

# Prevalence of Hepatitis B Surface Antigenaemia and Risk Behaviour Among Youths in Kwanpe Community of Lantang North, Plateau State, Nigeria

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## Abstract

Hepatitis B infection is an important public health problem especially in developing countries where the prevalence is on the increase. Understanding the epidemiology of the diseases is important in its prevention and eradication. Adopting a descriptive designed, 320 people participated voluntarily. Data was collected through history taking and laboratory examination. Findings revealed that 116/1000 were infected with hepatitis B virus and prevalence of vaccination against hepatitis B in this population was low. We concluded that the prevalence of hepatitis B among youths in Kwanpe community of Lantang north is high. Therefore, an urgent enlightenment campaign about the risk factors associated with hepatitis B infection should be launched by Plateau State government.

## Keywords

Hepatitis B Infection, Prevalence, Kwanpe Community, Lantang North, Plateau State

## 1. Introduction

Hepatitis B surface Antigen has been the subject of research ever since Blumberg and his associates discovered the antigen [Polesky, 1998; Emechebe Emodi, Ikefuna, Ilechukwu, Igwe, and Ejiofor, 2009]. Hepatitis B Virus [HBV] has been recognized as one of the public health challenges worldwide with approximately two billion people infected [WHO, 2011]. More than 2 million deaths occur annually due to HBV infection and over 380 million persons being chronic carriers of the virus globally, [Teo and Lok, 2009]. The prevalence of HBV varies between 2% in developed countries where the prevalence is low to about 8% in developing countries where infection is endemic with sex, age and socio-economic status as important risk factors for infection [Odusanya Alufohai, Menrice, Wells, Weil and Ahokhai 2005; Akikor and Erhabor, 2007; Tswaba,

Chetsanga, Nystrom, Moyo, Nzara and Chieza, [1996].

Hepatitis B Virus is transmitted parenterally and most common by transfusion of HBV infected blood or blood products, IV drugs abuse, from mother to child, needle stick injury, ear piercing, tattooing and other tribal ceremonies [scarification] barber's razors etc. [Agbede, Iseniyi, Kolawole, and Ojuawo 2007]. Infection may also spread by fomites, sharing of toothbrush abrasions and sexual contacts; [hetero - or homosexual] with infected persons. Preventive measures for the elimination of HBV transmission include: Immunization of infants/Children against HBV, starting from birth, Prevention of peri-natal HBV infection through routine screening of all pregnant women for HBV infection and by providing immune-prophylaxis for infants born to infected women or to women of unknown infection status. Immunization of adults at increased risk for infection including, health care workers, dialysis patients, household contacts and sex partners of persons with recent history of

multiple sex partners a venereal disease or and parenteral drug users [CDC, 2005]. In Nigeria and other developing countries, these strategies are limited. This study therefore aims to determine the prevalence of hepatitis B Antigenaemia [HBsAg] among youths in Kwanpe community of North Central Nigeria.

Approximately, 65 million of all chronically infected individuals live in Africa [Kramvis and Kew 2007]. In Nigeria, about 18 million people are chronically infected with HBV; [Sirisena, Njoku, Idoko, Isamade, Barau, and Jelve, 2002]. A recent study shows that HBV prevalence was 67% among hepatocellular carcinoma patients in Northeastern Nigeria. In Southwestern Nigeria, a prevalence of 2.5% was reported (Okonko, Okerentugba, Adeniji and Anugweje, 2012).

#### Hypothesis

- There is no significant difference in the prevalence of hepatitis B among male and female
- There is no significant relationship between use/sharing of sharp objects and the prevalence of hepatitis B
- Vaccination against hepatitis B confers significant protection against hepatitis B infection.

## 2. Method

The study was a clinic-based preliminary, descriptive survey. Three Hundred and Twenty youths voluntarily

participated from Kwanpe community during a free medical outreach at Global Compassionate Clinic and Maternity, (GCCM) in November, 2014. GCCM is a private medical centre established in 2012 with a bipartite mandate of service delivery and research. The clinic provides 24 hours of high quality medical, laboratory, maternity and nursing services.

Permission was obtained from the management of GCCM prior to the study and verbal consents for participation were also obtained from each respondent after the pre-test counselling.

All the participants were subjected to thorough history taking with special emphasis on previous history of exposure to risk factors/possible causes of HBV infection such as: blood transfusion, unprotected sex, parenteral therapies, sharing of sharp objects, unawareness and lack of immunization. Detail clinical examination was performed and size of liver and spleen were recorded. Blood samples were collected for Hepatitis B surface antigenaemia using determines test kits and Enzyme Linked Immunosobent Assay, (ELISA) technique respectively.

Data was analyzed using simple frequency counts and presented in frequency tables and bar-charts for illustration. Data was cross tabulated and Chi-square analysis generated p values for hypotheses testing.

## 3. Results

**Table 1.** Background information.

Variables	Frequency (N=320)	Percent
Gender		
Female	158	49.4
Male	162	50.6
Donation of blood		
I never donated blood previously	314	98.1
Have donated blood previously	6	1.9
Receive blood		
Have never been transfused	310	96.9
Have been transfused before	10	3.1
Sexual behavior		
Practice of protected sex	96	30
Practice of unprotected sex	224	70
Sharp objects		
Never share sharp objects	140	43.8
Shared sharp objects	180	56.3
Vaccination		
Have never been Vaccinated against Hepatitis B Virus	257	80.3
Have been vaccinated against Hepatitis B Virus	63	19.7

Table 1 shows that 49.4% (158) of the youths that participated were female while 50.6% (162) were male. The mean age of participants was 29.26 (SD 6.389). About donating and receiving blood, 98.1% (314) reported that they have never donated blood in their life, 96.9% (310) reported that they have never been transfused.

Unprotected sex was practiced by 70% (224) and 56.3% (180) reported that they share sharp objects. Vaccination against hepatitis B virus was received by 19.7% (63) of the respondents while 80.3% (257) reported that they were never vaccinated against hepatitis B virus.

**Table 2.** A cross tabulation of sharp objects Sharing/use by gender.

gender	Sharing of sharp objects		Total
	Never shared sharp objects with someone	Shared sharp objects with someone	
Female	71 (45%)	87 (55%)	158
Male	69 (43%)	93 (57%)	162
Total	140	180	320

$\chi^2 = 0.179$ ;  $df = 1$ ;  $p = 0.673$ .

Table 2 revealed the relationship between gender and

sharing of sharp objects. Fifty-five percent of female participants (87) and 57% (93) of male shared sharp objects with other people. Sharing of sharp objects was more common among male but the test statistics suggested that the difference in the practice of sharing sharp objects was not statistically significant ( $P>0.05$ ).

**Table 3.** A cross tabulation of sexual behaviour by gender.

Sexual behaviour			
gender	Practiced protected sex	Practice un-protected sex	Total
Female	57 (36%)	101 (64%)	158
Male	39 (24%)	123 (76%)	162
Total	96	224	320

Chisquared- 5.487; df=1; 0.19

Table 3 shows that 65% (101) of female and 76% (123) of male practiced unprotected sex. More male than female practice unprotected sex in the study population. The difference in this practice was not statistically significant ( $P>0.05$ ).

**Table 4.** Result of Hepatitis B Surface antigen test.

Hepatitis B Surface Antigen	Frequency (N=320)	Percent
Non-reactive	283	88.4
Reactive	37	11.6

The result of the test for Hepatitis B Surface Antigen test revealed that 88.4% (283) was negative and only 11.6% (37) was positive. This implies that 116 /1000 youths will test positive for hepatitis B surface antigen.

**Table 5.** Factors associated with hepatitis B Surface Antigen.

Variable	Hepatitis B Surface Antigen			P value
	non-reactive N=283	Reactive N=37	Total N=320	
Gender				
Female	142 (89.9%)	16 (10.1%)	158	0.428
Male	141 (87%)	21 (13%)	162	
Sharing of sharp object				
Never share sharp object	130 (92.9%)	10 (7.1%)	140	0.029
Have shared sharp objects	153 (85%)	27 (15%)	180	
Vaccination				
I have never been vaccinated against Hepatitis B Virus	222 (86.4%)	35 (13.6%)	257	0.02
I have been vaccinated against Hepatitis B Virus	61 (96.8%)	2 (3.2%)	63	

Table 5 shows that 142 (89.9%) of female and 141 (87%) of male tested negative for hepatitis B virus while 16 (10.1%) and 21 (13%) of female and male respectively tested positive for hepatitis B. The difference in the test results among male and female participants is not statistically significant ( $p=0.428$ ).

Table 5 further shows that 130 (92.9%) of participants that had never shared sharp and 153 (85%) that shared sharp objects tested negative. On the other hand, 10 (7.1%) who never shared sharp objects and 21 (15%) who shared sharp objects tested positive. This implies that the risk of hepatitis is doubled among people who share sharp objects when compared with those who do not share. The relationship between sharing of sharp objects and hepatitis B is statistically significant ( $p<0.029$ ).

The table also shows that 222 (86.4%) who reported that they had never received vaccination against hepatitis and 61 (96.8%) who reported that they had been vaccinated test negative for disease while 35 (13.6%) who reported that they had never received vaccination against hepatitis and 2 (3.2%) who reported that they had been vaccinated test positive for disease. The relationship between vaccination against hepatitis B and the prevalence of the infection is statistically significant ( $P<0.02$ ).

#### 4. Discussion

The distribution of participants according to gender revealed that the variation was not significant. Almost equal

numbers across gender participated. This gives room for generalization of findings. The mean age of participants (29.3, SD 6.4) suggest that the study population was young and active reproductively, hence, at risk to hepatitis B infection.

Although most of the respondents had never donated or receive blood, a few reported that they had been transfused or had donated blood previously. It was shocking to discover that most participants (70%) practiced unprotected sexual intercourse (see table 1). The practice of unprotected sex was particularly more common among the male participants than the females (see table 3), however, the difference in the practice of unprotected sex among male and female participants was not statistically significant ( $P>0.05$ ).

Furthermore, more than half (56.3%) of the participants reported the sharing of sharp objects. This practice was also more common among male participants than female and did not produce a statistically significant difference in practice across gender (see table 2). Prevalence of vaccination against hepatitis B was low in the study population.

Age, gender, and practices like receiving and donation blood, sharing of sharp objects and unprotected sexual intercourse are important risk factors for infection. This is consistent with the position of (Oduosanya et al, (2005), Alikor et al, (2007), Tswana et al (1996).

The prevalence of hepatitis B was 11.6% meaning that 116/1000 youths will test positive for hepatitis B in this community (see table 4). The estimate for developing countries was 8% (Oduosanya et al, 2005; Alikor et al, 2007;

Tswana et al 1996). The prevalence from the current study is obviously higher than the estimate for developing countries and also higher than the prevalence report in southwestern Nigeria (Okonko, Okerentugba, Adeniji and Anugweje, 2012).

The current study demonstrated that gender was not a significant determinant of hepatitis B infection, however, sharing of sharp objects and vaccination against the disease were significant factors. The prevalence of hepatitis B was higher among participant who shared sharp objects and those who had never received vaccination against the disease (see table 5).

## 5. Conclusion and Recommendation

Prevalence of hepatitis B among youths in kwanpe community of Lantang North is high (116/1000). The high endemicity for HBV in Langtang North LGA of Plateau State, Nigeria, is essentially associated with poor immunization coverage, unprotected sex, and sharing of sharp objects. Further, the prevalence of vaccination against hepatitis B in this population was low. Therefore, an urgent enlightenment campaign about the risk factors associated with hepatitis B infection should be launched by Plateau State government. Particular attention should be given to the youths in Kwanpe community of Lantang north. Government and non-governmental organizations should ensure massive immunization of the public.

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