

Research Article

Public Awareness, Knowledge and Vaccination Status against Hepatitis B Infection among Residents of Sokoto Metropolis - Nigeria

Kaoje AU^{1*}, Mohammed Y², Raji MO³, Bala HS³, Garba S³, Garba HM³ and Ango UM³

¹Department of Community Health, Usmanu Danfodiyo University, Sokoto Nigeria

²Department Medical Microbiology and Parasitology, Usmanu Danfodiyo University, Sokoto Nigeria

³Department of Community Health, Usmanu Danfodiyo University, Sokoto Nigeria

*Corresponding author: Kaoje AU, Department of Community Health, Usmanu Danfodiyo University, Sokoto Nigeria

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Abstract

Introduction: Hepatitis B infection is a major global health problem and a potentially life-threatening liver infection caused by the hepatitis B virus (HBV), however, it can be prevented by currently available safe and effective vaccine. Hepatitis B Virus (HBV) infection is mostly asymptomatic but in few cases, the infection is symptomatic, often with high morbidity and mortality. This study aimed to assess the level of public awareness, knowledge and vaccination status against Hepatitis B infection in Sokoto metropolis.

Methods: A population-based descriptive cross sectional study was carried out using structured face-to-face interviewer administered questionnaire. A multistage sampling method was used to select the 420 study respondents and data analyzed using SPSS version 20.

Results: Almost three quarters (74%) of the respondents are aware of HBV infection and the predominant source of information was from friends. More than half (56%) were not aware of availability of vaccine against HBV infection. Only 18% of respondent demonstrated good knowledge of infection. Less than a third (27%) correctly knew that virus causes the infection and about a third mentioned receiving infected blood as a risk factor for the infection. Most recognized modes of transmission were through blood transfusion, sexual intercourse and mother to child transmission during childbirth and exposure via injury with contaminated sharp objects. Less than a quarter (21.5%) received three recommended doses of HBV vaccines.

Conclusion: Although level of awareness of was high, both knowledge and vaccination status were very low. Programs aimed at raising public knowledge about HBV infection and vaccination is highly recommended.

Keywords: Awareness; Knowledge; Vaccination; Hepatitis B infection; Sokoto

Introduction

Hepatitis B Virus (HBV) is a ubiquitous partially double stranded DNA virus [1]. The infectious virus consists of an outer envelope (HBsAg). The HBsAg is the first sero-marker and one of the most useful markers of active or chronic hepatitis B infection [2-5]. Vertical transmission from infected mother to neonate is common in Africa and Asia leading to carrier state for life. Horizontal transmission occurs particularly in children through minor abrasions or close contact with other children, and HBV can survive on household articles for prolonged periods so transmission may be possible [6].

Hepatitis B disease is widely spread and needs much attention from the medical community. It is highly contagious and has been discovered to be 50 to 100 times more contagious than the HIV virus and can resist any antibody produced by our defense system [6]. Only people who have been vaccinated successfully or those who have developed anti-HBs antibodies after HBV infection are immune to HBV infection [7].

Globally, an estimated 240 million people are chronically infected

and more than 780,000 people die every year due to complications of hepatitis B including cirrhosis and liver cancer. In Nigeria, following the adoption of universal infant vaccination in 1995, the incidence of acute hepatitis B in children and adolescents has decreased, and the ethnic possibility in the prevalence of chronic HBV infection have narrowed down [8]. Hepatitis B virus infection is an important occupational risk for health care workers [9]. They are known to be at high risk of the infection following needle stick injuries and accidental exposure to infected blood and other body fluids [10,11]. Health care workers in Nigeria are particularly at increased risk of contracting HBV infection in their work place, because the country is holoendemic for the disease [12].

The dearth of literature on knowledge, risk perception and hepatitis B vaccination status of general population in Sokoto metropolis constitutes a major challenge to the prevention and control of the disease among the high-risk group in this part of the country. Rising trends of promiscuity, cultural practices like local circumcisions, ear piercing, local barbing and traditional medical interventions involving the use of unsterilized sharp objects as well

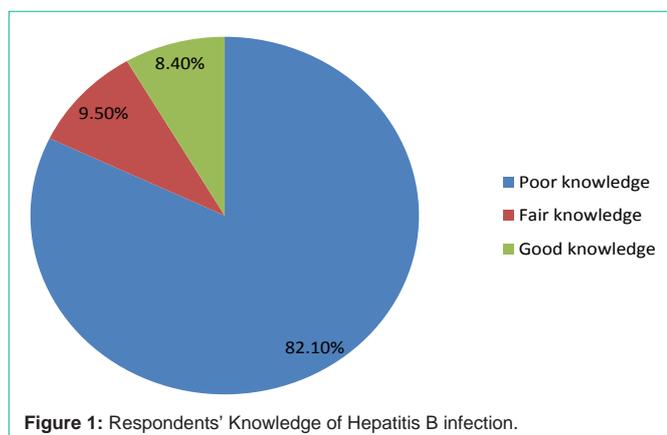


Figure 1: Respondents' Knowledge of Hepatitis B infection.

as the risk of vertical transmissions leading to prolonged carrier state makes it necessary for this kind of study in this environment. On this background, this study was conducted to assess the level of awareness, knowledge and vaccination status against Hepatitis B among the residents of Sokoto metropolis.

Material and Methods

The study was conducted in Sokoto metropolis. Sokoto is the capital of Sokoto state and is located in the Savannah region of extreme Northwest of Nigeria, about 483km northwest of Abuja, near the confluence of the Sokoto River and the Rima River. It lies between

Table 1: Socio-demographic characteristics of the respondents.

| Variables (n=430) | Number | Percentage |
|-------------------------------|--------|------------|
| Age group (Years) | | |
| Young adult(18-24) | 163 | 38 |
| Middle aged(25-64) | 255 | 59.7 |
| Elderly(65+) | 12 | 2.3 |
| Sex | | |
| Male | 312 | 72.6 |
| Female | 118 | 27.4 |
| Marital status | | |
| Single never married | 87 | 20.2 |
| Married | 319 | 74.2 |
| Single ever married | 24 | 5.6 |
| Educational level | | |
| Informal only | 78 | 18.1 |
| Primary | 25 | 5.8 |
| Secondary | 119 | 27.7 |
| Tertiary | 208 | 48.3 |
| Occupation | | |
| Civil servant | 89 | 20.7 |
| Health worker | 14 | 3.3 |
| Artisan | 51 | 11.9 |
| Self employed | 164 | 38.1 |
| Student | 87 | 20.2 |
| Not gainfully employed | | 255.8 |

latitude 130031N and longitude 50141E [13]. Sokoto metropolis comprises of five local government areas (LGAs) namely Sokoto south, Sokoto north, Wamakko, Dange-Shuni and Kware.

A descriptive, cross sectional study design was used and the study population comprised of all individuals aged 18 years and above residing in Sokoto metropolis. Adults residing in Sokoto metropolis for the at least three months, that were present during the data collection and consented to participate in the study were included. The desired sample size was obtained using the Fischer's formula [14], ($n = z^2pq/d^2$), a sample size of 427. Therefore a total of four hundred and twenty seven adult individuals were enrolled into the study. Multi stage sampling technique was used to select the study respondents. The sampling stages were as follows:

Stage 1: Selection of local government areas (LGA):

Two LGAs were randomly selected using simple random sampling technique by balloting technique.

Stage 2: Selection of Political ward:

Five political wards were selected from each selected LGAs using simple random sampling method by balloting. Thus a total of ten political wards were selected as the study area.

Stage 3: Allocation of respondents

Numbers of respondents were allotted to each political ward using probability proportionate to size, based on projected population for the year and the ward.

Stage 4: Selection of study respondents

Respondents were selected from each area using a simple random sampling method by balloting (Yes or No was written on a piece of paper, which was rolled and picked by the potential respondent). Any one that picked 'Yes' and consented to participate, then questionnaire was administered. This was done for every participants and all the study areas until the required sample size was obtained.

A structured questionnaire with closed ended questions was used to collect the survey data. The questionnaire was structured into sections consisting of socio-demographic characteristics of the respondents, public awareness of Hepatitis B infection, and knowledge of Hepatitis B infection with respect to its cause, risk factors, mode of transmission/complication and respondents Vaccination status. Face-to-face interview method was used to collect data with the aid of questionnaires. Ten research assistants were recruited and trained on data collection process. Forty three of the questionnaires were pretested in different local government area outside the study area. To ensure that quality data was collected from the field, the researcher supervised the entire process; questionnaires filled were submitted same day for manual screening. Questionnaires were manually sorted out for completeness and data entered into and analyzed using the statistical package for social science (IBM SPSS) version 20. Means and standard deviations were calculated for continuous variables while categorical variables were summarized using frequency and percentages. Results were presented as simple tables and chart for clarity.

Ethical clearance to conduct the study was sought and obtained

Table 2: Awareness and primary source of information about Hepatitis B infection.

| Variables | Frequency | Percentage |
|--|-----------|------------|
| Ever heard of Hepatitis B infection? | | |
| Yes | 318 | 73.9 |
| No | 112 | 26.1 |
| Primary source of information about Hepatitis B infection | | |
| Radio | 53 | 19.3 |
| Television | 24 | 8.8 |
| Newspaper | 7 | 2.6 |
| Seminars/workshop/training | 21 | 7.7 |
| Health workers | 56 | 20.4 |
| Friends | 80 | 29.2 |
| Others | 33 | 12 |
| Ever being tested for Hepatitis B infection? | | |
| Yes | 84 | 26.4 |
| No | 231 | 72.6 |
| Can't remember | 3 | 0.9 |
| Hepatitis B infection test outcome | | |
| Positive | 21 | 25 |
| Negative | 63 | 75 |
| Aware of anyone diagnosed of Hepatitis B infection? | | |
| Yes | 16853.0 | |
| No | 14947.0 | |

from Sokoto state Health research Ethics committee. Additionally, consent was obtained from the respondents at individual level after explaining the purpose of the survey and method of data collection. All information obtained was treated with utmost confidentiality.

Results

Respondent average age was 26 years, interquartile range (IQR) 22-36. Large proportions (60%) of the respondents were age ranged between 25 and 64 years. Almost three quarters (73%) were males and half the respondents were single never married. Less than half (48%) had attained tertiary education and 38% were self-employed (Table 1).

Almost three quarters (74%) of the respondents are aware of Hepatitis B infection with the majority of their primary source of information being from friends, health workers and radio. Less than one third (26%) of those that have heard of Hepatitis B infection, were ever screened for the infection with 25% being tested positive (Table 2).

Most people who are aware of the infection fall between 25-64 years are adult and more males than females have the awareness. Proportionate to the size, greater number of respondents with tertiary education have not heard of the infection. More proportion of self-employed are not aware compared to others while one of 14 health workers had never heard of Hepatitis B infection (Table 3).

Large proportion (82%) of respondent demonstrated poor knowledge of Hepatitis B infection (Figure 1).

Table 3: Cross tabulation of awareness of Hepatitis B infection and respondents' sociodemographic characteristics.

| Variables | Aware of Hepatitis B infection | | | |
|--------------------------|--------------------------------|------------|----|------------|
| | Yes | Percentage | No | Percentage |
| Age group (Years) | | | | |
| Young adults (18-24) | 111 | 35.8 | 49 | 44.1 |
| Middle age (25-64) | 190 | 61.3 | 61 | 55 |
| Elderly (65+) | 9 | 2.9 | 1 | 0.9 |
| Sex | | | | |
| Male | 222 | 70.9 | 89 | 79.5 |
| Female | 91 | 29.1 | 23 | 20.5 |
| Marital status | | | | |
| Married | 149 | 48.4 | 39 | 35.1 |
| Single never married | 147 | 47.7 | 66 | 59.5 |
| Single ever married | 12 | 3.9 | 6 | 6.4 |
| Educational level | | | | |
| Informal only | 58 | 19 | 14 | 12.8 |
| Primary | 14 | 4.6 | 7 | 6.4 |
| Secondary | 78 | 25.5 | 37 | 33.9 |
| Tertiary | 156 | 51 | 51 | 46.8 |
| Occupation | | | | |
| Civil servant | 70 | 22.7 | 18 | 16.2 |
| Health worker | 13 | 4.2 | 1 | 0.9 |
| Artisan | 35 | 11.4 | 12 | 10.8 |
| Self employed | 107 | 34.7 | 56 | 50.5 |
| Student | 68 | 22.1 | 18 | 16.2 |
| Not gainfully employed | 15 | 4.9 | 6 | 5.4 |

Less than one third (27%) correctly knew that Hepatitis B infection is caused by microorganism precisely a virus while 43% did not know. Majority (64%) mentioned liver as the primary organ affected by the infection whereas 38%, 16%, 15% and 19% identified yellowness of eyes, abdominal pain, vomiting and fever respectively as common symptoms of the infection. Almost one third of respondents mentioned receiving infected blood as a risk factor for the infection, multiple sexual partners was mentioned by 20% and sharing of contaminated sharp objects by 19% of respondents. Most recognized mode of infection transmission was through blood transfusion by 29% followed by sexual intercourse (21%) while mother to child transmission during childbirth and exposure via injury with contaminated sharp objects were also identified by 16% (Table 4).

Almost one third (31%) do not know any complication that can arise from Hepatitis B infection while 28%, 22% and 20% mentioned liver failure, liver cirrhosis and cancer respectively (Table 5).

More than half (56%) were not aware of the availability of the vaccine against Hepatitis B infection and among those that are aware, only 46% received the vaccine. Only 21.5% received three doses as recommended and 59% couldn't remember the number of doses of the vaccine received while 20% received one and two doses. Around 29% received the vaccine less than two years ago and majority

Table 4: Knowledge of cause, risk factors and mode of transmission of Hepatitis B infection.

| Variables | Frequency | Percentage |
|---|-----------|------------|
| Respondents' level of Knowledge | | |
| Good Knowledge | | 8.4 |
| Fair Knowledge | | 9.5 |
| Poor Knowledge | | 82.1 |
| Hepatitis B infection is caused by: | | |
| Eating contaminated food | 17 | 5.9 |
| Microorganisms called virus | 78 | 27.1 |
| Cigarette smoking | 30 | 10.4 |
| Alcohol consumption | 38 | 13.2 |
| Don't know | 125 | 43.4 |
| Body organ primarily affected | | |
| Brain | 7 | 2.5 |
| Heart | 19 | 6.8 |
| Kidney | 37 | 13.3 |
| Liver | 179 | 64.4 |
| Don't know | 36 | 12.9 |
| Common symptoms of the disease | | |
| Yellowness of eyes (jaundice) | 193 | 38.4 |
| Abdominal pain | 82 | 16.4 |
| Vomiting | 73 | 14.5 |
| Fever | 95 | 18.9 |
| Don't know | 59 | 11.8 |
| Group of people most vulnerable to Hepatitis B infection | | |
| Health workers | 67 | 11.2 |
| Intravenous drug users | 94 | 15.8 |
| Recipients of unscreened blood | 138 | 23.2 |
| Commercial sex workers | 87 | 14.6 |
| Men who have sex with men | 65 | 10.9 |
| Prisoners | 41 | 6.9 |
| Don't know | 104 | 17.4 |
| Risk factors of Hepatitis B infection | | |
| Receiving infected blood | 169 | 30.9 |
| Multiple sexual partners | 109 | 19.9 |
| Sharing of contaminated sharp objects | 102 | 18.6 |
| Anal sex | 75 | 13.7 |
| Don't know | 92 | 16.8 |
| Modes of transmission of Hepatitis B infection | | |
| Through blood transfusion | 163 | 28.5 |
| Sexual intercourse | 122 | 21.4 |
| Mother to child transmission during child birth | 94 | 16.5 |
| Exposure via injury with contaminated sharp objects | 92 | 16.1 |
| Don't know | 100 | 17.5 |

(43%) received it 10 years and above. Some of the reasons given by respondents for not receiving the Hepatitis B vaccine were not being aware of the vaccine, lack of knowledge of where/how to get the vaccine, while some chose not to receive; others felt they were not at risk of contacting the infection (Table 6).

Table 5: Knowledge of complications and methods of prevention of Hepatitis B infection.

| Variables | Frequency | Percentage |
|--|-----------|------------|
| Complications of Hepatitis B infection | | |
| Liver cirrhosis | 91 | 21.6 |
| Liver cancer | 86 | 20.4 |
| Liver failure | 116 | 27.5 |
| Don't know | 129 | 30.6 |
| How to prevent self from contacting HBV infection | | |
| Immunization | 141 | 26.5 |
| Safe sex practice | 97 | 18.2 |
| Applying universal precaution | 105 | 19.7 |
| Avoid sharing of iv needles | 102 | 19.1 |
| Don't know | 88 | 16.5 |

Table 6: Vaccination status of recipients against Hepatitis B infection.

| Variables | Frequency | Percentage |
|---|-----------|------------|
| Aware of the vaccine against the Hepatitis B infection | | |
| Yes | 141 | 44.3 |
| No | 177 | 55.7 |
| Have received vaccine against Hepatitis B infection? | | |
| Yes | 65 | 46.1 |
| No | 76 | 53.9 |
| Number of vaccine doses received | | |
| One | 7 | 10.8 |
| Two | 6 | 9.2 |
| Three | 14 | 21.5 |
| Can't remember | 38 | 58.5 |
| How long ago did you receive the vaccine? | | |
| > 20 years | 16 | 24.6 |
| 10-20 years | 12 | 18.5 |
| <10 years | 9 | 13.8 |
| <5 years | 9 | 13.8 |
| < 2 years | 19 | 29.2 |
| Reasons for not receiving the vaccine? | | |
| Choose not to receive | 10 | 7.1 |
| Not aware of the vaccine | 76 | 53.9 |
| Don't know where/how to get the vaccine | 30 | 21.3 |
| Not at risk of the Hepatitis B infection | 25 | 17.7 |

Discussion

The study was carried out in Sokoto metropolis to determine the level of public awareness, knowledge and Vaccination status against Hepatitis B infection. Finding from the study shows that close to one third of the respondents have not heard of Hepatitis B infection. Considering the fact that the study was mostly conducted in an urban area, it is worrisome to have such a significant portion of the population not being aware of the disease in this age of technology and advancement in medicine. Our study also revealed

that most people who are aware of the infection are adults with slight male preponderance. Proportionate to the size, greater number of respondents with tertiary education have not heard of the infection. This finding is similar to what Odimayo et al, got when they conducted a similar study among the general public in Benue in which up to 18.9% of the population were unaware of the disease [15]. In a similar study conducted by Patilet et al, in the general public in Cameroon [16], 39% of the respondents were also unaware of the disease. Our finding is also similar to the findings of Gurakaret et al, that was conducted among the general public in Turkey in which 40% of the respondents were found to be unaware of the disease. However, our findings were considerably lower than that of Ahmed et al where the Awareness of Hepatitis 'B' Among People of Khyber Pakhtunkhwa Province of Pakistan was assessed and a staggering 99% of the respondents were aware of the disease [17,18]. Similarly, Studies conducted in Malaysia and Honk Kong China by Pathmanathan & Lakshmanan and Leung et al respectively showed a low level of awareness of around 60% and 45% [19,20].

Our study shows that the predominant source of information is from friends, followed closely by radio/television with medical textbooks, newspapers and social media contributing to negligible percentage. The implication of this finding is that we can effectively use Radio and Television for public health awareness campaign of not only Hepatitis B but also other major ailments affecting our populace in the study area.

Predictably, just as the awareness of the disease was low, knowledge about the diseases proved to be lower as large proportion (more than three-fourth) of respondent demonstrated poor knowledge of Hepatitis B infection. Similarly, our study demonstrated that significant number of the respondents displayed remarkable misconceptions on the prevention, transmission as well as the signs and symptoms of the disease and a further significant number simply do not know. This is a worrisome finding and may signifies the fact that the people from the study area might not be able to protect themselves effectively or seek medical treatment as at when due. Our study also revealed that less than one third of the study participants correctly knew that Hepatitis B infection is caused by microorganism precisely a virus while the rest attributed it to other factors like; alcohol consumption, cigarette smoking and eating contaminated food. However, some of our study participants were able to mentioned liver as primary organ affected by the infection and they were also able to identify yellowness of the eyes, abdominal pain, vomiting and fever respectively as common symptoms of the infection. They were also able to deduce that the recipient of unscreened blood, followed by intravenous drug users and commercial sex workers were group of people identified as most vulnerable to Hepatitis B infection.

Only, one third of respondents were able to mention the important risk factors of the disease like; receiving infected blood, multiple sexual partners and sharing of contaminated sharp objects. This is remarkably similar to the findings of Odimayo et al, that demonstrated the level of awareness and knowledge of risk factors and transmission of Hepatitis B infection among a Sub-set of Benue community in Nigeria [15], this findings are considerably lower than that of Patilet et al, in the general public in Cameroon in which up to 50% of the respondents displayed considerable level of knowledge of risk

factors and transmission of the disease [16], This is not surprising as poor knowledge is usually expected with low level of awareness of disease conditions. The implications of this finding is that concerted effort must be put in place to educate the populace of Sokoto and Nigeria at large using appropriate media like the radio on the presentation and risk factors of Hepatitis B so as to curtail its spread.

Similarly, our study revealed that the vaccination status against the disease is low even though close to half of the respondents are aware of the presence of a vaccine against Hepatitis B. Unfortunately, even among those that are aware of the vaccine, only less than one fifth have received the vaccine at some point in their life and an overwhelming majority did not receive any form of the vaccination. This is similar to the findings of Hassan et al, which showed the practice of poor vaccination in a population setting (predominantly healthcare workers) that had significant knowledge about the vaccine. They found out only about 40% of the healthcare workers were vaccinated. However, Samuel et al was able to demonstrate a significantly higher percentage (59.4%) of his study participants were able to complete their doses of the vaccine [21,22]. However, Patilet et al conducted a study in the general public of Cameroon and was able to demonstrate that up to 70% of the respondents were not aware of the vaccine and as such not vaccinated [23]. In a similar study conducted among people of Khyber Pakhtunkhwa Province of Pakistan by Ahmed et al, up to 36% of the respondents were found to be not aware of the disease [24].

Conclusion

This study has shown only about two third of the respondents are aware of Hepatitis B infection highlighting a relative lack of awareness with consequent low level knowledge of risk factors and transmission of Hepatitis B infection in an urban area like Sokoto metropolis. The vaccination status against the disease was found to be low even in people that are aware of the disease.

Against the backdrop of findings from this study we recommend increasing the level of awareness about the disease via social media, mass media and individually from Health care workers and practitioners including public health physicians and community health officers. Stakeholders, including government and health care personnel should put more effort into educating the populace on the risk factors and method of prevention of the disease. The public (especially those at risk) should be encouraged to get vaccinated to reduce the disease burden.

Conflict of Interest

The authors hereby declare that there was no competing interest in the conduct and publication of this research work. There was no financial support from any group of individuals or corporate organization. It was purely self sponsored.

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