



## **Prevalence of Hepatitis B among Food Vendors in Wurukum Market, Makurdi Benue State**

**V. U. Obisike<sup>1\*</sup>, C. M. Uke<sup>2</sup> and E. U. Amuta<sup>1</sup>**

<sup>1</sup>*Department of Zoology, University of Agriculture, Makurdi, Nigeria.*

<sup>2</sup>*Department of Biological Sciences, Benue State University, Makurdi, Nigeria.*

### **Authors' contributions**

*This work was carried out in collaboration between all authors. Author EUA designed the study while Authors VUO and CMU performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors VUO, CMU and EUA managed the analyses of the study. Authors CMU and VUO managed the literature searches. All authors read and approved the final manuscript.*

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### **ABSTRACT**

Hepatitis B is a life threatening infectious liver disease caused by hepatitis B virus (HBV). The aim of this study was to determine the prevalence of HBV among food vendors in Wurukum, a highly commercial section of metropolitan Makurdi in Benue State. The test was carried out with the use of an immunochromatographic micropoint HBsAg test strips and a HBsAg buffer screen for the virus. Out of the 250 non-vaccinated food vendors sampled, 27(10.8%) had HBV infection, with more in males (21.7%) than in females (6.6%). No significant difference ( $p>0.05$ ) was found among age groups in spite of the observed highest prevalence of 14.3% among the 20-29 year olds. Therefore, the need for routine screening cannot be overemphasized in spite of known risk factors among food vendors.

*Keywords: HBV; food vendors.*

\*Corresponding author: Email: [talk2vu@gmail.com](mailto:talk2vu@gmail.com);

## 1. INTRODUCTION

Hepatitis is a medical condition defined by the inflammation of the liver, presence of inflammatory cells in the tissue of the organ is a major characteristic. The inflammation of the liver is referred to as hepatitis [1]. Hepatitis B is a potentially life threatening liver disease caused by the hepatitis B virus (HBV) which affects the liver. It is a blood born and sexually transmitted virus [2]. It can cause both acute and chronic infections. There are seven viruses that can cause hepatitis, they are hepatitis A, B, C, D, E, F, and G viruses or HAV, HAV, etc. [3]. Non-viral forms of hepatitis are auto-immune, alcoholic, non-alcoholic fatty liver disease (NAFLD), drug induced, and toxic and metabolic disorder associated hepatitis [4]. It was reported that 3 out of 10 food vendors in the Volta Region of Ghana have hepatitis B virus (Pulse.com).The environmental conditions such as poor toilet facilities, lack of good source of water are some of the risk factors predisposing people to the viral infection. The World Health Organization estimates that over 2 billion people have been exposed to hepatitis B virus and approximately 257million people are living with hepatitis B virus infection [5]. Also 887000 people died as a result of hepatitis B infection in 2015 [5].

## 2. MATERIALS AND METHOD

### 2.1 Study Area

The study was carried out in Wurukum market located in Makurdi opposite Benue Links Motor Park, Makurdi, and Benue State.

### 2.2 Experimental Design

The design of this research was market based, with all the food vendors in Wurukum market Makurdi being eligible. Participation was voluntary and each subject (participant) involved was briefed and gave consent. Two hundred and fifty (250) subjects aged 10 years and above were involved in the study, and each participant filled a questionnaire. The questionnaire

variables include Age, Sex, marital status, occupation, and Educational qualification and as well as risk factors, behaviors that can predispose individuals to HBV infection.

### 2.3 Sample Collection

The sample collection was by direct finger prick. The participant's thumb was cleaned with a cotton swab to sterilize the surface of the thumb. The participants thumb was punctured or pricked using a sterile lancet. After which the thumb finger was squeezed to obtain a large volume of blood which was directly dropped on the test strip (micro point) and two three drops of buffer added to it immediately and the result read in 3-5 minutes. The presence of a coloured line in the control (C) region indicated a negative result. However, the presence of coloured lines in both the test region (T) and control region (C) indicated a positive result as specified on the manufacturer's label [6]

## 3. RESULTS

The total prevalence of HBV in the study was 10.8 as shown in Table 1. Table 2 shows age distribution of HBV among food vendors in Wurukum Market. Age group 20-29 had the highest prevalence of 14.3% followed by age group 30-39 with prevalence of 11.8% while age group 10-19 had 10.8% prevalence and age group 40-49 had the least prevalence of 5.9%, while age group 50 and above had no infection. Individuals with no formal education had the highest prevalence of HBV infection than those with one form of formal education or the other (Fig. 1). Prevalence HBV infection was higher amongst the singles than married and widows in the study area (Fig. 2).

## 4. DISCUSSION

This study recorded an overall prevalence of 10.8% which was lower than earlier reports from different parts of the country (38.0% in Maiduguri northern Nigeria [7]; 54.8 % and 20.0% in a study in Otukpo Benue state [8]. However, higher than

**Table 1. Sex distribution of HBV amongst food vendors in Wukrukum market**

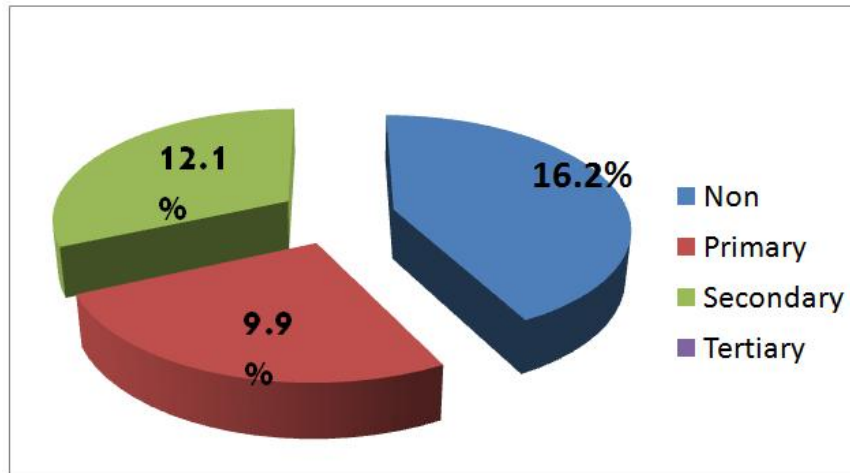
Sex	Number examined	HBV+ve	%
Male	69	15	21.7
Female	181	12	6.6
Total	250	27	10.8

$$\chi^2 = 11.84, df=1, P<0.05.$$

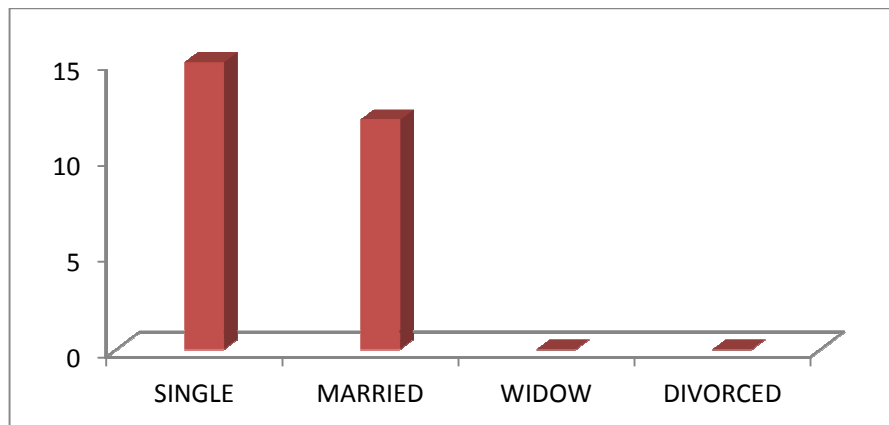
**Table 2. Age distribution of HBV amongst food vendors in Wukrukum market**

Age	Number examined	HBV+ve	%
10-19	37	4	10.8
20-29	97	14	14.3
30-39	59	7	11.8
40-49	34	2	5.9
50 and above	23	0	0
Total	250	27	10.8

$\chi^2 = 0.027, df=4, P>0.05$



**Fig. 1. Percentage distribution of HBV positive according to educational status**



**Fig. 2. Distribution of HBV positive according to marital status**  
*Marital Status*

7.2% reported Ibadan, Nigeria [9] and 6.67% reported in keffi [10] and 10% reported in Ghana (Pulse.com) the result differs with the previous work [2] which reported high prevalence of HBV amongst children and adult. The study reviewed a higher prevalence (21.7) in male than in female, this agrees with the work [11] which reported higher prevalence in male than in

female and also in line with previous report by Mehmet [12]. The result also agrees with a study in Eastern Nigeria [13] which reported that the prevalence in male and female did not differ statistically. Age group 20-29 had a higher prevalence of 14.3% than the other age groups; this result is in agreement with previous study carried out in Benue State [11] which reported

that the young adult had higher prevalence than other age group. The high prevalence reported in this age group pose a great risk to the people as this age group (20-29) constitutes the main work force. People with formal education had low prevalence as compared with those with non-formal education; this corroborates [14] on higher prevalence among people with non-formal education in Benue Nigeria. The single ladies had higher prevalence of 11.5% followed by married women (10.3) married which contradicts earlier report of higher prevalence among divorced women [14]. The p 10.8% prevalence reported in this study may pose a great risk to the entire population as this may lead to a multiplier effect on the masse if no measure is put in place to check the spread.

The infected food vendors may pose public health risk for spreading HBV to others if proper sanitary and hygienic methods are not practiced by them.

Most of the respondents in this study had poor knowledge of the modes of transmission of HBV.

## 5. CONCLUSION

Hepatitis B appears prevalent across Nigeria with varying prevalence. Age and sex do not appear to significantly affect infection in this report. Therefore this study showed that everybody is at risk of hepatitis B infection, irrespective of the age and gender.

Food vendors should not work while ill with fever, nausea, vomiting, stomach cramps or diarrhea.

Good sanitation and personal hygiene are among the keys to the preventing spread of HBV.

Food vendors should avoid having bare hand contact with ready-to-eat food. Where gloves are used, hands must be washed before putting on the glove.

The research was restricted to Wurukum Market area of Makurdi, because of the overcrowding nature of the area, which leads to body contact between different people, and as such, HBV can contracted through body fluids such as sweat.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

## REFERENCES

1. Kathleen PT. Foundations in microbiology. (5<sup>th</sup> Edition). Mc Graw-Hill Publishers New York USA. 2004;83.
2. Wasley A, Deanna KM, Wendi K, Edgarp S, Lyn F, Geraldine MQ, Beth B. The prevalence of Hepatitis B virus infection in United States in the era of vaccination. *The Journal of Infectious Diseases*. 2010;202(2):192-201.
3. Stefna EHF. What is Hepatitis; 2007.
4. Dienstag JL, Hauser SL, Jameson J, Kasper DL, Loscalzo J, Fauci AS. Acute Viral Hepatitis. *Journal of Principle of Internal Medicine*. 2012;7:9.
5. World Health Organization; 2018. Available:<http://www.who.int/news-room/fact-sheets/detail/hepatitis> Accessed December 8, 2018
6. Henso Medical (Hangzhou). Available:<https://www.hensomed.com/products/hbsag-test-strip>
7. Baba MM, Ajayi BB, Ekanem LA. Prevalence of Hepatitis B surface antigen among patients suspected of liver disease in Nigerian hospital. *Niger Postgraduate Medical Journal*. 2000;9(1): 7-10.
8. Aloa O, Okwuri E, Egwue C, Audu F. Seroprevalence of hepatitis B surface antigen among prospective blood donors in urban area of Benue State. *The Internet Journal of Hematology*. 2008;5(2):1-4.
9. Ola SO, Otegbayo JA, Odaibo GN, Olaleye DO, Olubuyide IO, Summerton CB, Bamgboye EA. Occult HBV infection among a cohort of Nigeria adults. *Journal of Infectious in Developing Countries*. 2009;3(6):442-446.
10. Pennap GR, Osanga ET, Ubam A. Seroprevalence of hepatitis B surface antigen among pregnant women attending antenatal clinic in federal medical center Keffi, Nigeria. *Research Journal of Medical Sciences*. 2011;5(2):80-82.
11. Terwase JM, Emeka CK. Prevalence of hepatitis B antigen among residents of Julius Berger staff quarters, Kubwa, Abuja. *International Journal of Prevention and Treatment*. 2015;4(2):29-33.
12. Mehmet D, Meliksah E, Serif Y, Gunay S, Tuncer O, Zeynep S. Prevalence of hepatitis B infection in South Eastern Region of Turkey: Comparism of risk factors for HBV infection in rural and urban areas. *Journal of Infectious Disease*. 2005;58:15-19.

13. Ugwuja B, Ugwu N. Seroprevalence of hepatitis B surface antigens and liver function test among Adolescentin Abakaliki, South Eastern Nigeria. The Internet Journal of Tropical Medicine. 2010;6:2.
14. Mbaawuaga EM, Enebuka MNO, Okopi JA, Damen JG. Hepatitis B Virus (HBV) infection among pregnanat women in Makurdi Nigeria. African Journal of Biomedical Research. 2008;155-159.

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