

Original article

Knowledge of Hepatitis B among young adults in a higher learning institution in Nigeria and its implication on effective disease control

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ABSTRACT

Background: Hepatitis B virus (HBV) infection is a global health problem, representing a major cause of morbidity and mortality in all age group and sex. Chronic infection with the virus can result in complications such as liver cirrhosis and hepatocellular carcinoma. The HBV can be sexually transmitted. Due to their age and adventurous sexual behaviour, young adults are susceptible hence preventing it among this category of people through health education and health promotion is imperative. This study therefore examines the knowledge and sources of information of hepatitis B among students of a public university in South West Nigeria. **Methods:** A descriptive cross-sectional survey was carried out between August and December 2019, involving 228 participants across various academic departments selected through a two-staged sampling method. Information was retrieved through administration of structured questionnaire while data was analysed using Statistical Package for Social Science (SPSS) version 20 as statistical tool. **Results:** Findings revealed that participants in the study have fair level of knowledge despite high awareness about hepatitis B. The highest source of information about HBV was the internet which was followed closely by school. A statistical significant association was found to exist between knowledge of HBV and age of participants (p value=0.028), as well as the source of information such as internet (p value=0.010), school (p value=0.038) and health talk (p value=0.010). **Conclusion:** The fair level of knowledge displayed among these young adults could adversely affect the effectiveness of a HBV prevention and control programme in the country. Adequate health education on the subject of HBV transmission and the knowledge that it is preventable need to be reiterated in health promotion activities particularly targeted at young adults.

Introduction

Hepatitis, inflammation of the liver, is of varied aetiology. The infectious cause is majorly of viral origin, hepatitis B virus (HBV) being the commonest cause of viral hepatitis causing both acute and chronic infections [1]. Clinical presentation is usually asymptomatic though symptoms of acute infection may include jaundice, nausea, fatigue, passage of dark coloured urine and abdominal pain,

which is usually self-limiting, lasting a few weeks but seldom lead to death [1,2]. The disease however may progress to chronic state with or without complications. A major cause of morbidity and mortality in the chronically infected, the progression to chronic carrier state which has been seen in about 95% of children and 5-10% of adult [3]. About 10% of these carriers will develop chronic liver diseases

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characterized serologically by persistence in serum of the HBV envelope protein and hepatitis B surface antigen (HBsAg), which may be complicated by liver cirrhosis, chronic hepatitis and liver cancer [4]. The World Health Organization has ascertained that cirrhosis or liver cancer actually do occur in nearly 25% of those with chronic disease resulting from the HBV [1].

Although a vaccine preventable disease, infection is still prevalent in our environment. Usually asymptomatic, acute infection may present with transient clinical symptoms which resolves without a specific treatment or progresses to chronic disease state which likewise could be without symptoms until complicated by liver cirrhosis and hepatocellular carcinoma which accounts for the morbidity and mortality associated with HBV infection [4,5]. Its transmission involves contact with contaminated blood and body fluids, and notably via sexual transmission. The mode of transmission varies depending on disease occurrence in the location. It has been established that where HBV is prevalent, infection is usually acquired during parturition and common in childhood whereas in places where the disease is occasional, it is usually acquired via intravenous drug use and sexual intercourse [1]. Other means of transmission include blood transfusions, dialysis, re-use of contaminated needles and syringes, hospitals, migrating to locations where the rate of infection is high, living with an infected person as well as tattooing and acupuncture [6,7]. Young adults and adolescents are at risk of infection via sexual route of transmission as a result of their adventurous lifestyle that characterises their age which is sometimes characterised by risky sexual behaviours such as unprotected sex and multiple sex partners.

Statistics have shown that an estimated 257 million people globally were living with chronic hepatitis as of 2015 and has resulted in an estimated 887 000 deaths, mostly from cirrhosis and liver cancer in the same year. With about 10 % HBV national prevalence rate in Nigeria and about 20 million Nigerians being infected with the disease [8], knowledge about the virus and the disease caused becomes imperative, importantly for young adults and adolescents that are susceptible to sexually transmitted infections through risky sexual behaviours such as unprotected sex and multiple sex partners. It is against this background that this study was conducted among undergraduates of an institution of higher learning in Nigeria, aimed at finding out the level of knowledge and sources of information of hepatitis B among these

students of a public university in South West Nigeria as well as establish the factors influencing their knowledge of hepatitis B.

Materials and Methods

This descriptive cross-sectional survey was carried out between July and September 2019 in a State-owned University in Southwest Nigeria. A total number of 228 students participated in the study from three major faculties namely Basic Medical Science, Clinical Science and Sciences. Self-administered, structured questionnaire was used to retrieve data from participants, containing close-ended questions assessing basic knowledge of hepatitis B from which the level of knowledge displayed by respondent can be inferred, sociodemographic characteristics of respondents and the source of information on the subject [9]. Of the 250 questionnaires distributed, 228 were filled and returned representing 91.2% response rate. Participants were selected via cluster sampling method and purposive sampling while questionnaire were distributed at students' off campus hall of residences and on campus relaxation centres to consenting students after carefully explaining the study to them.

Questionnaire design and data analysis

The questionnaire was designed to capture important aspects of knowledge among the studied population. This includes respondents' general knowledge about hepatitis, its mode of transmission, clinical manifestations and preventive measures.

To measure the levels of various aspects of knowledge, the questionnaire was divided into four domains with relevant questions asked from the respondents in each domain. The domains assessed participant's general knowledge of hepatitis (5 questions), knowledge of the mode of transmission (8 questions), knowledge on common clinical manifestations (7 questions), and knowledge of how it can be prevented (10 questions). Overall 30 questions were asked in the questionnaire, the analysis of which was based on the scalar-scoring system [10].

For each correct response, one mark was allotted, zero for every wrong response. The total obtainable score was hence 30 marks. The obtained scores were converted to percentages and used to rank the level of knowledge. A score of $\geq 50\%$ was reported as good knowledge while $<50\%$ was reported as poor knowledge.

Data retrieved from these questionnaires was analysed with Statistical Package for Social Sciences (SPSS) version 20 while variables in the study were tested

using the Chi square statistical tools. Result was presented in tables which comprised frequency and simple percentages, and chats.

Results

The age of participants ranged from 14 to 30 and a mean age of 19.65 ± 1.91 with 47.4% of the participants in the study were less than or equal to 20 years (**Table 1**). A total of 46.1% of the participants in the study were males, 74.6% were Christians, 24.6% Muslims and 0.9% traditionalist. Yoruba ethnicity predominated (82.0%); other tribes included Ibo (12.7%), Hausa (3.9 %) and other minority region representing (1.3%). Furthermore, 30.7% of the participants in the study were students in the Faculty of Basic Medical Sciences while 49.1% were in the Clinical Sciences Faculty while 20.2% were from the Faculty of Sciences.

Majority of participants (92.1%) are aware of the virus and the disease it causes (**Figure 1**). Assessing the level of participant's knowledge of HBV, each correct response from all sections was graded as +1 while a wrong response was graded as 0. A percentage was calculated based on the total obtainable score of 30. A score of < 50% was regarded as poor level of knowledge while $\geq 50\%$ was rated good level of knowledge. Participant's general knowledge of HBV (**Table 2**) was hence rated as poor in many respondents (149; 65.4%) as eventhough 98.2% of the participants knows that the infection is of viral origin, 3.1% knows the main organ affected is the liver. Many (86.4%) respondents know a healthy looking person can have HBV infection which is believed to be incurable by 61.4% of the participants.

Common symptoms of HBV infection as noted in this study include fever (94.7%), jaundice (88.6%) and (94.3%) prolonged fatigue. Others include loss of appetite (89.3%), abdominal pain (87.7%), nausea (86.8%) and vomiting (78.5%). The mode of transmission of HBV (96.9%) mentioned were indulging in unprotected sex, sharing of needles (93.9%), mother to child transmission (89.0%),

kissing (65.8%), blood transfusion (94.3%), through hugging of an infected person (64.0%), through handshake (59.2%) and through sharing of tooth brush (87.7%).

Participant's knowledge on preventive measures was also examined and 86.4% of the participants in the study mentioned the use of condom as a means of preventing infection while 96.5% stated sterilization of needles and sharps before use. Other measures include the use of vaccine (92.5%), avoidance of pre-chewed food (80.3%), avoid sharing of toothbrush (90.8%), nail-cutter (84.2%) and earrings (89.0%). Cleaning up all bloodstains on objects with bleach (93.0%), covering all open wound or cuts in the body (95.2%) and occasional use of hand gloves when necessary (96.5%) were other points mentioned.

The relationship between socio-demographic variables of respondents and the general knowledge about HBV infection is displayed in **table (3)**. Of all the variables co-related, age was found to have a statistically significant relationship with the level of knowledge as the respondents aged >20 had a better knowledge than the younger counterpart ($p = 0.028$). Even though a statistical relationship could not be ascertained, good knowledge of the subject was seen in more females, Christian religion, Yoruba ethnicity and respondents who are students in the Faculty of Clinical Science.

The various sources of information used by respondents related to their level of knowledge across the various studied domains was as shown in **table (4)**. Source of information which significantly influenced general knowledge of hepatitis B were hospital (0.014), health talk (0.031) and television (0.006). The knowledge of mode of transmission was likewise influenced by information accessed in school (0.015) friend (0.010) hospital (0.022) and health talk (<0.001). Knowledge of symptoms was influenced by health talk solely (0.001).

Table 1. Socio-demographic variables of respondents.

Variable	Frequency, n (%)
Age (years)	
≤ 20	108 (47.4)
>20	120 (52.6)
Mean ± SD	19.65 ± 1.91
Range	14 – 30
Sex	
Male	105 (46.1)
Female	123 (53.9)
Religion	
Christianity	170 (74.6)
Islam	56 (24.6)
Traditional	2 (0.9)
Ethnic background	
Yoruba	187 (82.0)
Ibo	29 (12.7)
Hausa	9 (3.9)
Others	3 (1.3)
Faculty	
BMS*	70 (30.7)
Clinical science	112 (49.1)
Science	46 (20.2)

*BMS:Basic Medical Sciences

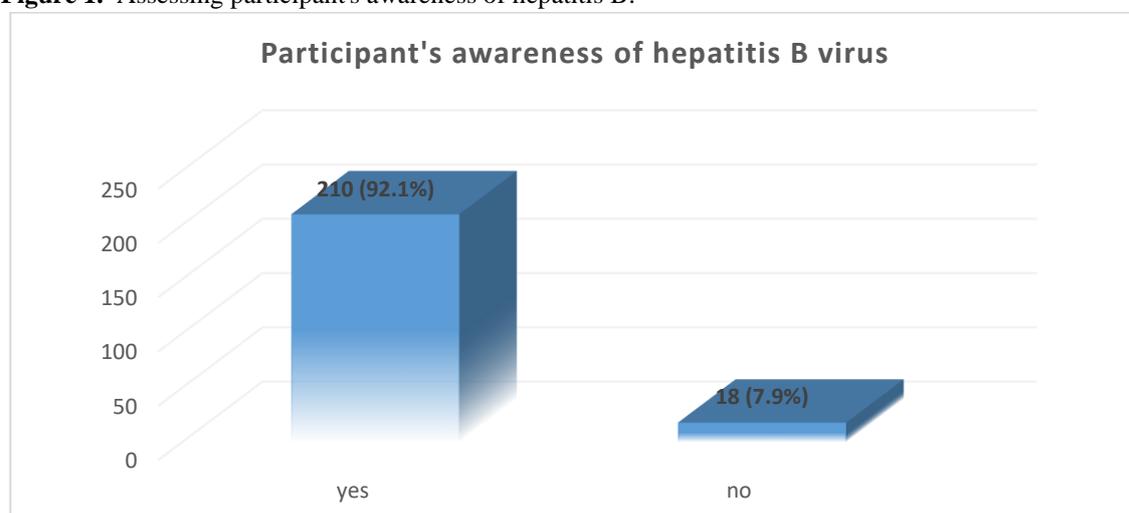
Figure 1. Assessing participant's awareness of hepatitis B.

Table 2. Assessing respondent's basic knowledge of hepatitis B.

Variable	Correct answer, n (%)
General knowledge about hepatitis B	
Hepatitis B is a viral disease	224 (98.2)
Healthy looking person can have hepatitis B	197 (86.4)
Hepatitis B has no cure	88 (38.6)
The main organ infected in hepatitis B is the Liver	7(3.1)
The main organ infected in hepatitis B is the blood	22 (9.6)
Common symptoms	
Fever	216 (94.7)
Jaundice	202 (88.6)
Prolonged Fatigue	215 (94.3)
Loss of Appetite	203 (89.0)
Abdominal Pain	200 (87.7)
Nausea	198 (86.8)
Vomiting	179 (78.5)
Mode of transmission	
Unprotected sex	221 (96.9)
Sharing of needles	214 (93.9)
From mother to child	203 (89.0)
Through kiss	78 (34.2)
Blood transfusion	215 (94.3)
Through hugging an infected person	82 (36.0)
Through handshake	93 (40.8)
Sharing of tooth brush	28 (12.3)
Preventive measures	
Condom	197 (86.4)
Sterilize needles and sharps objects before use	220 (96.5)
Get vaccinated	211 (92.5)
Don't eat pre-chewed food	45 (19.7)
Do not share toothbrush	21 (9.2)
Do not share nail cutter	192 (84.2)
Do not share pierced earring	203 (89.0)
Clean up blood stains on objects with bleach	212 (93.0)
Cover all open wounds or cuts in the body	11 (4.8)
Use hand gloves when necessary	220 (96.5)

Table 3. Association between level of general knowledge of hepatitis B and socio-demographic variables of respondents.

	Knowledge		Total		
	Good	Poor			
Variable	n(%)	n(%)	N(%)	χ^2	<i>p</i> value
Age (years)					
≤ 20	95 (88.0)	13 (12.0)	108	4.842	0.028*
> 20	115 (95.8)	5 (4.2)	120		
Sex					
Male	100 (95.2)	5 (4.8)	105	2.627	0.105
Female	110 (89.4)	13 (10.6)	123		
Religion					
Christianity	153 (90.0)	17 (10.0)	170	4.426 ^f	0.104
Islam	55 (98.2)	1 (1.8)	56		
Traditional	2 (100.0)	0 (0.0)	2		
Ethnic background					
Yoruba	170 (90.9)	17 (9.1)	187	1.090 ^f	0.724
Ibo	28 (96.6)	1 (3.4)	29		
Hausa	9 (100.0)	0 (0.0)	3		
Others	3 (100.0)	0 (0.0)	3		
Faculty					
BMS	65 (92.9)	5 (7.1)	70	1.422	0.491
Clinical science	101 (90.2)	11 (9.8)	112		
Science	44 (95.7)	2 (4.3)	46		

χ^2 : Chi square test; F: Fisher's exact test; *: *p* value < 0.05

Table 4. Correlating knowledge of HBV with source of information on hepatitis.

Variable	General knowledge			Common symptoms			Mode of transmission			Preventive measures			
	Total	Good	Poor	p-value	Good	Poor	p-value	Good	Poor	p-value	Good	Poor	p-value
	n	n (%)	n (%)		n (%)	n (%)		n (%)	n (%)		n (%)	n (%)	
<i>Print media:</i> Newspaper	101	35(34.7)	66(65.3)	0.999	94(93.1)	7(6.9)	0.222 ^F	93(92.1)	8(7.9)	0.318	98(97.0)	3(3.0)	0.657 ^F
<i>School</i> (as part of taught subjects)	124	47(37.9)	77(62.1)	0.260	117(94.4)	7(5.6)	0.528 ^F	112(90.3)	12(9.7)	0.015*	121(97.6)	3(2.4)	1.000 ^F
<i>Interpersonal sources:</i> Friend	89	30(33.7)	59(66.3)	0.811	86(96.6)	3(3.4)	0.535 ^F	79(88.8)	10(11.2)	0.010*	88(98.9)	1(1.1)	0.651 ^F
Family member	67	22(32.8)	45(67.2)	0.710	65(97.0)	2(3.0)	0.515 ^F	60(89.6)	7(10.4)	0.125 ^F	67(100.0)	0(0.0)	0.325 ^F
Hospital (HCW)	96	42(43.8)	54(56.2)	0.014*	89(92.7)	7(7.3)	0.210 ^F	86(89.6)	10(10.4)	0.022*	93(96.9)	3(3.1)	0.652 ^F
<i>Health talk</i> (at community level)	99	42(42.4)	57(57.6)	0.031*	89(89.9)	10(10.1)	0.001 ^{WF}	86(86.9)	13(13.1)	<0.001*	95(96.0)	4(4.0)	0.169 ^F
<i>Non-print media:</i> Internet	193	66(34.2)	127(65.8)	0.736	185(95.9)	8(4.1)	0.261 ^F	182(94.3)	11(5.7)	0.456 ^F	190(98.4)	3(1.6)	0.170 ^F
Television	96	43(44.8)	53(55.2)	0.006*	90(9.8)	6(6.2)	0.534 ^F	87(90.6)	9(9.4)	0.083	93(96.9)	3(3.1)	0.652 ^F
Radio	68	28(41.2)	40(58.8)	0.177	64(94.1)	4(5.9)	0.737 ^F	62(91.2)	6(8.8)	0.365 ^F	66(97.1)	2(2.9)	0.636 ^F

F: Fisher's exact p value; *: p value <0.05

Discussion

Hepatitis B is a vaccine preventable infection whose sequelae is a major cause of morbidity and mortality globally. It is the most important agent of viral hepatitis today in terms of prevalence and ability to cause chronic viral diseases. In Nigeria, several studies from different parts of the country have confirmed the endemicity of the infection [11-13] with over 70% of the population showing evidence of past infection with the virus [14] and chronic hepatitis B carriage rate of up to 23% has been reported among some study population [11]. A national overall prevalence of 13.6% was reported in 2013 hence about 23 million Nigerians have serological evidence of current infection [14]. Prevalence in subgroups were 14.0% among adults; and 16.0% for studies evaluating adults and children [15]. Endemicity of HBV infection in Nigeria may be the highest in Sub-Saharan Africa with majority of the populace were infected during childhood [16,17].

Curbing the menace of infection involves adequate information about the aetiology, clinical manifestation, mode of transmission of the disease as well as being informed on its preventive and control measures. Awareness of the fatality of this HBV infection must be created among Nigerians across all age group and ethnicity, opportunities for free screening for HBV should be created preadmission into educational facilities and pre-employment. There should also be facilities to treat the seropositive and vaccinate those who are seronegative if the widespread of this infection is to be brought under control. Hepatitis B vaccine is highly effective in preventing against hepatitis B infection, up to 95% effectiveness has been reported. It has been available since 1982 though it was not integrated into the National Program on Immunization in Nigeria until 2004 [18].

The level of general knowledge about HBV demonstrated by participants in this study was poor, deviant to the finding of **Amorha et al.** [19] in a study conducted among undergraduates at a University in Eastern Nigeria but similar to the report of **Adebimpe and Osei** [20] **Niyilapah and Amenuvegbe** [21] among undergraduates of a University in South West Nigeria as well as undergraduates at a University in Ghana that also noted a poor knowledge of HBV, respectively. This may be as a result of the health information these participants have access to. The effect of information received will reflect on the behaviour of the individual; health information received and internalized will reflect in individual behaviour for health. The importance of behaviour for

health has long been emphasized, essential in preventing disease by positive behavioural changes.

Even though participants in the study displayed a high level of awareness of hepatitis B, their level of knowledge is not commensurate with this extent of awareness as what is known of HBV is misconstrued. For instance, a sizeable proportion of participants believe the major organ diseased is the blood and that the infection can be contracted through handshake and hugging infected individuals. This misconstrued notion may not be unrelated to their source of information. The internet tops the list of source of information as reported by the participants followed by the school where it is being taught as a topic. This however contradicts the findings from the previous study conducted by **Eredoro and Egbochuku** [22] where the highest source of information was television and radio, respectively. Even though there is a large amount of health information available on the internet, these information retrieved from the internet may be inadequate and misinforming [23]. In the same vein, the misconstrued notion about HBV disease transmission may be attributed to the belief system of the participants which goes on long way in affecting and influencing their health [24].

When the relationship between knowledge of HBV and socio-demographic variables among participants in the study was assessed, a statistically significant association was found between knowledge of hepatitis B and age of participants while other socio-demographic variables such as sex, religion, ethnic background and faculty of participants had no significant association with knowledge of HBV. This stands to reason as the older an individual gets, the more access he or she has to health information with an increased likelihood to digest and understand the message translating into a higher propensity to be influenced into a positive behavioural change.

The study demonstrated an existing association between knowledge of hepatitis B and internet, school and health talk as sources of health information. Although other media channels such as newspaper, television and radio had no significant association with knowledge of HBV in the study, this findings showed the significance of mass media on health information as reiterated by **Akpobo** in a study to establish the effect of mass media health communication as a means for sustainable health development in Nigeria [25].

Conclusion and Recommendation

A poor general knowledge of HBV was displayed in the studied population, significantly influenced by the source of health information, highlighting the role of internet as the highest source of information on HBV among the participants in the study.

Massive enlightenment campaign in form of health education on HBV disease clinical presentation, risk factors, mode of transmission and the fact that it is preventable with emphasis on preventive measures is hereby strongly recommended. Mass media, print media, social media can be utilized in the dissemination of correct health information in local languages and simplified presentation to ensure information assimilation in this age group.

The government should organise further health education programme, especially at the community level as well as put up policies mandating vaccine for the immunisation of those without evidences of being immuned against the infection. Educational programs should focus on improving the general knowledge and adherence to preventive practices for hepatitis B. Institutional based educational programs should also be instituted which should include , in simple language for ease of understanding and information assimilation, information about the prevalence hepatitis B, possible complications, associated risk factors, common signs and symptoms, preventive measures , information on where to go to get tested and treated within the school and where care can be accessed without discrimination for those aware of their status or already on treatment. Community based educational program should include print media in form of posters, billboards and fliers preferably in local languages, explicitly creating awareness and educating on what needs to be known about clinical manifestations, risk factors, possible complications of viral hepatitis and location of where to go to access care.

A health enlightenment campaign can be carried out at the grassroots, involving community stakeholders such as community leaders, priary health-care providers, employers of labour, community-based organizations, and students. Community-based education programs can be designed to be carried out as outreaches at cultural festivals, religious festivals and places of worship.

Conflicts of interest: None.

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