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Seroprevalence of Hepatitis B Virus Markers among Pregnant Women at the Cité-verte District Hospital in Yaoundé Cameroon

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Abstract:

Background: Chronic Hepatitis B virus (HBV) remains a critical global health threat, with sub-Saharan Africa facing a disproportionate burden of mother-to-child transmission (MTCT). In Cameroon, localized data on the full spectrum of HBV serological markers is essential to refine prevention strategies. This study aimed to determine the seroprevalence of five HBV markers and identify factors influencing neonatal health security.

Methods: A cross-sectional study was conducted from March to November 2025 at the Cite-verte District Hospital in Yaoundé. Convenience sampling was used to recruit 214 pregnant women. HBV markers (HBsAg, HBeAg, anti-HBs, anti-HBc, anti-HBe) were screened using rapid diagnostic tests and confirmed via ELISA. Data were analyzed using Fisher's exact test and Odds Ratios (OR) with a significance level of $p < 0.05$.

Results: HBsAg seroprevalence was 16.4%, with 51.4% of these cases being HBeAg-positive, indicating high infectivity. All HBsAg and HBeAg positive cases were concentrated in the second trimester ($p < 0.001$). Primiparous women were significantly more likely to be HBsAg-positive (74.3%; $p = 0.004$). Blood transfusion was identified as a massive risk factor for transmissibility (OR = 41.56; 95% CI [12.69–136.12]; $p < 0.001$). No co-infections with HCV or HDV were detected.

Conclusion: The high endemicity (16.4%) and significant HBeAg positivity pose a severe silent threat for vertical transmission in Yaoundé. These findings advocate for mandatory second-trimester screening and the integration of antiviral prophylaxis for high-risk mothers to ensure neonatal health security.

Keywords: HBsAg, HBeAg, anti-HBs, anti-HBc, anti-HBe, Yaounde.

Introduction

Chronic hepatitis B virus (HBV) infection poses a significant global health threat, responsible for substantial morbidity and mortality, particularly in sub-Saharan Africa. The virus is a leading cause of life-threatening liver diseases, including cirrhosis and hepatocellular carcinoma (HCC) [1]. The World Health Organization (WHO) estimates that approximately 296 million people are living with chronic HBV infection worldwide, with a disproportionately high burden in Africa, home to an estimated 81 million of these individuals [2,3].

Sub-Saharan Africa is categorized as highly endemic for HBV, with a pooled seroprevalence of 6.1%, soaring to as high as 20% in some regions [1-3]. The region accounts for an alarming 70% of new infections in children under five, with Mother-to-Child Transmission (MTCT) as the primary mode of transmission, contributing to 35–40% of all new global cases [2,4]. Without timely intervention, up to 90% of infants infected via MTCT will develop chronic HBV, placing them at an elevated risk of developing cirrhosis and HCC later in life [4,5].

HBV risk factors are diverse and include occupational exposure to blood, unprotected sex with an infected partner, and being born to an infected mother. Certain populations, such as healthcare workers, people who inject drugs, and individuals with multiple sexual partners, have a higher risk of exposure. Additionally, being born in or having travelled to a region with high HBV endemicity, like sub-Saharan Africa, is a key risk factor [6-9]. The presence of Hepatitis B surface antigen (HBsAg) in the blood is a primary indicator of active HBV infection. Other key markers include Hepatitis B e antigen (HBeAg), which signifies high viral replication and infectivity, and Hepatitis B core antibody (anti-HBc), which indicates past or current infection [10-14].

The WHO recommends the administration of the HBV birth dose (BD) vaccine within 24 hours of birth as the cornerstone strategy for preventing MTCT [15]. Despite this clear directive, the implementation of this crucial intervention in Africa is hampered

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by a complex interplay of logistical and systemic challenges. These include prohibitive costs, unreliable cold chain infrastructure, and a high rate of home births, which collectively result in only about 10% of African infants receiving the vital birth dose vaccine [15].

Furthermore, BD vaccination alone may not be sufficient to eliminate MTCT, especially in infants born to mothers with a high viral load and those who are also positive for the hepatitis B e antigen (HBeAg) [2,15]. In these high-risk cases, a residual risk of transmission persists [15]. Emerging clinical evidence indicates that combining passive immunity, such as hepatitis B immunoglobulin, and antenatal antiviral prophylaxis with the BD vaccination can reduce the risk of MTCT to near-zero [15]. This comprehensive approach is critical for advancing towards the WHO's 2030 goal of eliminating HBV as a public health threat [2].

Despite the proven efficacy of these advanced interventions, their implementation is often complex and expensive. While cost-effectiveness evaluations have been performed in other parts of the world, their health benefits and economic viability within the African context remain poorly documented [15]. This significant data gap, coupled with a general underestimation of the viral hepatitis burden in many African nations, highlights a critical deficiency in public health policy [5,11]. For instance, routine antenatal HBV screening is not a standard practice in many health facilities in countries like Ethiopia, which makes identifying infected pregnant women and implementing targeted interventions difficult [1,11].

Addressing these multifaceted challenges requires a strategic, multifaceted public health approach. Such a strategy must incorporate routine HBV screening for all pregnant women, bolster vaccination coverage, and develop cost-effective models for deploying advanced interventions in high-risk populations. This study seeks to investigate the seroprevalence of HBV markers among pregnant women in a district hospital in Yaoundé, Cameroon, to inform localized public health strategies and contribute to the broader goal of eliminating HBV transmission.

Methodology

Type and duration of study

This cross-sectional study was conducted between March to November 2025 according to STROBE (STrengthening the Reporting of OBservational Studies in Epidemiology) statement, allowing for efficient and concentrated data collection. Ethical approval was obtained from the Centre Regional Ethics Committee for Human Health Research (CEN°007495CRERSHC/2025) and the administrative staff of the Cité-verte District Hospital.

Study setting

The research was carried out at the Cité-verte District Hospital. The Cite-verte District Hospital operates 24/7. Staff work in shifts, including a day team (07:30 to 15:30) and an on-call team to ensure continuity of care. The hospital is located in Yaoundé II subdivision, Mfoundi Department, Centre Region, Cameroon. It offers a range of services, including emergency consultations, surgery, pharmacy, maternity, and laboratory services.

Study population and sampling

The target population comprised all pregnant women attending antenatal care at the Cité-verte District Hospital. The study population was specifically composed of pregnant women for whom Hepatitis B surface antigen (HBsAg) screening had been prescribed at the Cite-verte District Hospital. The sample size was calculated using the following formula

$n = \frac{t^2 \times p \times (1-p)}{m^2}$ [16]. where, n = sample size, t = confidence level (1.96 for 95% confidence), p = estimated prevalence of the HBsAg in pregnant women in Cameroon (15%) [17], m = margin of error (0.05). After calculation, the final minimum sample size was 196 participants.

Data collection and laboratory analysis techniques

Patients were recruited consecutively based on their arrival at the consultation. A standardised questionnaire was administered to all pregnant women who met the inclusion criteria.

Blood collection procedure

A rigorous blood collection procedure was followed to ensure sample quality. All necessary materials were gathered and checked. Plain tubes were labelled with patient information (identification code, prescribed test, age, gender) to ensure traceability. Each patient was informed of the procedure. A tourniquet was applied to the patient's arm to facilitate vein location. The venepuncture site was disinfected thoroughly with an alcohol swab. An appropriate needle was introduced into the vein. Once the vein was punctured, the plain tube was inserted into the holder to allow blood to fill the tube. Five ml of blood were collected. A dry cotton ball was placed over the puncture site. The tourniquet was then removed, and the needle was gently withdrawn from the vein. The needle was immediately removed from the holder and discarded into a sharps bin. The blood sample was transported to the laboratory in accordance with the triple-packaging principle for biosafety and was aliquoted.

Laboratory analysis techniques

Blood analysis was based on a sequential approach combining rapid diagnostic tests (RDT) and enzyme-linked immunosorbent assays (ELISA). Initially, screening for the five HBV markers was performed using an immunochromatographic test (Qingdao Hightop Biotech®), employing the principles of double-antibody sandwich (HBsAg, HBeAg), double-antigen sandwich (anti-HBs), or competitive immunoassay (anti-HBe, anti-HBc). The presence of HBsAg was systematically confirmed by ELISA (CTK Biotech®), as was the screening for anti-HDV antibodies in positive patients (Creative Diagnostics®). Concurrently, hepatitis C virus (HCV) screening was conducted via rapid test (InTeC®) for the entire cohort. However, only HBsAg-positive pregnant women underwent confirmation of their HCV serostatus using a qualitative ELISA (Creative Diagnostics®) to validate potential co-infections.

Data management and analysis

Ethical considerations

Measures were taken to ensure strict adherence to the fundamental ethical principles of scientific research. This included obtaining informed consent from each participant before their inclusion, ensuring their understanding of the study's purpose, procedures, potential benefits, and risks. Data confidentiality was guaranteed through the anonymisation of samples and collected information, as well as the protection of personal data. The study was conducted in compliance with national and international ethical guidelines for

research involving human subjects. Ethical approval was obtained from the relevant ethics committee before data collection began.

Data processing and statistical analysis

Data was entered into Microsoft Excel® for initial management, followed by cleaning and validation. During collection, patient identity (name, code, date of birth) and collection conditions (materials used) were verified. Mislabelled, coagulated, or haemolysed samples were rejected. During analysis, internal controls were used, and results were checked against biological norms. Analyses were repeated with a new sample if the original was non-compliant. Statistical analysis was performed using SPSS.25.0 software. Mean, median, and standard deviation were used for quantitative variables. Frequencies and percentages were used for qualitative variables. The Fisher's exact test was used for associations between qualitative variables. A statistical significance level of $p<0.05$ was adopted.

Results

Description of the Study Population

We invited 270 pregnant women attending consultations to participate in this study. Out of these, 261 women agreed to take part, resulting in a non-response rate of 3.4%. Among the 261 participants, 47 reported that they had already received at least one dose of the HBV vaccine. The remaining 214 participants had a mean age of 26.35 ± 4.7 years (ranging from 18 to 35 years) and a mean weight of 69.07 ± 9.3 kg (ranging from 40.0 to 92.0 kg). Their mean height was 1.6 metres, and their mean Body Mass Index (BMI) was 25.7 ± 3.9 kg/m². According to the World Health Organization (WHO), a BMI of 25.7 kg/m² falls into the overweight category, which is defined as a BMI between 25.0 and 29.9 kg/m².

Socio-demographic and Anthropometric Description

The study sample was predominantly young, with over half of the participants (58.4%) falling within the 20–29 age. Although the majority maintained a healthy weight (54.2%), a significant proportion of the sample (42.9%) was classified as overweight or obese. The participants were generally well-educated, with 88.3% having reached secondary or tertiary level. However, the unemployment rate remained high at 56.1%. A perfect symmetry was observed between marital status and professional status, with 56.1% of participants being single, corresponding exactly to the 56.1% who were unemployed (Table I).

Table I: Socio-demographic and Anthropometric Description (N = 214)

Variables	*Categories*	*Frequency (n)*	*Percentage (%)*
Age Groups	< 20 years	24	11.2
	20 - 29 years	125	58.4
	≥ 30 years	65	30.4
Nutritional Status (BMI)	Underweight	6	2.8
	Normal weight	116	54.2
	Overweight	69	32.2
	Obesity	23	10.7
Education Level	Primary	25	11.7
	Secondary	94	43.9
	Higher Education	95	44.4
Occupational Status	Employed	94	43.9
	Unemployed	120	56.1
Marital Status	Single	120	56.1
	Married	94	43.9
Total		**214**	**100.0**

According to the CDC, Body Mass Index (BMI) categories for adults [18] are defined as follows: Thinness: BMI less than 18.5 kg/m², Normal weight (Normopoids): BMI between 18.5 and 24.9 kg/m², Overweight: BMI between 25.0 and 29.9 kg/m², Obesity: BMI equal to or greater than 30.0 kg/m².

Seroprevalence of viral markers

Out of the total 214 subjects, 35 (16.4%) tested positive for HBsAg, while 18 showed simultaneous positivity for both HBsAg and HBeAg, representing 8.4% of the overall sample. For Hepatitis C (HCV) and Hepatitis Delta (HDV), all tests were negative (100%), indicating a complete absence (0%) of co-infection with HCV or HDV alongside HBV. Antibody presence was more frequent for anti-HBc (46.3%) than for anti-HBs (20.6%) or anti-HBe (20.1%) (Table II).

Table II: Seroprevalence of HBV markers (N = 214)

Indicator	*Target Marker(s)*	*Frequency (n)*	*Percentage (%)*
Active infection	HBsAg (+)	35	16.4
Viral replication	HBsAg (+) & HBeAg (+)	18	51.4*
Total exposure	Anti-HBc (+)	99	46.3
Immunity	Anti-HBs (+) & Anti-HBc (+)	44	20.6

**Calculated based on the subgroup of HBsAg-positive women (18/35).*

Seroprevalence by trimester and parity

Seroprevalence by trimester

Table III correlates the presence of the five serological markers of the Hepatitis B virus with the stage of gestation across the chronological progression of the pregnancies (N=214). Of the 35 HBsAg-positive cases identified, all (100%) were found in the second trimester of pregnancy. No cases were recorded in the first or third trimesters. This association was statistically significant ($p < 0.001$).

Similarly to HBsAg, the 18 HBeAg-positive cases were all concentrated in the second trimester (100%), with an absence of positivity at other stages ($p < 0.001$). There were 44 positive cases of anti-HBs recorded. Their distribution increased progressively throughout the pregnancy (3 cases; 6.8%) in the first trimester, 15 cases (34.1%) in the second, and 26 cases (59.1%) in the third ($p = 0.005$). Anti-HBc showed the highest number of positive results (99 cases). The majority were recorded in the second trimester (60 cases; 60.6%), followed by the third trimester (26 cases; 26.3%) and the first trimester (13 cases; 13.1%) ($p = 0.005$). For anti-HBe, 43 positive cases were observed; 33 (76.7%) were in the second trimester and 10 (23.3%) were in the first. No positive cases were found in the third trimester ($p < 0.001$) (Table III).

Table III: Seroprevalence of markers by trimester of pregnancy (N=214)

Marker (Positive)	*Trimester 1*	*Trimester 2*	*Trimester 3*	*Total Positive*	*p-value (Chi-square)*
HBsAg	0 (0.0%)	35 (100%)	0 (0.0%)	35	< 0.001
HBeAg	0 (0.0%)	18 (100%)	0 (0.0%)	18	< 0.001
Anti-HBs	3 (6.8%)	15 (34.1%)	26 (59.1%)	44	0.005
Anti-HBc	13 (13.1%)	60 (60.6%)	26 (26.3%)	99	0.005
Anti-HBe	10 (23.3%)	33 (76.7%)	0 (0.0%)	43	< 0.001

Seroprevalence by parity

Table IV presents the HBV serology results in relation to the patients' obstetric profiles, comparing multiparous (n=103) and primiparous (n=111) women. HBsAg was found to be more frequent among primiparous women, with 26 cases (74.3%) compared to 9 cases among multiparous women (25.7%). This difference was statistically significant ($p = 0.004$). The 18 HBeAg-positive cases were equally distributed between the two groups, with 9 cases (50%) in both the multiparous and primiparous groups ($p = 0.868$).

A predominance of anti-HBs was observed among multiparous women, who accounted for 35 positive cases (79.5%), compared to 9 cases (20.5%) in primiparous women ($p < 0.001$). Regarding anti-HBc, the distribution was nearly balanced between the two groups, with 47 positive cases (47.5%) in multiparous women and 52 cases (52.5%) in primiparous women ($p = 0.859$). The vast majority of the 43 anti-HBe positive cases were found among primiparous women (40 cases, or 93%), while multiparous women accounted for only 3 cases (7%) ($p < 0.001$) (Table 4).

Table IV: Seroprevalence of markers by parity (N=214)

Marker (positive)	*Multiparous n(%)*	*Primiparous n(%)*	*Total positives*	*p (Chi-square)*
HBsAg	9 (25.7)	26 (74.3)	35	0.004
HBeAg	9 (50.0)	9 (50.0)	18	0.868
Anti-HBs	35 (79.5)	9 (20.5)	44	< 0.001
Anti-HBc	47 (47.5)	52 (52.5)	99	0.859
Anti-HBe	3 (7.0)	40 (93.0)	43	< 0.001

Impact on neonatal health security regarding hepatitis B

Analysis of the impact of HBV on neonatal health security

Table V shows that multiparous women had an exposure rate of 34.0%, compared to 8.1% in primiparous women ($p < 0.001$). Regarding infectivity, the rates were 8.7% for multiparous women and 8.1% for primiparous women ($p = 0.8$). The highest exposure rate was observed in the third trimester (T3) at 32.1% ($p = 0.005$), while the infectivity rate peaked in the second trimester (T2) at 16.7% ($p < 0.001$). Among patients who had received transfusions, the exposure marker was present in 42.9% of cases ($p = 0.008$) and the infectivity marker in 57.1% of cases ($p < 0.001$). Patients with a history of STIs displayed an exposure rate of 14.3% ($p = 0.2$) and an infectivity rate of 7.1% ($p = 0.7$). Alcohol consumers showed an exposure rate of 30.8% ($p = 0.03$) and an infectivity rate of 0% ($p = 0.01$).

Table V: Impact of HBV on neonatal health security

Risk Factors	*Exposure marker*	*p-value (Exposure)*	*Infectivity marker*	*p-value (Infectivity)*
Parity		**< 0.001**		**0.8**
Multiparous	35/103 (34.0%)		9/103 (8.7%)	
Primiparous	9/111 (8.1%)		9/111 (8.1%)	
Pregnancy Trimester	T3 (32.1%)	**0.005**	T2 (16.7%)	**< 0.001**
Blood Transfusion (Yes)	9/21 (42.9%)	**0.008**	12/21 (57.1%)	**< 0.001**
History of STIs (Yes)	6/42 (14.3%)	**0.2**	3/42 (7.1%)	**0.7**
Alcohol Consumption (Yes)	13/52 (30.8%)	**0.03**	0/52 (0%)	**0.01**

T3 = third trimester; T2 = second trimester; Exposure marker (Anti-HBs+ Anti-HBc+); Infectivity marker (HBsAg+ HBeAg+).

Risk of neonatal infectivity and maternal exposure

Table VI demonstrated that amongst multiparous women, the Odds Ratio (OR) was 5.85, with a 95% confidence interval [2.64 – 12.99] and a p-value < 0.001 for past infection. For primiparous women, the OR was 1.08, with a 95% confidence interval [0.41 – 2.85] and a p-value of 0.8 regarding the risk of transmissibility.

Women with a history of blood transfusion had an OR of 3.39 (95% CI [1.32 – 8.66]; $p = 0.008$) for past exposure. Meanwhile, the OR rose significantly to 41.56 (95% CI [12.69 – 136.12]; $p < 0.001$) for the risk of transmissibility. In terms of alcohol consumption, the OR was 2.13 (95% CI [1.04 – 4.35]; $p = 0.03$) for past exposure. Regarding the history of STIs, pregnant women showed an OR of 0.59 (95% CI [0.23 – 1.50]; $p = 0.2$) for past exposure, while the OR for transmissibility risk was 0.81 (95% CI [0.22 – 2.92]; $p = 0.7$) (Table VI).

Table VI: Risk of neonatal infectivity and maternal exposure

Risk Factors	*Marker*	*Odds Ratio (OR)*	*95% CI*	*p-value*
Parity				
Multipara	Anti-HBs + Anti-HBc	5.85	[2.64 – 12.99]	< 0.001
Primipara	HBsAg + HBeAg	1.08	[0.41 – 2.85]	0.8
Blood Transfusion (Yes)	Anti-HBs + Anti-HBc	3.39	[1.32 – 8.66]	0.008
	HBsAg + HBeAg	41.56	[12.69 – 136.12]	< 0.001
Alcohol (Yes)	Anti-HBs + Anti-HBc	2.13	[1.04 – 4.35]	0.03
STI (Yes)	Anti-HBs + Anti-HBc	0.59	[0.23 – 1.50]	0.2
	HBsAg + HBeAg	0.81	[0.22 – 2.92]	0.7

Discussion

This study provides a comprehensive evaluation of the seroprevalence and clinico-biological dynamics of Hepatitis B Virus (HBV) among pregnant women at the District Hospital "La Cité-verte" in Yaounde, Cameroon. Our findings underscore a high regional burden of HBV and identify critical windows of infectivity and exposure that threaten neonatal health security.

The investigation revealed a high HBsAg seroprevalence of 16.4% among pregnant women, with 8.4% displaying simultaneous HBeAg positivity, indicating high viral replication and transmissibility risk. Notably, a significant statistical association was observed between the second trimester and the presence of HBsAg and HBeAg ($p < 0.001$). Furthermore, primiparous women showed a higher frequency of HBsAg (74.3%)

compared to multiparous women (p = 0.004). While co-infections with HCV and HDV were absent, the exposure rate (anti-HBc) reached 46.3%. These results suggest that in the Yaoundé urban context, HBV remains a major public health challenge, with specific maternal profiles (primiparity and second-trimester status) serving as high-risk indicators for active infection.

Our HBsAg prevalence of 16.4% aligns closely with the 17.5% reported by Shimakawa et al. (2022) in the Tokombéré district of Cameroon [19], suggesting a consistently high endemicity across both rural and urban Cameroonian settings. This is substantially higher than rates observed in other regions, such as Vietnam (10.6%) [20], Nigeria (4.54%) [21], and Chile (0.3%) [22]. The high prevalence in our cohort, where 88.3% of women had secondary or tertiary education, suggests that academic achievement does not necessarily correlate with lower infection rates in hyper-endemic zones.

A striking finding in our study was that 100% of HBsAg and HBeAg positive cases were identified during the second trimester. This mirrors findings by Wang et al. (2022) in China, who identified the second trimester as the peak period for hepatitis flares during pregnancy [23]. Regarding parity, our observation that primiparous women are more likely to be HBsAg positive (74.3%) contrasts with Yin et al. (2021), who found that HBsAg-positive women in China generally had higher parity [24]. However, our finding that multiparous women had significantly higher anti-HBs levels (79.5%, $p < 0.001$) suggests a higher rate of resolved natural infections or effective immune responses over time compared to younger, first-time mothers.

The absence of HCV and HDV co-infections in our study (0%) is consistent with Astorga et al. (2024), who found no syphilis or HIV co-infections among HBV-positive women in Chile [22], but differs from Eleje et al. (2025) in Nigeria, who reported a 0.22% HIV-HBV co-infection rate [21]. We identified blood transfusion as a massive risk factor for transmissibility (OR = 41.56, $p < 0.001$), reinforcing the critical need for more stringent blood screening protocols in the region.

The concentration of HBsAg/HBeAg positivity in the second trimester may be attributed to the physiological "immune-tolerant" phase of pregnancy. As noted by Wang et al. (2022), pregnancy involves complex immune modulation to protect the foetus, which can lead to increased viral replication or flares [23].

The significantly higher HBsAg rates in primiparous women may be explained by the younger age of this subgroup. This is supported by Shimakawa et al. (2022), who observed that HBeAg prevalence (a marker of high infectivity) significantly decreases with age, dropping from 37.6% in teenagers to 8.5% in women over 35[19]. Younger, primiparous women in Cameroon likely represent a cohort that entered their reproductive years without the benefit of the universal infant HBV vaccination programs that have only recently gained high coverage.

These findings have profound implications for Neonatal Health Security. With an 8.4% HBeAg positivity rate, a significant portion of the newborns in Yaoundé are at "high risk" for vertical transmission. Current screening often emphasizes the first trimester; however, our data suggests that second-trimester screening is vital for catching active flares. As highlighted by Oliveira et al. (2021) in Angola [25], 100% of HBeAg-positive mothers transmitted the virus if they were unaware of their status or untreated. Our data suggests a similar "silent threat" in Cameroon. The success of Nucleos(t)ide Analogues (NAs) in reducing transmission to 0% should encourage the integration of antiviral therapy for HBeAg-positive Cameroonian mothers [26].

This study was conducted in a single urban hospital, which may not be representative of the diverse socio-economic landscape of Cameroon. Additionally, we did not measure HBV DNA viral loads, which Ngoc Tram et al. (2023) and Huang et al. (2021) identified as the gold standard for predicting immunoprophylaxis failure [27, 28]. Finally, the cross-sectional nature of the study prevented us from following the neonates post-delivery to confirm the definitive rate of Mother-to-Child Transmission (MTCT).

To build upon these results, future studies should be done to track HBsAg-positive mothers and their infants up to 12 months post-delivery to assess the real-world efficacy of the birth-dose vaccine in this high-prevalence setting. Incorporate HBV DNA quantification to determine the exact threshold for initiating antiviral therapy in Cameroonian pregnant women. Investigate the role of Vitamin D and BMI on treatment response, as suggested by Wang et al. (2023), to optimize maternal health outcomes [26].

Conclusion

This study findings demonstrate a high seroprevalence of Hepatitis B surface antigen (HBsAg) at 16.4% among the pregnant women in the study area, which categorizes the region as one of high HBV endemicity. This high rate represents a significant public health concern due to the substantial risk of MTCT, a primary driver of chronic HBV globally. The research also highlighted key risk factors associated with HBV seroprevalence, suggesting that a multi-faceted public health approach is needed to address socioeconomic and healthcare-related determinants of infection risk.

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Authors contributions

Donatien Serge Mbaga, were responsible for the conception and design of the study as well as project administration; Jean De Matha Ndengué and Justin Olivier Essindi participated in collecting and processing data, HBV marker measurement. Donatien Serge Mbaga and André urbain Njiki- Bikoï, was responsible for statistical analysis and interpretation of results. Donatien Serge Mbaga and Jean De Matha Ndengué, wrote the original draft. Louise Stéphanie Makemgue and Jacky Njiki Bikoi reviewed the first draft and approved the final version of the paper for submission.

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