Knowledge about hiv/aids and tuberculosis co-infections among students of tertiary institutions in Ilorin, Nigeria

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ABSTRACT

This study investigated knowledge about HIV/AIDS and tuberculosis co-infections among students of tertiary Institutions in Ilorin, Nigeria. A multistage sampling technique was adopted to select 405 students from the three selected tertiary Institutions (i.e. University of Ilorin, Kwara State Polytechnic and Kwara State College of Education, Ilorin). A cross-sectional survey research design was carried out, using a structured questionnaire, which was tested for reliability at 0.89r. The data gathered were analysed by descriptive statistics of frequency count and percentage to analyse the bio-data and research questions, while inferential statistics of Analysis of Variance (ANOVA) was employed to analyse the hypotheses at 0.05 alpha level. Findings revealed that, significant differences existed between the students of tertiary Institutions in Ilorin in their knowledge about reciprocal interaction and ease of detection of HIV/AIDS and tuberculosis co-infections. Whereas, not significant difference in their knowledge about HIV/AIDS and tuberculosis co-infections being treatable. It was recommended that the school management should incorporate health information, education and communication in the curriculum regardless of the course the students is studying, they should also make available the health education and information leaflets to the students.

INTRODUCTION

HIV means *Human Immunodeficiency Virus*. This is the microorganism (virus) that causes AIDS (Acquired Immune Deficiency Syndrome) which refers to a condition that occurs when the host's body immune system has been weakened by the virus. HIV/AIDS is the biggest challenge to our health system with 40.3 million people living with HIV/AIDS and 3.1 million deaths from AIDS at the end of 2005 (Olaitan 2009). At the end of 2005 an estimate of 25.8 million people live with HIV while 2.4 million people died from AIDS in the sub-Saharan Africa (Ngwai and Odama, 2006). As a result there are some 12 million orphaned African children. According to the United Nations Secretary General, HIV is the greatest challenge of our generation (UNAIDS, 2006). It is a serious global threat particularly for people living in developing countries especially for women and adolescents (Olaitan, 2009).

The first reported case of AIDS was in the mid of 1981 in USA while the causative micro-organism was identified in 1983 (Ngwai and Odama, 2006). In Nigeria the first case was reported in 1986 in a sexually active 13 years old girl. Epidemiological surveillance in the country shows increasing prevalence from 0.000001% reported in 1986 to 0.22% in 1987, 1.8% in 1991, 3% in 1992, 3.8% in 1993, 4.5% in 1996, 5.4% in 1999 and 5.8% in 2001. However the prevalence dropped to 5% in 2003. Thus

the United Nations has ranked Nigeria as the 4th worst affected country in the world with 10% of the global HIV/AIDS burden (Ngwai and Odama, 2006).

Tuberculosis (TB) on the other hand is an infection caused by *Mycobacterium tuberculosis* (Park, 2002). *Mycobacterium tuberculosis* has been present in the human population since antiquity. Fragments of the spinal column from Egyptian mummies from 2000 BC show definite pathological signs of tuberculosis decay (Lawal, 2005). On March 24 1882 Robert Koch discovered that TB is caused by *Mycobacterium tuberculosis* (Lawal, 2005).

About 8 – 10 million people develop the overt disease annually while about 3 million die annually. About 95%of the cases of tuberculosis occur in developing countries while 75% of these affect 15 – 50 age group (Eddleston and Pierini, 2002).

HIV/AIDS and tuberculosis co-infections on the other hand is a situation where an individual is suffering from both HIV/AIDS and tuberculosis infections at the same time (Eddleston and Pierini, 2002).

The problem statement of this study is that, it is estimated that HIV/AIDS and tuberculosis affect 5 – 6 million people worldwide. About 30-80% of people with AIDS in the developing country also develop clinical tuberculosis. About 70% of the cases of co-infections or dual infections occur in sub-Saharan Africa and 20% in Asia (Eddleston and Pierini, 2002).

The HIV/AIDS virus damage the body's natural defences in the immune system just as the tuberculosis bacilli do. When an individual is exposed to the *Mycobacterium tuberculosis* bacilli, they are ingested by the macrophages (in the immune system). The bacilli persist intracellularly in the macrophages in a quiescent state and may become activated later time. The HIV/AIDS virus also attacks body's immune system or body natural defence CD4 T-lymphocytes and accelerate the speed at which tuberculosis progresses from harmless infection to life threatening condition. It is also worthy of note that tuberculosis is one of the opportunistic infections that can kill HIV positive people (Lawal, 2005).

One of the strategies to prevent the spread of HIV/AIDS and TB co-infections involved voluntary behavioural modification. According to Hochbaum (1996) human behaviour is synthesized in a paradigm: A → K → U → B → A → H where A = awareness, K = knowledge, U = understanding, B = belief, A = attitude and H = habit. Habit which is the output of behaviour is based on the attitude which is influenced by the belief which is in turn influenced by the understanding. The understanding is based on the knowledge which is ultimately dependent on awareness. The voluntary behavioural modification can be achieved when individuals are motivated to take appropriate health action through information, education and communication. Learning process occurs in three domains cognitive, affective and psychomotor (Montage 1995) as illustrated below.

Knowledge ⟷ Attitude ⟷ Behaviour
(Cognitive)   (Affective)   (Psychomotor)
Value foundation
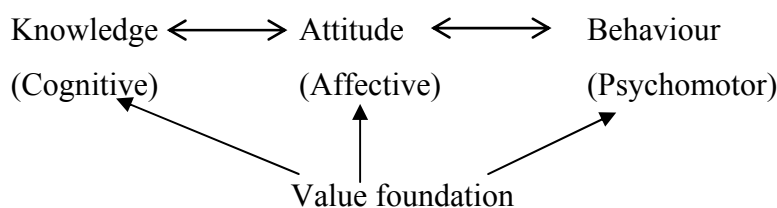
Domains of Learning

Source: Drug education: Remington's Pharmaceutical Sciences (2009)

The study is therefore designed to find out the knowledge of students of tertiary Institutions in Ilorin towards HIV/AIDS and TB co-infections. A high level of knowledge about HIV/AIDS and TB co-infections will contribute to the prevention and control of the disease.

PURPOSE OF THE STUDY

The purpose of the study is

1. To determine the knowledge of students of tertiary Institutions in Ilorin about HIV/AIDS.
2. To determine the knowledge of students of tertiary Institutions in Ilorin about tuberculosis.
3. To determine the knowledge of students of tertiary Institutions in Ilorin about HIV/AIDS and tuberculosis co-infection.

RESEARCH QUESTIONS

(1) Is there any difference between the Institutions of the students and their knowledge about the reciprocal interaction between HIV/AIDS and TB co-infections?

(2) Is there any difference between the Institutions of the students and their knowledge about the ease of detection of HIV/AIDS and TB co-infections?

(3) Is there any difference between Institutions of the students and their knowledge about HIV/AIDS co-infections being treatable?

RESEARCH HYPOTHESES

1. There will be no significant difference in the students' knowledge about the reciprocal interaction between HIV/AIDS and TB co-infections based on Institutions.
2. There will be no significant difference in the students' knowledge about ease of detection of HIV/AIDS and TB co-infections based on Institutions.

3. There will be no significant difference between in the students' knowledge about HIV/AIDS and TB co-infections being treatable based on Institutions.

METHODS AND MATERIALS

A descriptive cross-sectional study was adopted for the study; the population consisted of all regular students of tertiary Institutions in Ilorin. A total of 405 subjects were used for this study (Fisher et al, 1998). A multistage sampling technique was used to select the subjects. The procedure followed the stages indicated below:

a. A simple random sampling was used to select three institutions from five tertiary Institutions in Ilorin. The sample was divided into 3 parts with each institution contributing a part to the sample.

b. The selected institutions already have faculties/departments and simple random sampling was used to select at least 50% of the faculty/department. The sample for each institution was divided into equal parts among the selected faculties/departments in the selected institutions.

c. The faculties/departments have different levels; the sample for the faculties/departments was divided into equal parts amongst the levels. Each level contributed equally to the sample.

A structured questionnaire was the instrument used for data collection; the questionnaire was divided into 2 sections: Section A contained information related to the demographic characteristics of the respondents. Section B (i) had questions related to the knowledge about HIV/AIDS and TB co-infections.

The research instrument was pretested at the tertiary institutions in Ibadan, Oyo State in order to determine

the validity of the research instrument. Sample size representing 10% of the study was used for the pretesting. The validity of research instrument was ensured in terms of content, criterion related and construct. This was ensured through use of appropriate questions. The questionnaire was given to some experts in the related field; the questionnaire items were scrutinized and modified in order to satisfy the purpose of the study.

The test-retest method was used to ensure the reliability of the test instrument: This was done at the pretesting stage with an interval of 2weeks between the first and second test. Subjecting the two sets of scores to Person's Product Moment correlation co-efficient(r) the results yielded 0.89. On

the bases of this the instrument was considered suitable for the study.

The researchers sought permission from the authorities of tertiary Institutions for use of their students. The questionnaire was administered to all the respondents by the Researchers and 6 Research Assistants. The completed questionnaires were checked for accuracy and completeness. Data entry and analysis were carried out using EPI info statistical package version 3.4.1, 2011. Univariate and multivariate analysis such as frequency counts with summary statistics and cross tabulation of relevant variables respectively were carried out. Significance was tested using test statistics such as Analysis of Variance (ANOVA). The level of significance is $P < 0.05$.

RESULTS AND DISCUSSIONS

The Table I shows the demographic characteristics of respondents., the three schools randomly selected were: University of Ilorin (40.7%), Kwara State Polytechnic (32.1%) and Kwara State College of Education (27.2%).

Majority of the respondents were of the age range 20 -24 years (42.7%), males (51.1%) and most of the respondents practice Islam (49.1%).

Table I: demographic characteristics of respondents

CHARACTERISTICS	FREQUENCY	PERCENTAGE
INSTITUTION		
University of Ilorin, Ilorin	165	40.7
Kwara State Polytechnic, Ilorin	130	32.1
Kwara State College of Education, Ilorin	110	27.2
AGE		
15 -19 yrs	112	27.7
20- 24 yrs	173	42.7
≥25 yrs	120	26.6
GENDER		
Female	178	48.9
Male	207	51.1
RELIGION		
Christianity	198	48.9
Islam	199	49.1
Traditional	8	2.0
TOTAL	*405*	*100*

In addition, less than half of the respondents knew that TB increases the progression of HIV/AIDS (41.7%), HIV/AIDS increases the progression of TB (42.0%), there is reciprocal interaction between HIV/AIDS and TB (46.2%), it is not easy to detect HIV/AIDS and TB co-infections (22.2%), HIV/AIDS and TB co-infections is not curable (38.5%) and the

co-infections is treatable (48.6%). However, 84.3% knew that many people worldwide have died from HIV/AIDS and TB co-infections.

Table II: Knowledge of Respondents about HIV/AIDS and TB Co-infections

ITEMS	YES		NO		DON'T KNOW	
	Freq.	%	Freq.	%	Freq.	%
A. TB increases progression of HIV/AIDS	169	41.7	127	31.4	109	26.9
B. HIV increases progression of TB	170	42	125	30.9	110	27.2
C. There is reciprocal interaction between HIV/AIDS and TB	190	46.2	88	21.7	127	31.4
D. It is easy to detect HIV/AIDS and TB co-infections						
E. HIV/AIDS and TB co-infections treatable	215	53.1	90	22.2	100	24.7
F. HIV/AIDS and TB curable	197	48.6	100	24.7	108	26.7
G. Millions of people have died of HIV/AIDS and TB co-infections	116	28.6	156	38.5	133	32.8
	339	84.3	23	5.7	40	10

TESTING OF HYPOTHESES
The hypothetical statements were tested using ANOVA at 5% level of significance

Table III: Knowledge of Respondents about the reciprocal interaction between HIV/AIDS and Tuberculosis versus their level of Education

Reciprocal Interaction between HIV/AIDS and TB	Unilorin	Kwara Poly	College of Education	Total
Yes	88(53.3%)	53(40.8%)	51(46.4%)	192
No	38(23.1%)	29(22.3%)	22(20%)	89
Don't know	39(23.6%)	48(36.9%)	37(33.6%)	124
Total	**165**	**130**	**110**	**405**

F ratio = 6.65
0.05df 2,6 -= 5.14
P-value = 0.1551
Decision on the Ho = rejected

Statistical analysis using ANOVA reveals that there is significant difference between the educational level of the students and their knowledge about reciprocal interaction between HIV/AIDS and TB as seen in table IX. Therefore, a multiple range comparison test was carried out using Duncan's multiple comparison test to show where the significant differences existed.

Table IV: Duncan's post hoc test

Institution	*Mean (X)*
Unilorin	16.0
Kwara Poly	9.6
College of Education	9.2

Conclusion: Unilorin students with the mean score of 16.0 have a better and higher knowledge about reciprocal interaction of HIV/AIDS and TB co-infection greater than the students of both Kwara Poly and College of Education with the mean scores of 9.6 and 9.2 respectively. Even though, the knowledge of students from Kwara Poly is slightly greater than that of College of Education.

Table V: knowledge of Respondents about the ease of detection of HIV/AIDS and TB co-infections versus their Level of Education

Easy to detect HIV/AIDS and TB co-infections.	Unilorin	Kwara Poly	College of Education	Total
Yes	103(62.4%)	61(46.9%)	58(52.7%)	222
No	33(20%)	28(21.6%)	24(21.8%)	85
Don't know	29(17.6%)	41(31.5%)	28(25.5%)	98
Total	*165*	*130*	*110*	*405*

F ratio = 9.62
0.05df 2,6 -= 5.14
Decision on the Ho = rejected

Statistical analysis using ANOVA reveals that there is significant difference between the educational level of the students and their knowledge about the ease of detection of HIV/AIDS and TB

co-infections. Duncan's multiple range comparison test was carried out to know the exact place where the significant difference existed.

Table 6: Duncan's post hoc test

Institution	Mean (X)
Unilorin	11.3
College of Education	9.2
Kwara Poly	8.2

Conclusion: Unilorin students with the mean score of 11.3 have a better and higher knowledge about ease detection of HIV/AIDS and TB co-infection greater than the students of both Kwara Poly and

College of Education with the mean scores of 9.2 and 8.2 respectively. Even though, the knowledge of students from College of Education is slightly greater than that of Kwara Poly.

Table VII: knowledge of Respondents about HIV/AIDS and TB co-infections being Treatable versus their Level of Education

HIV/AIDS and TB co-infections being treatable.	Unilorin	Kwara Poly	College of Education	Total
Yes	79(47.9%)	53(40.8%)	50(54.5%)	182
No	46(27.9%)	30(23.1%)	34(30.9%)	110
Don't know	40(24.2%)	47(36.1%)	26(23.6%)	113
Total	*165*	*130*	*110*	*405*

F ratio = 4.84
0.05df 2,6 -= 5.14
Decision on the Ho = Not rejected

Statistical analysis using ANOVA reveals that there is no significant difference between the level of education of the students and their knowledge about HIV/AIDS and tuberculosis being treatable. The null hypothesis is therefore rejected at 5% level of significance.

DISCUSSIONS

The respondents knowledge about existence of HIV/AIDS and TB co-infections and millions of people have died from HIV/AIDS co-infections is good being 61.2% and 84.3% respectively. Their knowledge about the signs and symptoms of HIV/AIDS and TB co-infections is good except for lassitude (47.1%). However detailed knowledge about HIV/AIDS and TB co-infections is low such as TB increases the progression of HIV/AIDS (41.7%)

HIV/AIDS increases progression of TB (42%) reciprocal interaction between HIV/AIDS and TB (46.2%), ease of detection of HIV/AIDS and TB co-infections (22.2%); HIV/AIDS and TB co-infections curable (38.5%) and HIV/AIDS and TB co-infections treatable (48.6%). The general knowledge about HIV/AIDS and TB co-infections could be extrapolation from their knowledge about HIV/AIDS and TB as separate or single diseases. This is an indication that with increased health information, communication and education there would be improved public awareness and knowledge about HIV/AIDS and TB co-infections. This is very crucial since the average knowledge of the respondents about the co-infections is 54.4% and the disease burden of HIV/AIDS and TB co-

infections is heavier than either of the disease alone (Eddleston and Pierini, 2002 and Lawal, 2005).

There is no statistically significant difference between the level of education of respondents and their knowledge about the reciprocal interaction between HIV/AIDS and TB co-infections. There is also no statistically significant difference between the level of education of respondents and their knowledge about HIV/AIDS and TB co-infections being treatable.

However there is statistically significant difference between the level of education of the respondents and their knowledge about the ease of treatment of HIV/AIDS and TB co-infections. This is an indication for health information, communication and education.

CONCLUSION AND RECOMMENDATIONS

From the study we can conclude that the general knowledge of the students of tertiary institutions in Ilorin about HIV/AIDS and Tb co-infections is high. However detailed knowledge is below average thereby reducing the average knowledge to 54.4%.

The following recommendations are suggested in order to improve the students' detailed knowledge about HIV/AIDS and TB co-infections (in areas of possible involvement).

1. The Kwara State government and managements of tertiary institutions in Ilorin should carry out intensive and massive awareness campaign about HIV/AIDS and TB co-infections through radio and television jingles and education. This will increase the student's detailed knowledge about HIV/AIDS and TB co-infections.

2. Managements of tertiary institutions in Ilorin should carry out school health programmes such as health education talks, symposium and lectures on HIV/AIDS and TB co-infections.

3. The school should seek outreach activities of NGOs on HIV/AIDS and TB co-infections. This would improve the students' detailed knowledge about HIV/AIDS and TB co-infections and their attitudes towards HIV/AIDS co-infections.

4. There should be inclusion of HIV/AIDS and TB co-infections in the school curriculum.

5. The Managements of tertiary institutions in Ilorin should provide health information, communication and education materials to be distributed to students and appropriate ones posted at different locations of the school premises.

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