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A COMPARATIVE STUDY OF HIV/AIDS KNOWLEDGE AND ATTITUDES OF HEARING-IMPAIRED AND NON-HEARING-IMPAIRED SECONDARY SCHOOL STUDENTS IN IBADAN

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ABSTRACT

Objective: This study was conducted to compare HIV/AIDS knowledge and attitudes of hearing-impaired and non-hearing-impaired secondary school students in Ibadan, South-Western Nigeria.

Method: A cross-sectional survey of all the hearing impaired students and an equal number of non-hearing-impaired students enrolled in a half way school in Ibadan was conducted. Four non-hearing-impaired students did not complete the survey and their responses were excluded from the final analysis. Data was analysed using the Statistical Package for the Social Sciences (version 11.0).

Results: Seventy-eight hearing-impaired and non 74 non-hearing impaired students completed rhe survey. Thirty (38.5%) hearing-impaired and 67 (90.5%) and non-hearing-impaired students knew that HIV could be transmitted via semen, vaginal fluid and blood, ($p<0.001$). HIV/AIDS knowledge scores were calculated giving minimum and maximum scires of 0 and 15 respectively. Mean knowledge score for hearing-impaired students was 4.7 compared with 8.7 among non-hearing-impaired students (t-test=11.307, $p < 0.001$). Generally, the students' attitudes to HIV/AIDS prevention and PLWHA were not favorable with only hearing-impaired and 44 (59.5%) non-hearing-impaired students agreeing that it would be alright for them to be in the same class with someone who had AIDS.

Conclusions : The study showed that the hearing-impaired students had poorer knowledge and attitudes to HIV/AIDS compared with their non-hearing-impaired counterparts. There is a pressing need for development

Key Words:

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INTRODUCTION

About one in three African adolescents are reported to live in Nigeria[1]. Though current figures are not available, the 1991 National Population Census, reported a crude disability rate (CDR) of 0.48 percent. This figure varied from one age group to the next. Among children aged 0-14 years, the most common disability was deafness (30%).[2] At the end of 2007, an estimated 2.6 million Nigerians were infected with HIV.[3] The HIV prevalence rate among adults aged 15 to 49 was 3.1% with about 0.8 to 3.3% of those aged 15-24 years were HIV positive[3]. Inadequate access to reproductive health information and services exposes young Nigerians to the risk of pregnancy and Sexually Transmitted Infections (STI) and HIV/AIDS[4]. The risks are worse for those with disabilities as they frequently suffer from social stigma, exploitation and various forms of discrimination and are less likely to be enrolled in school compared with young persons without disabilities[5]. In addition, adolescents, like other people with disabilities in general, are often unable to access services available to their abled counterparts.[6] Some studies have shown that deaf/ hearing impaired individuals have low levels of knowledge on HIV.[7 - 10] Heuttel in his study of deaf college students revealed that the deaf students had significantly less knowledge of HIV/AIDS compared with the hearing students [7]. Groce et al, 2006 in their study among rural and urban hearing and deaf adults in Swaziland reported that the deaf adults were significantly more likely to believe in incorrect modes of HIV transmission and prevention compared with the hearing adults.[8] In a study of HIV/AIDS knowledge among deaf and hard of hearing adolescents and young adults in south eastern Nigeria, significant differences in levels of understanding about certain aspects of HIV transmission were identified.[9] These differences in HIV/AIDS knowledge have been attributed to low levels of literacy, poor access to AIDS information as a result of problems in communication and tightly woven social networks within the deaf community.[9]

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This study was conducted to determine if there were differences in HIV/AIDS knowledge and attitudes to PLWHA among hearing-impaired and non-hearing-impaired secondary school students in Ibadan, South-Western Nigeria. This information would help to advocate for HIV prevention programmes specially designed for the students in order intensify efforts at curbing the spread of the disease.

MATERIALS AND METHODS

A cross-sectional study was carried out in one of the two government-owned halfway schools for the deaf (i.e. schools admitting both hearing-impaired and non-hearing-impaired students), in Ibadan Oyo State, Nigeria in 2003. A pilot study on HIV/AIDS knowledge, attitudes and sources of HIV information had been conducted among deaf students attending the other government-owned school for the deaf in Ibadan in 2002.[10] The mean HIV/AIDS knowledge score obtained by the deaf students in the pilot study was 6.9 (+/-1.9). This was used to estimate the minimum sample size required for this study of hearing-impaired and non-hearing-impaired students and findings were not included in this paper. The sample size formula for comparing two independent means was used.[11] Based on a confidence level of 95%, power of 80%, an estimated mean HIV/AIDS knowledge score of 6.9 ±1.9 and a minimum detectable mean difference of 1.1, a minimum sample of 62 per group was calculated.

In the study school, hearing-impaired students are in one arm in each class i.e. Junior Secondary (JS) I A, JSIIA, JSIII A up to Senior Secondary IIIA) where they constitute about one quarter of the total number of students (45-55) in the class arm. Permission to conduct the study was obtained from the school authorities and informed consent obtained from each respondent. Three of the school teachers who understood sign language assisted with clarifying questions to the hearing-impaired students.

All the hearing-impaired students (48 male and 30 female) in the school (junior and senior secondary sections) available in the school at the time of the survey took part in the study. The class registers containing a list of male and female students was obtained and 78 non-hearing impaired students in the same class arms as the hearing-impaired students were randomly selected after initial stratification by sex. Four non-hearing-impaired students did not complete the questionnaire and so their responses were excluded from the final analysis. The study instrument was adapted from the UNAIDS/UNESCO/WHO Handbook on School Health Education to Prevent AIDS and STD. [12]

Data were analysed using the Statistical Package for the Social Sciences (SPSS) version 11.0). Fifteen questions on HIV/AIDS Knowledge which covered modes of transmission, symptoms, treatment and prevention of HIV transmission were asked. Aggregate scores were calculated with correct answers scoring 1 point and do not know and wrong answers scoring zero giving minimum and maximum obtainable scores of 0 and 15 respectively. Scores were also grouped as poor (< 8 points i.e. less than about half of the maximum score of 15), fair (8 10) and good (= 11 - about three quarters of the maximum obtainable score of 15). Chi-square statistic was used to test associations between categorical variables and independent t-test used to compare differences in the mean HIV/AIDS knowledge scores obtained by the hearing-impaired and non-hearing-impaired students. The level of significance was set at $p < 0.05$. The six questions on attitude were reported on a 3-point scale agree, not sure and disagree.

RESULTS

Socio-demographic characteristics of respondents

A total of 78 hearing-impaired students - 48 (61.5%) male and 30 (58.5%) female and 74 non-hearing-impaired students 44 (59.5%) male and 30 (40.5%) female with a mean age of 17.1 (S.D. ± 3.0) and 15.8 (S.D. ± 1.9) respectively ($p = 0.003$) participated. Forty-five (69.2%) hearing-impaired and 50 (68.5%) non-hearing-impaired students were from monogamous families. (Table 1)

Student's HIV/AIDS Knowledge

All the students reported that they had heard about HIV/AIDS. The main sources of HIV/AIDS information mentioned by the hearing-impaired students were as follows: television 26 (45.6%), teacher, 10 (17.5%) and family member 7 (12.3%) while non-hearing-impaired students mentioned television 34 (46.6%), teachers 10 (13.7%) and health workers 10 (13.7%) as their main sources of information on HIV/AIDS (Table 2).

On the whole, a significantly higher proportion of non-hearing-impaired compared with hearing-impaired students gave correct answers to the HIV/AIDS knowledge questions. Thirty-five (44.9%) hearing-impaired compared with 53 (71.6%) non-hearing-impaired students knew that there was no cure for AIDS ($p = 0.003$). Twenty-eight (35.9%) hearing-impaired and 13 (17.6%) non-hearing-impaired students felt that one could not recognize a person with HIV by how he/ she looked ($p < 0.001$). Thirty (38.5%) hearing-impaired students and 67 (90.5%) non-hearing-impaired students knew that HIV could be transmitted via semen, vaginal fluid and blood, ($p < 0.001$) (Table 3).

A significantly higher proportion of hearing-impaired students (92.3%) had poor HIV/AIDS knowledge scores compared with their non-hearing-impaired counterparts (25.7%), $p < 0.001$ (Table 3). In addition, the mean knowledge score for hearing-impaired students was 4.7(± 2.1) out of a maximum

score of 15 points compared with a mean score of 8.7 (± 2.3) among non-hearing-impaired students, t-test = 11.30, p < 0.001 (Table 3).

Students' Attitudes to HIV/AIDS prevention and PLWHA

Generally, the students' attitudes to HIV/AIDS prevention and PLWHA were not very favourable. Eighteen (23.1%) hearing-impaired and 9 (12.2%) non-hearing-impaired students agreed that it was alright to have sex without a condom because one's chance of getting infected with HIV was very low. Eighteen (23.1%) hearing-impaired and 44 (59.5%) non-hearing-impaired students agreed that it would be alright for them to be in the same class with someone who had AIDS.

Table 1: **Socio-demographic characteristics of respondents.**

Socio-demographic characteristics	Hearing-impaired (n = 78) n (%)	Non-hearing impaired (n=74) n (%)
Sex		
Male	48 (61.5)	44 (59.5)
Female	30 (38.5)	30 (40.5)
Mean age (years)		
N	75*	73**
Mean(S.D)	17.1 (3.0)	15.8 (1.9)
t-test (p-value)	t-test = 3.035 ; p = 0.003	
Family type		
Monogamous	45 (69.2)***	50 (68.5)**
Polygamous	20 (30.8)	23 (31.5)

*No response = 3, **no response = 1, ***no response = 13

Table 5: **Students' attitudes to HIV/AIDS and PLWHA**

Students' attitudes to HIV/AIDS and PLWHA		Hearing-impaired students no. (%)	Non-hearing-impaired students no. (%)
Young people should realize that if they do not protect themselves they could get infected with HIV	Agree	33 (42.3)	62 (83.8)
	Not sure	30 (38.5)	8 (10.8)
	Disagree	15 (19.2)	4 (5.4)
It is alright to have sex without a condom because your chance of getting infected with HIV is very low	Agree	18 (23.1)	9 (12.2)
	Not sure	34 (43.6)	17 (23.0)
	Disagree	26 (33.3)	48 (64.9)
A young person can inject drugs once in a while without the risk of getting infected with HIV	Agree	17 (21.8)	24 (32.4)
	Not sure	36 (46.2)	17 (23.0)
	Disagree	25 (32.1)	33 (44.6)
It would be alright for me to be in the same class with someone who has AIDS	Agree	18 (23.1)	44 (59.5)
	Not sure	38 (48.7)	14 (18.9)
	Disagree	22 (28.2)	16 (21.6)
People who have AIDS should be forced to live far away from other people	Agree	18 (23.1)	23 (31.1)
	Not sure	33 (42.3)	33 (44.6)
	Disagree	27 (34.6)	18 (24.3)
I would feel comfortable hugging a close friend who has HIV/AIDS	Agree	20 (25.6))	24 (32.4)
	Not sure	32 (41.0)	30 (40.5)
	Disagree	26 (33.3)	20 (27.1)

Eighteen (23.1%) hearing-impaired and 23(31.1%) non-hearing-impaired students felt people who have AIDS should be forced to live far away from other people while only 20 (25.6%) hearing-impaired and 24 (32.4%) non-hearing-impaired students would feel comfortable hugging a close friend who had AIDS (Table 4).

Table 2: **Students' main source of HIV/AIDS information.**

Socio-demographic characteristics	Hearing-impaired n (%)	Non-hearing impaired n (%)
Television	26 (45.6)	34 (46.6)
Teacher	10 (17.5)	10 (13.7)
Family member	7 (12.3)	8 (11.0)
Friend	3 (5.3)	3 (4.1)
Newspaper	3 (5.3)	5 (6.8)
Health worker	1 (1.8)	10 (13.7)
School	4 (7.0)	0
Others	3 (5.3)	1 (1.4)
Radio	-	2 (2.7)
	No response = 21	

Table 4: **Aggregate and mean HIV/AIDS knowledge scores of the hearing-impaired and non-hearing-impaired students.**

HIV/AIDS Knowledge	Hearing-impaired Students n (%)	Non-hearing-impaired Students n (%)	Statistics	p-value
Poor (< 8)	72 (92.3)	19 (25.7)		
Fair (8 – 10)	4 (5.1)	38 (51.4)	χ^2 =	
Good (11 – 13)	2 (2.6)	17 (23.0)	70.177	< 0.001
Mean score (S.D) N	4.7 (2.1) 78	8.7 (2.3) 74	t-test = 11.307	< 0.001

Table 3: **Students' knowledge of HIV/AIDS.**

Students' knowledge of HIV/AIDS		Hearing-impaired students No. (%)	Non-hearing-impaired students no. (%)	χ^2	p-value
1. STD can be cured, but there is no cure for AIDS	True	35 (44.9)	53 (71.6)		
	False	15 (19.2)	5 (6.8)		
	Don't know	28 (35.9)	16 (21.6)	11.86	0.003
2. One can recognise a person infected with HIV by how she/he looks	True	28 (35.9)	13 (17.6)		
	False	17 (21.8)	51 (68.9)		
	Don't know	33 (42.3)	10 (13.5)	34.71	< 0.001
3. HIV is transmitted through semen and vaginal fluids and blood	True	30 (38.5)	67 (90.5)		
	False	16 (20.5)	4 (5.4)		
	Don't know	32 (38.5)	3 (4.1)	45.268	< 0.001
4. You can get HIV if you have sex once, without a condom	True	27 (34.6)	46 (63.0)		
	False	18 (23.1)	16 (21.6)		
	Don't know	33 (42.4)	11 (15.1)	15.915	< 0.001
5. You can get HIV by hugging or touching a person who has HIV or AIDS	True	20 (25.6)	20 (27.4)		
	False	22 (28.2)	46 (63.0)		
	Don't know	36 (46.2)	7 (9.6)	27.894	< 0.001
6. A person can get HIV by giving(donating) blood	True	31 (39.7)	55 (75.3)		
	False	19 (24.4)	11 (15.1)		
	Don't know	28 (35.9)	7 (9.6)	21.289	< 0.001
7. The more sexual partners a person has, the greater the chance of getting infected with HIV or a sexually transmitted disease.	True	26 (33.3)	47 (64.4)		
	False	14 (17.9)	13 (17.8)		
	Don't know	38 (48.7)	13 (17.8)	18.187	< 0.001
8. People who choose only healthy-looking partners won't get infected with HIV.	True	25 (32.1)	29 (39.7)		
	False	22 (28.2)	35 (47.9)		
	Don't know	31 (39.7)	9 (12.3)	15.212	< 0.001
9. There are drugs that can prolong the life of infected persons	True	22 (28.2)	42 (57.5)		
	False	26 (33.3)	20 (27.4)		
	Don't know	30 (38.5)	11 (15.1)	15.689	< 0.001
10. A good reason to delay sexual intercourse is the risk of HIV	True	31 (40.3)	37 (50.7)		
	False	22 (28.6)	13 (17.8)		
	Don't know	24 (31.2)	23 (31.5)	2.760	0.252
11. Condom can protect a person from HIV and STD	True	20 (25.6)	51 (69.9)		
	False	24 (30.8)	12 (16.4)		
	Don't know	34 (43.6)	10 (13.7)	30.494	< 0.001
12. No condom no sex is a good rule to protect yourself from HIV and STD	True	27 (34.6)	46 (63.0)		
	False	25 (32.1)	18 (24.7)		
	Don't know	26 (33.3)	9 (12.3)	14.192	0.001
13. A person with HIV who is not allowed to attend school is an example of discrimination	True	27 (34.6)	41 (55.4)		
	False	17 (21.8)	17 (23.0)		
	Don't know	34 (43.6)	16 (21.6)	9.264	0.010
14. A person can get HIV by living in the same home with a person who has HIV or AIDS	True	20 (25.6)	14 (19.2)		
	False	25 (32.1)	48 (65.8)		
	Don't know	33 (42.3)	11 (15.1)	19.161	< 0.001
15. A person with AIDS who is sweating, vomiting and has diarrhoea needs extra food	True	23 (29.5)	18 (24.7)		
	False	20 (25.6)	23 (31.5)		
	Don't know	35 (44.9)	32 (43.8)	0.789	0.674

* Each correct answer = 1 point, don't know and wrong answers = 0 [8]

DISCUSSION

There was a statistically significant difference between the mean ages of the hearing-impaired and non-hearing-impaired students. This could be as a result of the constraints that children with any form of disability face with accessing formal education[5]. Both groups of students had heard of HIV/AIDS, with a similar proportion of hearing-impaired and non-hearing-impaired students reporting that television was their main source of HIV/AIDS information. This is similar to findings by Sangowawa, Owoaje & Faseru (Ref) in their pilot study among deaf secondary school students' in Ibadan which revealed that about 50% of the students mentioned television as their commonest sources of HIV/AIDS information[10]. Odujinrin[13] and Asuzu[14] in their studies among non-hearing impaired students also reported that the students obtained information mainly from the mass media (41.7% and 41% respectively). On the contrary, Heuttel and Rothstein in their study of knowledge and information sources among hearing-impaired and hearing college students reported that the deaf college students obtained more of their information about HIV/AIDS from family and friends[7]. The mass media thus appears to be an important source of HIV/AIDS information among adolescents in Nigeria. The mass media has the advantage of wide coverage and is thus useful for disseminating health and other messages; however, the lack of immediate feedback and its inability to immediately correct wrongly perceived information is one of its drawbacks. The effectiveness of this medium in disseminating information to hearing-impaired individuals is doubtful hence it is not surprising that many of the hearing-impaired students still scored very low on HIV/AIDS knowledge.

Overall, the hearing-impaired students had a significantly poorer level of knowledge of various aspects of HIV/AIDS transmission, symptoms, treatment options and prevention compared with the non-hearing-impaired students. A pilot survey of HIV/AIDS knowledge among deaf and hearing adults in Swaziland also reported significant differences in levels of knowledge about HIV/AIDS between the hearing and deaf respondents [8].

Regarding the students' attitudes, both groups of students had a poor attitude to HIV and PLWHA though the non-hearing-impaired students had a slightly better attitude. Their attitudes could be attributed to a poor understanding of the modes of transmission of HIV, given that about three quarters of them and over a third of non-hearing-impaired students did not know that one could not get HIV by touching or hugging a person with HIV. Stigma and discrimination associated with HIV AIDS have been attributed to a fear of contacting the disease as well as negative values based on detrimental assumptions about people living with HIV/AIDS (PLWHA) [15]. Such misconceptions about the disease need to be corrected as HIV-related stigma undermines HIV prevention efforts[15,16]. The students thus require comprehensive education about HIV transmission, and tolerance and compassion for PLWHA.

CONCLUSION

This study showed that the hearing-impaired students in Ibadan, Nigeria like their counterparts in developed countries and other countries in Africa had a significantly poorer knowledge of HIV/AIDS compared with their non-hearing-impaired counterparts. The study highlighted the fact that knowledge reportedly acquired from the mass media was questionable and both the hearing-impaired and non-hearing-impaired students had a poor attitude to the disease and PLWHA.

It is recommended that government and those involved in HIV/AIDS prevention need to urgently develop comprehensive HIV education programmes for hearing-impaired students. These programmes must address HIV-related stigma and be presented in a format (incorporating sign language) which would be understandable for hearing-impaired students.

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