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Research Article

An Assessment of the Practice of Hepatitis B Infection and Vaccination among Undergraduate Students of the University of Abuja

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Abstract: Introduction: Vaccination remains the most cost effective and definitive prevention for Hepatitis B virus (HBV) infection; however a large proportion of our population in this setting are not vaccinated. The objective of this study therefore is to assess the knowledge, attitude and practice of hepatitis B virus infection and vaccination among undergraduate students of the University of Abuja, Nigeria. **Method:** A descriptive cross-sectional study of 224 students selected by cluster sampling technique was conducted. A pre-tested self-administered questionnaire developed by the authors was used to collect the relevant data after a written informed consent was obtained from each respondent. Data was analysed using the statistical package of social sciences (SPSS) software and Chi square statistical test was used to determine associations between variables at a significance level of p-value < 0.05. **Results:** Only 106 (47.3%) of the students had good knowledge of hepatitis B virus infection and vaccination while 140 (62.5%) had positive attitude but these findings were not statistically significant, p > 0.05. Also, the practice of hepatitis B vaccination was very poor with only 10.3% of students fully vaccinated (p <0.05) and a major barrier was lack of information 56 (25%). At least 7 (6.4%) out of 110 (100%) male students engage in risky sexual behaviour with other men. Overall, the major risk factors for hepatitis B infection were multiple risk factors including harmful heterosexual practices 53 (23.7%) followed by intravenous drug abuse 44 (19.6%) and sharing of sharp needles 42 (18.8%) (p < 0.05). **Conclusion:** The knowledge of hepatitis B infection and vaccination as well as the practice of vaccination were found to be poor. However, there was a positive attitude towards hepatitis B vaccination. There is therefore an urgent need to improve the knowledge of hepatitis B infection and vaccination as well as risky sexual behaviors among students in this setting including the provision of hepatis B vaccination services.

Keywords: Knowledge, Attitude, Practice, Hepatitis B infection, Vaccination, Undergraduate Students.

1.0 Introduction

Hepatitis B virus (HBV) infection is one of the major public health problems in the world.[1] The global prevalence of hepatitis B varies greatly and countries can be defined as having a high, intermediate, or low prevalence of HBV infection based on the prevalence of HBsAg carriers of greater than or equal to 8%, 2%-7%, or less than 2% respectively.[2] In developed countries, prevalence is higher among those who have immigrated from high or intermediate prevalence countries and in those with high risk behaviour.[2] According to the 2017 WHO factsheet on hepatitis B viral infection, an estimated 257 million people are living with HBV infection worldwide, with 887,000 deaths occurring from long term complications of HBV infection (liver cirrhosis and hepatocellular carcinoma).[3] Hepatitis B burdens vary widely across WHO regions, with the WHO Western Pacific Region and the African Region sharing the highest burden of 115 million people and

60 million people respectively, corresponding to 6.2% and 6.1% of their respective populations.[3] Overall, Africa is considered to have high endemicity.[4] HBV infection is hyperendemic (greater than 8% of HBsAg chronic carriers in the general population) only in some sub-Saharan countries such as Nigeria, Namibia, Gabon, Cameroon, and Burkina Faso.[4] Other countries like Kenya, Zambia, Ivory Coast, Liberia, Sierra Leone and Senegal are considered areas of intermediate endemicity, while Egypt, Tunisia, Algeria and Morocco show low endemicity.[4]

Vaccination is an indispensable strategy in the primary prevention of this viral disease. It is the most cost-effective method of prevention of serious viral infections. Methods of administering vaccine varies according to the type of vaccine (killed virus vaccine or attenuated live virus vaccine), with inoculation being the most common, while injection is preferred in some instances; and nasal spray is occasionally used. The hepatitis B vaccine is administered by intramuscular injection on the upper arm.

The objective of this research is to study the practice of hepatitis B vaccination among undergraduate students of the University of Abuja. To determine the knowledge of the study population on Hepatitis B virus infection and vaccination and to identify the risk factors for hepatitis B virus infection. Furthermore, to assess their attitude to hepatitis B infection and vaccination as well as their practice of hepatitis B vaccination.

2.0 Methodology

2.1 Study Area

This study was carried out at the University of Abuja, located in Gwagwalada Area Council of the Federal Capital Territory (FCT) of Nigeria, Abuja. The university was established in 1988 and started in the present mini campus. The University of Abuja maintains two campuses; mini campus and main campus. The mini campus of the university is located in Gwagwalada metropolis; while the main campus is at Giri also in Gwagwalada area council of the FCT.

The University of Abuja runs academic programmes at both undergraduate and post graduate levels covering about 10 faculties including health sciences, veterinary medicine, agriculture, arts and humanities; management sciences, social sciences, pure sciences and environmental management.[5] Gwagwalada area council is one of the six area councils of the FCT. Its official population figure as at the 2006 census was 158,616 people. However, given the national population growth rate and the massive influx of people daily into the FCT, its population is projected to be over 1,000,000 people currently. It has an area of 1069.589 km^2, density of 385.4/km^2 and its geographical coordinates are 8º 56´ 29´´ North and 7º 5´ 31´´ East.[6]

It is home to a number of institutions and government establishments including the University of Abuja, University of Abuja Teaching Hospital, Radio Nigeria, Nigerian Custom's College, among others. Gwagwalada town plays host to people of all works of life: students, civil servants, professionals, entrepreneurs, artisans, among others; while the indigenous Gbagyi people of Gwagwalada who are predominantly farmers reside in the rural areas. Gwagwalada town is also a microcosm of modern Nigeria as it plays host to people from the different geopolitical zones of the country.

2.2 Study Population

The study population was the undergraduate students of the University of Abuja. A sample of the population who gave informed written consent was studied.

2.3 Study Design

A cross-sectional, questionnaire-based assessment of knowledge, attitude, and practice of Hepatitis B infection and vaccination among the study population was conducted.

2.4 Sample size estimation

The sample size was calculated using the Leslie-Kish formula:[7]

$N = Z_{\alpha}^2 pq/d^2$, where N is the desired sample size.

2.5 Sampling Technique

Cluster sampling technique was used. In the first stage, clusters consisting of all the faculties in the University of Abuja were identified. In the second stage, a simple random sampling technique was used to select the various clusters and all consenting members of selected clusters were studied until the sample size was reached and all selected clusters studied.

2.6 Data Collection

A pre-tested, semi-structured self-administered questionnaire was used to collect the data.

The questionnaire had 5 sections:

- ✓ Section A contained respondent's biodata;
- ✓ Section B assessed knowledge of Hepatitis B infection and vaccination;
- ✓ Section C assessed the risk factors for hepatitis B infection;
- ✓ Section D assessed the attitude of the study population to HBV infection and vaccination;
- ✓ Section E assessed the students' practice of HBV vaccination.

2.7 Data Analysis

Data collected was entered was analysed using the Statistical Package for Social Sciences (SPSS) version 23. Categorical variables were described using frequencies and percentages while continuous variables were expressed as mean and standard deviation. Cross tabulation and Pearson's Chi-square were used to determine association between socio-demographic factors and other dependent variables. A *p* value <0.05 was considered statistically significant.

3.0 Results

3.1 Socio-demographic characteristics

The study was conducted among 224 participants and all students responded to the self-administered questionnaires. Table 1 below shows the socio-demographic characteristics of the students. Majority of the students were between ages 21 and 25 years. The major ethnic group were Igbos, accounting for 43.8% (98), followed by the Yorubas who were 17.4% (39) and the Hausas who were 9.4% (21) of our study population.

Table 1. Socio-demographic characteristics

Variables	**N = 224 (%)**
Age At Last Birthday (Years)	
16-20	92 (41.1)
>20-25	96 (42.9)
>25-30	31 (13.9)
>30-35	1 (0.4)
>35-40	4 (1.7)
Gender	
Male	110 (49.1)
Female	114 (50.9)
Marital Status	
Married	15 (6.7)
Single	205 (91.5)
Divorced	1 (0.4)
Co-habiting	3 (1.3)
Religion	

Christianity	191 (85.3)
Islam	29 (12.9)
African traditional religion	2 (0.9)
Others	2 (0.9)
Faculty	
Agricultural Sciences	17 (7.6)
Arts	21 (9.4)
Education	30 (13.4)
Engineering	23 (10.3)
Law	17 (7.6)
Management Sciences	24 (10.7)
Medicine	20 (8.9)
Sciences	27 (12.1)
Social Sciences	25 (11.2)
Veterinary Medicine	20 (8.9)
Year of Study	
1	21 (9.4)
2	62 (27.7)
3	95 (42.8)
4	32 (14.3)
5	9 (4.0)
6	5 (2.2)

3.2 Knowledge of hepatitis B virus (HBV) infection and vaccination

As shown in table 2 below, about 106 (47.3%) of the respondents had good knowledge of HBV and its vaccination while 118 (52.7%) had poor knowledge of HBV and its vaccination ($p > 0.05$). However, majority of the participants (79.4%) were aware of hepatitis B infection and vaccination ($p < 0.05$). The major sources of information were the health personnel (33.5%), followed by mass media such as televisions, radios, newspapers (19.6%); health talks (18.8%); social media (4.5%) and from other sources such as friends, relatives and books (1.3%).

Table 2. Knowledge of hepatitis B virus infection and vaccination

Variable	Good n(%)	Poor n(%)	χ^2	p-value
Knowledge	106 (47.3)	118 (52.7)	0.43	0.622

3.3 Attitude towards hepatitis B virus infection and vaccination

Approximately 140 (62.5%) of the respondents had positive attitude while 94 (37.5%) had negative attitude towards HBV infection and vaccination, however, there is no statistically significant difference ($p > 0.05$), as shown in table 3 below.

Table 3. Attitude to HBV infection and vaccination

Variable	Positive n(%)	Negative n(%)	χ^2	p-value
Attitude	140 (62.5%)	94 (37.5%)	0.622	0.47

3.4 Practice of hepatitis B virus (HBV) infection vaccination

HBV vaccination is administered once every month for 3 months. This research made use of the practice of vaccination in line with existing HBV vaccination schedule. Those who had received at least one dose and were awaiting subsequent doses were judged to have good practice. Only 23 (10.3%) were fully vaccinated ($p < 0.05$) as displayed in table 4 below.

Table 4. Number of doses of hepatitis B Virus vaccine received according to schedule

Number of doses received	n (%)
0	163 (72.8)
1	26 (11.6)
2	12 (5.4)
3	23 (10.3)

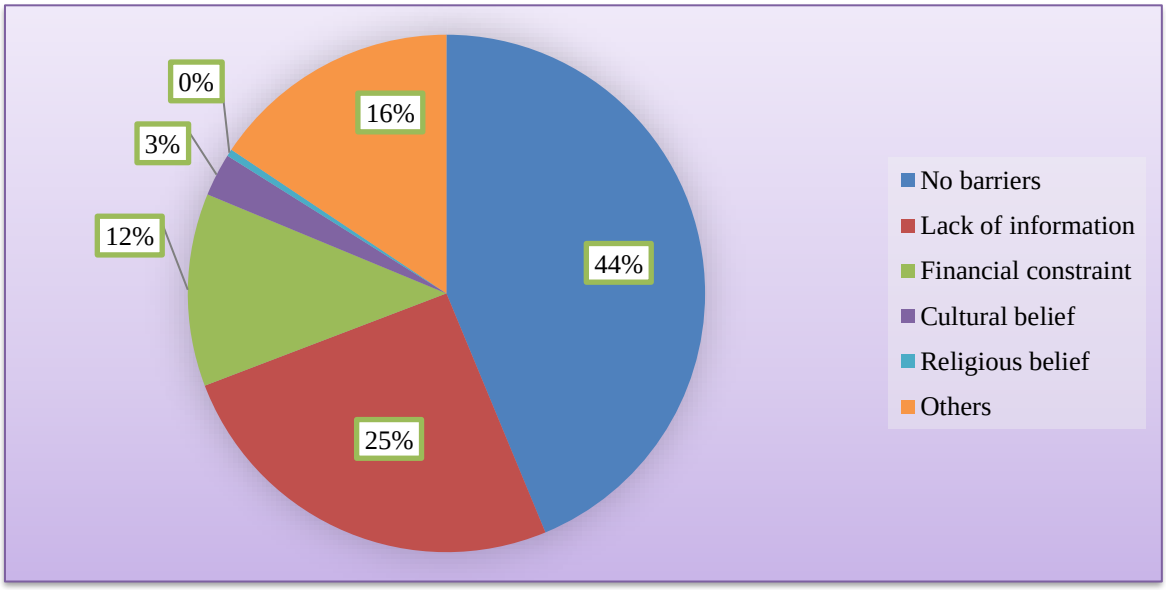

Figure 1. Barriers to hepatitis B vaccination among students of the University of Abuja, Nigeria

Figure 1 above revealed that 44% had no known barriers to hepatitis B vaccination while 25 % reported lack of information about the vaccine and 12 % reported financial constraint as barriers to vaccination.

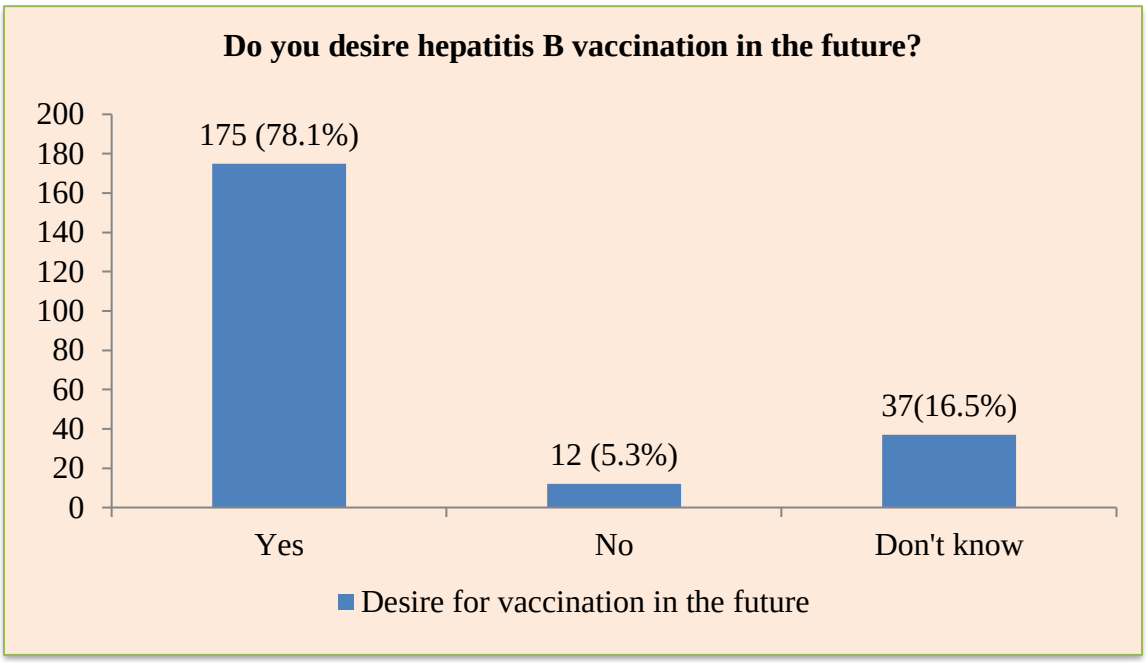

Figure 2. Respondents' desire for future vaccination

Figure 2 above showed that most respondents 175 (78.1%) desire to take the hepatitis B vaccine in the future ($p < 0.05$).

3.5 Risk factors for hepatitis B virus (HBV) infection

Figure 3 below that at least 7 (6.4%) out of 110 (100%) male students engage sexual activities with other men ($p < 0.05$).

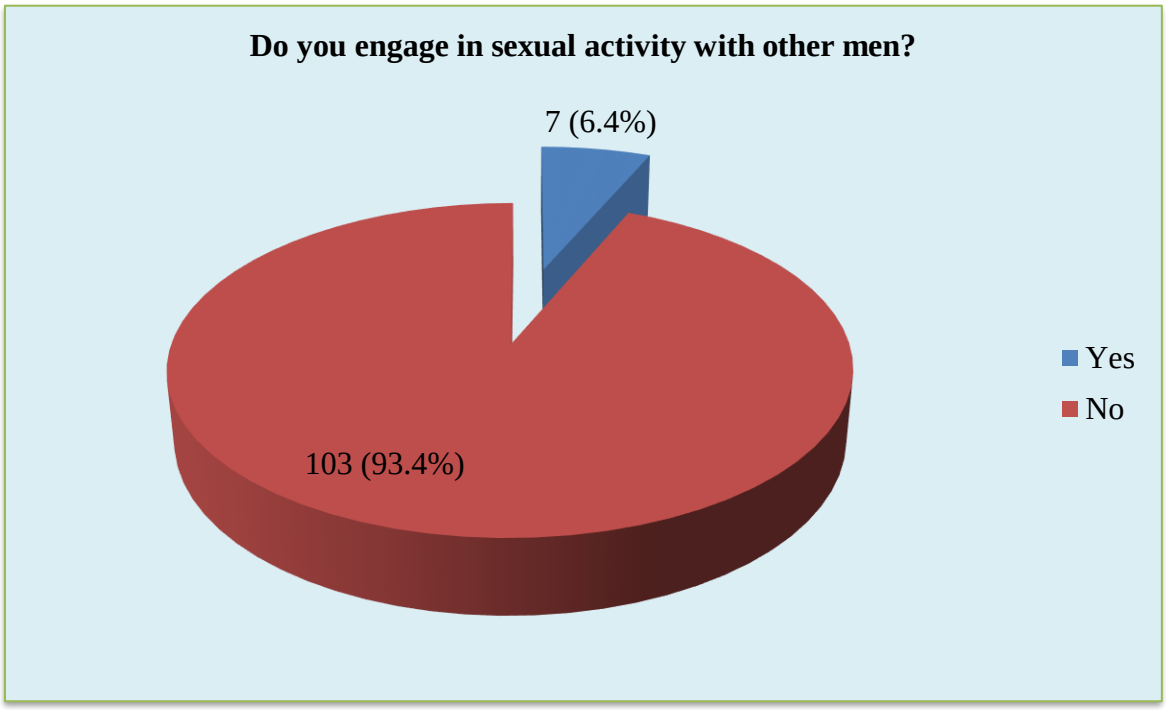

Figure 3. Proportion of male students who have sex with men

The figure below shows that major risk factors for HBV infection were multiple risk factors including harmful sexual practices 53 (23.7%) followed by intravenous drug abuse 44 (19.6%) and sharing of sharps 42 (18.8%) ($p < 0.05$).

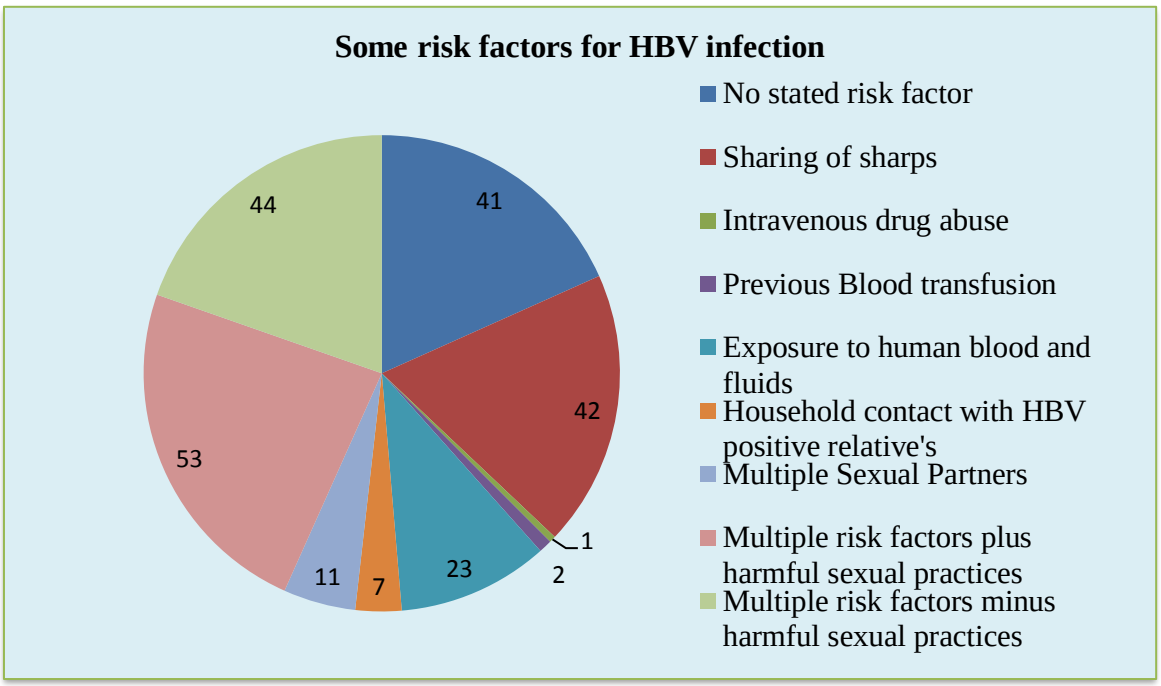

Figure 4. Risk factors for hepatitis B vaccination

4.0 Discussion

4.1 Knowledge of hepatitis B virus (HBV) infection and its vaccination

This study revealed poor knowledge of hepatitis B infection and vaccination in contrast to findings from studies among medical students by Othman et al.[7] However studies by Ochu and Beynon in Kaduna and Hassan et al. in Sokoto both in Northern Nigeria also revealed poor knowledge of hepatitis B.[8,9]

4.2 Attitude towards HBV infection and its vaccination

The results of our research showed that majority of the students (62.5%) had positive attitude towards hepatitis B virus infection and vaccination. This finding is similar to that of a study by Hassan et al. and Elbur et al.[9,10] Positive attitude, could serve as an effective approach to improving knowledge and practice of vaccination and reduce the burden of the disease.

4.3 Practice of HBV vaccination

Despite the majority of students having positive attitude, the practice of HBV vaccination remained very poor, as only 23 (10.3%) of students were fully vaccinated. The most frequent reason given for not receiving vaccination was lack of information, financial constraint, cultural belief and religious belief. Our finding is similar to results of a study by Abdela et al. in Ethiopia where only 2% of respondents received the recommended three (3) doses of hepatitis B virus vaccine.[1]

4.4 Risk Factors for HBV infection

The most remarkable risk factors were those of students having multiple factors ranging from sharing of sharps to several harmful sexual practices such as multiple sexual partners and homosexual activities among some male students and sharing of sharps. Lama et al. reported similar findings among men who had sex with men.[11]

5.0 Conclusion

The knowledge of hepatitis B infection and vaccination as well as the practice of vaccination among the undergraduate students of the University of Abuja was found to be poor. However, there was a positive attitude towards hepatitis B vaccination. Despite the poor practice of vaccination, majority of the students expressed the desire to receive vaccination in the future.

6.0 Recommendations

There is a pressing need to improve knowledge of hepatitis B and risky sexual behaviors among students in this setting as well as the provision of hepatitis B vaccination services. There should be increased advocacy to policy makers in the ministries of health and education to get undergraduate students vaccinated at a subsidized financial cost. This will reduce the burden of the disease.

Conflicts of Interest: The authors declare no conflict of interest.

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