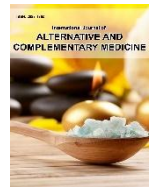




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## AN ASSESSMENT OF KNOWLEDGE, ATTITUDE, AND PRACTICE OF HEPATITIS B INFECTION AND VACCINATION AMONG RESIDENTS OF PASSO COMMUNITY IN GWAGWALADA AREA COUNCIL, ABUJA, NIGERIA

Yalma RM<sup>1</sup>, Aisha Chiroma<sup>2</sup>, Abubakar Imam<sup>3</sup><sup>1</sup>Department of Community Medicine, College of Health of Health Sciences, University of Abuja<sup>2,3</sup>Department of Community Medicine, University of Abuja Teaching Hospital, Gwagwalada, Abuja*Received: 15 May 2025 Revised: 27 June 2025 Accepted: 15 July 2025*

### Abstract

Hepatitis B virus (HBV) infection is a significant global public health concern, particularly in sub-Saharan Africa, due to its high morbidity and mortality. Hepatitis B continues to affect millions, primarily due to low awareness, poor knowledge, and limited access to preventive services. The availability of an effective vaccine has proven to be a remarkable disease modifying factor especially among high-risk population. This study aims to assess the awareness, knowledge, attitude and practice of Hepatitis B virus infection and vaccination among residents of Passo community, and also to identify factors associated with infection amongst them. A cross-sectional community-based study was conducted among 258 adult residents of Passo community of Gwagwalada Area Council Abuja. Participants were selected through multistage sampling technique. Data were collected using a pre-tested, semi-structured, questionnaire which was interviewer-administered and analyzed using SPSS version 25. Descriptive statistics such as Chi-square test, were employed to determine associations between variables. A p-value < 0.05 was considered statistically significant. The study revealed 70.2% of the respondents were aware of hepatitis B; however, only 45.3% demonstrated good knowledge of the infection and vaccination. Tertiary education was significantly associated with better knowledge ( $p < 0.001$ ). Attitude towards prevention and testing were positively associated with knowledge levels. About 63% of respondents did not know their hepatitis B status, and only 14.3% had received the hepatitis B vaccine. The majority (80%) of un-vaccinated participants cited lack of information as the reason. Although awareness was relatively high, there were substantial gaps in knowledge, attitude, and preventive practices, particularly regarding screening and vaccination. There is a critical need for community-targeted interventions to improve hepatitis B literacy and accessibility to screening and vaccination services.

**Keywords:** Hepatitis B, Knowledge, Attitude, Practice, Vaccination, Nigeria, Community Health

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### \*Corresponding Author

Dr Yalma Ramsey Msheliza

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### Introduction

Hepatitis B is a viral infection of the liver caused by the hepatitis B virus (HBV). It poses a major global health challenge, especially in regions such as sub-Saharan Africa and Asia, where chronic infection rates remain high. The World Health Organization estimates that 257 million people live with chronic HBV infection, and nearly 887,000 people die annually from complications including cirrhosis and hepatocellular carcinoma [1, 2]. The disease

is preventable through effective vaccination and preventive measures. Despite the availability of a highly effective vaccine since 1982, gaps in public knowledge and accessibility continue to fuel transmission. In Nigeria, hepatitis B prevalence is estimated to be over 8%, making it a hyper endemic region [3, 4]. This study focuses on assessing the knowledge, attitude, and practice (KAP) towards HBV infection and vaccination in Passo, a peri-urban community in Gwagwalada, Abuja. Understanding these dimensions can guide interventions aimed at reducing disease burden.

Hepatitis B is a potentially life-threatening liver infection caused by the hepatitis B virus (HBV) [1,5]. It is a major global health problem. It can cause chronic infection and puts people at high risk of death from cirrhosis and liver cancer. Hepatitis B virus (HBV) infection is a major global health problem especially in Asia, Africa, Southern Europe and Latin America. About 2 billion people are infected

with HBV worldwide, and 400 million among them are suffering from chronic HBV infection.<sup>1</sup>Hepatitis B prevalence is highest in the WHO Western Pacific Region and the WHO African Region, where 6.2% and 6.1% respectively of the adult population is infected. In the WHO Eastern Mediterranean Region, the WHO South-East Asia Region and the WHO European Region, an estimated 3.3%, 2.0% and 1.6% of the general population is infected, respectively [6, 7, 8], About 0.7% of the population of the WHO Region of the Americas is infected.<sup>1,9</sup> Hepatitis B is a viral infection that attacks the liver and can cause both acute and chronic disease. An estimated 257 million people are living with hepatitis B virus infection (defined as hepatitis B surface antigen positive).In 2015, hepatitis B resulted in 887000 deaths, mostly from complications (including cirrhosis and hepatocellular carcinoma) [2,7].

HBV infection has heterogeneous outcomes: acute viral hepatitis, spontaneous clearance or chronicity, with its common fatal sequelae of hepatic cirrhosis and hepatocellular carcinoma (HCC).<sup>10</sup>When a person is first infected with the hepatitis B virus, it is called an acute viral hepatitis. Most healthy adults that are infected do not have any symptoms and are able to get rid of the virus without any problems. Some adults are unable to get rid of the virus after six months and they are diagnosed as having a chronic infection.<sup>11</sup> A simple blood test can diagnose an acute or chronic hepatitis B infection.<sup>3</sup> The risk of developing a chronic hepatitis B infection is directly related to the age at which a person is first exposed to the hepatitis B virus. Most adult-onset infections resolve spontaneously, with only 5-10% resulting in chronic carriership [2,9]. Chronicity is commonly associated with early childhood exposures, with an estimated 90% of perinatal transmissions becoming chronic infections.<sup>4</sup> Perinatal and horizontal transmissions are the predominant routes of HBV infection in hyperendemic settings. Most pregnant women do not know whether they are infected with hepatitis B and can unknowingly pass the virus to their newborns during childbirth.<sup>12</sup> Therefore, since the risk of newborns becoming chronically infected at birth is so high, both the World Health Organization and the U.S. Centers for Disease Control and Prevention recommend that all infants receive the first dose of the hepatitis B vaccine within 12-24 hours after birth [3,7].

The recommendation for hepatitis B vaccination of babies and children is so important because they are at the greatest risk of developing a chronic infection if they are not protected against the hepatitis B virus as soon as possible.<sup>2,13</sup> Presentation of hepatitis B can be either acute symptomatic disease or an asymptomatic disease.<sup>13,14</sup>Signs and symptoms of hepatitis B range from mild to severe.<sup>15-17</sup> They usually appear about one to four months after infection, although it may appear as early as two weeks post-infection. Some people, usually young children, may not have any symptoms. Hepatitis B

signs and symptoms may include: Abdominal pain, dark urine, fever, joint pain, loss of appetite, nausea and vomiting, weakness and fatigue, yellowing of your skin and the whites of your eyes (jaundice) [3, 4]. It is on this importance the study aimed to examine the knowledge, attitude and *practice* towards HBV infection among residents of Passo community in Gwagwalada.

## Materials and Methods

**Study Design and Area:** A descriptive cross-sectional study was conducted in Passo community, Gwagwalada Area Council, Federal Capital Territory (FCT), Nigeria. Gwagwalada Area council is one of the six Local Area Councils of the Federal Capital Territory of Nigeria, together with Abaji, Kuje, Bwari, and Kwali; the FCT also includes the City of Abuja.Gwagwalada has an area of 1069.589 km<sup>2</sup>, density of 384.4/km<sup>2</sup>, its geographical coordinates are 8° 56' 29" North and 7° 5' 31" East. It has a population of 157,770 at the 2006 census. The population sample was targeted at adult residents (≥18 years) who gave informed consent. Exclusion criteria was individuals younger than 18 years age.

**Sampling Technique:** A clustersampling technique was adopted. Gwagwalada was selected from six area councils, followed by the selection of Passo ward among ten wards, using simple random sampling techniques. All consenting adults in Passo ward were studied until the sample size was reached.

**Data Collection and Analysis:** Data were collected using a pre-tested, semi-structured questionnaire covering socio-demographics, knowledge, risk factors, attitudes, and preventive practices. Questionnaire was pre tested in another state in North central Nigeria, for validity and reliability.

The data collected was entered into a MicrosoftExcel and analyzed using the Statistical Package for Social Sciences (SPSS) version 25 software. Categorical variables were described using frequencies and percentages while continuous variables were expressed as mean and standard deviation. Cross tabulation and Pearson's Chi-square test were used to determine association between socio-demographic characteristics and other dependent variables. The knowledge was assessed using 4 components, each with a score of 5 making a total knowledge score of 20. The score was then graded as, 1-10 for poor knowledge and 11-20 for good knowledge. Frequencies and percentages were then used to determine good or poor knowledge. Pearson's Chi-square test was used to determine association between knowledge and gender as well as knowledge and level of education. The attitude was assessed using Likert scale and analyzed by grouping responses of strongly disagree, disagree and undecided as negative attitude. Agree and strongly agree responses were grouped as positive attitude. Pearson's Chi-square test was used to determine association between attitude and knowledge. Same statistical tools were employed in determining association between

Hepatitis B status of respondents and knowledge, factors associated with HBV infection and Hepatitis B status as well as Hepatitis B vaccination status and knowledge. Pie charts were used to represent vaccination status as well as reasons for being unvaccinated.

**Results**

Socio-demographics: A total of 258 respondents were studied; 58.5% were males and 41.5% females. Mean age was 31.5 years. Most respondents were married (50.8%) and held secondary (38.8%) or tertiary education (38.4%). Christianity was the predominant religion (64.7%) as presented in Table 1 below.

**Table 1: Socio-demographic characteristics of respondents**

Variables	Male n=151(%)	Female n=107(%)	Chi-square value	p-value
<b>Mean Age</b>	31.1	31.9	0.529 <sub>x</sub> (t-test)	0.597
<b>Occupation</b>				
<b>Unskilled</b>	52(58.4)	37(41.6)	4.067	0.254
<b>Skilled</b>	43(67.2)	21(32.8)		
<b>Professional</b>	12(63.2)	7(36.8)		
<b>Unemployed</b>	44(51.2)	42(48.8)		
<b>Marital status</b>				
<b>Married</b>	67(51.1)	64(48.9)	11.513	0.003*
<b>Single</b>	84(67.7)	40(32.3)		
<b>Widow(er)</b>	0	3(100.0)		
<b>Religion</b>				
<b>Islam</b>	58(63.7)	33(36.3)	1.572	0.210
<b>Christianity</b>	93(55.7)	74(44.3)		
<b>Highest level of education</b>				
<b>None</b>	23(65.7)	12(34.3)	21.289	<0.001*
<b>Primary</b>	6(25.0)	18(75.0)		
<b>Secondary</b>	51(51.0)	49(49.0)		
<b>Tertiary</b>	71(71.7)	28(28.3)		
<b>Ethnicity</b>				
<b>Ebira</b>	9(45.0)	11(55.0)	18.357	0.010*
<b>Gbagyi</b>	15(51.7)	14(48.3)		
<b>Hausa</b>	33(84.6)	6(15.4)		
<b>Gwari</b>	14(58.3)	10(41.7)		
<b>Igbo</b>	16(61.5)	10(38.5)		
<b>Nupe</b>	10(45.5)	12(54.5)		
<b>Yoruba</b>	17(70.8)	7(29.2)		
<b>Others</b>	37(50.0)	37(50.0)		

Awareness and knowledge: Results presented in Table 2 below revealed high level of awareness as seventy percent (70.2%) of participants were aware of hepatitis B. Healthcare workers (55.8%) were the most cited source of information. Only

45.3% of respondents demonstrated good knowledge. Knowledge was positively associated with level of education ( $p < 0.001$ ). Table 3 shows categorized knowledge of hepatitis B virus infection

Table 2: Awareness and source of information of hepatitis B

Variables	n(%)
<b>Awareness of hepatitis B</b>	
Yes	181(70.2%)
No	77(29.2%)
<b>If yes, source of information</b>	
Mass media	83(32.2%)
Health personnel	144(55.8%)
Social media	49(19.0%)

Table 3: Knowledge of hepatitis B

Knowledge of hepatitis B	n=258(%)	p-value
Poor knowledge	141(54.7)	> 0.05
Good knowledge	117(45.3)	
Total	258(100.0)	

Table 4: Knowledge level by gender

Knowledge	Male n=151(%)	Female n=107(%)	x <sup>2</sup> value	p-value
Poor knowledge	77(51.0)	64(59.8)	1.966	0.161
Good knowledge	74(49.0)	43(40.2)		
Total	151(100.0)	107(100.0)		

Table 5: Association between level of education and knowledge

Level of education	Poor knowledge n=141(%)	Good knowledge n=117(%)	x <sup>2</sup> value	p-value
None	32(22.7)	3(2.6)	28.718	<0.001*
Primary	16(11.3)	8(6.8)		
Secondary	53(37.6)	47(40.2)		
Tertiary	40(28.4)	59(50.4)		
Total	141(100.0)	117(100.0)		

Attitude: Majority (62%) of respondents agreed on the importance of universal screening and premarital testing. Positive attitude was significantly associated with good knowledge ( $p < 0.001$ ).

Table 6: Association between attitude and knowledge of HBV infection

Attitude	Poor knowledge n=141(%)	Good knowledge n=117(%)	Total Attitude n=258(%)	X <sup>2</sup> value	p-value
<b>HBV is more infectious than HIV</b>					
Positive attitude	22(23.4)	72(76.6)	94(36.4)	58.258	<0.001*
Negative attitude	119(72.6)	45(27.4)	164(63.6)		
<b>Everyone should be tested for HBV</b>					
Positive attitude	54(33.8)	106(66.2)	160(62.0)	74.249	<0.001*
Negative attitude	87(88.8)	11(11.2)	98(38.0)		
<b>Everyone should go for premarital screening</b>					
Positive attitude	49(30.4)	112(69.6)	161(62.0)	101.327	<0.001*
Negative attitude	92(94.8)	5(5.2)	97(38.0)		
<b>Everyone should be vaccinated as a means of prevention</b>					
Positive attitude	41(27.7)	107(72.3)	148(57.0)	101.716	<0.001*
Negative attitude	100(90.9)	10(9.1)	110(43.0)		

**Table 7: Association between hepatitis B status and knowledge**

Hepatitis B Status	Poor knowledge n=141(%)	Good knowledge n=117(%)	Total n=258	X <sup>2</sup> value	p-value
Positive	0	2(1.0)	2(1.0)	40.871	<0.001*
Negative	27(19.1)	67(57.3)	94(36.0)		
Don't know	112(79.4)	50(42.7)	162(63.0)		
Total	141(100.0)	117(100.0)	258(100.0)		

Practices: About 63% of respondents had never been tested for hepatitis B. Common risky behaviors included sharing of haircare tools (60.1%) and using public manicure services (23.3%). Only 14.3% of respondents had been vaccinated.

**Table 8: Association between knowledge and hepatitis B vaccination status**

Vaccinated for Hepatitis B	Poor knowledge n=141(%)	Good knowledge n=117(%)	Total Frequency n=258(%)	x <sup>2</sup> value	p-value
Yes	8(5.7)	9(24.8)	37(14.3)	20.482	<0.001*
No Not sure	133(94.3) 0	87(74.4) 1(0.9)	220(85.2) 1(0.5)		
Total	141(100.0)	117(100.0)	258(100)		

Barriers to Vaccination:

Among those unvaccinated, 80% cited lack of information, while others reported cost (12%) and distrust in vaccine safety (7%).

**Table 9: Factors associated with HBV infection and Hepatitis B status of respondents**

Factors associated with HBV infection	HBV status				x <sup>2</sup> value	p-value
	Positive	Negative	Don't know	Total frequency n=258(%)		
Sharing haircare instruments	2(1.3)	53(34.2)	100(64.5)	155(60.1)	2.048	0.359
Use of public manicure and pedicure services	0	18(30.0)	42(70.0)	60(23.3)	2.142	0.343
Sterilization of instruments before use	1(0.7)	50(34.5)	94(64.8)	171(66.3)	1.969	0.374
Use of IV recreational drugs	0	3(100.0)	0	3(1.2)	5.296	0.071

**Discussion**

The demographic composition reflected a higher proportion of male respondents, consistent with findings in similar studies [4, 5]. The mean age was 31 years, with a majority of participants being either unemployed or engaged in unskilled labor such as trading and farming [7]. A significant portion were married, although more men were single compared to women. Most respondents had attained at least secondary or tertiary education, and the community was ethnically diverse, reflecting the broader demographic composition of the area [3]. The study revealed a relatively high level of awareness, with 70.2% of respondents reporting prior knowledge of HBV. This level of awareness aligns with similar studies,

such as that by Ofimayo et al. in Benue State, which recorded 81.1% awareness. However, it surpasses findings among traders in Calabar, as reported by Okonkwo et al. [20]. The primary sources of information included health personnel (55.8%), mass media (32.2%), and social media (19%). Notably, those informed by healthcare workers demonstrated significantly better knowledge than those who relied on other sources. Despite high awareness, only 45.3% of respondents demonstrated good knowledge of HBV infection and its prevention, while 54.7% had poor knowledge. A strong association was observed between higher educational attainment and better knowledge, particularly among those with tertiary education [9,11,12]. Men generally

showed superior knowledge, likely due to higher education levels among male respondents in this community. Specific knowledge gaps were noted: only 34.9% knew HBV was viral in origin, 43.8% were aware of mother-to-child transmission, 34.4% understood transmission via shared sharps, and 51.6% recognized the role of vaccination in prevention. These findings suggest that while general awareness is high, detailed and actionable knowledge remains inadequate.

Several behavioral risk factors associated with HBV transmission were identified. Notably, 60.1% of respondents reported sharing haircare instruments in salons, and 23.3% utilized public manicure and pedicure services-both of which can facilitate HBV transmission if sterilization protocols are not followed. Encouragingly, most respondents claimed to insist on the sterilization of tools. Intravenous drug use, a recognized high-risk behavior for HBV transmission, was reported by a negligible number (1.2%), indicating it is not a predominant transmission route in this population, as demonstrated in Nigeria and in other settings.<sup>5,20</sup>

Attitudinal assessment revealed a significant association between knowledge levels and health-seeking behavior. Respondents with good knowledge were more likely to have a positive attitude toward HBV prevention. Conversely, those with limited knowledge expressed uncertainty or negative views regarding critical prevention measures. For instance, 63.6% disagreed or were unsure whether HBV is more infectious than HIV, while 62% supported universal testing and premarital screening, and 57% advocated for vaccination. These findings highlight the impact of knowledge on shaping attitudes and the potential of targeted education to foster positive behavioral change as reported in similar studies [8,9,13].

Preventive practices were suboptimal. Most notably, 63% of respondents were unaware of their HBV status, indicating low screening uptake. Only 1% self-reported as positive, and while 36% knew they were negative, many had not been tested recently, undermining the reliability of their status. Respondents who had previously undergone HBV screening exhibited better knowledge, likely due to exposure to pre- or post-screening health education, as corroborated by prior studies [2,10,13].

Vaccination coverage was markedly low, with only 14.3% of respondents having received at least one dose of the HBV vaccine. The predominant reason for non-vaccination (80%) was lack of information, followed by financial constraints (12%) and vaccine safety concerns (7%) which is close to recent reported studies [2,5,9,17]. Misinformation, particularly related to recent conspiracy theories about COVID-19 vaccines, appeared to influence vaccine hesitancy.<sup>10</sup> One percent of respondents reported not receiving the vaccine due to already being HBV-positive. Overall, knowledge levels were significantly higher among vaccinated individuals,

underscoring the reciprocal relationship between awareness and preventive health behavior.

## Conclusion

Although awareness of HBV was relatively high (70.2%), this did not translate into sufficient knowledge, as over half of the respondents (54.7%) demonstrated poor understanding of the disease's transmission, prevention, and consequences. Education level was a significant predictor of both knowledge and attitudes, reinforcing the importance of literacy and structured health education in public health interventions.

Attitudinal disposition and preventive practices were similarly inadequate, with limited screening uptake (only 36% aware of their HBV status) and low vaccination coverage (14.3%). Common high-risk behaviors such as sharing haircare instruments and use of public manicure services were prevalent. The primary barriers to vaccination included lack of information, financial constraints, and vaccine hesitancy driven by misinformation. These findings underscore a critical gap between awareness and actionable knowledge, highlighting the urgent need for comprehensive, community-based educational and preventive strategies.

## Recommendations

To effectively address the observed gaps in knowledge and preventive practices related to hepatitis B in the Passo community, there is a pressing need for intensified public health education. Health promotion efforts should be tailored to the literacy level and cultural context of the community, with a focus on increasing understanding of HBV transmission routes, preventive measures, and the importance of vaccination. Utilizing health personnel, religious institutions, and mass media as channels of information can enhance outreach. Additionally, widespread, community-based screening initiatives should be implemented to identify individuals at risk or already infected, while also serving as an entry point for targeted health education and linkage to care.

Moreover, expanding access to hepatitis B vaccination is crucial. This can be achieved by providing free or subsidized vaccines at primary healthcare centers and through mobile outreach units. Financial and logistical barriers to vaccination must be minimized. Furthermore, misinformation-particularly surrounding vaccine safety-should be countered through transparent communication and engagement with trusted community figures. Building trust in healthcare systems and promoting vaccination as a community norm will require coordinated efforts between governmental agencies, non-governmental organizations, and local stakeholders to ensure sustainable implementation of prevention strategies.

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### Ethical Approval

Approved by the University of Abuja Teaching Hospital Health Research Ethics Committee (UATH HREC).

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### Conflict of Interest

Authors have declared that no competing interests exist  
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