



## EDUCATIONAL INTERVENTION PROGRAMME ON KNOWLEDGE OF HIV/AIDS AMONG SECONDARY SCHOOL STUDENTS IN ESAN WEST LOCAL GOVERNMENT AREA OF EDO STATE, NIGERIA

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**ABSTRACT:** *Background: HIV/AIDS is a disease of global interest without a cure. It affects all persons of all age, including adolescents. This study aimed at increasing the knowledge of HIV/AIDS among secondary school students in Esan West Local Government Area of Edo State, Nigeria. Methods: A quasi-experimental design was adopted. Multi-stage sampling technique was used to select 97 participants from two secondary schools. Data were collected using an adapted HIV Knowledge Questionnaire (HIV-K-Q), and was analysed using descriptive and inferential statistics (t-test) at 0.05 level of significance. Results: The pre-intervention knowledge on HIV/AIDS mean scores were  $11.07 \pm 1.60$  and  $10.90 \pm 1.93$  in the experimental and control groups, respectively. Whereas the post-intervention mean scores were  $18.12 \pm 1.55$  and  $10.57 \pm 1.96$  in the experimental and control groups, respectively. The main finding revealed that there was significant difference in the post-intervention knowledge on HIV/AIDS mean score between the intervention and control groups ( $p=0.000$ ). Conclusion: The educational intervention had positive effect on the students' knowledge about HIV/AIDS; hence, we recommend that HIV/AIDS education be included in secondary schools' curriculum.*

**KEYWORDS:** Educational Intervention, HIV/AIDS, Knowledge, Students, Nigeria

## INTRODUCTION

Human immunodeficiency virus (HIV) and acquired immune deficiency syndrome (AIDS) is a disease of global interest that has plagued mankind for many years and there are still no vaccines for prevention, or drugs for cure. Globally, there are about 36.7 million people living with HIV (UNAIDS, 2017), with 2.1 million of those infected being adolescents between the ages of 10 and 19 years (UNICEF, 2017a). In sub-Saharan Africa, according to a 2016 UNICEF report, 13% of adolescent girls and 9% of adolescent boys between the ages of 15-19 years tested positive to the virus in the past one year in the region, with the number likely to increase in years to come.

In Nigeria where 22.1 % (28 million) of the population are adolescents aged 10-19 years, HIV prevalence was estimated at 4.1% and the national prevalence rate among secondary school students was 6.1% (Ezeama, Enwereji, & Onyekwere, 2017). In Edo State, the HIV prevalence for adolescents aged 13-19 years was 11.4% (Offor, Unuigbo, & Ogbeide, 2012). In 2016, there



were 240,000 adolescents living with HIV in Nigeria, and this is 7% of the total number of people living with HIV in the country, with 40,000 new HIV infections, and 7,900 AIDS-related deaths (UNICEF, 2017c).

Among the reasons for this high proportion of adolescents living with the virus is due to lack of adequate knowledge about the disease. Most studies have shown that poor knowledge about HIV/AIDS among senior secondary school students is prevalent, especially knowledge on the transmission of HIV (Adam & Iseh, 2014; Aomreore, Alikor, & Nkanginieme, 2015; Enahoro, Abah, Okoedion, & Orjiakor, 2015) and prevention of the disease (Ikpeme, Etokidem, Offor, Okokon, & Etuk, 2015). Though it has been suggested that adolescents should be the focus of HIV/AIDS-related activities like education on HIV transmission and prevention, since this is the age when they become sexually active and they are accessible through school education (Thanavanh, Harun-Or-Rashid, Kasuya, & Sakamoto, 2015), such educational opportunities are limited in developing countries, including Nigeria (Gebhardt & Maes, 2015). Hence, it became imperative to conceive an educational intervention programme to educate and increase adolescent's knowledge about HIV/AIDS in Esan West Local Government Area of Edo State, Nigeria with the aim of addressing the knowledge gap among them.

## **THEORETICAL UNDERPINNING**

A number of researchers have revealed that adolescents' general knowledge about HIV/AIDS, especially those in secondary school is low, ranging from the difference between HIV and AIDS (Srivastava, Mahmood, Mishra, Shrotriya, & Shaifali, 2015; Ikpeme et al., 2015) to knowledge deficiencies in epidemiological factors of HIV, sexual and parenteral transmission of HIV as well as some misconceptions about the transmission of HIV (Digban, Aigbogun, & Agofure, 2014), to many believing that HIV is curable, and that vaccine is available, while 76% believed that antibiotic can protect against HIV infection (Miguez, Espinoza, Vargas, Perez, Ergon, & Tarter, 2015).

Using intervention programme before secondary school students become sexually active has been shown to prevent new HIV infections (Thanavanh et al., 2015), which can be done in a number of ways such as peer education, counselling, mass media, and school-based education programmes (Kirby, Obasi, & Laris, 2016). School educational programme has been focused to create HIV/AIDS awareness and to inform secondary school students (Srivastava et al., 2015), because as knowledge of the disease increases, the fear of contracting AIDS decreases significantly (Fernandez, Figueroa, Gomez, Maysonet, Olivares, & Hunter, 2008). A number of studies have shown the effectiveness of educational intervention in improving the knowledge of HIV/AIDS among secondary school students (Adeomi, Adeoye, Olarinmoye, Abodnrin, Bello, & Sabageh, 2014; Ezeama, Enwereji, & Onyekwere, 2017; Jahanfar, Lim, Loh, Yeoh, & Charles, 2016; Gao, Wu, Zhang, Zhang, Tang, Qiu, et al., 2012).

It has been shown that learning in individuals occur through the influence of internal and external factors on their mental processes. This type of learning is known as cognitive learning, since it is centred on the mental processes by which the learner takes in, interprets, stores, and retrieve information. These mental processes occur between stimulus/input e.g., HIV/AIDS educational programme and response/output i.e., the increase knowledge about HIV/AIDS. When cognitive processes are working normally then acquisition and storage of knowledge



works well, but when these cognitive processes are ineffective, learning delays and difficulties can be seen. These cognitive processes have several elements which include; attention, observing (Beck, 1967).

## METHODS

**Design:** this study employed a quasi-experimental design. Multi-stage sampling was used to select 97 participants (experimental group n=57, control group n=40). Questionnaire was the instrument for data collection. The questionnaire had 21 knowledge-related items. Knowledge was graded using the scores 0-10, 11-16, and 17-21 for low, average, and high score respectively. Data were analysed using descriptive and inferential statistics (t-test) at 0.05 as level of significance.

### Study Area and sample Size

The study was conducted in Esan West Local Government Area of Edo State. It is one of the 18 Local Government Areas in Edo State with headquarter in Ekpoma. It has an area of 502 km<sup>2</sup>, a population of 127,718, and density of 333.3/km<sup>2</sup> at the 2006 census (Okun & Okosun, 2009). Adolescents constitute 22% of the entire population. There are ten (10) political wards in the study area.

The sample size was determined using the formula by Leslie Kish (Kish, 1965).

$$n = (Z)^2 \times \frac{PQ}{e^2}$$

Where: n = Sample size

Z = 1.96 (standard normal deviation at 95% confidence interval)

p = level of prevalence. The national level of prevalence of HIV among

adolescents aged 10 and 19 years is 6.1%. Therefore, p = 6.1/100 = 0.061

q = 1-p = 1-0.061 = 0.939

e = level of precision at 0.05

$$n = (1.96)^2 \times \frac{0.061 \times 0.939}{(0.05)^2} = 88.0172 \text{ participants}$$

$$n = 88$$

At attrition rate of 10% = 88 x 10/100 = 880/100 = 8.8, approximately 9

Therefore, the final sample size = 88+9 = 97.

### Data and Method of Collection

Questionnaire was used to assess participants' baseline knowledge on HIV/AIDS. The experimental group received a one-week complete course on HIV/AIDS. The educational



package comprised of five modules, each lasting two hours per day. The same instrument was administered to both groups three weeks after the intervention to obtain post-intervention data. All copies of the questionnaire administered were retrieved for analysis.

## RESULTS

Table 1 presents the socio-demographic characteristics of participants. The participants whose age was between 9 and 14 years was 52.6% in the intervention group and 62.5% in the control group. More than half (59.6% and 62.5%) of the participants were male in the intervention and control group, respectively. Participants in JSS 1 to JSS 3 were more than half (54.5% and 52.2%) in the intervention and control group. The majority (66.7% and 100%) of participant in the intervention and control group were Christians. All participants (100%) in the intervention group were Esan, while almost all (85.5%) the participants in the control group were also Esan.

**Table 1: Distribution of Socio-Demographic Characteristics of Participants**

<b>Variables</b>	<b>Frequency (Intervention group)</b>	<b>Percent (%)</b>	<b>Frequency (Control group)</b>	<b>Percent (%)</b>
<b>Age (Year)</b>				
9 – 14	30	52.6	25	62.5
15 – 20	27	47.4	15	37.5
<b>Total</b>	<b>57</b>	<b>100</b>	<b>40</b>	<b>100</b>
<b>Gender</b>				
Male	34	59.6	25	62.5
Female	23	40.4	15	37.5
<b>Total</b>	<b>57</b>	<b>100</b>	<b>40</b>	<b>100</b>
<b>Class</b>				
JSS 1	11	19.5	7	17.5
JSS 2	10	17.5	7	17.5
JSS 3	10	17.5	7	17.5
SSS 1	10	17.5	7	17.5
SSS 2	10	17.5	7	17.5
SSS 3	6	10.5	5	12.5
<b>Total</b>	<b>57</b>	<b>100</b>	<b>40</b>	<b>100</b>
<b>Religion</b>				
Christianity	38	66.7	40	100
Islam	3	5.2	0	0
Traditionalist	1	1.8	0	0
others	15	26.3	0	0
<b>Total</b>	<b>57</b>	<b>100</b>	<b>40</b>	<b>100</b>



<b>Ethnicity</b>				
Esan	57	100	34	85.5
Hausa	0	0	1	2.5
Igbo	0	0	3	7.5
Yoruba	0	0	1	2.5
Others	0	0	1	2.5
<b>Total</b>	<b>57</b>	<b>100</b>	<b>40</b>	<b>100</b>

Participants' baseline knowledge on HIV/AIDS is presented in Table 2. Majority of participants (63.2%) in the experimental group had average knowledge and 36.8% had low knowledge. The control group had equal percent (50%) of participants with average and low knowledge on HIV/AIDS. The knowledge mean score for intervention group was 11.07 and the control group was 10.90.

**Table 2: Pre-intervention Knowledge on HIV/AIDS among Participants**

<b>Knowledge on HIV and AIDS.</b>	<b>Experimental Group</b>		<b>Control Group</b>	
	<b>Frequency</b>	<b>Percent (%)</b>	<b>Frequency</b>	<b>Percent (%)</b>
Average Knowledge (11-16)	36	63.2	20	50.0
Low Knowledge (0-10)	21	36.8	20	50.0
<b>Total</b>	<b>57</b>	<b>100.0</b>	<b>40</b>	<b>100.0</b>
<b>Mean ± SD</b>	<b>11.07(52.72%) ± 1.60</b>		<b>10.90 (51.90%) ± 1.93</b>	

Table 3 shows that majority of participants (82.5%) in the experimental group have a high knowledge and 17.5% have average knowledge of HIV/AIDS post-intervention. No participants in the control group displayed high knowledge post-intervention but 52.5% and 47.5% of participants have average and low knowledge respectively. The experimental and control group had 18.12 and 10.57 as post-intervention mean score on knowledge of HIV/AIDS, respectively.

**Table 3: Post-intervention Knowledge on HIV/AIDS among participants**

Knowledge on HIV and AIDS.	Experimental Group		Control Group	
	Frequency	Percent (%)	Frequency	Percent (%)
High Knowledge (17-21)	47	82.5	–	–
Average Knowledge (11-16)	10	17.5	21	52.5
Low Knowledge (0-10)	–	–	19	47.5
<b>Total</b>	<b>57</b>	<b>100.0</b>	<b>40</b>	<b>100.0</b>
<b>Mean ± SD</b>	<b>18.12 (86.30%) ± 1.55</b>		<b>10.57 (50.35%) ± 1.96</b>	

## Testing of Hypotheses

### Hypothesis one

Ho1: There is no significant difference between pre-intervention knowledge mean score on HIV/AIDS in the experimental and control group.

Table 4 shows an independent t-test conducted to determine if a difference existed between the pre-intervention knowledge mean score on HIV/AIDS in the experimental and control group. The result shows no significant difference between pre-intervention knowledge mean score on HIV/AIDS in the experimental and control group because  $p = 0.640$ , and greater than the chosen significance level  $\alpha = 0.05$ .

**Table 4: Independent t-test showing the difference between pre-intervention knowledge mean score on HIV/AIDS in the experimental and control group**

Group	N	Mean	Std. Deviation	Std. Error Mean	Df	T	Mean diff	Significance
Experimental	57	11.0702	1.60200	0.212	95	0.470	0.17018	0.640
Control	40	10.9000	1.95854	0.30967				

### Hypothesis two

Ho2: There is no significant difference between post-intervention knowledge mean score on HIV/AIDS in the experimental and control group.



Table 5 shows an independent t-test conducted to determine if a difference existed between the post-intervention knowledge mean score on HIV/AIDS in the experimental and control group. The result of the test reveals a significant difference in post-intervention knowledge mean score on HIV/AIDS between the experimental and control group because  $p = 0.000$ , and less than the chosen significance level ( $\alpha = 0.05$ ) and as a result the null hypothesis was rejected. Since the post-intervention knowledge mean score in the experimental group is higher than the control group, it implies that the intervention was effective.

**Table 5: Independent t-test showing the difference between post-intervention knowledge mean score on HIV and AIDS in the experimental and control group**

Group	N	Mean	Std. Deviation	Std. Error Mean	Df	T	Mean diff	Significance
Experimental	57	18.1228	1.54770	0.20500	95	21.318	7.54781	0.000
Control	40	10.5750	1.93334	0.30569				

## DISCUSSION

The findings of this study reveal a high knowledge on HIV/AIDS in the experimental group after the educational intervention, but the knowledge remained average in the control group. This shows that the intervention was effective. The findings of Gao et al. (2012), which revealed a high post-intervention knowledge on HIV/AIDS among the students, is in line with the above finding.

The results of the tested hypotheses revealed a significant difference in the post-intervention knowledge mean score on HIV/AIDS between the experimental and control group, with the experimental group having a high knowledge, while there was no change in knowledge in the control group, as it remained average. This finding is corroborated by the work of Adeomi et al. (2014), which showed a high knowledge of respondent in the experimental group on the knowledge of HIV/AIDS, while the knowledge remained the same among participants in the control group, in their study to evaluate the effectiveness of peer education in improving HIV knowledge, attitude and sexual behaviours among in-school adolescents in Osun State, Nigeria.

In addition, the hypotheses results also showed a significant difference between pre- and post-HIV/AIDS knowledge, in the experimental group, as there was a high post-intervention knowledge on HIV/AIDS. This finding is supported by Jahanfar, Lim, Loh, Yeoh & Charles (2016), study on the improvement of knowledge and perception towards HIV/AIDS among secondary school students after two-hour talk in Malaysia, which revealed a high knowledge and perception of students regarding HIV after a sex educational program. The researcher findings were also substantiated by the findings of Ezeama, Enwereji and Onyekrewe, (2017), in their intervention programmes for HIV and AIDS prevention among in-school adolescents in Imo State, Nigeria, which revealed a high post-intervention knowledge on HIV/AIDS prevention more than the pre-intervention knowledge.



## Implication to Research and Practice

This study would serve as a template for researchers and nurses, to design and implement simple easy to use guidelines to make up areas where there are gaps in the knowledge of students on HIV/AIDS. There is need for nurses especially community health nurse to implement educational intervention package on HIV/AIDS in secondary schools, as this could bring about a significant increase in students' knowledge on HIV/AIDS to prevent them from contracting the deadly disease.

## CONCLUSION

The study endeavoured to provide some insight on the effect of educational intervention programme on the knowledge on HIV/AIDS among secondary school students. A significant increase in knowledge on HIV/AIDS was seen among participants in the experimental group after the intervention. Thus, implementing educational intervention on HIV/AIDS in secondary schools could play an important role in increasing their knowledge. It is therefore necessary to intensify HIV/AIDS information through school-based education programs, and as part of school curriculum since they are group of people with high youthful exuberance and are more likely to exhibit risky sexual behaviour which may put them at risk of contracting HIV.

## Future Research

Further studies of this nature should be conducted to generate new evidences that could confirm the findings of this study. Finally, this study should be replicated in broader settings and with a larger sample size, for better generalization of results.

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