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Research Article

Hepatitis B Knowledge, Attitude and Vaccination among Walk-in Customers in Two Community Pharmacies in Ibadan Metropolis, Nigeria: A Cross Sectional Study

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ABSTRACT

This study evaluated the knowledge, attitude, and uptake of the Hepatitis B vaccine among walk-in customers in two community pharmacies in Ibadan, Nigeria. A cross-sectional study was conducted among the study participants. Data was summarized with descriptive and inferential analysis, with significance level set at $p < 0.005$. A total of 764 walk-in customers: 395 (51.7%) at Maxi Pharmacy and 369 (48.3%) at Vanguard Pharmacy, were recruited for the study. Mean scores for HBV infection knowledge and attitude were 6.29 ± 2.81 (out of a maximum obtainable score of 12) and 5.76 ± 2.10 (out of a maximum obtainable score of 10), respectively. Only 82 (10.7%) participants had been vaccinated against HBV infection. Bivariate analysis showed that gender, awareness, vaccination, and level of formal education were predictors of HBV knowledge and attitude. Age only predicted HBV knowledge significantly, but not attitude. Five hundred and sixty-five (74.0%) participants were aware of HBV. Ninety-two (12.0%) participants reported that a member of their immediate family was vaccinated against HBV while 82 (10.7%) participants had been vaccinated against HBV. Out of the 168 participants who reported how they became aware of Hepatitis B, 31 (18.5%) was through social media, 32 (19.0%) internet, 8 (4.8%) textbook, 22 (13.1%) school, 35 (20.8%) family/friends, 41 (24.4%) hospital/pharmacy, and 4 (2.4%) through infected people. The study revealed average levels of HBV knowledge and vaccination among study participants, despite high levels of awareness and positive attitude to HBV.

Keywords: *Hepatitis B, Knowledge, Attitude, Vaccination, Community pharmacy, Nigeria.*

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INTRODUCTION

Hepatitis B virus (HBV) is a potentially life-threatening infection caused by the hepatitis B virus which affects the liver. It is a major infectious disease, particularly in developing nations (Abeje and Azage, 2015; Al-Hazmi, 2015), and it is the tenth foremost cause of death globally (Kumar *et al.*, 2010; Al-Hazmi, 2015). HBV is blood-borne, like human immunodeficiency virus (HIV), but about 50 – 100 times more infectious than HIV (CDC, 2012).

Globally, over 2 billion people have evidence of a current infection or recovery from a past HBV infection, while over 240 million people are carriers (WHO). HBV related diseases led to the death of about 887,000 in 2015. Adequate knowledge of HBV infection should improve HBV vaccine uptake and subsequently reduce rate of HBV infection. To achieve the World Health Organization's goal of eradicating the global health threat of HBV infection by 2030 (WHO), public education on HBV infection, as well as vaccination must be intensified.

Majority of research on HBV infection knowledge, attitude and uptake assessment done in Nigeria was carried out among high-risk population i.e. healthcare workers (Samuel *et al.*, 2009; Kesieme *et al.*, 2011; Abiola *et al.*, 2013; Adekanle *et al.*, 2015; Oyewusi *et al.*, 2015; Bello *et al.*, 2016; Hassan *et al.*, 2016). The prevalence of HBV infection is on the increase in developing nations, such as Nigeria, and precautionary measures are not practiced by many healthcare workers (Abeje and Azage, 2015; Oyewusi, 2015). A systematic review showed the endemic nature of HBV infection in Nigeria, with a prevalence of 13% (Musa *et al.*, 2015).

A study conducted among non-healthcare workers in Nigeria showed average HBV infection knowledge and low levels of HBV vaccine uptake (Eni *et al.*, 2019). Despite the availability of preventive measures, inadequate knowledge and negative attitude to HBV infection constitutes public health challenge as Hepatitis B vaccine uptake will be low. Therefore, the aim of this study was to assess the knowledge, attitude towards HBV and to determine Hepatitis B vaccine

uptake level of walk-in customers in two community pharmacies in Ibadan, Nigeria.

MATERIALS AND METHODS

Study site and population: The study was conducted in two community pharmacies in Ibadan metropolis. Maxi Pharmacy and Vanguard Pharmacy are in Egbeda and Lagelu Local Government Area (LGA), respectively. Egbeda LGA has a landmass of 410 Km² while Lagelu has a landmass of 416 Km². The study population were walk-in customers patronizing the community pharmacies.

Study design and period: A cross-sectional study was carried out from October 2019 to November 2019 at Vanguard Pharmacy and in November 2020 at Maxi Pharmacy.

Sample size and recruitment: Sample size was calculated based on confidence level of 95% and confidence interval of 5 for the community pharmacies in the two LGAs. Lagelu LGA had a population of 147,957, which gave a sample size of 383. Egbeda LGA had a population of 319,388, which gave a sample size of 384. The total sample size from both study sites was 767. Walk-in customers were recruited for the study as they waited to be attended to in the community pharmacies. The purpose of the study was explained, and the questionnaire was administered to consented participants.

Data collection instrument: A 31-item semi-structured questionnaire was developed for the study after literature review. The questionnaire was pretested for face validity. Content validity was done by two Faculties in the Department of Clinical Pharmacy and Pharmacy Administration, Faculty of Pharmacy, University of Ibadan. Internal consistency of the questionnaire was carried out using Cronbach's alpha. The questionnaire was divided into three sections. Section A addressed participants' socio-demographic characteristic. Section B had 12 questions on knowledge of HBV: disease description (2), transmission (4), prevention (5), and treatment (1). Section B also had questions on HBV awareness, vaccination, and information source. Section C had 10 questions on participants' attitude to HBV.

Response to the questions on knowledge and attitude was assigned a score of '1' if correct and '0' if incorrect. Study participants' HBV knowledge and attitude assessment scores were summated, converted to percentages and then classified into poor knowledge (< 50%), average knowledge (50 – 69.9%) and good knowledge (70 – 100%); and negative attitude (< 50%), and positive attitude (50 and above), based on consensus from the research team.

Data analysis: Data was analyzed using SPSS vs. 20.0 (SPSS Corp., Chicago, Il, USA). Data was summarized with descriptive statistics such as frequency count, percent, mean ± standard deviation. Independent-samples t-test was used to evaluate difference in HBV knowledge and attitude for gender, study site, HBV awareness and vaccination of study participants. One-way analysis of variance was used to assess the difference in HBV knowledge and attitude for age, level of formal education and marital status of study participants. Level of significance was set at p < 0.05.

Ethical approval: The study protocol was approved by the Oyo State Research Ethics Review Committee.

RESULTS

Response rate was 91.75% (764/800). A total of 764 walk-in customers: 395 (51.7%) at Maxi Pharmacy and 369 (48.3%) at Vanguard Pharmacy, were recruited for the study. Table 1 summarizes the sociodemographic characteristics of study participants. Gender distribution was nearly equal with 407 (53.3%) males. Majority of the study participants, 532(69.6%), were less than 40 years of age. Four hundred and forty-one (57.7%) participants had tertiary level of formal education. Five hundred and sixty-five (74.0%) participants: 277 (70.1%) at Maxi Pharmacy and 288 (78.0%) at Vanguard Pharmacy were aware of Hepatitis B virus (HBV). Ninety-two (12.0%) participants: 48 (12.2%) and 44 (11.9%) at Maxi Pharmacy and Vanguard Pharmacy, respectively reported that a member of their immediate family was vaccinated against HBV. Eighty-two (10.7%) participants: 48 (12.2%) at Maxi Pharmacy and 34 (9.2%) at Vanguard Pharmacy had been vaccinated against HBV.

Table 1: Demographic characteristics of study participants from both study sites (n=764)

Variables		Study sites		
		Maxi Pharmacy n (%)	Vanguard Pharmacy n (%)	Total n (%)
Gender	Female	180 (45.6)	177 (48.0)	357 (46.7)
	Male	215 (54.4)	192 (52.0)	407 (53.3)
Age (years)	<40	249 (63.0)	283 (76.7)	532 (69.6)
	40-59	109 (27.6)	65 (17.6)	174 (22.8)
	>59	37 (9.4)	21 (5.7)	58 (7.6)
Marital status	Single	173 (43.8)	205 (55.6)	378 (49.5)
	Married	209 (52.9)	159 (43.1)	368 (48.2)
	Divorced	4 (1.0)	3 (0.8)	7 (0.9)
	Widowed	9 (2.3)	2 (0.5)	11 (1.4)
Religion	Christianity	275 (69.6)	223 (60.4)	498 (65.2)
	Islam	120 (30.4)	146 (39.6)	266 (34.8)
Formal educational level	None	17 (4.3)	7 (1.9)	24 (3.1)
	Primary	53 (13.4)	30 (8.1)	83 (10.9)
	Secondary	124 (31.4)	92 (24.9)	216 (28.3)
	Tertiary	201 (50.9)	240 (65.0)	441 (57.7)

Table 2:
Participants' knowledge of Hepatitis B virus (HBV) (n=764)

Questions	Correct responses		
	Frequency (%)		
	Study sites		
	Maxi Pharmacy	Vanguard Pharmacy	Total
HBV is a transient infection like flu	133 (33.7)	136 (36.9)	269 (35.2)
HBV affect both adults and children	258 (65.3)	258 (69.9)	516 (67.5)
HBV can be transmitted from mother to child	203 (51.9)	189 (51.2)	392 (51.3)
HBV can be transmitted through sexual contact	168 (42.5)	205 (55.6)	373 (48.8)
HBV can be spread by eating food prepared by an infected person?	179 (45.3)	72 (19.5)	251 (32.9)
HIV is more easily spread than Hepatitis B infection	113 (28.6)	133 (36.0)	246 (32.2)
HBV has effective treatment	182 (46.1)	220 (59.6)	402 (52.6)
HBV has a vaccine	228 (57.7)	259 (70.2)	487 (63.7)
Vaccination against HBV is necessary	290 (73.4)	281 (76.2)	571 (74.7)
Vaccination against HBV is safe	241 (61.0)	261 (70.7)	502 (65.7)
Living with an HBV positive family member could endanger your health	186 (47.1)	136 (36.9)	322 (42.1)
Personal hair clipper/Manicure set prevents HBV infection	256 (64.8)	221 (59.9)	477 (62.4)
Mean score of HBV knowledge (Mean ± Standard deviation)	6.17 ± 2.92	6.43 ± 2.70	6.29 ± 2.81

HBV knowledge category

Poor knowledge	153 (38.7)	113 (30.6)	266 (34.8)
Average knowledge	145 (36.7)	175 (47.4)	320 (41.9)
Good knowledge	97 (24.6)	81 (22.0)	178 (23.3)

Poor knowledge = 0 – 49.9%, Average knowledge = 50 – 69.9%, Good knowledge = 70 – 100%

Table 3:
Participants' attitude towards Hepatitis B virus (HBV) (n=764)

Questions	Correct responses		
	Frequency (%)		
	Study sites		
	Maxi Pharmacy	Vanguard Pharmacy	Total
Are you willing to be screened for HBV?	308 (78.0)	246 (66.7)	554 (72.5)
I prefer not to be screened for Hepatitis B, so I do not know my status	251 (63.5)	234 (63.4)	485 (63.5)
Would you be willing to be vaccinated against HBV?	277 (70.1)	250 (67.8)	527 (69.0)
Would you be willing to be treated if found positive to HBV?	301 (76.2)	280 (75.9)	581 (76.0)
What will be will be, irrespective of vaccination against HBV	150 (38.0)	122 (33.1)	272 (35.6)
Could living with a family member that is HBV positive endanger your health?	186 (47.1)	136 (36.9)	322 (42.1)
Are special precautions necessary to live with a HBV positive person?	247 (62.5)	226 (61.2)	473 (61.9)
Is it necessary that someone positive for HBV should inform others in the family about his/her status?	285 (72.2)	234 (63.4)	519 (67.9)
Do you think someone could be scared if he/she finds out that a family member is HBV positive?	206 (52.2)	212 (57.5)	418 (54.8)
Should all family members be screened for HBV once one of them is positive?	303 (76.7)	265 (71.8)	568 (74.3)
Mean score of attitudes to HBV (Mean ± Standard deviation)	5.89 ± 2.021	5.61 ± 2.183	5.76 ± 2.10
HBV attitude category			
Negative attitude	91 (23.0)	113 (30.6)	204 (26.7)
Positive attitude	304 (77.0)	256 (69.4)	560 (73.3)

Negative attitude = < 50%, Positive attitude = 50 – 100%

Out of the 168 participants who reported how they became aware of HBV, 41 (24.4%) was through hospital/pharmacy visits, 35 (20.8%) family/friends, 32 (19.0%) internet, 31 (18.5%) social media, School 22 (13.1%), textbook 8 (4.8%), and 4 (2.4%) through infected people. Only 269 (35.2%) knew that HBV infection is not a transient flu-like infection, while 392 (51.3%) knew that it could be transmitted from mother to child. Only 246 (32.3%) were aware that HBV is more easily spread than human immunodeficiency virus (HIV). Mean score for HBV knowledge was 6.29 ± 2.81, with 320 (41.9%)

classified as having average knowledge (Table 2). Five hundred and fifty-four (72.5%) were willing to be screened for HBV, and 581 (76.0%) were willing to be treated if infected with HBV. Only 272 (35.6%) did not resign to fate as regards Hepatitis B vaccination. Five hundred and sixty (73.3%) had positive attitude towards HBV (Table 3). Internal consistency using Cronbach's alpha for HBV knowledge scale was 0.71 while for the HBV attitude scale was 0.63 and were within acceptable range (Santos, 1999).

Table 4:

Bivariate analysis of Hepatitis B virus (HBV) knowledge and attitude predictors in the study population (n=764)

Variables		Hepatitis B knowledge			Hepatitis B attitude	
		n	Mean ± SD	p value ^a	Mean ± SD	p value ^a
Gender	Female	357	6.51 ± 2.74	0.043*	5.93 ± 2.07	0.034*
	Male	407	6.10 ± 2.86		5.60 ± 2.12	
Study site	Maxi Pharmacy	395	6.17 ± 2.92	0.208	5.89 ± 2.02	0.061
	Vanguard Pharmacy	369	6.43 ± 2.69		5.61 ± 2.18	
Religion	Christianity	498	6.33 ± 2.74	0.627	5.77 ± 2.09	0.778
	Islam	266	6.23 ± 2.95		5.73 ± 2.15	
Hepatitis B awareness	Aware	565	7.08 ± 2.26	<0.001*	6.04 ± 1.99	0.041*
	Unaware	199	4.05 ± 3.02		4.94 ± 2.21	
Hepatitis B vaccination of family member	No	452	6.21 ± 2.78	<0.001*	5.61 ± 2.08	<0.001*
	Yes	92	7.66 ± 2.35		6.70 ± 1.75	
Hepatitis B vaccination of participant	Not vaccinated	682	6.08 ± 2.82	<0.001*	5.63 ± 2.12	<0.001*
	Vaccinated	82	8.07 ± 2.00		6.76 ± 1.61	
Marital status	Single	378	6.35 ± 2.70	0.934 ^b	5.83 ± 1.99	0.641 ^b
	Married	368	6.23 ± 2.93		5.69 ± 2.23	
	Divorced	7	6.29 ± 2.69		5.00 ± 2.08	
	Widowed	11	6.45 ± 3.05		5.82 ± 1.83	
Age (years)	<40	532	6.52 ± 2.69	<0.001* ^b	5.78 ± 2.10	0.776 ^b
	40-59	174	6.17 ± 2.91		5.75 ± 2.04	
	>59	58	4.59 ± 3.06		5.57 ± 2.32	
Level of formal education	None	24	5.46 ± 2.80	<0.001* ^b	4.67 ± 2.24	<0.001* ^b
	Primary	83	5.31 ± 3.35		5.42 ± 2.36	
	Secondary	216	6.15 ± 2.96		5.46 ± 2.10	
	Tertiary	441	6.59 ± 2.58		6.02 ± 2.00	

* $p < 0.05$, ^a Independent-samples *t* test, ^b One-way ANOVA

Table 4 shows the results of the bivariate analysis to evaluate associations between mean HBV knowledge scores and participants' sociodemographic characteristics. The predictors of HBV knowledge were gender, HBV awareness, vaccination of a family member, vaccination of participant, age, and level of formal education. The predictors of attitudes towards HBV were gender, HBV awareness, vaccination of a family member, vaccination of participant, and level of formal education.

DISCUSSION

This study showed an average knowledge of Hepatitis B virus (HBV) among walk-in customers in the two community pharmacies. The level of awareness on HBV infection was high, and majority had positive attitude towards it, however, HBV vaccination was extremely low among the study participants.

A high level of awareness of HBV was observed in this study with 74% reporting awareness. Similar results showing 70 – 81.1% was reported in two other studies carried out in other parts of Nigeria (Odimayo *et al.*, 2015; Eni *et al.*, 2019). A much lower result (44%) was reported by a study among traders in Calabar metropolis, Nigeria (Okonkwo *et al.*, 2017). The high level of awareness must have been due to awareness campaigns and information dissemination in hospitals, community pharmacies, family/friends, internet, social media, school, textbook and through infected people, as reported in this study. However, there is need for more public campaigns and other awareness programs, as about one quarter of the study participants were yet to be aware of HBV infection.

About half (51.3%) of the participants were aware that HBV could be transmitted from mother to child. This is similar to 52.2% reported by another study involving participants from three states in Nigeria (Eni *et al.*, 2019), and 50% documented in a study in Calabar, Nigeria (Okonkwo *et al.*, 2017), much higher than 24% documented by a study in Pakistan (ul Haq *et al.*, 2012), but quite lower than 83.5% recorded by a study in Benue State, Nigeria (Odimayo *et al.*, 2015). Majority of the participants in the current study (62.4%) knew that personal hair clipper/Manicure set prevents HBV infection. This almost doubled the 33% of participants reported in another study in Pakistan (ul Haq *et al.*, 2012).

The knowledge of sexual route as a mode of HBV transmission was identified by 48.8% of the study population. This is comparable with 43.8% reported in a study carried out in Makurdi, Nigeria (Odimayo *et al.*, 2015), and 52.7% documented in a study in Calabar Nigeria (Okonkwo *et al.*, 2017). It is however low, compared with 69% reported in a study among Cambodian Americans (Taylor *et al.*, 2013), 69.7% in a national survey carried out in metropolitan France (Brouard *et al.*, 2013), 84.1% reported in a study among medical students in Northwest Ethiopia (Abdela *et al.*, 2016), but higher than 10.1% documented by a study carried out among healthy individuals in Pakistan (ul Haq *et al.*, 2012). Two of the studies that reported higher knowledge of sexual route as a mode of HBV transmission were carried out in developed countries, who are better informed about HBV, while the last one was carried out among medical students, whose training could have provided a leverage regarding general knowledge of HBV.

A mean score of 6.29 ± 2.81 out of a maximum score of 12, with 34.8%, 41.9% and 23.3% of participants classified as having poor, average and good knowledge, respectively,

shows the average HBV knowledge displayed by the study participants. This is like a study carried out among HBV patients in Malaysia which reported a mean knowledge score of 12.57 ± 4.4 out of a maximum score of 20 (Mohamed *et al.*, 2012). This is also comparable with a study carried out in another part of Nigeria which documented a mean knowledge score of 4.85 ± 2.69 out of a maximum score of 9 (Eni *et al.*, 2019). However, another study carried out among healthy population of Quetta, Pakistan reported a lower mean knowledge score of 8.74 ± 2.7 out of a maximum score of 20, with 75.4% of participants showing poor knowledge of HBV infection (ul Haq *et al.*, 2012). Majority of the participants in the present study had either secondary (28.3%) or tertiary (57.7%) level of formal education. This could have exposed them to better knowledge of HBV.

In the current study, 52.6% of participants were aware that there is effective treatment for HBV. Slightly higher percentages were documented in other studies (ul Haq *et al.*, 2012; Taylor *et al.*, 2013; Okonkwo *et al.*, 2017). Only (35.2%) and (32.2%) of participants knew that HBV infection is not a transient infection like flu and that it is less easily spread than HIV infection, respectively. Knowledge of existence of HBV vaccine was reported by 63.7% of participants and 67.5% knew it could affect both children and adults. A much lower percentage of participants (27.1%) who knew that HBV could affect any age range, but a higher percentage of participants (76.7%) who knew that HBV vaccine exists was reported in another study (ul Haq *et al.*, 2012). Only 32% of participants in another Nigerian study were aware that HBV vaccine exists (Eni *et al.*, 2019).

In this study, only 10.7% of the participants had been vaccinated. Another study among 643 pregnant women attending antenatal clinic in a primary, secondary, and tertiary facility in Ibadan had a similar result with 9.7% vaccinated (Adeyemi *et al.*, 2013). A higher vaccination level of 21.2% was reported in a study carried out in another part of Nigeria (Eni *et al.*, 2019). A national study carried out in France reported that 47% of study participants were vaccinated against HBV (Brouard *et al.*, 2013). High level of HBV awareness and average knowledge observed in this study did translate to high level of vaccination among the participants. It is important to increase public enlightenment on HBV, with special focus on prophylactic measures, such as vaccination. In the current study, predictors of HBV knowledge were gender, HBV awareness, vaccination of a family member, vaccination of participant, age, and level of formal education. Predictors of attitudes towards HBV were gender, HBV awareness, vaccination of a family member, vaccination of participant, and level of formal education. A previous study identified age, level of educational, occupation, duration of diagnosis, and presence of liver cirrhosis as predictors of HBV knowledge (Mohamed *et al.*, 2012). Another study reported prior HBV knowledge, prior testing for HBV, vaccination, and knowing someone infected with HBV as predictors of HBV knowledge (Eni *et al.*, 2019). High level of education has been associated with better knowledge of HBV in many studies (Cheung *et al.*, 2005; Wai *et al.*, 2005; Taylor *et al.*, 2009).

The highest level of HBV knowledge was recorded in the age range below 40 years as well as among participants with tertiary education. This could be because of exposure to

appropriate knowledge and better understanding of available information by the participants with tertiary education. Additionally, the age group below 40 years are more technologically driven with better access to the internet and media. This is a good occurrence because the age group below 40 years which made up 69.6% of the study population is the category more prone to behavioral risks regarding HBV transmission.

Mean score for participants' attitudes to Hepatitis B infection was 5.76 ± 2.10 out of a maximum of 10, with 73.3% showing positive attitude towards HBV. While 72.5% were willing to be screened and 69% were willing to be vaccinated against HBV. The willingness of the study participants to be screened and vaccinated against HBV could be an indicator that a vaccination program will be embraced by the participants.

Only 35.6% did not resign to fate as regards HBV vaccination. The low percentage of the participants who would not resign to fate but get vaccinated against HBV could reflect concerns about financial implication of vaccination. It is vital to further explore the reasons behind low vaccination level. Also, 67.9% deemed it necessary for an HBV patient to inform other members of the family about it, and 74.3% believed that all family members should be screened once another member tests positive for HBV. These are indicators of good attitude shown by the study participants towards HBV infection. A study involving Pakistani population documented an overall negative attitude towards HBV (ul Haq *et al.*, 2012). However, another study done among HBV patients in Malaysia documented participants' positive attitude towards HBV (Mohamed *et al.*, 2012).

In conclusion, the findings from this study showed average knowledge of Hepatitis B virus among walk-in customers in the community pharmacies situated in two local government areas studied in Ibadan, Nigeria. Vaccination against Hepatitis B virus was extremely low among study participants, despite high levels of awareness and positive attitude to Hepatitis B virus. There is need for public education on HBV to increase knowledge and vaccine uptake.

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