ORIGINAL ARTICLE

Impact of Health Education on Sexual Risk Behaviour of Secondary School Students in Jos, Nigeria

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Abstract

Background: *Secondary school students are a high risk group for HIV transmission. They could also be easily reached with health education interventions. There is as yet no global consensus on the nature, content and effectiveness of this intervention among this group. It is also not known how effective this intervention is in reducing sexual risk behaviour among secondary school students in our environment. The aim of the study was to find out the impact of HIV/AIDS health education intervention on the sexual risk behaviour of secondary school students.*

Methods*: This was an interventional follow-up study among senior secondary school students with controls selected from similar schools. The students' sexual risk behaviour was assessed at baseline followed by a HIV/AIDS health education intervention. The risk behaviour was then re-assessed 6 months after the intervention.*

Result*: Students who lived in urban areas and those who lived with both parents were less likely to have experienced sexual intercourse at baseline than those who lived in the rural areas (but school in Jos during school sessions), and those who lived with single parents and other relations. Health education delayed sexual debut among students who were sexually naïve but had no effect on the sexual activity of those who were already sexually experienced.*

Conclusion*: Health Education intervention has a place in reducing secondary school students' sexual risk behaviour if commenced before their sexual debut.*

Key words*: HIV/AIDS; Health Education; Secondary School Students:*

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Introduction

The pandemic of HIV/AIDS and the devastation it is wrecking in sub-Saharan Africa are widely acknowledged. [1] What is just beginning to dawn on us is its impact on the youth. Young people are at the centre of the HIV/AIDS epidemic in Nigeria, just as they are in other parts of sub-Saharan Africa and the epidemic is driven mainly by heterosexual intercourse which very often starts as early as 15 years of age. [2,3]

Schools have been identified as appropriate environments in which to undertake activities to promote HIV-related risk reduction among young people. [4] Given that in the majority of countries young people between the ages of five and fifteen years spend relatively large amounts of time in school, school environments can also provide resource-efficient access to large numbers of young people from diverse social backgrounds. [1]

It is generally agreed that HIV/AIDS education material should include information on: the nature of the virus, its modes of transmission, the consequence of infection and the steps that can be taken to protect against infection. [4] More contentious is the inclusion of education relating to interpersonal sexual relations. In this regard, discussion of the avoidance of HIV infection by the use of condoms or the supply of clean needles and syringes for intravenous drug users can be particularly controversial. [4] There is also considerable debate on whether scalable school-based HIV/AIDS education programs can be effective in limiting the spread of HIV/AIDS among youth. Will teachers actually teach these curricula? If the curricula are taught, can they affect knowledge, attitudes, or behavior? There is also equally intense debate over the content of these programs. Will discussion of condoms and sex, including its delay and avoidance spur increased use of condoms and increased sexual activity? [5]

Although many countries have incorporated HIV/AIDS and sexual education in their school curriculum, there is

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limited rigorous evidence from controlled trials on these questions. [5] Studies suggest that school-based HIV/AIDS education programmes implemented in some parts of the world do not lead to increased sexual activities by the recipients and in well designed interventions they in fact delay the commencement of sexual activity and reduce the number of sexual partners. [,5,6]

The aim of this study was to assess the sexual risk behaviour of secondary school students. Intervention in the form of HIV/AIDS health education was then offered the students after which the same variables were re-assessed. This was to find out how effective health education was in changing their sexual risk behaviour compared to the controls. No controlled interventional study on the sexual risk behaviour of secondary school students has been carried out in this part of the country before now.

Materials and Method

The study was carried out in Jos North and Jos south Local Government Areas (LGAs); two cosmopolitan L.G.A.s making up the Plateau State capital. These served as the study and control sites respectively. The target populations for the study were students of public co-educational senior secondary schools. It was an interventional follow up study with an equal number of controls obtained from similar schools and from the same classes. The minimum sample size was calculated to be 560.56 for each group using a standard formula. [7 This] was increased to 620 to take care of possible attrition of 10%.

Using the list of public co-educational senior secondary schools in Jos North Local Government Area provided by the State Ministry of Education as the sampling frame, a school was selected by simple balloting. All the students in ss1A ss1F and ss2A ss2F totaling 662 were selected for the study group. From the list of similar schools in Jos South Local Government Area provided by the same source, a school was selected by simple balloting, and all the students in ss1A - ss1C and ss2A - ss2C were included in the control group giving a total of 230 students. This was repeated giving 215 and 210 students from the second and third schools respectively making a total of 655 students in the control group. After excluding invalid ones, 620 and 626 questionnaires for the study and control groups respectively were analyzed at baseline.

At baseline, a pre tested, structured, self-administered questionnaire was used to collect information on the students' socio-demographic and sexual behaviour in all the selected schools using a modified version of the Youth Risk Behaviour Survey (YRBS) Questionnaire. [8] This instrument was also locally validated before the data collection. The questionnaire sought information on the socio-demographic background of students including information on the educational level of their parents, place of permanent residence and with whom the students lived. Finally, they were asked the extent to which they engaged in sexual activities considered high risk for HIV transmission.

Intervention in the form of health education covering the meanings of HIV and AIDS, routes of transmission of HIV, symptoms and signs of AIDS, activities considered high risk for HIV infection, the prevention and control of HIV/AIDS and life skills was taught to the students in the experimental group by the researchers over a period of one month. Each class had a one hour lesson each working day of the week consisting of about 45 minutes of interactive teaching and 15 minutes for questions and answers. A total of 21 lessons were given. Visual aids in the form of charts and posters were used in the course of delivering the lessons. A film on the consequences of HIV infection was also shown to the study group at the end of the health education period.

An assessment of sexual risk behaviour related to HIV/AIDS was repeated on all students in both groups 6 months after the intervention. The sexual behaviour of the students before and after the intervention was compared. The differences, where found, between the study and control groups before and after the intervention was attributed to the intervention.

One of the researchers and two trained assistants were present in the class as the students filled the questionnaires all at the same time in the class to prevent them from copying from each other and to ensure that all the questionnaires were retrieved. At the end of the postintervention data collection a day each was taken to give health education on HIV/AIDS and to show the same film to each of the control schools.

The data were processed and analyzed manually using master sheet, dummy tables and by the use of EPI info 2000; epidemiological software program. [9] McNemar's ^{2} test was used to test for statistical significance of relationships between sexual behaviour and selected socio-demographic parameters and the impact of the intervention on the students' sexual behaviour.

Health Research Ethics clearance for the study was obtained from the Ethical Committee of the Jos University Teaching Hospital in April 2004. The study was permitted by the Plateau State Ministry of Health and both the students and their parents consented to

the study. The pre-intervention data collection was done in May 2004 and June 2004 was used to deliver the intervention. Post-intervention data collection and analysis was done in January 2005.

Results

A total of 1246 students were recruited into the study; 620 in the study group and 626 in the control group and 1238 students completed the study; 620 in the study group and 618 in the control group. At baseline, there were 318 (51.3%) males in the study group and 307 (49.0%) males in the control group (p=0.7). Their mean ages were 17.6 ± 2.0 and 17.8 ± 2.2 years in the study and control groups respectively. Two hundred and ninety nine (48.2%) fathers in study and 277 (44.2%) in control groups had attained at least secondary school (p=0.9). Similarly 242 (39.0%) mothers attained at least secondary education in study group against 220 (35.1%) in the control group (p=0.9). Table I. Five hundred (80.6%) of the study and 478 (76.4%) of the control groups were within the age group of 15 19 years (p=0.75).

Among the study group students who lived in the rural areas, 15(38.5%) were sexually experienced while 147(25.3%) of those who lived in the urban centres were sexually experienced at baseline (p=0.047). Similarly, 37(43.5%) of rural students and 159(29.4%) of urban students in the control group were sexually experienced at baseline (p=0.039). In both groups, rural students were more likely to be sexually exposed than their urban counterparts. Table II.

In both groups, students who lived with both parents were less likely to have had sexual intercourse while those who lived with one of their parents and these were less likely than those who lived with other relatives to have had sexual intercourse. In both groups the differences were statistically significant (p< 0.00004). Table III.

In the study group, 69(21.7% of males and 93(30.8%) of females were sexually experienced (p=0.15) while in the control group, 77(25.1%) of males and 119(37.3%) of females were sexually experienced (p=0.07). Gender did not significantly influence the likelihood of sexual exposure among the students studied. See table IV.

Table I: Socio-demographic characteristics of the students

Characteristics	Study n= 620		Control n=626		Total	^{2}	P
Sex	**Freq.**	**%**	**Freq.**	**%**			
Male	318	51.3	307	49.0	625	0.08	0.77
Female	302	48.7	319	51.0	621		
Total	**620**	**100.0**	**626**	**100.0**	**1246**		
Father's Educational Level							
Illiterate	59	9.5	53	8.5	112	0.65	0.90
Primary	93	15.0	94	15.0	187		
Secondary	299	48.2	277	44.2	576		
Tertiary	169	27.3	202	32.3	371		
Total	**620**	**100.0**	**626**	**100.0**	**1246**		
Mother's Educational Level							
Illiterate	93	15.0	95	15.2	188	0.75	0.90
Primary	137	22.1	168	26.8	305		
Secondary	242	39.0	220	35. 2	462		
Tertiary	148	23.9	143	22.8	291		
Total	**620**	**100.0**	**626**	**100.0**	**1246**		

Table II: Relationship between students' place of residence and sexual experience

	Study			Control				
	Ever had sex?			Ever had sex?				
	Yes (%)	No (%)	Total	Yes	(%)	No	(%)	Total
*Rural	15 (38.5)	24 (61.5)	39	37	(43.5)	48	(56.8)	85
Urban	147 (25.3)	434 (74.7)	581	159	(29.4)	382	(70.6)	541
Total	**162 (26.1)**	**458(73.9)**	**620**	**196**	**(31.3)**	**430**	**(68.7)**	**626**

^{2} =3.92, p= 0.047 ^{2} = 4.25, p=0.03

*This refers to students who came to stay in Jos and attend school in Jos but returned to stay in the rural areas during holidays.

Table III: Relationship between sexual experience and the person with whom the Student lives

	STUDY			CONTROL		
	Ever had sex?			Ever had sex?		
Lives with	Yes (%)	No (%)	Total	Yes (%)	No (%)	Total
Both parents	71 (16.6)	356 (83.4)	427	120 (30.8)	269(69.2)	389
One parent	22 (26.5)	61 (73.5)	83	12 (13.6)	76(86.4)	88
Other relatives	69 (62.7)	41 (37.3)	110	64 (43.0)	85 (57.0)	149
Total	**162 (26.1)**	**458 (73.9)**	**620**	**196 (31.3)**	**430(68.7)**	**626**

^{2} =52.02, p= 0.000001 ^{2} = 20.49, p= 0.00004

Table IV: Gender distribution of students who were sexually experienced at baseline

	STUDY					CONTROL				
Ever had sex?	Male	(%)	Female	(%)	Total	Male	(%)	Female	(%)	Total
Yes	69	(21.7)	93	(30.8)	162	77(25.1)	119	(37.3)		196
No	249	(78.3)	209	(69.2)	458	230(74.9)		200(62.7)		430
Total	**318**	**(100.0)**	**302**	**(100.0)**	**620**	**307(100.0)**		**319**	**(100.0)**	**626**

^{2} = 2.08, p= 0.15 ^{2} = 3.37, p= 0.07

Table V: Age at sexual debut among students at baseline

Age (years)	Study n = 162		Control n=196	
	Freq	%	Freq	%
10 – 14	75	46.2	79	40.3
15 – 19	78	48.2	103	52.6
20 – 24	9	5.6	14	7.1
Total	**162**	**100.0**	**196**	**100.0**

^{2} = 0.74, df = 2, p = 0.69

Table VI: Impact of health education on the sexual activity of students who were "sexually experienced" at baseline

	STUDY		CONTROL		
Had sex in last 3 months	Before	(%)	After (%)	Before (%)	After (%)
Yes	93	(15.0%)	64(10.3%)	120(19.2%)	142(23.0%)
No	527	(85.0)	556(89.7%)	506(80.8%)	476(77.0%)
Total	**620**	**(100.0)**	**620(100.0)**	**626(100.0)**	**618(100.0)**

^{2} = 1.14, p= 0.29 ^{2} = 0.48, p=0.48

Table VII: Impact of health education on the sexual debut after the intervention among students who were not sexually experienced at baseline.

Ever had sex	Study n = 458		Control n= 430	
	Freq	%	Freq	%
Yes	14	3.1	59	13.7
No	444	96.9	371	86.3
Total	**458**	**100.0**	**430**	**100.0**

$_^2$=6.43, p=0.01

Among students who had ever had sex, 75 (46.2%) of the study and 79 (40.3%) of the control group had had their first experience by 14 years (p=0.69). There was no statistically significant difference in the age at "sexual debut" between the study and control groups. Table V.

In the study group, those who were sexually active (had sex within the 3months preceding data collection) decreased from 93(15.0%) at baseline to 64(10.3%) after the intervention (p=0.29). However, in the control group, those who were sexually active increased from 120 (19.2%) at baseline to 142 (23.0%) after the intervention (p=0.48). The change in the sexual activity of both groups was not statistically significant even with the intervention as shown by the p values above. Table VI.

Among students who were not sexually experienced at baseline, 14 (3.1%) of the study and 59 (13.7%) of the control groups became sexually experienced in the interval (p = 0.01). There was a statistically significant difference between the two groups in terms of sexual debut after the intervention. Table VII.

DISCUSSION

Over three quarters of the students were in the age group of 15-19 years. This is understandable as the study was carried out among senior secondary school students. This is also the age group that is most vulnerable to sexually transmitted infections including HIV/AIDS. [2, 3] Experimentation with sex, drugs and alcohol increases the vulnerability of this group [10, 11, 12].

In this study, living in a rural area was associated with having had sex as opposed to living in an urban area and this difference was statistically significant. This is in spite of the fact that the rural areas typify the traditional African setting and it suggests that the traditional mores prohibiting pre-marital sexual intercourse in our community has slowly given way to a more permissive society where such behaviour is tolerated or even unconsciously promoted. Indeed it has been noted by other authors that such restrictions have long given way in other African societies. [13] What probably accounts for the difference in sexual behaviour between the rural and urban students here is the unequal availability of information on HIV/AIDS and the risks of contracting the disease, including sexual intercourse as the most common route of contracting the disease in this society. In the urban area the media are awash with education materials and other HIV/AIDS prevention messages but this hardly filters to the rural areas. In addition, most governmental and non governmental organizations working in the field of reproductive health including the prevention of HIV/AIDS and other STIs are concentrated in the urban centres to the detriment of the rural dwellers.

Previous studies have lent credence to the role of the family in regulating the sexual behaviour of their children and, in particular, in curbing the sexual risks engaged in by young people. Children brought up in polygamous families or brought up by single parents are more likely to commence sexual intercourse earlier than those brought up in harmonious nuclear families. [14] This supports our finding where the tendency to have had sex increases from the least with students living with

both parents through those living with single parents to the highest for those living with other relations. This is most likely a function of family communication about STIs, HIV/AIDS and sexual intercourse which is most likely to take place between parents and children if both parents live with the children. In addition, living with a single parent or with other relations is a distal indicator of family strife or disintegration in which case the social and economic needs of the children (especially the girl child) may not be met thereby exposing them to the vagaries of sexual exploitation by adults. Functional family communication, especially that between mother and daughter is viewed as critical in reducing the risk behaviour on the part of the girl child.[15] However, because of embarrassment and ignorance most parents defer this very important role to school teachers or the children's peers and more often than not the wrong message is passed across.

In contrast to what other studies suggest, this study found no gender difference in the sexual behaviour of the students. In Delhi, India males were found to engage more in sexual risk behaviour than their female counterparts. [16] However, the converse was the case in Sierra Leone as documented by another team of researchers. [17] The fact that our study took place among in-school students may account for the lack of difference between the sexes since most other studies took place among out-of-school children.

Among students who were sexually experienced at baseline, over 40% of them had their first experience by age 14 years and by 19 years over 90% of them were sexually exposed. Sexual debut for most young people occurs during their teenage years. This has been estimated in a number of countries. At age 15 years, 53% of young people in Greenland, 38% in Denmark and 69% in Sweden have experienced sexual intercourse. By age 19 years the percentage that are sexually active has been reported as 54.1% in the USA, 31% in the Dominican Republic, 66.5% in New Zealand and 51.6% in Australia. Age of sexual debut has been estimated at a median of 17 years in England and a mean of 15.9 years in the USA and 16.8 years in Sweden.[1]

Among those who were already sexually experienced at baseline, the intervention did not significantly impact their sexual behaviour. It is generally agreed that health education can easily improve knowledge and slowly change attitude but behaviour change is much more difficult and requires a longer period of engagement. It has also been said that once young people become sexually active, it becomes much more difficult to change them. [1,4] In contrast, the health education intervention delayed the onset of sexual activity among the students who were sexually naïve at baseline. This finding is comparable to those found in a similar controlled study in Ibadan, Nigeria. [6, 18] This brings to the fore the need to commence programmes on sexual risk reduction before young people become sexually active.

Conclusion

HIV/AIDS Health Education intervention has a place in delaying sexual activity among secondary school students if started before they initiate sexual activity. Living with both parents and living in the urban area are both protective against sexual risk behaviour.

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