Knowledge and Attitude of clinical level dental students concerning HIV/AIDS

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Abstract

Objective: To determine the knowledge and attitude of clinical level dental students concerning Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS).
Methods: Two hundred and fifteen clinical level dental students from three Nigerian universities were requested to complete a self- administered questionnaire related to knowledge and attitudes about HIV/AIDS. Parameters assessed included the aetiology and modes of transmission, high- risk groups, common oral and general manifestations, diagnosis, treatment and prevention of HIV/AIDS.
Results: The male to female ratio was approximately 1:1, with an age range of 20-36 years. The respondents exhibited excellent knowledge of the aetiologic agent, the modes of transmission, high- risk groups, common oral manifestations and prevention of HIV/AIDS. However, they were less knowledgeable about the general features, diagnosis, treatment, aims of treatment and infection control measures. One hundred and sixty (70.4%) of the respondents stated that they did not have any reservations dealing with patients with HIV/AIDS while 55 (29.6%) felt that with improved knowledge they would be more confident in issues related to HIV/AIDS.
Conclusion: Although Nigerian dental students exhibited good knowledge and positive attitude concerning HIV/AIDS, this study showed that knowledge of laboratory investigations and Infection control measures were poor. These areas need emphasis in the dental school curriculum.

Key words: Knowledge, attitude, dental student, HIV/AIDS

Introduction

People's perceptions of their capabilities for performance, or self-efficacy perceptions are a cognitive mechanism underlying behavioural change[1].
Students' knowledge of HIV/AIDS (human immunodeficiency virus / acquired immune deficiency syndrome) may affect their attitudes to the disease and therefore to patients who are HIV positive or have AIDS[2]. For health care professionals to be knowledgeable about HIV/AIDS and possess the right attitude towards patients infected with HIV, integration of courses on HIV/AIDS into the teaching curriculum should start early in schools[2-4]. For example, a study showed that junior high school students who were enrolled in a school-based AIDS-prevention programme had a significant increase in AIDS knowledge and became more tolerant of people with AIDS compared with students who did not participate[2]. Another survey of high school students on preferred sources of information of HIV/AIDS showed that significant information came from sources other than teachers[5,6]. These studies also showed that doctors were cited as the most preferred source of information in the future and that dentists were perceived as not having sufficient knowledge to identify AIDS patients[5,6]. A study also showed that the attitude of undergraduate students towards HIV-positive persons is affected by the mode of transmission[7].
Clinical level students have been shown to have knowledge, behaviour and attitudes that may have a negative impact on their willingness to care for patients with HIV/AIDS[8-10]. The aim of this study is to determine the knowledge and attitude of Nigerian dental students' concerning HIV/AIDS.

Material and Methods

Between December 2002 and June 2003, clinical level (4th, 5th and 6th year) dental students from three Nigerian dental schools (Universities of Benin, Ibadan and Lagos) were requested to complete a 13-point questionnaire containing

closed-ended options concerning HIV/AIDS.
These included the aetiologic agent, modes of transmission, high- risk groups, common oral and general manifestations, diagnosis, treatment and prevention, as well as care for HIV/AIDS patients. Demographic parameters were also documented. Statistical analysis was performed with the SPSS statistical package version 7.5 (SPSS Inc. Chicago IL). The Chi square test was used to compare between variables and p values (at 95% confidence interval) less than 0.05 were regarded as significant.

Results

Demographics
A total of 215 clinical students completed the questionnaires. Sixty-seven (31.1%) were in the 4th year, 73 (34.0%) in 5th year and 75 (34.9%) in final year. One hundred and eight (50.2%) were male and 107 (49.8%) were female giving a male to female ratio of approximately 1:1. The students ranged in age from 20-36 years (mean age, 21.7, SD 8.8). The majority, 99 (46.1%) were in the 20-24 years age group.

Aetiology of HIV/AIDS
There was a 100% response that a virus was responsible for AIDS. One hundred and fifty-seven (73.0%) students responded that HIV was an RNA virus. Analysis by year of study showed that 40 (18.6%) were in the 4th year, 62 (28.8%) in the 5th year and 55 (25.6%) were in final year. Fifty (23.3%) students stated that HIV was a DNA virus (by level of study: 4th year, 21 (9.8%); 5th year, 9 (4.2%); 6th year, 20 (9.3%). Eight (3.7%) respondents did not know the type of virus [4th year, 6 (2.8%); 5th year, 2 (0.9%)]. These were statistically significant ($p<0.01$).

Transmission of HIV
Table 1 shows the responses to means of transmission of the human immunodeficiency virus. All respondents stated that sexual intercourse with infected persons would spread the disease. A 100% negative response was also seen with handshake and sleeping on the same bed with infected person. These were significant ($p<0.01$).

High-risk groups
Table 2 shows the relationship between respondents' clinical levels and knowledge of high-risk groups. Two hundred and twelve (98.6%) students stated that heterosexual sex with multiple partners carried the highest risk. Analysis of this response by level of study showed that 66 (30.7%) were 4th year students; 73 (34.0%) were 5th year students and 73 (34.0%) were 6th year students. Others were people with STD, 145 (67.4%) and people with sickle cell disease, 49 (22.8%). These responses were statistically significant ($p<0.05$).

Oral manifestation of HIV/AIDS
One hundred and sixty -two (75.3%) respondents identified candidiasis as an oral manifestation of HIV/AIDS. Kaposi's sarcoma was rated second, 153 (71.2%) and hairy leukoplakia third, 152 (70.7%). These were significant ($p < 0.000$). Others were herpes zoster infection, 121 (56.3%), oral ulceration, 137 (63.7%), herpes simplex infection, 98 (45.6%) and rapidly progressive periodontitis, 93 (43.3%). Fifteen (7.0%) respondents did not know any oral manifestations of HIV/AIDS. Analysis by year of study is shown in Table 3.

General manifestations of HIV/AIDS
Two hundred and eight (96.7%) students stated that weight loss was a general feature of HIV/AIDS. Of these, 65 (30.2%) were in 4th year, 70 (32.5%) were in the 5th year and 73 (34.0%) were in final year. Fifty one (23.7%) of 4th year students, 69 (32.1%) of 5th year and 68 (31.6%) of final year students (total 188, 87.4%) rated diarrhea as another common feature of HIV/AIDS. These were statistically significant ($p < 0.05$). Others were pneumonia, 99 (46.0%); tuberculosis, 157 (73.0%); skin rashes, 175 (81.4%) and fever, 5 (2.3%).

Diagnosis of HIV/AIDS
One hundred and eighty (83.7%) respondents indicated that clinical features were necessary for the diagnosis of HIV/AIDS [4th year, 52 (24.2%; 5th year, 65 (30.2%) and 6th year, 63 (29.3%)]. Serological tests were rated as necessary by 150 (69.8%) respondents [4th year, 43 (20.0%); 5th year, 55 (25.6%) and 6th year, 52 (24.2%)]. This was statistically significant ($p < 0.000$). Other responses ($p > 0.01$), were ELISA, 147 (68.4%), polymerase chain reaction, 71 (3.0%); western blot, 107 (49.8%), viral culture, 70 (32.6%); CD4 count, 1 (0.5%) and "don't know", 1 (0.5%)

Treatment of HIV/AIDS
One hundred and eighty-nine (87.9%) responded that counselling was a necessary part of the treatment of HIV/AIDS [4th year, 55 (25.5%); 5th year, 67 (31.2%); and final year, 67 (31.2%)]. This was statistically significant ($p<0.05$). Sixty-nine (32.1%) and 180 (83.7%) responded that in the treatment of HIV/AIDS, single and combination drug chemotherapy respectively were required. These were not statistically significant ($p>0.05$). Responses to use of vaccines, 22 (10.2%); traditional healers, 5 (2.3%) and post

Table 1: Perceived modes of transmission of HIV/AIDS

	Number(%)	
Mode	**Yes**	**No**
Sexual intercourse with infected persons	215 (100%)	215 (100%)
Sharing of injected needles	212 (98.6%)	3 (1.4%)
Sharing of clippers and razors	206 (95.8%)	9 (4.2%)
Mother to child	206 (95.8%)	9 (4.2%)
Blood transfusion	207 (96.3%)	8 (3.7%)
Mosquito bite	4 (1.9%)	211 (98.1%)
Kissing	34 (15.8%)	181 (84.2%)
Use of same plates, spoons with infected	4 (1.9%)	211 (98.1%)
Person		
Use of non-sterile instruments	175 (81.4%)	40 (18.6%)
Handshake	215 (100%)	215 (100%)
Sleeping on the same bed	215 (100%)	215 (100%)

exposure prophylaxis, 57 (26.5%) were statistically significant ($p < 0.05$).

Aims of treatment
Statistically significant ($p < 0.01$) responses were obtained with reduction of viral load, 178 (82.8%) 4th year, 50 (23.2%); 5th year, 64 (29.8%); 6th year, 64 (29.8%). Improve/eliminate signs and symptoms, 154 (71.6%) 4th year, 46 (21.4%); 5th year, 54 (25.1%); 6th year, 54 (25.1%); and boost patients immunity, 150 (69.8%) 4th year, 42 (19.5%); 5th year, 57 (26.5%) and 6th year, 51 (23.7%).

Prevention of HIV/AIDS
Table 4 shows the respondents knowledge on prevention of HIV/AIDS. Two hundred and thirteen (99.1%) respondents stated that public education was vital, 191 (88.8%) felt that the use of condoms was necessary. Response to avoidance of hand shakes with HIV/AIDS patients was 3 (1.4%) and rehabilitation of prostitutes was 151 (70.2%). These were significant ($p < 0.05$).

Awareness of formulated guidelines for cross infection control
No respondent was aware of any existing formulated guidelines on cross infection control.

Caring for HIV/AIDS patients
One hundred and sixty (70.4%) respondents stated that they did not have any reservations dealing with patients with HIV/AIDS while 182(84.7%) respondents felt that with additional training, they would feel more confident in dealing with HIV/AIDS patients.

Discussion

The students in this study showed an almost equal gender distribution. While the influence of gender was not investigated in the present study, studies have shown that differences in gender may or may not influence knowledge and attitude concerning HIV/AIDS[11,12]. The mean age of the students in this study was 21.7 years. Klewer and Kugler (1996) in a similar study reported an average age of 22 years and concluded that this age belonged to the group with the highest statistical risk of getting infected with HIV[13]. Also, Vukovic et al., (1998) in a study on perception of risk for infection with HIV found substantial risk among those aged between 20 and 24 years[14]. Assessment of the knowledge of HIV/AIDS among clinical students is important because they are undergoing practical training within the clinic setting and are in a developmental role as doctors[13].
The study population exhibited excellent knowledge of the aetiologic agent of HIV/AIDS. Several studies show that the knowledge of HIV/AIDS is on the increase among the general population[15-18]. However regarding the sub-group of the virus (RNA vs DNA), 5th year students had the best knowledge. This may in part be related to their stage of study. This group had just concluded pathology courses

Table 2 Respondents clinical level and knowledge of high risk groups

High Risk Group	4th year (n = 67)		5th year (n = 73)		6th year (n = 75)	
	Yes	No	Yes	No	Yes	No
Heterosexual sex with multiple partners	66 (98.5%)	1 (1.5%)	73 (100%)	- -	73 (97.3%)	2 (2.7%)
Homosexual sex with multiple partners	60 (89.6%)	7 (10.4%)	69 (94.5%)	4 (5.5%)	74 (98.7%)	1 (1.3%)
Commercial sex workers	67 (100%)	- -	73 (100%)	- -	74 (98.7%)	1 (1.3%)
I.V. Drug abusers	47 (68.7%)	21 (31.3%)	71 (97.3%)	2 (2.7%)	71 (94.7%)	4 (5.3%)
Haemophiliac	17 (28.4%)	48 (71.6%)	47 (64..4%)	26 (35.6%)	48 (64.0%)	27 (36.0%)
Long distance trailer/ tanker drivers	32 (47.8%)	35 (62.2%)	51 (69.9%)	22 (30.1%)	54 (72.0%)	21 (28.0%)
People with sexually transmitted diseases	41 (61.2%)	26 (38.8%)	52 (71.2%)	21 (28.8%)	52 (69.3%)	23 (30.7%)
People with sickle cell disease	4 (6.0%)	63 (94.0%)	24 (32.9%)	49 (67.1%)	21 (28.0%)	54 (72.0%)
Roadside mechanics	1 (1.5%)	66 (98.5%)	-	73 (100%)	7 (9.3%)	68 (90.7%)

and was undergoing medicine and surgery postings. The students' knowledge about the modes of transmission of the HIV was excellent. Heterosexual intercourse is the commonest means of spread of HIV in sub-Saharan Africa[19-21]. The study population was equally knowledgeable about the misconceptions regarding the modes of spread of the virus. This is probably a strong factor influencing attitudes of the general population towards persons with HIV/AIDS[22,23]. High-risk behaviour for the spread of HIV are well known and vary from region to region. The students showed a high knowledge of these behaviours. Homosexual intercourse and intravenous drug abuse, though common risk factors in the western world are uncommon or rarely admitted to for socio-cultural reasons[23-25].

Knowledge of common oral manifestations of HIV/AIDS was good among the study population. Most respondents rated candidiasis as an oral manifestation. Historically, this was one of the first documented oral features of AIDS and several studies have confirmed its high prevalence.[20,26,27] Knowledge of oral manifestations correlated with clinical level. Sixth year students who had the most exposure to dentistry, on the average had the best knowledge. Body wasting and diarrhoea were significantly rated as general features of HIV/AIDS. However the students exhibited poor knowledge of fever and pneumonia as important features of the disease. Infact, pneumocystis pneumonia ushered in the AIDS pandemic[26].

Apart from the knowledge of clinical features being important in the diagnosis of HIV/AIDS, the students exhibited a poor knowledge of the laboratory aspects of diagnosing HIV infection. The reason for this is not immediately apparent. Laboratory investigations have become the mainstay of diagnosing HIV/AIDS and no level of clinical suspicion can really prove seroconversion. It appears that further emphasis is needed in this aspect of teaching dental students about HIV/AIDS.

A significant number of respondents felt that counseling was an important aspect of management in HIV/AIDS. A study has shown that clinical students trained in both pre- and post-test counselling showed significantly greater improvement in counselling skills than controls (who were not trained) [28]. The study population had a good knowledge that highly active antiretroviral therapy (HAART) was a combination drug therapy as well as good knowledge regarding the aims of HAART[29,30]. A significant number of respondents felt that traditional healers had no place in the management of HIV/AIDS. This is important in our study environment, where due to poor regulation, the print and electronic media carry advertisements of traditional HIV/AIDS cure.

Table 3 Respondents clinical level and knowledge of common oral manifestations

Oral Manifestations	4th year (n = 67)		5th year (n = 73)		6th year (n = 75)	
	Yes	No	Yes	No	Yes	No
Candidiasis	25 (36.3%)	42 (62.7%)	65 (89.0%)	8 (11.0%)	72 (96.0%)	3 (4.0%)
Herpes zoster infection	28 (41.8%)	39 (58.2%)	49 (67.1%)	24 (32.9%)	44 (58.7%)	31 (41.3%)
Kaposi's sarcoma	27 (40.3%)	40 (59.7%)	61 (83.6%)	12 (16.4%)	65 (86.7%)	10 (13.3%)
Hairy leukoplakia	22 (32.8%)	45 (67.2%)	63 (86.3%)	10 (13.7%)	67 (89.3%)	8 (10.7%)
Squamous cell carcinoma	6 (9.0%)	61 (91.0%)	13 (17.8%)	60 (82.2%)	17 (22.7%)	58 (77.3%)
Oral ulceration	33 (50.8%)	32 (49.2%)	51 (69.9%)	22 (30.1%)	53 (70.7%)	22 (29.3%)
Herpes simplex infection	18 (27.7%)	47 (72.3%)	43 (58.9%)	30 (41.1%)	37 (49.3%)	38 (50.7%)
Rapidly progressive gingivitis	19 (29.2%)	46 (70.8%)	35 (47.9%)	38 (52.1%)	39 (48.0%)	36 (43.7%)

Prevention is a cardinal concept in checking the AIDS pandemic[31,32]. The students showed significant knowledge of preventive measures against HIV/AIDS. However, some studies have shown that knowledge of preventive measures do not necessarily translate to behavioural change[33]. Though sterilization of instruments, wearing of gloves and protective eyewear were cited as means of preventing infection in the clinic setting, the students in this study were unaware of any formulated guidelines on cross infection control as regards HIV/AIDS[34]. This important aspect of disease transmission needs emphasis in the dental school curriculum and a study has shown significant knowledge scores after training clinical students on universal precautions[9].

Less than half of the respondents did not have any reservations in treating patients with HIV/AIDS as dentists in the future while 182(84.7%) felt that with further training,

Table 4 Respondents knowledge of preventive measures

Preventive measure	Number (%)	
	Yes	No
Public education	213 (99.1%)	2 (0.9%)
Change in lifestyle	163 (75.8%)	52 (24.2%)
Use of mosquito net	1 (0.5%)	214 (99.5%)
Use of condoms	191 (88.8%)	24 (11.2%)
Avoidance of plates, spoons, cups used by HIV/AIDS patients	3 (1.4%)	212 (98.6%)
Sterilization of surgical instruments	200 (93.0%)	15 (7.0%)
Avoiding handshakes with HIV/AIDS patients	3 (1.4%)	212 (98.6%)
Rehabilitation of prostitutes	151 (70.2%)	64 (29.8%)
Counseling	177 (82.3%)	38 (17.7%)
Post-exposure prophylaxis	57 (26.5%)	158 (73.5%)

they would feel more confident on issues related to HIV/AIDS. Improved knowledge and training has been shown to enhance health care professionals' attitudes towards patients with HIV/AIDS[35,36].

Conclusion

Although Nigerian dental students exhibited good knowledge and positive attitudes concerning HIV/AIDS, this study showed that knowledge of laboratory investigations and infection control measures were poor. These areas need emphasis in the dental school curriculum.

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