that did not abide by the program (48). From 1989 to 1994, condom use in commercial sex establishments increased from about 25% of all sex acts to more than 90%. Furthermore, the STD rates among CSWs decreased by more than 85% (47, 48). Another study compared the behavior of army recruits in 1991, when the campaign began, and two years later in 1993. Results showed that the more recent recruits not only were much more likely to have used condoms than the earlier group, but also made fewer visits to brothels (49). While AIDS is still a problem

in Thailand, the promotion of condoms and other prevention activities have been credited with a decline in the overall prevalence of HIV and other STDs. A strong mass-media campaign and free condom distribution have slowed the AIDS epidemic. One of the UNAIDS officials remarked, "Thailand is a good example that if you do something right, you can actually make a significant impact on the way the AIDS epidemic unfolds" (47).

In Nepal, a promotion campaign focused on CSWs and their truck-driver clients. Truck drivers are an important audience because they often travel long distances and visit CSWs when they are away from home for a long time (47, 50, 51). Between 1994 and 1996, condom use by CSWs along the routes almost doubled to 61%. In contrast, condom use fell among a comparison group of CSWs who did not receive information and condoms (47). In Senegal, a national program was established to promote the use of condoms in high-risk situations, and strengthening treatment and prevention services for STDs. This resulted in a 60% increase in condom use by men, and a 40% increase in condom use by women in all encounters with casual sexual partners. Furthermore, there was a reduction of gonorrhea from 20% to 5% in sex workers from 1991 to 1996 (52).

Another successful program was established in Uganda, which until recently had the highest AIDS infection rate in the world (47). While most other developing countries have since seen increases in HIV/AIDS, Uganda has seen a decrease of up to 25% in the HIV infection rate compared with the rate in the 1980s. Uganda is the only country in sub-Saharan Africa where the incidence of AIDS has decreased (53, 54). Yoweri Museveni, Uganda's president since 1986, has been an activist and strong supporter of AIDS prevention programs. In 1990, the Ugandan National Task Force on AIDS was established and in 1991, a multi-sectoral program consisting of condom distribution and

promotion involving popular songs and drama groups, counseling, and support services was also established. 1995 marked the start of a nationwide promotion campaign with songs and soap operas, drama, posters, and other approaches promoting safe sex, abstinence, fewer sex partners, and condom use among young people (47). There was a subsequent rise in age at first sexual intercourse and in monogamy and a decrease in HIV prevalence, especially among young people (55). Results of blood tests at five sites in Uganda showed that the percentage of pregnant women with HIV has dropped since 1991. Moreover, the use of condoms has increased substantially among young people. Among men ages 15 to 19, the percentage who had ever used condoms rose from 20% in 1989 to about 60% in 1995 (55).

Recommendations to Increase Condom Use and HIV/AIDS Awareness in Nigeria

Our studies and many studies have shown that it is not enough to focus on educating students about HIV transmission and ways to prevent infection with the virus. While this information is very important, programs need to focus on ways to make condoms more available to students. The government should subsidize condoms for students, in order to bring good quality condoms within their financial reach. Condoms should also be available in family planning clinics, hospitals and private doctor's offices, and it should be ensured that people are comfortable in going to these places and getting the condoms. Condoms should also be available in hotels and bars to reach out to more groups who need condoms including non-students, businessmen, long-distance truckers and commercial sex workers.

Students should be ensured that condoms are effective in preventing sexual

transmission of HIV and other sexually transmitted diseases. In order to reach the students effectively, these programs need to be horizontal based programs, not vertical based programs. In other words, these groups need to be peer education groups that emphasize that it is acceptable to use condoms. The students also need to realize that AIDS is real and affects their peers. The peers that are infected with HIV need to be encouraged to speak out about their situation and encourage other students to protect themselves against the virus. While this situation is ideal, it is known that the stigma about HIV/AIDS would be an obstacle to anyone coming out and declaring him/herself as being HIV infected. Stigmatization against HIV/AIDS may discourage or even prevent people from obtaining an HIV antibody test, and prevent infected individuals from obtaining social support, or revealing their status to their sexual partners. Therefore, programs need to focus on diffusing and breaking down the negative stigmata attached to HIV infection. We realize that simply targeting students without changing the social environment within which they live, is very likely to be ineffective. Therefore, long-term intervention programs need to tackle social relations such as gender inequality, unemployment, and poverty. Women also need to be empowered in order to help them be more assertive in demanding that their sexual partners use condoms.

Programs also need to focus on correcting misconceptions about condoms. It is important to provide information about the correct use of condoms, and emphasizing not using expired condoms to avoid breaks and tears. It should also be emphasized that condoms become easier and more fun to use with consistent practice, and that condoms can be a pleasurable and regular part of any romantic relationship. This could be done during social events involving students, in addition to various advertisements and mass

media promotions such as the advertisements used by SHF to promote condom use in South Africa and Ghana as shown in the Appendix. Students are likely to engage in using condoms if they truly believe that their peers sanction it. These programs also need to emphasize that for sexually active individuals, the condom is the only technology available for protection from HIV and other sexually transmitted diseases.

In conclusion, until there is a cure or vaccine for HIV, consistent and correct condom use is a very reliable and effective source of protection for sexually active persons. The barriers to using condoms and educating people about the risks of HIV and other sexually transmitted diseases need to be overcome. Large proportions of people in the world and especially in Africa are dying because of complications related to HIV/AIDS. This is a big problem that needs to be addressed in order to prevent more losses to this overwhelming epidemic.

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SAMPLE QUESTIONNAIRE

1. How old are you? _____

2. Are you male or female? Male Female

3. University level 1st year 2nd year 3rd year 4th year Other

4. What department are you in? _____

5. Do you have sex? Please circle one answer. Yes No

6. Within the last year, approximately how many people have you had sex with?
   0 1 2-5 6-10 Over 10

7. If you have sex, do you or your partner use condoms? Please circle one answer.
   Yes No

8. What percentage of the time do you or your partner use condoms? Please write a number between 0 and 100% _____

9. When condoms are used, why do you or your partner use them? Please circle all that apply and underline the most important reason.
   - To prevent pregnancy
   - To protect against diseases
   - You and your partner just want to use them
   - Other reasons

   _____

10. When condoms are not used, why not? Please circle all that apply and underline the most important reason.
    - You don't like them
    - Your partner does not like them
    - You don't feel that you need to
    - They are too expensive
    - You or your partner don't know where to get them
    - They are unreliable
    - You or your partner use another form of birth control (please specify)
    - You and your partner are monogamous to each other
    - You don't feel you or your partner will get pregnant
    - You don't feel you or your partner are at risk for diseases
    - Friends advised you or your partner not to use them

11. What would make you or your partner want to use condoms? Please circle all that apply and underline the most important reason.
    - If you don't trust your partner
    - If they are available to you or your partner
    - If you or your partner think they are reliable
    - If you or your partner wants to use them
    - New relationship
    - If you are not in a committed relationship
    - If you suspect your partner is not monogamous
    - If your friends advised you to use them

12. What would make you or your partner stop using condoms? Please circle all that apply and underline the most important reason.
    - You and your partner are in a committed relationship
    - You know that your partner does not have any diseases
    - You are married
    - Your partner asks you not to use them

13. Do you know your HIV status? Yes No

14. If you know your HIV status, why did you get tested?

    _____

15. If you do not know your HIV status, why have you not been tested?

    _____

16. Do you know your partner's HIV status? Yes No

17. Do you feel comfortable asking your partner about his/her HIV status? Yes No

18. What would make you ask your partner about his/her HIV status?

    _____

19. Why would you not ask your partner about his/her HIV status?

    _____

20. Do you know anyone who is infected with HIV? Yes No

21. Do you know anyone who had died of HIV/AIDS complications? Yes No

22. How can you tell someone has HIV?

    _____

23. Is there a cure for HIV? Yes (please explain) No

    _____

24. How do you prevent getting infected with HIV?

_____

25. What percentage of Nigerians do you think have HIV? Please write a number between 0 and 100% _____

Please feel free to write anything else that you think would be useful in this study.

_____

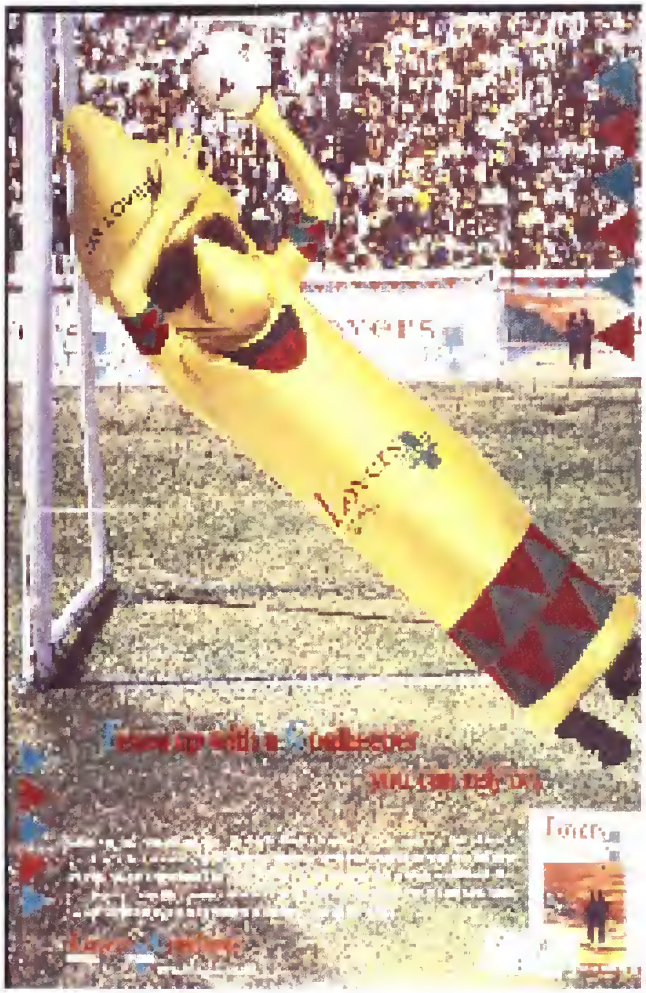
_____

_____

_____

Thank you so much for participating in this survey. May God bless you for your time and generosity.

ADVERTISEMENTS PROMOTING CONDOM USE



Figures 4 and 5 - Effective condom promotion uses a variety of approaches, including humor, as in this South African advertisement. TV, radio, and every other means that reaches the audience can be used. The caption on Figure 4 reads "Team up with a goal keeper you can rely on". These promotions are sponsored by the Society for Family Health/Lovers Plus Condoms (47).

Figures 6 and 7 – Figure 6 is an advertising poster used in Ghana. Be happy in the game of love—use condoms, this Ghanaian poster suggests. Figure 7 is suggesting that using condoms constitutes a healthy way to live. Creating a positive image of condom use, as in these Ghanaian advertisements, is often very effective. Promoted by Ghana Social Marketing Foundation (47).

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