

## **Knowledge and Vaccine Preventive Behaviour for Hepatitis B Infection among Rural People of Ukum, Benue State Nigeria**

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### **Abstract**

The incidence and prevalence of Hepatitis B Virus (HBV) infection and diseases related to it is on the increase and accounts for significant number of deaths worldwide and in Nigeria. Knowledge and vaccine prevention of the infection could greatly reduce the incidence of morbidities and mortality induced by the virus. Thus, this study explored knowledge and vaccine preventive behaviour for hepatitis B infection among rural people of Ukum, Benue State Nigeria. The study specifically assessed the level of knowledge on mode of transmission of Hepatitis B Virus in the communities and investigated screening and vaccination status of community members. The study anchored on Anderson behavioural model of health service utilization. Survey research was adopted and multistage sampling was used to select 440 respondents for the study. Questionnaire and Focus Group Discussions guide were used to generate data for the study. The generated data were analyzed with the aid of SPSS (version 23.0) and manual content analysis. Findings revealed that 60.1% of respondents have low level of knowledge on mode of transmission of Hepatitis B Virus in the study area. 70.2% of respondents were not screened for the infection and 89.0% of respondents were not vaccinated. The study recommends that the government should design health programmes to sensitize people in rural communities on hepatitis B infection, its mode of transmission and vaccine preventive measures. The Government at all levels and non-governmental organizations willing to help people in rural communities should also sponsor for free screening of the infection in rural communities and also make adequate provision of vaccine services for the three series of doses required for prevention of the infection for those who may screen and be found none reactive to the disease and for those who the virus may be detected in their blood samples, they should be encouraged to commence treatment at subsidized cost of treatment.

**Key words:** HBV, Infection, Knowledge, Screening, Vaccination

## **Introduction**

The burden of morbidity and mortality due to Hepatitis B virus (HBV) infection is one among the highest of any vaccine-preventable infection globally. The World Health Organization (WHO) has estimated that, worldwide, 325 million people, or roughly 4% of the world's population, lives with viral hepatitis B and the disease causes 1.34 million deaths per year (WHO, 2017). The World Health Organization, further observed that while effective treatment and vaccines exist against viral hepatitis, deaths from the disease are increasing around the world and not declining and since 2000, deaths from viral hepatitis increased by 22 % (WHO,2017).

Hepatitis B Virus (HBV) is a small double-stranded DNA virus which predominantly affects the liver (Gebremariam, Tsegaye, Shiferaw, Reta & Getaneh, 2019). People infected with the Hepatitis B Virus could be increasingly at risk of liver complications that could lead to liver related diseases such as liver cancers, cirrhosis, liver failure and even death since the virus is known to predominantly affect the liver. Most people that suffer from Hepatitis B Virus infection do not know they have been infected until they screen for the disease through a blood test or when symptoms begin to manifest after a long period of living with the virus and this could even be decades after they have been infected and signs of liver problems begin to manifest. Due to this fact, the disease is commonly referred to as a “silent killer”. According to the World Health Organization (WHO,2016) Hepatitis B Virus is mostly transmitted horizontally through contact with infected body fluids including blood transfusions and contaminated medical injections, unprotected sex and from mother to child (vertical transmission) through child birth. The World Health Organization (WHO) also noted that the Hepatitis B Virus can survive outside the body of an individual for at least 7 days and during this time; the virus can still cause infection if it enters the body of a person who is not protected by the Hepatitis B vaccine but the infection can however be prevented with a three-shot series of routine vaccination (WHO, 2019).

Although the prevalence of Hepatitis B Virus is a global concern, the world health organization observed that the prevalence is highest in the Western Pacific region and the African regions, (WHO, 2019). In Nigeria, Berinyuy, Eustace, Alawode, Adenike, Mohammed, Babalola Shukurat, Mustaph, Aishatu, Oshevir, Musili, Okunlola, and Lawal (2019) noted that Nigeria has been documented as highly endemic for HBV infection. In Benue State and Ukum L.G.A in particular although there is paucity of information on the rate of HBV in communities, studies carried out by Mbaawuaga, Iroegbu and Ike (2014) covering the three senatorial district of Benue State revealed that 85.9% out of blood specimens that were randomly collected and screened for hepatitis virus showed evidence of exposure to HBV infection. This is an indication that a lot of people could be increasingly at risk of Hepatitis B Virus infection in communities especially in the rural communities where residents may suffer diseases due to ignorance, lack of information, poor health education among

other factors.

Although research have shown that the Hepatitis B Virus can be prevented through vaccination of uninfected people against it, poor knowledge and vaccine preventive behaviour for the disease could increase the rate of prevalence of the infection in communities leading to morbidities and even deaths influenced by the Hepatitis B Virus. Knowledge and preventive behaviour is therefore necessary to reduce the prevalence of the disease and also fight the scourge and burden of the disease. This could be beneficial to individuals, families, communities and society at large; however, most studies on Hepatitis B in Benue State focus more on prevalence of the disease. For instance studies carried out by Aernan, Sar, and Torkula (2011) focused on prevalence of Hepatitis B Virus in blood donors. Another study carried out by Mbaawuaga, Enenebeak, Okopi, and Damen (2008) focused on Hepatitis B Virus (HBV) infection among Pregnant Women. None of these studies assessed, people's knowledge and vaccine prevention of the Hepatitis B Virus infection.

It is against this backdrop that this study explored knowledge and vaccine preventive behaviour for Hepatitis B Virus infection among rural people of Ukum L.G.A of Benue State. Specifically, the study assessed the level of knowledge on mode of transmission of Hepatitis B Virus in the communities and investigated screening and vaccination status of community members.

### **Theoretical framework**

#### **Andersen's behavioural model of health service utilization**

Andersen's behavioural model of health service use was first developed by Ronald M. Andersen in 1968. The model addresses the concern that some sectors of society in particular people from ethnic minority groups and people who live in inner cities and in rural areas receive less care provision than the rest of the population (Andersen & Newman, 1973). The behavioural model of health incorporates both individual and contextual determinants of health service use which are both divided into three factors these are predisposing, enabling and need factors and these factors can be divided into 3 sets: family composition, social structure and health beliefs. (Andersen ,1968). The theory gives consideration for structural bases of health and illness behavior. Particularly the theory observed the importance of geographical and financial accessibility of medical care institutions (Anderson & Newman 1973; Aday 1975). According to Freidson (1970), the individualistic explanations most often used for health behaviour are insufficient since individual behaviour is constrained by structural factors. Structural factors could determine knowledge about a disease and availability of health services.

Relating this theory to knowledge and preventive behaviour against Hepatitis B infection ,it is most likely that groups which are most favoured by location could have more access to available information on Hepatitis B infection, its mode of transmission and preventive measures and thus more

knowledgeable on the disease, its mode of transmission and preventive measures. For instance if awareness on Hepatitis B Virus is created more in urban centres and vaccines are made available, urban residents may be armed with the necessary information and knowledge and may be more likely to engage in positive preventive behaviours such as receiving vaccines against it because information and services are readily available to motivate them especially if they can equally pay for services..

People in rural communities could be disadvantaged due to their geographical location and may be constrained by structural factors, this could determine the type of information they may be able to access thus forming the basis of their knowledge. Their vaccine preventive behaviour could also be based on availability of preventive services in their communities and their ability to pay. Knowledge and actions taken to prevent HBV may depend on how services on Hepatitis B are structured in the communities. If the provisions of services on Hepatitis B are structured in ways that place the rural people at disadvantage they may lack knowledge and may tend not to take actions towards prevention. Even in situations where they may have knowledge of the infection and vaccine preventive measures, if the vaccines are not available or available but for a fee they cannot afford, they may make little or no efforts towards vaccine prevention because they may not be able to access vaccines or to pay for cost of vaccines if services are available but are based on services for a fee beyond what they may be able to afford.

### **Methodology**

The study is carried out in Ukum Local Government, Benue State, Nigeria. Ukum L.G.A. is situated in North-East of Benue State. The Local Government was carved out of Katsina-Ala Local Government in 1991 during the military administration of Col. Fidelis A. Makka with headquarters at Sankera. Ukum Local Government shares boundaries Eastward with Wukari Local Government in Taraba State. In the South East and South-west, it is bounded by Katsina-Ala and Logo Local Government areas. The Local Government consists of thirteen council wards which are: Aterayange, Mbatiam, Borikyo, Uyam, Lumbur, Mbazum, Tsav, Mbayenge, Azendeshi, Kendev, Ugbaan, Kundav and Ityuruv.

Geographically, Ukum Local Government has an area of 1,514 km<sup>2</sup> (585sqmi) and a population 216,983 people based on the 2006 population census. Base on projection, the 2019 population of Ukum Local Government stand at 304,428 at 3.1% increase rate for 13 years. The inhabitants of the local government area are predominantly Tiv people. Those settling in the area include the Hausas, Ibos, Jukuns, Idomas among others who are mostly traders. Ukum Local Government is endowed with abundant rich and fertile agricultural soil and the people of this area are massively engaged in farming as a means of lively hood. Agriculture is the main stay of the economy of the Local Government. The people of Ukum are peace loving people.

### **Study population**

The population of this study is 304,428. The population consist civil servants, artisan's traders and farmers as well as business people both males and females from the ages of 18 years and above, resident in Ukum Local Government area of Benue State.

### **Sample Size**

Taro Yamane, sample size determination was used to determine sample size for the study. Yamane (1967) suggested the following formula for the determination of the appropriate sample size for a finite population.

$$n = \frac{N}{1+N(e)^2}$$

Where:

n=desired sample size

N= the finite size of the survey population

e = marginal error or confidence interval as determined by the researcher.

1=statistical or theoretical constant.

Based on projection of 2019 population, Population (N) used for the sample size determination is 304,428.

5% confidence level was adopted i.e. 0.05 to reduce the sample size errors.

Using the Yamane formula the sample size determined for the study was 399.5 but for the purpose of using whole numbers the was rounded up to 400 and in other to make up for attritions 10% of 400 was calculated and added to the sample size and this gave a total sample size of 440 respondents for the study.

### **Sampling techniques**

Multistage sampling was used to select respondents for the quantitative data, first Ukum L.G.A. was demarcated into 13 clusters according to the number of existing wards that make up Ukum L.G.A and 8 wards were randomly selected for the study using fish bowl method. The next stage was random selection of compounds in each selected ward. A list of compounds was gotten from PHC register for the area under study. From the list of available compounds forty seven (47) compounds were selected from each ward. The Local Government headquarters and ward headquarters were not included in the selection process. In the last stage, one (1) eligible respondent was randomly selected from a compound to participate in the study. This gave a total of 47 respondents from a ward and a total of 376 respondents from 8 wards for the quantitative study. 47 copies of questionnaire were administered in each selected ward making a total of 376 copies of questionnaire distributed to generate data for the quantitative study. Some qualitative data were also collected across the 8 selected wards in Ukum L.G.A. Sixty-four(64) respondents were purposively selected for Focus

Group Discussion (FGD) and eight (8) Focus Group Discussions were held. Each session of the FGD consisted of 8 members. This gave a total of 440 respondents for the study.

Eight (8) field assistants who were thoroughly trained on the instruments used for the data collection helped in the data collection process. The researchers as well as 2 other researchers employed for the purpose of data collection for the study took part and also supervised the data collection process.

#### **Instruments of data collection**

The questionnaire was the major instrument used to generate data for the study. Some qualitative data were also collected using Focus Group Discussion guide. The questionnaire had 19 questions with a combination of measurement scales, including nominal, ordinal, and interval scales while the FGD guide had seven (7) questions that were designed to elicit discussions.

#### **Method of data analysis**

The quantitative data were analyzed with the aid of Statistical Package for Social Sciences (SPSS, version 23.0) software installed in the computer. The analysis was based on simple frequency tables and percentages. The qualitative data were transcribed, content analyzed manually and presented in narrative form.

#### **Results**

Table 1 presents socio-demographic variable of respondents. More males participated in the study (51.7%). Respondents in the age category 28-37 years constituted majority of the respondents (32.2%). Closely next to this category in terms of percentage are respondents between the categories 38-47 years (27.1%). Majority of the respondents (58.7%) were married while 31.4% of the respondents were single. Minority of the respondents in terms of their marital status were divorced or separated and some widowed. In terms of educational background, there were more respondents with primary education (53.9%) and closely to this group in terms of percentage were respondents with secondary education (31.6%). Respondents with tertiary education represented 12.6% while the least in terms of percentage were those with non-formal education (1.9%). This is an indication that most of the respondents had the basic knowledge required to respond to simple questions on knowledge and preventive behaviour on the Hepatitis B infection. Findings also revealed that majority of the respondents (61.9%) were engaged in farming activities; this is expected because in many rural communities of Nigeria most residents are usually actively engaged in agricultural activities as a means of their livelihood.

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**Table 1:** Socio-demographic variables of respondents

Variables	Frequency (N=373)	Percentage(%=100)
<b>Age</b>		
18-27	73	19.6
28-37	120	32.2
38-47	101	27.1
48-57	52	13.9
<b>Sex</b>		
Male	193	51.7
Female	180	48.3
<b>Marital status</b>		
Married	219	58.7
Single	117	31.4
Divorced/separated	21	5.6
Widowed	16	4.3
<b>Educational background</b>		
Non-Formal	7	1.9
Primary	201	53.9
Secondary	118	31.6
Tertiary	47	12.6
<b>Occupation</b>		
Civil servant	42	11.3
Farming	231	61.9
Petty trading	66	17.7
Artisan	21	5.6
<b>Others</b>	13	3.5

**Source:** Field Survey 2020

**Table 2:** Knowledge on mode of transmission on HPB V

Ratings	Frequency(N)	Percentage (%)
Very high	11	2.9
High	16	4.3
Average	101	27.1
Low	224	60.1
Very low	21	5.6
Total	373	100

**Source:** Field Survey 2020

To assess knowledge on mode of transmission of HBV, respondents were asked to indicate the modes of transmission they know on common modes of transmission presented on a questionnaire and points were given. Table 2 presents findings. Majority of the respondents (60.1%) have low knowledge on modes of transmission of Hepatitis B. Majority of the participants during FGDs held in the communities' also demonstrated low knowledge. A female participant during an FGD discussion held in one of the communities stated that:

I got to know of the Hepatitis B infection when I went for antenatal care in the hospital; most of us that went were screened for it. I later heard that those who were positive needed special attention because they could transmit it to their babies but I didn't inquire to ask how the mothers themselves contracted the infection. I thought within me that maybe it is just malfunction from the liver.

A male participant in another community stated that:

I know about hepatitis infection and I heard it is people that take so much alcohol that mostly contract the disease so if you are not a heavy alcohol drinker i don't think you have any business with the disease.

**Table 3:** Screening status of Hepatitis B in communities

Screened status	Frequency(N=373)	Percentage(%=100)
Yes	79	21.2
No	262	70.2
Don't know	32	8.6

**Source:** Field Survey 2020

Table 3 presents findings on screening status of Hepatitis B in the rural communities. Findings reveal that majority of respondents (70.2%) have not been screened for the infection. Most of the participants during FGDs held also admitted that they have not been screened for the infection. A female participant during an FGD discussion in one of the communities noted that:

I heard hepatitis destroys the liver of people that take too much alcohol, as an individual, i have not screened for the infection because i don't drink alcohol not to talk of drinking too much and i also don't feel sick or have any symptoms of illness not even chest pain so why will i go and waste money for screening when i have other pressing needs.

**Table 4:** Vaccination status of Hepatitis B in communities

Responses	Frequency (373)	Percentage(%=100)
Yes	41	11.0
No	332	89.0

**Source:**Field Survey 2020

Findings on table 4 reveal that majority of respondents (89.0%) have not been vaccinated against Hepatitis B infection in the rural communities. Majority of the respondents that participated in the FGDs also revealed that they have not received the vaccine. A male respondent during an FGD session in one of the communities observed that:



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Most of us in this community have not been vaccinated against the infection. If you want to take statistics of those that have been vaccinated against the infection it will be difficult for you to get a handful except for children or perhaps new born babies that are always receiving immunizations every now and then, maybe the Hepatitis B vaccine could be one of such immunization because when we have children the mothers always frequent the hospital that the health personnel say they should be bringing them for immunization at certain periods but to hear adults say they have gone for any kind of immunization in this community is hard.

### Discussions

This study explored knowledge and vaccine preventive behaviour for Hepatitis B infection among rural people of Ukum L.G.A. Benue State, Nigeria. Findings revealed low (60.1%) knowledge on mode of transmission of the infection in the communities. The finding corroborates findings of Rajamoorthy, Taib, Munusamy, Anwar, Wagner, Mudatsir, Müller, Kuch, Groneberg, Harapan, and Khin, (2019) in Malaysia where it was found that participants had low level of knowledge and awareness of Hepatitis B. The study in Ukum LGA however concentrated on the mode of transmission of the disease. The level of screening for the disease in the study area is also low. Only 21.2% of the respondents admitted that they have been screened for the disease out of which 11.0% have been vaccinated against the infection. This finding corroborates studies carried out by Rajamoorthy et al (2019) where it was found that the level of vaccination among respondents was low with only (26.4%) of the participants having received Hepatitis B vaccination. The finding is also similar to findings of studies carried out across three states in Nigeria by Eni, Soluade, Oshamika, Efekemo, Igwe, and Onile-ere (2019) where it was found that only 21.2% of respondents had been previously vaccinated which is considered low when compared to the recommended 80% coverage rate by World Health Organization.

Although studies carried out by Mbaawuaga, et al (2014) in Benue State Nigeria, showed evidence of exposure to HBV infection, a lot of people in the study area were ignorant on mode of transmission as revealed in this study. An alarming majority have also not been screened nor vaccinated against the disease. This shows that a lot of people in the study area do not know about their status even those who may be infected may not be aware of their condition. This could constitute a serious health risk as a lot of people could become infected as many do not even know about the mode of transmission and for those who may have been living with the virus for long without seeking treatment because they are not aware of their conditions, without screening it may be discovered when the disease is severe with liver related complications which could result to death in some situations.

Although there is evidence that Hepatitis B vaccination could reduce the rate of the infection and thus liver related diseases, poor knowledge and lack of

screening and vaccination against the disease could increase the rate of infection in communities and this could progress to chronic liver diseases, cirrhosis, liver failure and eventually death if not detected on time as the disease hardly manifest early signs.

### **Conclusion**

This study revealed that knowledge and vaccine preventive behaviour against Hepatitis B infection in the study area is poor. The study concludes that the global health efforts and fight to eliminate Hepatitis B Virus by the year 2030 can only be achieved when community members have good knowledge of the disease, its mode of transmission and take preventive measures by screening and vaccinating themselves against the infection and commencing treatment for those who the virus may be detected in their blood after screening. Knowledge relating to mode of transmission of the disease and preventing practices through screening and vaccination against the disease in communities is very essential without which there is an implication for the continued spread of the infection with enormous consequences for communities in Ukum, Benue State and Nigeria at large.

### **Recommendations**

Based on findings, this study recommends that:

- The Federal government of Nigeria with support from State and Local Governments should develop Hepatitis B health programmes targeting people in rural communities. The programmes should be designed to sensitize community members on HBV infection and its vaccine preventive measure among other modes of prevention.
- The government, and non-governmental organizations, should intensify awareness in rural communities on the need for screening for the infection and encourage community members to come out and screen for the disease by offering free screening services for people in rural communities.
- The State Government and Non- governmental organizations willing to help people in rural communities should sponsor free screening of the infection in rural communities and also make adequate provision of vaccine services for the three series of doses required for prevention of the infection for those who may screen and be found none reactive to the disease and for those who the virus may be detected in their blood samples, they should be encouraged to commence treatment at subsidized cost of treatment.

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