IMPROVING HIV/AIDS KNOWLEDGE ACCURACY AMONG UNIVERSITY STUDENTS IN NIGERIA: IDENTIFYING GAPS AND SOLUTIONS FOR BETTER AWARENESS

Executive Summary

This report presents findings from a quantitative study examining the accuracy of HIV/AIDS knowledge among Nigerian university students. The research surveyed 203 university students to assess their understanding of HIV/AIDS transmission, prevention, and treatment. Overall, while students demonstrated a solid basic knowledge in some areas, significant gaps were identified in critical domains, including prevention methods, treatment options, and transmission routes. The study found that health institutions were the most effective sources of information, with students who accessed information from these institutions scoring significantly higher on knowledge tests. Based on these findings, we recommend implementing targeted educational interventions, strengthening partnerships with health institutions, improving school curricula, and addressing persistent stigma to enhance HIV/AIDS knowledge accuracy among Nigerian university students.

Introduction

HIV/AIDS continues to pose a significant public health challenge in Nigeria, particularly among youth in higher educational institutions. Despite extensive efforts to increase awareness, misconceptions about HIV transmission, prevention, and treatment remain widespread among young Nigerians. This research aimed to investigate and improve HIV/AIDS knowledge accuracy among Nigerian university students by identifying existing gaps in awareness and proposing effective solutions.

Research Objectives

The study sought to:

1. Evaluate the current level of HIV/AIDS knowledge among university students in Nigeria.
2. Identify common misconceptions related to HIV transmission, prevention, and treatment.
3. Explore factors contributing to inaccurate HIV/AIDS knowledge among Nigerian university students.
4. Develop recommendations for improving HIV/AIDS educational programs in universities.

Methodology

The research employed a quantitative approach using survey data collected from 203 university students across several Nigerian institutions. The survey included questions about HIV/AIDS knowledge, information sources, perceived barriers to accurate information, and demographic characteristics. This approach was chosen for its ability to provide numerical data that can be used to identify patterns, trends, and correlations within the study population.

# Demographic Findings

Age Distribution

A total of 203 university students participated in the survey. The distribution of their age groups is as follows:

- Adults (24 years or older): made up the largest proportion, with 110 respondents (54.2%), indicating that over half of the participants fall within this age category.

- Late Adolescents (21-23 years): accounted for 40 participants (19.7%).

- Young Adults (18-20 years): followed closely with 39 participants (19.2%).

- Early Adolescents (15-17 years): were the smallest group, consisting of 14 participants (6.9%).

This distribution suggests that the majority of the respondents are within the adult age bracket, with a significantly smaller portion being early adolescents.

Age Group of participants

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Adults	110	54.2	54.2	54.2
	Early Adolescents	14	6.9	6.9	61.1
	Late Adolescents	40	19.7	19.7	80.8
	Young Adults	39	19.2	19.2	100.0
	Total	203	100.0	100.0	

Age Group of participants

Legend: Adults, Early Adolescents, Late Adolescents, Young Adults
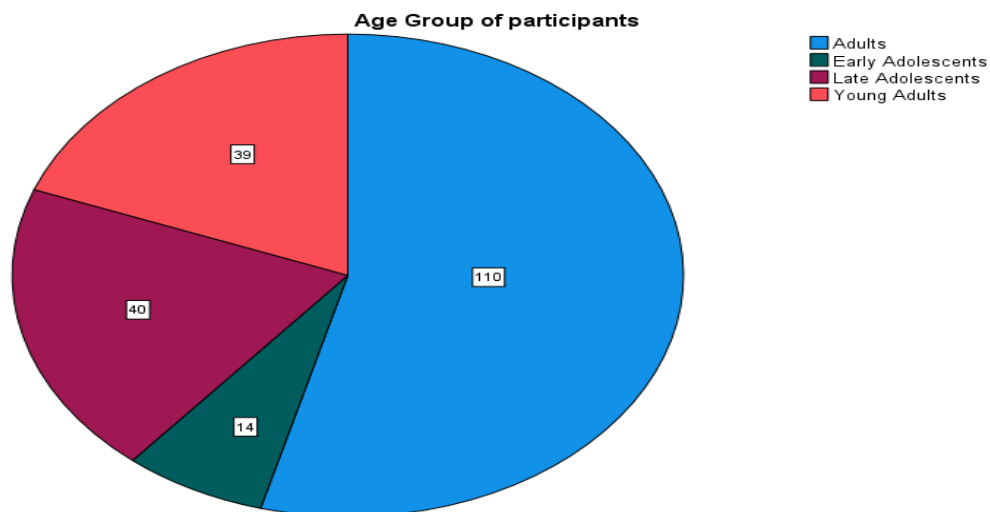
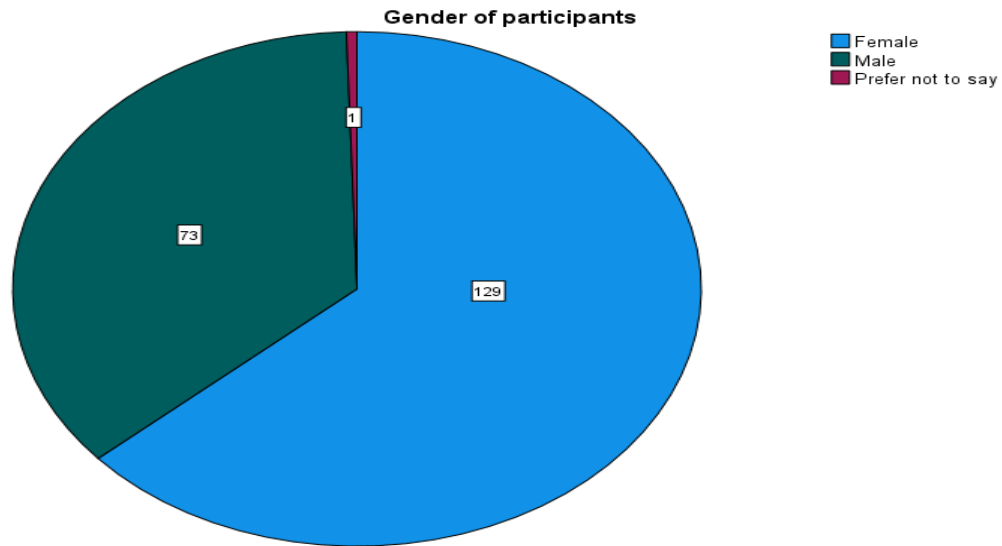Age Group Distribution Pie Chart

Gender Distribution

Out of 203 participants:

- 129 (63.5%) identified as female, representing the majority of the sample.

- 73 (36.0%) identified as male.

- 1 participant (0.5%) selected "Prefer not to say".

This gender distribution shows a higher representation of females in the study, which may influence how certain insights (like HIV knowledge levels) trend across gender lines.

Gender of participants

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	129	63.5	63.5	63.5
	Male	73	36.0	36.0	99.5
	Prefer not to say	1	.5	.5	100.0
	Total	203	100.0	100.0	

Gender of participants

Legend:
- Female
- Male
- Prefer not to say

Gender Distribution Pie Chart

Geographic Distribution

Among the 203 participants:

- 152 participants (74.9%) reported living in urban areas, making them the dominant group.
- 26 participants (12.8%) were from rural areas.
- 25 participants (12.3%) identified as living in sub-urban areas.

Areas (Rural/Urban)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Rural	26	12.8	12.8	12.8
	Sub_Urban	25	12.3	12.3	25.1
	Urban	152	74.9	74.9	100.0
	Total	203	100.0	100.0	

Areas (Rural/Urban)

Legend:
- Rural
- Sub_Urban
- Urban

Values shown: 26, 25, 152
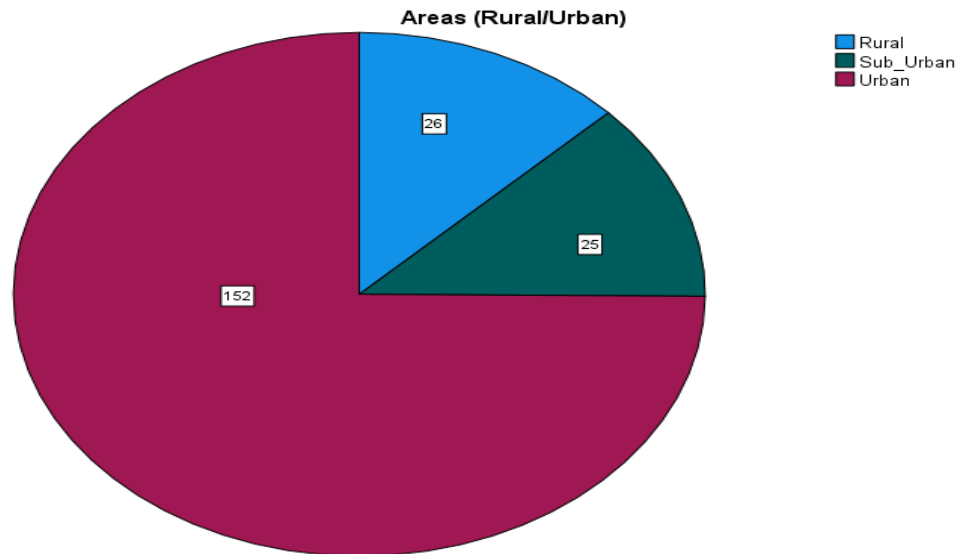
Rural/Urban Distribution Pie Chart

Among the 203 participants, respondents came from over 20 Nigerian states, with notable variation in representation:

Kano State had the highest representation with 74 participants (36.5%), indicating a significant portion of the data was collected there.

Other notably represented states include:

- o   Abuja (FCT) – 22 participants (10.8%)
- o   Benue State – 19 participants (9.4%)
- o   Kwara State – 15 participants (7.4%)
- o   Osun, Oyo, and Lagos States – 11 participants each (5.4%)

Several states had only one participant (0.5%), such as Adamawa, Borno, Imo, Jigawa, Lagos, Ogun, and Sokoto.

States (Location)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Abuja (FCT)	26	12.8	12.8	12.8
	Adamawa State	1	.5	.5	13.3
	Bauchi State	9	4.4	4.4	17.7
	Benue State	21	10.3	10.3	28.1
	Borno State	1	.5	.5	28.6
	Edo State	6	3.0	3.0	31.5
	Ekiti State	3	1.5	1.5	33.0
	Imo State	1	.5	.5	33.5
	Jigawa State	1	.5	.5	34.0
	Kaduna State	5	2.5	2.5	36.5
	Kano State	80	39.4	39.4	75.9
	Kogi State	2	1.0	1.0	76.8
	Kwara State	16	7.9	7.9	84.7
	Lagos State	13	6.4	6.4	91.1
	Ogun State	3	1.5	1.5	92.6
	Osun State	2	1.0	1.0	93.6
	Oyo State	1	.5	.5	94.1
	Plateau State	1	.5	.5	94.6
	Sokoto State	11	5.4	5.4	100.0
	Total	203	100.0	100.0	
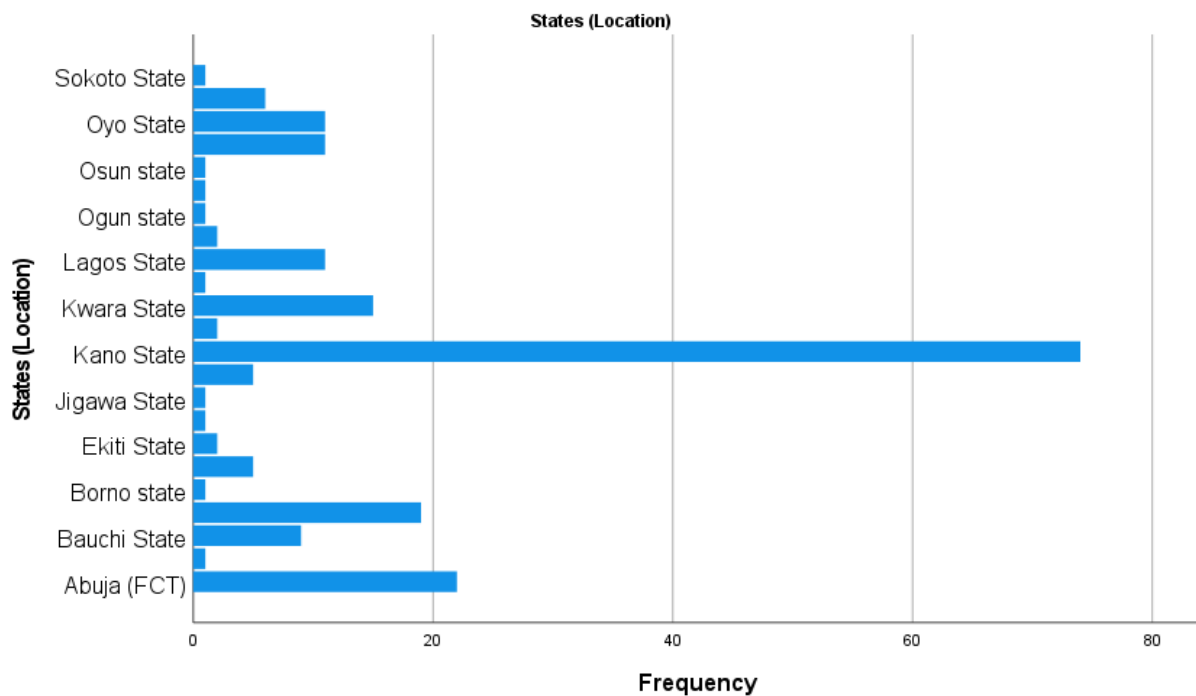
State Distribution Chart

Key Findings

Research Question 1: What is the current level of HIV/AIDS knowledge among university students in Nigeria?

General Awareness

Out of the 203 participants:

- 191 (94.1%) reported "Yes", indicating that the vast majority have heard of HIV/AIDS.
- Only 12 participants (5.9%) said "No", showing a small proportion are unaware.

Asking if the participants have heard of HIV/AIDS before?

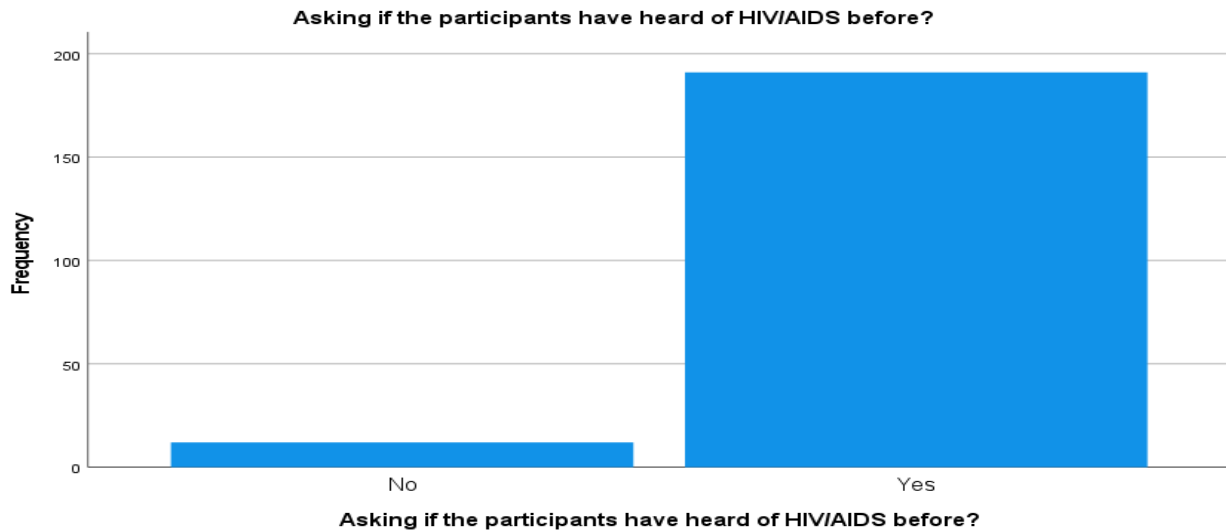|		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	12	5.9	5.9	5.9
	Yes	191	94.1	94.1	100.0
	Total	203	100.0	100.0	
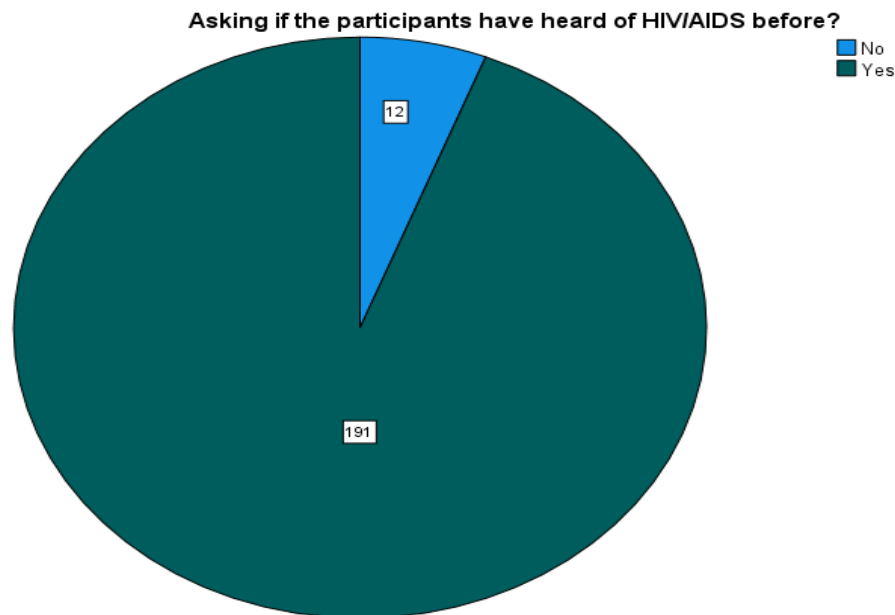
HIV/AIDS Awareness Pie Chart

Self-reported Knowledge Levels

Among the 203 participants, their self-reported knowledge of HIV/AIDS is as follows:

- 100 participants (49.3%) rated their knowledge as Good.

- 69 participants (34.0%) rated their knowledge as Very Good.

- 23 participants (11.3%) rated their knowledge as Fair.

- 8 participants (3.9%) rated their knowledge as Poor

- Only 3 participants (1.5%) indicated they had No Knowledge.

## This is their overall knowledge of HIV/AIDS

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Fair	23	11.3	11.3	11.3
	Good	100	49.3	49.3	60.6
	No Knowledge	3	1.5	1.5	62.1
	Poor	8	3.9	3.9	66.0
	Very Good	69	34.0	34.0	100.0
	Total	203	100.0	100.0	

Asking if the participants have heard of HIV/AIDS before?

Asking if the participants have heard of HIV/AIDS before?
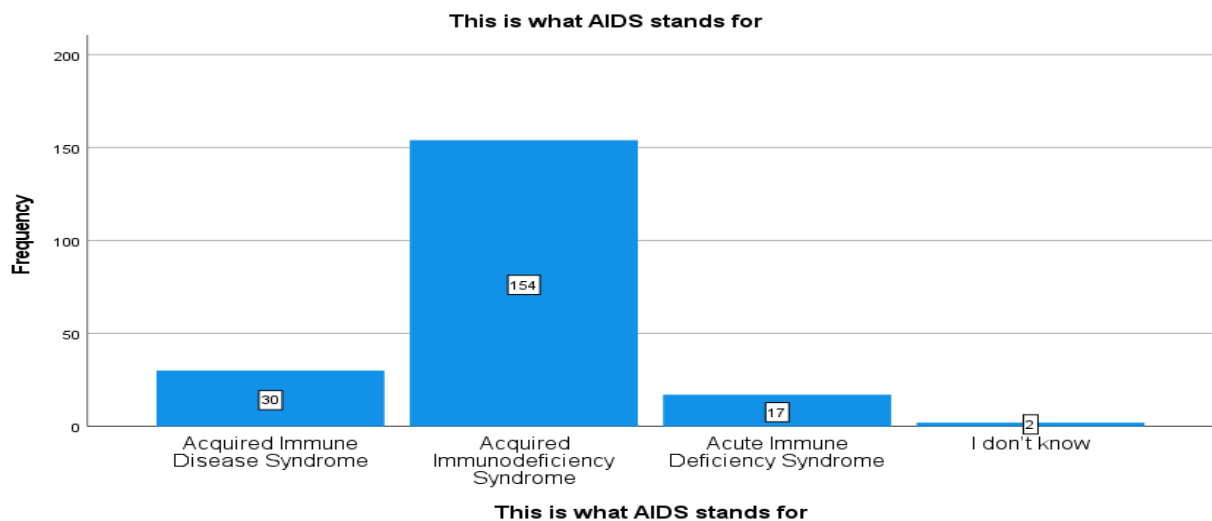
Self-reported Knowledge Level Bar Chart

Basic HIV/AIDS Knowledge

- 73.9% correctly identified "Human Immunodeficiency Virus" as the meaning of HIV

This is what HIV stands for
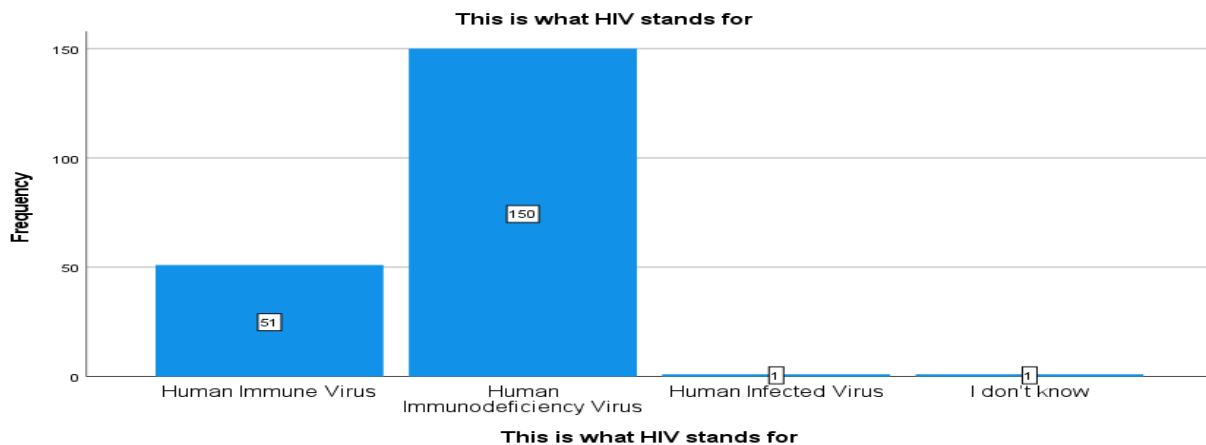
- 75.9% correctly identified "Acquired Immunodeficiency Syndrome" as the meaning of AIDS

This is what AIDS stands for

Research Question 2: What are the common misconceptions about HIV/AIDS transmission, prevention, and treatment held by university students?

HIV Transmission Knowledge

These results provide important insights into university students' understanding of HIV transmission routes. Let me break down each result and its implications:

Correct Knowledge Areas

1. Unprotected Sexual Contact (96.6% correct)
   o Nearly all students (196 out of 203) correctly recognized that HIV can be transmitted through unprotected sexual contact. This indicates excellent awareness of the primary transmission route for HIV.
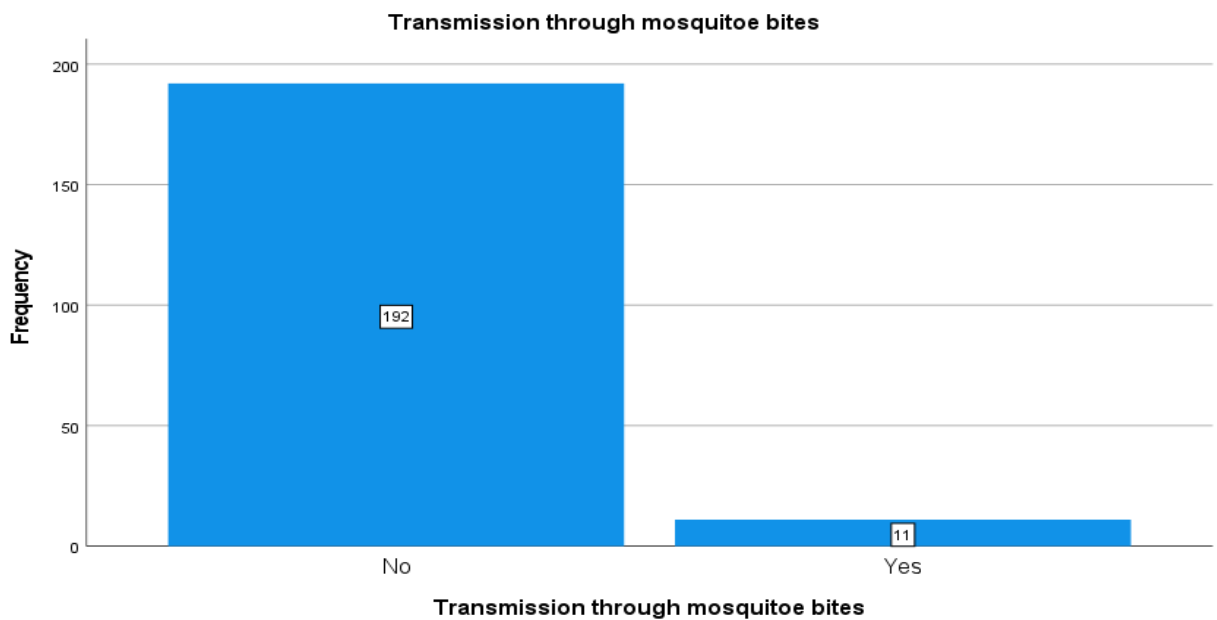
Transmission through unprotected sex

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	7	3.4	3.4	3.4
	Yes	196	96.6	96.6	100.0
	Total	203	100.0	100.0	

Transmission through unprotected sex
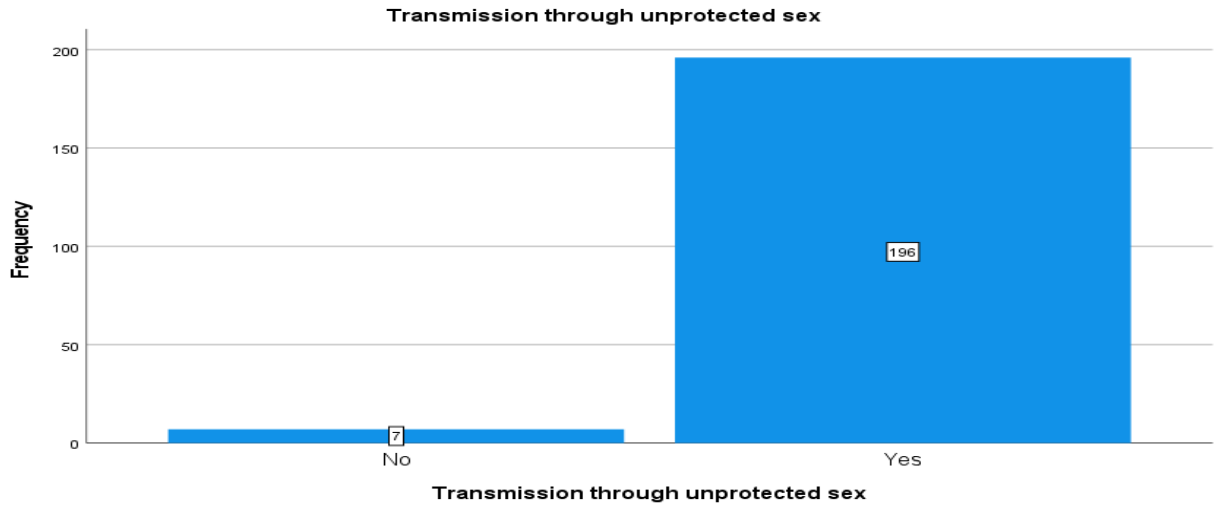
2. Mosquito Bites (94.6% correct)
   - A high percentage of students (192 out of 203) correctly understood that HIV is NOT transmitted through mosquito bites. Only 5.4% held this misconception, showing good overall awareness on this topic.

Transmission through mosquitoe bites

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	192	94.6	94.6	94.6
	Yes	11	5.4	5.4	100.0
	Total	203	100.0	100.0	

Transmission through mosquitoe bites

3. Casual Contact (87.7% correct)
    o Most students (178 out of 203) correctly knew that HIV is NOT transmitted through casual contact like hugging or sharing utensils. This helps counter stigmatization of people living with HIV.

Transmission through casual contact

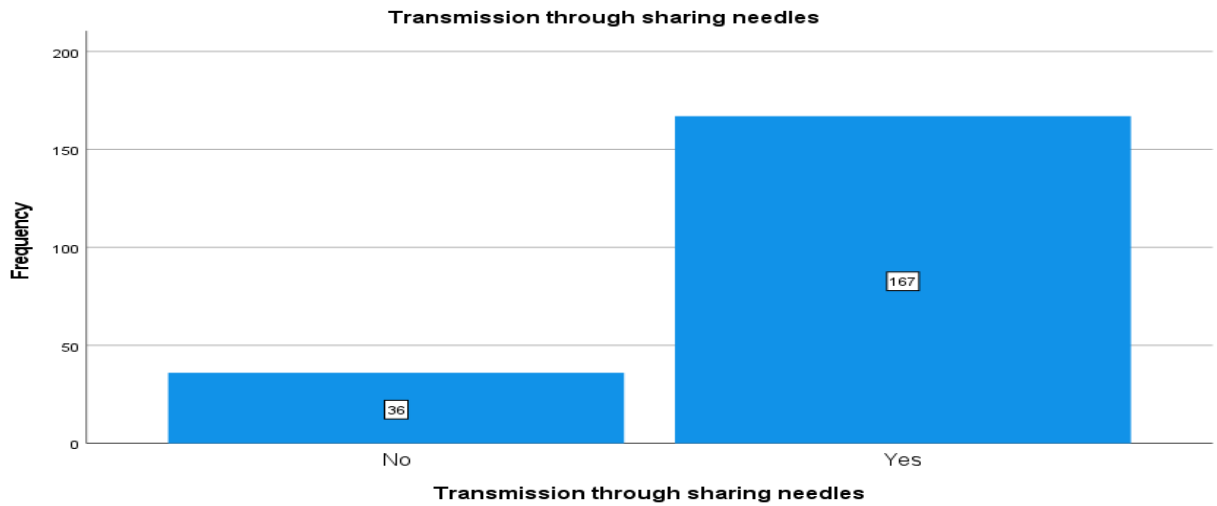|		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	178	87.7	87.7	87.7
	Yes	25	12.3	12.3	100.0
	Total	203	100.0	100.0	

Transmission through casual contact
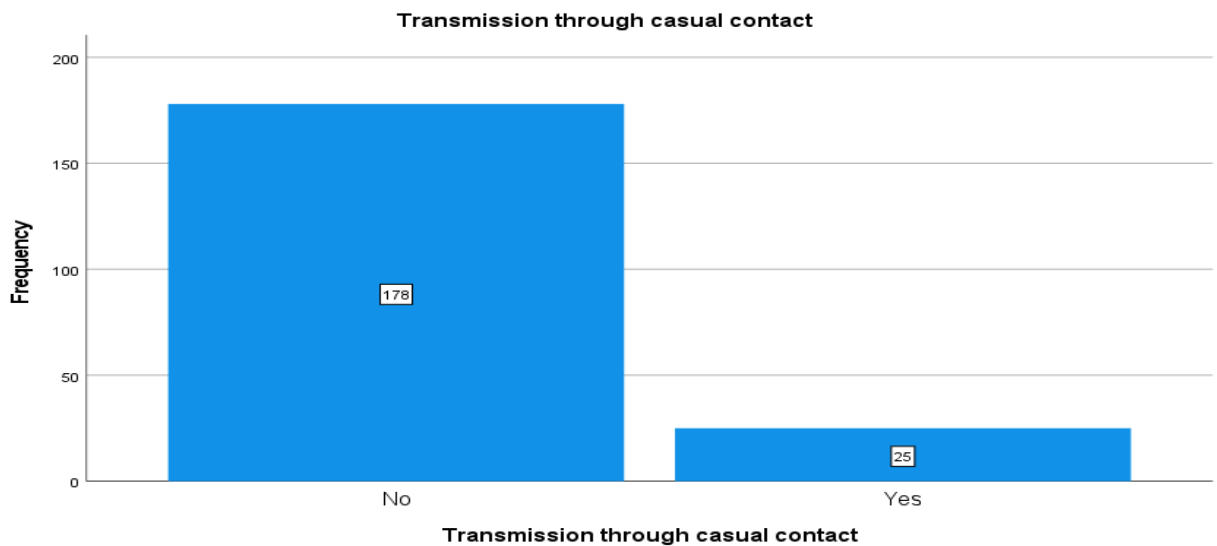
Knowledge Gap Areas

1. Sharing Needles (82.3% correct)
    o While a majority recognized this transmission route, 17.7% (36 students) did not identify sharing needles as a way HIV spreads. This represents a slight knowledge gap that could be addressed in educational interventions.

Transmission through sharing needles

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	36	17.7	17.7	17.7
	Yes	167	82.3	82.3	100.0
	Total	203	100.0	100.0	

**Transmission through sharing needles**

2. Mother-to-Child Transmission (77.3% correct)
   o Nearly one-quarter of students (22.7%) were unaware that HIV can be transmitted from mother to child during childbirth. This knowledge gap could impact attitudes toward prevention of mother-to-child transmission programs.

## Transmission through mother to child

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	46	22.7	22.7	22.7
	Yes	157	77.3	77.3	100.0
	Total	203	100.0	100.0	

Transmission through mother to child
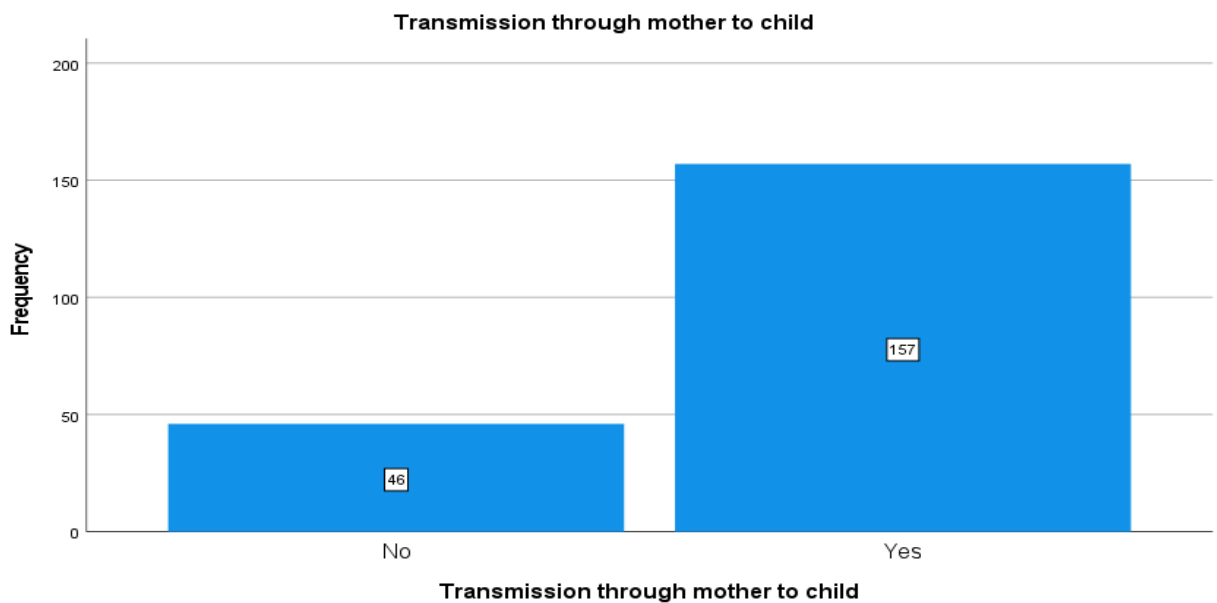
3. Condom Use (71.9% correct)
   - o Only about 72% recognized that condoms can reduce HIV transmission risk. This is particularly concerning as it represents a critical prevention strategy, and 28.1% (57 students) either don't know or don't believe in condom effectiveness.

Transmission through condoms

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	57	28.1	28.1	28.1
	Yes	146	71.9	71.9	100.0
	Total	203	100.0	100.0	

Transmission through condoms
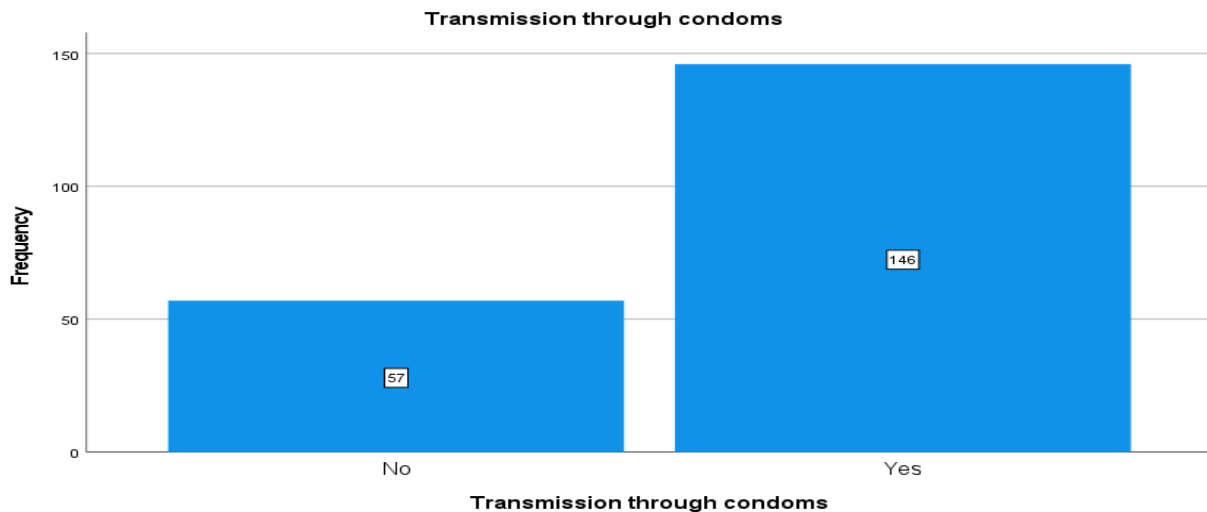
Key Implications

- Overall Knowledge Pattern: Students demonstrate strong knowledge of basic transmission routes (sexual contact) and common misconceptions (mosquitoes, casual contact), but have important gaps in prevention strategies (condoms) and less commonly discussed routes (mother-to-child).
- Prevention Education Needs: The relatively lower knowledge about condom effectiveness (71.9%) suggests that prevention education should emphasize the effectiveness of barrier methods in reducing transmission.
- Comprehensive Education Gaps: The knowledge gaps regarding mother-to-child transmission indicate a need for more comprehensive education beyond the most commonly discussed transmission routes.
- Misconceptions: While small, the presence of misconceptions about casual contact (12.3%) could contribute to stigmatization of people living with HIV/AIDS.

Recommendations Based on These Results

- Strengthen education about HIV prevention strategies, particularly regarding condom effectiveness.

- Expand educational content to cover mother-to-child transmission and prevention.
- Continue reinforcing education about needle sharing as a transmission route.
- Address remaining misconceptions about casual contact to reduce stigma.

HIV Prevention Knowledge

Participants demonstrated high awareness of key HIV prevention strategies such as safe sex (82.3%), avoiding shared sharps (81.8%), and partner testing (70.9%). However, only 56.7% recognized PrEP as an effective method, indicating a potential knowledge gap. Notably, 22.2% of respondents selected 'staying away from HIV-infected people' as a preventive strategy, highlighting the persistence of stigmatizing misconceptions among a subset of students.
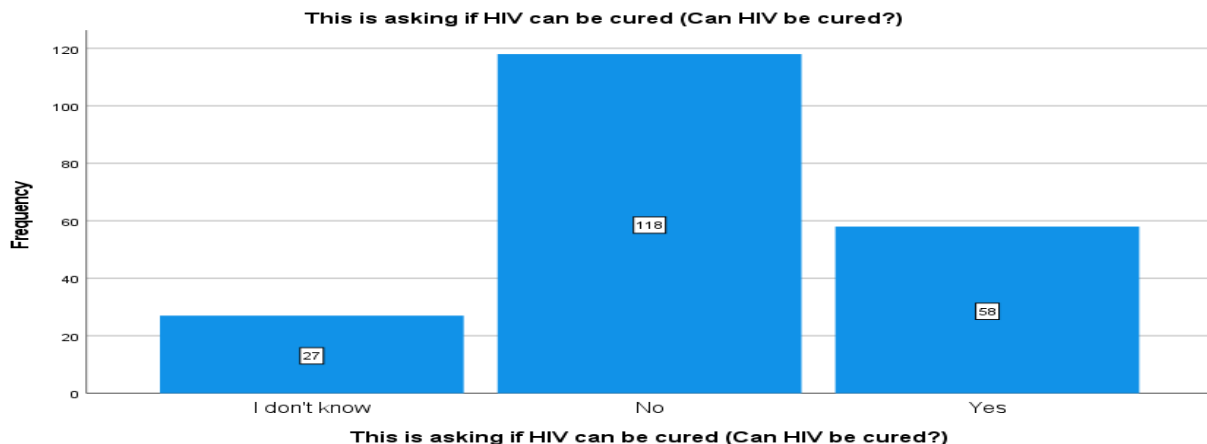
HIV Treatment Knowledge

Can HIV Be Cured?

Frequency Breakdown:

- 58.1% correctly said "No"
- 28.6% said "Yes"
- 13.3% answered "I don't know"

Interpretation:

- While more than half of the students are aware that HIV has no current cure, a concerning 41.9% either believe it can be cured or are unsure. This points to a gap in understanding HIV treatment realities.


What Is the Primary Treatment for HIV?

Frequency Breakdown:

- 66.0% chose "Antiretroviral therapy (ART)"
- 23.6% chose "Vaccines"
- 10.3% chose "Antibiotics"

Interpretation:

- A solid two-thirds of students know Antiretroviral therapy (ART) is the correct treatment. But over **a third of respondents (33.9%)** held **incorrect beliefs**, suggesting the need for more focused education on **HIV medical care** and treatment options.


Primary_Treatment for HIV
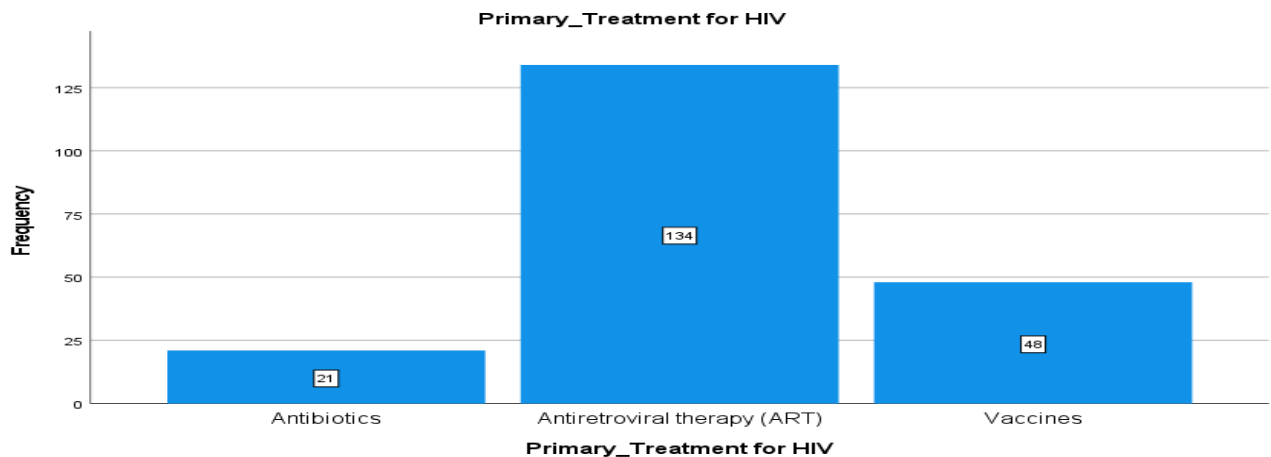
Can People with HIV Live Healthy Lives with Proper Treatment?

Frequency Breakdown:

- 96.6% correctly answered "Yes"
- Only 3.5% said "No" or "I don't know"

Interpretation:

- Excellent awareness here, students overwhelmingly understand that HIV is manageable with treatment. This reflects progress in destigmatizing HIV and recognizing it as a chronic, treatable condition.

**Asking if people with HIV can live healthy lives with proper treatment**
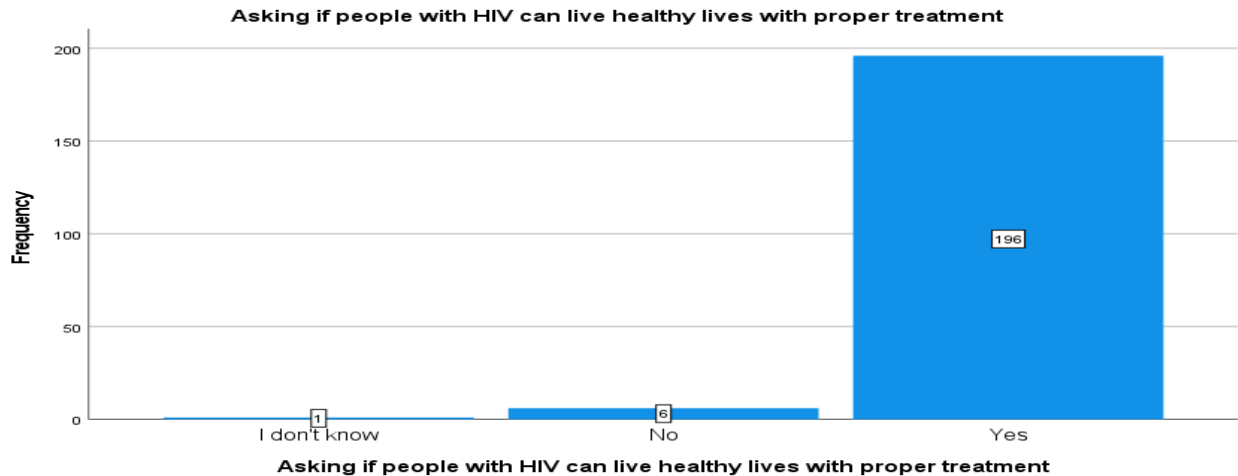
Most respondents demonstrated accurate knowledge regarding HIV treatment, with 96.6% acknowledging that people with HIV can live healthy lives with proper care. However, only 58.1% correctly stated that HIV cannot be cured, and 66.0% recognized antiretroviral therapy (ART) as the primary treatment. These results indicate that while the majority have a basic understanding of HIV care, significant gaps remain in treatment literacy and misconceptions persist around potential cures and incorrect therapies.

HIV Testing Knowledge

These results provide significant insights into university students' understanding of the importance of HIV testing.

Understanding of HIV Testing Benefits

1. Early Detection for Better Treatment (89.7% correct)
   o The vast majority of students (182 out of 203) correctly understand that early detection through testing leads to better treatment outcomes. This shows good awareness of the clinical benefits of early HIV detection.

Tests so early detection can lead to better treatment outcomes

Tests so early detection can lead to better treatment outcomes
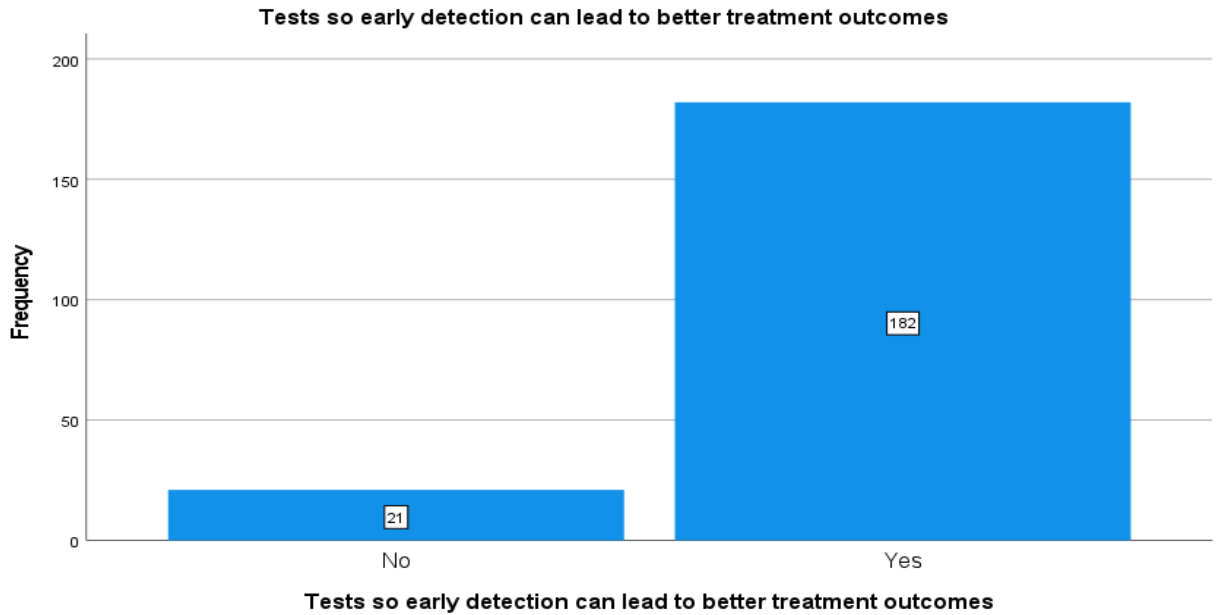
2. Reducing HIV Spread (73.9% correct)
   o Nearly three-quarters of students recognize that testing helps reduce the spread of HIV. However, 26.1% (53 students) don't recognize this public health benefit of testing, indicating a knowledge gap.

To reduce the spread of HIV

To reduce the spread of HIV
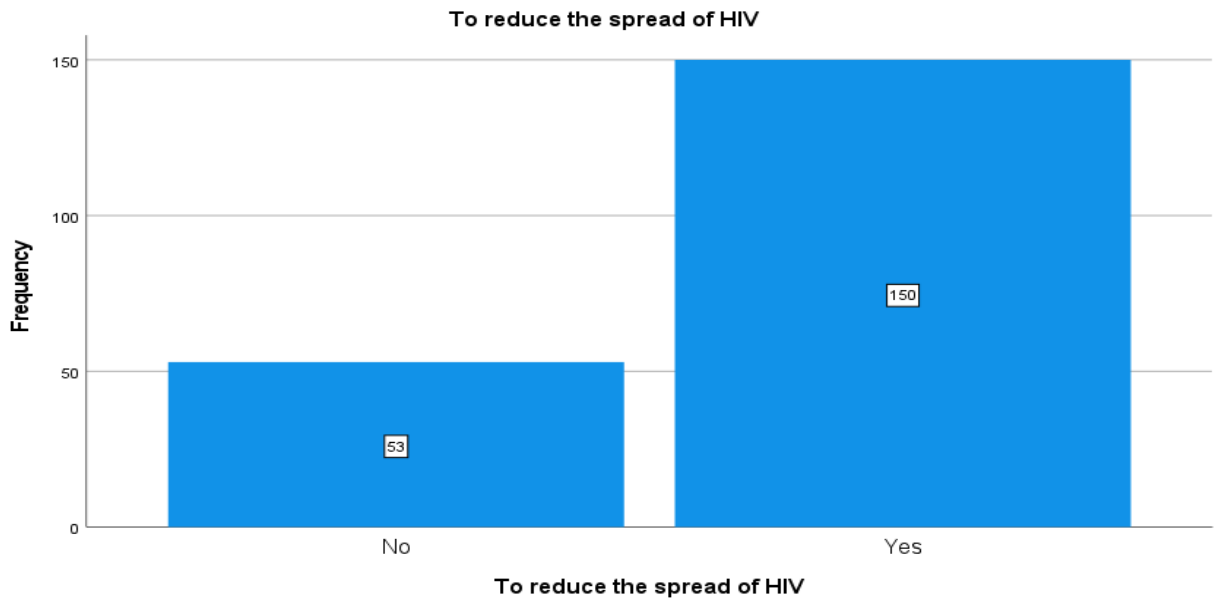
3. Knowing One's HIV Status (60.1% correct)
   o Only 60.1% of students identified knowing one's status as an important reason for HIV testing. This relatively low percentage suggests many students may not fully appreciate the personal responsibility aspect of testing.

To know your HIV status
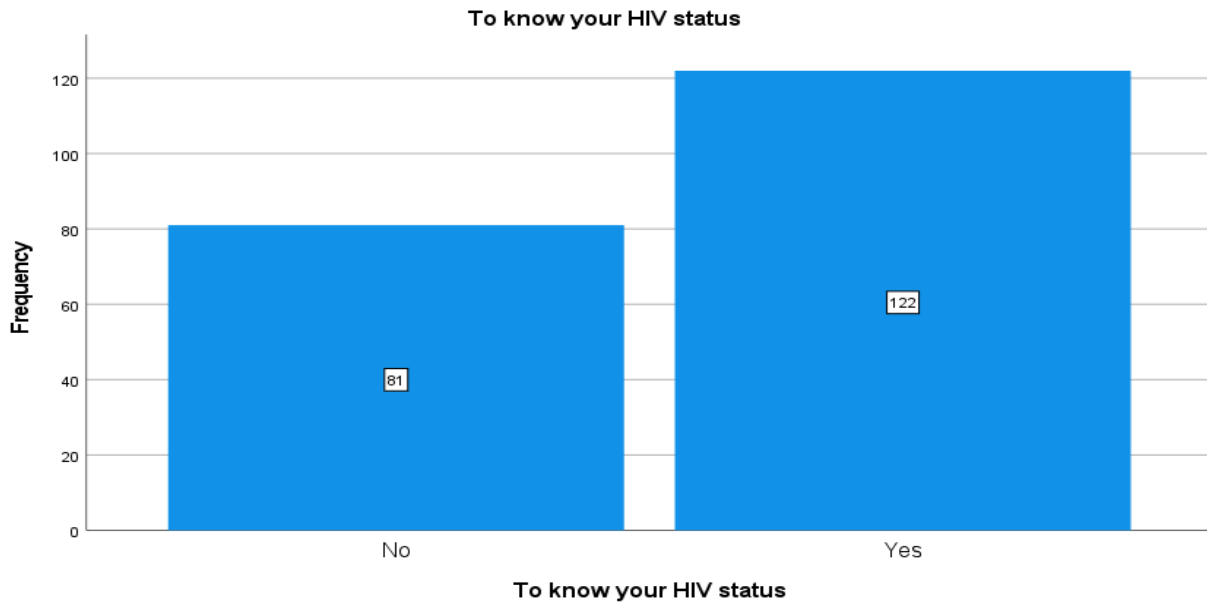
4. Avoiding Stigma and Discrimination (0% selected)
    o No students (0 out of 203) selected avoiding stigma and discrimination as a reason for HIV testing. This finding is particularly notable as it indicates students don't perceive testing as a way to reduce stigma.

To avoid stigma and discrimination

Key Implications

1. Treatment-Focused Understanding: Students demonstrate stronger awareness of the treatment benefits of testing compared to prevention and public health benefits.
2. Prevention Knowledge Gap: The lower recognition of testing's role in reducing HIV spread (73.9%) highlights a gap in understanding the public health dimensions of testing.

3. Personal Responsibility: The relatively low percentage (60.1%) recognizing the importance of knowing one's status suggests more education is needed on personal responsibility in sexual health.
4. Stigma Disconnect: The complete absence of students connecting testing to stigma reduction reveals a critical misconception about the relationship between testing, openness, and reducing societal stigma.

Recommendations Based on These Results

1. **Comprehensive Testing Education**: Develop educational programs that highlight all benefits of HIV testing, not just clinical treatment outcomes.
2. **Public Health Emphasis**: Strengthen messaging about how widespread testing contributes to reduced HIV transmission at the population level.
3. **Personal Empowerment**: Frame HIV testing as an act of personal empowerment and responsibility, emphasizing knowing one's status as a fundamental right.
4. **Stigma Reduction Campaigns**: Create specific educational content that connects regular testing to normalization and stigma reduction in society.
5. **Peer Education**: Consider implementing peer education programs where students who understand the multiple benefits of testing can share this knowledge with their peers.

Research Question 3: What factors contribute to the inaccuracies in HIV/AIDS knowledge among Nigerian university students?

Information Sources

These results reveal important patterns about where university students obtain their HIV/AIDS information, which has significant implications for your research objectives regarding knowledge accuracy and educational strategies.

Primary Information Sources

1. **School-Based Education (85.2%)**
   o Schools are overwhelmingly the most common source of HIV/AIDS information, with 173 out of 203 students reporting this source. This highlights the critical role of formal educational institutions in shaping HIV/AIDS knowledge.
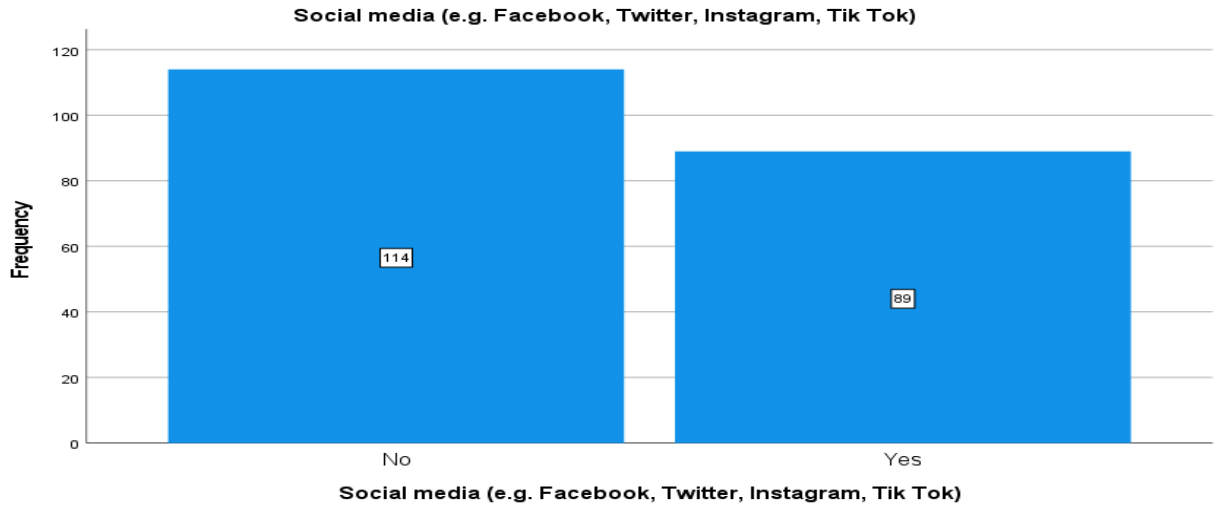
School
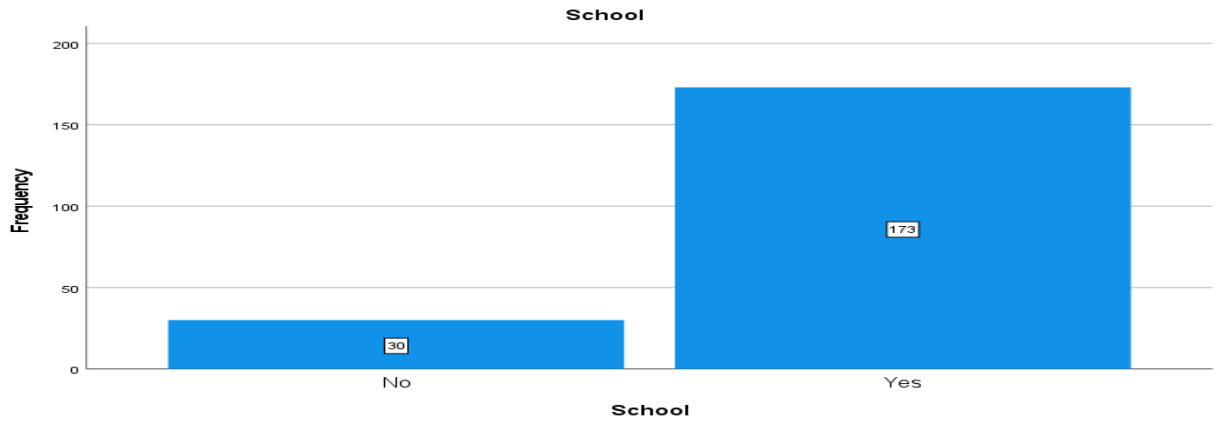
2. **Health Institutions (58.6%)**
   o Just over half of students (119 out of 203) identified health institutions as a source of information. This indicates reasonable engagement with official health sources, though there's significant room for improvement.
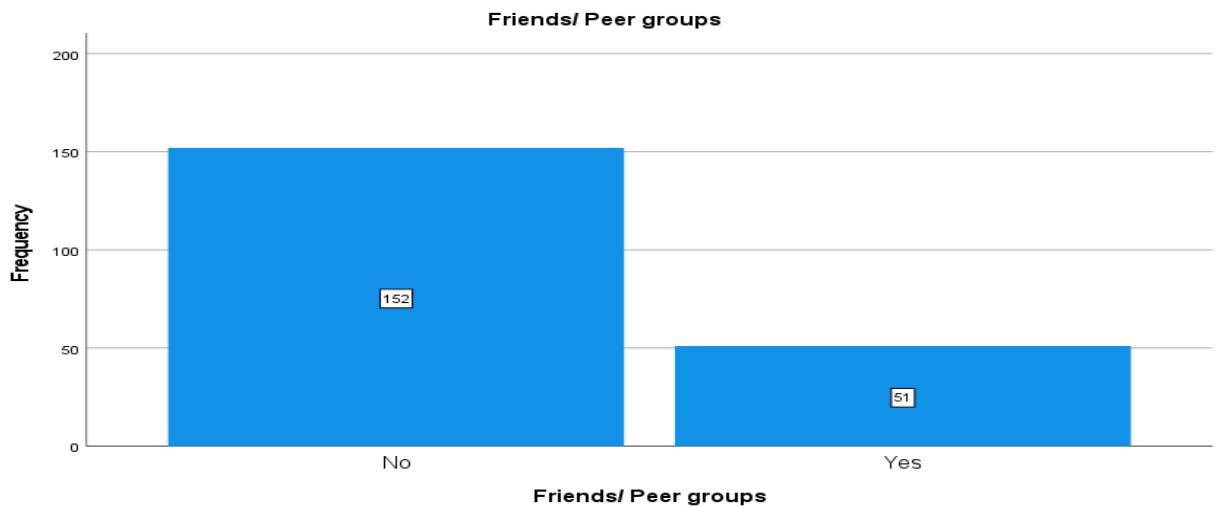

Health Institutions
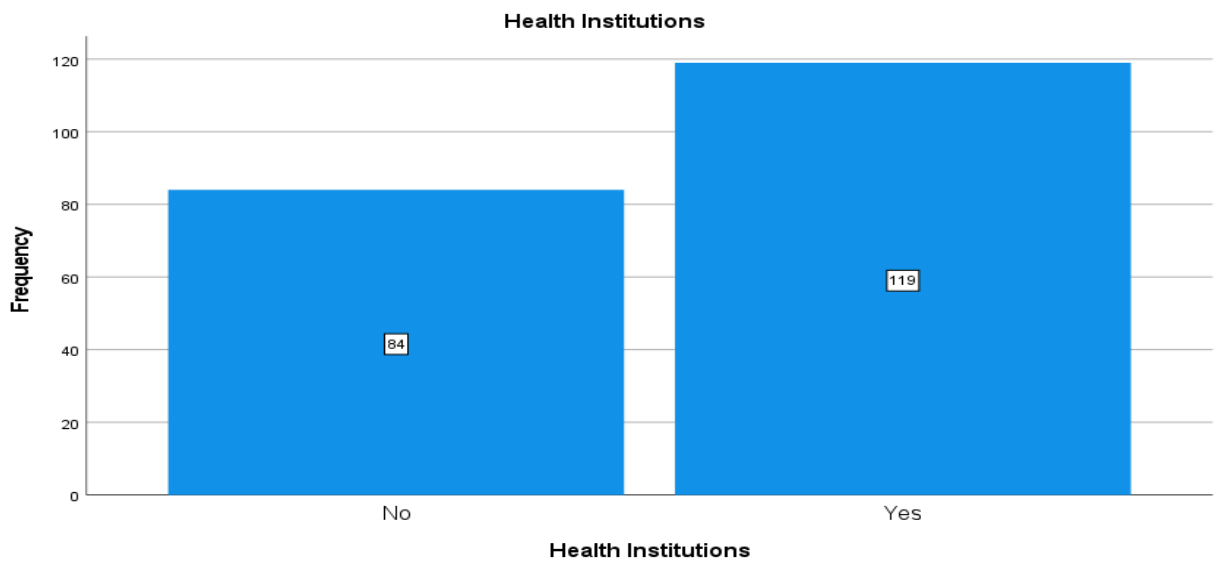
3. **Social Media (43.8%)**
   o Nearly half of the students (89 out of 203) reported getting HIV/AIDS information from social media platforms. This represents a substantial information channel that may contain both reliable and unreliable information.

Social media (e.g. Facebook, Twitter, Instagram, Tik Tok)

Social media (e.g. Facebook, Twitter, Instagram, Tik Tok)

4. **Friends/Peer Groups (25.1%)**
   - Only about a quarter of students (51 out of 203) cited peer groups as information sources. This relatively low percentage suggests peer education opportunities may be underutilized.

Friends/ Peer groups

Friends/ Peer groups

5. **Family (23.2%)**
   - Family ranks as the least common source of HIV/AIDS information (47 out of 203). This indicates potential discomfort or cultural barriers to family-based discussions about HIV/AIDS.
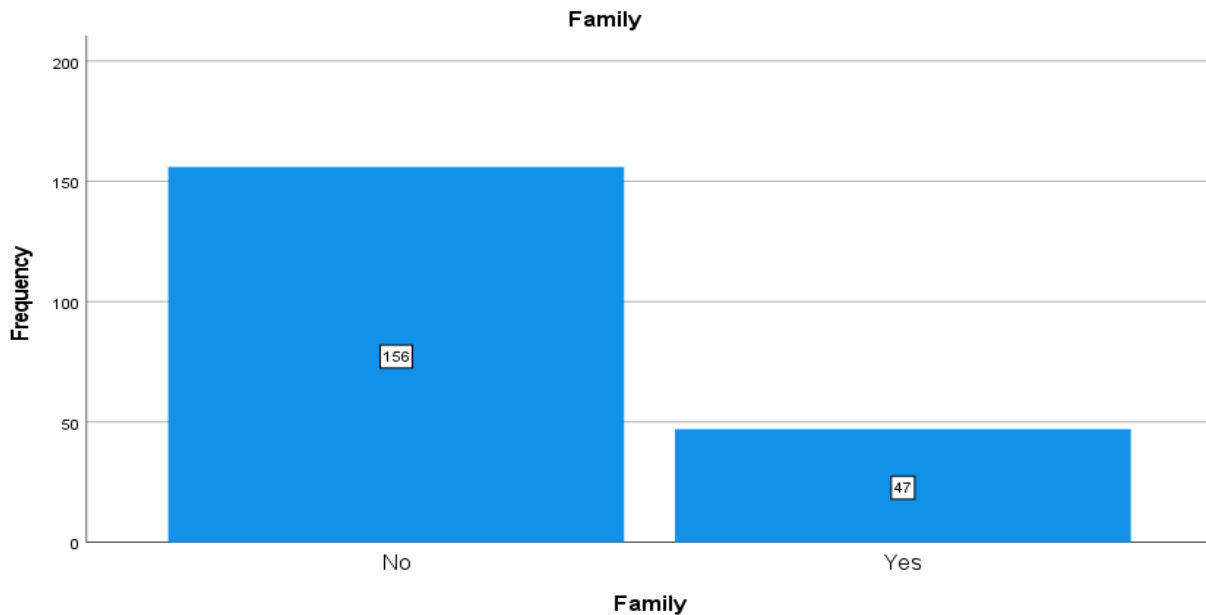
Family

Key Implications

1. **Educational Institution Dominance**: The high percentage of school-based learning underscores the importance of ensuring accurate and comprehensive HIV/AIDS education in university curricula.
2. **Limited Family Communication**: The low percentage of family as an information source suggests potential taboos or discomfort in discussing HIV/AIDS within family settings.
3. **Social Media Influence**: With nearly half of students receiving information through social media, there's a need to ensure quality content on these platforms, as misinformation can easily spread.
4. **Underutilization of Health Institutions**: Despite being authoritative sources, only 58.6% of students get information from health institutions, suggesting accessibility or engagement barriers.
5. **Peer Education Potential**: The relatively low influence of peer groups (25.1%) suggests an opportunity for developing more peer-based education programs.

Recommendations Based on These Results

1. **Strengthen School Curricula**: Since schools are the primary information source, ensure university HIV/AIDS education programs are comprehensive, accurate, and engaging.
2. **Health Institution Outreach**: Develop strategies to increase student engagement with health institutions through campus health centers, outreach programs, or digital platforms.
3. **Social Media Campaigns**: Create accurate, engaging HIV/AIDS content for social media platforms that students frequently use, potentially partnering with influencers.
4. **Peer Education Programs**: Establish formal peer education initiatives to leverage and enhance the currently limited peer-to-peer information sharing.

5. **Family Communication Support**: Develop resources that help students and families discuss HIV/AIDS more comfortably, potentially through university-sponsored programs.

Challenges to HIV/AIDS Information Access Results

These results provide crucial insights into the challenges university students face in accessing accurate HIV/AIDS information, directly addressing your third research objective about factors contributing to inaccurate knowledge.

Barriers to Accessing Accurate Information

1. **Lack of Reliable Sources (57.6%)**
   o Over half of students (117 out of 203) identified a lack of reliable information sources as a barrier. This is the most commonly reported challenge, highlighting significant concerns about information quality and trustworthiness.
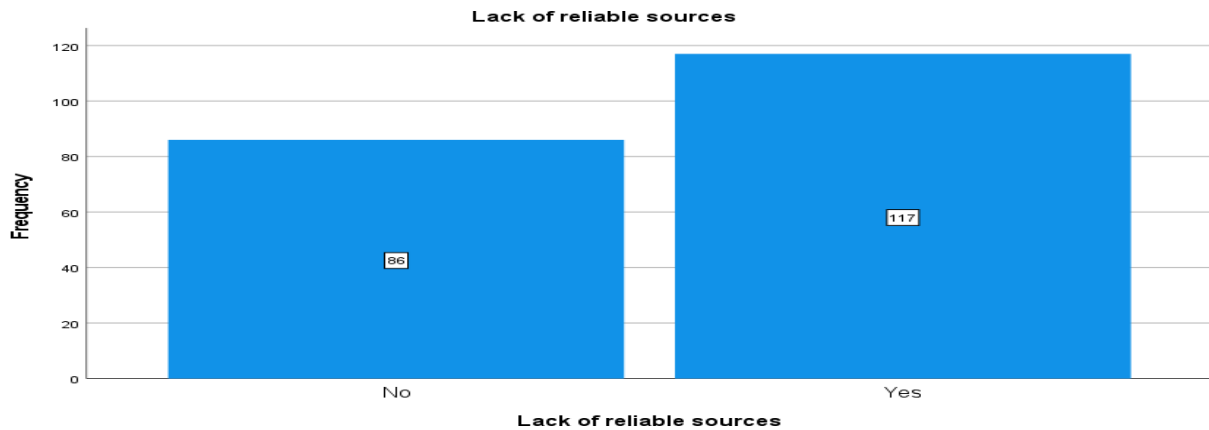
2. **Limited Access to Healthcare Services (42.4%)**
   o A substantial proportion of students (86 out of 203) reported limited healthcare access as a barrier. This indicates structural and systemic challenges that prevent students from obtaining clinical information and services.
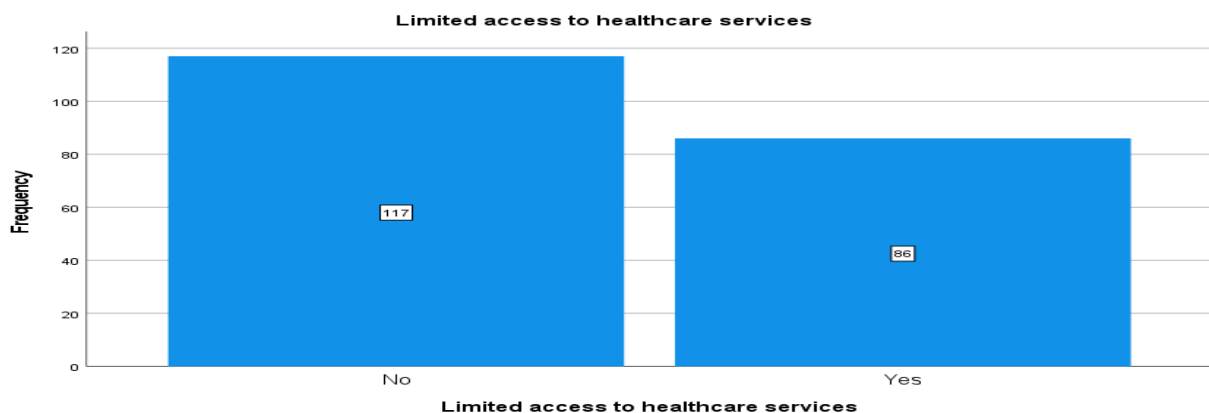
3. **Stigma and Discrimination (33.0%)**
   o One-third of students (67 out of 203) cited stigma and discrimination as obstacles to accurate information. This suggests societal attitudes continue to impede open discussion and information-seeking about HIV/AIDS.
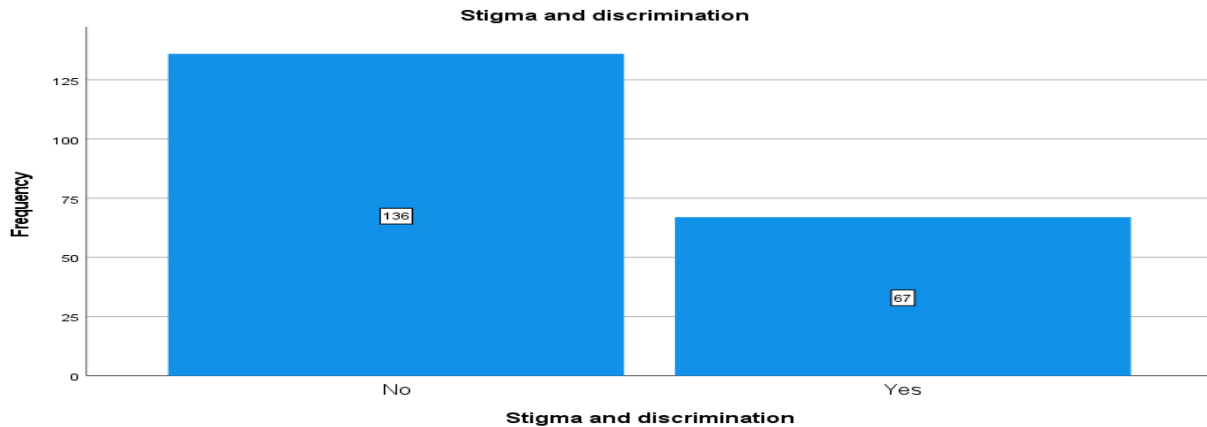
Stigma and discrimination

4. **Language Barriers (24.6%)**
   o About a quarter of students (50 out of 203) reported language barriers as an issue. This highlights the need for culturally and linguistically appropriate information materials.

Language barriers
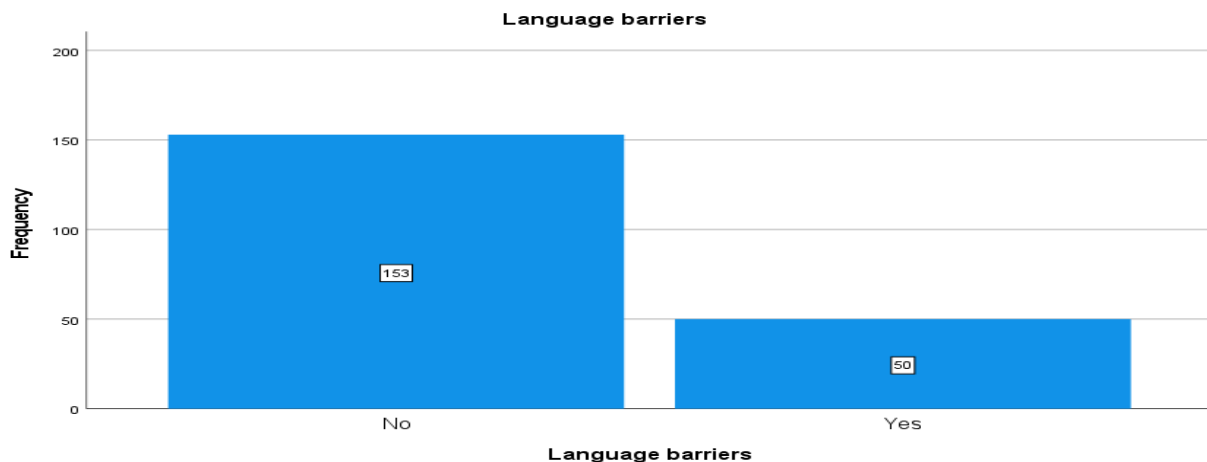
Key Implications

- **Information Quality Crisis**: The predominance of "lack of reliable sources" as a barrier suggests students are aware of potential misinformation but struggle to identify trustworthy sources.
- **Healthcare Access Challenges**: The significant percentage reporting healthcare access limitations points to structural issues that may extend beyond information to affect testing and treatment services.

- **Persistent Stigma**: Despite decades of HIV/AIDS awareness efforts, stigma remains a substantial barrier for one-third of students, affecting information-seeking behaviors.
- **Linguistic Considerations**: The notable presence of language barriers indicates a need for information in languages and terminology that resonate with diverse student populations.

Recommendations Based on These Results

- **Information Literacy Programs**: Develop campus initiatives to help students identify reliable HIV/AIDS information sources and critically evaluate health claims.
- **Healthcare Access Improvement**: Work with university health services to increase availability and accessibility of HIV/AIDS information, testing, and counseling services.
- **Anti-Stigma Campaigns**: Create targeted campaigns to address persistent stigma, potentially involving student peer educators and campus influencers.
- **Multilingual Resources**: Ensure HIV/AIDS educational materials are available in multiple languages relevant to the student population, with attention to appropriate medical terminology.
- **Digital Resource Hub**: Establish a curated online repository of reliable HIV/AIDS information that addresses the most common student questions and misconceptions identified in your survey.

Exploring Factors Contributing to Knowledge Gaps

For Knowledge Score by Age Group:

Hypothesis Statement:

Null Hypothesis (H₀): There is no significant relationship between age group and HIV/AIDS knowledge scores among Nigerian university students.

Alternative Hypothesis (H₁): There is a significant relationship between age group and HIV/AIDS knowledge scores among Nigerian university students.

Key Findings:

1. **Distribution Across Age Groups**:
   - Adults (110 participants) form the largest age group in your sample
   - Young Adults (39 participants) and Late Adolescents (40 participants) are roughly equal in number
   - Early Adolescents (14 participants) represent the smallest group
2. **Knowledge Score Patterns**:
   - The modal (most common) scores for adults were 19-20, with 54 participants scoring in this range
   - Late Adolescents most commonly scored 18-19 (18 participants)
   - Young Adults most commonly scored 18 (13 participants)
   - Early Adolescents showed more evenly distributed scores

3. **Statistical Significance**:
   - Chi-square test result: $\chi^2(27) = 23.395$, p = .664
   - The p-value (.664) is substantially greater than .05, indicating **no statistically significant relationship** between age group and HIV/AIDS knowledge scores
   - This means knowledge levels are relatively consistent across all age groups

For Knowledge Score by Gender:

Hypothesis Statement:

Null Hypothesis (H₀): There is no significant relationship between gender and HIV/AIDS knowledge scores among Nigerian university students.

Alternative Hypothesis (H₁): There is a significant relationship between gender and HIV/AIDS knowledge scores among Nigerian university students.

Key Findings:

1. **Gender Distribution**:
   - Females (129 participants) represent approximately 63.5% of your sample
   - Males (73 participants) represent approximately 36% of your sample
   - Only 1 participant preferred not to specify gender
2. **Knowledge Score Patterns**:
   - For females, the most common scores were 18-19 (55 participants)
   - For males, the most common scores were also 18-19 (32 participants)
   - Higher scores (21) showed a slightly higher proportion in males (8 out of 73) compared to females (6 out of 129)
3. **Statistical Significance**:
   - Chi-square test result: $\chi^2(18) = 8.904$, p = .962
   - The very high p-value (.962) indicates **no statistically significant relationship** between gender and HIV/AIDS knowledge scores
   - This suggests that males and females demonstrate similar levels of HIV/AIDS knowledge

Knowledge Score by Rural/Urban Location

Hypothesis Statement:

Null Hypothesis (H₀): There is no significant relationship between rural/urban location and HIV/AIDS knowledge scores among Nigerian university students.

Alternative Hypothesis (H₁): There is a significant relationship between rural/urban location and HIV/AIDS knowledge scores among Nigerian university students.

Key Findings:

1. **Distribution Across Locations**:
   o Urban areas represent the largest proportion (152 participants, 74.9%)
   o Rural (26 participants, 12.8%) and Sub-Urban (25 participants, 12.3%) areas have similar representation
2. **Knowledge Score Patterns**:
   o Urban participants show the highest concentration of scores in the 18-20 range (98 out of 152 participants)
   o Rural and Sub-Urban participants show more evenly distributed scores
   o The highest scores (21-22) appear across all location types, with no clear pattern
3. **Statistical Significance**:
   o Chi-square test result: $\chi^2(18) = 17.147$, p = .513
   o The p-value (.513) is greater than .05, indicating we fail to reject the null hypothesis
   o This means there is insufficient evidence to suggest that HIV/AIDS knowledge scores differ significantly based on rural/urban location

Chi-square analyses revealed no statistically significant associations between students' HIV/AIDS knowledge levels and their age group (p = .664), gender (p = .962), or area of residence (p = .513). These findings suggest that demographic factors did not significantly influence the HIV/AIDS knowledge scores among the study participants.

School as Information Source

Hypothesis Statement:

- **H_0:** There is no significant difference in HIV/AIDS knowledge scores between students who receive information from schools and those who don't.
- **H_1:** There is a significant difference in HIV/AIDS knowledge scores between students who receive information from schools and those who don't.

Key Findings:

An independent sample t-test was conducted to compare HIV/AIDS knowledge scores between students who reported receiving information from school and those who did not. The analysis revealed that students who did not receive information from school had a slightly higher mean knowledge score (M = 18.50, SD = 1.76) compared to those who did (M = 18.20, SD = 1.86). However, the difference in mean scores was minimal (0.30 points), and the standard deviations were comparable, suggesting similar levels of variability in both groups. The result of the t-test, $t(201) = 0.83$, p = 0.407, indicates that this difference was not statistically significant. This suggests that school-based information had little measurable impact on students' overall HIV/AIDS knowledge scores.

Family as Information Source

Hypothesis Statement:

- **H₀:** There is no significant difference in HIV/AIDS knowledge scores between students who receive information from family and those who don't.
- **H₁:** There is a significant difference in HIV/AIDS knowledge scores between students who receive information from family and those who don't.

Key Findings:

An independent sample t-test was conducted to examine whether receiving HIV/AIDS information from family members influenced students' knowledge scores. Results showed that students who cited family as a source of information had a slightly higher mean score (M = 18.55, SD = 2.02) compared to those who did not (M = 18.15, SD = 1.79). Although the observed mean difference was 0.40 points, this difference could be attributed to chance. Moreover, students who received information from family demonstrated slightly more variability in their scores. The difference in mean scores was not statistically significant, $t(201) = -1.32$, $p = 0.187$, indicating that while family discussions may have a modest positive association with HIV/AIDS knowledge, this association was not strong enough to reach statistical significance.

Friends/Peer Groups as Information Source

Hypothesis Statement:

- **H₀:** There is no significant difference in HIV/AIDS knowledge scores between students who receive information from peer groups and those who don't.
- **H₁:** There is a significant difference in HIV/AIDS knowledge scores between students who receive information from peer groups and those who don't.

Key Findings:

An independent sample t-test was conducted to assess whether receiving HIV/AIDS information from peers influenced students' knowledge scores. Students who reported peers or friend groups as a source of information had a slightly higher average score (M = 18.43, SD = 2.04) compared to those who did not (M = 18.18, SD = 1.78), representing a modest difference of 0.25 points. While this suggests a minor trend in favor of peer-based information, the observed difference was not statistically significant, $t(201) = -0.85$, $p = 0.397$. Additionally, students who cited peers showed slightly greater variability in scores. Overall, the findings indicate that while peer discussions may offer some exposure to HIV-related knowledge, their impact on improving knowledge levels is limited and not supported by statistically significant evidence.

Social Media as Information Source

Hypothesis Statement:

- **H₀:** There is no significant difference in HIV/AIDS knowledge scores between students who receive information from social media and those who don't.
- **H₁:** There is a significant difference in HIV/AIDS knowledge scores between students who receive information from social media and those who don't.

Key Findings:

An independent sample t-test was conducted to determine whether social media, as a source of HIV/AIDS information, had an impact on students' knowledge scores. Students who cited social media as an information source had a slightly higher mean score (M = 18.46, SD = 1.87) compared to those who did not (M = 18.07, SD = 1.82). The mean difference of 0.39 points is modest, and the standard deviations suggest comparable variability in both groups. While the direction of the difference implies that social media may offer some beneficial information on HIV/AIDS, the difference was not statistically significant, $t(201) = -1.50$, $p = 0.135$. This indicates that any observed advantage in knowledge scores among students exposed to social media could be due to chance rather than a true effect.

Health Institutions as Information Source

Hypothesis Statement:

- **H₀:** There is no significant difference in HIV/AIDS knowledge scores between students who receive information from health institutions and those who don't.
- **H₁:** There is a significant difference in HIV/AIDS knowledge scores between students who receive information from health institutions and those who don't.

Key Findings:

An independent sample t-test was conducted to examine the impact of health institutions as a source of HIV/AIDS information on students' knowledge scores. The findings revealed that students who received information from health institutions scored notably higher (M = 18.61, SD = 1.78) compared to those who did not (M = 17.73, SD = 1.83). The mean difference of 0.88 points was the most substantial among all information sources examined. Standard deviations were comparable, indicating similar variability in scores across both groups. This difference was statistically significant, $t(201) = -3.43$, $p = 0.001$, suggesting that health institutions play a significantly positive role in enhancing students' HIV/AIDS knowledge. These results highlight the effectiveness of health institutions in disseminating accurate and impactful information.

Significant Correlations with Knowledge Score and some Variables.

Variable	Pearson's r	Sig. (2-tailed)	Interpretation
Health Institutions	.235	.001	Significant positive correlation: Getting info from health institutions is associated with higher knowledge.
None of the other variables show significant correlation with knowledge score (p > 0.05), though some are borderline or interesting to discuss descriptively.			

Non-Significant Correlations (p > .05)

Variable	Pearson's r	p-value	Interpretation
Comfort discussing HIV/AIDS	-.058	.409	Not significant
Agreement with accurate info statement	.062	.380	Not significant
Social media	.105	.135	Not significant
Stigma & discrimination	-.018	.798	Not significant
Lack of reliable sources	.064	.367	Not significant
School	-.058	.407	Not significant
Family	.093	.187	Not significant

Interpretation

A Pearson correlation analysis was conducted to examine the relationship between participants' HIV/AIDS knowledge scores and potential contributing factors. There was a **significant positive correlation between knowledge scores and receiving information from health institutions** (r = .235, p = .001), indicating that individuals who reported health institutions as a source of information tended to have higher knowledge scores. Other variables, such as social media, school, family, or comfort discussing HIV/AIDS, were not significantly associated with knowledge scores (p > .05).

Research Question 4: What strategies can be employed to enhance the accuracy of HIV/AIDS knowledge and awareness among students?

Based on our findings, the following strategies emerge as potentially effective for enhancing HIV/AIDS knowledge accuracy:

1. **Strengthen partnerships with health institutions**: Given the significant positive correlation between health institution information and higher knowledge scores, universities should develop stronger connections with healthcare providers for information dissemination.
2. **Improve school curricula**: Despite being the most common information source, school-based education did not correlate with higher knowledge scores, suggesting a need to revise educational content and delivery methods.
3. **Address specific knowledge gaps**: Educational interventions should target identified misconceptions, particularly regarding mother-to-child transmission, condom effectiveness, PrEP, and the incurability of HIV.
4. **Combat information barriers**: Initiatives should focus on providing reliable information sources, improving healthcare access, reducing stigma, and addressing language barriers.
5. **Utilize effective communication channels**: While health institutions proved most effective, strategic use of social media and family education could complement formal education efforts.

Discussion

The findings reveal a complex picture of HIV/AIDS knowledge among Nigerian university students. While students demonstrate strong awareness in some areas, particularly regarding sexual transmission and debunking common myths about casual contact, significant gaps exist in their understanding of prevention methods, treatment options, and other transmission routes.

The most striking finding is the disconnect between information sources and knowledge accuracy. Despite schools being the primary source of HIV/AIDS information for 85.2% of students, school-based education did not correlate with higher knowledge scores. In contrast, health institutions, which were accessed by only 58.6% of students, were significantly associated with higher knowledge levels. This suggests that the quality and accuracy of information, rather than merely its availability, is crucial for improving HIV/AIDS knowledge.

The absence of significant correlations between demographic factors and knowledge scores indicates that knowledge gaps cut across age groups, genders, and geographic locations. This suggests that broad-based educational interventions are needed rather than targeting specific demographic segments.

The persistence of stigmatizing beliefs, with 22.2% of students believing that "staying away from HIV-infected people" prevents transmission, highlights the ongoing challenge of addressing social attitudes alongside factual knowledge. Additionally, the complete absence (0%) of students connecting HIV testing to stigma reduction reveals a critical disconnect in understanding how testing contributes to normalization and destigmatization.

Recommendations

Based on our findings, we recommend the following strategies to improve HIV/AIDS knowledge accuracy among Nigerian university students:

1. **Enhance Health Institution Partnerships**
   - Establish regular on-campus health clinics and information sessions led by healthcare professionals
   - Develop formal partnerships between universities and local health institutions for ongoing education
   - Create internship or volunteer opportunities for students at health institutions to become peer educators
2. **Revise Educational Curricula**
   - Update HIV/AIDS content in university curricula to address identified knowledge gaps
   - Incorporate evidence-based teaching methods that move beyond factual presentation to engagement with material
   - Implement regular assessment of students' HIV/AIDS knowledge to evaluate educational effectiveness
3. **Target Specific Knowledge Gaps**

- o Develop focused educational modules on:
  - Mother-to-child transmission and its prevention
  - Effectiveness of prevention methods, particularly condoms and PrEP
  - Current HIV treatment options and outcomes
  - The importance of testing for personal knowledge and public health
4. **Address Information Barriers**
   - o Create and distribute curated lists of reliable HIV/AIDS information sources
   - o Develop multilingual educational materials
   - o Implement anti-stigma campaigns on campuses
   - o Improve accessibility of healthcare services for students
5. **Leverage Multiple Communication Channels**
   - o Develop accurate, engaging social media content on HIV/AIDS
   - o Create resources to facilitate family discussions about HIV/AIDS
   - o Establish peer education programs to enhance student-to-student information sharing

Limitations

This study has several limitations that should be considered when interpreting the results:

1. The sample was predominantly from urban areas (74.9%), potentially limiting insights into rural students' knowledge and challenges
2. There was uneven representation across Nigerian states, with Kano State accounting for 36.5% of participants
3. The study relied on self-reported data, which may be subject to social desirability bias
4. The cross-sectional design prevents determination of causal relationships between factors and knowledge levels

Conclusion

This study provides valuable insights into the current state of HIV/AIDS knowledge among Nigerian university students and factors contributing to knowledge gaps. The findings highlight the critical role of health institutions in providing accurate information and the need to enhance the effectiveness of school-based education. By implementing targeted educational interventions, strengthening partnerships with health institutions, and addressing persistent barriers to accurate information, significant improvements in HIV/AIDS knowledge accuracy can be achieved among Nigerian university students.