

KNOWLEDGE, ATTITUDE AND PRACTICE OF HEPATITIS B AND ITS TRANSMISSION FROM MOTHER TO CHILD AMONG PREGNANT WOMEN ATTENDING ANTENATAL CLINICS IN JOS UNIVERSITY TEACHING HOSPITAL

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ABSTRACT

Background: Hepatitis B virus (HBV) infection remains a serious public health problem worldwide. Mother-to-child transmission (MTCT) of HBV is the major mode of transmission in HBV-endemic areas, including Nigeria, where little is known about pregnant women's knowledge of and attitudes towards HBV infection and MTCT.

Methodology: A cross-sectional study conducted over a 3-month period among 361 consenting pregnant women attending antenatal clinic at the Jos University Teaching Hospital, Plateau State, Nigeria. A structured self-administered questionnaire was used to extract information from the respondents. Data was analyzed with IBM SPSS statistics version 23.0

Result: Socio-demographic characteristics of participants revealed that most of the participants (47.1%) were aged between 27-38 years. The Majority were married (93.6%), Christians (62.6%), resided in Urban areas (68.1%), had tertiary education (57.3%) and were unemployed (41.6%). Overall 51.0% of the participants had adequate knowledge about the Hepatitis B virus while most of the pregnant women (59.3%) had negative attitude toward Hepatitis B. Practice of safety measures for Hepatitis showed that about half (51.2%) of the participants had done screening for Hepatitis. The level of vaccination against Hepatitis B was however low (36.0%) among the study participants.

Conclusion: The results highlighted the need to prioritize educating pregnant women and mothers in future public health campaigns to increase knowledge, reduce misperception and improve hepatitis B vaccination. The overall knowledge of participants was found to be inadequate, and their attitude and practice were also limited. In this study, poor knowledge about the transmission of HBV from mother to child was evident.

Keywords: knowledge, attitude, practice, Hepatitis B, antenatal clinic, Jos, Nigeria

Introduction

Hepatitis B virus (HBV) is a deoxyribonucleic acid (DNA) virus belonging to the family Hepadnaviridae that causes acute or chronic infection.¹ Hepatitis B infection remains a serious global public health problem.¹ Globally, there are over 250 million people chronically infected with HBV, with 4.5 million new HBV infections, and 880,000 HBV related deaths annually due to complications of hepatitis B, including cirrhosis and hepatocellular carcinoma.¹ The highest prevalence of HBV over 8% is reported in Central Asia, Southeast Asia, sub-Saharan Africa, and the Amazon Basin; followed by an intermediate prevalence of 2%-8% reported in the Middle-East, South Asia, some Eastern European countries, and the Mediterranean basin; and the lowest prevalence of <1% is reported in the United States, Western Europe, Australia, and parts of South America.^{1,2} In HBV endemic regions, the lifetime risk of HBV exposure is universal and 5%-10% of the adults have chronic HBV infection.^{1,2}

The difference in the HBV burden across regions is reflected in the modes of transmission and burden of paediatric HBV infection.² In high prevalence regions, HBV is predominantly transmitted in the perinatal period or early childhood, accounting for over 50% of chronic HBV infection in the adult population.² The risk for chronic HBV infection is about 90% if infected at birth or infancy, 30%-50% in children aged 1-6 years, and 5%-10% in children above the age of 6 years to adulthood.^{1,2} Chronic HBV infection acquired in childhood carries a 25% risk of death resulting from complications of chronic liver disease, cirrhosis, or hepatocellular carcinoma.²

HBV transmission can occur via contaminated blood transfusion, unprotected sex, and prick with contaminated sharp objects; Mother-to-child transmission (MTCT), by which HBV is transmitted from infected mothers to their infants is the main route of infection in infants and can occur through prenatal transmission (in utero), natal transmission (during delivery), or post natal transmission (during childcare or through breast

milk).³ Following HBV infection, many people with HBV may not show any symptoms and the clinical manifestations vary in acute and chronic cases from nonspecific symptoms to organ failure.^{3,4}

Prevalence of Hepatitis B surface antigenemia (HBsAg) positivity varies widely among pregnant women. In Nigeria, the prevalence ranges between 2%-15.2%. HBV prevalence in pregnancy was reported to be 5.7% and 8.2% in studies done in Ilorin and Zaria respectively, both in North-central Nigeria.^{3,4} A prevalence of less than 2% in Ethiopia and Ghana; 3.3% in Zimbabwe; 4.6% in South Africa; 9.5% in Senegal; 16.1% in Zambia; and 24% in Southern Tanzania have been reported.^{5,6,7,8}

A study conducted in Nigeria showed that 75.2% of antenatal care attendee women do not know that hepatitis is a viral infection affecting the liver, while a study in eastern Ghana in 2016 showed that 59.8% of pregnant women had poor knowledge, 64.7% of them had negative attitude, and 73.7% of them had poor practice towards HBV in the study.^{6,7} This revealed a poor level of knowledge, attitude and practice among the average 66.1% of pregnant women in the study.⁹

Mother-to-child-transmission (MTCT) is the major mode of HBV transmission worldwide, which is problematic, since around 90% of infected infants progress to chronic Hepatitis B.^{1,2,8} This risk is much higher than from horizontal transmission where the rate of chronicity is 30-50% when infected before 6 years of age and less than 5% when infected in adulthood.^{1,2,6} Despite improved childhood HBV vaccination worldwide, MTCT still accounts for about 50% of new HBV infections in high-endemic countries and one-third in low-endemic countries.^{7,8,9,10} In the presence of high magnitude, rapid rate transmission, and severe complications including death in pregnant women and infants, the infection is still prevalent.² Among pregnant women, these illnesses can lead to coagulation disorders, postpartum haemorrhage, organ failure and high maternal death and poor outcomes of their new born such as still birth,

neonatal deaths, acute and chronic liver disease, and hepatocellular carcinoma.^{2,6,8} Therefore, preventing MTCT is crucial for decreasing HBV prevalence.¹¹ Prevention requires HBV-infected mothers to be aware of their disease status and to understand the consequences of HBV transmission to their children.¹¹ There are only few studies that have assessed the knowledge, attitude and practice of hepatitis B and MTCT among pregnant women.¹¹ Assessing the KAP among pregnant women is the best way of HBV infection prevention, which ultimately will reduce vertical transmission by giving health education.¹¹ Their attitudes could affect their willingness for prenatal screening and to follow the current WHO immunoprophylaxis guidelines, which include birth dose vaccine, hepatitis B immunoglobulin for their infants, and completing HBV vaccine series before 1 year of age.^{1,8} In addition, results obtained from this study are important to program managers and health planners, to plan vaccination and other preventive strategies. Thus this study is aimed at assessing the knowledge, attitude, and practice towards hepatitis B among pregnant women attending antenatal care at Jos University Teaching Hospital (JUTH), Jos, North-central Nigeria. The objective of this study is to assess the knowledge of, attitude, and practice towards hepatitis B and its transmission from mother to child among pregnant women attending antenatal care in Jos University Teaching Hospital, aimed at prevention of hepatitis B.

Methodology

Study setting and population: As at 2016, Plateau state population was put at 4,390,337. The capital, Jos is famous for its cold climate that has been attributed to its high altitude which is 1238 meters or 4062 feet above sea level.

The study site was the antenatal clinic of the Jos University Teaching Hospital, Jos, 600-bed tertiary health institution located in Jos, the capital of Plateau state in north central Nigeria. Plateau state is one of the 36 states in Nigeria. It has over 30 ethnic groups.

The teaching hospital was established in 1981; it is located in the eastern part of Jos metropolis and has a well-established department of Obstetrics and Gynaecology, with eighteen consultants spread across the subspecialties. The department boasts of a very functional maternity unit, among other specialist service points, which offers obstetrics and gynaecological services to patients from Plateau state and its neighbouring states of Bauchi, Taraba, Nasarawa, parts of Kaduna and Gombe among others. It serves both as a secondary and a tertiary centre because of its peculiar location and costs being affordable to both the rich and poor. It offers antenatal care services to several pregnant women and serves as a referral centre.

Study design: The study was a cross sectional descriptive study which was conducted from April to June, 2021.

Sample size determination

The sample size was derived from the formular:
 $n = z^2 pq / d^2$

Z = 1.96 (coefficient of Z statistics for .pnormal distribution table); p = proportion of antenatal women that had a good cumulative score on awareness (17.5% from study done by Shriram et al);⁸ q = 1-p; d = sampling error tolerated = 0.05.
 $n = 0.175 \times (1 - 0.175) \times (1.96)^2 / (0.05)^2$

n = 328

Another 10% of 328 was added because of those that will not fill the questionnaire properly.

Sample size is therefore = 328 + 33 = 361

Sampling technique: A cross section of women attending antenatal care was recruited into the study irrespective of the parity or gestational age using a simple random sampling technique.

Study tool: A questionnaire was used as a source of data collection. It was a self-administered closed-ended questionnaire. The demographic profile consisted of age, residence, marital status, religion, educational status and occupation. This was followed by 12 questions on knowledge about hepatitis B and its risk factors, question about the HBV screening and treatment and questions about consequences of HBV in pregnancy. Their attitude

towards HBV was also assessed. Questions were asked if they think they can get HBV, their reaction if they are found to have HBV, if they have HBV, etc. Practice towards HBV was assessed and questions were asked if they have been screened for HBV, if they share sharp instruments, if they have been vaccinated against HBV etc

Data analysis: Data was entered into cleaned and analysed with SPSS (IBM, Armonk, NY, USA). Qualitative variables were presented as summary measures; and qualitative variables as frequencies, proportions and charts. To determine the overall knowledge, each question was scored. A correct answer was assigned value of one, and a wrong answer was assigned zero. The Median score was determined and set as cut off between adequate and inadequate knowledge. All participants who had scores below the median were

considered to have inadequate knowledge while those who scored above or equal to the median score were considered to have adequate knowledge. The same applies to the attitude and practice of the participants

Ethics and approval: An informed consent was obtained. The respondents were assured of confidentiality. Ethical clearance was obtained from the Jos University Teaching Hospital ethics committee with reference number: JUTH/DCS/IREC/127/XXXI/2427.

RESULT

Most of the participants (47.1%) were aged 27-38 years. Most of them reside in urban areas (68.1%). More than half of the participants (57.3%) had Tertiary education as seen in Table 1.

Table 1: Demographic characteristics of subjects (n=361)

Variables	F	%
Age		
15-26	135	37.4
27-38	170	47.1
39-49	56	15.5
Residence		
Urban	246	68.1
Rural	115	31.9
Marital Status		
Single	15	4.2
Married	338	93.6
Widowed	5	1.4
Divorced	3	.8
Religion		
Traditional	5	1.4
Muslim	130	36.0
Christianity	226	62.6
Education		
No Formal Education	24	6.6
Arabic Education	31	8.6
Primary Education	27	7.5
Secondary Education	72	19.9
Tertiary Education	207	57.3
Occupation		
Self Employed	121	33.5
Employed	90	24.9
Not Employed	150	41.6

Table 2 (below) on awareness revealed that 49.6% of the women had never heard about a disease called hepatitis B; nor do about half (51.8%) of them know that vaccination is available for Hepatitis B.

Table 2: Knowledge toward Hepatitis B among pregnant women attending ANC in JUTH (n=361)

Knowledge	f	%
Have You Heard Of A Disease Caused By Hepatitis B Virus?		
Yes	179	49.6
No	167	46.2
I don't know	15	4.2
Can Hepatitis B affect Liver?		
Yes	200	55.4
No	154	42.7
I don't know	7	1.9
Can Hepatitis B Cause Liver Cancer?		
Yes	135	37.4
No	217	60.1
I don't know	9	2.5
Can Hepatitis B Affect All Age Group?		
Yes	263	72.9
No	95	26.3
I don't know	3	0.8
Are Nausea, Vomiting And Loss of Appetite Symptoms of Hepatitis B?		
Yes	174	48.2
No	180	49.9
I don't know	7	1.9
There Is No Symptom of Hepatitis B In Some Patients ?		
Yes	179	49.6
No	180	49.8
I don't know	2	0.6
Can Hepatitis B Be Transmitted Through Contaminated Blood?		
Yes	190	52.6
No	162	44.9
I don't know	9	2.5
Can Hepatitis B Be Transmitted By Blood Of Ear Or Nose Pierces?		
Yes	179	49.6
No	161	44.6
I don't know	21	5.8
Can Hepatitis B Be Transmitted By Unsafe Sex?		
Yes	180	49.9
No	179	49.6
I don't know	2	0.5
Can Hepatitis B Be Transmitted From Mother To Child?		
Yes	160	44.3
No	171	47.4
I don't know	30	8.3

Is Hepatitis B Curable/Treatable?		
Yes	198	54.8
No	160	44.4
I don't know	3	0.8
Is Vaccination Available For Hepatitis B?		
Yes	174	48.2
No	180	49.9
I don't know	7	1.9

Figure 1 (below) shows that almost half of the participants representing 49.0% had inadequate knowledge about Hepatitis B.



Figure 1: Overall Knowledge toward Hepatitis B among pregnant women attending ANC in JUTH

Table 3 (below) shows that almost half have good risk perception towards hepatitis B infection; with just above a quarter willing to disclose to a family member if found to be infected; with the cost of treatment being the biggest worry among almost a third of respondents.

Table 3: Attitude towards Hepatitis B Virus among pregnant women attending ANC in JUTH (n=361)

Attitude	F	%
Do You Think You Can Get Hepatitis B?		
Yes	176	48.8
No/ I don't know	185	51.2
What Will Be Your Reaction If You Are Found To Have Hepatitis B?		
Fear	88	24.4
Sadness	150	41.6
Go To Health Facility	123	34.1
Do You Have Hepatitis B?		
Yes	25	6.9
No/ I don't know	336	93.1
Whom Would You Communicate To About Your Illness?		
Doctor	200	55.4
Family Member	100	27.7
No One	61	16.9
What Will You Do If You Think You Have Symptoms Of Hepatitis B?		
Go To Hospital	225	62.3
Go To Traditional Healers	85	23.5
Will Not Go Anywhere	51	14.1
If You Had Symptoms Of Hepatitis B, At What Stage Will You Go To The Hospital?		
As Soon As I Realized The Symptoms	232	64.3
After 24 Hours Of Symptoms	75	20.8
When Home Treatment Fails	30	8.3
Will Not Go To Hospital	24	6.6
How Expensive Do You Think Is Diagnosis And Treatment Of Hepatitis B?		
Free	11	3.0
Moderately Expensive	29	8.0
Expensive	48	13.3
I Do Not Know	273	75.6
What would worry You If You Are Diagnosed With Hepatitis B?		
Cost Of Treatment	105	29.1
Fear Of Transmitting The Disease	93	25.8
Discrimination By The Society	82	22.7
Nothing To Worry About	81	22.4



Figure 2: Attitude towards Hepatitis B Virus among pregnant women attending ANC in JUTH

Figure 2 (above) shows that overall attitude toward Hepatitis B by the pregnant women revealed that most of the women, (59.3%) had negative attitude toward Hepatitis B while 40.7% had positive attitude. **Table 4** (below) on Practice of safety measures to Hepatitis B showed that around half of the study participants have been screened for Hepatitis; with only about a third being vaccinated against Hepatitis B infection.

Table 4: Practice of safety measures to Hepatitis B (n=361)

Practice	F	%
Have You been screened for Hepatitis?		
Yes	185	51.2
No	167	46.3
I don't know	9	2.5
Do You Change The Blade For Safe Equipment For Ear And Nose Piercing?		
Yes	166	46.0
No	195	54.0
Have You Been Vaccinated Against Hepatitis B?		
Yes	130	36.0
No	230	63.7
I don't know	1	0.3
When diagnosed With Hepatitis B Would You Go For Further Investigation And Treatment?		
Yes	201	55.7
No	158	43.7
I don't know	2	0.6
Do You Avoid Meeting Hepatitis B Patients?		
Yes	170	47.1
No	191	52.9

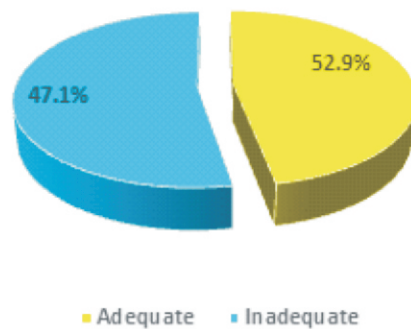


Figure 3: Overall Practice of Safety measures (n=361)

Overall practice of safety measures as seen in Figure 3 (above) revealed that more than half of the participants (52.9%) had adequate practice of safety measures against Hepatitis B.

DISCUSSION

The study revealed inadequate knowledge and negative attitude and practice towards HBV among pregnant women attending antenatal clinics in Jos University Teaching Hospital. This lack of knowledge may influence the attitudes of the mothers towards intervention that could reduce the risk of transmission to their infants.

The findings in this study showed that 49% of participants had poor knowledge, whereas in a study conducted by Gebrecherkos T et al in Ethiopia, 73.4% of the participants had poor knowledge.¹¹ A study conducted by Dun-Dery F et al in Ghana showed that less than half of the participants (46.2%) knew about HBV infection and its disease.¹² A cross-sectional study conducted by Hanz Z et al in China, only 21% of the participants were able to answer all the general knowledge-related questions correctly.¹³ A study conducted by Frambo A et al in the Buca Health District, Cameroon; showed that less than 20% of the participants had correct knowledge.¹⁴ However, in a study conducted by Fikremariam et al in Addis Ababa, Ethiopia, 39.2% of them had adequate knowledge about HBV.¹⁵

According to the result, almost half of the respondents did not know HBV is transmissible through blood and blood products, through unsafe

sex, and from mother to child during pregnancy, respectively. This is similar to a study reported by Fikremariam from Addis Ababa, Ethiopia.¹⁵ This low level of knowledge of route of HBV transmission calls for targeted health education in order to prevent and control the spread of the virus. In contrast, a study conducted by Gboeze A et al in Nigeria in 2015 revealed that 72.9% of respondents demonstrated good knowledge regarding the transmission of HBV from mother-to-child, which was similar to findings in a study by Pham et al in Vietnam that reported 75.3% of the participants were aware that HBV is transmitted through unprotected sex.¹⁷ Good knowledge of pregnant women regarding the different modes of transmission of HBV can be explained by the fact that these women have received regular antenatal care education on subject of HBV infection.

Only about a third of our study participants believed that hepatitis B can cause liver cancer. Similarly, low level of knowledge in Ethiopia, Japan and Addis Ababa Ethiopia.^{11,15,18} However it differed from the findings of Wah et al from China who found that 87% of the study participants believed that HBV can cause liver cancer.¹⁹

In this study, 59.3% of the respondents had negative attitudes towards HBV. This is similar to a study conducted by Kamal R in Honiara, Solomon

Islands.²⁰ A study conducted by Rahman M in Bangladesh showed that 50% of the participants had negative attitude.²¹ As part of the negative attitude of respondents in this study, 23.5% of the participants said they will go to traditional healers as a choice of treatment if infected with HBV. A study conducted by Gebrecherkos T et al in Ethiopia showed that 47.7% of the respondents had gone to traditional healers if they had HBV.¹¹ This negative attitude by some respondent may be due to inadequate knowledge about HBV and its management.

In this study, 47.1% of the participants had negative practice. This differed from a study conducted by Fikremariam B in Addis Ababa Ethiopia, which showed 57.5% of the participants had negative practice.¹⁵ In this study, 48.8% had not screened for HBV and 64% have not been vaccinated against HBV, while a study conducted by Gebercherkos T et al in Ethiopia showed that 85.9% had not been screened.¹¹ This is due to lack of awareness about the importance of screening for HBV, vaccination and the implication on maternal and fetal wellbeing.

Conclusion

The study highlighted the need to prioritize educating pregnant women and mothers in future public health campaigns in order to increase knowledge, reduce misperception and improve hepatitis B vaccination. The overall knowledge of participants was found to be inadequate, and their attitude and practice were also limited. In this study, poor knowledge about the transmission of HBV from mother to child was evident.

Extensive health education campaign should be provided to the general population and pregnant women in particular. Public health intervention to improve HBV antenatal screening practices are needed to eliminate MTCT. All pregnant women should be screened for HBV as part of antenatal follow up.

Conflict of Interest: There is no conflict of interest.

Funding: None

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