



A UNIVARIATE STATISTICAL ANALYSIS ON COLLEGE STUDENT'S KNOWLEDGE (AWARENESS) ON HIV/AIDS

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ABSTRACT

This is a cross-sectional study conducted to determine if there is a significant difference in knowledge on HIV/AIDS amongst college students based on their academic level of study. Based on students' population of 8,293 at the Federal Polytechnic Bauchi, a sample size of 382 was computed. A questionnaire was designed and applied on 382 randomly selected respondents (students) across 6 schools in the Polytechnic. 372 questionnaires were returned after the survey. Of this number, 30 (8.14%) were freshmen (students from Pre-ND, Remedial Studies, IJMBE); 101 (27.2%) were from ND I; 87 (23.4%) from ND II; 78 (21.0%) from HND I; and 74 (19.9%) from HND II. The dependent variable in the study was the points scored by respondents and the independent variable was the academic level of study which has five levels as hinted above. The Null Hypothesis: there is no significant difference in knowledge on HIV/AIDS amongst college students based on their academic level of study, was tested at 95% confidence level ($\alpha = 0.05$) using the Univariate Technique. Data analysed from the survey using Brown-Forsythe Robust Test indicated a significant difference in knowledge amongst college students based on their academic level of study, $F(4,189.705) = 4.684, p=0.001$. Post hoc comparisons to evaluate pairwise differences among group means were conducted using the Games-Howell Test since equal variance assumptions were found not tenable across all groups. And test revealed significant pairwise differences between the mean scores of students from HND II and freshmen, $p = .013$; between students of HND II and ND I, $p = .012$; between students of HND II and ND II, $p = .043$. Based this evidence, college managements should engage in a HIV/AIDS sensitization activity for freshmen during new students' orientation programs. This is

imperative in order to mitigate the vulnerability of freshmen to HIV/AIDS infection.

Keywords: *Hiv/Aids, Fedpoly Bauchi, College Students*

Background

Adolescents constitute a significant proportion of the current HIV burden. Presently, low levels of HIV testing and counselling access and uptake by adolescents is leading to late diagnosis and late entry in to care and treatment and poor uptake of prevention interventions and services; resulting in unacceptable morbidity and mortality and ongoing HIV transmission (1).

In 2017, an estimated 3.9 million adolescents and young people age 15-24 were living with HIV. About 61% of adolescents and young people living with HIV are adolescent girls and young women (AGYW as cited in Khalifa A. et al 2019). 78% of the 3.9 million live in sub-Saharan Africa (2).

Globally, every week, around 6000 young women aged 15-24 become infected with HIV. In sub-Saharan Africa, four in five new infections among adolescents aged 15-19 years are in girls. Young women aged 15-24 years are twice as likely to be living with HIV as men (3).

Young people are particularly vulnerable to HIV infection because of the physical, psychological, social and economic attributes of adolescents (Earl D. as cited in Oladipo O. et al) (4).

The college environment offers great opportunity for HIV high-risk behaviors including unsafe sex. College students are at risk because they tend to be sexually adventurous, often with multiple partners and do not consistently use condom (Duncan C. et al, Lewis J.E. et al, and Prince A. et al as cited in Adefuye S.A. et al) (5).

It is also reasonable to speculate that risky network characteristics (such as concurrent partnerships, partner acquisition rates, age disparate relationships) drive majority of HIV incidence amongst college students as it is true in the general population (Champredon, D. et al as cited in Bellan E.S. et al 2018) (6).

One of the barriers to uptake of HIV/AIDS counselling and testing services is the age of consent – which varies across countries – most especially those with heavy HIV/AIDS burden – Nigeria inclusive. In a research conducted by McKinnon, B. and Vander Morris A., 2018, it was found out that lower legal age of consent to independent HIV testing and counselling is

associated with an increase in HIV testing rate among adolescents in high-HIV burden countries (7).

An aspect of social desirability of college life which is promoted through peer influence is consumption of illicit substances especially, alcohol and drugs. This attitude constitutes a risk factor for HIV. Previous studies have suggested a strong association between alcohol consumption and HIV positivity (8).

Although, previous studies have demonstrated that increased knowledge about AIDS is not a predictor for behavioral change (Onah H.E., et al as cited in Asante K.O., et al 2013) (9), having comprehensive knowledge about HIV is crucial in the fight against HIV and AIDS, and in achieving the global aspiration of ending AIDS as a public health threat by 2030. Low comprehensive knowledge about HIV can undercut efforts to halt the spread of the epidemic (10).

Although, there are numerous research works on knowledge and behavior of students of higher institution in Nigeria, scanty materials have discussed the situation in Bauchi State, which is the gateway to the 5 North-eastern states. The Boko Haram crisis that has consumed the states of Borno, Yobe and Adamawa has also put a lot of undue pressure on the state due to influx of refugees. Being the regional headquarters of several governmental parastatals and agencies, local and multi-national non-governmental organizations take advantage of the peaceful serene and geography of Bauchi state to reside and administer projects in the North-eastern region. Other research works on college students' level of knowledge on HIV/AIDS have basically concentrated on finding the relationship of knowledge with socio-demographic characteristics.

This research work tries to analyze the dependencies that exist between academic level of study and knowledge of HIV/AIDS. The research is beneficial because it will bring to the fore elements of power relations and safer sex negotiation skills that exist among new comer students who may be naïve and therefore, predisposed to older students that have gain lifesaving experiences as they progress on campus.

Materials and methods

This is a cross sectional population based quantitative study conducted in Federal Polytechnic Bauchi. Based on student recorded population of 8293, a sample size of 382 was computed using Tarro Yamane's formula.

A twenty-point questionnaire on HIV/AIDS knowledge and awareness was designed and applied on a sample of 382 randomly selected students

across 6 schools/faculties of the polytechnic namely: School of Agric Tech, School of Business Studies, School of Engineering Tech, School of Environmental studies, School of General studies and School of Science and Technology.

The students were categorized in to 5 stratum namely: Freshmen (Remedial, IJMB, and Pre-ND), ND I, ND II, HND I, and HND II.

These 5 strata make the 5 different levels of the Independent variable, that is, Academic level of studies. Marks (points) scored make up the dependent variable

A proportional sampling technique was used to draw samples from each stratum based on their proportion in the general population.

Research question: is there a difference in polytechnic students' knowledge on HIV/AIDS based on their academic level of studies?

Null hypothesis: there is no significant difference in college students' level of knowledge on HIV/AIDS based on their academic level of studies.

Alternative hypothesis: there is a significant difference in college students' level of knowledge on HIV/AIDS based on their academic level of studies.

At 0.05 alpha level, the null hypothesis is rejected in favor of the alternative hypothesis if $p \leq 0.05$. The null hypothesis is not rejected otherwise.

The data was uploaded in to SPSS version 22 for analysis. Assumption of normality was evaluated using the normal Q-Q plots. A one-way analysis of variance was conducted to evaluate the given hypothesis. Assumption of homogeneity of variance was also tested using the Leven's test.

Results

A one-way analysis of variance was conducted to evaluate the null hypothesis that there is no difference in college students level of knowledge on HIV/AIDS based on their academic level (N=370).

The independent variable, academic level, included five groups: Pre-ND, IJMB, and Remedial (M=12.20, SD=3.934, n=30); ND I (M=13.45, SD=2.927, n=101); ND II (M=13.53, SD=3.206, n=87); HND I (M=14.31, SD=3.147, n=78); and HND II (M=14.85, SD=2.748, n =74).

The assumption of normality was evaluated using the normal Q-Q plots and found tenable for all groups.

The assumption of homogeneity of variance was tested and found not tenable using the Levene's test, $F(4,305) = 3.194$, $p = 0.013$.

The robust test of equality of means was evaluated using the Brown-Forsythe test, $F(4,189.705) = 4.684$, $p = 0.001$.

Thus there is the evidence to reject the null hypothesis and conclude that there is a significant difference in college students' level of knowledge on HIV/AIDS based on their academic level of studies.

Discussion

This study has shown that there is a significant difference in college students' level of knowledge on HIV/AIDS based on their academic level of study.

Comprehensive knowledge of HIV prevention is defined as knowing that both condom use and limiting sexual intercourse to one uninfected partner are HIV prevention methods, knowing that a healthy looking person can have HIV, and rejecting the two most common local misconceptions about HIV transmission: that HIV can be transmitted by mosquito bites and by sharing food with a person who has HIV (Nigeria DHS, 2018) (11).

On a 20 points questionnaire administered to the students, the total mean score recorded was 13.83, which is suggestive of high level of knowledge amongst the students.

The highest point scored by any Pre-ND, IJMB, Remedial student was 18 while the lowest point was 5; highest point scored by any HND II student was 19 and the lowest point was 10.

Accordingly, 7.5% of the students scored 8 points and below; 15.6% scored 10 points and below; 29% scored 12 points and below, and 65.5% scored 15 points and below.

The Nigeria DHS, 2018 (12) has indicated that 13% each of young women and young men in Nigeria have comprehensive knowledge of HIV prevention.

In this study, the mean of marks scored by Pre-ND, IJMB, Remedial students was 12.20; ND I mean score was 13.45; ND II mean score was 13.58; HND I mean score was 14.3; and HND II mean score was 14.85. These scores indicate a steady increase in mean scores from the fresher (Pre-ND, IJMB, and Remedial) to HND II students of the Poly.

The Nigeria DHS, 2018 (13) on HIV/AIDS Awareness, Knowledge and Behavior among young people age 15-24 disaggregated by educational background indicated that 10.7% of young women with no education and 6.8% of young men with no education have comprehensive knowledge of HIV/AIDS; 12.5% of young women and 11.6% of young men both with primary school level qualification have comprehensive knowledge; 13.5% of young women and 15.4% of young men with secondary school level qualification have comprehensive knowledge; and 14.3% of young women

and 14.3% of young men with more than secondary level qualification have comprehensive knowledge. These results indicate a steady rise in comprehensive knowledge from the 'no education level' to 'more than secondary education level.'

In the current study, 63.6% of the students were males and 36.4% were females. Accordingly, the mean of marks scored by males and females were (M=13.68; SD=3.039) and (F=14.23; SD=3.103) respectively.

In a study to determine the HIV/AIDS knowledge among undergraduate university students in Ghana, Assante and Oti-Boadi, 2013 (9), found out that, of the 306 student respondents, 94.4% were knowledgeable about the various ways of preventing HIV infection. The authors also posited in same research piece that women were more knowledgeable than their male counterparts (9).

Also, result from the ANOVA table in this study indicated a statistically significant difference in comprehensive knowledge about HIV prevention among the various age groups $F(3,368) = 7.676$, $p = 0.000$.

A post-hoc test using Games-Howell shows that there is a statistically significant difference between 17-24 age group and 25-32, $p=0.001$; between 25-32 age group and 41 and above, $p=0.033$.

The mean score for all the four different age groups were: 17-24 (M=13.49, SD=3.236); 25-32 (M=14.68, SD=2.701); 33-40 (M=10.50, SD=6.364); and 41 and above (M=7.50, SD=0.707).

Opong, A. K., & Oti-Boadi, M., 2013 (9), have also documented a statistically significant difference in HIV/AIDS knowledge scores across different age groups in their study.

In another study conducted among medical students in Nepal, the authors had found out that the overall knowledge of the students was good (14).

Similarly, in a different study carried on knowledge and beliefs about HIV/AIDS among young people in urban Nepal, the authors concluded that knowledge of the disease was very high Neupane S., et al 2005 (as cited in Shankar P.R et al, 2009) (15).

In a certain study by Ojikwutu R.K et al, 2010, it was found out that slightly over 97%-99% of those who practice abstinence have heard about HIV/AIDS. This may imply that knowledge and awareness on HIV/AIDS is a precursor for safer sexual practice (16).

Limitations

This research work is conducted only on students of one higher institution of learning, which is the Federal Polytechnic Bauchi. Generalizing the findings of this research work to students of other institution should be done with caution.

Students that were reached in clusters during the sample survey were found influencing each other's opinion as they answer the questionnaires. Therefore, the actual knowledge of those students whose opinions were influenced may not have been properly assessed.

Some student respondents may only have been obliged to fill in the questionnaires just because of exigencies of circumstance and not because they are interested. Opinion of such students captured may not reflect their true knowledge.

Summary and Conclusion

This research work has shown that a significant difference in knowledge exist among college students based on their academic levels of study.

This research work tries to analyze the dependencies that exist between academic level of study and knowledge of HIV/AIDS. The research is beneficial because it will bring to the fore elements of power relations and safer sex negotiation skills that exist among new comer students who may be naïve and therefore, predisposed to older students that have gain lifesaving experiences as they progress on campus.

This study was conducted on students of Federal Polytechnic Bauchi. In Nigeria, Federal institutions of learning are more cosmopolitan in terms of representation of students from different parts of the country and behavioral research study in such institution may not be the same with state institutions whose students are essentially from a host state. Conducting further but similar research work in state polytechnics is therefore very imperative.

Recommendations

Managements of higher institutions of learning should make concerted effort towards expanding the knowledge base of fresher students on HIV/AIDS. This is to enable the students have commensurate knowledge with the older college students who have more knowledge than the fresher's. This can be done through targeted HIV/AIDS mobilization strategy, introduction of life saving skills courses and continuing education seminars and workshops.

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