



Survey of Hepatitis B Virus Infection among Pregnant Women Attending Antenatal Care Clinic in two Selected Health Centers in Lugbe, AMAC, FCT, Abuja

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Introduction

Background: Hepatitis B Virus is a small, double-stranded DNA, and perinatal transmission from mother to infant at birth is highly efficient as many as 90% of infants. This was aimed at investigating the Knowledge and Status of Hepatitis B among pregnant women attending antenatal care in two selected health centres in Lugbe, Abuja. Method: A total of 220 pregnant women ranging from 15- 45+ years were randomly selected and assessed on demographic characteristics, HBV, knowledge and prevention of HBV infection using a well-structured self-administered questionnaire. The data obtained were analyzed using SPSS Version 20.0. Result: The result revealed that more than half (70.0%) of the respondents have not suffered the infection, while 26.8% have. More than three-quarters (85.0%) of the participants had only a single sexual partner, and 1.4% had more than three sexual partners. The majority (58.6%) identified HBV as the cause of hepatitis. Nevertheless, the majority were not knowledgeable about the risk factors of hepatitis, as more than half of them, believed that avoiding multiple sexual partners, sharing sharp objects, blood transfusion and vaccination do not prevent the contraction of the infection. There is a significant relationship between the participant's marital status, educational level and hepatitis status ($p=0.044$). Conclusion: The status of Hepatitis B virus infection was higher (26.8%) than what has been reported, and can be attributed to a low level of knowledge among the respondents on the causes of the infection. An aggressive campaign to increase knowledge and create more awareness among the respondents in the area should be mounted.

Keywords: Women, Pregnancy, Hepatitis B, Knowledge, Status, Health centres, AMAC.

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Introduction

Hepatitis B Virus (HBV) is the virus that causes the inflammation of the liver, which has presumably been recognized long in the history of man. Hippocrates is quoted to have described a common clinical manifestation of hepatitis, jaundice, way back in the 5th century B.C. (Shepard et al., 2017). The infective pathology of hepatitis is varied and includes viruses such as yellow fever virus and Hepatitis viruses (in viral hepatitis). Discovery of the infectious nature of hepatitis came from the transmission of the syndrome in the 1940s following blood transfusion,

which is nearly 150 years after human blood transfusion started (Shepard et al., 2017).

Clinical and epidemiological patterns of the disease suggested the existence of more than one form of hepatitis, hence, one form became known as serum hepatitis and the other as infectious hepatitis. The terms Hepatitis B and Hepatitis A were later introduced to designate the respective distinct conditions (Belayi et al., 2020). Recognition of another type of hepatitis, hepatitis B, and the identification of the hepatitis C virus came in the late 1980s following investigations, involving several groups, and spanning nearly half a century on

the causes of post-transfusion hepatitis (Garba,20 et al.,2020).

HBV is spread primarily by injection with human blood and blood products. Other sources of contracting HBV are sharing needles with injected street drugs, receiving blood or blood products, receiving organs from an HBV-infected blood donor, long long-term kidney dialysis in which a victim may have unknowingly shared supplies/equipment that had someone infected blood on them (CDC, 2020).

Healthcare workers are at the risk of infection (CDC,2018). While, Onubogu et al., in 2022, noted that after a needle stick or sharp exposure to HBV-positive blood, about 1.8% of healthcare workers out of 100 will get infected with HBV (ranges 0-10%). Mitikie et al., (2020) posited that the virus can be transmitted via sexual intercourse, but the rate of heterosexual transmission is low. It is noteworthy that 20.0% of non-drug-using female partners of intravenous drug users with hepatitis B infection are positive for anti-HBV (Roya et al.,2020). The risk of developing chronic hepatitis B infection is dependent on the dose of the virus to which the individual is exposed (Faseeha, 2015) and transfusion recipients appear to have a greater risk for developing chronic hepatitis B than individuals with other sources of infection, however, a comparatively large proportion of cases have been reported among people with no known risk of acquiring HBV infection (Faseeha,,2015). Femi in 2006, noted that about four out of every hundred infants born to HBV-infected women become infected, and infection occurs during delivery. Maternal transmission of HBV to infants can be prevented by prophylactic treatment, but there is no treatment available which can prevent HBV-infected mothers from transmitting the virus to their newborns (Behrouz et al.,2011). If the mother is co-infected with HIV, the rate of prenatal transmission can be as high as 19.0% compared with 0.13% among mothers positive for HBV without concomitant HIV infection (Onubogu et al.,,2022). According to

the CDC (2018), HBV-positive mothers with cracked or bleeding nipples may be notable sources of infection in breast-feeding babies.

Among women of childbearing age with chronic HBV infection, the prevalence of HBeAg positivity that correlates with high HBV DNA viraemia varies across regions. As a result, the risk of perinatal transmission also varies. In Nigeria, Olutomi,& Bassey,(2017) conducted an appraisal of the strengths and weaknesses, opportunities and threats influencing the achievements of prevention of mother-to-child transmission of hepatitis B virus as well as suggested recommendations to improve the current prevention of mother-to-child transmission of hepatitis B virus health system in Nigeria, in the study, WHO health system framework was used to assess the prevention of mother-to-child transmission of hepatitis B virus. Considering the recent call by the World Health Organization to eliminate hepatitis and the existence of a robust prevention of mother-to-child transmission of human immunodeficiency virus health system, the prevention of mother-to-child transmission of hepatitis B virus health system in Nigeria is riddled with numerous challenges.

These range from a health worker crisis, poor leadership and governance, inadequate health information, medicines, vaccines and technologies and poor service delivery. Francis et al.,2020 on the prevalence of Hepatitis B infection among pregnant women in Jos, Nigeria, concluded that the absence of HBV vaccination, co-infection with HIV, and higher parity were among the factors that promote hepatitis B infection among pregnant women and Ejele et al.,2021, has no choice than to agree when they concluded in their survey " Pregnant women's HBV vaccination coverage in Nigeria: a national pilot cross-sectional study" that the national HBV coverage among pregnant women appeared poor, with the full dose coverage even poorer, blaming it on the lack of vaccine among the study population, they, however, said that level of education was not a factor. Other

reasons they included as factors for low uptake of vaccination were lack of awareness of vaccination, inadequate access to vaccine and positivity to HBV. In their contribution, Babayemi et al., 2021, on " A systemic review and meta-analysis of the prevalence of hepatitis B virus infection among pregnant women in Nigeria" said that an intermediate endemicity of HBV infection among pregnant women in Nigeria, intervention such as routine antenatal HBV screening, antiviral prophylaxis for eligible pregnant women and infant HBV vaccination should be scaled up for the prevention of perinatal transmission of HBV infection in Nigeria, positing that the prevalence of HBV was not significantly different among pregnant women with previous surgery, blood transfusion, multiple lifetime sex partners, tribal marks compared with those without the risk factors aforementioned and not significantly different by age, religion, and marital status or tribe.

Previous studies have shown that the rate of HBeAntigen seroconversion during the first 20 years of life is relatively slow, leaving many women of childbearing age who have contracted HBV infection in their early childhood still highly infectious to their infants (Behrouz et al.,2011). The importance of perinatal transmission becomes paramount

because follow-up data on persons infected as infants or young children demonstrates that about 25.0% of persons who have chronic infection die prematurely from cirrhosis and liver cancer, as the majority of whom are asymptomatic until the onset of end-stage liver disease. At the same time, individuals who have chronic infections serve as the major reservoir for continued HBV transmission (Dini,2017).

In Lugbe, AMAC, FCT, Abuja, Nigeria, there is a paucity of reports and evidence in the literature on the knowledge and HBV-B status of pregnant women, and the burden of the infection continues to mount from observation and history. It is in the light of these issues, highlighted that this study was designed to determine the knowledge and HBV status of pregnant women in Lugbe, AMAC, and FCT in order to create more awareness among the study population and proffer solutions towards curtailing the spread of the infection in the area.

Materials and Methods

Study Design

An ex post facto design was adopted in order to determine the knowledge and status of HBV of pregnant women in Lugbe, AMAC, FCT, and Abuja.

Study Area: Lugbe Community in AMAC, FCT, Abuja, was chosen as the study area

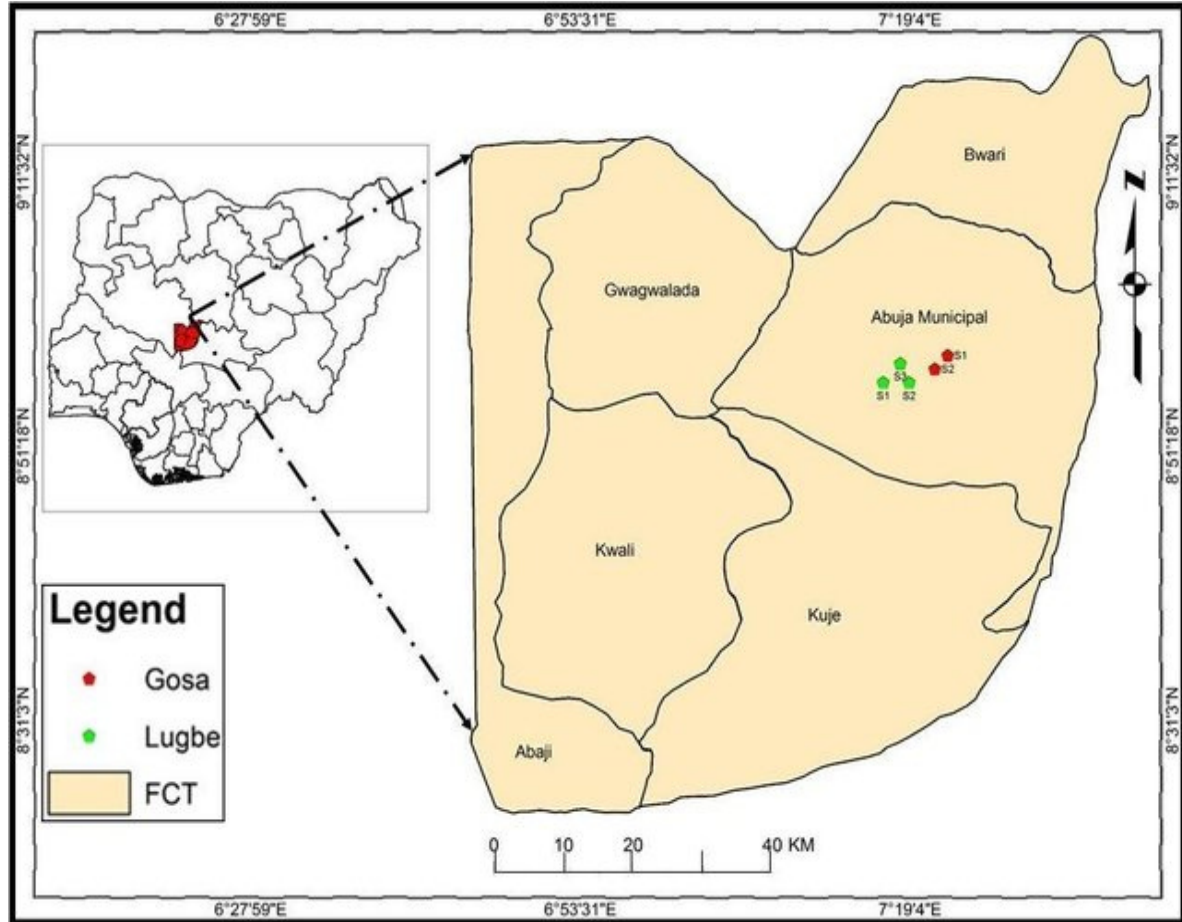


Figure 1: Map of Abuja (FCT) Showing the Site Locations Points at Lugbe and Gosa Communities

Lugbe community derived her name from a bird as " LUGBE" means bird in the Gbagyi Language. The Gbagyis are the indigenous settlers in Lugbe village and oral history has it that the Lugbe village was founded by a hunter, the hunter was believed to have come for hunting exercise from "Ijah" a village in Niger state and is divided into two, with one on the right-hand side of the expressway known as LUGBE ONE(1LB) which also host the Federal Housing Authority(FHA) Estate, while, the other by the left-hand side is referred as LUGBE TWO (2LB). The Lugbe Community is the district headquarter of ten villages along the Umaru Musa Yar'adua expressway formally known as Airport Road and is predominantly an urban area covering about 80 Sq/Km, sharing a small fraction of

the 776,298 estimated population of FCT-Abuja according to the 2006 census.

Study Population

The study population comprised of all the pregnant women attending and receiving antenatal care in various primary health centres in the community.

Sample Size Determination

A suitable sample size of 220 pregnant women of 15 to 44 years and above was chosen using the formula; $n = N/1+N(e)^2$ according to Taro Yamane(1973).

n = sample size required

N = number of people in the population (400)

e = allowable sampling error (0.05)

$n = 400/1+400(0.05)^2 = 200+10\%$ attrition = 220

Sampling Technique

Multi-stage sampling technique was employed in order to ensure a good representation of the target population of the study.

Inclusion and Exclusion Criteria

All the pregnant women within the age bracket of 15 to 44⁺ years and attending antenatal clinic were included, while, women without pregnancy and not within the age bracket were excluded.

Ethical Clearance

Permission to carry on with this study was obtained from the AMAC Health Department and Research Ethical Committee of the National Open University of Nigeria, while, oral consent was obtained from the respondents after explaining the details of the study to them and the benefits derivable from their participation.

Instrument for Data Collection

A structured self-administered questionnaire divided into three sections; A, B, C, D. which sought information on, demographic characteristics, Hepatitis status, knowledge of the participants on lifestyle/health behaviours and possible ways of preventing HBV infection was used.

Validity and Reliability of Instrument Used

This was carried out by using the Guttman Split Lambda 4 coefficient with the aid of the Statistical Package for Social Sciences (SPSS). The reliability coefficient was found to be 0.75 and this, therefore, confirmed the instrument to be reliable and suitable for the study.

Data Analysis

The data collected was analyzed using Statistical Package for Social Sciences (SPSS Version 20.0). The results were presented in percentages and frequencies and Chi-square was used in testing the association between

dependent and independent variables. $P < 0.05$ was considered significant for the evaluation of statistical analysis.

Results

The result of sociodemographic and socioeconomic characteristics of respondents, reveals that 6.8%, 30%, 34.5% and 21.4% of the respondents were within the age range of 15-24years, 25-34years, 35-44years and 45years and above. The majority (89.1%) of the respondents were married, with just 6.8%, 1.4% and 0.9% single, divorced and separated. 58.6% of the respondents are into monogamy, while 20.5% are polygamy and 20.9% had no response. 74.1% of the respondents practised Christianity, 15.9%, 1.4% and 3.6% practised Islam, traditional and others. The level of education distribution revealed that 1.8% had no formal education while 4.1% had informal education and 4.1%, 39.1%, 43.2% and 2.7% had primary, secondary, tertiary education, and others.

The respondents' type of occupation revealed that 12.7%, 22.7%, 3.6%, 18.2%, 25.9% and 6.5% were civil servants, petty traders, farmers, students, private workers, and artisans, while, there was no significant difference between the respondents' age and hepatitis B status ($P > 0.05$). The R-values of -0.022, -0.124, -0.021, and -0.099 showed a poor and negative correlation for Hepatitis B status, awareness of Hepatitis B, blood transfusion, the number of sexual partners, and 0.048 for causes of hepatitis infection show a very weak correlation for respondents' age. There is no significant difference between the respondent's cause of hepatitis infection and their hepatitis B status ($P > 0.05$). The r values of -0.075, and -0.034 show a poor and negative correlation for Hepatitis B status respectively and R-values of 0.041 and 0.078 for "Have you transfused blood before and the number of sexual partners they have" showed a very weak correlation for respondent's cause of Hepatitis infection.

Table 1: Hepatitis B status of the Respondents (n=220)

Variables	Frequency	Percent
What is your Hepatitis B status?		
No response	7	3.2
Positive	59	26.8
Negative	154	70.0
Have you heard about Hepatitis B before?		
No response	2	0.9
Yes	152	69.1
No	26	11.8
not sure	40	18.2
Have you transfused blood before?		
No response	11	5.0
Yes	22	10.0
No	177	80.5
not sure	10	4.5
Have you had a baby before?		
No response	16	7.3
Yes	154	70.0
No	50	22.7
How many sexual partners do you have?		
No response	13	5.9
1	187	85.0
2	13	5.9
3	4	1.8
more than 3	3	1.4

Table 1 showed that more than half (70%) of the respondents were negative, 26.8% were positive, 69.1% of the respondents were aware of hepatitis B, 11.8% were not aware and 18.2% were not sure. The majority (80.5%) had not transfused blood before, whereas only

10% had transfused blood and 4.5% were not sure More than three quarter (85%) of the respondents had only a single sexual partner, while 5.9%, 1.8%, and 1.4% had two, three and more than three sexual partners.

Table 2: Respondent's Knowledge of the Prevention of Hepatitis B

Measures	Prevent N (%)	Don't Prevent N (%)
By avoiding multiple sexual Partner	39(17.7)	181(82.3)
By avoiding multiple sexual Partner	28(12.7)	192(87.3)
Stops sharing sharp objects with others	20(9.1)	200(90.9)
Make sure you are properly screened before transfusing any blood	10(4.5)	210(95.5)
Go to the Hospital for Hepatitis B screening	35(15.1)	185(84.9)
By receiving Hepatitis B Vaccination	25(11.4)	195(88.6)
None of the Above	5(2.3)	115(97.7)
All the Above?	102(46.4)	118(53.6)

Table 2 revealed the respondents' knowledge on the prevention of Hepatitis B. Majority of the respondents said Hepatitis cannot be prevented by avoiding multiple sexual partners, stopping sharing sharp objects with others, making sure you are properly screened before transfusing any blood, going to the

hospital for Hepatitis B screening, by receiving hepatitis B vaccination respectively. However, 97.7% said none of the above is a measure for hepatitis B prevention and 53.6% agreed that all the above do not prevent Hepatitis B.

Table 3: Relationship between Respondent’s Marital Status and their Hepatitis B status

Variables	No response N (%)	Married N (%)	Single N (%)	Divorced N (%)	Separated N (%)	P-value	r
What is your Hepatitis B status?						0.044	-0.136
No response	1(0.5)	6(2.7)	0(0.0)	0(0.0)	0(0.0)		
Positive	2(0.9)	45(20.5)	7(3.2)	3(1.4)	2(0.9)		
Negative	1(0.5)	145(65.9)	8(3.6)	0(0.0)	0(0.0)		
Have you heard about Hepatitis B before?						0.696	0.026
No response	1(0.5)	1(0.5)	0(0.0)	0(0.0)	0(0.0)		
Yes	1(0.5)	140(63.6)	8(3.6)	1(0.5)	2(0.9)		
No	1(0.5)	19(8.6)	5(2.3)	1(0.5)	0(0.0)		
Not sure	1(0.5)	36(16.4)	2(0.9)	1(0.5)	0(0.0)		
Have you transfused blood before?						0.69	0.027
No response	1(0.5)	9(4.1)	1(0.5)	0(0.0)	0(0.0)		
Yes	0(0.0)	21(9.5)	0(0.0)	0(0.0)	0(0.0)		
No	2(0.9)	159(72.3)	12(5.5)	3(1.4)	3(1.4)		
Not sure	1(0.5)	7(3.2)	2(0.9)	0(0.0)	0(0.0)		
How many sexual partners do you have?						0.267	0.075
No response	1(0.5)	10(4.5)	2(0.9)	0(0.0)	0(0.0)		
1	2(0.9)	172(78.2)	10(4.5)	1(0.5)	2(0.9)		
2	1(0.5)	8(3.6)	2(0.9)	2(0.9)	0(0.0)		
3	0(0.0)	3(1.4)	1(0.5)	0(0.0)	0(0.0)		
More than 3	0(0.0)	3(1.4)	0(0.0)	0(0.0)	0(0.0)		
What are the causes of hepatitis infection?						0.054	0.13
No response	1(0.5)	17(7.7)	2(0.9)	0(0.0)	0(0.0)		
Virus	3(1.4)	117(53.2)	7(3.2)	1(0.5)	1(0.5)		
Fungi	0(0.0)	24(10.9)	3(1.4)	0(0.0)	0(0.0)		
Bacteria	0(0.0)	23(10.5)	1(0.5)	1(0.5)	1(0.5)		
Plasmodium	0(0.0)	15(6.8)	2(0.9)	1(0.5)	0(0.0)		

Table 3 shows the relationship between respondents' marital status and their hepatitis B status; there is a significant difference between marital status and hepatitis B status with P= 0.044.

Table 4: Relationship between Respondent’s Level of Education and their Hepatitis B status

Variables	No response N (%)	None N (%)	Informal education N (%)	Primary N (%)	Secondary N (%)	Tertiary N (%)	Others N (%)	P-value	r
What is your Hepatitis B status?								0.00	0.248
No response	1(0.5)	1(0.5)	0(0.0)	1(0.5)	2(0.9)	2(0.9)	0(0.0)		
Positive	5(2.3)	2(0.9)	6(2.7)	4(1.8)	21(9.5)	18(8.2)	3(1.4)		
Negative	5(2.3)	1(0.5)	3(1.4)	4(1.8)	63(28.6)	75(34.1)	3(1.4)		
Have you heard about Hepatitis B before?								0.32	-0.067
No response	2(0.9)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)		
Yes	6(2.7)	4(1.8)	4(1.8)	6(2.7)	50(22.7)	78(35.5)	4(1.8)		

No	2(0.9)	0(0.0)	1(0.5)	0(0.0)	11(5.0)	10(4.5)	2(0.9)		
Not sure	1(0.5)	0(0.0)	4(1.8)	3(1.4)	25(11.4)	7(3.2)	0(0.0)		
Have you transfused blood before?								0.806	0.017
No response	0(0.0)	0(0.0)	1(0.5)	1(0.5)	6(2.7)	3(1.4)	0(0.0)		
Yes	2(0.9)	3(1.4)	0(0.0)	1(0.5)	6(2.7)	10(4.5)	0(0.0)		
No	7(3.2)	1(0.5)	6(2.7)	5(2.3)	74(33.6)	79(35.9)	5(2.3)		
Not sure	2(0.9)	0(0.0)	2(0.9)	2(0.9)	0(0.0)	3(1.4)	1(0.5)		
How many sexual partners do you have?								0.002	-0.207
No response	3(1.4)	0(0.0)	0(0.0)	0(0.0)	6(2.7)	4(1.8)	0(0.0)		
1	6(2.7)	2(0.9)	6(2.7)	4(1.8)	74(33.6)	89(40.5)	6(2.7)		
2	1(0.5)	1(0.5)	1(0.5)	4(1.8)	4(1.8)	2(0.9)	0(0.0)		
3	1(0.5)	0(0.0)	2(0.9)	0(0.0)	1(0.5)	0(0.0)	0(0.0)		
More than 3	0(0.0)	1(0.5)	0(0.0)	1(0.5)	1(0.5)	0(0.0)	0(0.0)		
What are the causes of hepatitis infection?								0.949	-0.004
No response	1(0.5)	0(0.0)	1(0.5)	0(0.0)	13(5.9)	5(2.3)	0(0.0)		
Virus	7(3.2)	2(0.9)	3(1.4)	5(2.3)	48(21.8)	62(28.2)	2(0.9)		
Fungi	1(0.5)	1(0.5)	3(1.4)	2(0.9)	11(5.0)	7(3.2)	2(0.9)		
Bacteria	1(0.5)	0(0.0)	0(0.0)	1(0.5)	10(4.5)	13(5.9)	1(0.5)		
Plasmodium	1(0.5)	1(0.5)	2(0.9)	1(0.5)	4(1.8)	8(3.6)	1(0.5)		

Table 4 showed there is a significant difference between respondents' educational level and hepatitis status (what is your hepatitis status and how many sexual partners do you have) with $P= 0.00$ and $r = 0.002$. The R-values of -0.067 , -0.207 , and -0.004 showed a poor and negative correlation for Hepatitis B status (Have you heard about Hepatitis B before, the number of sexual partners they have, and what is the cause of hepatitis infection) respectively and 0.248 and 0.017 for what is your hepatitis status and causes of hepatitis infection showed a very weak correlation for respondent's educational level.

Discussion

Viral hepatitis is a life-threatening liver disease and Hippocrates is quoted to have described a common Clinical manifestation of hepatitis, Jaundice, way back in the 5th century B.C (Shepard et al., 2017), caused by hepatitis B virus. The infection is a major public health problem, particularly in developing countries such as Nigeria and other African countries. Hepatitis B virus infection in a population can be predicted by

risk factors associated with the transmission, like using contaminated syringes for injection, blood transfusion and blood products, surgical procedures, body tattooing, occupational injury, and sexual and vertical transmission (CDC, 2020). This study assessed the knowledge and status of HBV infection among pregnant women attending antenatal care clinics in two selected health centres in Lugbe, AMAC, FCT, ABUJA. The result showed that the status of Hepatitis B virus infection among the participants was 26.8%, and when compared with the works of Francis et al., 2020, Olokoba et al., 2011, Eke et al., 2011 and Olaitan & Zamani, 2010 who variously reported 7.4%, 7.9%, 4.5% and 12.6% respectively is high. The variations reported by the authors may be attributed to differences in the levels of knowledge of the respondents, geographical areas, and infrastructure available in different health centres, among others. The participants within the age range of 25-34 years were more affected by their responses and this could have been due to the increased risk of exposure to HBV with each pregnancy, the

cumulative years of sexual exposure as well as risky sexual behaviour and this corroborated well with the study of Ojo et al., 2013, who revealed 73.34% of HBsAg positives among multi-gravida women and posited that such women were considered higher risk of HBV infection due to increased exposure to risk factors like blood transfusion, intravenous drugs or surgical procedures. Moreso, this survey, revealed that women with multiple sexual partners were four times more likely to acquire hepatitis B virus infection than women with one sexual partner and this is in line with the findings of Jonas, 2009, who reported a high status of HBV among commercial sex workers, evidenced by Mitikie et al., 2022 who has no choice than to agree when they confirmed that the virus can be transmitted via sexual intercourse.

The low level of knowledge reported by this study supports the study of Eleje et al., 2021, who reported a lack of awareness among pregnant women in their study "Pregnant women's HBV vaccination coverage in Nigeria" positing that this resulted in the high prevalence of HBV due to non-uptake of vaccination among the population.

Furthermore, the survey established level of education ($p = 0.00$; $r = 0.248$) and marital status ($p = 0.044$, $r = -0.136$) as significantly associated with the status of HBV infection among pregnant women, while, age ($p = 0.746$, $r = -0.022$) has no association or relationship with the infection. All these play important roles both in the prevention and control of hepatitis B virus infection, when there is a high level of education among women whether pregnant or not, the level of knowledge among them will increase and that will lead to knowing their rights in the society. Lack of adequate professional counselling of pregnant mothers in Nigerian hospitals, clinics and primary health centres has been part of the reason for the continued spread of hepatitis B virus among pregnant women especially in the rural areas. Additionally, the lack of communication skills of most health workers in passing information to pregnant

women in rural communities, where the majority of illiterate mothers reside has done more harm than good. This study, therefore, advises that indigenous languages be inculcated in the design for the counselling of rural women, both non and pregnant, for this will go a long way in creating much-needed awareness among the study population.

In conclusion, the status of Hepatitis B virus infection was higher (26.8%) than what has been reported in other parts of the country, and this can be attributed to the low level of knowledge recorded among the respondents on the causes of the infection and possible ways of preventing Hepatitis B virus infection. There is an urgent need for public health awareness of this particular infection in order to save poor pregnant women from this avoidable public health nuisance in the area.

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Conflict Of Interest

There is no conflicting interest among the Authors

Authors'S Contributions

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