

Original Research Article

Predictors of hepatitis B prevention and awareness among barbers in Gwer West Local Government area, Benue state, Nigeria

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ABSTRACT

Background: The rapid increase in the prevalence of hepatitis B virus infection is an important public health issue worldwide. Millions of the general population is at an increased risk of being infected but they lack the awareness and preventive measures against this infection. This study was carried out among barbers in Naka, Gwer West Local Government area of Benue state, to determine the predictors of awareness and preventive measures against hepatitis B.

Methods: A cross sectional descriptive study involving all barbers in Naka were carried out. Structured interviewer administered questionnaires were used in collecting data from the respondents. Data were analyzed using statistical Package for Social Science (SPSS) version 23.0. Adjusted odds ratio and 95% confidence interval were used as point and interval estimates on the logistic model while a p value of ≤ 0.05 was considered statistically significant.

Results: The total number of respondents in this study was 57. The mean age of the respondents was 25.9 ± 2.10 . Majority (92.2%) of the respondents had heard of hepatitis B, 48.9% were able to identify the cause of the disease as virus. Majority of the respondents (78.7%) identified vaccination as a preventive measure against hepatitis B. On vaccination, more than half (51.1%) had been vaccinated against hepatitis B. Vaccination and information significantly affect prevention and awareness $p=0.015$ and 0.001 respectively.

Conclusions: Awareness of hepatitis B was high in this study but awareness about causes and clinical presentations were low. There is need for proper health education programmes to improve their knowledge about hepatitis B and its prevention.

Keywords: Barbers, Hepatitis, Nigeria, Predictors, Vaccination

INTRODUCTION

Hepatitis B is the inflammation of the liver caused by hepatitis B virus (HBV), a partially double stranded virus of the hepadnaviridae family.¹ The viral core particle

consists of a nucleocapsid, surrounding HBV, DNA and RNA polymerase.² HBV is readily detected in the serum, semen, vaginal mucus, saliva and tears. Infection with hepatitis B virus could be self-limiting or progressed to chronic hepatitis, liver cirrhosis or hepato-cellular

carcinoma.³ Viral infections are well known to be sustained by certain reservoirs, and HBV has been found in gorillas, chimpanzees and cows.^{2,3}

Hepatitis B is a leading infectious disease world-wide and a major health problem.^{4,5} Over 2 billion people have serological evidence of hepatitis B worldwide, about 360 million of such people have chronic hepatitis B and not less than 1 million people die of hepatitis B related liver disease per year.^{3,6} Its prevalence approaches 10% in hyper-endemic areas, such as South-east Asia, China, and Africa, more than 8% are chronic carriers of the virus.⁷⁻⁹

In the Middle East and the Indian sub-continent, it is estimated that 2-5% of the general population are chronically infected.^{10,11} Less than 1% of the population in Western Europe and North America are chronically infected.¹²⁻¹⁴ In Nigeria, the prevalence of hepatitis B is 10-15% with variable male to female predilection across the country.^{12,15}

HBV has been found in virtually all body fluids.^{16,17} However, only blood, body fluids containing visible blood, semen and vaginal secretions are sources of risks of transmissions.^{4,18} Major modes of HBV transmission include sexual intercourse with an infected person, vertical transmission and intra-familial routes, injection, drug use and nosocomial exposure.¹⁹⁻²¹ Preventive measures against hepatitis B infection include: hepatitis B vaccine, strict disposal of syringes and needles, use of condoms during sexual intercourse, use of hand gloves by health workers.^{22,23}

In areas of high endemicity, prenatal transmission is the main route of transmission, whereas in areas of low endemicity, sexual contact amongst high risk adults is predominant.^{5,9} Barbers and their clients are generally at risk of injuries from local scissors and clippers, with the attendant risk of transmission of blood-borne infections to their colleagues and possible outbreak of HBV infection.^{8,21}

The clinical manifestations and natural history of HBV infection vary with age.^{3,10} Clinical acute hepatitis B is more frequent in adults than children, and the probability of becoming a chronic carrier of hepatitis B is greater in children than adults.^{9,13} Acute hepatitis B infection is an illness that begins with prodromal symptoms like anorexia, chills, headache, nausea, vomiting, and malaise.^{5,6} Chronic infection with the HBV may be either asymptomatic or associated with chronic inflammation of the liver.^{3,7} Chronically infected HBV patients have a 15-25% risk of dying prematurely due to HBV related cirrhosis and hepato-cellular carcinoma.^{2,8} Prevention is the only safe strategy against high prevalence of viral hepatitis.^{11,22} Awareness of this infection and its preventive measures will go a long way in controlling the disease. A highly effective and inexpensive recombinant DNA vaccine for hepatitis B has been available since 1982 and debuted in Nigeria in 1995.^{2,8} Unfortunately, vaccination

programmes in Nigeria have not received adequate attention and funding from governments.^{10,15} The UNICEF and the WHO estimated that only 41% of Nigerians were vaccinated against HBV in 2013.^{2,9}

HBV has a worldwide incidence and prevalence with 66% of the world's population living in endemic areas.^{9,16} Over 350 million are chronic carriers and HBV is estimated to be responsible for between 500,000-1,500,000 deaths each year. Furthermore, once chronic infection is established, it may persist in the liver for lifetime, which not only causes severe HBV-related sequel such as cirrhosis and hepatocellular carcinoma but also constitutes the reservoir of the virus.^{5,11} The virus causes 60-80% of all primary liver cancer and is a major cause of cancer death in East and South-East Asia, the Pacific Basin and Sub-Saharan Africa.^{3,6,11} HBV has been estimated to be the cause of up to 50% of all cases of hepatocellular carcinoma worldwide.^{8,13} Sub-Saharan Africa is considered to be a region of high endemicity with an average carrier rate of 10-20% in the general population. Seventy to ninety-five adults in the Sub-Saharan Africa have at least one marker of HBV.^{2,9}

The overall HBV burden is 21,760 million sero-positive persons.^{13,19} Other studies yielded a prevalence rate of between 9-39%.^{14,19} Hepatitis B is the commonest cause of chronic liver disease in Nigeria and in the southern parts of the country, up to 58.1% of patients with chronic liver disease was found HBsAg positive.^{2,10,15} In Makurdi, the prevalence of HBV sero-positivity was found to be 12.7%.¹² Hepatitis B virus infection is a serious health problem worldwide demanding early screening and prompt immunization for sero-negative persons and early diagnosis and appropriate treatment to avoid mortality and morbidity.^{11,18}

In Nigeria it is a major cause of liver cirrhosis and hepatocellular carcinoma.^{12,15} The success in the prevention of hepatitis B and its consequences depends on the level of awareness of the general population about the disease as well as their preventive measures against the disease.^{3,12} Barbers constitute an important part of the general population and they barbed many people every day with unsterile equipments. However, studies in Nigeria had shown that awareness of hepatitis B and its preventive measures was not encouraging.^{2,15} The aim of this study was to assess the predictors of hepatitis B prevention and awareness among barbers in Gwer East local government, Benue state, Nigeria.

METHODS

Study area

This study was carried out among barbers in Naka, Gwer-West local government, Benue state, Nigeria. Naka is a rural community in Gwer West local government area. The local government has its headquarters in Naka, with an area of 1,094 km² and total population of 122,145 people.¹²

The local government is bounded by Makurdi and Doma local government areas to the North, Gwer East Local Government to the East, Otupko Local Government to the South and Apa and Agatu Local Government areas to the West. The main inhabitants of the Local Government are the Tiv people and are predominantly farmers. Gwer-West local government has fifteen council wards which include: Mbapa, Mbachohon, Mbabuande, Saghev-Ukusu, Shengev-Yengev, Nyamshi, Merkyen, Tijime, Tsambe/Mbesev, Gambe-Ushin, and Ikyaghev. Naka is located in Ikyaghev district.

Study design and study population

This was a descriptive quantitative cross-sectional study to determine the predictors of hepatitis B prevention and awareness among barbers in Gwer East Local Government, Benue State, Nigeria. The barbers in Naka had a local union called Naka Barbers Union. The union has a secretariat with offices for the president, vice president, secretary, treasure and a financial secretary. Annual registration fee for old members is two thousand naira, while new members register with five thousand naira. The union has a total number of 57 members. The study was conducted between February 2020 and May 2020.

Sample size determination and sampling technique

The minimum sample size for the study was calculated by using the formula,

$$n = \frac{Z^2 P(1 - p)}{d^2}$$

where n= minimum sample size, z= standard deviate (1.96) corresponding to 95% confidence interval, p= prevalence from previous study (assumption for the target population 50%), d= degree of precision (0.05), a sample size of 64 was calculated. Taking into account of the barber's population of less than 10,000 and dropout rate of 10% the correction for infinite factor was made and the minimum sample size was adjusted to 52. All the 57 members of the barber's union who consented and were present during the study were included in the study and those who were seriously ill and absent were excluded.

Grading of response

A total of 5 stem questions each were used to assess the respondents' awareness and prevention of hepatitis B with maximum possible responses of 14 out of which 10 were

correct. One mark was allocated to every correct response while zero mark to the incorrect ones giving a maximum attainable score of 10 marks. A percentile graph was then applied to the scores of the respondents and scores corresponding to the 50th percentile and above were graded as good knowledge while those below the 50th percentile as poor knowledge. The prevention of hepatitis B among the respondents was graded as good if the respondents gave favorable responses such as immunized children at appropriate ages and accessing health facilities for screening for hepatitis B.

Data collection

Data were collected using an interviewer administered questionnaire. Information obtained included socio-demographic characteristics, prevention and awareness. A pretesting of the questionnaires on 10 of the barbers at Adoka about one-and-a-half-hour drive from Naka was carried out. Two research assistants were trained who assisted in the collection of data. The union meets on the last Saturday of every month from 10 Am to 4 Pm and data were collected from March 2020 and April 2020 meetings.

Data analysis

Data collected was checked for completeness, cleaned and entered into a computer for analysis using the Statistical Programmes for social sciences (SPSS) version 23. Age was presented as means with standard deviation. Categorical variables were presented as proportions. Adjusted odds ratio was used as point estimates in the logistic regression model having held all other factors in the model constant while 95% confidence interval was used as internal estimate. A probability value of less than 0.05 was considered statically significant.

Ethical issues

Ethical approval was obtained from the ethical committee of Benue State University Teaching Hospital Makurdi. An informed verbal consent was also obtained from each of the participants before carrying out the study.

RESULTS

The average age of the respondents was 26.70±2.10 and all were males. Majority were in the age group of 15-20 years (25.9%) while 86.0% were Christians. Over 52.0% of the respondents were single while the majority tribe in this study was Tiv (82.5%) and over 43% of the respondents had completed their secondary education (Table 1).

Table1: Socio-demographic characteristics of respondents in Naka, Benue state (N=57).

Variables	Frequency	Percentage (%)
Age(years)		
15-20	13	25.9
21-25	12	23.5
26-30	13	23.6

Continued.

Variables	Frequency	Percentage (%)
31-35	6	9.8
36-40	5	7.8
41-45	5	7.8
46-50	3	2.0
Total	57	100
Average age	26.70±2.1	
Gender		
Male	57	100.0
Female	0	0.0
Total	57	100
Marital status		
Single	30	52.6
Married	19	33.4
Divorced	08	14.0
Total	57	100
Tribe		
Tiv	47	82.5
Igede	04	7.0
Igala	03	5.2
Fulanis	03	5.3
Total	57	100
Religion		
Christianity	49	86.0
Islam	08	14.0
Total	57	100
Educational level		
Primary	18	31.6
Secondary	25	43.9
Tertiary	12	21.1
None	02	3.4
Total	57	100

Table 2: Awareness B of HBV Infection among Respondents in Naka, Benue state (N=57).

Variables	Frequency	Percentage (%)
Ever heard of hepatitis B infection		
Yes	47	82.5
No	10	17.5
Total	57	100
Source of information		
Health workers	23	40.4
Friend/relatives	20	35.1
Radio/television	11	19.3
School	03	05.2
Total	57	100
Cause of hepatitis B		
Virus	24	42.1
Worms	13	22.8
Bacteria	8	14.0
Flies	6	10.5
Mosquitoes	4	07.0
Don't know	2	03.6
Total	57	100
Route of transmission		
Blood transfusion	29	61.7
Sharing of tooth brush	20	42.6
Sexual contact	19	40.4

Continued.

Variables	Frequency	Percentage (%)
Infected needles	19	40.4
Dirty toilets	14	29.8
Contaminated food and water	13	27.7
Mother to child	13	27.7
Sharing of towels	12	25.5
Insect bites	8	17.0
Sharing of butchering knife	3	6.4
Clinical manifestation of hepatitis B infection		
Yellow eyes	32	68.1
Fever	19	40.4
No symptoms	10	21.3
Body itching	4	8.5
Vomiting	7	4.3
Are you at risk of acquiring hepatitis B infection?		
Yes	28	49.1
No	12	21.1
Not sure	17	29.8
Total	57	100
Reason for being at risk		
Contact with infected person	16	64.0
Accidental injury	7	28.0
Unprotected sex	7	28.0
Intravenous drug abuse	3	12.0
Knife cuts	2	8.0
Treatment for hepatitis B		
Yes	35	74.5
No	7	14.9
Not sure	5	10.6
Total	57	100

Table 3: Preventive measures against hepatitis B in Naka, Benue state (N=57).

Variables	Frequency	Percentage (%)
How hepatitis B can be prevented?		
Vaccination	37	64.9
Avoid touching blood	5	8.6
Staying away from infected persons	4	6.9
Strict disposal of needles/syringes	6	10.3
Avoid sharing of barbering tools	2	3.4
Avoid unprotected sex	4	6.9
Use of hand gloves when treating patients	5	8.6
Have you been vaccinated against hepatitis B?		
Yes	23	40.4
No	34	59.6
Total	57	100
How many times have you been vaccinated?		
Once	22	39.1
Twice	20	34.8
Thrice	15	26.1
Ever tested for hepatitis B?		
Yes	38	66.7
No	19	33.3
Total	57	100
Any family member with hepatitis B?		
Yes	14	24.6
No	43	75.4
Total	57	100s

Continued.

Variables	Frequency	Percentage (%)
Who in the family has hepatitis B?		
Siblings	5	35.7
Mother	3	21.7
Child	2	14.3
Spouse	2	14.3
Father	2	14.3
Ever had injury?		
Yes	48	84.2
No	9	19.9
Total	57	100
What was done after injury?		
Went to hospital	18	47.4
Washed with water	13	34.2
Did nothing	6	15.8
Took antibiotics	1	2.6

Majority (82.5%) of the respondents had heard of hepatitis B. The major source of information was from the health workers (40.4%) while school constituted the least (5.2%) source of information. Only 42.1% were able to identify the cause of the disease as virus. On the route of transmission, majority (61.7%) identified blood transfusion as a route of transmission, while slightly over 40% identified sexual intercourse as a potential route of transmission of hepatitis B. Majority (68.1%) of the respondents identified yellow eyes as a clinical manifestation of hepatitis B and only 4.3% identified vomiting as a clinical manifestation of the disease. Slightly less than half of the respondents admitted that they were at risk of contracting hepatitis B, 33.4% were not sure while 17.6% said they were not at-risk hepatitis B infection. Furthermore, majority of (74.5%) of the respondents said there was treatment for hepatitis B, while 10.6% were not sure of any treatment for hepatitis B (Table 2).

Majority of the respondents (64.9%) identified vaccination as a preventive measure against hepatitis B, 10.3% cited strict disposal of needles and syringes, avoid touching blood (8.6%), staying away from infected persons (6.9%), and avoidance of unprotected sex (6.9%) and avoid sharing of barbering tools (3.4%).

On vaccination, more than half (51.1%) have been vaccinated against hepatitis B. Of those vaccinated, only 26.1% took three doses of the vaccine, 34.9% took two doses while 39.1% took only one dose. About 66.7% of the respondents have been tested for hepatitis B.

Majority (75.4%) of the respondents have no family member with hepatitis B. Of those who have an infected family member, 35.5% cited their siblings as being infected with hepatitis B, 21.7% said mother, child (14.3%), and father (14.3%) (Table 3).

Awareness and prevention of hepatitis B can be influenced by many factors, however in this study understanding the concept of vaccination and information were the major

factors. The odds of those adjudged to have good understanding of vaccination was 3 times the odds among those adjudged to have poor understanding (95% confidence interval= 1.247-7.351; $p=0.015$). Similarly, the odds of those adjudged to have good concept of understanding of information was 30.1 times the odds among those adjudged to have poor understanding (95% confidence interval = 10.877-83.100; $p\leq 0.001$) (Table 4).

Table 4: Logistic Regression of factors influencing awareness and prevention of hepatitis B among barbers in Naka, Benue state.

Factors	Odds ratio	95% confidence interval	P value
Age group (years)			
15-50	1.7	0.775-3.166	0.206
<15	1	-	
Sex			
Male	1.3	0.706	0.056
Female	1	-	
Understanding concept of vaccination			
Good	3.0	1.247-7.351	0.015
Poor	1	-	
Understanding concept of source of information			
Good	30.1	10.877-83.100	<0.001
Poor	1	-	

Odd ratio= adjusted odds ratios

DISCUSSION

The present study was carried out to determine key factors in preventive and awareness in hepatitis B infection. The findings in this study showed that information and vaccination were the best predictors of hepatitis B prevention which was not consistent with other studies done in Brazil (Table 4).^{5,16} This suggested that focus on vaccination and information were important components of educational programmes aimed at promoting prevention of hepatitis B among the barbers. The mean score of good

practices in the prevention of hepatitis in this study was far less than studies carried out in Brazil (Table 3). Different job categories in the two studies could be responsible for the differences in the two studies.¹⁶ Furthermore differences in the level of education could also account for the difference in the practice score.¹⁶

In this study, majority of the respondents had heard of hepatitis B. This is higher compared to a similar study in Calabar metropolis among traders where it was reported that only 44.2% of traders heard of hepatitis B.¹⁹ This was probably because barbers in Naka were more educated than the traders in Calabar. However, most of the barbers were not aware of the causes, and clinical presentations of this disease (Table 2). This was similar to a study done in Ravalpindi and Islamabad in Pakistan among barbers on knowledge, attitude and practices of hepatitis B and C where it was reported that awareness on hepatitis B was poor, however barbers had a fair knowledge about the mode of transmission of the disease.^{5,6}

The practice on the preventive measures against hepatitis B was good; but was far lower than similar studies done in Japan and Lagos among nursing students and dental surgeons respectively where a greater percentage of the students and surgeons knew about preventive measures against hepatitis B.^{4,15} The difference in the understanding of preventive measures against hepatitis B could be due to a higher level of education among the nursing students and dental surgeons compared to the barbers where most of them were not as educated (Table 3).¹⁵

Only 26.1% of the respondents received complete doses of hepatitis B vaccine (three doses) which was far lower than the ones reported among health workers in a tertiary care hospital, Kerachi among dental professionals in Military Hospital, Riyaadh and among health care workers in a tertiary hospital in southwest Nigeria (Table 3).^{7,13,15} It was also lower than the average coverage estimated by the WHO, global hepatitis B vaccine coverage 75%, and was as high as 91% in the Western Pacific region and 90% in the Americas.²¹ The national vaccination coverage of 30% was also higher than the figure recorded in this study. This had implications in having a successful hepatitis B control programme. It had been shown that uncompleted doses of vaccine increased rate of disease transmission, antigens develop resistance to the vaccine and failure to develop heard immunity.^{7,10}

The finding in this study was that most of the respondents were aware of hepatitis B through contacts with health workers contrasted with a study done in South America where most of the respondents got their information through printed materials (Table 2).²¹ The differences may be due to effects of culture and also educational levels among the participants. This was however similar to Reiter's findings on hepatitis B vaccination where most of the respondents obtained their information through doctors.^{7,9} Other studies conducted on industrial workers in Iran found that television and radio were the leading sources of awareness

towards occupational hazards such as hepatitis B and carcinogens.^{17,18}

Only 51% had ever been tested for hepatitis B in this study and as high as over 66% had never had any family member tested positive for hepatitis B (Table 3).

As expected from other studies those who did not have a history of HBsAg test reported a lower risk perception and preventive behavioral intentions, which suggested that the risk perceptions could increase the level of preventive risk intention. This could subsequently cause the barbers to have an HBsAg test through behavioral intention.^{20,23}

Limitations

The major limitation of this study was recall bias. Few of the respondents could not recall some aspects of preventive practices that had been done in the past. Insecurity was a major challenge in this study. The sample size could have been increased but we could not assess some segments of the local government area. The long waiting hours before they assemble for their meeting was a big problem. The time for their meeting was supposed to be 10 AM but most of them will not come until they have attended to their customers.

CONCLUSION

Information and vaccination of the respondents were the key important determinants of prevention and awareness for hepatitis B in this study; thus, emphasizing vaccination and various types of information concerning hepatitis B are recommended in educational programs aimed at increasing barbers practices and prevention regarding hepatitis B.

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