Central African Journal of Public Health
2026, Vol. 12, No. 6, pp. 327–332
https://doi.org/10.11648/j.cajph.20261206.11

Research Article

A Cross-Sectional Study on the Prevalence of HIV and HBV Among Newly Admitted Students of a College of Health Technology, Osogbo, Osun State, Southwest, Nigeria

Ogunniyi Kayode Adebayo Babatunde[1], Akin Olufemi Oyebade[2, *], Baruwa Ololade Julius[3], Muritala Ridwan Ayobami[1]

[1]Department of Public Health, Mercy Medical University, Iwara, Nigeria

[2]Dapartment of Public Health, Ministry of Health, Osogbo, Nigeria

[3]Department of Nursing and Public Health, University of Fort Hare, East London, South Africa

Abstract

This study assessed the prevalence of Human Immunodeficiency Virus (HIV) and Hepatitis B Virus (HBV) among newly admitted students of Titilola College of Health Technology, Osogbo, Osun State, Southwest Nigeria. A cross-sectional study design was adopted, and a total of 414 students participated in the study. Data were collected using a structured questionnaire to collect socio-demographic characteristics and risk factors, while laboratory screening was conducted to determine HIV and HBV status of participants. The results showed that the majority of respondents were females (90.6%), and most were within the age bracket of 15-20 years (67.1%). The overall prevalence of HIV was 1.45%, while HBV prevalence was higher at 4.35%, Chi-square analysis revealed a statistically significant association between age group and HIV infection ($p < 0.05$), while no significant association was found between age group and HBV infection ($p > 0.05$). Additionally, there was no significant association between gender and both HIV and HBV infections. The findings indicate that although HIV prevalence is relatively low among newly admitted students of the college, HBV infection remains a significant public health concern. The higher prevalence of HBV suggests a need for increased awareness and improved vaccination coverage among students. The study recommends routine screening for HIV and HBV, implementation of vaccination programmes, and intensified health education to reduce transmission and promote early detection. Further studies are also recommended to explore additional risk factors associated with these infections.

Keywords

Prevalence, Human Immunodeficiency Virus, Hepatitis B Virus

1. Introduction

Nigeria as a nation seeks to eradicate public health threats such as Hepatitis B Virus (HBV) infection and HIV/AIDS. Considerable effort has been put into the control of HIV/AIDS by the National Agency for the Control of AIDS (NACA),

*Correspondence: Akin Olufemi Oyebade (akinoyebade@yahoo.com)

Received: 17 October 2026; **Accepted:** 31 October 2026; **Published:** 23 November 2026

Copyright: © The Author(s), 2026. Published by Science Publishing Group. This is an **Open Access** article, distributed under the terms of the Creative Commons Attribution 4.0 License (http://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

with a view to ending AIDS as a public health threat by the year 2030, as contained in the National HIV and AIDS Strategic Framework 2021 - 2025. [1] Nigeria also has the ambition of eliminating viral hepatitis, of which HBV is a major component, as a public health threat by 2030, in line with the World Health Organization (WHO) global hepatitis elimination strategy. [2] In Nigeria, the Federal Ministry of Health and Social Welfare launched Project 365 in 2025 as part of efforts to accelerate hepatitis elimination through expanded screening, diagnosis, vaccination and treatment [3].

For such goals to be achieved there is a need to monitor and estimate the level of HIV and HBV infection in different segments of the population, especially among adolescents and young adults, in order to strengthen the country's strategic frameworks and enhance the chances of reducing new HIV and HBV infections. [1, 2] In pursuance of this, it was considered necessary to investigate the prevalence of HIV and hepatitis B among newly admitted students in a College of Health Technology in Osogbo, Osun State, Southwestern Nigeria, during the 2024 - 2025 academic session.

The need to achieve the Sustainable Development Goals (SDGs), particularly SDG 3, which aims to ensure healthy lives and promote well-being for all at all ages, further emphasizes the importance of disease prevention and control. [4] Key areas under SDG 3 include combating communicable diseases, achieving universal health coverage, improving maternal and child health, strengthening health systems and promoting access to essential health services [4].

The global burden of hepatitis B remains substantial, with the WHO African Region having one of the highest prevalence of chronic HBV infection globally. An estimated 82.3 million people were living with chronic HBV infection in the African Region, making African Region a major contributor to the global burden of viral hepatitis. [5] Globally, viral hepatitis continues to account for a substantial number of deaths annually, with chronic hepatitis B and C being major causes of liver cirrhosis, liver cancer and premature mortality [5, 6].

Nigeria carries a considerable burden of HBV infection. Findings from the Nigeria HIV/AIDS indicator and impact Survey (NAIIS) 2018 showed that the prevalence of HBV infection among Nigerians aged 15 - 64 years was approximately 8.1%. [7] WHO has subsequently identified Nigeria as one of the countries with a substantial hepatitis burden and has emphasized the need for increased awareness, testing, vaccination and access to treatment [8].

On the part of HIV/AIDS, the national prevalence was estimated at 1.4% among adults aged 15 - 49 years in 2018, corresponding to approximately two million people living with HIV in Nigeria. [7] Subsequent national estimates and strategic planning documents have continued to emphasize the substantial burden of HIV infection in Nigeria and the need to intensify HIV prevention, testing, treatment and viral suppression interventions. [9] The continued burden of both HIV and HBV highlights the need for sustained surveillance and research, particularly among adolescents and young adults, who constitute an important population for preventive interventions.

Achieving global health objectives relating to adults and children requires appropriate preventive strategies aimed at reducing illness and mortality and improving healthy life expectancy. [4, 10] In Nigeria immunization remains an important component of disease prevention; however gaps in routine immunization coverage persist, resulting in some eligible children being missed by vaccination services. [11, 12] Hepatitis B vaccination is particularly important because vaccination remains the most effective method of preventing HBV infection and its long-term complications. [5, 13] Although healthcare providers in Osun State and other parts of Nigeria have opportunities to apply their knowledge and skills in immunization and preventive healthcare, a proportion of the population remains unaware of their status, receive appropriate counseling and, where necessary, access treatment and other preventive services. [1, 2, 9] Therefore a study of this nature will provide useful information on the prevalence of HIV and HBV among newly admitted students and provide an opportunity for participants to know their status and seek appropriate medical care or preventive services where necessary.

2. Materials and Method

The study was a descriptive cross-sectional study. It was a mix of retrospective and prospective study. This is predicated on the fact that the cross-sectional design has three distinguishing characteristics: no time dimension; dependence on current differences rather than change as a result of intervention; and group selection based on current differences rather than random assignment. Retrospective as under-fives immunization data for HBV was obtained from the state immunization officer. It was also prospective as a two millimeter volume of blood was taken from each of the 414 newly admitted students of the college between September 15 and October 15th 2025 by my team of researchers. The study looked into the presence or otherwise of HIV and or HBV in each of the 414 newly admitted students of Titilola College of Health Technology, Osogbo between September 15 and October 15th 2025, in Osogbo Local Government Area, Osun State, Southwest, Nigeria. The target populations of this study were the newly admitted students of Titilola College of Health Technology, Ilesa Road, Osogbo who resume for the various courses of study on September 15th 2025 for the 2025/2026 academic session.

Inclusion Criteria: Newly admitted students of Titilola College of Health Technology

Students who provided informed consent

Sample size for the study was calculated using Slovin's Sample Size formula for large and known population below:

$n= N/ (1+Ne^2)$

Where

n=sample size

N=population of Osogbo=795,808

e=Margin of Error=0.5
n= 795,808
(1+ (795808x0.5x0.5)
n= 795,808
(198,953)
n= 399Approximately 400

However, 414 respondents participated in the study having met the inclusion criteria and their submission of written informed consents.

Data Collection Methods: Questionnaire: A structured, self-administered questionnaire was used to collect data on socio-demographic characteristics, knowledge of HIV and HBV, behavioral Risk factors (sexual activities, condom use, needle sharing, alcohol use), medical history: previous testing, vaccination status. The questionnaire was pre-tested among 20 students outside the study group to ensure clarity, Laboratory Screening: We collected 4mls of blood sample into the Ethylene Diamine Tetraacetic Acid (EDTA) bottles from each consenting student and centrifuge was used to separate plasma from the red blood cells at 200 revolutions per minute for 5 minutes. The human immunodeficiency virus (HIV) screening was done using an immunochromatographic method via DETERMINE® a highly sensitive kit by (Abbott Diagnostic Division, Netherland) those found positive were later confirmed for being truly positive using Uni-Gold an Enzyme Linked Immuno Sorbent Assay (ELISA) manufactured by Trinity Biotech Plc, Ireland. On the other hand Hepatitis B Virus (HBV) screening was done by using an immune assay method for the detection of hepatitis B surface antigen (HBsAg) All procedures adhered to standard infection prevention protocols, including the use of gloves and proper disposal of sharps. Blood samples were collected from all consenting participants for laboratory analysis. *Data from questionnaire and laboratory results were coded and entered into* Statistical Package for the Social Sciences *(IBM SPSS) Version 25 analysis.*

Descriptive Statistics: Frequencies and percentages were used to summarize socio-demographic data and to obtain prevalence of HIV and HBV.

Inferential Statistics: Chi-square (X^2) test was used to examine associations between categorical variables, such as age group, gender, and infection status. Significant level: $p < 0.05$ was considered statistically significant.

The total number of newly admitted students in the college 2024 was only 510 students out of which 414 willingly participated in this study and this may limit the generalizability of the study.

3. Results and Discussion

The responses to the questions contained in the questionnaire forms and the results obtained from the screening exercise for HIV and HBV as analyzed are hereby presented.

3.1. Demographic Profile

Table 1. *Age and sex Distribution of Respondents.*

Age Range	Male	% of Total	Female	% of Total
15-20	22	5.3	256	61.8
21-25	10	2.4	77	18.6
26-30	2	0.5	10	2.4
31-35	2	0.5	9	2.2
36-40	1	0.2	9	2.2
40-45	2	0.5	14	3.4
Total	39	9.4	375	90.6

Interpretation: The study population consisted of 414 respondents, with female (90.6%) forming the majority, while males accounted for only 9.4%.

The age group 15-20 years had the highest number of respondents (278; 67.1%), followed by 21-29 years (21.0%), Older age groups had significantly fewer participants, indicating that most newly admitted students are within the adolescent and young adult age range.

3.2. Prevalence of HIV and HBV Among Respondents

Table 2. *Prevalence of HIV and HBV by Age Group.*

Age Range	Male	Female	HIV+	HBV+	Total
15-20	22	256	2	11	278
21-25	10	77	2	5	87
26-30	2	10	2	-	12
31-35	2	9	-	-	11
36-40	1	9	-	2	10
40-45	2	14	-	-	16
Total	39	375	6	18	414

3.3. Prevalence of HIV HBV Co-morbidity

Table 3. *Prevalence of HBV/ HIV/ Co-morbidity in the study group.*

Morbidity	Male	Female	Total
HIV	2	4	6 (1.4%)

Morbidity	Male	Female	Total
HBV	7	11	18 (4.3%)
Co-morbidity	1	-	1 (0.2%)
Total	9	15	24

Prevalence of HIV for this Study: 6/414 = 1.45%

Prevalence HBV for this Study: 18/414 =: 4.35%

Prevalence of HIV and HBV Co-morbidity for this Study: 1/414 = 0.2%

3.4. Level of HBV Awareness

Table 4. Level of HBV awareness.

	Male	Female	Total
HBV Awareness	27	218	245
No Awareness	12	157	169
Total	39	375	414

Prevalence of HBV Awareness the Study Group

245/414 x 100= 59% of all participants are aware of HBV Infection

27/39 x 100= 69% of male are aware of HBV Infection

218/375 x 100= 58% of female are aware of HBV Infection

3.5. Level of HIV Awareness

Table 5. Level of HIV Awareness of Study Group.

	Male	Female	Total
Aware	32	341	373
Not Aware	7	34	41
Total	39	375	414

Prevalence of HIV Awareness the Study Group

373/414 x 100= 90% of all participants are aware of HIV Infection

32/39 x 100= 86% of male are aware of HIV Infection

341/375 x 100= 90% of female HIV Infection

3.6. Interpretation of Findings

The overall HIV prevalence was 1.45%

The overall HBV prevalence was 4.35%, this was higher than HIV indicating HBV is more common among the students. Age groups 15-20, 21-25, and 26-30.

The highest number of HIV cases was observed in the

Age group 15-20, 21-25, and 26-30

HBV infection was highest in

Age group 15-20 (11 cases)

No infections were recorded in some older age groups, likely due to smaller sample sizes.

Chi-Square Analysis

Table 6. Association Between Age Group and HBV infection (Observed Data on HBV Infection).

Age Range	HBV-	HBV+	Total
15-20	267	11	278
21-25	82	5	87
26-30	12	0	12
31-35	11	0	11
36-40	8	2	10
40-45	16	0	16
Total	396	18	414

Pearson Chi-square (8.52); df (5) p value 0.129: interpretation p> 0.05 implies there is NO association between HBV infection and age grouping. HBV is not significantly dependent on age group in this study population.

Table 7. Association Between Age Group and HIV infection (Observed Data (HIV)).

Age Range	HIV+	HIV-	Total
15-20	2	276	278
21-25	2	85	87
26-30	2	10	12
31-35	0	11	11
36-40	0	10	10
40-45	0	16	16
Total	6	408	414

Pearson Chi-square value (18.74) df=5 p = 0.002: This implies an association between HIV infection and age group.

HIV infection varies significantly across different age groups, with higher cases observed in younger age categories.

Table 8. Association Between Sex and HBV Infection.

Sex	HBV-	HBV+	Total
Male	36	3	39
Female	360	15	375
Total	396	18	414

Pearson Chi-square value: 0.02 df: 1 p0.887 (NO association HBV infection and Gender).

Interpretation: HBV is not influenced by gender in this study.

Table 9. Association Between Sex and HIV infection.

Sex	HIV-	HIV+	Total
Male	38	1	39
Female	370	5	375
Total	408	6	414

[1] SPSS Output: Pearson Chi-square 0.01 df -1 p =0.920.
Interpretation: HIV prevalence does not differ significantly between males and females.

Key Findings in this study are female dominance (90.6%) which may influence prevalence trends, younger students (15-20) are the most affected group, HBV is more prevalent than HIV, which aligns with many Nigerian studies and presence of HIV cases in multiple age groups suggests ongoing risk exposure [14-18].

4. Conclusion

This study concludes that both HIV and HBV infections are present among newly admitted students of Titilola Collge of Health Technology, Osogbo. Although the prevalence of HIV is relatively low, HBV infection remains a significant health concern.

The study also revealed that age plays a role in HIV infection, while no significant association was found between gender and infection status. These findings emphasize the need for targeted interventions focusing on prevention, early detection, and awareness.

4.1. Recommendation

Based on the findings of this study, the following recommendations are made:

Routine Screening:

1) The institution should implement mandatory screening for HIV and HBV for all newly admitted student.

HBV Vaccination Programmes:

2) Free or subsidized HBV vaccination should be provided to all students, especially those im health-related courses.

Health Education:

3) Regular seminar and awareness campagns should be organized to educate students on transmission, prevention, and safe practices.

Promotion of Safe Practices:

4) Students should be encouraged to practice safe sex, avoid sharing sharp objects, and adopt healthy lifestyles.

Policy Development:

5) The college management should develop policies to support infection control and student health services.

Further Research:

6) More studies should be conducted with larger sample sizes and inclusion of behavioural factors to better understand the determinants of infection.

4.2. Contribution to Knowledge

This study adds to existing knowledge by providing current data on the prevalence of HIV and HBV among newly admitted students in Osun State, Southwest, Nigeria. It also highlights the need for increased attention to HBV infection, which is often neglected compared to HIV.

Abbreviations

EDTA	Ethylene Diamine Tetraacetic Acid
FMOHSW	Federal Ministry of Health and Social Welfare
HBV	Hepatitis B Virus
HBsAg	Hepatitis B Surface Antigen
HIV	Human Immunodeficiency Virus
NACA	National Agency for Control of AIDS
NAIIS	Nigeria HIV/AIDS Indicator and Impact Survey
SDG	Sustainable Development Goals
SPSS	Statistical Package for the Social Sciences
WHO	World Health Organization

Acknowledgments

We acknowledge the cooperation of the officials of the Osun State Ministry of Health, and the ethical review committee of Mercy Medical University, Iwo, Osun State and the students who voluntarily participated in the study.

Author Contributions

Ogunniyi Kayode Adebayo Babatunde: Conceptualization, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft & Writing – review & editing

Akin Olufemi Oyebade: Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Software, Supervision, Validation, Visualization, Writing – original draft & Writing – review & editing

Baruwa Ololade Julius: Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Software, Visualization, Writing – original draft & Writing – review & editing

Muritala Ridwan Ayobami: Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Validation, Visualization, Writing – original draft & Writing – review & editing

Conflicts of Interest

The authors declare no conflicts of interest.

References

[1] National Agency for the Control of AIDS. National HIV and AIDS Strategic Framework 2021 - 2025. Abuja, Nigeria. 2022.

[2] World Health Organization. Global health sector strategies on, respectively, HIV, viral hepatitis and sexually transmitted infections for the period 2022 - 2030. Geneva, Switzerland. 2022.

[3] Federal Ministry of Health and Social Welfare, Nigeria. 2025 World Hepatitis Day: FG launches bold Project 365 to eliminate hepatitis by 2030. Abuja, Nigeria. 2025.

[4] World Health Organization. Sustainable Development Goal 3: Ensure healthy lives and promote well-being for all at all ages. Geneva, Switzerland. 2015.

[5] World Health Organization. Global hepatitis report 2024: action for access in low-and middle-income countries. Geneva, Switzerland. 2024.

[6] World Health Organization. Global hepatitis report 2017. Geneva, Switzerland. 2017.

[7] National Agency for the Control of AIDS. Nigeria HIV/AIDS Indicator and Impact Survey (NAIIS) 2018: Technical Report. Abuja, Nigeria. 2020.

[8] World Health Organization Regional Office for Africa. In Nigeria, boosting viral hepatitis awareness and treatment. Brazzaville, Congo. 2023.

[9] National Agency for the Control of AIDS. National HIV and AIDS Strategic Plan 2023 - 2027. Abuja, Nigeria. 2023.

[10] World Health Organization Regional Office for Africa. Nigeria: Country health profile. Brazzaville, Congo. 2026.

[11] World Health Organization, United Nations Children's Fund. Nigeria: WHO and UNICEF estimate of immunization coverage: 2022 revision. Geneva, Switzerland. 2023.

[12] World Health Organization Regional Office for Africa. Raising a healthier generation with life-saving vaccines. Brazzaville, Congo. 2023.

[13] World Health Organization. Hepatitis B. Geneva, Switzerland. 2024.

[14] Garbati M., Mohammed A., Kadaura M., Ezenkwa., U., Audu B. Sero-prevalence of hepatitis B and C and HIV among students at the Federal University of Health Sciences, Azare, Bauchi State. Nigerian Medical Journal. 2025, 65(6), 1112-1123. https://doi.org/10.60787/nmj.v65i6.596

[15] Min Wang., Mary O. Oyebamiji., Amechi E. Igharo., Elizabeth U Osabohien., Eugene O. Ifere. Prevalence of HIV and Hepatitis B virus among adolescents seeking healthcare services at the Federal Teaching Hospital, Kebbi State, Nigeria. African Journal of Reproductive Health. 2025, 29 (6): 58. https://doi.org/10.29063/ajrh2025/v29i6.6

[16] Aloh HE., Azubuike-Osu SO., Nwabuogu C., Nwankwo M., Ejike C. Sex-Specific Differences in the Short-Term Prevalence Trends of HIV and HBV among Undergraduate Nigerians: Implications for Policy. J Infect Dis Epidemiol. 2021, 7: 232. https://doi.org/10.23937/2474-3658/1510232

[17] Elekima Ibioku., Mike-Ogburia Moore., Omereji-David Chinyere., Moore-Igwe Beatrice., Nwokah Easter., George-Opuda Ibitoroko., Vivian Agi., Monsi Tombari., Ollor Ollor., Okoro Ozioma., Brisibe Ngozi., Ben-Chioma Adline. Prevalence of HIV, Hepatitis B, and Hepatitis C in Rivers State University, Port Harcourt: Outcome of a Medical Outreach. Advances in Infectious Diseases. 2023, 13. 692-705. https://doi.org/10.4236/aid.2023.134056

[18] Ojerinde OA., Ojo SK., Udewena UL., Oladeji SJ. A cross-sectional study on the prevalence of HIV and hepatitis B virus co-infection among students of a tertiary institution in Ekiti State, Southwest Nigeria. Pan Afr Med J. 2023, 5; 44: 7. https://doi.org/10.11604/pamj.2023.44.7.31416