Original

HIV Testing Uptake, Risk Perception and HIV Stigmatization among Youths in a Rural Community in Rivers State, Nigeria

[1,2]Adeniji FO, [1]Ogbonna VI

[1]Department of Community Medicine, University of Port Harcourt Teaching Hospital, Port Harcourt, Nigeria
[2]Department of Preventive and Social Medicine, Faculty of Clinical Sciences, College of Health Sciences, University of Port Harcourt, Nigeria.

Corresponding author: Foluke Olukemi Adeniji, *Department of Preventive and Social Medicine, Faculty of Clinical Sciences, College of Health Sciences, University of Port Harcourt, Nigeria; foluke1@hotmail.com; +23480331328943*

Article history: Received 11 February 2024, Reviewed 8 March 2024, Accepted for publication 12 March 2024

How to cite this article:
Adeniji FO, Ogbonna VI **HIV** Testing Uptake, Risk Perception and HIV Stigmatization among Youths in a Rural Community in Rivers State, Nigeria**.** The Nigerian Health Journal 2024; 24(1):1118 - 1126. Doi: https://www.doi.org/10.60787/tnhj-24-1-782

Abstract

Background: The HIV/AIDS epidemic continues to pose a significant public health challenge worldwide, with vulnerabilities observed among youth populations. This study determined the prevalence of HIV testing uptake, knowledge of status, and perception of HIV Stigma among youths in Rivers State.

Method: A cross-sectional study was conducted to survey 284 youths in a rural community of Rivers State applying a multistage sampling technique. Data was analysed using SPSS version 27.

Result: Among respondents (15 to 24 years) prevalence of HIV testing and knowledge of HIV status were the same in 175 (61.6%) of the respondents. About 125 (44.3 %) of the respondents perceived themselves to be at risk of contracting HIV, and only 110 (39.0%) said they perceived they were at higher risk. Stigmatization attitudes towards people living with HIV/AIDS were high at 267 (94.0%). Age, denomination, level of education, marital status, and being in school influenced HIV testing uptake among youths. Specifically. The age category 20 -24 years had a higher proportion of HIV testing uptake among youths 104 (75.9%) compared to those 15-19 years 71 (48.3%) ($\chi 2 = 22.86$; $p < 0.001$). only level of education was significantly associated with stigmatization.

Conclusion: The HIV testing uptake and knowledge of HIV status were about average. Risk perception was inconsistent and suggests that a portion of the youths may underestimate their vulnerability to HIV. This underscores the need for tailored interventions that not only promote regular HIV testing but also address discrepancies in risk perception and emphasize stigma reduction.

Keywords: HIV testing, HIV stigmatization, youths, risk perception, Nigeria.

Introduction

The HIV/AIDS epidemic remains a significant global public health challenge,[1] with young populations often disproportionately affected. Nigeria has one of the highest HIV burdens in sub-Saharan Africa. [2]

According to a report by the Joint United Nations Programme on HIV/AIDS (UNAIDS), Nigeria has the fourth-highest HIV burden in the world, with an estimated 1.8 million people living with HIV in 2019. [2]

Print ISSN: 0189-9287 Online ISSN: 2992-345X

The Nigeria HIV/AIDS Indicator and Impact Survey (NAIIS) conducted in 2018 estimated the national HIV prevalence in Nigeria to be 1.3% among adults aged 15–49 years [2] The prevalence of HIV among young people in Nigeria is a growing concern. In 2018, 40% of HIV infections in Nigeria occurred among young people aged 15-24. [3] A study on HIV/AIDS in adolescents and young people in Nigeria found that the prevalence of HIV among young people aged 15-24 in Nigeria was 4.2%. [3] The National HIV/AIDS Indicator Impact Survey (NAIIS) released in March 2019 pegged the HIV prevalence rate in Rivers State at 3.8%, above the national prevalence of 1.4%. [4] In Rivers State, the prevalence of HIV among young people is a growing concern.[5] It was reported to have the sixth highest HIV prevalence among the states of Nigeria. [6]

Despite the high prevalence of HIV infection reported among young adults, uptake of HIV testing remains suboptimal in sub–Saharan Africa. [7] The pooled prevalence of HIV testing among young women in Eastern Africa 15 to 24 years was reported to be 55.3% [8] Sociodemographic factors such as age, gender, and comprehensive knowledge of HIV have been reported to be significantly associated with HIV testing. [7,9]

Stigmatization of individuals living with HIV is a complex issue that involves societal attitudes, misinformation, and fear. In the context of a rural community in Rivers State, Nigeria, addressing HIV stigmatization among youths requires a multi-faceted approach involving education, community engagement, and healthcare initiatives. Some factors driving stigmatization include lack of awareness and education, fear of disclosure, cultural and religious beliefs, and so on.

In Rivers State, Nigeria, a region marked by its diverse socio-cultural landscape, the dynamics of HIV knowledge, sexual behaviour, and stigma perception among youths remain poorly understood. Rivers State, situated in the heart of the Niger Delta region, boasts a vibrant and diverse population, making it a microcosm of Nigeria's demographic tapestry. Despite commendable efforts in HIV awareness and prevention, challenges persist, particularly among the youth population. This study aims to shed light on the existing gaps in knowledge of HIV status, the prevalence of HIV testing, and the evolving stigmatization perception landscape, thus paving the way for informed and targeted public health initiatives.

The gravity of the HIV/AIDS pandemic demands an evolving and adaptive approach, particularly among vulnerable populations. Through this research endeavour, we strive to offer a nuanced perspective on the challenges faced by youths in, ultimately working towards empowering them with the knowledge and resources necessary to make informed decisions, foster safer sexual practices, and enhance overall public health outcomes in the region.

This study aims to report the prevalence of HIV testing, Knowledge of HIV status, risk perception and stigmatization among youths in a rural community in Rivers State, Nigeria

To determine the relationship between HIV testing and socio-demographic variables; stigmatization and socio-demographic variables (age (younger and older youths, sex(male/female), and educational level (No tertiary/ tertiary education)

Method

A descriptive cross-sectional study was done among youths in a rural local government in Rivers State. A multistage sampling technique was used in the selection of the youths. Gokana Local Government Areas (LGAs) were randomly selected. A ward was randomly selected from the LGA and using the list of communities one was randomly selected. Cluster sampling was carried out in the community, The starting household was determined randomly by balloting. while the next nearest households to the right were pre-selected until the sample size was reached.

The sample size for the study was determined using the formula for descriptive studies. [10]
Adjustments for the clustering effect and a 10% non-response were made to get a sample of approximately 284.

Study Population

Respondents in this study were aged between 15 to 24 years, to participate in the study they had to have been residents for more than 6 months, those who were too ill or unwilling to participate were excluded. Data was collected for 2 weeks by four field assistants who were youths of both sexes in the community.

Study Instruments

Print ISSN: 0189-9287 Online ISSN: 2992-345X

The questionnaire for this study was adapted from the Nigerian Demographic Health Survey (NDHS) and the Global AIDS Response Report. [11]

The questionnaire was made up of 3 sections namely A: socio-demographic variables such as sex, and age, B: HIV testing, and disclosure history. C: stigmatization and attitude towards people with HIV/AIDS

To assess HIV stigmatization respondents were asked to respond to the following: 'People who have AIDS are cursed', 'I do not want to be friends with someone who has AIDS', 'A person with AIDS must have done something wrong and deserves to be punished', 'People with AIDS must expect some restrictions on their freedom', 'people who have HIV should be isolated.' 'It is safe for people who have AIDS to work with children and People who have AIDS should be ashamed'. Respondents whose replies showed no stigma to each of the questions were scored 1 and a total of 7 were deemed as having no stigma.

The questionnaire was pre-tested among youths in a similar community. Data was collected by research assistance over a 2-week duration, it was checked for completeness on the field, thereafter it was entered, collated, and cleaned using Excel and exported to IBM SPSS version 27 and EPI INFO version 7.0 for analysis. The variables were presented in tabular forms; A Chi-square test was used to compare differences in proportion and alpha was set at $P < 0.05$.

Ethical Consideration

The Ethics Committee of a tertiary institution in the state, approved the study. Relevant stakeholders gave permission, while respondents gave informed consent and assent as appropriate before the study.

Results

Table 1: Socio-demographic characteristics of youth respondents in Rivers State

Characteristics	Frequency No. n=284	Percent (%)
Age group		
15-19	147	51.8
20-24	137	48.2
Sex		
Male	131	46.1
Female	153	53.9
Religion		
Christian	280	98.6
Muslim	3	1.1
Traditionalist	1	0.4
Denomination (n=280)		
Catholic	109	38.9
Pentecostal	135	48.2
Protestant	20	7.1
Others	16	5.7
Marital status		
Single	235	82.7
Married	27	9.6
Living with Partner	22	7.7
Education Completed		
No Formal	24	8.5
Primary	106	37.3
Secondary	152	53.5
Tertiary	2	0.7
Still in School		
Yes	151	53.2
No	133	46.8
Occupation		
Student	158	53.5
Others	126	44.3

Table 1 shows that out of the 284 youth respondents (15 to 24 years) surveyed, 147 (51.8%) were within the age group 15 to 19 years, 153 (53.9%) were females, and 27 (9.6%) were married while 22 (7.7%) were cohabiting. About 151 (53.2%) were in school and 133 (46.8%) were not. Those with no formal education were 24 (8.5%) while only 2 (0.7%) had completed tertiary education.

Table 2: Prevalence of HIV testing, knowledge of HIV Status, risk perception among Youths Respondents

Characteristics	Frequency No. n=284	Percent (%)
Ever tested for HIV (Plus Know HIV Status)		
Yes	175	61.6
No	109	38.4
Total	284	100
HIV Risk Perception		
Yes	125	44.3
No	157	55.7
Total	282	100
Rate Your Risk		
High	110	39
Low	172	61
Total	282	100

Print ISSN: 0189-9287 Online ISSN: 2992-345X

As shown in Table 2, more than half of the respondents have ever tested for HIV and know their status175 (61.6%). Among respondents, 125 (44.3 %) perceived themselves to be at risk of contracting HIV. When they were asked to rate their risk only 110 (39.0%) said they perceived they were at higher risk.

Table 3: Stigmatization attitude towards people living with HIV/AIDS among respondents

Variable	Male	Female	Total
People who have AIDS are cursed (n=284)			
Yes	27 (9.5)	26 (9.2)	53(18.7)
No	104 (36.6)	127 (44.7)	231(81.3)
People who have AIDS should be ashamed (n=284)			
Yes	19 (6.7)	25 (8.8)	44 (15.5)
No	112 (39.4)	128 (45.1)	240 (84.5)
It is safe for people who have AIDS to work with children.(n=282)			
Yes	32 (11.3)	34 (12.1)	66 (23.4)
No	99 (35.1)	117 (41.5)	216 (76.6)
People with AIDS must expect some restrictions on their freedom. (n=284)			
Yes	59(20.8)	67(23.5)	126(44.3)
No	72(25.4)	86 (30.3)	158 (55.7)
A person with AIDS must have done something wrong and deserves to be punished.(n=284)			
Yes	21 (7.4)	23 (8.1)	44(15.5)
No	110 (38.7)	130 (45.8)	240 (84.5)
People who have HIV should be isolated. (N=282)			
Yes	40 (14.2)	56 (19.9)	96 (34.0)
No	91 (32.3)	95 (33.7)	186 (66.0)
I do not want to be friends with someone who has AIDS (n=263)			
Yes	41 (15.6)	55 20.9)	96 (36.5)
No	79 (30.0)	88 (33.5)	167 (63.5)
HIV Stigmatization n=284			
Yes	123 (43.3)	144 (50.7)	267 (94.0)
No	8 (2.8)	9 (3.1)	17 (6.0)

As shown in Table 3, stigmatization attitude towards people living with HIV/AIDS was high 267 (94.0%). A large proportion of respondents did not feel it was safe for people who have AIDS to work with children 216 (76.6%) and more than a third 126 (44.3 %) felt they expect some restrictions on their freedom.

Table 4: Socio-demographic factors influencing HIV testing uptake among youth respondents

Socio-demographic Variables	HIV Testing Uptake n=284 (Freq %)		Total	Chi-square (P-value)
	Yes n=175	No n=109		
Age (in years)				**22.86 (0.001) ***
15-19	71 (48.3)	76 (51.7)	147 (100.0)	
20-24	104 (75.9)	33 (24.1)	137 (100.0)	
Sex				1.952 (0.161)
Male	75 (57.3)	56 (42.7)	131 (100.0)	
Female	100 (65.4)	53 (34.6)	153 (100.0)	

Print ISSN: 0189-9287 Online ISSN: 2992-345X

Socio-demographic Variables	HIV Testing Uptake n=284 (Freq %)		Total	Chi-square (P-value)
	Yes n=175	No n=109		
Denomination (n=280)				**12.19 (0.007) ***
Catholic	62 (56.9)	47 (43.1)	109 (100.0)	
Pentecostal	88 (65.2)	47 (34.8)	135 (100.0)	
Protestant	7 (35.0)	13 (65.0)	20 (100.0)	
Others	14 (87.5)	2 (12.5)	16 (100.0)	
Education Completed				44.57 (**0.001) ***
No Formal	18 (75.0)	6 (25.0)	24 (100.0)	
Primary	39 (36.8)	67 (63.2)	106 (100.0)	
Secondary	116 (76.3)	36 (23.7)	152 (100.0)	
Tertiary	2 (100.0)	0 (0.0)	2 (100.0)	
Marital Status				**9.382 (0.009) ***
Single	138 (58.7)	97(41.3)	235 (100.0)	
Married	24 (88.9)	3 (11.1)	27 (100.0)	
Living with Partner	13 (59.1)	9 (40.9)	22 (100.0)	
Still in School				**15.39 (0.001) ***
Yes	77 (51.0)	74 (49.0)	151 (100.0)	
No	98 (73.7)	35 (26.3)	133 (100.0)	

*Statistically significant (p≤0.05)

As shown, in Table 4, age, denomination, level of education, marital status, and being in school influenced HIV testing uptake among youths. Specifically. The age category 20 -24 years had a higher proportion of HIV testing uptake among youths 104 (75.9%) compared to those 15-19 years 71 (48.3%) ($\chi2 = 22.86$; $p < 0.001$). It further shows a higher proportion of HIV testing uptake among the married 24 (88.9%), ($\chi2 = 9.382$; $p < 0.009$). Similarly, those with a tertiary level of education had a higher proportion of HIV testing uptake.

Table 5: Socio-demographic factors associated with stigmatization of people living with HIV/AIDS

Socio-demographic Variables	Stigmatization (Freq %)		Total	Chi-square (P-value)
	Yes n=267	No n=17		
Age (in years)				0.160 (0.804)
15-19	139 (94.6)	8 (5.4)	147 (100.0)	
20-24	128 (93.4)	9 (6.6)	137 (100.0)	
Sex				0.006 (0.937)
Male	123 (93.9)	8 (6.1)	131 (100.0)	
Female	144 (94.1)	9 (5.9)	153 (100.0)	
Religion				0.258 (0.879)
Christian	263 (93.9)	17 (6.1)	280 (100.0)	
Moslem	3 (100.0)	0 (0.0)	3 (100.0)	
Traditionalist	1 (100.0)	0 (0.0)	1 (100.0)	
Education Completed				8.370 (**0.039) ***
No Formal	23 (95.8)	1 (4.2)	24 (100.0)	
Primary	102 (96.2)	4 (3.8)	106 (100.0)	
Secondary	141 (92.8)	11 (7.2)	152 (100.0)	
Tertiary	1 (50.0)	1 (50.0)	2 (100.0)	
Marital Status				2.708 (0.258)
Single	223 (94.9)	12(5.1)	235 (100.0)	
Married	25 (92.6)	2 (7.4)	27 (100.0)	
Living with Partner	19 (86.4)	3 (13.6)	22 (100.0)	

Print ISSN: 0189-9287 Online ISSN: 2992-345X

Still in School				0.967 (0.453)
Yes	140 (92.7)	11 (7.3)	151 (100.0)	
No	127 (95.5)	6 (4.5)	133 (100.0)	

*Statistically significant (p≤0.05)

The relationship between stigma and social demographic factors is shown in Table 5 reveals that only the level of education was significantly associated with stigmatization with p≤0.05.

Discussion

The findings from the survey of 284 youth respondents (15 to 24 years) present a comprehensive overview of the demographic characteristics and educational statuses of the participants. The results reveal noteworthy insights into the distribution of age, gender, marital status, and educational attainment among the surveyed youth.

More than half of the respondents fell within the age group of 15 to 19 years, indicating a significant focus on adolescents in the survey. This concentration may be reflective of specific concerns or issues pertinent to this age range, warranting targeted interventions or policies. Gender distribution among the respondents was relatively balanced, with slightly more than half being females. This balance ensures a diverse perspective in understanding the needs and challenges faced by both male and female youth populations, which is crucial for developing inclusive and gender-sensitive programs.

A notable proportion, one in ten of the surveyed youth were found to be married while a slightly smaller proportion were cohabiting. These findings emphasize the importance of considering the marital status of youth when designing programs or policies, as it may influence their access to resources, health services, and educational opportunities.

The educational background of the respondents revealed a mixed profile. A significant portion of the youths were still in school, highlighting the importance of addressing the unique needs of students. On the other hand, a proportion of slightly less than half were not in school, raising concerns about potential barriers to education or the need for alternative educational pathways.

Further analysis of the educational status revealed that a small percentage of youth had no formal education. This subgroup may face distinct challenges, requiring targeted interventions to promote basic literacy and numeracy skills. Conversely, only 0.7% had completed tertiary education, suggesting a need to explore factors contributing to limited access to higher education among the surveyed youth.

The findings regarding HIV testing prevalence and self-perceived risk among the 284 surveyed youth (15 to 24 years) provide valuable insights into the dynamics of HIV awareness and risk perception within this population subgroup. A notable observation is that the prevalence of HIV testing and knowledge of HIV status were the same in the respondents. The prevalence shown in this study is higher than reported in some previous studies.[12,13,14] This suggests a relatively high level of awareness and proactive engagement in seeking HIV testing among the surveyed youth. The consistency in testing and knowledge is encouraging, as it indicates a positive trend towards regular health check-ups and a responsible approach to personal health within this population. The finding from the index study was lower than that reported by Badru et al where a majority of the surveyed youths tested for HIV because they were tested during the survey.[15] this may serve as a way to reach young people and encourage them to know their HIV status and has implications for future policies for HIV testing.

The study revealed that a significant portion of the respondents, perceived themselves to be at risk of contracting HIV. This self-awareness is crucial for promoting proactive behaviour, such as seeking testing and adopting preventive measures.

According to a study on Knowledge, Attitude, and Risk Perception of HIV/AIDS among Youths in Calabar, Cross River State, Nigeria, the awareness of HIV/AIDS is high, but the risky sexual habits remain unimaginably high.[16] Understanding how youth perceive their own risk provides valuable information for tailoring educational campaigns and interventions to address specific concerns or misconceptions related to HIV transmission.

An intriguing finding emerges when comparing the self-perceived risk with the ratings provided by the respondents. When asked to rate their risk, the fraction that rated themselves as high risk was less than the overall proportion who rated themselves as being at risk,

Print ISSN: 0189-9287 Online ISSN: 2992-345X

others rated their risk as low. This inconsistency suggests that a portion of the youth may underestimate their vulnerability to HIV.[15] Further exploration into the factors influencing this discrepancy is essential for designing targeted interventions to bridge the gap between perception and actual risk. The observed difference in risk perception ratings may be influenced by various factors, including knowledge gaps, cultural beliefs, and stigma associated with HIV.[17] Understanding these factors can aid in developing communication strategies that effectively convey accurate risk information and challenge misconceptions. The implications for intervention underscore the need for tailored interventions that not only promote regular HIV testing but also address discrepancies in risk perception. Educational programs should focus on providing accurate information about HIV transmission risks, emphasizing the importance of self-awareness, and addressing any barriers that may hinder youth from accurately assessing their vulnerability.

The study reveals a significant association between age and HIV testing uptake among youths. Specifically, the age category of 20-24 years exhibited a higher proportion of HIV testing uptake compared to those aged 15-19 years. This discrepancy suggests that older youths may be more proactive in seeking HIV testing services, possibly due to increased awareness, sexual activity, or exposure to HIV prevention campaigns.[13] Targeted interventions aimed at promoting testing should consider tailoring strategies to address the unique needs and barriers faced by younger age groups.

The association between marital status and HIV testing uptake is noteworthy, with a higher proportion observed among married individuals. This finding may indicate that individuals who are married are more likely to prioritize health-seeking behaviours, possibly influenced by family planning considerations, antenatal care, or increased awareness of the importance of knowing one's HIV status within a marital context. In addition, most churches request HIV testing before the wedding ceremony in church and this may be a possible reason for this observed variation. Public health campaigns could leverage this insight to encourage testing as a routine part of family health practices.

The association between the level of education and HIV testing uptake aligns with previous research highlighting the role of education in health-seeking behaviours.[18] The findings suggest that individuals with tertiary education had a higher proportion of HIV testing uptake. This could be attributed to increased health literacy, access to information, and awareness of the importance of regular testing. Targeted educational campaigns may further enhance the awareness of HIV testing among individuals with lower educational attainment. This study also showed that denomination-influenced HIV testing uptake influence of religious beliefs on health behaviours are complex and often context-specific factor.

Implications for Public Health Interventions: The identified demographic factors influencing HIV testing uptake underscore the need for tailored and context-specific interventions. Public health campaigns should consider age-specific messaging, targeting younger age groups with messages that resonate with their experiences. Similarly, interventions should address the unique needs of individuals based on their marital status and educational background. Collaborative efforts between healthcare providers, educational institutions, and religious organizations may enhance the reach and effectiveness of HIV testing initiatives.

The prevalence of stigmatization attitudes reported in this study, with a large proportion of respondents expressing stigmatizing views towards individuals living with HIV/AIDS, highlights a pervasive social challenge. This finding is consistent with previous studies that have reported high levels of HIV stigma in Nigeria and other sub-Saharan African countries.[19–22] Stigma can have detrimental effects on the mental health, well-being, and quality of life of those affected by HIV/AIDS. It is essential to address the root causes of stigmatization and develop targeted interventions to promote understanding, empathy, and a supportive community for people living with HIV/AIDS.

Association with Level of Education: The significant association between the level of education and stigmatization attitudes emphasizes the role of education in shaping perceptions and attitudes toward individuals with HIV/AIDS. A possible reason for stigmatizing people with HIV is a lack of knowledge of its transmission. It suggests that higher levels of education may contribute to a more informed and open-minded perspective, leading to reduced stigmatization.[13,15] This association underscores the importance of educational initiatives in combating stigma and fostering inclusivity.

Implication of the findings of this study

There is a need for government and healthcare providers to implement comprehensive stigma reduction Programmes: Addressing stigmatization requires a

Print ISSN: 0189-9287 Online ISSN: 2992-345X

multifaceted approach that goes beyond education. Comprehensive stigma reduction programs should engage communities, healthcare providers, and policymakers to challenge and change societal norms that perpetuate discrimination. Creating safe spaces for open dialogue, sharing personal stories, and promoting positive portrayals of individuals living with HIV/AIDS can contribute to destigmatisation.
Educational campaigns could focus on dispelling myths, providing accurate information about HIV transmission, and promoting empathy and understanding. These efforts should be tailored to reach individuals across different educational backgrounds to ensure a broad impact.

Future Research Considerations
Further research could explore the specific beliefs, misconceptions, or fears that contribute to stigmatization attitudes. Understanding these underlying factors can inform the development of more targeted and effective interventions. Additionally, assessing changes in stigmatization attitudes over time and the impact of specific interventions can provide valuable insights into the effectiveness of anti-stigma initiatives.

Strengths and Limitations of the study
This study was able to establish factors associated with HIV testing and stigmatization however being a descriptive study was unable to establish causality.

Conclusion
More than half of the youths have ever tested for HIV and know their status, less than half perceived that they were at risk of HIV, however a large proportion had stigmatizing attitude towards those who were HIV positive. Being an older youth, a Pentecostal Christian, single and out -of -school was significantly associated with HIV testing while stigmatization was significantly associated with level of education among respondents. There is a need to encourage in-school and younger youths to take up HIV testing while educational interventions should be designed to promote awareness, empathy, and inclusivity, ultimately contributing to a more supportive and understanding community for individuals living with HIV.

Declarations

Ethical consideration: The Ethics Committee of a tertiary institution in the state, approved the study. Relevant stakeholders gave permission, while respondents gave informed consent and assent as appropriate before the study.

Authors' contribution: Conceptualization and design- Adeniji FO
Data Collection- Adeniji FO and Ogbonna VI
Data Analysis- Both authors
Write up- Both authors

Conflict of interest: There was no conflicts of interest.

Funding: Nil

Acknowledgement: The authors would like to acknowledge all the research assistants who took part in the study.

References
1. Afriyie J, Essilfie ME. Association between risky sexual behaviour and HIV risk perception among in-school adolescents in a municipality in Ghana. Ghana Med J. 2019;53(1):29–36.
2. UNAIDS. Country progress report-Nigeria. 2020: 1–46.
3. Awofala AA, Ogundele OE. HIV epidemiology in Nigeria. Saudi J Biol Sci. 2018;25(4):697–703.
4. Institute of Human Viriology N (IHVN). Rivers State Surge Project - IHV NIGERIA.org [Internet]. [cited 2024 Jan 25]. Available from: https://ihvnigeria.org/rivers-state-surge-project/
5. Frank-peterside N, Okonko IO, Agbagwa OE. Detection of HIV 1 and HIV 2 antibodies among street-involved youths in Oyigbo local government area of Rivers state, Nigeria. World Rural Observations. 2013;5(February):33–6.
6. Rivers State Ministry of Health. State-Wide Rapid Health Facility Assessment. Port Harcourt :2013.
7. Asaolu IO, Gunn JK, Center KE, Koss MP, Iwelunmor JI, Ehiri JE. Predictors of HIV testing among youth in sub-Saharan Africa: A cross-sectional study. PLoS One. 2016;11(10):1–12.
8. Worku MG, Teshale AB, Tesema GA. Prevalence and associated factors of HIV testing among young (15–24) women in eastern Africa: a multilevel analysis of demographic health survey data (2008-2018). Archives of Public Health [Internet]. 2022;80(1):1–8. Available from: https://doi.org/10.1186/s13690-022-00879-2
9. Nshimirimana C, Vuylsteke B, Smekens T, Benova L. HIV testing uptake and determinants among adolescents and young people in Burundi: A cross-

Print ISSN: 0189-9287 Online ISSN: 2992-345X

sectional analysis of the Demographic and Health Survey 2016-2017. BMJ Open. 2022;12(10):1–14.
10. Katz D, Elmore J, Wild D, Lucan S. Applying statistics to trial design: sample size, randomization, and control for multiple hypotheses. Jekel's Epidemiology, Biostatistics, Preventive Medicine and Public Health. 2014. 155–158 p.
11. National Population Commission Federal Republic of Nigeria, ICF International Rockville, Maryland U. Nigeria Demographic and Health Survey. 2013.
12. Idowu A, Id A, Emmanuel O, Id A, Adeagbo A, Ushie BA. Low coverage of HIV testing among adolescents and young adults in Nigeria: Implication for achieving the UNAIDS first 95. PLoS One. 2020;15(5):1–18.
13. Ajayi AI, Awopegba OE, Adeagbo OA, Ushie BA. Low coverage of HIV testing among adolescents and young adults in Nigeria: Implication for achieving the UNAIDS first 95. PLoS One. 2020 May 1;15(5).
14. Jung MS, Dlamini NS, Cui X, Cha K. Prevalence of HIV testing and associated factors among young adolescents in Eswatini: a secondary data analysis. BMC Pediatr. 2022 Dec 1;22(1).
15. Badru T, Mwaisaka J, Khamofu H, Agbakwuru C, Adedokun O, Pandey SR, et al. HIV comprehensive knowledge and prevalence among young adolescents in Nigeria: Evidence from Akwa Ibom AIDS indicator survey, 2017. BMC Public Health. 2020 Jan 13;20(1).
16. Osonwa OK, Ogbuagu UR, Iyam MA et al. Knowledge, Attitude and Risk Perception of Hiv/Aids among Youths in Calabar, Cross River State, Nigeria. IOSR Journal of Humanities and Social Science. 2013;7(1):1–8.
17. Musheke, M., Ntalasha, H., Gari, S. et al. A systematic review of qualitative findings on factors enabling and deterring uptake of HIV testing in Sub-Saharan Africa. BMC Public Health 13, 220 (2013). https://doi.org/10.1186/1471-2458-13-220.
18. Sonko I, Chung MH, Hou WH, Chen WT, Chang PC. Predictors of HIV testing among youth aged 15–24 years in The Gambia. PLoS One [Internet]. 2022;17(2 February):1–17. Available from: http://dx.doi.org/10.1371/journal.pone.0263720
19. Ways to Stop HIV Stigma and Discrimination | HIV Stigma | Let's Stop HIV Together | CDC [Internet]. [cited 2024 Feb 8]. Available from: https://www.cdc.gov/stophivtogether/hiv-stigma/ways-to-stop.html
20. Facts about HIV Stigma | HIV Basics | HIV/AIDS | CDC [Internet]. [cited 2024 Feb 8]. Available from: https://www.cdc.gov/hiv/basics/hiv-stigma/index.html
21. Oladunni AA, Sina-Odunsi AB, Nuga BB, Adebisi YA, Bolarinwa OA, Adeola AA, et al. Psychosocial factors of stigma and relationship to healthcare services among adolescents living with HIV/AIDS in Kano state, Nigeria. Heliyon. 2021 Apr 1;7(4).
22. Kimera E, Vindevogel S, Reynaert D, Justice KM, Rubaihayo J, De Maeyer J, Engelen AM, Musanje K, Bilsen J. Experiences and effects of HIV-related stigma among youth living with HIV/AIDS in Western Uganda: A photovoice study. PLoS One. 2020 Apr 24;15(4):e0232359. doi: 10.1371/journal.pone.0232359. PMID: 32330206; PMCID: PMC7182188.

Print ISSN: 0189-9287 Online ISSN: 2992-345X