ORIGINAL RESEARCH ARTICLE

HEPATITIS B VIRUS VACCINATION AWARENESS AND COVERAGE AMONG ADULTS ATTENDING OPHTHALMOLOGY CLINIC IN SOUTHEAST, NIGERIA

ABSTRACT

Background

Hepatitis B virus is a public health problem affecting millions of people globally and causing severe morbidity and mortality. Sub-Saharan Africa is an endemic region for HBV. But this infection is preventable.

AIM: To determine hepatitis B vaccination awareness and coverage among adults attending specialist eye clinic in Anambra State, Nigeria.

METHODS: This was a prospective, descriptive, cross-sectional survey to determine hepatitis B vaccination awareness and coverage among adults attending specialist eye clinic in Anambra State, Nigeria using a pretested, self-administered and interviewer-administered semi-structured questionnaire. Information such as sociodemographics, awareness and knowledge of hepatitis B infection and hepatitis B vaccination were collected and analyzed using descriptive variables and tests of significance. Ethical approval was obtained from the COUTH Ethics committee.

RESULTS: A total of 264 patients were enrolled having met the inclusion criteria. There were 110(41.7%) males and 154(58,3%) females with a ratio of 1:1.4, and the age range of 20-87 years. The mean age was 60.6 years +_ 14.8 years. Majority of the participants n=255(96.6%) were aware of HBV infection. However, 245(89.4%) do not know how HBV is transmitted. Also, 184(69.7%) do not know about HBV vaccination while 61(23.1%) subjects had received HBV vaccination at least once. Lack of awareness of vaccine is the main reason for not being vaccinated against HBV.

CONCLUSION: Hepatitis B vaccination coverage among adult patients attending specialist eye clinic in Onitsha, Nigeria is poor. This is mostly due to lack of awareness of HBV vaccination.

Keywords: Eye clinic, HBV, Nigeria, Vaccine coverage.

INTRODUCTION

Hepatitis B virus (HBV) as a public health issue, is an important cause of morbidity and mortality worldwide affecting about 260 million people and responsible for about 820,000 deaths annually worldwide. Twenty five percent of chronic hepatitis B infections progress to liver cancer while many HBV infected persons remain asymptomatic and hence potential carriers of the disease among the general population [1]. Even though HBV infection occurs worldwide, low- and middle-income countries bear the greatest burden, especially countries in the West and East Africa [2,3]. Hepatitis b virus is highly endemic in Nigeria, and unfortunately, a good number of HBV carriers are not aware of their serostatus [4,5]. HBV is transmitted by carriers through unprotected sex, needle prick injuries, blood transfusion and transfusion ofblood products, use of contaminated sharp objects and instruments and sharing of needles among drug addicts while babies of infected mothers, health workers, sex workers and their patronisers are also at increased risk of contracting HBV [6,7].

Currently, there is a global target towards the elimination of HBV in the year 2030. These strategies for elimination of HBV infection include strengthening detection and treatment of HBV infection, improving vaccination programs, increasing programs for prevention of mother-to-child transmission of HBV and enhancing the safety of injections, blood and blood products [8,9]. Enhancing access to HBV vaccination and improving efforts towards prevention of mother-to- child transmission is a vital strategy for eliminating HBV infection and reduction of mortality associated with the disease [10]. But pregnant women's HBV vaccination coverage in Nigeria is poor [11].

According to the World Health Organization, vaccination against HBV is considered complete after at least three doses (24hours after birth, 1 month and at 6 months) of the vaccine is received [12]. In the past different studies have been conducted in Nigeria to assess the awareness, and coverage of HBV Vaccine among different population groups [11,13].A national pilot study in 2021conducted among women attending antenatal clinics across the country reported that 13.2% had received at least one dose of HBV vaccine with only 5% having got 3 doses [11]. Lack of awareness and non-availability of vaccine were the reasons adduced of the poor coverage.

To achieve this ambitious target, it is necessary to assess the HBV vaccination coverage of all adults in highly endemic area like Nigeria, and create more awareness of this public health disease at every given opportunity, including the eye clinics. This is because the prevalence of blood-borne viral infections like HBV, HCV and HIV is also high among eye clinic patients [14-17]. This study therefore was aimed to determine the HBV awareness and vaccination coverage among adults attending specialist eye clinic in Onitsha, Anambra State Nigeria.

MATERIALS AND METHODS

Study design: A cross-sectional prospective study**.**

Study population: The study was conducted among adults attending outpatient specialist eye clinics that offer primary, secondary, and tertiary eye care services to people within and outside Anambra state, Nigeria.

Study site: City of Refuge Specialist Eye clinic which offers primary, secondary, and tertiary eye care services to people within and outside Anambra state, Nigeria.

Sample size determination: The sample size was estimated using the formular, $n=Z^2p(1-p)/d^2$ n is the desired sample size, Z is the statistics corresponding to the confidence level (At 95% confidence level, Z=1.96), d is degree of accuracy desired, set at 5%(0.05),p=0.7%**[5]**, n=162. Adding 10% attrition rate n=162+16 =178. However, we enrolled 264 subjects.

Inclusion criteria: All adult patients who gave their consent for the study.

Exclusion criteria: Adult patients who did not give consent for the study.

Sample technique: Convenient sampling technique.

Study outcome measures: The HBV vaccination awareness and coverage among adults attending specialist eye clinic in Onitsha, Anambra State Nigeria

Procedures involved: A pretested questionnaire was administered to consenting patients. Information like age, marital status, and place of residence, educational level, awareness of HBV vaccination, number of doses of HBV vaccination received and exposures to risk factors to HBV infection were collected and analyzed.

Data Processing and Statistical Analysis

All collected data were entered and cleaned by Excel spreadsheet. The cleaned data were exported to SPSS version 26.0 statistical software IBM Corporation for analysis. Both univariate and bivariate analysis were conducted on the variables. Continuous variables were presented using mean, median and standard deviation, while categorical variables were described by frequency and proportion; and presented using tables and figures. For the bivariate analysis using Chi-square test, p-value of < 0.05 was considered statistically significant.

Ethical consideration

The study protocol was reviewed and approved by the Chukwuemeka Odumegwu Ojukwu University Teaching Hospital
Ethics Committee (Reference No. COOUTHWU/CMAC/ETH.C/VOL.1/FN:04/296 and date of ethical approval was 13/9/23). Written informed consent was sought from each study participant, but for those who could not write and read, oral informed consent was also obtained. The confidentiality of the collected data was assured during data collection and anonymity of the study participants was maintained during analysis.

RESULTS

Table 1: Sociodemographics of study participants

Variable	Frequency(n=264)	Percentage%
Gender		
Female	154	58.33
Male	110	41.67
Age range (years)		
20-34 years	19	7.20
35-49 years	47	17.80
50-64 years	99	37.50
≥65years	99	37.50
Mean Age	60.60 ± 14.75	
Range	20 – 87 years	
Ethnicity		
Delta	1	0.38
Igbo	263	99.62
Religion		
Christian	262	99.24
Pagan	2	0.76
Occupation		
Civil Servant	35	13.26
Artisan	46	17.42
Student	6	2.27
Trader	106	40.15
Unemployed	71	26.89
Residence		
Rural	17	6.44
Urban	247	93.56
Level of Education		
None	21	7.95
Post Graduate	9	3.41
Primary Education	127	48.11
Secondary Education	61	23.11
Tertiary Education	46	17.42
Marital Status		
Divorced	2	0.76
Married	165	62.50
Single	14	5.30
Widow	83	31.44
Total	**264**	**100**

Table 2: The Awareness of HBV Among Patients Attending Ophthalmology Clinic

Variable	Frequency (n=264)	Percentage%
Heard about Hepatitis B Virus Infection?		
No	9	3.41
Yes	255	96.59

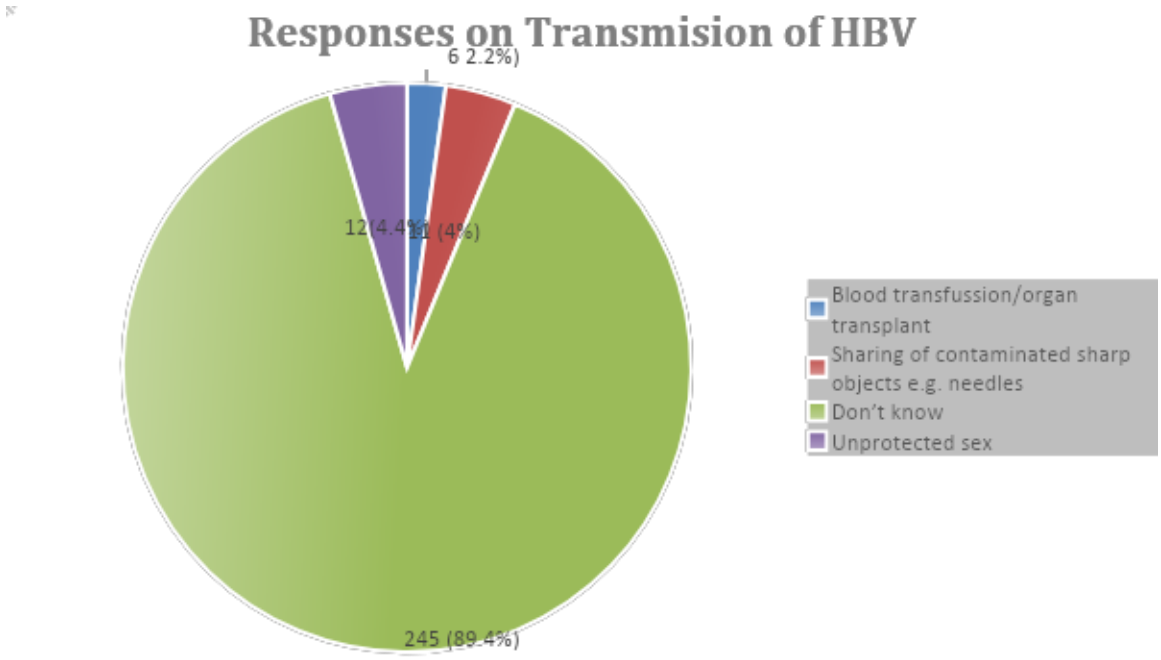

Figure 1: Shows patients' response on how HBV is transmitted with 89.4 % of patients (respondents) indicating that they do not know the mode of transmission of the virus.

Table 3: Knowledge of Vaccination of HBV Among Patients Attending Ophthalmology Clinic

Variable	Frequency(n=264)	Percentage%
Heard about Hepatitis B Vaccination?		
No	80	30.30

Yes	184	69.70
Received Hepatitis B Vaccination?		
No	179	67.80
Unknown	24	9.09
Yes	61	23.11
If Received Hepatitis B Vaccination? Is No, Why		
Did not meet up	14	5.30
Have not heard	127	48.11
No chance	7	2.65
Not interested	55	20.84
If Received Hepatitis B Vaccination? Is yes, how old were you when you took it?		
8-24 years	4	1.52
25-42 years	17	6.44
43-60 years	30	11.36
>61 years	9	3.41
No response	204	77.27
How many doses of Hepatitis B Vaccine have you received?		
1 dose	39	14.77
2 doses	9	3.41
3 doses	9	3.79
No response	204	77.27
More than 3 doses	3	1.14%
When did you receive the last dose of hepatitis B Vaccine?		
1-3 months ago	1	0.38
4-6 months ago	1	0.38
I Don’t know	8	3.03
No response	204	77.27
More than 6 months ago	50	18.94

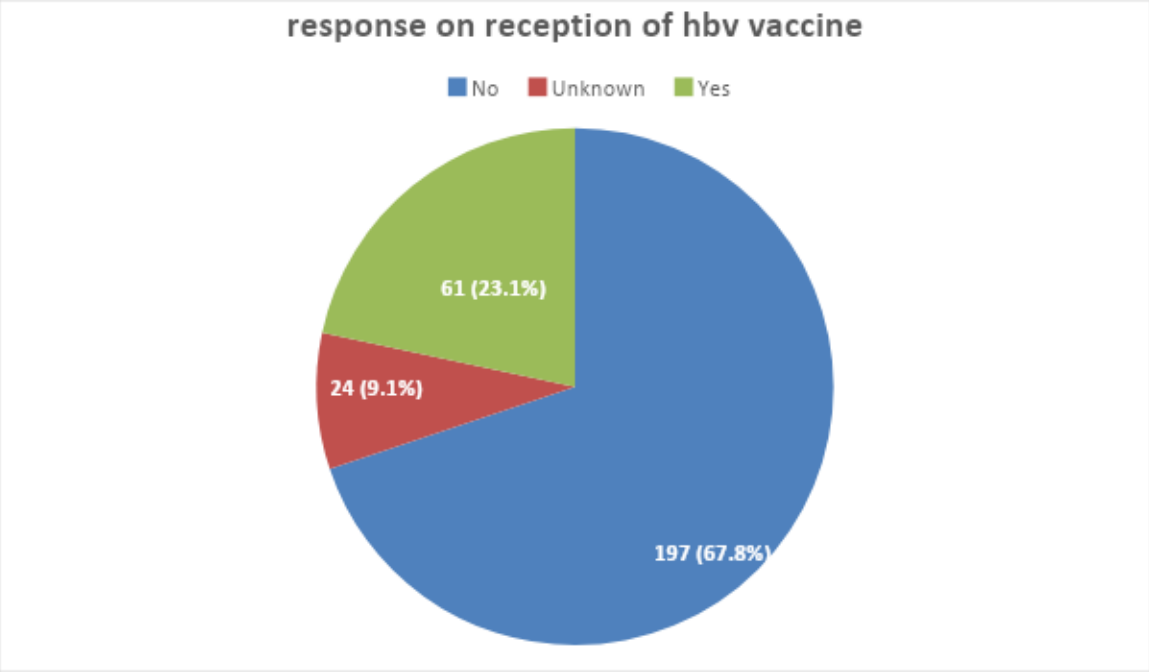

Figure 2: Shows the distribution of responses on the reception of HBV vaccine among participants

From figure 2 above, a total of 61 (23.1%) participants have been vaccinated against HBV.

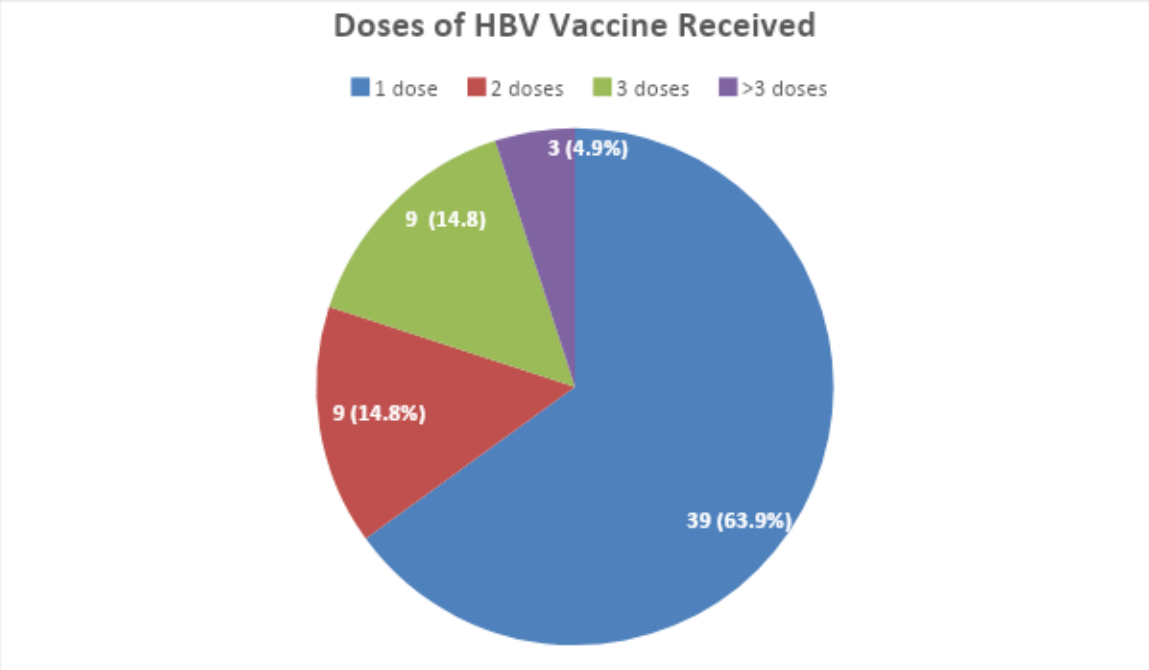

Figure 3: Showing the distribution of responses of participants who received HBV vaccine based on number of doses.

From figure 3 above, 12 (19.7%) participants received at least 3 doses of HBV vaccine.

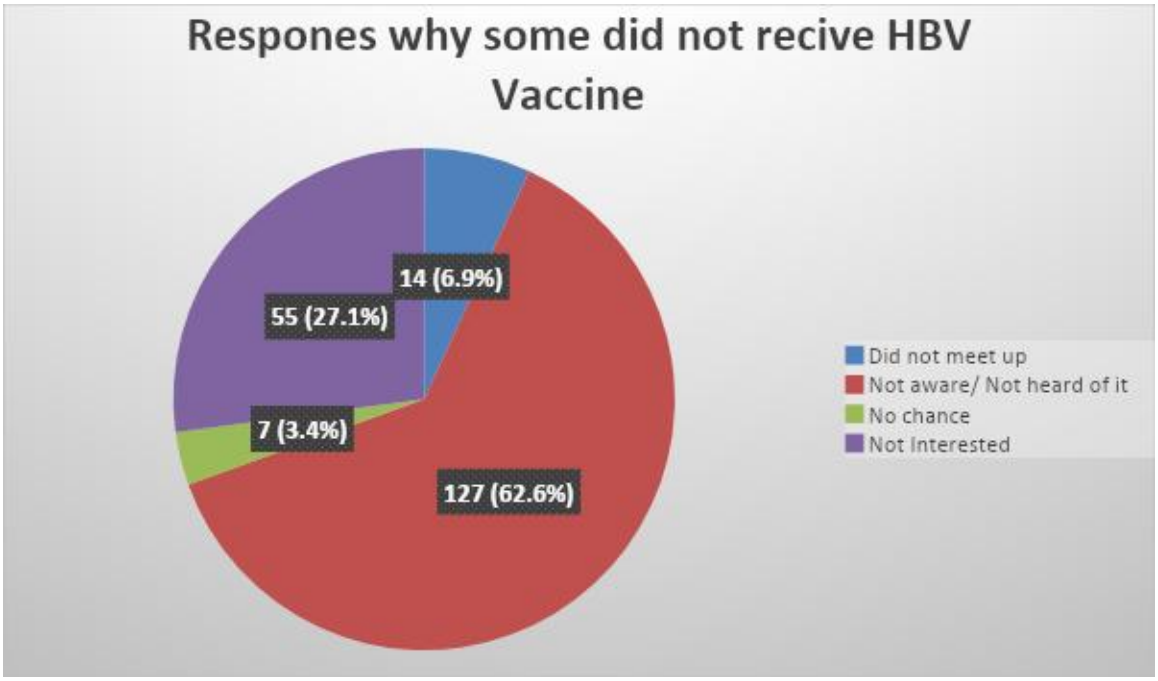

Figure 4: Show the responses of 203 respondents on why they did not receive HBV Vaccine.

From figure 4 above 203 (76.9%) respondents out of 264 have never been vaccinated against HBV. The major reasons for this were lack of awareness among 127 (62.3%)and lack of interest among 55 (27.1%).

Table 4: shows the p–values of the sociodemographics data of the respondents following cross tabulation with certain variable related to knowledge of HBV and reception of HBV vaccine

Sociodemographics Data	**P–value of Variable of Interest Related to Knowledge of HBV, its Transmission, Knowledge of HBV Vaccine and Acceptance of HBV Vaccine**			
	Heard of HBV	*How HBV is transmitted*	*Knowledge of HBV Vaccine*	*Reception of HBV Vaccine*
Age	0.252	***0.016**	0.569	0.970
Sex	0.390	0.536	0.651	0.109
Ethnicity	0.851	1.000	0.509	0.992
Occupation	1.000	***0.000**	0.388	***0.000**
Residence	0.561	0.985	0.530	***0.004**
Level of education	0.469	***0.021**	0.387	0.077
Marital status	0.963	0.004	0.117	0.889

***-P<0.05=significant**

There as a significant difference between age, occupation and responses for mode of HBV transmission. Difference between occupation, residence and vaccination against HBV.

Discussion

To the best of the authors' knowledge, this is the first study in Nigeria reporting on the HBV vaccination awareness and coverage among adults attending ophthalmology clinic in Nigeria. Overall, HBV vaccination coverage in this study is abysmal while poor awareness of availability of the vaccine is the major reason for poor uptake. Several studies have reported poor HBV coverage in other nations [11,19-21]. Some of the factors responsible for poor HBV vaccination uptake include high cost, unavailability of HBV vaccine, lack of awareness of HBV vaccine availability, fear of side effects and lack of time. Lack of awareness of HBV vaccine is the main reason for the low vaccine coverage in this study. This is similar to what was earlier reported by Eleje *et al* in a national pilot study conducted among women attending antenatal clinics in Nigeria [11]. Despite high level of awareness of HBV infection (96.5%) in this study, 69.7% of the study participants were not aware of HBV vaccine. This indicates the urgent need to increase awareness of HBV vaccine and its accessibility in our environment. Hepatitis b vaccination is a major strategy in controlling morbidity and mortality arising from HBV infection. High awareness of a virus and poor knowledge of its transmission has been previously reported for COVID–19 in Nigeria [22].

There was a significant difference between age, educational status, occupation and knowledge of how HBV is transmitted, p-value =0.016, 0.021 and <0.001 respectively. This suggests an association between younger age, level of education attained, certain occupations and better

knowledge of mode of viral transmission. This study has a predominantly older population with almost 40% ≥ 65 years. However, it is expected that younger people are more likely to have formal education and better exposure and correct information than people. Access to formal education and correct information is likely to determine the occupation of an individual such as civil service. Again, the most common reason for poor vaccine uptake was lake of awareness on the availability of HBV vaccine. Therefore, it is expected that formal education will guaranty access to quality in formation knowledge of available vaccine and their advantages.

Furthermore, there was a significant difference between participants occupation, place of residence (rural or urban) an uptake of HBV vaccine, p-value < 0.001 and = 0.004 respectively. As stated in the previous paragraph, better education determines the quality of information and choices and a person's choices. This is also true for type of one's occupation and this also influences one's exposure and choices. Also people who reside in the urban setting are likely to have better education and access to quality information. A national survey conducted among health workers to determine HBV vaccination coverage reported coverage of between 36.2% and 59.5% [13]. Though this may be considered low for health workers, considering their knowledge and the occupational hazards they are exposed to, it is higher than that in other adult populations in the country such as21.0% previously reported in a national cross-sectional pilot study among women attending antenatal clinic [11]. Even among the health workers, the doctors had the highest had the highest coverage [13]. This is in keeping with the associations suggested by this study between level of education, occupation and knowledge of mode of HBV transmission, and that between occupation and vaccine uptake.

Another important reason for the poor coverage in Nigeria is lack of interest. Vaccine hesitancy is an age long problem and an important barrier to vaccine coverage for HBV and other viruses [23-25].Vaccine hesitancy has been listed by the WHO as one of the top 10 challenges to global health [25].

There is also poor knowledge of HBV transmission among the study participants. Some studies have also reported poor knowledge of HBV infection. This has been demonstrated to be responsible for poor attitude towards HBV vaccination [26-28]. Improved knowledge of any disease greatly affects health seeking behavior of the affected individual, age, neither gender nor educational attainment were significantly associated with knowledge of HBV transmission. This underscores the need for massive HBV health education among the general population in our environment as well as in eye clinics.

The global target for HBV elimination is 2030, which are a few years from now. Unless there are concerted efforts towards improving HBV vaccination availability and coverage, HBV infection detection and treatment, the 2030 target may become elusive.

Possible limitations of this study include the fact that we could not obtain information on some wrong modes of HBV transmission due to our study design and the way the questionnaire was structured as there was no open ended question. Also, in-depth insight on some issues and some possible factors related to the low vaccine uptake in this population. A qualitative study would have provided this. can conclude that by suggesting it for future researchers or a potential gap the team can consider. Despite these, the study provides verifiable data needed for more HBV vaccination advocacy.

CONCLUSION

The HBV vaccination coverage in this study is poor despite the endemicity of HBV in Nigeria. The implication is that health workers are at high risk of contracting this disease. There is need to increase both awareness and access to HBV vaccination.

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