



doi:10.5281/zenodo.17601210

# Awareness And Prevention Practices Of Hepatitis B Infection Among Women Attending Antenatal Clinics In Primary Health Care Facilities In Osogbo, Osun State

<sup>1</sup>Sajanat Olubusola Salinsile,<sup>2</sup>Oluwatoyin Juliana Elebiju,<sup>3</sup>Olalekan Olumide Akomolafe  
<sup>4</sup>Adeniregun Kehinde Adesoji, <sup>4</sup>Olanrewaju Joseph Ojo, <sup>5</sup>Johnson Olusoji Idowu

<sup>1,3,4,5,6</sup> Department of Public Health, Adeleke University Ede, Osun State, Nigeria

<sup>3</sup>Department of Health care Management,  
European Institute of Management and Technology. EIMT– CH-6330, Switzerland

<sup>1,2,3,4,5</sup> Email: [Sajanat01@gmail.com](mailto:Sajanat01@gmail.com), [elebiju.oluwatoyin@adeleke.edu.ng](mailto:elebiju.oluwatoyin@adeleke.edu.ng), [akomolafe.olalekan@yahoo.com](mailto:akomolafe.olalekan@yahoo.com), [adesojikehinde@gmail.com](mailto:adesojikehinde@gmail.com), [ojodoc5@gmail.com](mailto:ojodoc5@gmail.com), [johnsonolusoji@gmail.com](mailto:johnsonolusoji@gmail.com).

## ABSTRACT

Despite the increasing implementation of vaccines and passive immunization, management of hepatitis B virus (HBV) infection remains a persistent challenge in many areas globally. There is a gap in knowledge on awareness of HBV infection, transmission route of HBV, prevention measures, and compliance to prevention measures of HBV among pregnant women. The study aimed to assess the level of awareness of HBV infection and compliance with prevention measures among pregnant women attending antenatal care in selected primary health facilities in Osogbo, Osun State, Nigeria. A descriptive cross-sectional survey design was employed. A total of 316 pregnant women were recruited from six primary health care (PHC) facilities across Osogbo and Olorunda Local Government Areas (LGAs) using a three-stage multi-stage sampling technique. 300 structured questionnaires were returned and collected using, and analysis was performed using the Statistical Package for Social Sciences (SPSS) version 25. Binary logistic regression was used to examine the factors influencing awareness of HBV infections. Variables were considered statistically significant at P-value < 5% and compliance with HBV prevention measures using mean score. The mean age of the participants was 27.7 pm 2.60 years. The study found a generally poor level of awareness of HBV infection, with 38.3% of respondents categorized as having poor overall awareness. Only 46.0% (138) of the women had ever heard of the virus. While key transmission routes like unprotected sex (84.1% correct) and mother-to-child transmission (81.6% correct) were widely recognized, significant misconceptions persisted (e.g., 49.3% believed it transmits through handshake). Compliance with HBV prevention measures was found to be at a moderate level (Grand Mean = 3.44), with the highest compliance in Safe Sexual Practices (Mean = 4.48). However, compliance was lowest for Partner HBV Testing (Mean = 2.87) and HBV Vaccination (Mean = 2.92). It was concluded, the level of HBV awareness and compliance with prevention measures among pregnant women in Osogbo is suboptimal, characterized by significant knowledge gaps and weak uptake of crucial interventions like vaccination and partner testing. There is an urgent need for tailored health education campaigns targeting pregnant women, particularly those in the informal sector, to correct misconceptions and improve adherence to essential HBV prevention strategies.

**Keywords:** Hepatitis B Virus (HBV); Awareness; Prevention; Compliance; Pregnant Women; Osogbo; Osun State.

## 1.0 INTRODUCTION

Hepatitis B virus (HBV) remains a major global health challenge, causing both acute and chronic liver disease, cirrhosis, and hepatocellular carcinoma (HCC) (Albashir et al., 2024; Bhattacharya et al., 2025; Yao-Chun Hsu & Mindie H. Nguyen, 2024). HBV is a small, partially double-stranded DNA

virus of the Hepadnaviridae family, with a genome of about 3.2 kb and four overlapping genes (S, C, P, X) (Chunzheng Li et al., 2024). The virus is transmitted through perinatal (mother-to-child), sexual, and parenteral routes, including exposure to infected blood or body fluids, unsafe injections, and tattooing (Albashir et al., 2024; Bhattacharya et al., 2025; Li et al., 2024).

Globally, an estimated 254–296 million people are living with chronic HBV infection as of 2024, with the highest burdens in the Western Pacific and African regions (Albashir et al., 2024; Dagnaw et al., 2025; Bhattacharya et al., 2025). HBV is 50–100 times more infectious than HIV, and the risk of chronic infection is highest when transmission occurs perinatally or in early childhood (Hobart et al., 2024; Tohme et al., 2024). In high-prevalence regions such as sub-Saharan Africa and parts of Asia, perinatal and early childhood transmission predominate, while in low-prevalence areas, sexual and parenteral exposures are more common (Hobart et al., 2024; Kaewdech et al., 2024).

Chronic HBV infection can be asymptomatic or lead to chronic hepatitis, cirrhosis, and HCC. In 2022, HBV was responsible for over 820,000 deaths globally, mainly due to cirrhosis and liver cancer (Albashir et al., 2024; Dagnaw et al., 2025). In Africa, HBV accounts for approximately half of all HCC cases (Albashir et al., 2024). Risk factors for infection include transfusion of unscreened blood, unsafe injections, sexual contact, tattooing, healthcare work, and close contact with infected individuals (Bhattacharya et al., 2025; Chunzheng et al., 2024).

Universal HBV vaccination is the most effective strategy for prevention, with the World Health Organization (WHO) targeting 90% coverage by 2030 (Al-Busafi & Ahmed, 2024; Apichat et al., 2024). However, global birth dose coverage remains suboptimal, especially in low-resource settings (Tohme et al., 2024; Gong et al., 2024; Van de Ven and Johnson, 2006). In some high-risk groups, such as healthcare workers, vaccination rates are still insufficient (Orotta et al., 2025; Berhanu et al., 2025).

Despite advances in vaccination and antiviral therapy, HBV remains underdiagnosed and undertreated, with only a small fraction of eligible patients receiving care (Yao-Chun & Mindie Nguyen, 2024; Al-Busafi & Ahmed, 2024). Social stigma, limited healthcare access, and gaps in prevention and treatment programs continue to hinder elimination efforts (Yao-Chun & Mindie Nguyen, 2024; Tassew et al., 2024).

## **1.2 General Objective**

The study aims to assess the level of hepatitis B virus infection awareness and prevention among pregnant women attending antenatal care in selected primary health facilities in Osogbo.

## **1.3 Specific Objectives**

1. To assess the level of awareness of hepatitis B virus infection among pregnant women attending selected health facilities in Osogbo.
2. To determine the level of compliance with preventive measures against hepatitis B virus infection among pregnant women in the selected primary health facilities in Osogbo Osun State.

## **1.4 Research Questions**

1. Do women in selected primary health care facilities in Osogbo, Osun State know about hepatitis B virus infection?
2. Do women in selected primary health care facilities in Osogbo, Osun State know about the prevention of hepatitis B virus infection?

## **2.0 METHODOLOGY**

### **2.1 Study Setting**

The study was carried out in Oshogbo, Osun State, Nigeria. Osogbo is the capital city of Osun State which was established in 1991. Osogbo shares boundaries with Ikirun, Ilesa, Ede, Egbedore, and Iragbiji. Osogbo has a population of 750,000 according to 2022 Population and Housing Commission Census and it is mostly dominated by the Yoruba. Osogbo sometimes called Ile Aro is a major dyeing center and one of the industries in Osogbo. Osogbo is also the venue of the annual Osun-Osogbo festival along the River Osun. There are two major local governments in Osogbo namely, Osogbo local government, and Olorunda local government.

**2.2 Research Design**

This is a descriptive design of the cross-sectional survey type carried out among pregnant women attending antenatal services in the selected primary health care facilities in Osogbo, Osun State, Nigeria. To achieve the objectives of this study and be able to present the patterns of the variables of interest, a cross-sectional study design, which is majorly used to assess the prevalence of the population was used in this study.

**2.3 Target Population of Study**

The population for this study included women attending antenatal clinics in the selected primary health facilities in Osogbo local government and Olorunda local government.

**2.4 Inclusion Criteria**

Pregnant women attending antenatal clinics in the selected primary health facilities in Osogbo township, Osun State, Nigeria with adequate physical, mental, and cognitive capacity were willing to participate in the survey.

**2.5 Exclusion Criteria**

Pregnant women who were not physically and health wisely fit to participate were excluded from this study.

**2.6 Research Sampling Methods**

A three-stage multistage sampling technique was used in this study. The first stage was the selection of the two Local Government Areas (LGA) in Osogbo. The second stage was the random selection of six health facilities (three from Olorunda LGA and three from Osogbo LGA) in Osogbo, Osun state. This resulted in 6 PHC facilities namely: Isale-Agbara PHC, Oke-Baale PHC, Odi-Olowo PHC, Sabo PHC, Oluode PHC, and Ota-Efun PHC. The second stage was achieved by balloting to avoid bias in the selection of primary health facilities. The names of each primary health facility were written on pieces of paper and were wrapped. After which it was mixed and a random selection of three primary health facilities was done from each local government area. The three randomly selected primary health facilities under Osogbo LGA included Isale-Agbara PHC, Oke-Baale PHC, and Odi-Olowo PHC. Health facilities selected in Olorunda LGA included Sabo PHC, Oluode PHC, and Ota-Efun PHC. The third stage was a simple random selection of pregnant women coming for antenatal care services in the selected hospitals. All eligible patients that visited the study facilities were approached, and the study was explained to them, and those who gave consent were enrolled in this study.

**2.6 Sample Size Determination**

Using the Leslie- Kish formulae.

$$n = \frac{Z_a^2 pq}{d^2} \text{ (Leslie-Kish formula)}$$

Where,

n = minimum sample size

Z = Standard deviate at 95% confidence interval = 1.96

p = Prevalence (Hang Pham *et al.*, 2019).

q = Complimentary Probability to P

d = Error Margin = 5% = 0.05

(Where;  $z^2 = 1.96^2$ ,  $p = 0.75$ ,  $q = 1-p = 0.25$ ,  $d^2 = 0.05^2$ )

$$n = \frac{1.96^2 \times 0.75 \times 0.25}{0.05^2}$$

$$n = \frac{3.8416 \times 0.75 \times 0.25}{0.0025}$$

$$n = 288$$

A 10% non-response rate was adjusted for, this led to a total sample size of 316 calculated for this study.

**2.7 Research Instrument for Data Collection**

A structured questionnaire was used as the instrument for data collection. The questionnaire contained demographic questions, which elicited basic information from the respondents, such as their ages, sex, and other details. The questionnaire was set up in an electronic data collection tool Kobo toolbox and data were captured on the android application. Each participant that gave consent was interviewed by myself and a research assistant using the questions from the app and responses were entered on the

app and submitted to the Kobo humanitarian server from which data were exported into data analysis software SPSS 25.

### 2.9 Method of Data Analysis

Analysis was done using Statistical Package for Social Sciences (SPSS) version 25. Frequency and percentage tables, charts, means, and standard deviations were used to summarize the data as appropriate. Binary logistic regression was used to examine the factors influencing awareness of HBV infections. Variables were considered statistically significant at P-value < 5% and compliance with HBV prevention measures using mean score.

### 2.10 Ethical Consideration

Ethical consideration was sought and obtained from Adeleke University Ethics Review Committee before going to the field for data collection. Written informed consent was made available in the questionnaire. The confidentiality of all respondents was ensured by excluding the use of identifiers such as names, addresses, and other information that can reveal the identity of research participants. This research did pose any harm to the participants. The participants were addressed and ensured of their confidentiality.

### 2.11 Informed Consent

Informed consent was obtained from participants involved in the study after explaining the purpose of the study to them.

### 2.12 Confidentiality of Data

To ensure confidentiality, no names were recorded on the study instruments. Code numbers were assigned to questionnaires for easy tracking. Study instruments were kept in a safe place and were only accessible to members of the research.

### 2.13 Validity/ Reliability of Research Instrument

Validity of the research instruments (the questionnaire) was carried out. It was corrected by the supervisor to assess it and determine the appropriateness and relevance of the questions in the instruments before proceeding to the field for actual study. In testing for the reliability of the research instrument, pre-test was conducted for 10% of sample size. The obtained from the analysis was used to check for the consistency of the survey before carrying out a full field work.

## 3.0 RESULTS

### 3.1 Demographic Characteristics of the study participants

The results in table 1 presented the demographic information of the study participants. Participants were approached and those who consented provided responses that were available to them. The question-specific non-response rate ranged from 5 (1.7%) to 23(7.7%). The mean age of the respondents was 27.7 ±2.60 SD. Also, 23 (8.3%) of them were aged <20 years and 156 (56.3%) were aged 30 to 30 years. Majority 130 (44.1%) of the respondents were in business/ trading, 112 (38.0%) were self-employed, and 53 (18.0%) were Civil servants. Most of them 278 (92.7%) were in a union, and 22 (7.3%) were not in any union. About 265 (88.3%) were Yoruba, while the other 35(11.7%) comprised Igbos and Hausas

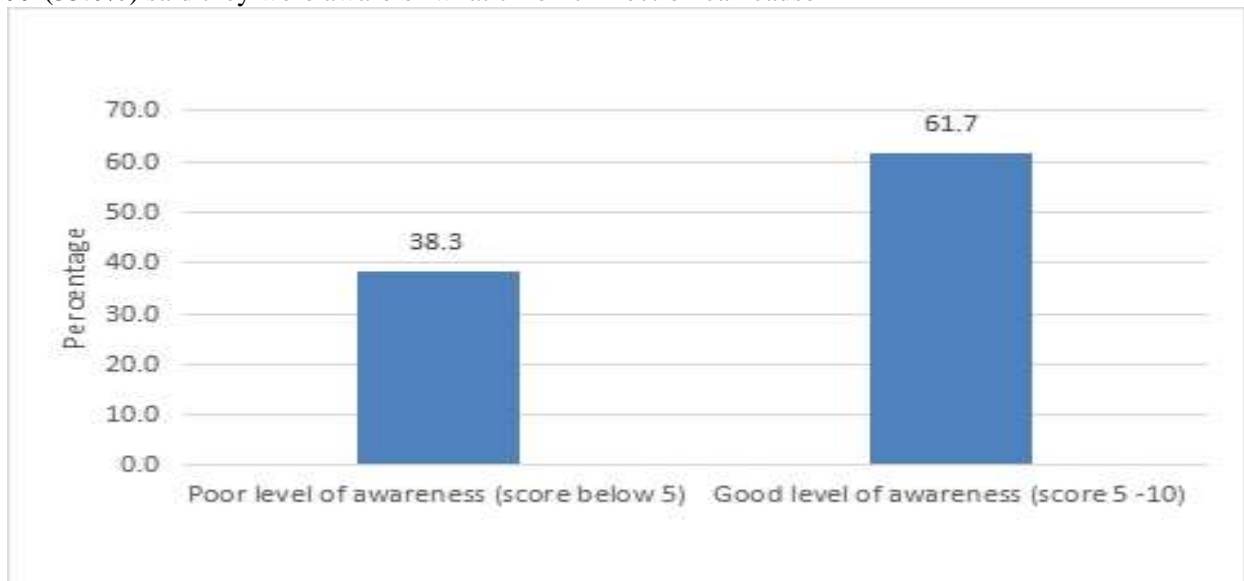
**Table 1: Demographic Characteristics of the study participants**

Variables	Frequency	Percent
<b>Age as at last birthday</b>		
<20	23	8.3
20-30	156	56.3
31-40	98	35.4
<b>Occupation</b>		
Self-employed	112	38.0
Business/Trading	130	44.1
Civil servant	53	18.0
<b>Marital Status</b>		
Not in a union	22	7.3

In a union	278	92.7
<b>Ethnicity</b>		
Yoruba	265	88.3
Others (Igbo, Hausa)	35	11.7

**3.2 Awareness of HBV infection among pregnant women in selected health facilities in Osogbo, Osun State**

The results in figure 1 and table 2A presented the awareness of HBV infection awareness among the study participants respectively. Overall, 115 (38.3%) of the respondents had a poor level of awareness of HBV infection. Going by specific indicators of HBV awareness, only 138 (46.0%) have heard about HBV. About 97 (52.7%) heard from the radio, 36 (19.6%) heard from the television, and 51 (27.7%) read from the newspaper. Also, only 87 (30.0%) said HBV is a communicable infection, and 99 (35.0%) said they were aware of what chronic infection can cause



*Figure 1. Awareness of HBV infection among pregnant women in selected health facilities in Osogbo, Osun State*

**Table 2A: Awareness and Transmission Routes of HBV Among Pregnant Women in Osogbo, Osun State**

<b>Awareness of HBV infection among pregnant women</b>			
Have you ever heard of Hepatitis B Virus?			
	Yes	138	46
	Not sure	6	2
	Not	156	52
What was your source of information?			
	Radio	97	52.7
	Television	36	19.6
	Newspaper	51	27.7
Is HBV a communicable infection?			
	Yes	87	30

	Not sure	82	28.3
	No	121	41.7
Do you know what chronic HBV infection can cause?			
	Yes	99	35
	Not sure	75	26.5

### 3.3 Awareness of transmission routes of HBV among the participants

The results presented in table 3 showed participants' awareness of transmission routes of HBV. About 148 (49.3%) said HBV can be transmitted through a handshake, 52.5% said it can be transmitted through contaminated water, and 248 (84.1%) said HBV can be transmitted through unprotected sex, and 220 (77.7%) said it can be transmitted through blood transfusion. Similarly, about 149 (50.5%) said HBV can be transmitted through sneezing or coughing, 231 (81.6%) said it can be transmitted from mother to children, and 143 (51.4%) said HBV can be transmitted through eating with or sharing food/utensils

**Table 2b: Awareness and Transmission Routes of HBV Among Pregnant Women in Osogbo, Osun State**

	No	109	38.5
Awareness of transmission routes of HBV among the pregnant Women			
Can hepatitis B be transmitted through handshake?			
	Yes	148	49.3
	Not sure	60	20
	No	92	30.7
Can hepatitis B be transmitted through contaminated water?			
	Yes	155	52.5
	Not sure	71	24.1
	No	69	23.4
Can hepatitis B be transmitted through unprotected sex?			
	Yes	248	84.1
	Not sure	30	10.2
	No	17	5.8
Can hepatitis B be transmitted through blood transfusion?			
	Yes	220	77.7
	Not sure	40	14.1
	No	23	8.1
Can hepatitis B be transmitted through sneezing or coughing?			
	Yes	149	50.5
	Not sure	89	30.2
	No	57	19.3
Can hepatitis B be transmitted from mother to child?			

	Yes	231	81.6
	Not Sure	41	14.5
	No	11	3.9
Can hepatitis B be transmitted through eating with or sharing food/utensils?			
	Yes	143	51.4
	Not sure	83	29.9
	No	52	18.7

### 3.4 Awareness of mother-to-child HBV prevention

The information on awareness about mother-to-child HBV prevention was presented in table 4.5. Most 265 (93.6%) of the participants said it is needed to be tested for HBV as a pregnant woman. Also, the majority 242 (83.7%) said HBV vaccination is necessary for infants. Many 184 (77.6%) of the women said the best time to provide a healthy and stable child with the first dose of HBV vaccine is “at birth”. Also, 179 out of 191 of the women said vaccination is the measure that could protect the newborn if the pregnant woman has chronic HBV.

**Table 2C: Awareness and Transmission Routes of HBV Among Pregnant Women in Osogbo, Osun State**

Awareness of mother to child HBV prevention

As a pregnant woman, do you need to be tested for HBV?

Yes	265	93.6
Not sure	6	2.1
No	12	4.2

Is HBV vaccination necessary for your infant?

Yes	242	83.7
Not sure	30	10.4
No	17	5.9

When is the best time to provide a healthy and stable child the first dose of HBV vaccine?

At birth	184	77.6
During immunization	53	22.4

If a pregnant woman has chronic HBV, what measure could protect the newborn from becoming infected?

Vaccination	179	93.7
Drug administration	12	6.3

### 3.5 Level Compliance with HBV prevention measures

The results in figure 2 and table 4 showed the level of compliance with HBV prevention measures. A **Grand Mean of 3.44**, indicating **moderate average level of compliance** with HBV prevention measures among respondents. Compliance was highest in **safe sexual practices** (Mean = 4.48), suggesting strong adherence to behavioral risk-reduction strategies. However, the lowest compliance levels were recorded for **partner HBV testing** (Mean = 2.87) and **vaccination compliance** (Mean =

2.92), reflecting weak uptake of prevention measures. These results highlight the need for strengthened interventions to improve HBV testing and vaccination coverage within the population.

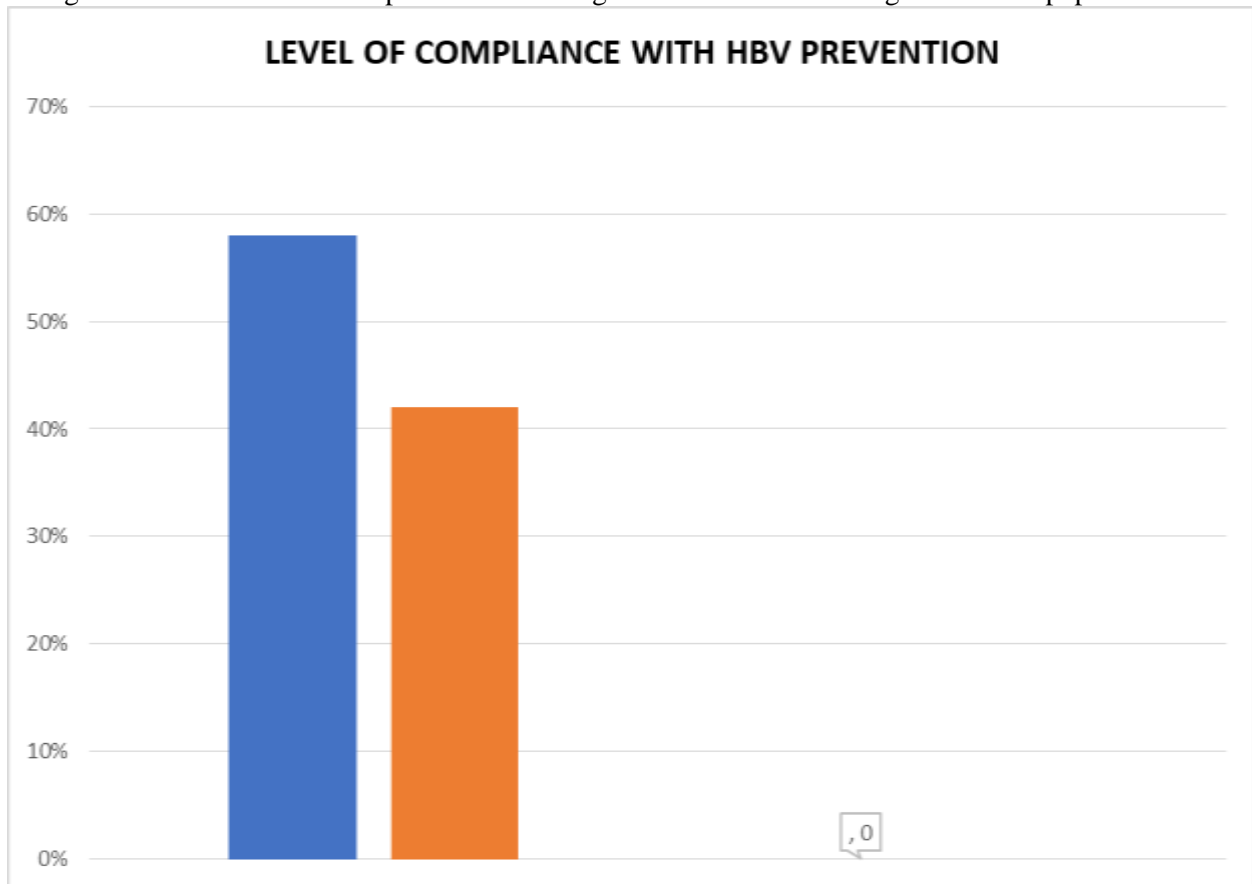


Figure 2: Level of compliance about HBV prevention measures

Table 4: Level of compliance with HBV prevention measures

Variables	Very High	High	Average	Low	Very Low	Mean Score
1 Compliance through HBV Vaccination	80 (26.7%)	45 (15.0%)	30 (10.0%)	60 (20.0%)	85 (28.3%)	<b>2.92</b>
2 Awareness & Willingness to Vaccinate	90 (30.0%)	65 (21.7%)	40 (13.3%)	55 (18.3%)	50 (16.7%)	<b>3.3</b>
3 Safe Sexual Practices (Number of Partners)	210 (70.0%)	55 (18.3%)	15 (5.0%)	10 (3.3%)	10 (3.3%)	<b>4.48</b>
4 Compliance with HBV Testing (Self)	100 (33.3%)	70 (23.3%)	45 (15.0%)	50 (16.7%)	35 (11.7%)	<b>3.5</b>
5 Partner HBV Testing Compliance	60 (20.0%)	55 (18.3%)	40 (13.3%)	75 (25.0%)	70 (23.3%)	<b>2.87</b>
6 Risk Behavior: Body Piercing/Tattoo Safety	110 (36.7%)	70 (23.3%)	40 (13.3%)	45 (15.0%)	35 (11.7%)	<b>3.58</b>

**Decision Rule**

4.50 – 5.00 → Very High compliance

3.50 – 4.49 → High compliance

2.50 – 3.49 → Average compliance

1.50 – 2.49 → Low compliance

1.00 – 1.49 → Very Low compliance

Grand Mean = 3.44

### 3.5 DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

This study examined awareness and prevention of hepatitis B virus (HBV) infection among pregnant women attending antenatal clinics in selected primary health facilities in Osogbo, Osun State. The findings generally indicate limited awareness, persistent misconceptions, and moderate compliance with HBV prevention measures, reflecting patterns commonly reported in low-resource settings. Women who visited the selected P.H.C facilities were approached and those who consented to participate in this study were enrolled. The mean age of the respondents was  $27.7 \pm 2.60$  SD. The majority of the respondents were into business/ trading, some were self-employed, while others were Civil servants. Most of the women who participated in this study were in a union. Since this study was carried out in the southwest which was dominated by the Yoruba ethnic group, most of the study participants were Yorubas and other ethnic groups that participated in this study were Igbos and Hausas.

#### **Awareness of HBV Infection**

Overall awareness of HBV infection among the respondents was low. Many women had not heard about HBV, and only a small proportion demonstrated good knowledge of its communicable nature and long-term complications. This finding is consistent with Tohme et al. (2024) and Gong et al. (2024), who reported inadequate HBV awareness among pregnant women in sub-Saharan Africa, largely due to insufficient health education and inconsistent integration of HBV information into antenatal care services. Similarly, Dagnaw et al. (2025) observed that in many African countries, HBV knowledge remains poor despite global efforts to improve communication on viral hepatitis. However, awareness of specific prevention components such as the need for maternal HBV testing and infant vaccination was relatively better. This agrees with the observations of Kaewdech et al. (2024) and Orotta et al. (2025), who noted that antenatal care frameworks often emphasize mother-to-child transmission prevention, thereby improving maternal recognition of testing and vaccination needs.

#### **Awareness of HBV Transmission Routes**

The findings also revealed significant misconceptions about HBV transmission. Many respondents believed HBV could be transmitted through casual contact such as handshakes, contaminated water, sharing utensils, or coughing. These misconceptions are widely described in the literature. Albashir et al. (2024) and Hobart et al. (2024) highlighted that inaccurate beliefs about HBV transmission remain prevalent in many communities and contribute to stigma, discrimination, and low uptake of testing services. Nevertheless, awareness of scientifically established transmission routes sexual, blood-related, and perinatal was relatively high. This observation aligns with Bhattacharya et al. (2025), who noted that while misconceptions persist, knowledge of major routes of transmission is improving in many regions due to expanding public health messaging on blood-borne infections.

#### **Mother-to-Child Transmission Prevention**

Awareness of strategies to prevent mother-to-child transmission of HBV was notably high among participants. Many respondents correctly recognized the need for HBV testing during pregnancy and the importance of timely infant vaccination. This finding corroborates studies by Apichat et al. (2024) and Tohme et al. (2024), who reported that antenatal programs have enhanced maternal understanding of newborn vaccination and perinatal prevention in several low-resource settings. This contrasts with earlier reports such as Van de Ven and Johnson (2006), which documented lower awareness in similar communities, suggesting improvements over time.

#### **Compliance with HBV Prevention Measures**

Compliance with HBV prevention practices among respondents was generally moderate. Behavioral prevention, especially safe sexual practices, showed the highest compliance. This supports the observations of Hobart et al. (2024), who noted that pregnant women often adopt safer sexual behaviors when adequately counseled during antenatal visits.

However, biomedical prevention measures such as vaccination uptake and HBV testing recorded the lowest compliance. Low testing and vaccination adherence have been widely reported in the literature. Al-Busafi and Ahmed (2024) and Yao-Chun & Nguyen (2024) highlighted persistent barriers to HBV testing and vaccination globally, including inadequate access, limited partner involvement, and social stigma. In East Africa, Berhanu et al. (2025) similarly documented poor uptake of HBV vaccination among pregnant women despite relatively good awareness of its importance. Moderate avoidance of

risky behaviors such as unsafe tattooing also aligns with findings from Chunzheng Li et al. (2024), who noted gradual improvements in public understanding of parenteral HBV risks but emphasized that gaps remain, especially in informal settings where body-piercing practices are common.

### Overall Interpretation

Overall, the findings indicate a **mismatch between awareness and practice**. While respondents demonstrated better understanding of certain preventive areas—particularly mother-to-child prevention they were less likely to participate in biomedical preventive measures such as vaccination and testing. This pattern reflects broader global challenges identified by Tassew et al. (2024) and Bhattacharya et al. (2025), who argued that HBV elimination efforts are hindered by inadequate health system capacity, socioeconomic constraints, and limited male partner involvement. The present study therefore reinforces the need for strengthened public health interventions, improved access to HBV vaccines and diagnostic services, enhanced ANC education, and broader community sensitization to address persistent misconceptions and increase preventive uptake.

### CONCLUSION

The study concludes that while pregnant women in Osogbo demonstrate moderate compliance and partial awareness of HBV prevention, significant gaps persist in accurate knowledge, vaccination uptake, and testing practices.

### RECOMMENDATIONS

Based on the findings of this study, several recommendations are proposed to strengthen HBV prevention among pregnant women in Osogbo.

- 1 Health workers in antenatal care settings should intensify structured health education on HBV to address prevailing misconceptions and improve understanding of transmission routes and prevention strategies.
- 2 Healthcare workers should be trained and supported to provide consistent, evidence-based counseling during routine ANC visits.
- 3 The Federal and State Ministry of health should improve access to HBV testing and vaccination is also essential; therefore, primary health facilities should ensure the availability of affordable or free screening services and vaccines for pregnant women.
- 4 Individuals should allow partner involvement to encourage couple-based health education and community sensitization to enhance shared responsibility for HBV prevention.
- 5 Community-wide awareness campaigns using radio, social media, and local forums should be strengthened to disseminate accurate information and increase overall awareness.
- 6 Hospital management should integrate mandatory HBV screening at first ANC contact and ensuring the prompt administration of the HBV birth dose can further reduce perinatal transmission.
- 7 Finally, further research is recommended to explore sociocultural and systemic barriers that influence awareness and compliance, allowing for the development of more targeted and effective interventions.

### REFERENCES

- Al-Busafi, S. A., & Alwassief, A. (2024). Global perspectives on the hepatitis B vaccination: Challenges, achievements, and the road to elimination by 2030. *Vaccines*, 12(3), Article 355. <https://doi.org/10.3390/vaccines12030355>
- Berhanu, L., Desye, B., & Daba, C. (2025). Knowledge, attitudes, practices, and vaccination coverage of medical students toward hepatitis B virus in North Sudan, 2023. *PeerJ*, 13, e16234. <https://doi.org/10.7717/peerj.16234>
- Bhattacharya, H., Pattnaik, M., & Swain, A. (2025). Modeling hepatitis B virus transmission dynamics using Atangana fractional order network approach: A review of mathematical and epidemiological perspectives. *International Journal of Innovative Science and Research Technology*, 10(4), 1–12.

- Dagnaw, M., Muche, A., & Geremew, B. M. (2025). Epidemiology of hepatitis B virus infection: Prevalence, vaccine coverage and its barriers in Katagum Local Government Area, Bauchi State Nigeria. *Science World Journal*, 20(5), 123–134.
- Gong, X., Zheng, C., & Fang, Q. (2024). Global analysis of a fractional-order hepatitis B virus model under immune response in the presence of cytokines. *Advanced Theory and Simulations*, 7(8), 2401234. <https://doi.org/10.1002/adts.202401234>
- Hobart, C., Pescarini, J., Evans, L., Adil, H. S., Adil, S. T., Deal, A., Carter, J., Matthews, P. C., Hargreaves, S., & Sanchez Clemente, N. (2024). Hepatitis B infection and immunity in migrant children and pregnant persons in Europe: A systematic review and meta-analysis. *Journal of Travel Medicine*, 31(7), taee073. <https://doi.org/10.1093/jtm/taee073>
- Hsu, Y.-C., & Nguyen, M. H. (2024). Elimination of hepatitis B virus infection. *Clinical Liver Disease*, 23(1), 1–5. <https://doi.org/10.1002/cld.1234>
- Kaewdech, A., Charatcharoenwiththaya, P., & Piratvisuth, T. (2024). Asian perspective on hepatitis B virus and hepatitis C virus elimination. *Viruses*, 16(12), 1234. <https://doi.org/10.3390/v16091234>
- Li, C., Wei, C., & Yang, X. (2024). Hepatitis B virus: Modes of transmission, immune pathogenesis, and research progress on therapeutic vaccines. *Exploration of Digestive Diseases*, 2(4), 100123. <https://doi.org/10.1016/j.xedd.2024.100123>
- Orotta, M., Munseri, P., & Massawe, R. V. (2025). Hepatitis B virus: Prevalence, vaccination coverage and immune responses to immunization among healthcare workers at Muhimbili National Hospital. *PLOS One*, 20(1), e0281234. <https://doi.org/10.1371/journal.pone.0281234>
- Tassew, W. C., Ferede, Y. A., & Zeleke, A. M. (2024). Molecular epidemiology of hepatitis B virus (HBV) in Ethiopia: A review article. *Infection, Genetics and Evolution*, 112, 105456. <https://doi.org/10.1016/j.meegid.2024.105456>
- Tohme, R. A., Wang, S., Cowie, B., Dudareva, S., & Wester, C. (2024). Eliminating perinatal transmission of hepatitis B virus: It is time for action. *Journal of the International AIDS Society*, 27(7), e26123. <https://doi.org/10.1002/jia2.26123>
- Van de Ven, A. H., & Johnson, P. E. (2006). Knowledge for theory and practice. *Academy of Management Review*, 31(4), 802–821