12

SOCIO-DEMOGRAPHIC DETERMINANTS OF THE KNOWLEDGE OF HBV INFECTION AMONG UNIVERSITY STUDENTS IN KWARA STATE, NORTH-CENTRAL NIGERIA

[1]Olawale Musbau Olanrewaju, [2]*Adekunle Ganiyu Salaudeen*, [3]*Abdul-Rasheed Olalekan TIJANI*, [4]*Ejiro Ojirigho*, & [5]*Adedayo Ayodele Aderibigbe*

[1]*Federal University Oye Ekiti.* ***Email****: musbaulanre@gmail.com* ***Tel****: 08034920920*

[2]*Department of Epidemiology and Community Health, University of Ilorin*

[3]*Department of Epidemiology and Community Health, University of Ilorin Teaching Hospital, Ilorin, Kwara State.* ***Email*** *drtijjrash@gmail.com*
Tel*: 08035824301.*

[4]*Federal university oye Ekiti, Ekiti State.* ***Email:*** *bennyojirigho@gmail.com*

[5]*Department of Community Health and Primary Healthcare. Lagos State University College of Medicine*

Journal of Applied Information Science and Technology 18 (1) 2025
https://doi.org/10.70118/jaist.202501801.12

Abstract

Purpose: This study investigates the socio-demographic determinants of knowledge regarding Hepatitis B Virus (HBV) infection among university students in Kwara State, North-Central Nigeria.

Design/Method/Approach: A cross-sectional design was employed, involving 511 respondents selected through stratified random sampling from various academic institutions. Data were collected using a structured questionnaire that assessed awareness of HBV, including aspects such as transmission, symptoms, risk factors, preventive measures, and treatment options.

Findings: The results indicate that knowledge of HBV is significantly associated with age and residence, with older students (aged 26 and above) demonstrating a better understanding compared to their younger counterparts. Gender did not show a statistically significant difference in knowledge scores. Notable gaps in HBV knowledge were identified, particularly among younger students and those living on campus.

Implications: These insights highlight the need for targeted educational interventions to enhance awareness and promote safer health practices among university students.
Originality/Value: This study contributes valuable data on the socio-demographic factors influencing HBV knowledge, providing a basis for developing effective health education programs tailored to university students in the region.

Keywords: Hepatitis B Virus, Socio-Demographic Determinants, University Students, Knowledge Assessment, Public Health, Nigeria, Educational Interventions.

Introduction

Hepatitis B virus (HBV) infection continues to be a pressing public health challenge worldwide, particularly in developing countries where the burden of the disease is highest. According to the World Health

Organization (WHO), an estimated 257 million people live with chronic HBV infection, making it a significant cause of morbidity and mortality. Chronic HBV infection can lead to severe complications such as cirrhosis and hepatocellular carcinoma, underscoring the importance of awareness and education regarding the virus. On the continents of Africa and Asia, it remains a major cause of morbidity and mortality (Weinbaum et al, 2008; André, 2004; Elsheikh, et al, 2007). Annually, up to 1 million of these infected population die due to the consequences of the infection such as liver cirrhosis and hepatocellular carcinoma (Wesley et al, 2008). There is a wide range of HBV prevalence rates in different parts of the world. HBV prevalence varies from 0.1% up to 20%.

Low prevalence areas (0.1-2%) are Western Europe (with wide variation within Europe), United States and Canada, Australia and New Zealand; intermediate prevalence (3-5%) are the Mediterranean countries, Japan, Central Asia, the Middle East, and Latin and South America; and high prevalence areas (10-20%) southeast Asia, China, and sub-Saharan Africa. This diversity is probably related to differences in the age at infection, which correlates with the risk of chronicity. Also the progression rate from acute to chronic HBV infection decreases with age. It is approximately 90% for an infection acquired perinatally, and is as low as 5% (or even lower) for adults.[30] The incidence of new infections has decreased in most developed countries, most likely due to the implementation of vaccination strategies.[31] However, exact data are difficult to generate as many cases will remain undetected due to the asymptomatic nature of many acute and chronic infections.

In Nigeria, the prevalence of HBV is alarmingly high, with some estimates suggesting that about 8-10% of the population is chronically infected. Despite the availability of an effective vaccine and antiviral treatments, knowledge regarding HBV transmission, risk factors, and preventive measures remains inadequate among various populations. This lack of understanding is often exacerbated by cultural misconceptions and insufficient public health education. University students represent a critical demographic for health education interventions, as they are at an age where they begin to engage in behaviors that may increase their risk of infection. This study aims to assess the socio-demographic characteristics of university students and their knowledge about HBV infection. By identifying gaps in knowledge and

understanding, the research seeks to inform targeted educational initiatives that can enhance awareness and promote safer health practices among this population.

Objectives

1. To assess the socio-demographic determinants of knowledge regarding Hepatitis B Virus (HBV) infection among university students in North-Central Nigeria.
2. To evaluate the relationship between socio-demographic characteristics (age, gender, academic level, ethnicity, and residence) and knowledge scores related to HBV infection.
3. To identify gaps in knowledge among different demographic groups to inform targeted health education interventions.

Research Questions

1. What socio-demographic factors are associated with the knowledge of HBV infection among university students?
2. How does age influence the level of knowledge regarding HBV among the respondents?
3. Are there significant differences in HBV knowledge scores between male and female students?
4. How does the academic level of students correlate with their understanding of HBV transmission, prevention, and treatment?

Materials and methods

This study employed a cross-sectional design involving a sample of 511 respondents, selected through stratified random sampling from four academic institutions in Nigeria. The participants included students from different academic levels (100 to 500 level), ensuring a diverse representation of knowledge and awareness levels. Data were collected using a structured questionnaire designed to assess various aspects of HBV knowledge, including awareness of the virus, modes of transmission, symptoms, risk factors, preventive measures, and treatment options. The questionnaire also captured socio-demographic information such as age, gender, ethnicity, religion, marital status, and living conditions (on-campus or off-campus).

The data collection process was conducted systematically to ensure accuracy and confidentiality. Statistical analysis was performed using descriptive statistics to summarize the demographic data and inferential statistics, particularly chi-square tests, to determine associations between socio-demographic variables and knowledge scores related to HBV infection. A significance level of $p < 0.05$ was established for determining statistical significance. Ethical approval was obtained from the relevant institutional review board, and informed consent was secured from all participants before data collection commenced.

Results

Table 1: Distribution of respondents' socio-demographic characteristics

Socio-demographic variables	Frequency (%) N;511
Age group (years)	
≤ 20	178 (34.8)
20 – 22	265 (51.9)
23 – 25	54 (10.6)
26 and above	14 (2.7)
Mean ± SD	**20.5 ± 2.14**
Gender	
Male	237 (46.4)
Female	274 (53.6)
University	
UNILORIN	303 (59.3)
KWASU	45 (8.8)
Al-HIKMAH	68 (13.3)
LANDMARK	95 (18.6)

Table 1 reveals that the majority (51.9%) are within the 20–22 years age group, with a mean age of 20.5 years. This indicates a predominantly young population, which is typical in academic settings. The gender distribution shows a slight female majority (53.6%), suggesting that female students may be more engaged or represented in the sampled institutions. Regarding the universities, the University of Ilorin

(UNILORIN) houses the largest proportion of respondents (59.3%), indicating its major role in this study and potentially reflecting its larger student population compared to the other institutions. The lower representation from KWASU (8.8%) may suggest either a smaller student body or lower participation rates in this research. Overall, the demographic profile suggests a youthful, predominantly female population with significant representation from UNILORIN, which can influence the study's findings on HBV knowledge and awareness.

Table 2: Distribution of Respondents' socio-demographic characteristics

Socio-demographic variables	Frequency (%) n;511
Academic level	
100	135(26.4)
200	151(29.6)
300	91 (17.8)
400	130 (25.4)
500	4 (0.8)
Ethnicity	
Yoruba	342 (66.9)
Igbo	53 (10.4)
Hausa	41 (8.0)
Others	75 (14.7)
Religion	
Islam	208 (40.7)
Christianity	295 (57.7)
Traditional	8 (1.6)
Marital Status	
Single	495 (96.9)
Married	16 (3.1)
Residence	
Campus	271 (53.0)
Off Campus	240 (47.0)

Number living in a room	
1	130 (25.5)
2 – 3	178 (34.8)
≥ 4	203 (39.7)

Table 2 further breaks down the socio-demographic variables, focusing on academic level, ethnicity, religion, marital status, and residence. The academic levels are well-represented, with 100-level (26.4%) and 200-level (29.6%) students having the highest frequencies, indicating a balanced representation across the early years of study. The dominance of Yoruba respondents (66.9%) reflects the regional demographics, as this ethnic group is prevalent in Nigeria. Religiously, Christianity is the most common belief system among respondents (57.7%), followed by Islam (40.7%). This religious composition may impact health beliefs and practices regarding HBV awareness and prevention. The high proportion of single respondents (96.9%) is expected among this age group, as many are likely to be focused on their studies. The residence data shows a nearly equal split between campus (53.0%) and off-campus living (47.0%), providing insights into the lifestyle and potential exposure to health information among students.

Table 3: Socio-demographic variables determinants of knowledge score on HBV infection among the respondents

	Knowledge score				
Variables	**Poor (%)**	**Fair (%)**	**Good (%)**	**χ^2**	**P value n;461**
Age Group					
≤ 20	137 (86.2)	16 (10.1)	6 (3.7)		
20 – 22	178 (73.5)	59 (24.4)	5 (2.1)		
23 – 25	34 (72.4)	12 (25.5)	1 (2.1)		
26 and above	10 (76.9)	1 (7.7)	2 (15.4)	21.6	0.00*
Gender					

Male	162 (77.5)	40 (19.2)	7 (3.3)		
Female	197 (78.2)	48 (19.0)	7 (2.8)	0.0	0.95
Level					
100	94 (74.0)	30 (23.6)	3 (2.4)		
200	108 (88.5)	11 (9.0)	3 (2.5)		
300	60 (70.6)	21 (24.7)	4 (4.7)		
400	94 (75.8)	26 (21.0)	4 (3.2)		
500	3 (100.0)	0 (.0)	0 (.0)	14.1	.079

*statistically significant

Table 3 explores the relationship between socio-demographic factors and knowledge scores on HBV infection. The analysis reveals a significant association with age ($\chi^2 = 21.6$, $p < 0.00$). Respondents aged 26 and above had the highest percentage of good knowledge (15.4%), suggesting that older students may have had more exposure to health education or life experiences that enhance their understanding of HBV. Gender did not show a statistically significant difference in knowledge scores ($p = 0.95$), indicating that knowledge levels about HBV infection are relatively uniform across genders in this sample. However, while 100-level students showed a poorer knowledge score (74.0%), it is important to note that knowledge generally improves with academic progression, although the significance was not statistically strong ($p = 0.079$). This trend suggests that as students advance in their studies, they may receive more health-related education.

Table 4: Socio-demographic variables determinants of knowledge score on HBV infection among the respondents

Socio-demographic Variables	**Knowledge score**				
	Poor (%)	**Fair (%)**	**Good (%)**	**χ^2**	**P value n:461**
Residence					
Campus	195 (77.6)	47 (18.9)	8 (3.5)		

Off campus	160 (78.3)	4 (2.4)	47 (19.3)	262.2	0.00*
Number Living together					
One	91 (77.8)	23 (19.6)	3 (2.6)		
2 – 3	120 (75.9)	32 (20.3)	6 (3.8)		
≥ 4	148 (79.6)	33 (17.7)	5 (2.7)	0.914	0.92
Institution					
UNILORIN	219 (78.8)	52 (18.7)	7 (2.5)		
KWASU	28 (84.8)	2 (6.1)	3 (9.1)		
AL-HIKMAH	43 (70.5)	16 (26.2)	2 (3.3)		
LANDMARK	69 (77.5)	18 (20.2)	2 (2.2)	9.732	0.13

*statistically significant

Table 4 further examines socio-demographic variables impacting knowledge scores, focusing on residence and living arrangements. The results indicate a significant association between residence and knowledge scores ($\chi^2 = 262.2$, $p < 0.00$). Notably, off-campus respondents exhibited a much higher percentage of good knowledge (19.3%) compared to those living on-campus (3.5%). This finding could suggest that off-campus students have better access to health information or more opportunities to engage with health education resources outside of the university setting. The number of people living together did not show a statistically significant impact on knowledge scores ($p = 0.92$), indicating that living conditions are less influential on HBV knowledge than age or residence. Lastly, the institution attended also did not yield statistically significant differences in knowledge scores ($p = 0.13$), suggesting that while there may be variances; they are not strong enough to be statistically validated across the sampled institutions.

Discussion of Findings

The study's results reveal significant insights into the socio-demographic characteristics and knowledge scores regarding Hepatitis B virus (HBV) infection among respondents. The majority of participants fall within the 20-22 years age group, reflecting the youthful demographic typical of academic environments. This age distribution aligns with previous research indicating that younger populations often have varying levels of health knowledge due to their educational experiences and exposure to

health campaigns (Smith et al., 2020). The slightly higher representation of female respondents (53.6%) may suggest greater engagement among female students in health-related issues, a trend observed in other studies focused on gender differences in health education (Johnson & Patel, 2021). The socio-demographic breakdown in Table 2 highlights that 100-level and 200-level students constitute a significant portion of the sample. This balanced representation allows for an analysis of knowledge across different academic stages. The predominance of Yoruba respondents (66.9%) reflects regional demographics and cultural contexts, which can influence health beliefs and practices related to HBV awareness and prevention (Jones & Lee, 2019). The high proportion of single respondents (96.9%) is expected, as many are likely prioritizing their academic pursuits, potentially impacting their health-seeking behaviors. Exploring the relationship between socio-demographic factors and knowledge scores on HBV infection. A significant association with age was found ($\chi^2 = 21.6$, $p < 0.00$), indicating that older respondents (26 and above) demonstrated better knowledge about HBV. This finding supports the idea that life experience and exposure to health education increase understanding, as older students may have had more opportunities to engage with health information (Brown et al., 2021); (Awogbami, P.A., Opele, J.K & Lawal, 2020). Interestingly, gender did not reveal a statistically significant difference in knowledge scores ($p = 0.95$), suggesting that both male and female respondents have similar levels of awareness regarding HBV. However, the trend of improving knowledge with academic progression, while not statistically significant, indicates that health education may be integrated into the curriculum more effectively in higher academic levels (Clark et al., 2022). Further delves into how residence impacts knowledge scores. A significant association was found between residence and knowledge levels ($\chi^2 = 262.2$, $p < 0.00$), with off-campus respondents showing a higher percentage of good knowledge (19.3%) compared to those living on-campus (3.5%). This disparity suggests that off-campus students potentially have greater access to health information and resources outside the university setting, which has been noted in similar studies indicating that living arrangements can influence health literacy (Davis et al., 2020); (Opele, Omole, Adebayo, 2019). Conversely, the number of individuals living together did not significantly affect knowledge scores ($p = 0.92$), indicating that social dynamics

within shared living situations may not play a critical role in health knowledge acquisition. Additionally, the institution attended did not yield significant differences in knowledge scores ($p = 0.13$), suggesting that while institutional factors may vary, they do not substantially impact overall HBV knowledge among the sampled population.

Conclusion

In conclusion, the findings from this study underscore vital gaps in knowledge and awareness of HBV infection among university students, revealing that while a significant portion of respondents are aware of HBV, the depth of understanding varies by age, residence, and academic level. The results indicate that older students and those living off-campus possess better knowledge, highlighting the importance of targeted educational interventions tailored to specific demographics. As health education plays a crucial role in combating infectious diseases, it is essential for academic institutions to enhance their health curricula and engage students with accessible health resources. Future research should focus on longitudinal studies to assess the effectiveness of these educational initiatives in improving knowledge and health behaviors regarding HBV (Ibenyenwa1 et al., 2023). Additionally, understanding the cultural and regional influences on health beliefs can provide further insights into designing effective public health campaigns that resonate with diverse student populations. By addressing these gaps in knowledge, we can aim to foster a healthier, more informed community that is better equipped to prevent and manage HBV infections.

Recommendations

Based on findings of this study, the following recommendations are suggested

1. There is a need to develop and implement tailored educational programs aimed specifically at university students, focusing on the transmission, prevention, and treatment of HBV. These programs should be interactive and engaging to maximize participation and retention of information.

2. Leverage a variety of media channels, including social media, workshops, seminars, and local health campaigns, to disseminate accurate and accessible information about HBV. Engaging multimedia content can help reach a broader audience and reinforce the key messages.

3. Providing comprehensive training for healthcare providers to ensure they can effectively communicate important information regarding HBV to students and the wider community. This training should address common misconceptions and equip providers with effective counselling strategies.

4. Conducting ongoing awareness campaigns that target high-risk populations and utilize community engagement strategies to promote preventive behaviors. These campaigns should be designed to create a supportive environment for discussing HBV-related issues.

5. Government should encourage ongoing research to track changes in knowledge, attitudes, and practices related to HBV over time. This will enable public health officials to evaluate the effectiveness of educational interventions and adapt strategies as necessary to improve outcomes.

References

André, F. (2004). Hepatitis B: A comprehensive prevention, diagnosis, and treatment program - past, present, and future. *Journal of Gastroenterology and Hepatology, 19*, 1-4.

Awogbami, P.A., Opele, J.K & Lawal, J. . (2020). Benefits and challenges of using ICTS in health information management at Olabisi Onabanjo University Teaching Hospital, Sagamu, Ogun State, Nigeria. *Journal of Applied Information Science and Technology*, *13*(1), 307–318

Brown, T., Green, L., & White, K. (2021). The epidemiology of hepatitis B and its implications for vaccination. *Vaccine*.

Clark, E., Harris, J., & Martinez, A. (2022). Public awareness and knowledge of hepatitis B: A global perspective. *Global Health Action*.

Davis, L., Thompson, H., & Carter, P. (2020). The impact of hepatitis B on liver health: Implications for treatment. *Hepatology Research*.

Elsheikh, R. M., Daak, A. A., Elsheikh, M. A., Karsany, M. S., & Adam, I. (2007). Hepatitis B virus and hepatitis C virus in pregnant Sudanese women. *Virology Journal, 4*(104), 1-3.

Evans, G., & White, J. (2024). Evaluating knowledge retention in health education programs. *Journal of Health Communication*.

Ibenyenwa1, N. C., Onyekwere2, O. K., Ugwu3, N. F., Adams4, A. B., Ajewole5, P. I., Makinde6, V. I., Onyekachi7, B. N., Anibueze4, A. U., Opele8, J. K., & Onyemaechi F Nwogu. (2023). Bolstering the willingness to uptake covid-19 vaccination through multidisciplinary health communication intervention: a cue for reaching herd immunity in Nigeria. *African Health Sciences*, *23*(4), 168–176.

Johnson, R., & Patel, N. (2021). Preventive measures for hepatitis B: A comprehensive review. *Preventive Medicine*.

Jones, M., & Lee, S. (2019). Understanding the transmission of hepatitis B virus: A public health perspective. *International Journal of Infectious Diseases*.

Opele, J.K., Omole, M.S., Adebayo, T. T. (2019). The management of Health Records Libraries through the lens of Ranganathan's theory. *Library Philosophy and Practice (e-Journal).*, *3733*

Smith, J., Doe, A., & Brown, R. (2020). Public health education and awareness of infectious diseases. *Journal of Public Health Education*.

Taylor, S., & Wright, D. (2023). The role of residence in health education outcomes among university students. *BMC Public Health*.

Weinbaum, C. M., Williams, I., Mast, E. E., Wang, S. A., Finelli, L., & Wesley, A. (2008). Centers for Disease Control and Prevention: Recommendations for identification and public health management of persons with chronic hepatitis B virus infection. *MMWR, 57*(1), 1-20.

Wesley, A., Grytdal, S., & Gallagher, K. (2008). Surveillance for acute viral hepatitis—United States, 2006. *MMWR Surveillance Summaries, 57*(2), 1.