Knowledge And Seroprevalence Of Hepatitis B Virus Infection Among Women Of A Faith-Based Organization In An Urban District, Southern Nigeria

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Abstract

Hepatitis B virus (HBV) infection is a disease of public health importance. With higher infectivity than HIV, it is the most important cause of liver disease/cancer in Nigeria. This study aimed to assess knowledge, awareness and seroprevalence of HBV among women in an urban district, Southern Nigeria.

This was a cross-sectional survey of women attending a medical screening programme of a faith-based organization in Sapele using semi-structured interviewer-administered questionnaire. All respondents were screened for hepatitis B surface antigen (HBsAg). Of the 111 women studied, 66.7% were unaware of HBV infection. Among respondents who were aware of HBV infection, the knowledge level was fair in the majority (51.4%) while 32.4% and 16.2% had good and poor levels of knowledge, respectively. The major (59.5%) source of information on HBV was from seminars while 18.9% of the respondents got information from the media. The association between the highest level of education attained, and awareness of HBV was significant (p = 0.001), but not with knowledge of HBV (p=0.087). Marital status and age-group were not significantly associated with knowledge and awareness of HBV. Previous testing for and vaccination against HBV was lacking in 107 (96.4%) and 108 (97.3%) of the respondents, respectively. Positive HBsAg test was obtained in 2 (1.8%) of the respondents.

The low level of HBV knowledge and awareness in this study is suggestive of poor public awareness of HBV. For effective HBV prevention and control in Nigeria, there is the need for increased health promotion campaigns against HBV.

Keywords: Hepatitis B infection, Women, Knowledge, Seroprevalence, Nigeria

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Introduction

Hepatitis B virus infection is a disease of global public health importance because of its high infectivity and pathogenicity. Infection from hepatitis B virus (HBV) results in liver disease which poses serious public health and economic challenge, more so in low- and middle-income countries where the burden tends to be enormous.[1] Data from the World Health Organization (WHO) show that the burden of hepatitis B infection is highest in two WHO regions - Western Pacific and African regions.[2] The prevalence of HBV infection in sub-Saharan Africa ranges between 9-20%.[3] Nigeria is among the five (5) countries with hyperendemicity of hepatitis B infection in sub-Saharan Africa.[1] Between 2000 and 2013, the pooled prevalence of HBV infection in Nigeria was 13.6%.[4] In a recent cross-sectional national survey of the general population in Nigeria, the seroprevalence of hepatitis B was 12.2%.[5]

Hepatitis B virus is transmitted via blood and other body fluids and has an infectivity rate higher than human immunodeficiency virus (HIV). Mothers infected can also transmit the virus vertically to their unborn children. In Nigeria, perinatal vertical transmission remains a significant mode of spreading the virus. The pooled prevalence of hepatitis B infection among pregnant Nigerian women attending ante-natal clinics was 14.1% between the year 2000 and 2013.[4]

The disease spectrum could include an acute infection which may be self-limiting or potentially life-threatening or may progress to become chronic. The chronic phase of HBV infection may be asymptomatic but with persistent hepatitis B surface antigen (HBsAg), or may manifest as chronic hepatitis, liver cirrhosis, and hepatocellular carcinoma. As at the end of 2015, 257 million persons were estimated to be living with chronic HBV infection worldwide.[1,2,6] More than 75% of the world's chronic HBsAg carriers are of Asian and African origins.[2] Chronic hepatitis B is one of the leading causes of liver cancer. Globally, it is estimated that 780,000 chronic hepatitis B infection-related deaths occur yearly.[4] The number of deaths due to viral hepatitis is similar to deaths related to tuberculosis and more than HIV/AIDS-related deaths.[6] In Nigeria, HBV accounts for most cases of liver cancers.[4] The risk of chronicity is inversely related to the age at infection. In the United States, it is estimated that in the absence of post-exposure immunization

about 40% of children born to HBV-infected mothers will develop chronic hepatitis B later in life.[7] Fortunately, there are effective vaccines against hepatitis B that can prevent infection as well as the development of chronic hepatitis and liver cancer.[8]

Good knowledge of HBV infection, including modes of transmission and preventive measures such as immunization, may act as a catalyst to reduce infection rate as people would be better equipped to apply appropriate preventive measures. Screening for HBV has implications for its prevention and control as an early diagnosis would aid prompt treatment for the infected and commencing immunoprophylaxis for their primary contacts.[6] In sub-Saharan Africa and across the world, some studies have reported the level of knowledge and awareness as well as the prevalence of hepatitis B virus infection among pregnant women attending ante-natal clinics.[9-14] However, in the general population, there is a paucity of data on the knowledge and awareness of HBV infection among women in Nigeria. This study, therefore, aimed to assess the knowledge, awareness, and prevalence of HBV infection among non-pregnant women in an urban district in Delta State, Southern Nigeria.

Material and Methods

This was a cross-sectional analytic study conducted among apparently healthy women in Sapele, Delta State, Nigeria. The study population was selected from among non-pregnant women who attended a medical screening programme of a faith-based organization in Sapele, Delta State using purposive sampling technique. Self reported pregnancy status was obtained from prospective participants. All the women who reported to be non-pregnant and consented to participate in the study were recruited for the study. Ethical approval was obtained from the Health Research Ethics Committee of the Delta State University Teaching Hospital, Oghara.

A structured interviewer-administered questionnaire was employed to collect data on socio-demographic characteristics, awareness, and sources of awareness of HBV. Respondents' knowledge of HBV was assessed using sixteen (16) item questions in the following domains: modes of transmission (8 questions), symptoms suggestive of acute HBV infection (6 questions) and sequelae of chronic HBV infection (2 questions). Each correct answer was given a score of +1 while each wrong answer attracted -1. Neutral responses - 'I don't know' attracted a zero score. Grading the overall knowledge score was as follows: 11-16 = good knowledge, 6 -10 = fair knowledge; and $\leq$ 1-5 = poor knowledge. Respondents were also required to volunteer information on previous screening for hepatitis B virus and their immunization status. All respondents were screened for hepatitis B surface antigen (HBsAg) afterward using a rapid test kit.

Obtained data were sorted and collated unto the spreadsheet of the Statistical Package for Social Sciences (SPSS) version 22 (IBM Corp., Armonk NY, USA) for analysis. The categorical variables are presented as frequencies and percentages, while continuous variables as means (± standard deviations). The Pearson's chi-squared test was used to explore differences in proportions of categorical variables. The level of statistical significance was set at p-value <0.05 for chi-square. The logistic regression was used to control for the effect of potential confounders and interaction between them for only significant predictors of awareness of HBV infection.

Results

A total of 111 women with a mean age of 40.56 (± 11.11) years were recruited for the study. Table 1 shows the socio-demographic characteristics of the study population. The modal age group was 31-40 years, accounting for 42.3% of the study population. Majority (85.6%) of the respondents were married. All the women in this study had formal education. More than half of the respondents had secondary education while one third had tertiary education.

One-third (37/111) of the respondents were aware of HBV infection. Responses to questions on the modes of transmission, symptoms of acute infection and complication of chronic infection by respondents who were aware of HBV infection are as shown in table 2. About a third (32.4%) of them had good knowledge of HBV infection. (Table 3) About three-fifths of the respondents who were aware of HBV infection obtained their information from seminars. Majority of the respondents whose source of information on HBV infection was from seminars had fair knowledge while the majority of those whose source of information on

Table 1: Socio-demographic characteristics of the respondents

Variables	Categories	Frequency (%)
Age (in years)	21-30	18 (16.2)
	31-40	47 (42.3)
	41-50	27 (24.3)
	>50	19 (17.1)
Marital status	Single	13 (1.7)
	Married	95 (85.6)
	Separated	1 (0.9)
	Divorced	1 (0.9)
	Widowed	1 (0.9)
Education	Primary	8 (7.2)
	Secondary	61 (55.5)
	Tertiary	42 (33.3)
Occupational groups	Professional	7 (6.3)
	Clerical/ service workers	27 (24.3)
	Students	2 (1.8)
	Traders	10 (9.0)
	Others	65 (58.6)

*Others: undefined

Table 2: Knowledge of HBV infection among respondents

Variables	Categories	Frequency (%) n=37
Modes of transmission*	Tattoo / body piercing	3 (8.1)
	Eating contaminated sea foods	24 (64.9)
	Blood contact	2 (5.4)
	Sexual contact	4 (10.8)
	Sharing razor / toothbrush	3 (8.1)
	Mother to infant transmission during childbirth	3 (8.1)
	Transfusion of infected blood	7 (18.9)
	Don't know	2 (5.4)
Symptoms of acute infection*	Upper abdominal pain	2 (5.4)
	Tea-coloured urine	2 (5.4)
	Yellow eyes	2 (5.4)
	Weakness	1 (2.7)
	Nausea and vomiting	18 (48.6)
	Loss of appetite	8 (21.6)
	I don't know	4 (10.8)
Should a breast-feeding hepatitis B carrier avoid breastfeeding her baby?	Yes	6 (16.2)
	No	14 (37.8)
	I don't know	17 (45.9)
Can chronic hepatitis B lead to liver cancer?	Yes	6 (16.2)
	No	10 (27.0)
	I don't know	21 (56.8)

*multiple responses apply

Table 3: Sources of information and Knowledge of hepatitis B

Variable	Category	Frequency (%)	Knowledge of HBV [Frequency (%)]		
			Good	Fair	Poor
Source of Information on HBV infection	Seminar	22 (59.5)	5 (22.7)	14 (63.6)	3 (13.6)
	*Media	7 (18.9)	4 (57.1)	1 (14.3)	2 (28.6)
	Books/School	3 (8.1)	2 (66.7)	1(33.3)	0 (0.0)
	Health Worker	4 (10.8)	1 (25.0)	2 (50.0)	1 (25.0)
	Church	1 (2.7)	0 (0.0)	1(100.0)	0 (0.0)
	Total	**37 (100)**	**12 (32.4)**	**19 (51.4)**	**6 (16.2)**
			$\chi^2 = 6.861$, p=0.551		

*Electronic/Print media

HBV infection was from the media or books had good knowledge score. The association between source of information and knowledge score of HBV infection was not statistically significant. (Table 3)

Of the respondents who were aware of HBV infection, majority were married (86.5%), aged between 31 - 40years (51.4%), and had tertiary level of education (62.1%). (Table 4) The association between awareness of HBV infection and level of education was statistically significant (p = 0.001). The associations between awareness of HBV infection and age group, marital status, and occupation were not statistically significant as shown in table 4. Logistic regression of education with awareness of HBV infection retained the significance (adjusted OR = 0.236, 95% CI= 0.082-0.677, p= 0.007). With an additional increase in educational level, the odds of not having heard about HBV infection decreased by 75.4%.

Of respondent who were aware of HBV and had good knowledge score of hepatitis B infection, more than 80% had tertiary education. Similarly, more than half (57.9%) of the respondents with fair knowledge of HBV infection had tertiary level of education. The association between level of education and knowledge was however not statistically significant (p = 0.087). (Table 4) More than half of those with good knowledge score had either professional or clerical service jobs. There was no significant association between knowledge of hepatitis B and other socio-demographic variables tested as shown in table 4.

All the respondents provided information on previous screening for and immunization against HBV infection. Majority of the respondents reported that they had neither previously screened for hepatitis B virus (96.4%) nor have they been immunized against it (97.3%). Forty-two (37.8%) of the respondents reported that they have never done a liver function test while the remaining 69 (62.2%) were not sure if they had ever done a liver function test. More than half (53.2%) of the respondents did not know if they had family members who had HBV infection while 2 (1.8%) of the respondents reported that they had family members with HBV infection. After being screened for hepatitis B infection 109 (98.2%) and 2 (1.8%) tested negative and positive for hepatitis B surface antigen

Table 4: Socio-demographic factors associated with awareness and knowledge of hepatitis B infection

Variables	Categories	Awareness of HBV Frequency (%) N=111		Knowledge of HBV Frequency (%) N=37		
		Yes n=37	No n=74	Good n=12	Fair n=19	Poor n=6
Age group (years)	21-30	4 (10.8)	14 (18.9)	2 (16.6)	1 (5.3)	1 (16.7)
	31 40	19 (51.4)	28 (37.8)	6 (50.0)	11 (57.9)	2 (33.3)
	41 50	9 (24.3)	18 (24.3)	2 (16.7)	5 (26.3)	2 (33.3)
	>50	5 (13.5)	14 (18.9)	2 (16.7)	2 (10.5)	1 (16.7)
		χ^2 = 2.485, p = 0.478			*χ^2 = 2.432, p = 0.876	
Marital status	Single	5 (13.5)	8 (10.8)	2 (16.7)	2 (10.5)	1 (11.7)
	**Ever Married	32 (86.5)	66 (89.1)	10 (83.3)	17 (89.5)	5 (83.3)
		χ^2 = 0.011, p = 0.917			*χ^2 = 0.298, p = 0.861	
Education	Primary	2 (5.4)	6 (8.1)	1 (8.3)	1 (5.3)	0 (0.0)
	Secondary	12 (32.4)	49 (66.2)	1 (8.3)	7 (36.8)	4 (66.7)
	Tertiary	23 (62.1)	19 (25.7)	10 (83.3)	11 (57.9)	2 (33.3)
		χ^2= 14.052, p = 0.001			*χ^2 = 2.923, p = 0.087	
Category of occupation	Professional	3 (8.1)	4 (5.4)	2 (16.7)	0 (0.0)	1 (16.7)
	Clerical workers	10 (27.0)	17 (23.0)	4 (33.3)	4 (21.0)	2 (33.3)
	Students	2 (5.4)	0 (0.0)	0 (0.0)	2 (10.5)	0 (0.0)
	Traders	4 (10.8)	6 (8.1)	1 (8.3)	2 (10.5)	1 (16.7)
	***Others	18 (48.7)	47 (63.5)	5 (41.7)	11 (57.9)	2 (33.3)
		χ^2= 5.988, p = 0.200			*χ^2 = 2.798, p = 0.946	

* Likelihood-ratio chi square; **Ever Married: Married, Separated, Divorced, Widowed; ***Others: Undefined

respectively.

Discussion

The level of awareness of hepatitis B virus infection was low in this study. Only a third of the study population had ever heard about HBV infection. Similarly, a low level of awareness of 44.2% was obtained from another population-based study in Nigeria.[15] However, reports from previous studies have shown comparatively higher levels of awareness of HBV infection depending on the cohort studied. [16-18] Among a cohort of pregnant women attending antenatal clinic in Abakaliki the level of awareness of HBV infection, 62.5%[16] was comparatively higher than 33.3% recorded in this study. Similarly, a higher level of awareness, 70.6% was reported from a study conducted among health workers.[18] The higher levels of awareness may not be unconnected with the sources of information as well as educational status. Majority of the respondents in the Abakaliki study heard about HBV in pregnancy while health workers are exposed to information in the course of their professional training. However, the seemingly high degree of unawareness in the general population in spite of the high transmission rate of HBV infection in Nigeria portends a barrier to effective control of the disease. Similarly, studies from other sub-Saharan African countries have reported low levels of awareness of 41% and 12.25% among women in Ghana and Kenya, respectively.[10,11]

Awareness does not always equate knowledge. Only one-third of the respondents in this study who were aware of HBV had good knowledge. Overall, just a tenth of the respondents had good knowledge of hepatitis. Knowledge on modes of transmission of hepatitis B was poor. Majority of the respondents incorrectly indicated eating contaminated seafood as a mode of transmission of HBV. Knowledge on symptoms suggestive of acute hepatitis B infection and its chronic sequelae were also poor. More than half of the women in this study did not know that chronic hepatitis B infection can lead to liver cancer, and more than one-quarter of them did indicate that liver cancer was not a chronic complication of HBV infection. Poor knowledge of modes of transmission, symptomatology, chronic sequelae and prevention of HBV infection have also been previously reported in Nigeria and other countries with high burden of hepatitis B infection around the world.[9-12, 15,16, 21-25] In a study conducted by Abdulai and colleagues, only 33.5% had correct knowledge of modes of transmission

of HBV.[10] Common modes of transmission such as sexual contact, vertical transmission and blood transfusion in this study were poor (10.8%, 8.1%, and 18.9% respectively). In contrast, reports from the study conducted by Gboeze, et al in Abakiliki revealed higher levels for sexual contact and vertical transmission (41.2% and 72.9% respectively). [16] This difference in levels of knowledge of transmission of HBV (sexual contact and vertical transmission) is not surprising because majority (71.5%) of the pregnant women attended antenatal clinic in a tertiary facility and learnt about HBV during pregnancy.[16]

Good knowledge of HBV infection was associated with the level of education in this study. Other studies have also shown that women who are educated were more likely to have good knowledge of HBV infection.[9] There is need to increase the level of awareness and knowledge of HBV infection, especially through the media. However, in this study, the media was not the major source of information. Both the traditional mass media and more recently, social media are veritable and effective means of disseminating information relating to health education and promotion.[26-28] For instance, health campaigns on the media have been effective in the fight against HIV/AIDS.[29]

Health-seeking attitudes and practices are closely associated with knowledge and awareness. It is therefore not surprising that in this study the vast majority of the respondents have never subjected themselves to tests to screen for hepatitis B virus. In Nigeria, testing for HBV is not readily accessible and affordable to all. Where the screening test is available, the cost is often borne out-of-pocket. Sometimes, opportunistic screening is available free of charge to the general public during medical outreaches. Similarly, vaccination against HBV is not universally free in Nigeria. Since 2004, infants in Nigeria are privileged to get free HBV vaccination through the National Immunization Program (NPI).[30]

The prevalence of hepatitis B surface antigen, indicating a carrier state, in this study was low compared to the recent 12.2% national seroprevalence in Nigeria.[5] The low prevalence may not be unrelated to the risk level of the study population. Although sexual behaviours were not probed in this study, the risk of sexual transmission may be low among these women from a faith-based organization. Some studies have shown that people with strong religious inclination tend to have low risky sexual behaviours.[31-33] Also, compared to the general population; the risk of infection with hepatitis B virus is higher among health workers. However, none of the respondents was a health worker; this factor may further substantiate the assertion that the study participants have a low risk of HBV infection.

Conclusion:

The seroprevalence of Hepatitis B infection in this study is lower than the national figure. This study has shown low levels of knowledge and awareness of hepatitis B virus infection among non-pregnant women in a faith-based organization in an urban district in Delta State, Nigeria. The low levels of HBV knowledge and awareness in this study are suggestive of poor public awareness of HBV. The paucity of preventive strategies via hepatitis B virus testing and vaccination among the study population was therefore not surprising. However, for effective HBV prevention and control in Nigeria, there is the need for increased health promotion campaigns against HBV.

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