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Assessing the level of knowledge, uptake of hepatitis B virus vaccine, and its determinants among health workers across various levels of health facilities in Ondo, South West, Nigeria

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Abstract

Problem considered: Research has shown that health care personnel is at higher risk of acquiring the disease than the general population. In spite of this challenge, there has been a low vaccination record among the Health Workers. The aim of this study was to investigate the relationship between knowledge, attitude, perception, and practice of hepatitis B vaccination among health workers in Akure South Local Government Area of Ondo State, Nigeria

Methods: An institution-based cross-sectional study was conducted with 260 health professionals working at primary health centers (40), private hospitals (60), and tertiary health institutions (160). Data was collected by using self-administered questionnaires distributed at the participant's work unit and analyzed using SPSS version 20.

Results: The result showed that there was a statistically significant relationship between the knowledge of Health workers about the HBV vaccine and vaccine uptake.

While all the non-vaccinated health workers showed interest in taking the vaccine, the majority of them (80.4 %) suggested that the vaccine should be given free to health workers.

Conclusion: The study revealed that the health workers had a good knowledge of hepatitis infection but not the vaccination which affected vaccine uptake as a significant relationship exists between the two. Also, the greatest hindrance to the uptake of the vaccine is the cost of the vaccine. HBV vaccination should be made compulsory as part of occupational protection measures and made readily available gratis for all health workers.

Keywords: Health workers, Hepatitis B vaccination, Knowledge, Determinants, Health facilities

Introduction

Hepatitis B is a vaccine-preventable liver infection caused by the hepatitis B virus (HBV). Hepatitis B is spread when the blood, semen, or other body fluids from a person infected with the virus enters the body of someone

who is not infected [1]. Hepatitis B virus (HBV) infection is a global public health problem and the tenth leading cause of death globally [2]. There is a high prevalence of HBV infection among Blacks [3].

According to a recent estimate from the Global Burden of Disease study and the World Health Organization (WHO), viral hepatitis is responsible for approximately 1.34 million deaths, annually with the African region accounting for about 68% of the global burden [4]. The World Health Organization reported that an estimate of about 2 million health care workers face the risk of

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occupational exposure to HBV annually and 90% of the infections that result from these exposures are in low-income countries, especially those in sub-Saharan Africa [5].

Though vaccination is considered the most effective means of preventing hepatitis B infection, the uptake of hepatitis B vaccination remains low in developing countries [6].

The risk of acquiring HBV amongst health workers is four times greater than that of the general population [7]. An estimate of about 600,000–800,000 cuts and puncture injuries occur in them annually, out of which approximately 50% are not registered [8].

In spite of these established facts, the uptake of the hepatitis B vaccine among health workers was still low.

Having enough knowledge and proper attitudes toward the infection is crucial in preventing its occupational exposure. But the knowledge, attitude, and practices relating to HBV infection and its vaccination vary among health care workers (HCWs). Studies have shown that the overall knowledge, attitude, and practice of HCWs about HBV infection and its vaccination is inadequate [9]. Prevention of any disease is proportional to the knowledge, attitude, and practice of the population and reflection of the importance that is paid to the health-related issue by the society [10].

So many studies done on the vaccination status of health workers against hepatitis B infection revealed that their vaccination coverage was between 34.72 and 43.12% [11]. In spite of the high risk of HBV infection and the World Health Organization standard or recommendation that all health workers should be vaccinated against this virus, Nigeria still records a very low vaccination coverage. Several studies focused on the uptake of the hepatitis B vaccine among health workers, but researchers have not really assessed the determinants of HBV vaccination across different levels of health facilities. So, this study sought to assess the knowledge of hepatitis B vaccination, the vaccination status, and possible factors responsible for poor uptake of the vaccine among health workers in the primary, private, and tertiary health institutions in Akure, Ondo State, Nigeria.

Methods

Study design and sampling technique

The study design was a health facility-based descriptive cross-sectional survey targeted at health workers in Akure South Local Government Area (LGAs) of Ondo State. Akure South is one of the six LGAs classified as the Ondo central senatorial district and one of the eighteen LGAs in Ondo State with its headquarter in Akure which equally doubles as the state capital and the most populated local government area in the state. According to

the Planning, Research and Statistics, Ministry of Health, Akure, there are 69 registered private hospitals, 1 teaching hospital, and 17 primary health facilities in Akure South Local Government Area, Ondo State.

For this study, five primary health centers and twelve private hospitals in the local government area were selected by simple random sampling (balloting). The only teaching hospital in the LGA of study was also selected.

Study participants

Health workers from the selected private hospitals, primary health centers, and teaching hospital were included in the study. Administrative officers and all non-health workers in the selected health facilities were excluded from the study.

Table 1 Socio-demographic characteristic (N=260)

Variables	N (%)
Age of respondents	
< 20years	39 (15.0)
21–25years	88 (33.8)
26–30years	43 (16.5)
31–35years	45 (17.3)
36–40years	25 (9.6)
>40years	20 (7.7)
Sex	
Male	75 (28.8)
Female	185 (71.20)
Education level of respondents	
No formal education	3 (1.2)
Primary education	2 (0.8)
Secondary education	26 (10.0)
Tertiary education	229 (88.1)
Cadre of respondents	
Doctor	23 (8.8)
Pharmacist	28 (10.8)
Nurse/midwife	72 (27.7)
Lab scientist/technician	68 (26.2)
CHO	8 (3.1)
CHEW	32 (12.3)
Health attendant	11 (4.2)
Health information manager	1 (0.4)
Others (specify)	17 (6.5)
Years of experience of health workers	
1–3 years	161 (61.9)
4–6 years	47 (18.1)
7–9 years	25 (9.6)
>10 years	27 (10.4)
Health facility	
Teaching hospital	160 (61.5)
Private hospital	60 (23.1)
PHC	40 (15.4)

Table 2 Knowledge, perception, and attitude towards hepatitis B vaccination (N=260)

	Frequency (n)	Percent (%)
Is there an effective vaccine against hepatitis B virus?		
Yes	232	89.2
No	15	5.8
Don't know	13	5.0
Should HBsAg test be carried out before taking hepatitis B vaccine?		
Yes	224	86.2
No	16	6.2
Don't know	20	7.7
Can HBsAg-positive people receive the hepatitis B vaccine?		
Yes	103	39.6
No	112	43.1
Don't know	45	17.3
Can HBsAg-negative people receive the hepatitis B vaccine?		
Yes	172	66.2
No	40	15.4
Don't know	48	18.5
Can hepatitis B vaccine be given as PEP?		
Yes	114	43.8
No	74	28.5
Don't know	72	27.7
What are some common contraindications to hepatitis B vaccine		
Multiple sclerosis	40	15.4
Fever	21	8.1
HIV positive	126	48.5
Tuberculosis	73	28.1
Can Hep B vaccine be used to treat acute Hep B infection		
Yes	131	50.4
No	90	34.6
Don't know	39	15.0
Should Hep B vaccine should be given to health workers as part of work place safety		
Yes	244	93.8
No	13	5.0
Don't know	3	1.2
How should health workers access the vaccine		
They should pay for it	20	7.7
It should be free	222	85.4
It should be deducted from their salary over time	18	6.9
How many doses are required for hepatitis B vaccination		
1 dose	21	8.1
2 doses	68	26.2
3 doses	165	63.5
Others (specify)	6	2.3
Is there a need for HBV antibody blood test after vaccination		
Yes	166	63.8
No	62	23.8
Don't know	32	12.3

Table 2 (continued)

	Frequency (n)	Percent (%)
What percentage is someone protected after a full dose		
100% protection	161	61.9
>90 % protection	69	26.5
<90 % protection	30	11.5
For how long does the full dose of hepatitis b vaccine protect against HBV		
<10 years	58	22.3
>10 years	83	31.9
Lifetime	119	45.8
Need for booster dose after vaccination		
Yes	154	59.2
No	81	31.2
Don't know	25	9.6

Data collection

A structured questionnaire was used as the survey instrument. Data was collected using interviewer-administered questionnaire by research assistants who had a day training on the research tool.

Sample size and sampling procedure

Leslie Fischer's formula for the sample size determination in health studies was used to calculate the sample size given the prevalence of hepatitis B vaccination for healthcare workers of 21.2% [12], confidence level of 95%, and marginal error of 5%. The final sample size was 279 after adjustment for a 5% non-respondent rate. The total sample size was proportionally allocated to the three different levels of health facilities engaged in this research.

Data management

Data obtained was entered using the Statistical Package for the Social Sciences (SPSS) version 21 program by inputting all the variables, and this was carefully checked to ensure all variables had been entered before the analysis. For the descriptive aspects of the analysis, frequency distributions were generated for all categorical variables. The chi-squared test was applied for the comparison of proportions. Binary logistic regression was performed to identify socio-demographic factors independently associated with the dependent variable. The strength of association was measured using odds ratio and 95% confidence intervals, and a *P* value <0.05 was considered statistically significant.

Results

279 questionnaires were distributed across the health facilities while 260 were fully completed (response rate of 93.18%). From Table 1, majority of the respondents were between the age ranges of 21–25 years while 71.20% were females. Just 5 respondents had below secondary

education, and the most represented cadre was nursing/midwife with a frequency and percentage of 72 and 27.7%, respectively. A good percentage of the respondents 61.9% had below 4 years of working experience.

Table 2 showed that almost all the participants (89.2%) had the knowledge of an effective vaccine against the hepatitis B virus and 89.2% equally believed that a hepatitis B antigen test should be carried out before administering the hepatitis B vaccine.

From Table 3, a good percentage of the respondents (56.2%) had not been vaccinated in spite of their knowledge about the hepatitis B vaccine. Also, 12 out of the 108 vaccinated respondents reported that hepatitis B antigen screening was not carried out for them before vaccination. And 24 out of the 108 vaccinated respondents had received booster doses of the vaccine.

Discussion

About 71% of the respondents were female. A possible reason for this was because cadres like Nursing and Community Health Extension workers were seen as professions more frequented by the female gender compared to the male gender. To corroborate this, most of the respondents were in the nursing/midwife cadre while the least represented cadre among the respondents was Health Information Manager. About 8% of the respondents were doctors while pharmacists were about 10.8% and laboratory scientists/technicians formed about 26.2%. Over 88% of the respondents had tertiary education, while 1.2% had no formal education. This high level of education status among the respondents assisted in an easy understanding of the questions (Tables 4, 5, and 6).

From the age distribution, it was evident that most of the respondents were young employees. This was in agreement with the level of experience possessed by the respondents. Over 61% of the respondents had between

Table 3 HBV vaccine practice attitude (N=260)

Variables	Frequency	Percent
Have you been vaccinated against HBV		
Yes	108	41.5
No	146	56.2
Don't know	6	2.3
Were you screened for hepatitis B infection before vaccination?		
Not applicable	152	58.5
Yes	96	36.9
No	12	4.6
How many doses of HBV vaccine did you receive?		
Not applicable	152	58.5
1 dose	6	2.3
2 doses	27	10.4
3 doses	75	28.8
When did you take the last dose		
Non applicable	152	58.5
1–3 years ago	65	25.0
4–6 years ago	26	10.0
7–9 years ago	10	3.8
> 10 years ago	7	2.7
Did you receive a booster dose after completing your dose?		
Not applicable	152	58.5
Yes	24	9.2
No	84	32.3
When did you receive the booster dose?		
Not applicable	236	90.8
Within 5 years after vaccination	23	8.8
Between 5 and 10 years after vaccination	1	.4
Did you pay for the vaccine?		
Not applicable	152	58.5
Yes	79	30.4
No	29	11.2
How much did you pay?		
Not applicable	181	69.6
<1000 per dose	15	5.8
1000–1500 per dose	34	13.1
1501–2000 per dose	21	8.1
2001–2500 per dose	7	2.7
2501–3000 per dose	1	.4
3001–3500 per dose	1	.4
Where did you receive the vaccine?		
Not applicable	152	58.5
PHC	57	21.9
My place of work	50	19.2
Others (signify)	1	.4
Are you willing to receive HBV vaccination?		
Not applicable	108	41.5
Yes	152	58.5

Table 3 (continued)

Variables	Frequency	Percent
If not yet vaccinated and willing to be vaccinated, are you willing to pay for the vaccine?		
Not applicable	108	41.5
Yes	34	13.1
No	115	44.2
I don't know	3	1.2
If yes, how much are you willing to pay?		
Not applicable	226	86.9
<1000 per dose	29	11.2
1000–1500 per dose	5	1.9
It is necessary for every health worker to get the HBV vaccine?		
Yes	236	90.8
No	18	6.9
I don't know	6	2.3
What are the possible banes to HBV vaccination?		
Cost	162	62.3
Availability	73	28.1
Potency	25	9.6
What recommendation(s) can you suggest to enhance better uptake of the HBV vaccine by health workers?		
The vaccine should be given free to health workers	209	80.4
The price should be subsidized	28	10.8

1 and 3 years of experience. About 10% of them had over 10 years of experience while less than 10% had between 7 and 9 years and another 18.1% had between 4 and 6 years of experience as health workers.

Over 89% of the respondents knew that there was an effective vaccine against hepatitis B infection while less than 6% did not believe that there was an effective vaccine against hepatitis B; this was lower than the 93.5% risk perception recorded by Hassan et al. [11].

Most respondents (86.2%) also agreed that screening should be done prior to the administration of the hepatitis vaccine. However, 39.6% of them suggested that an infected individual should also take the vaccine while 43% of them suggested otherwise. 66.2% also suggested that non-infected individuals should receive the vaccine while 15.4% suggested otherwise. 50.4% also suggested that the hepatitis vaccine is effective to treat patients with acute hepatitis B infection. This was contradicted by the fact that 95.4% of the vaccinated participants had their screening carried out before vaccination. This was higher compared to the study by Olusegun Adekanle et al. [13] where only 37% were screened for HBsAg before vaccination. The practice of vaccination without HBsAg and anti-HBs tests can give a false vaccine protection to infected people, thereby making them prone to chronic complications of the virus. The pre-vaccination serologic test was recommended by CDC for populations with a prevalence of HBV markers 20% or higher, but serologic testing is not recommended before

routine vaccination of infants, children, or adolescents [14]. 61.9% of the participants believed that every vaccinated individual received 100% protection and 45.8% of them believed that the protection is for a lifetime. However, 59. % suggested that there was a need for a booster dose after vaccination while 9.2% of the respondents actually received a booster dose majorly within 5 years after vaccination. However, according to CDC, booster doses of the hepatitis B vaccine are not recommended for persons with normal immune systems. But previously vaccinated healthcare personnel for whom pre-exposure evaluation fails to detect protective anti-HBs should receive a “challenge dose” of hepatitis B vaccine to assess protection, which will be indicated by a rise in anti-HBs, or “memory” response to the vaccine antigen. Also, a booster dose was recommended in the case of PEP where workers who have written documentation of a complete hepatitis B vaccine series but who did not receive post-vaccination testing should receive a single-vaccine booster dose in case of accidental exposure to an HBsAg-positive source [14].

Only 41.5% of the respondents had received the vaccine out of which just 28.8% completed the full dose of the vaccination. This was a bit higher than the number of health workers that received the vaccine (40.3%) as recorded by Hassan et al. [11]. However, 34.72 % of the health workers completed the 3 doses of their vaccine in the study by Hassan et al. [11] which was higher than the coverage in this study. Also, in a study by Olivier

Table 4 Association between respondents' socio-demographic characteristics and the knowledge of an effective vaccine against hepatitis B

Variables	Is there an effective vaccine against hepatitis B			χ^2	df	P value
	Yes	No	Don't know			
*Age (year)						
<20	37 (94.6)	1 (2.6)	1 (2.6)	29.817	10	*0.001
21–25	82 (93.2)	0 (0.0)	6 (6.8)			
26–30	33 (76.7)	7 (16.3)	3 (7.0)			
31–35	42 (93.3)	2 (4.4)	1 (2.2)			
36–40	18 (72.0)	5 (20.0)	2 (8.0)			
>40	20 (100.0)	0 (0.0)	0 (0.0)			
*Gender						
Male	69 (92.0)	4 (5.3)	2 (2.7)	1.273	2	0.529
Female	163 (88.1)	11 (5.9)	11 (5.9)			
*Educational status						
No formal education	3 (100.0)	0 (0.0)	0 (0.0)	24.193	6	*<0.001
Primary	2 (100.0)	0 (0.0)	0 (0.0)			
Secondary	18 (69.2)	7 (26.9)	1 (3.8)			
Tertiary	209 (91.3)	8 (3.5)	12 (5.2)			
*Cadre of respondents						
Doctor	23 (100.0)	0 (0.0)	0 (0.0)	45.938	16	*<0.001
Pharmacist	24 (85.7)	3 (10.7)	1 (3.6)			
Nurse/midwife	65 (90.3)	2 (2.8)	5 (6.9)			
Lab scientist/technician	63 (92.6)	5 (7.4)	0 (0.0)			
CHO	8 (100.0)	0 (0.0)	0 (0.0)			
CHEW	30 (93.8)	0 (0.0)	2 (6.2)			
Health attendant	8 (72.7)	2 (18.2)	1 (9.1)			
Health information manager	0 (0.0)	0 (0.0)	1 (100.0)			
Others	11 (64.7)	3 (17.6)	3 (17.6)			
*Years of working experience						
1–3 years	144 (89.4)	8 (5.0)	9 (5.6)	3.614	6	0.729
4–6 years	42 (89.4)	2 (4.3)	3 (6.4)			
7–9 years	22 (88.0)	2 (8.0)	1 (4.0)			
10 or more year	24 (88.9)	3 (11.1)	0 (0.0)			
*Health facility						
Teaching hospital	141 (88.1)	10 (6.2)	9 (5.6)	2.802	4	0.592
Private hospital	53 (88.3)	3 (5.0)	4 (6.7)			
PHC	38 (95.0)	2 (5.0)	0 (0.0)			

*Statistically significant $p < 0.05$

et al. [15], only 19 % had received at least one dose of the vaccine which was lower than the coverage in this study. A similar low coverage (24.5%) of vaccination (with 3 doses) was documented by Noubiap et al. [16]. The findings above about the vaccination status of respondents were lower than the one recorded by Fufore et al., where 58.0% had been vaccinated; however, only 29.0% completed the vaccine doses which was lower than the percentage in this study [17].

By Cadre, the Community Health Officers had the highest vaccination coverage (75%) while the doctors and nurses had a coverage of 60.9% and 44.4%, respectively. These were higher than the 40.3% and 39.1% coverage recorded by Fatusi et al. for doctors and nurses, respectively [18].

Over 61% of the vaccinated respondents received the vaccine at the primary health care facility while 19.2% received it at their places of work.

Table 5 Association between respondents' socio-demographic characteristics and uptake of hepatitis B vaccine

Variables	Have you been vaccinated against hepatitis B			χ^2	df	P value
	Yes	No	Don't know			
*Age (year)						
<20	18 (46.2)	21 (14.4)	0 (0.0)	28.360	10	*0.002
21–25	24 (27.3)	58 (65.9)	6 (6.8)			
26–30	15 (34.9)	28 (65.1)	0 (0.0)			
31–35	24 (53.3)	21 (46.7)	0 (0.0)			
36–40	13 (52.0)	12 (48.0)	0 (0.0)			
>40	14 (70.0)	6 (30.0)	0 (0.0)			
*Marital status				16.240	4	*0.003
Single	59 (34.1)	108 (62.4)	6 (3.5)			
Married	49 (57.6)	36 (42.4)	0 (0.0)			
Divorced	0 (0.0)	2 (100.0)	0 (0.0)			
*Gender				0.060	2	0.970
Male	31 (43.1)	42 (56.0)	2 (33.3)			
Female	77 (41.6)	104 (56.2)	4 (2.2)			
*Religion				0.752	2	0.687
Islam	11 (40.7)	16 (59.3)	0 (0.0)			
Christian	97 (41.6)	130 (55.8)	6 (2.6)			
*Ethnicity				13.414	6	0.037
Yoruba	88 (38.9)	133 (58.8)	5 (2.2)			
Apoi-Ijaw	8 (66.7)	4 (33.3)	0 (0.0)			
Hausa	3 (60.0)	1 (20.0)	1 (20.0)			
Ibo	9 (52.9)	8 (47.1)	0 (0.0)			
*Educational status				15.765	6	*0.015
No formal education	1 (33.3)	2 (66.7)	0 (0.0)			
Primary	0 (0.0)	2 (100.0)	0 (0.0)			
Secondary	2 (7.7)	23 (88.5)	1 (3.8)			
Tertiary	105 (45.9)	119 (52.0)	5 (2.2)			
*Cadre of respondents				37.371	16	*0.002
Doctor	14 (60.9)	7 (30.4)	2 (8.7)			
Pharmacist	7 (25.0)	20 (71.4)	1 (3.6)			
Nurse/midwife	32 (44.4)	39 (54.2)	1 (1.4)			
Lab scientist/technician	21 (30.9)	47 (69.1)	0 (0.0)			
CHO	6 (75.0)	2 (25.0)	0 (0.0)			
CHEW	20 (62.5)	10 (31.2)	2 (6.2)			
Health attendant	1 (9.1)	10 (90.0)	0 (0.0)			
Health information manager	0 (0.0)	1 (100.0)	0 (0.0)			
Others	7 (41.2)	10 (58.8)	0 (0.0)			
*Years of working experience				15.697	6	*0.015
1–3 years	53 (32.9)	104 (64.6)	4 (2.5)			
4–6 years	25 (53.2)	20 (42.6)	2 (4.3)			
7–9 years	13 (52.0)	12 (48.0)	0 (0.0)			
10 or more year	17 (63.0)	10 (37.0)	0 (0.0)			
*Health facility				9.076	4	0.059
Teaching hospital	64 (40.0)	90 (56.2)	6 (3.8)			
Private hospital	21 (35.0)	39 (65.0)	0 (0.0)			
PHC	23 (57.5)	17 (42.5)	0 (0.0)			

*Statistically significant $p < 0.05$

Table 6 Correlation analysis between variables

		Cadre	Hep B knowledge	Hep B risk	Knowledge of Hep B vaccine	Vaccination status	Health facility
Cadre	Pearson correlation	1	.198**	.157*	.209**	-.010	-.095
	P value		.001	.011	.001	.876	.126
Hep B knowledge	Pearson correlation	.198**	1	.079	.156*	.021	.061
	P value	.001		.204	.012	.737	.329
Hep B risk	Pearson correlation	.157*	.079	1	.085	.055	-.064
	P value	.011	.204		.172	.379	.302
Knowledge of Hep B vaccine	Pearson correlation	.209**	.156*	.085	1	.106	-.076
	P value	.001	.012	.172		.088	.224
Vaccination status	Pearson correlation	-.010	.021	.055	.106	1	-.117
	P value	.876	.737	.379	.088		.060
Health facility	Pearson correlation	-.095	.061	-.064	-.076	-.117	1
	P value	.126	.329	.302	.224	.060	

**Correlation is significant at the 0.01 level (2-tailed)

*Correlation is significant at the 0.05 level (2-tailed)

The entire 58.2 % not yet vaccinated were interested in getting the vaccine. This was in agreement with a study by Olivier et al. [15], where all the non-vaccinated respondents were also willing to get the vaccine. However, just 13.1 % of them were ready to pay for the vaccine while 98.1% of them were ready to pay less than ₦1000 per dose of the vaccine.

Most of the participants suggested that the greatest bane to HBV vaccination was cost (62.3 %), while 28.1 % believed that the vaccines were not readily available and 9.6 % believed that the potency of the vaccine cannot be trusted which may not confer the desired protection even after completing the dose.

From the analysis, there was a substantial correlation between the risk perception of hepatitis B by health workers and their uptake of the HBV vaccine. This agreed with the study by Adekanle et al., [13]. The uptake of the HBV vaccine was not determined by the health facility of the respondents. The respondents from the primary health care had the highest percentage of vaccine uptake of 57.5 %, while the respondents from the private hospital had a vaccine uptake of 35 % and respondents from the teaching hospital had 40 %. This was majorly due to the fact that vaccination is more integrated into the primary health care compared to the tertiary institution while the private health workers mostly do not get vaccinated mostly due to the cost and availability of the vaccine.

The majority of the respondents were aware that there is an effective vaccine against the hepatitis B virus. However, most of them did not have good knowledge about the vaccine. Only 43 % of the respondents knew that the vaccine should not be given

to people that tested positive for hepatitis B antigen. Also, just 28 % of the respondents knew that the vaccine cannot be used as post-exposure prophylaxis (PEP). Hence, their awareness about the existence of the vaccine did not positively impart their uptake of the vaccine. All the non-vaccinated respondents (N=152) were willing to get vaccinated but at a subsidized rate (N=34) or without any payment (N=115). However, seeing that the risk perception of the health workers about hepatitis B infection informed their decision to get vaccinated, more knowledge-based sensitization about the risk of not being vaccinated should be communicated to the health workers as recommended by Hassan et al. [11].

The cadres of the health workers also contributed to the uptake of the hepatitis B virus vaccine. The CHOs, doctors, and CHEWs were the most vaccinated followed by the nurses while the health attendants were the least vaccinated.

There was a statistically significant relationship between the years of experience of the respondents, marital status, and the uptake of vaccines. Workers with the least years of experience had the lowest uptake of the vaccine, and most of the married respondents were vaccinated compared to their single respondents.

Conclusion

The study revealed that the majority of the health workers were aware about the existence of the hepatitis B vaccine but did not have good knowledge about the HBV vaccine. Hence, they still recorded poor vaccine uptake majorly due to the cost of the vaccine and the little knowledge they have about the vaccine.

Recommendations

The hospital workers of these institutions have low vaccination coverage despite a high awareness of the HBV vaccine. Therefore, a policy of mandatory HBsAg screening and vaccination may need to be put in place to protect both staff and patients of the institution. HBV vaccination should be made compulsory for all new and existing employees as part of occupational protection measures. The hepatitis B screening can be done alongside the fitness report for newly employed staff.

Regardless of the cadre or duration of service, a knowledge-based sensitization about hepatitis B vaccine should be organized for the health workers and the vaccine should be made available at a subsidized rate to them.

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Authors' contributions

OIO. Conceptualization, Methodology, Supervision, Writing – original draft. OPO. Resources, Writing – review & editing. OMT. Formal analysis, Visualization. OES. Project administration, Writing – review & editing. OA. Investigation, Software. HMR. Data curation. The author(s) read and approved the final manuscript.

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Availability of data and materials

All the data and material used in this research is available upon request from the corresponding Author

Declarations

Ethics approval and consent to participate

An ethical approval was obtained from the University of Medical Sciences with clearance number: NHREC/TR/UNIMED-HRECOndost/22/06/21

An informed consent was also signed by each participant before administering the questionnaire.

Consent for publication

Obtained along the informed consent form from all the participants.

Competing interests

The authors declare that they have no competing interests

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