

# IMPACT OF HEALTH EDUCATION ON SECONDARY SCHOOL STUDENTS' KNOWLEDGE OF HIV/AIDS AND THEIR ATTITUDE TOWARDS PEOPLE LIVING WITH HIV/AIDS IN JOS, NIGERIA

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## ABSTRACT

**OBJECTIVE:** The objective of this study was to determine the students' knowledge of HIV/AIDS and their attitude towards people living with HIV/AIDS as well as the impact of health education intervention on these.

**METHOD:** A school-based interventional study using experimental and control design was carried out between May 2004 and January 2005 in Jos. A multi-staged sampling technique was used to select the study subjects in two Local Government Areas (L.G.A.s). One LGA was used as the experimental site while the other was used as the control site. A semi-structured self administered questionnaire was then used to determine the students' knowledge and attitude to HIV/AIDS prior to the health education intervention. A total of 1246 students were recruited for the study at baseline and 1238 of them completed the study.

**RESULT:** The male: female ratio was 1.1:1 in the experimental group and 1:1 in the control group. The mean ages of the students were 17.6 ± 2.0 years in the experimental and 17.8 ± 2.2 years in the control groups. There was a statistically significant improvement in the students' HIV/AIDS knowledge after the intervention in the experimental group ( $p < 0.001$ ) but not in the control group ( $p = 0.60$ ). In addition, there was a statistically significant improvement in the experimental students' attitude to PLWHA ( $p = 0.001$ ) but not among the control students ( $p = 0.86$ ).

**CONCLUSION:** Health education was found to

significantly improve the students' knowledge and attitude to HIV/AIDS and PLWHA. It was therefore recommended that health education on HIV/AIDS should form an integral part of the current campaign against HIV/AIDS in secondary schools.

## INTRODUCTION

The pandemic of Human Immune Deficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS) and the devastation it is wrecking in sub-Saharan Africa are widely acknowledged. What is not as often acknowledged is its impact on the youth.<sup>1</sup> Young people are at the centre of the HIV/AIDS epidemic in Nigeria,<sup>2,3</sup> just as they are in many other countries of the world. An estimated 11.8 million young people aged 15-24 years are living with HIV/AIDS globally and each day nearly 6000 of them in the same age category are infected with HIV, yet only a fraction of them know this.<sup>3</sup> Most young people live in developing countries and are least able to meet their needs for education and sexual/reproductive healthcare to prevent HIV infection.<sup>4,5,6</sup>

More than two decades into the epidemic, majority of Nigerian teenagers remain uninformed about HIV/AIDS and its implications for reproductive health.<sup>3</sup> To compound the problem, national policies focusing on the reproductive health of young people are not being implemented.<sup>7</sup> It is, therefore, not surprising that half of the teenage girls surveyed in 2001 in sub-Saharan

Africa did not realize that a healthy-looking man could be living with HIV/AIDS.<sup>8,9</sup> Fewer than 10% of them knew the routes of transmission and ways of preventing HIV infection. These statistics call for action specifically targeted at the youth with information about HIV/AIDS and the knowledge/skills with which to protect themselves from HIV infection.

Among the several strategies suggested for reducing infection rates, school-based HIV prevention programming stands out as a necessary step to protect the general population from further infection.<sup>1,10</sup> This is because schools provide an important location where a large proportion of young people can be reached.<sup>1</sup>

The aim of this study was to assess the level of knowledge of HIV/AIDS among secondary school students as well as their attitude towards People Living with HIV/AIDS (PLWHA). Intervention in the form of health education was then offered the students, six months after which the same variables were re-assessed. This was to find out how effective health education was in improving the students' knowledge and attitude. No interventional study on the HIV/AIDS knowledge and attitude of secondary school students had been carried out in an urban part of Plateau State before now. Therefore, this study would provide baseline data for further studies among students in this locality.

## **MATERIALS AND METHODS**

This was an interventional follow-up study with an equal number of controls selected from similar schools and from the same classes. The experimental and control groups were selected in such a way as to avoid contamination bias. The minimum sample size for each group was determined to be 561 using a standard formula for interventional studies.<sup>11</sup> Using a multi-stage sampling technique, 662 students in one public co-educational senior secondary school in Jos North LGA were recruited into the study as the experimental group and another 655 selected from three similar schools in Jos south LGA as controls. A semi-structured self administered questionnaire was used to collect information from both groups of students on socio

demographic parameters, knowledge on HIV/AIDS and attitude towards PLWHA at baseline. This was followed by health education to the students in the experimental group covering all the basic knowledge on HIV/AIDS lasting four weeks. No health education was given to the students in the control group. Six months after the completion of the intervention, the same assessment was repeated on both groups of students.

Knowledge on HIV/AIDS was scored, each correct answer requiring a yes or no response scored 1 point. Each correct answer filled in the blank spaces provided was scored 2 points. The total score for knowledge was 30 and a score of 20 points and above was considered adequate knowledge while a score of 19 points and less was considered inadequate knowledge. Students who could mention 3 routes of HIV transmission, 3 clinical features of AIDS and 3 ways of avoiding HIV infection were considered to have adequate knowledge in the respective areas. All yes answers to questions on attitude were considered to have positive attitudes to people living with HIV/AIDS. The data was analyzed using spreadsheet and Epiinfo 2000 computer software and then presented in frequency and contingency tables. Statistical significance of any differences noted within groups before and after the intervention and between groups before and after the intervention was tested using the  $\chi^2$  test. Both the students and their parents/guardians signed written informed consent. The Ethics Committee of the Jos University Teaching Hospital and the Plateau State Ministry of Education approved the study.

## **RESULTS**

Out of the 1246 students recruited, 620 in the experimental and 618 in the control groups completed the study. Their mean ages were  $17.6 \pm 2.0$  years in the experimental group and  $17.8 \pm 2.2$  years in the control group. A good number of their fathers attained secondary education; 299 (48.2%) in experimental and 277 (44.2%) in control groups. Only a small proportion; 59 (9.5%) of them were illiterate in the experimental and 53 (8.5%) in the control groups. Similarly, 242 (39.0%) of their mothers attained secondary education in the experimental group versus 220 (35.1%) in the

control group. Majority of the students studied were Christians; 432(69.7%) in the experimental group and 512 (81.8%) in the control group. In both groups majority of the students were within the age group of 15-19 years; 500 (80.6%) for the experimental and 478 (76.4%) for the control groups. Only 115 (18.5%) of the students in the experimental group had adequate knowledge of HIV/AIDS at baseline. After health education, 461 (74.4%) of them had adequate knowledge ( $p < 0.001$ ). In the control group, 135 (21.8%) of them had adequate knowledge of HIV/AIDS at the end of the study compared to 118 (18.8%) at baseline ( $p = 0.60$ ). Whereas there was a statistically significant increase in the proportion of the experimental group with adequate HIV/AIDS knowledge after the intervention, the increase in the control group was not statistically significant. See table 1. At baseline 182 (29.3%) of the experimental and 183 (29.2%) of the control groups had adequate knowledge of routes of HIV transmission. After the intervention 587 (94.7%) of the experimental ( $p = 0.000$ ) and 216 (35.0%) of the control ( $p = 0.36$ ) groups

had adequate knowledge of routes of HIV transmission. At baseline 43 (6.8%) of the experimental and 41 (6.4%) of the control groups had adequate knowledge of clinical features of AIDS. After the intervention 397 (64.0%) of the experimental ( $p = 0.001$ ) and 56 (9.1%) of the control ( $p = 0.43$ ) groups had adequate knowledge. At baseline 79 (12.7%) of the experimental and 83 (13.1%) of the control groups had adequate knowledge of prevention of HIV/AIDS. After the intervention 514 (82.9%) of the experimental ( $p < 0.001$ ) and 111 (18.0%) of the control ( $p = 0.33$ ) groups had adequate knowledge of prevention of HIV/AIDS. See table 2. At baseline 485 (78.2%) of the experimental and 501 (80.0%) of the control groups had positive attitude towards people living with HIV/AIDS. At the end of the study 584 (94.2%) of the experimental ( $p < 0.001$ ) and 502 (81.2%) of the control ( $p = 0.86$ ) groups had positive attitude towards people living with HIV/AIDS. Whereas the change was statistically significant in the experimental group, that in the control group was not. See table 3.

**Table 1: Students' knowledge of HIV/AIDS at baseline and after the intervention**

Knowledge	At baseline				After intervention			
	Study n = 620		Control n = 626		Study n = 620		Control n = 618	
	Freq	%	Freq	%	Freq	%	Freq	%
Adequate	115	18.5	118	18.8	461	74.4	135	21.8
Inadequate	505	81.5	508	81.2	159	25.6	483	78.2
Total	620	100.0	626	100.0	620	100.0	618	100.0

$\chi^2 = 0.03, p = 0.86$   $\chi^2 = 54.17, p = 0.001$

**Table 2: Students' knowledge of transmission, clinical features and prevention of HIV/AIDS at baseline and after the intervention**

	Baseline				After intervention			
	Study n = 620		Control n = 626		Study n = 620		Control n = 618	
Knowledge of:	Ad *	Inad**	Ad	Inad	Ad	Inad	Ad	Inad
Routes	182 (29.3)	438 (70.7)	183 (29.2)	443 (70)	587 (94.7)	33 (5.3)	216 (35.0)	402 (65.0)
Clinical features	43 (6.8)	577 (93.2)	41 (6.4)	585 (93.6)	397 (64.0)	223 (36.0)	56 (9.1)	562 (90.9)
Prevention	79 (12.7)	541 (87.3)	83 (13.1)	543 (86.9)	514 (82.9)	106 (17.1)	111 (18.0)	507 (82)

\*Adequate, \*\*Inadequate

**Table 3: Distribution of students' attitude towards people living with HIV/AIDS at baseline and after the intervention.**

Attitudes	Baseline				After intervention			
	Study n = 620		Control n = 626		Study n = 620		Control n = 626	
	Freq	%	Freq	%	Freq	%	Freq	%
Positive	485	78.2	501	80.0	584	94.2	502	81.2
Negative	135	21.8	125	20.0	36	5.8	116	18.8
Total	620	100.0	620	100.0	620	100.0	618	100.0

$$\chi^2 = 0.12, p = 0.73 \quad \chi^2 = 7.73, p = 0.005$$

## DISCUSSION

Only 18.5% of the experimental and 18.8% of the control groups had knowledge scores considered adequate. These findings are lower than those found in Cross River State, Nigeria, where the knowledge of HIV/AIDS among the secondary school students studied was 42.30 against a reference mean score of 35.0<sup>12</sup> In this study only 29.3% of the students could correctly mention three routes of transmission of HIV. This, although low, is higher than a finding in Port Loko, Sierra Leone where only 7% of the male and 6% of the female students could spontaneously mention three or more routes of HIV transmission.<sup>8</sup> Similarly, 12.7% of the experimental and 13.1% of the control groups could mention 3 correct ways of avoiding HIV infection in this study. This is higher than previous studies had suggested. In Sierra Leone, only 4% of the male and 5% of the female youths surveyed knew at least three ways of avoiding HIV infection.<sup>8</sup> In Singapore, although the awareness of HIV/AIDS was found to be high among the youth, there existed a number of misconceptions regarding HIV transmission.<sup>13</sup> Elsewhere In Nigeria, 71% of the youths disagreed that those who are heterosexual are less likely to be HIV-infected than those who are homosexual, 96% disagreed that HIV can be transmitted by using the same telephone, 94% did not agree that HIV can be transmitted through ordinary office contact and 93% disagreed that handshaking can lead to HIV transmission. Eighty-four percent reported that one cannot get HIV infection through the toilet but 10% agreed that one can get it through food prepared or handled by a person living with HIV/AIDS.<sup>14</sup> The knowledge of clinical

features of AIDS was also found to be poor in this study. Only 6.8% of the experimental and 6.4% of the control groups could mention three clinical features of AIDS. These compare with what was found in Kenya where a study of the knowledge of HIV/AIDS among students and school teachers showed that only 15% and 13% of the students knew that fever and diarrhoea respectively were symptoms of HIV/AIDS.<sup>15</sup> However, a relatively large proportion (60%) of the students in the Kenyan study knew that weight loss was a symptom of AIDS. Among Iranian students, the awareness of HIV/AIDS was found to be high but misconceptions were still prevalent. Nine percent of them believed that children could never have HIV/AIDS, 10% believed that HIV positive people could be identified by their appearance and 9% and 11% believed that there was a cure and a vaccine for AIDS, respectively<sup>15</sup>. Among adolescents in Singapore, the knowledge of HIV/AIDS was quite high with the respondents achieving an average of 77.4% on the knowledge score compared with only 18.5% in this study. From a baseline knowledge level of 18.5%, the number of students with adequate knowledge increased to 74.4% after receiving health education. This increase was found to be statistically significant ( $p < 0.001$ ). In the control group the proportion of students with adequate knowledge of HIV/AIDS rose marginally from 18.8% at baseline to 21.8% at the end of the study. This was not statistically significant ( $p = 0.60$ ). This increase could be due to the ongoing public health campaigns in the media. In a study carried out in Nigeria in 1999 involving education and role play, there was a similar statistically significant improvement in the knowledge of HIV

transmission and prevention in intervention schools compared to the control schools.<sup>16</sup> The proportion of students who could mention three routes of HIV transmission rose from 29.3% at baseline to 94.7% after health education in the experimental group ( $p=0.0001$ ) compared to the control group that rose from 29.2% at baseline to 35.0% at the end of the study ( $p=0.36$ ). Similarly, the proportion of students who could mention three clinical features of AIDS increased from 6.8% at baseline to 64.0% after health education in the experimental group ( $p=0.0001$ ) compared to an increase from 6.4% at baseline to 9.1% in the control group ( $p=0.43$ ). In addition, the knowledge of prevention of HIV/AIDS increased from 12.7% at baseline to 82.9% after health education in the experimental group and from 13.1% at baseline to 18.0% at the end of the study in the control group ( $p=0.33$ ). A review of previous interventions that aimed at improving students knowledge of HIV/AIDS shows that in three out of the four studies evaluated there were significant improvements in their knowledge after the interventions.<sup>17</sup> In contrast, a study in South Africa involving drama in education programme to increase AIDS awareness among students curiously did not lead to increased knowledge.<sup>18</sup> At baseline 78.2% of the experimental and 80.0% of the control groups had positive attitudes towards PLWHA. This is a positive development as a positive attitude determines, to a large extent, the subsequent behaviour of an individual. This finding indicates a better attitude than that found in Singapore where 33% of respondents reported being unwilling to work with HIV infected people and another 36% not sure if having an HIV infected colleague would bother them.<sup>13</sup> On the other hand, 30% feared the disease as they felt it would be dangerous to work around people with HIV/AIDS.<sup>13</sup> In the same study 32% of the youth disagreed with the assertion that HIV infected people did not pose a threat to their co-workers. The students' attitude in the present study is also better than what was found earlier among Iranian students who would not attend the same school or sit in the same class with a student with the disease.<sup>15</sup>

Similarly, 23% of the students would not shake hands with a HIV positive person if they knew his status. Among these students, attitude was found to be significantly correlated to knowledge. The attitude of students in the experimental group improved from 78.2% at baseline to 94.2% at the end of the study. This was statistically significant ( $p=0.001$ ). That of the control group improved from 80.0% at baseline to 81.2% at the end of the study but this increase was not statistically significant ( $p=0.86$ ). Many theories specify attitudes as a proximal determinant of behaviour. As a result changes in attitude are viewed as an important goal in many AIDS prevention programmes. A review of five different programmes where improvement in attitude towards HIV/AIDS was a targeted outcome showed significant improvements after the interventions.<sup>1</sup> A study in South Africa in 1996 demonstrated an improvement in attitudes for only males but noted that the attitude for females was already high (>90%) before the intervention.<sup>17,18</sup>

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