



## Correlates of Intention to Utilize HIV Screening Services Among Adolescents in Selected Secondary Schools in Osogbo, Osun State Nigeria

<sup>1</sup>Abosede Abolaji Olorunnisola, <sup>2</sup>Oyewole Olusesan Oyerinde

<sup>1</sup>Department of Public Health, Health Education and Promotion, Babcock University, Ilishan-Remo, Ogun State, Nigeria, <sup>2</sup>Department of Public Health, Babcock University, Ilishan-Remo, Ogun State, Nigeria.

Corresponding Abosede Abolaji Olorunnisola; [abosedolorunnisola@gmail.com](mailto:abosedolorunnisola@gmail.com)

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#### Corresponding Author:

Olorunnisola A.A

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### ABSTRACT

**Background:** The spread of HIV/AIDS among the productive age group particularly young adults is a major public health concern in Nigeria. HIV screening services are affordable interventions that offer chances to raise knowledge about HIV and preventive measures. They are crucial parts of HIV prevention initiatives. This study investigated the level of knowledge, and attitude as correlates of intention to Utilize HIV Screening Services Among Adolescents in Selected Secondary Schools in Osogbo, Osun State, Nigeria.

**Methods:** Data were collected from 120 respondents who were conveniently selected from two senior secondary school at the two Local government areas in Osogbo, Osun state with semi-structured questionnaire (83% reliability). Data were analyzed using appropriate statistical tools.

**Results:** Most of the students were in the middle adolescence (14 – 16 years) age group. The Knowledge responses were grouped on a scale and the results showed that most of the adolescents had a moderate level of knowledge regarding HIV/AIDS and HIV Screening Services. Further results showed a fairly high and positive attitude for the participants (76.66%). There were significant correlations (at  $p < 0.05$ ) between knowledge level ( $R = 0.348$ ), attitude ( $R = 0.432$ ), and Intention to Utilize HIV Screening Services. These factors are still quite modest, though. Additionally, knowledge level indicated that most participants were unaware of any importance of the utilization of HIV Screening services.

**Conclusions:** The report suggested launching vigorous campaigns of public health education and awareness that highlight the importance of utilizing HIV Screening services.

**Key words:** Adolescents, Attitude, Correlates, HIV Screening, Intention, Knowledge Nigeria.

### 1. INTRODUCTION

Globally, young adults and adolescents make up an increasing percentage of HIV-positive people. About 410,000 young persons between the ages of 10 and 24 acquired HIV for the first time in 2021, with 160,000 being teenagers between the ages of 10 and 19<sup>1</sup>. The impact of HIV/AIDS is greater on Nigeria given that one out of every five Africans is a Nigerian, so much so that an estimated 3.7% of Nigerians representing between 3.2 and 3.8 million persons are living with HIV, and the country is ranked second place to only South Africa among the countries with the highest burden of HIV<sup>2</sup>.

The spread of HIV/AIDS among the productive age group particularly young adults is a major public health concern in Nigeria. Sub-Saharan Africa which accounts for just a little above 10% of the world's population is, however, the worst hit region in the world<sup>3</sup>. The region has a rapidly increasing rate of infection among adolescents. The ages between 15 and 24 years represent the highest at-risk group for the infection of the virus<sup>4</sup>. Adolescence is a time of vitality and discovery, but it's also a stage of rapid and perplexing changes, mostly due to the emotional, psychological, and physical transitions. Teenagers often take chances as they learn to be independent and imitate their friends. Teenagers are hence susceptible to the human immunodeficiency virus (HIV)<sup>5</sup>. Screening for HIV could be through a variety of approaches including Provider-Initiated Testing and Counselling (PITC)

as part of medical care, and Client-Initiated Testing and Counseling (CITC), often called Voluntary Counselling and Testing (VCT)<sup>6</sup>. Provider-initiated testing takes place in hospital settings, whereby the test would be performed unless patients/clients declined while client-initiated testing and counselling which could be performed in various service delivery points ranging from health facilities, specially designed stand-alone sites, mobile outreach to communities and home based settings; is a process by which an individual undergoes counselling to enable him/her take informed decision about been tested for HIV, assess their personal risk for HIV and develop a risk reduction strategies<sup>7</sup>. HIV Screening involves services that are cost-effective interventions that provide opportunities to increase awareness and HIV and prevention practices and are essential components of HIV prevention programs. It has also emerged as a central prevention strategy in National AIDS control plans in most developing world<sup>8</sup> key to global tuberculosis control<sup>8</sup>.

The infection rate for HIV continues to rise particularly among young people. Studies show that young people aged 15 to 24 years account for about 30% of all people living with HIV/AIDS and half of all new HIV infections<sup>9</sup>. According to the latest zero-prevalence survey which gave a national figure of 4.6%, HIV prevalence was 4.6% in those aged 20-24 years, while it was higher in the older age group 25-29 years, among which the prevalence was 5.6%<sup>10</sup>. Such numbers underscore the urgency of addressing the problem of HIV/AIDS among the youths and HIV Screening is a major intervention that can help to achieve this purpose<sup>11</sup>. Youths are a key target group for HIV Screening interventions because they are likely to be at the most infectious stage where behaviour change could be especially effective at reducing further HIV transmission. However, most people in Nigeria including the youths, are still unaware of their status<sup>12</sup>.

Widespread of HIV Screening within a given community can help to normalize HIV/AIDS to reduce AIDS related stigma and to raise the awareness of the epidemic<sup>13</sup>. The knowledge and zero-status may equally lead individuals to avoid engaging in risky behaviour and increases abstinence<sup>14</sup>. The target population of this study represents the age group in the country with the highest national HIV prevalence rate. Additionally, the sexual life-style in higher institutions of learning in Nigeria and some other African countries have been reported as featuring a high level of risky behaviors such as transactional sex, keeping multitude sexual partners, having sex under influence of drugs and alcohol and unprotected casual sexual actions<sup>14</sup>.

Access to HIV Screening is a major pillar of the National strategic framework adopted by Nigeria for HIV control. The federal government of Nigeria has introduced and implemented various programmes to increase the uptake of HCT. Notwithstanding these interventions, HIV testing uptake is still low (11% of women and men aged 15 to 49 years) and unknown to many Nigerians, due to the fear of the testing outcome and HIV related stigma<sup>15</sup>. However, findings from numerous research indicate that persons in need of HIV Screening underuse these services, which significantly adds to the burden of HIV on the global community<sup>16</sup>. Therefore, this study investigated the level of knowledge, attitude as correlates for the Utilization of HIV Screening Services Among Adolescents in Selected Secondary Schools in Osogbo, Osun State, Nigeria.

## 2. METHODOLOGY

### 2.1 Study Location

Osun State was created in 1991 from the eastern third of Oyo State. It is bounded by Kwara State to the northeast, Ekiti and Ondo states to the east, Ogun State to the south, and Oyo State to the west and northwest. Of Nigeria's 36 states, Osun is the ninth smallest in area and the nineteenth most populous, with an estimated population of about 4.7 million as of 2016. Osogbo, the capital of the state, is located in southwestern Nigeria. The town lies on the Lagos railway and at the intersection of the Ilesa, Ede, Ogbomosh, and Ikirun roads Osogbo also serves as the headquarters for the Osun State Agency for the Control of AIDS (OSACA)

### 2.2 Study Design and Population

The study design adopted for this research project is a cross-sectional study.

### 2.3 Sample Size Determination and Sampling Technique

The minimum sample size of 120 was calculated using the formula when the interest is to test a hypothesis comparing some exposure of two groups:

$$n = (Z_{\alpha/2} + Z_{\beta})^2 * (p_1 * (1-p_1) + p_2 * (1-p_2)) / (p_1 - p_2)^2$$

The significance level (alpha): This is typically set at 0.05, which represents a 5% chance of making a type I error (rejecting the null hypothesis when it is actually true).

The power of the study (1-beta): This is typically set at 0.80, which represents an 80% chance of detecting a true effect if one exists.

The odds ratio (OR) or relative risk (RR): This is typically set at 2:0 (this represents the strength of the association between the exposure and outcome).

n = sample size

$Z_{\alpha/2}$  = the critical value for the selected alpha level is (1.96, for alpha=0.05)

$Z_{\beta}$  = the critical value for the selected power (0.84 for power=0.80)

P1=Prevalence level at 50% (0.5)

P2 = Desired level of outcome at 80% (0.8).

Plugging-in the values, we get:  $mn = (1.96 + 0.84)^2 * ((0.275 * 0.4) + (0.4 * 0.275)) / (0.275 - 0.4)^2 = 108.8$

10% added for attrition = 10.8

This was rounded up to 120, which was the number of participants that were recruited for the study.

### 2.4 Research Instrument and Data Collection Methods

A semi-structured questionnaire was used as the study instrument. This was designed to seek information about the respondents' socio-demographic characteristics, knowledge, attitude and Intention to Utilize HIV Screening Services (IUHSS). Research assistants were engaged and trained before data collection.

### 2.5 Validation and Pre-test of the instrument

Two Nigerian experts in the field of Public Health in a Nigerian university evaluated the extent to which the variables in the questionnaires were relevant to the objectives of the study. Thereafter, the questionnaire was pretested among adolescents in a selected secondary school at a different location. This helped to know whether the questionnaire assessed what it intended to measure and whether the language and organization were appropriate to address the objectives of the study. The responses provided also helped to address any form of ambiguity in the questionnaire as well as modified questions or response categories where neces-

sary. The Cronbach’s alpha coefficient of the questionnaire was 0.83, indicating an acceptable internal consistency.

**2.6 Measurement of Outcome Variables**

For the questions whose responses were either yes or no, a correct answer was scored 1 and a wrong answer was scored 0. For questions with three responses, (Yes, No and I don’t know), the correct response was scored 2, “I don’t know” was scored 1 while wrong response was scored 0. Attitude was measured using Likert scale of Strongly Agree, Agree, Disagree and Strongly Disagree. For the negatively constructed questions, strongly agree was scored 0, Agree was scored 1, Disagree was scored 2 and Strongly Disagree was scored 3; while the positively constructed questions, strongly agree was scored 3, Agree was scored 2, Disagree was scored 1 and Strongly Disagree was scored 0. The mean score of the maximum score for the responses were calculated. The respondents who scored below the mean were regarded as having poor knowledge or negative attitude while those who scored up to or above mean were regarded as having good knowledge or positive attitude.

**2.7 Data Analysis**

Questionnaires were sorted out to check for errors and omissions at the end of collection of data. Thereafter, data was analysed using IBM SPSS version 23. Frequency distribution tables, charts, and graphs were used to present categorical data. The chi-square test was used to compare rates and proportions, while Fisher’s exact test was applied when cell counts had expected values less than five. A t-test was used to assess associations between continuous variables. All significant variables from the bivariate analysis were entered into the logistic regression model. Adjusted odds ratios (AORs) and 95% confidence intervals were obtained from the regression analysis. The level of significance was set at a p-value of less than 0.05

**Data Availability Data Statement**

Data can be made available upon request and the corresponding author should be contacted for it.

**2.8 Ethical and Consent to Participate**

Ethical approval for the study was obtained from Osun State Ministry of Health and permission to carry out the study was obtained from the respective head of health facilities where participants were interviewed.

**3. RESULTS**

According to Table 1, the majority of students fell within the middle adolescence age bracket (14–16 years). The participants had a mean age of 15.73 ± 1.461 years, and 54.16% were in SS3. Gender distribution was 29.16% males and 70.83% females. The ethnic distribution showed that the majority of the students were from the

**Table 1: Socio-Demographic Characteristics of Respondents**

Variable	Frequency	Percentage
<b>Age Group</b>		
10-14	65	54.13
15-19	55	45.83
<b>Study Class</b>		
SS 1	45	37.50
SS 2	65	54.16
SS 3	10	8.33
<b>Gender</b>		
Male	35	29.16
Female	85	70.83
<b>Religion</b>		
Christian	80	66.66
Muslim	40	33.33
<b>Ethnicity</b>		
Yoruba	80	66.66
Igbo	35	29.16
Hausa	15	12.5

Yoruba ethnic group (66.66%), with fewer students from the Igbo, Hausa, and other minority ethnic tribes. Christians also constituted the majority of the respondents (66.66%), while a smaller proportion reported being Muslims. No statistical differences were observed among the four groups regarding age and gender.

The mean knowledge score was 13.11 (SD = 2.386), the mean attitude score was 30.73 (SD = 5.381), and the mean intention toward HSS Score was 26.11 (SD = 5.386). According to Table 2, most of the adolescents had a moderate level of knowledge, and 76.66% had a positive attitude toward HIV screening services. Participants demonstrated a positive correlation between knowledge and intention to utilize HIV screening services (r = 0.221, p = 0.001), indicating that as knowledge levels increased, intention to use screening services increased (Table 3). Similarly, attitude showed a significant positive relationship with intention (r = 0.180, p < 0.001), suggesting that a more positive attitude was associated with a higher intention to utilize screening services.

**4. DISCUSSION**

The results from the study provide insight into the level of knowledge, attitudinal disposition, and intention towards the utilization of HIV Screening Services among adolescents in the study area. The participants were recruited secondary schools within the State. The response rate during the follow-up periods after the intervention was excellent. More of the participants were females compared to the proportion of males.

Previous studies have indicated that low levels of knowledge and misconceptions about the causes and prevention of HIV are widespread in Africa especially in the rural areas<sup>17</sup>. This indicates that a large percentage of people have erroneous beliefs about the transmission routes of the virus.

Acquisition of knowledge of HIV/AIDS and HIV screening services may be a powerful weapon in the fight against the uprising epidemic. Individuals, especially sexually active adolescents who lack the knowledge and skills required to fight being infected by the virus are less equipped to protect themselves from the predisposing factors influencing the transmission and hence, the virus<sup>18</sup>.

The results of this study showed that the adolescents had a moderate level of knowledge of HIV transmission and risks. In line with

**Table 2: Respondents’ Level of Knowledge, Attitude, and Intention regarding the Utilization of HIV Screening Services( HSS)**

Variables	Maximum Points N (%)
<b>Knowledge of HSS</b>	
Low (0-8)	43 (35.83)
Moderate (9-16)	65 (54.17)
High (17-24)	12 (10)
<b>Attitude towards HSS</b>	
Negative (0-26)	44(36.67)
Positive (27-52)	76(63.33)

**Table 3: Correlation Analysis of the Relationship Between Knowledge, Attitude, and Intention regarding the Utilization of HIV Screening Services**

Variables	Intention Regarding the Utilization of HIV Screening Services	
	Pearson (r)	p-value
Knowledge	0.231	<0.001
Attitude	0.190	0.001

this, previous studies conducted among adolescents in Nigeria had established similar results<sup>19</sup>.

The misconceptions about HIV/AIDS especially the transmission have been shown to be different from one culture to another and widespread<sup>19</sup>. In countries with generalized epidemics, less than half of adolescent boys and girls, aged 15-19 years, have a basic understanding of HIV. In sub-Saharan Africa, a few studies have reported abysmally low rates of comprehension and correct knowledge of HIV<sup>20</sup>.

Attitude, which includes beliefs, ideas and emotional expressions serve as a predisposing factor to sexual risk behaviors, which in turn could cause HIV infections. To investigate the attitudinal disposition of the adolescents at baseline, the students were asked questions, which assessed the nature of their attitudes towards and intention toward the utilization of HIV Screening Services. The results revealed that, overall, 90% had a positive attitude towards and intention towards the utilization of HIV Screening Services. Similarly, a study carried out among medical Students in public and private universities in Malaysia revealed that adolescents' levels of attitudes changed as a result of the intervention, and one participant showed improved attitudes and intentions regarding the use of HIV screening services. Additionally, there was a significant relationship between the efficacy of the educational intervention, which was specifically designed to improve cognitive skills, and the participants' improved attitudes.<sup>17</sup> A similar study from Shagamu, southwest Nigeria showed high and positive attitude to HIV screening services among the secondary school students who participated in the study.<sup>18</sup>

#### 4.1 Conclusion

This study demonstrated that adolescents had moderate level of knowledge regarding HIV/AIDS and HIV Screening Services. This study concluded that the strongest predictors for HIV screening service-utilization were knowledge, attitude. It was revealed that the respondents had Moderate knowledge level about HIV and HCT services. The respondents also expressed positive attitude towards HCT services. It is recommended that health personnel consider the above variables when designing educational interventions regarding HIV counselling and testing services. In order to increase the utilization of HIV counselling and testing services among adolescents, policies and interventions must take an ecological, health promotion approach to programme development.

Programs that support HIV counselling and testing services can also be introduced into the school curriculum such as marking the World HIV/AIDS Day to increase awareness among adolescents, their social network and the school staff. However, many prevention programs have focused on increasing knowledge on HIV to overcome misconceptions that could prevent behavioral change towards safe practices, this study built on previous reports to include the attitude of adolescents and self-efficacy to prevent HIV infection.

#### 4.2 Study Limitation

This was a descriptive cross-sectional study design and social desirability bias could have been introduced because of the use of the Semi-structured administered type of data collection tool. However, the research assistants were well-trained to minimize this bias.

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#### Contributor Roles Taxonomy Statement

Both authors fully participated in all aspects of the manuscript's preparation, from conceptualization to final submission for publication

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#### Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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