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2 **PREVALENCE OF HEPATITIS B AMONGST ASYMPTOMATIC PERSONS VISITING**  
3 **BRAITHWAIT MEMORIAL SPECIALIST HOSPITAL (BMSH), NIGERIA.**

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5 **ABSTRACT**

6 Hepatitis B virus infection is a major public health problem; it infects more than 400 million  
7 people worldwide. In recent years, the overall prevalence of this virus has declined due to its  
8 vaccine that is now in circulation. Hepatitis B virus causes liver injury by an immune response  
9 against the virus-infected liver cells but it's not directly cytopathic, but immunosuppression  
10 enhances replication and can lead to direct cytotoxicity. In this study, A survey was conducted  
11 amongst 200 randomly selected general out-patients within the ages of 10-80 years with pregnant  
12 women inclusive who are attending the Braithwait Memorial Specialist Hospital (BMSH)  
13 Nigeria, in order to ascertain the prevalence of Hepatitis B virus infection among patients  
14 attending Braithwait Memorial Specialist Hospital in Rivers State, Nigeria and the general  
15 knowledge of the people about this highly infectious disease. Sera collected were screened for  
16 the presence of Hepatitis B surface antigen (HBsAg) using Labacon Diagnostic Test Strip  
17 (Hangzhou Biotest Biotech Co., Ltd China) and a total of 32 out of the 200 respondents tested  
18 positive of Hepatitis B surface antigen, giving a percentage of 16% (32/200). Questionnaires were  
19 distributed to the subjects in order to ascertain their perceptions about the disease, and to obtain  
20 useful socio-demographic information. There was a poor management and prevention control of  
21 the disease and this may have accounted for the prevalence of 16% in the study population.

22 **INTRODUCTION**

23 Hepatitis B virus infection is a major public health problem worldwide; roughly 30% of the  
24 world's population show serological evidence of current or past infection. Hepatitis B virus is a  
25 partly double-stranded DNA virus with several serological markers: HBsAg and anti-HBs,  
26 HBeAg and anti-HBe, and anti-HBc IgM and IgG. It is transmitted through contact with infected  
27 blood and semen [1]. Hepatitis B virus was discovered in 1966 and we are yet to understand fully  
28 its intricacies. Hepatitis B viral infection is a major health problem with preference for the liver  
29 and is known to commonly lead to chronic infections [2]. The chronic infections increases the  
30 risk of death from childhood hepatic failure, cirrhosis of the liver to liver cancer. Globally, over  
31 300 million people have chronic liver infections and about 600,000 people die annually from  
32 acute or chronic complications of hepatitis B infection [3]. The highest prevalence of hepatitis B  
33 infection is in sub-Saharan Africa and East Asia. Majority of the people in these regions become  
34 infected during childhood and between 5–10% of the adult population are chronically infected  
35 [4].

36 Several studies in children and adult have recorded prevalence rates of hepatitis B surface  
37 antigen (HBsAg) ranging from 4.1% to 44.7% varying from one region to another [5]. In a study  
38 done by [6], the pooled prevalence of HBV in Nigeria was 13.6% and for children were 11.5%.  
39 HBV prevalence in Nigeria also varied by the screening method used; the result varied from  
40 12.3% by enzyme-linked immunosorbent assay; 17.5% by immunochromatography; and 13.6%  
41 by HBV DNA polymerase chain reaction. Thus, hepatitis B Virus infection is hyper-endemic in  
42 Nigeria and may be the highest in sub-Saharan Africa.

43 Hepatitis B virus (HBV) is a major cause of morbidity and mortality worldwide, accounting for  
44 over 360 million cases of chronic hepatitis and 620,000 deaths per year. More than 8% of the

45 population are infected in Sub-Sahara Africa (SSA) and it is a major cause of chronic liver  
46 diseases.

47 HBV account for a substantial portion of liver diseases worldwide and infected individuals can  
48 remain asymptomatic for decades. However, more than 80% of them become chronic carriers  
49 which result in an increased risk of liver cirrhosis, liver cancer and liver failure 20 - 30 years  
50 later [7].

51 In Nigeria, many investigators have found high HBV prevalence in adults and infants. [8] in his  
52 study, found that among 440 HIV positive patients, 12.3% were co-positive for HBV although  
53 pregnant women are generally considered low risk for HBV infection. In southern parts of  
54 Nigeria, up to 58.1% of patients with chronic liver disease were found HB positive.

55 The virus has been detected in peripheral mononuclear cells, tissues of pancreas, spleen, kidney  
56 and skin, and fluids like saliva, semen, sweat, breast milk, tears, urine and vaginal secretion [9].

57 In view of the advantages of early detection and prevention, this study is designed to determine  
58 the prevalence of HBV in an apparently healthy population. This is with a view to providing data  
59 for further research and awareness campaign for the need to know one's hepatitis status.

60

## 61 **MEATERIALS AND METHOD**

### 62 **STUDY AREA**

63 This study was carried out from 21<sup>st</sup> May through 7<sup>th</sup> June 2018 at Braithwait memorial  
64 Specialist Hospital (BMSH), with focus on 200 patients attending General out-patient  
65 department (GOPD) with pregnant women inclusive and were randomly selected within the ages  
66 of 10 to 80 years. The patients were requested to fill a set of questionnaire which was completed  
67 and returned immediately.

### 68 **SAMPLE COLLECTION**

69 For the purpose of this study, blood samples were collected by venous puncture techniques.  
70 Blood samples were collected and transferred into a sterile ethylene plain bottle and properly  
71 labelled. The serum was then screened with a one-step Labacon Diagnostic test strip.

### 72 **HEATITIS B SURFACE ANTIGEN (HBsAg) DETECTION.**

73 The Hepatitis B surface antigen was tested using an in-vitro diagnostic kit “ LABACON HBsAg  
74 test strip” manufactured by Hangzhou Biotest Biotech Co., Ltd China.

75 The test strip is a **qualitative**, solid phase, two sides, sandwich immunoassay.

76 The Hepatitis test strip was dipped into each tube containing serum with the arrow pointing  
77 downwards for 10 minutes, before checking and interpreting the results.

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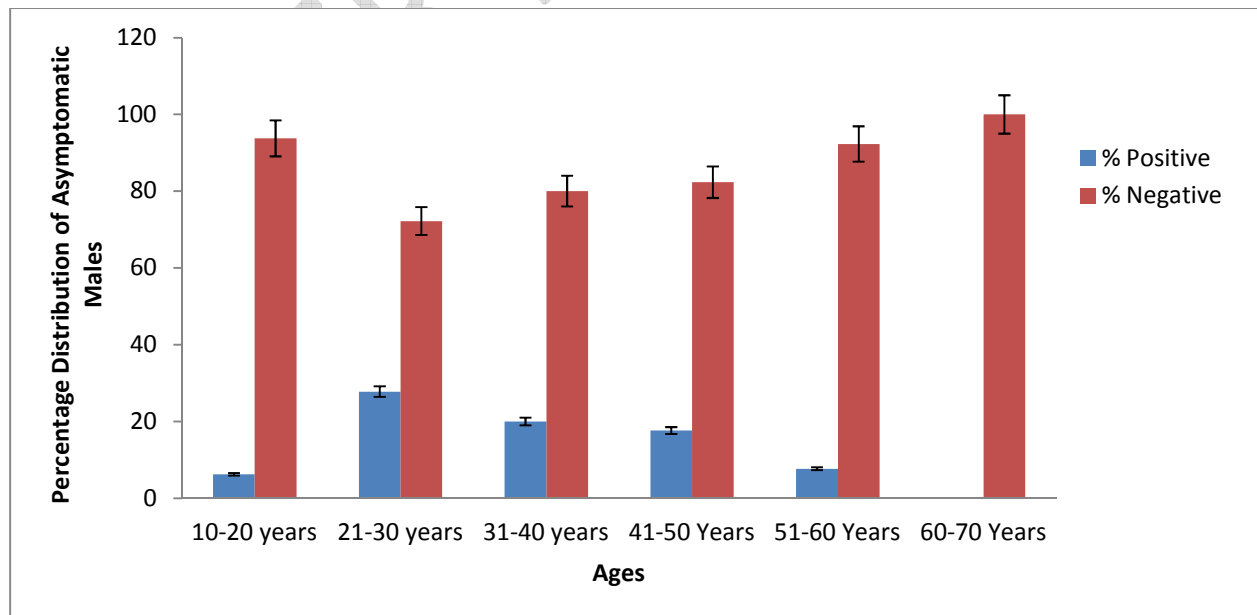
## 79 **RESULTS AND DISCUSSION**

80 **Table 1. Prevalence of HBV Infection in Relation To Knowledge and Risk Factors among**  
81 **the Study Population**

S/n	Factors	Number Screened	Positive (%)
1	Heard of HBV before		
	Yes	182	10 (5%)
	No	18	14(7%)

2	Screened for HBV before		
	Yes	38	7(3.5)
	No	162	25(12.5)
3	Ever received HBV immunization		
	Yes	146	0
	No	54	22(11%)
4	Family History of HBV		
	Yes	12	9(4.5%)
	No	188	23(11.5%)
5	Do You take alcohol		
	Yes	32	13(6.5%)
	No	168	19(9.5%)
6	Do you share clothing?		
	Yes	30	11(5.5%)
	No	170	21(10.5%)
7	Are you a health worker		
	Yes	30	2(1%)
	No	170	30(15%)
8	Are you pregnant		
	Yes	50	2(1%)
	No	150	30(15%)
9	Ever had blood transfusion		
	Yes	94	6(3%)
	No	106	26(13%)

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Fig.1. Distribution of Asymptomatic males

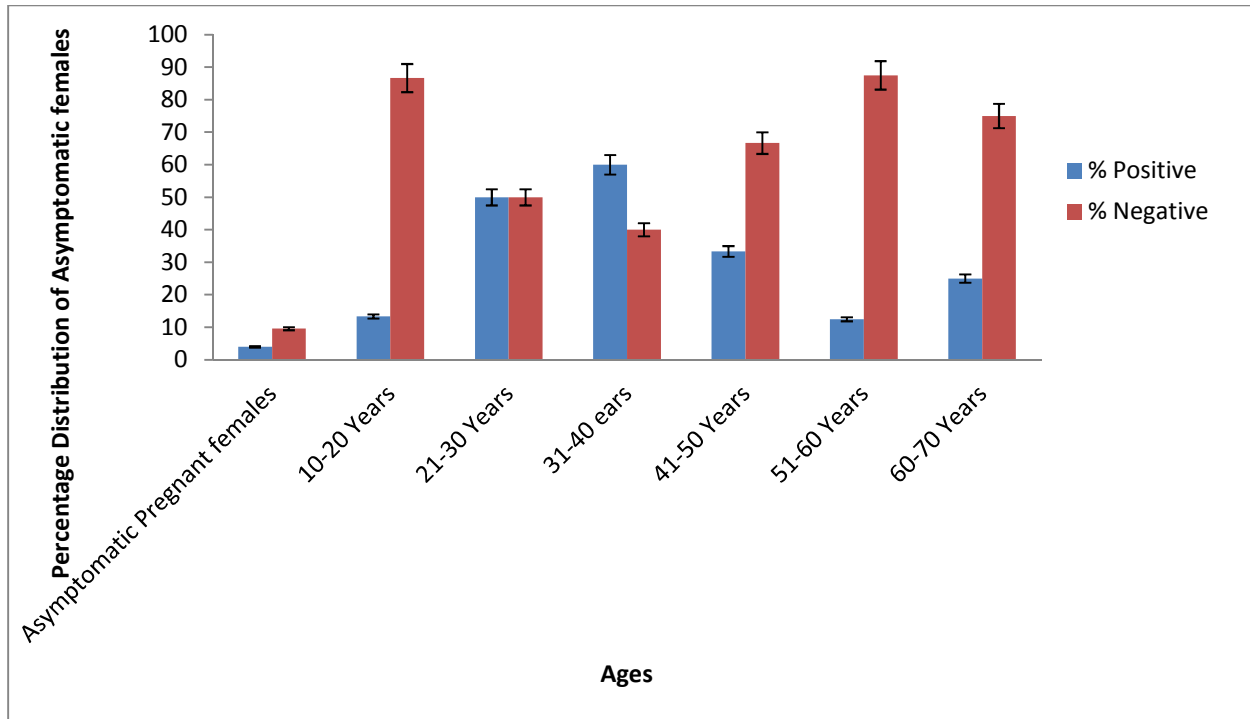


Fig.2. Asymptomatic Females

### RESULTS BASED ON SPECIFIC OBJECTIVES

A total of 200 asymptomatic persons volunteered to participate in the study and the prevalence of hepatitis B virus was calculated to be 16% (32/200). There was a marked difference in the distribution of HBsAg by age group, sex and marital status. Individuals of both sexes who were above 50 years had the lowest prevalence. The distribution of HBV infection according to gender was statistically significant. However, higher prevalence was recorded among female respondents 8.5% (17/200) than the male respondents 7.5 % (15/200).

There was an observed statistical significant difference between HBs Ag and marital status. Out of the 105 singles of both males and females who participated in the screening exercise, the seropositive prevalence was 10.5% (21/200).

Furthermore, out of the 95 married respondents with pregnant women, non-pregnant women and men inclusive. 2.5% (5/200) married males were found positive, 2% (4/200) non-pregnant females and 1% (2/200), of the 50 pregnant women that was screened were positive mothers of hepatitis B virus. Similarly, the prevalence of hepatitis B was highest in patients with age group 21 to 40 years i.e 9.5 % (19/200). Followed by 1.5% (3/200) prevalence in age group 10 to 20 years.

The hepatitis B was not detected in male patients within the age of 60 to 80 years. But was detected in female patients of the same age with the prevalence of 0.5% (1/200)

Based on the assessment of the administered questionnaires, 91% (182/200) have heard of hepatitis B before, 9 % (18/200) have not heard of it before, hence exhibiting a high knowledge of the disease.

73% (146/200) have been previously vaccinated of the virus and none was found positive, 27% haven't been vaccinated before thus giving rise to 11% positive. 6% (12/200) have had a family

113 history of hepatitis B and 4.5% (9/200) were found positive. 19% of the respondents have been  
114 screened of the virus before while 81% have not been vaccinated.

115 15% (30/200) previously shared clothing and 5.5% were found positive. 16% (32/200) drink  
116 alcohol and smoke cigarette 9.5% of them testing positive. 15% (30/200) were health workers  
117 and 1% positive was found.

118 There were 2 positive cases observed among 5% (10/200) of the study population which had  
119 participated in voluntary blood donation before this study was conducted.

120 Of the respondents 47% (94/200) were found to have undergone blood transfusion and a positive  
121 of 3% was indicated.

122 This survey has revealed a 16% (Fig.1 and 2) prevalence of HBsAg among randomly selected  
123 general out patients attending Braithwait Memorial Specialist Hospital (BMS) Port Harcourt,  
124 River State, Nigeria, indicating the occurrence of HBV infection among asymptomatic  
125 individuals. This further means that HBV infection is endemic in the area of study, and this may  
126 be attributed to poor management of its mode of transmission, individual behaviour and practices  
127 in the study population.

128 The prevalence reported in this study is higher than 8.3% prevalence reported in a previous study  
129 conducted by [10] at Ahmadu Bello University Zaria, Kaduna State, Nigeria. The prevalence of  
130 16% reported in this study is also higher than, 12.6%, 9.3% and 14% prevalence reported by  
131 [11,12, 13]. in Nnewi, Akwa and Abakiliki, Nigeria respectively.

132 This present study revealed a high prevalence of HBsAg among the young and middle aged.

133 This study is in agreement with some of the studies conducted by [14] in Nnewi, Nigeria over  
134 time, which have shown no significant difference in the occurrence of HBV infection between  
135 male and female [15,16]. This therefore suggests that gender is not a predisposing factor, but that  
136 both male and female are equally predisposed to HBV infection. The lower HBV infection  
137 observed among married people may be more particularly with regards to being faithful to their  
138 spouses and keeping away from having multiple sexual partners.

139 The low prevalence of HBV infection among persons well informed about the disease could be  
140 as a result of the fact that, the knowledge acquired about prevention and control of the disease  
141 was translated to into practice by this group of people. Likewise, persons with poor knowledge  
142 or who haven't heard about the HBV infection, transmission, prevention and control, had no  
143 prior knowledge and this probably increased their chances of exposure to the virus.

144 The low prevalence of people going for voluntary screening for HBV only reiterates the rate of  
145 poor knowledge about HBV infection in the study population.

146 The low prevalence of people who share clothing could be as a result of poor knowledge and  
147 poor hygiene. Knowledge of one's status is key to adopting adequate measures which could avert  
148 negative consequences in the future.

149 Immunization is regarded as the most effective control measures for HBV; the vaccine is said to  
150 be safe and effective in prevention of chronic carrier state development [17]. The statistically  
151 significant association between hepatitis B immunization status and seropositive of HBsAg in  
152 this study collaborates the above statement, as none of the respondents who has been immunized  
153 prior to this study had HBV infection.

154 Blood donation and transfusion are important risk factors of HBV infection. Transfusion of  
155 infected blood is major risk factor, this observation is in agreement with studies by [18, 19, 20].  
156 Which rank blood transfusion of blood products as the most common risk factor for HBV  
157 transmission.

158 **SUMMARY**

159 The prevalence of hepatitis B in asymptomatic persons attending the General Out-Patient  
160 Department (GOPD), in Braithwait Memorial Specialist Hospital (BMSH), appeared to be 16%  
161 (32/200).

162 According to World Health Organisation (WHO) and global epidemiological distribution of the  
163 hepatitis B virus, the 16% indicates a high prevalence.

164 Despite the fact that 91% (182/200) of the respondents have heard of the virus before as shown  
165 by the administered questionnaires, there was still a high prevalence of the virus.

166 This may be due to the following reasons.

167 1. They only heard of the hepatitis B virus and may not have known how to avoid its route  
168 of transmission.

169 2. They might have known how to avoid its route of transmission but did not adhere  
170 properly to the rules and regulations.

171 Based on these findings, I therefore recommend that the following should be put into practice

172 There should be accurate behavioural modifications

173 Abstinence from unprotected sex with an infected individual.

174 Active immunization

175 Hepatitis B awareness campaign to enlighten the masses about the virus, it's route of  
176 transmission, prevention and control strategies.

177

178 **Consent Disclaimer:**

179 As per international standard or university standard, patient's consent has been collected and  
180 preserved by the authors.

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