UMYU Scientifica, Vol. 4 NO. 3, September 2025, Pp 358 – 365
https://doi.org/10.56919/usci.2543.036
ISSN: 2955 – 1145 (print); 2955 – 1153 (online)
A periodical of the Faculty of Natural and Applied Sciences, UMYU, Katsina

ORIGINAL RESEARCH ARTICLE

Prevalence and Risk Factors of Hepatitis B Infections among Students in Tertiary Institutions in Kano State, Nigeria

Faiza Aliyu Ismail[1], Abdullahi Muhammad Umar[1], Nasir Sirajo Sadi[2], Amina Shehu[3], Abdullahi Nasir Salmanu[4] and Abdullahi Musa Hassan[2]

[1]Department of Integrated Science, Faculty of Sciences Education, Yusuf Maitama Sule Federal University of Education, Kano, Nigeria
[2]Department of Biochemistry, Faculty of Basic Medical Sciences, Bayero University, Kano, Nigeria
[3]Department of Biochemistry and Molecular Biology, Faculty of Life Sciences, Federal University Dutsin-Ma, Katsina, Nigeria
[4]School of General Studies, Federal University of Transportation, Daura, Katsina, Nigeria

ABSTRACT

Infection with the hepatitis B virus (HBV) remains a significant global public health concern, particularly in sub-Saharan Africa, where its prevalence is disproportionately high. This study investigates the frequency of hepatitis B infections and the associated risk factors among students attending postsecondary institutions in Kano State, Nigeria. Five academic institutions in Kano State participated in this descriptive cross-sectional study, which included all eligible individuals. Serological tests (HBsAg screening) and 1,200 structured, interviewer-administered questions were utilized. The Statistical Package for the Social Sciences (SPSS) version 24 was used to analyze the data electronically. Among the study population, 492 (41.0%) were men and 708 (59.0%) were women. The majority of participants (79.3%) were between the ages of 18 and 29. The prevalence of the hepatitis B virus in the study population was 14.1%, with 14.1% of participants testing positive and the remaining individuals testing negative. One possible explanation for this discrepancy is the young age of the research population. The knowledge evaluation indicated that participants demonstrated a strong understanding of hepatitis B virus infection. Major risk factors identified included tattoos or body piercings, sharing needles, razors, clippers, toothbrushes, and injections, as well as contact with an infected person's fluids, having unprotected intercourse, and a lack of awareness regarding HBV transmission methods. The high prevalence of HBV revealed in this study underscores the critical need for HBV education and vaccination. It also provides essential information about the epidemiological trends of hepatitis B in a significant demographic group in Kano State. This research calls for multi-sectoral cooperation among legislators, healthcare professionals, and educational authorities to implement effective measures to reduce the spread of HBV, increase vaccination rates, and promote a healthier learning environment.

ARTICLE HISTORY

Received May 26, 2025
Accepted September 21, 2025
Published September 30, 2025

KEYWORDS

Hepatitis, hepatitis B (HBV), Viruses, Vaccination

INTRODUCTION

According to the International Sustainable Development Goals, aimed at eradicating HBV infection by 2030, there are an estimated 290 million cases worldwide (Mohammed *et al.*, 2022). The majority of these cases go undiagnosed and untreated (O'Hara *et al.*, 2017). Hepatitis B is a serious liver infection primarily spread through direct contact with infected blood or bodily fluids (Rajamoorthy *et al.*, 2019; Suan *et al.*, 2019). The hepatitis B virus (HBV) replicates in liver cells (hepatocytes), causing damage and potentially leading to death (Adeyemi *et al.*, 2013; Ullah *et al.*, 2022).

Based on the most recent estimates from the WHO and the Global Burden of Disease research, viral hepatitis causes approximately 1.34 million fatalities annually, which is comparable to the annual number of deaths from TB (1.3 million), HIV/AIDS (1.3 million), and malaria (0.9 million). Viral hepatitis is currently the seventh leading cause of death worldwide, with a 63% rise in mortality since 1990. Despite this, there is still a lack of global recognition of the problem's seriousness and a commitment to battle the disease (WHO 2017).

National strategies for the prevention, treatment, and control of viral hepatitis are in place in an additional half of the Americas (57%). According to WHO (2017), just 54% of nations have set targets to eradicate hepatitis B. According to Debsikréo *et al.* (2024), 6.1% of adults in Africa are expected to be infected, making it the continent with the second-highest number of people with chronic HBV infection. More than 60 million people in Sub-

Correspondence: Faiza Aliyu Ismail. Department of Integrated Science, Faculty of Sciences Education, Yusuf Maitama Sule Federal University of Education, Kano-Nigeria. ✉ faizaismailaliyu@gmail.com.

How to cite: Ismail, F. A., Umar, A. M., Sadi, N. S., Shehu, A., Salmanu, A. N., & Hassan, A. M. (2025). Prevalence and Risk Factors of Hepatitis B Infections among Students in Tertiary Institutions in Kano State, Nigeria. *UMYU Scientifica*, 4(3), 358 – 365. https://doi.org/10.56919/usci.2543.036

Saharan Africa have HBV, making it one of the regions with the greatest disease burdens. According to WHO (2017), the regional prevalence of HBV infection is approximately 6.1%, meaning that 1 in 15 individuals is affected. Numerous community-based investigations conducted in Ethiopia indicate that the prevalence of HBsAg ranges from 5.4% to 12.7% (PAHO, 2019). Clinical care, therapy, and interventions aimed at reducing onward transmission are ineffective for around 95% of people with chronic HBV infection because they are unaware of their illness (Spearman *et al*., 2017).

According to data by Khazaei *et al.* (2018), the prevalence of HBV infection is 6.2% in the Western Pacific Region and 6.1% in Africa. Prevalence rates in Nigeria range from 12.2% to 14% in various sub-regions (Olayinka *et al*., 2016; Oti *et al*., 2021); in Nasarawa State, rates of 7.1% and 13.3% have been reported. Morbidity and mortality are often higher in areas with high endemicity (Dwiartama *et al*., 2022; Ndubuisi *et al*., 2022). The impacts of infections on young people are multifaceted. The majority of infections occur during adolescence and adulthood (Ashaka et al., 2025). The problem of HBV infections used to progress silently, which results in delayed diagnosis and treatment starting. Because infected individuals may unknowingly transmit the disease to others, and tertiary institutions are environments where most students are adults and use public toilets and other shared spaces. There's still a lot we don't know about the extent of Hepatitis B among students in tertiary institutions in Kano State, Nigeria. Most research so far has focused on the general population or groups such as healthcare workers, overlooking students, even though they may engage in behaviors that increase their risk of infection. There's also limited data specific to this region, and not much is known about how aware students are of the disease, whether they're getting vaccinated, or how their schools are helping to prevent its spread. On top of that, many studies don't account for age or gender differences, and some still use outdated testing methods. This leaves a big gap that needs to be filled. Therefore, this research aims to determine the prevalence and risk factors of hepatitis B infections among students in tertiary institutions in Kano State

MATERIALS AND METHODS

Study Area

Kano State is located in the northwestern part of Nigeria. To the north and west of Kano State lies Katsina State; to the south, Jigawa State; and to the east, Bauchi State. The coordinates of Kano State on the world map are 11° 51' 60" North and 8° 31' 60" East. One of the state's central geographical features is the Kano (Dala) Hill, an inselberg in the middle of the city of Kano. Geographically, Kano State lies between latitudes 11° 31' North and 12 ° 0' North, and longitudes 8 ° 18 'East and 9 ° 0' East. The state occupies a total surface area of about 20,131 km² and is situated in the Sudan Savannah vegetation zone. The terrain is mostly sandy in the north, gradually changing to clay and black cotton soils in the central part of the state. The southern part of Kano State is largely fertile, with extensive areas suitable for farming. Kano State lies on the edge of the dry Sahel Savannah. Accordingly, it has one of the highest temperatures in the country, with a mean daily maximum temperature of 35°C. Nevertheless, Kano State has a dual rainfall pattern.

Study design

A descriptive cross-sectional study design was used for this study.

Study population

The study population will include students in tertiary institutions in Kano State.

Sampling Techniques

Multi-stage sampling was used.

Stage 1: Selection of institutions: Out of twenty-three (23) tertiary institutions in Kano State, five (5) were selected using simple random sampling by balloting.

Stage 2: Selection of faculty: Three faculty members from each selected institution were selected using simple random sampling via ballot.

Stage 3: Selection of departments: Departmental facilities (i.e., lecture halls, theaters, and restrooms) in each selected faculty were numbered to obtain a sampling frame; thereafter, the sampling fraction and interval were also calculated. The sampling interval was determined by dividing the total number of lecture halls, theaters, and restrooms in the selected faculty by the calculated sample size.

Inclusion Criteria

Adults, both male and female, aged 15 to 49 who are willing to participate, will satisfy the inclusion criteria.

Exclusion Criteria

The exclusion criteria will be adults with complications or concomitant diseases that require specific medical treatment.

Sample Size Determination

Fisher's formula (1998) was used to determine the sample size:

$$n = z^2p\ (1\text{-}p)/d^2$$

Where: n = the desired sample size, z = 95% confidence interval (or 1.96), d = degree of precision usually set at 0.05, and p = 0.5%. The prevalence of 29.91% was used (Isah *et al*., 2020). The minimum sample size was 322; adding 5% makes it 338. Therefore, we recruited 1200 participants to ensure broader coverage among tertiary institutions in Kano State and to account for possible dropouts.

Study Instrument

A multi-stage sampling technique was used to obtain representation from each tertiary institution in Kano State.

Table 1: Socio-Demographic Characteristics

Characteristics	Total (n=1200) n(%)	Non-hepatitis (n=1031) n(%)	Hepatitis (n=169) n(%)	Chi^2	*P*
Age					
18-29	952(79.3)	789(76.5)	163(96.4)	35.531	0.000
30-39	188(15.7)	182(17.7)	6(3.6)		
40-49	49(4.1)	49(4.8)	0(0)		
50 and above	11(0.9)	11(1.0)	0(0)		
Gender					
Female	708(59.0)	634(61.5)	74(43.8)	18.819	0.000
Male	492(41.0)	397(38.5)	95(56.2)		
Marital status					
Single	724(60.3)	604(58.6)	120(71.0)	11.341	0.010
Married	423(35.3)	377(36.6)	46(27.2)		
Divorced	21(1.8)	21(2.0)	0(0)		
Widow	32(2.6)	29(2.8)	3(1.8)		
Educational status					
No formal education	15(1.3)	15(1.5)	0(0)	2.538	0.281
Secondary	31(2.6)	27(2.6)	4(2.4)		
Tertiary	1154(96.1)	989(95.9)	165(97.6)		
Occupational status					
Civil servant	133(11.1)	129(12.6)	4(2.4)	43.268	0.000
Self-employed	160(13.4)	114(11.1)	46(27.2)		
Unemployed	32(2.7)	26(2.5)	6(3.6)		
Student	871(72.8)	758(73.8)	113(66.8)		
Financial Status					
Sufficient Income	386(32.3)	318(31.0)	68(40.2)	10.346	0.016
Comfortable	683(57.1)	591(57.6)	92(54.5)		
Poor	106(8.9)	97(9.4)	9(5.3)		
Very Poor	21(1.7)	21(2.0)	0(0)		
Tobacco Consumption					
Everyday	7(0.6)	4(0.4)	3(1.8)	14.321	0.006
Weekly	26(2.2)	18(1.8)	8(4.7)		
Monthly	7(0.6)	7(0.7)	0(0)		
Rarely	42(3.5)	33(3.2)	9(5.3)		
Never	1118(93.1)	969(93.9)	149(88.2)		
Alcohol Consumption					
Weekly	6(0.5)	3(0.3)	3(1.8)	8.156	0.017
Rarely	32(2.7)	25(2.4)	7(4.1)		
Never	1162(96.8)	1003(97.3)	159(94.1)		
Drug Consumption					
Everyday	9(0.8)	6(0.6)	3(1.8)	21.783	0.000
Weekly	8(0.7)	6(0.6)	2(1.2)		
Monthly	26(2.2)	15(1.5)	11(6.5)		
Rarely	140(11.7)	119(11.5)	21(12.4)		
Never	1017(84.6)	885(85.8)	132(78.1)		

Instrument for data collection

An interviewer-administered, restructured questionnaire was used to collect data from the respondents (Shuaibu *et al.,* 2022).

The questionnaire has 3 sections.

Section A: Socio-demographic characteristics

Section B: Knowledge of Hepatitis B infection

Section C: Risk factors of Hepatitis B infection

Specimen Collection

Venous blood (1 ml) was collected aseptically from participants using a syringe or pricker after the site was sterilized with methylated spirit. Screening for Hepatitis B

surface antigen (HBsAg) was performed using rapid immunochromatographic test kits. A small drop of blood was collected from each participant using a sterile lancet and applied to the test cassette, followed by a few drops of buffer solution. The test results were read after 15 to 20 minutes. A positive result showed two visible lines (one for the test and one for the control), while a negative result showed only the control line. Any test without a control line was considered invalid and repeated. All tests were done using clean procedures and proper safety measures to protect both participants and researchers.

Ethical Approval

The Kano State Ministry of Health granted ethical approval (SHREC/2024/5790, NHREC/17/03/2018). After being fully informed about the study, participants provided their informed consent.

Data Analysis

Data collected were imported from Microsoft Excel into the Statistical Package for the Social Sciences (SPSS) software version 24.0 and checked for completeness, coded, entered, and analyzed.

RESULTS

Table 1 presents the socio-demographic information of the study population. Among the participants, 708 (59.0%) were female, of whom 74 had HBV, while 492 (41.0%) were male, with 95 of them having HBV infection. This study indicates that males have a higher prevalence of HBV than females. The majority of the study population was aged 18-29 years, comprising 952 (79.3%) individuals, suggesting they are adults. Most participants reported being financially stable, totaling 683 (57.1%).

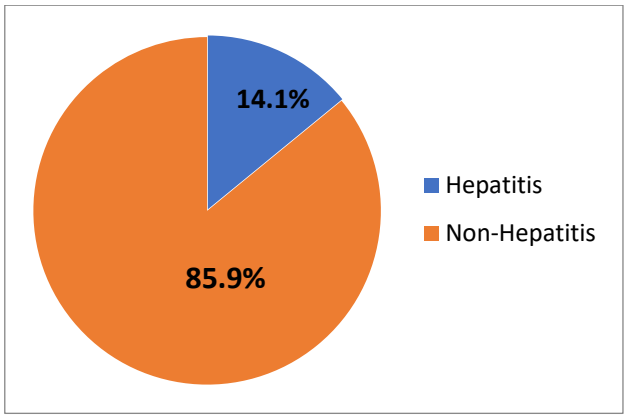

Fig 1. Prevalence of Hepatitis B Infection

Furthermore, a significant portion of the study population reported never consuming tobacco, alcohol, or drugs, with figures of 1118 (93.1%), 1162 (96.8%), and 1017 (84.6%), respectively. Overall, there is a statistical difference at $P < 0.05$ between non-HBV and HBV individuals in terms of age, gender, marital status, financial status, and substance use. Those at the highest risk for HBV are individuals aged 18-29, single, and self-employed, who engage in tobacco, alcohol, or drug use. Figure 1 illustrates the prevalence of Hepatitis B infections among students attending higher institutions in Kano State. The findings it reveal that 85.9% are non-hepatitis, and only 14.1% of the total population have hepatitis.

Table 2: Knowledge of Hepatitis B Infection

	Total (n=1200) n(%)	Non-hepatitis (n=1031) n(%)	Hepatitis (n=169) n(%)	*Chi²*	*P*
Do you know Hepatitis B?					
Yes	923(76.9)	803(77.9)	120(71.0)	3.871	0.049
No	227(23.1)	228(22.1)	49(29.0)		
Do you know the causes of Hepatitis B?					
Yes	783(65.3)	681(66.0)	102(60.4)	2.079	0.149
No	417(34.7)	350(34.0)	67(39.6)		
Do you know the adverse effect of Hepatitis B?					
Yes	700(58.3)	605(58.7)	95(56.2)	0.364	0.546
No	500(41.7)	426(41.3)	74(43.8)		
Do you know any Hepatitis B patient?					
Yes	532(44.3)	433(42.0)	99(58.6)	16.177	0.000
No	668(55.7)	598(58.0)	70(41.4)		
Are you aware of the Hepatitis B preventive measures?					
Yes	728(60.7)	637(61.8)	91(53.9)	3.835	0.050
No	472(39.3)	394(38.2)	78(46.1)		
Do you know the different types of Hepatitis B?					
Yes	824(68.7)	704(68.3)	120(71.0)	0.500	0.479
No	376(31.3)	327(31.7)	49(29.0)		
Do you know any symptom of Hepatitis B?					
Yes	837(69.8)	712(69.1)	125(74.0)	1.656	0.198
No	363(30.2)	319(30.9)	44(26.0)		
Can Hepatitis be contracted through physical contact?					
Yes	589(49.1)	483(46.9)	106(62.7)	14.640	0.000
No	611(50.9)	548(53.1)	63(37.3)		

Table 3: Risk Factors of Hepatitis B Infection

Questions	Total (n=1200) n(%)	Non-hepatitis (n=1031) n(%)	Hepatitis (n=169) n(%)	*Chi²*	*P*
Do you share toothbrush, razor blades, clippers or comb?					
Yes	244(20.3)	207(20.1)	37(21.9)	0.296	0.587
No	956(79.7)	824(79.9)	132(78.1)		
Do you use protection during intercourse?					
Yes	438(36.5)	370(35.9)	68(40.2)	1.185	0.276
No	762(63.5)	661(64.1)	101(59.8)		
Have you ever received a Tattoo or body piercing?					
Yes	117(9.8)	78(7.6)	39(23.1)	39.702	0.000
No	1083(90.3)	953(92.4)	130(76.9)		
Do you share injection and needles?					
Yes	92(7.7)	65(6.3)	27(16.0)	19.187	0.000
No	1108(92.3)	966(93.7)	142(84.0)		
Do you avoid contact with Hepatitis patient fluid?					
Yes	630(52.5)	528(51.2)	102(60.4)	4.867	0.027
No	570(47.5)	503(48.8)	67(39.6)		

Table 4: Factors Associated with Knowledge of Hepatitis B Infection

	Crude Odd Ratio	Adjusted Odd Ratio	*P* value
Do you know Hepatitis B?			
Yes	0.69(0.48-1.00)*	0.57(0.37-0.89)*	0.015
No	1	1	
Do you know the causes of Hepatitis B?			
Yes	0.78(0.56-1.09)*	0.78(0.52-1.16)	0.216
No	1	1	
Do you know the adverse effect of Hepatitis B?			
Yes	0.90(0.65-1.26)	NE	
No	1		
Do you know any Hepatitis B patient?			
Yes	1.95(1.40-2.72)*	2.23(1.57-3.16)**	0.000
No	1	1	
Are you aware of the Hepatitis B preventive measures?			
Yes	0.72(0.52-1.00)*	0.58(0.41-0.83)**	0.003
No	1	1	
Do you know the different types of Hepatitis B?			
Yes	1.14(0.79-1.63)	NE	
No	1		
Do you know any symptom of Hepatitis B?			
Yes	1.27(0.88-1.84)*	1.42(0.94-2.16)	0.096
No	1	1	
Can Hepatitis be contracted through physical contact?			
Yes	1.91(1.37-2.66)*	2.17(1.52-3.09)**	0.000
No	1	1	

Values are expressed as Crude Odd Ratio (Lower limit, Upper limit) at 95% Confidence Interval; * signifies values with p-value <0.250 and included in multivariate analysis.

Values are expressed as Adjusted Odd Ratio (Lower limit, Upper limit) at 95% Confidence Interval; * signifies correlation at p-value <0.05; ** signifies strong correlation at p-value <0.01; NE signifies not entered in multivariate analysis as p-value >0.250 in bivariate analysis.

Table 2 shows the knowledge of Hepatitis B. The results reveal that 76.9% of respondents had heard of Hepatitis B, but those with the disease were less likely to report knowing about it than those without. Knowledge of Hepatitis B causes (65.3%) and its adverse effects (58.3%) was generally low, with no significant differences between groups. This indicates a broad lack of detailed understanding, even among those living with the virus. Only 60.7% were aware of preventive measures. Alarmingly, infected individuals were less likely to know how to prevent the disease, raising concerns about missed opportunities for health education and early intervention. Infected individuals were more likely to know someone with hepatitis (58.6%), suggesting that transmission may be clustered in social or risk-based networks. A high proportion (49.1%) believed hepatitis could be spread through physical contact—a significant misconception, especially prevalent among those infected (62.7%). This highlights the urgent need to correct myths to reduce stigma and misinformation. A significant difference at

P<0.05 was observed between the infected and uninfected groups regarding knowledge of the disease, knowledge of patients, awareness of preventive measures, and misconceptions about whether it can be transmitted through physical contact.

Table 3 shows the risk factors for hepatitis B infection. The results indicate that risky behaviors are common across both groups, but some are significantly more prevalent among hepatitis-positive individuals, suggesting a strong link between these actions and infection. Sharing personal items such as razors and toothbrushes was reported by 20.3% of respondents, with no significant difference between groups, suggesting that this risky behavior is widespread regardless of infection status. Condom use during intercourse was low overall (36.5%), with no significant differences between groups. This highlights a gap in sexual health practices, despite the role of unprotected sex in transmitting hepatitis B. Tattooing and body piercing demonstrated a significant association with hepatitis: 23.1% of infected individuals had body art, compared to just 7.6% of the non-infected. This suggests a possible connection to non-sterile practices. Sixteen percent of infected people reported sharing needles, compared to 6.3% of non-infected individuals. This statistically significant difference supports needle sharing as a primary mode of transmission. Hepatitis-positive individuals were more likely to avoid contact with infectious body fluids (60.4%), presumably as a result of greater awareness following diagnosis, but over 40% continued to engage in dangerous contact.

Table 4 indicates the related risk factors of Hepatitis B infection with knowledge in which there is significant difference at P<0.05 with knowledge of Hepatitis B, Knowledge of hepatitis patients, awareness of hepatitis B preventative methods and the myths of contacting it through physical contact.

DISCUSSION

In Kano State, Nigeria, this study evaluated the risk factors and prevalence of HBV infections among students enrolled in tertiary institutions. There were 1,200 participants in the research, with 708 (59.0%) of the study population being female, 74 of whom had HBV. The majority of these individuals were between 18 and 29, which corresponds to the reproductive-age segment of the population. Younger people may be more likely to engage in risky activities, including tattooing, unprotected sex, and limited access to healthcare. There were also clear gender inequalities, with men carrying a significantly higher risk of Hepatitis B. This supports research from around the world that indicates a greater frequency among men, possibly due to riskier sexual behavior and less frequent use of preventative healthcare. Similarly, educational level did not significantly correlate with infection status since most participants had a tertiary education, which may have reduced the variability needed to detect differences. However, marital status was significantly associated with infection status, with a higher prevalence among single individuals, potentially indicating increased exposure through multiple sexual partners or limited awareness of protective practices. The results of this study indicate that 14.1% of participants (169/1,200) had an HBV infection. One possible explanation for this high frequency is the low knowledge of HBV infections within the study communities.

Similar findings were noted in another study conducted in N'Djamena (14.9%) (Debsikre'o *et al.*, 2024). This percentage places the study population in the high-prevalence category, meaning it exceeds the 8% cutoff set by the World Health Organization (Guidelines for Prevention, 2024). Another reason for the high incidence could be that the majority of the students were young (18–29 years old). The HBV prevalence in our research population is also higher than that reported in studies of students from Cameroon (5.6%) (Servaisalbert, 2014), Togo (4.6%) (Ecovevi *et al.*, 2015), and Ethiopia (91.5%) (Tesfu *et al.*, 2021). Surprisingly, this finding is comparable to another study published in the Central African Republic (15.5%) (Komas *et al.*, 2010) and lower than that conducted in Nigeria (31.5%) as reported by Tula and Iyola (2015). Although Nigerian students are currently provided with preventive information (such as on sexuality, sexually transmitted diseases, risk factors, and preventive measures), many are reluctant to attend these lectures because sex education remains a taboo topic, particularly in northern Nigeria, such as Kano, where the study was conducted. This contributes to the high incidence. The presence of drugs, alcohol, sex, and other risk factors may also affect the students' living environment (Bamikole et al., 2025). Additionally, compared to other age groups, students are in a stage of life where risk-taking may be more common.

The knowledge evaluation revealed that the participants in this study had extensive knowledge about hepatitis B virus infection. As in earlier studies, which found that over 70% of respondents demonstrated outstanding knowledge, fewer participants in this study did so (Hassan *et al.*, 2016). This information imbalance may suggest that the scientific community recognizes the threat posed by HBV. The average level of knowledge indicates that most individuals have a higher level of education. Nonetheless, the study found that members of the general population were more likely to have received informal education about HBV and to have been tested or vaccinated against it. The information gathered also points to another cause. Prior research has demonstrated a correlation between vaccination rates and educational achievement (Kakshour *et al.*, 2014; Awoleye & Thorn, 2015). The results of the current study, which clearly demonstrate a relationship between age and HBV knowledge, align with prior research that has identified age as a predictor of HBV knowledge (Adekanle *et al.*, 2015; Hajarizadeh *et al.*, 2015). Nonetheless, the study again found that members of the general population were more likely to have received informal education about HBV infection and to have been tested or vaccinated against the virus. The information gathered also points to another cause. Prior research has demonstrated a correlation between vaccination rates and educational achievement (Kakshour *et al.*, 2014; Awoleye & Thorn, 2015). The results of the current study, which

clearly demonstrate a relationship between age and HBV knowledge, align with prior research that has identified age as a predictor of HBV knowledge (Adekanle *et al*., 2015; Hajarizadeh *et al*., 2015).

People who tested positive for hepatitis were more likely to avoid contact with infectious body fluids (60.4%), presumably due to increased awareness after diagnosis. However, over 40% still engaged in risky behaviors. According to Debsikre´o *et al.* (2024), some respondents may have taken part in dangerous practices that exposed them to bloodborne infections. To reduce the likelihood of transmission in these high-risk settings, preventive measures are necessary. A significant difference ($P<0.05$) exists between the following risk factors for Hepatitis B infection and knowledge: knowledge about Hepatitis B, awareness of Hepatitis patients, understanding of Hepatitis B prevention strategies, and misconceptions regarding physical contact. This suggests that the link between being aware of one's HBV status and infection might stem from the fact that those informed of their status are more likely to get tested, as they often have risk factors or symptoms that increase the chance of infection. Some respondents may be unaware of their status for various reasons, including cultural influences, ignorance, lack of information, privacy concerns, personal choice, and fear of stigma and prejudice (Subic and Zoulim, 2018; Martyn *et al*., 2023). It is essential to enhance screening and awareness, especially among high-risk populations.

CONCLUSION

The high HBV prevalence reported in the most recent study underscores the critical need for HBV education and vaccination. Significant risks for HBV exposure were linked to drug use, alcohol consumption, nicotine use, and unprotected sexual contact. It is essential to remember that the general population is divided into several subgroups, each with unique needs. Therefore, it makes sense to tailor interventions, particularly community-based risk factor education, to each subgroup.

FUNDING

Tertiary Education Trust Fund (TETFUND) provided funding for this study, through the Institutional-Based Research (IBR) grant of Federal University of Education, Kano, under the grant number (FCEK/GEN.311/Vol. VII).

REFERENCES

Adekanle, O., Ndububa, D. A., Olowookere, S. A., Ijarotimi, O., & Ijadunola, K. T. (2015). Knowledge of hepatitis B virus infection, immunization with hepatitis B vaccine, risk perception, and challenges to control hepatitis among hospital workers in a Nigerian tertiary hospital. *Hepatitis Research and Treatment, 2015*, 1–6. [Crossref]

Adeyemi, A. B., Enabor, O. O., Ugwu, I. A., Bello, F. A., & Olayemi, O. O. (2013). Knowledge of hepatitis B virus infection, access to screening and vaccination among pregnant women in Ibadan, Nigeria. *Journal of Obstetrics and Gynaecology, 33*(2), 155–159. [Crossref]

Awoleye, O. J., & Thron, C. (2015). Determinants of human immunodeficiency virus (HIV) infection in Nigeria: A synthesis of the literature. *Journal of AIDS and HIV Research, 7*(9), 117–129. [Crossref]

Bamikole A. Ojo, Aladejare Adebolwale Abiola, and Ajimojuowo Folawumi Bamidele. 2025. "Prevalence of Hepatitis B Infection and Associated Factors Among Students of Tertiary Institution in Ekiti State, Nigeria". *Journal of Advances in Microbiology* 25 (9):110–119. [Crossref]

Correia, J. D., Shafer, R. T., Patel, V., Kain, K. C., Tessier, D., Macpherson, D., & Keystone, J. S. (2001). Blood and body fluid exposure as a health risk for International Travelers. *Journal of Travel Medicine, 8*, 263–266. [Crossref]

Debsikre'o, N., Mankre'o, B. L., Mouke'net, A., Ouangkake, M., Mara, N., Moussa, A. M., & et al. (2024). Prevalence of hepatitis B virus infection and its associated factors among students in N'Djamena, Chad. *PLOS ONE, 19*(4), e0273589. [Crossref]

Dwiartama, A., Nirbayati, W. F., Giri-Rachman, E. A., Niloperbowo, W., Tan, M. I., & Anin, A. (2022). Knowledge, attitude, and practice towards hepatitis B infection prevention and screening among Indonesians. *International Journal of Environmental Research and Public Health, 19*(8), 4644. [Crossref]

Ekouevi, D. K., Thomas, A., Sewu, D., Lawson-Ananissoh, L., Tchounga, B., Salou, M., & et al. (2017). Prevalence of Hepatitis B among students from the University of Lome, Togo in 2015. *Open Journal of Epidemiology, 7*(3), 262–272. [Crossref]

Hajarizadeh, B., Wallace, J., Richmond, J., Ngo, N., & Enright, C. (2015). Hepatitis B knowledge and associated factors among people with chronic hepatitis B. *Australian and New Zealand Journal of Public Health, 39*(6), 563–568. [Crossref]

Hassan, M., Awosan, K. J., Nasir, S., & et al. (2016). Knowledge, risk perception and hepatitis B vaccination status of healthcare workers in Usmanu Danfodiyo University Teaching Hospital, Sokoto, Nigeria. *Journal of Public Health and Epidemiology, 8*(4), 53–59. [Crossref]

Isah, M., Abdulkadir, B., Attahiru, B., Abubakar, F., & Salisu, U. (2020). Incidence of hepatitis B virus infection among women attending antenatal care in General hospital Aliero, Kebbi State, Nigeria. *Anchor University Journal of Science and Technology, 1*(1), 31–34.

Khakshour, A., Moghadam, H. T., Kiani, M. A., Saeidi, M., & Zarif, B. (2014). Key facts about epidemiology of HIV/AIDS in children worldwide. *International Journal of Pediatrics, 2*, 145–152.

Khazaei, S., Karami, M., Ayubi, E., Mohammadbeigi, A., Hasanbeigi, A., Mansori, K., Mir-Shekar, M. R., & Beigi, A. H. (2018). Trends in epidemiology of Hepatitis B and C Infections in Ilam Province:

National Notifiable Diseases Surveillance System data. *Caspian Journal of Internal Medicine, 9*(1), 16–21.

Komas, N. P., Baï-Sepou, S., Manirakiza, A., Leal, J., Béré, A., & LeFaou, A. (2010). The prevalence of hepatitis B virus markers in a cohort of students in Bangui, Central African Republic. *BMC Infectious Diseases, 10*, 226. [Crossref]

Martyn, E., Eisen, S., Longley, N., Harris, P., Surey, J., Norman, J., Brown, M., Sultan, B., Maponga, T., Iwuji, C., Flanagan, S., Ghosh, I., Story, A., & Philippa, M. (2023). The forgotten people: Hepatitis B virus (HBV) infection as a priority for the inclusion health agenda. *ELife, 12*, e81070. [Crossref]

Mohammed, H., Eshetie, A., & Melese, D. (2022). Prevalence of hepatitis B virus and associated risk factors among adults patients at Dessie referral and Kemise general hospitals in northeastern Ethiopia. *Health Science Reports, 5*(5), e659. [Crossref]

Ndubuisi, J. C., Aisha, M., Ugboaja, I., & Ubani, C. D. (2022). Prevalence of hepatitis B virus among students of Faculty of Natural and Applied Sciences, Nasarawa State University, Keffi Nasarawa State, Nigeria. *South Asian Journal of Parasitology, 5*(3), 86–90.

O'hara, G. A., Mcnaughton, A. L., Maponga, T., & et al. (2017). Hepatitis B virus infection as a neglected tropical disease. *PLOS Neglected Tropical Diseases, 11*(10), e0005842. [Crossref]

Olayinka, A. T., Oyemakinde, A., Balogun, M. S., Ajudua, A., Nguku, P., Aderinola, M., Egwuenu-Oladejo, A., Ajisegiri, S. W., Sha'aibu, S., Musa, B. O. P., Gidado, S., & Nasidi, A. (2016). Seroprevalence of hepatitis B infection in Nigeria: A national survey. *The American Journal of Tropical Medicine and Hygiene, 95*(4), 902–907. [Crossref]

Oti, V., Tella, E., Attah, A., Al-Mustapha, F., & Danjuma, E. (2021). Hepatitis B virus infection prevalence among patients in a local community hospital in Nasarawa State, Nigeria. *Epidemiology International Journal, 5*(4), 1–7. [Crossref]

Pan American Health Organization & World Health Organization. (2019). *Hepatitis*. [Link]

Rajamoorthy, Y., Radam, A., Taib, N. M., Rahim, K. A., Munusamy, S., Wagner, A. L., Mudatsir, M., Bazrbachi, A., & Harapan, H. (2019). Willingness to pay for hepatitis B vaccination in Selangor, Malaysia: A cross-sectional household survey. *PLOS ONE, 14*(4), e0215125. [Crossref]

Servaisalbert, F. E. (2014). Statut vaccinal contre le virus de l'hépatite virale B et portage de l'antigène Hbs chez les étudiants en médecine et en pharmacie de l'université de Douala au Cameroun. *Health Sciences and Diseases, 15*(1).

Shuaibu, U. Y., Giwa, F. J., Abdulaziz, M. M., Tanko, L. Z., Avidime, S., & Olayinka, T. A. (2022). Seroprevalence and factors associated with risk of Hepatitis B Virus infection among antenatal attendees in ABUTH Zaria, Northwestern Nigeria. *Nigerian Medical Journal, 62*(6), 318–324. [Crossref]

Spearman, C. W., Afihene, M., Ally, R., & et al. (2017). Hepatitis B in sub-Saharan Africa: Strategies to achieve the 2030 elimination targets. *The Lancet Gastroenterology & Hepatology, 2*(12), 900–909. [Crossref]

Suan, M. A. M., Said, S. M., Lim, P. Y., Azman, A. Z. F., & Hassan, M. R. A. (2019). Risk factors for hepatitis C infection among adult patients in Kedah State, Malaysia: A case-control study. *PLOS ONE, 14*(10), e0224459. [Crossref]

Subic, M., & Zoulim, F. (2018). How to improve access to therapy in hepatitis B patients. *Liver International, 38*, 115–121. [Crossref]

Tesfa, T., Hawulte, B., Tolera, A., & Abate, D. (2021). Hepatitis B virus infection and associated risk factors among medical students in eastern Ethiopia. *PLOS ONE, 16*(2), e0247267. [Crossref]

Tula, M. Y., & Iyoha, O. (2015). A cross-sectional study on the sero-prevalence of Hepatitis B Surface Antigen (HBsAg) among apparently healthy students of a tertiary institution in North-Eastern Nigeria. *International Journal of Tropical Disease & Health, 7*(3), 102–108. [Crossref]

Ullah, N., Khan, I., Kakakhel, M. A., Xi, L., Bai, Y., Kalra, B. S., Guanlan, L., Kumar, T., Shah, M., & Zhang, C. (2022). Serological prevalence of hepatitis B virus (HBV) in Mardan district, Khyber Pakhtunkhwa, Pakistan. *Brazilian Journal of Biology, 82*, e245813. [Crossref]

World Health Organization. (2017). *Global hepatitis report, 2017*. [Link]