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Influence of Knowledge and Risk Factors in the Prevention of Hepatitis B Virus among the People of Ikenne Local Government, Ogun State, Nigeria

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Abstract: The World Health Organization recently launched a campaign to reduce Hepatitis B Viral Infections by 80% globally. Achieving this goal is partly predicated on proper awareness of persons in regions of high transmission. This study focuses on the knowledge and Risk Factors in the Prevention of Hepatitis B Virus among the People of Ikenne Local Government, Ogun State, Nigeria. A descriptive research survey type was employed which involved quantitative survey through the administration of structured questionnaire distributed to four hundred and two (402) respondents. The respondents were selected by convenience sampling from the study area in the State. The research instrument was tested, and the reliability value of 0.78r was obtained. Data were collected using a structured interviewer-administered questionnaire. Data entry, cleaning, validation, and analysis were done using Statistical Package for Social Sciences version 22.0.
Results shows that:

- Level of education will significantly influence knowledge of Hepatitis B Virus since calculated chi-square (22.73) is greater than the critical value (0.35).
- Knowledge of Hepatitis B will significantly affect the awareness of the risk factors of Hepatitis B since calculated chi-square (19.25) is greater than critical value (12.59).
- Awareness on the risk factors of Hepatitis B will significantly affect the prevention of Hepatitis B since calculated chi-square (62.9) is greater than critical value (12.59).

It was concluded from the study that most of the People of Ikenne Local Government, Ogun State, Nigeria, are formally educated and have knowledge of Hepatitis B Virus. Their knowledge of Hepatitis B Virus influences their awareness of the risk factors of Hepatitis B Virus; and awareness of risk factors of Hepatitis B Virus significantly influences the prevention of Hepatitis B Virus. It is recommended that: Government should embark on informative campaign/programs that would enlighten/benefit Health Care Workers and the populace; Health Care Workers must be trained up on the key areas of HBV infection, especially transmision routes, prevention means and treatment options; and effective community-based interventions should be implemented to identify and reduce homebirths and guarantee timely vaccination.

Keywords: Hepatitis B virus, Risk factors, Influence, Knowledge, Prevention.

INTRODUCTION

Conceptual Review

The hepatitis B virus was discovered in 1965 when Blumberg and co-workers found the hepatitis B surface antigen which was originally called the Australia antigen because it was found in serum from an Australian patient (Berinyuy et al., 2019). Dr Baruch Samuel Blumberg was awarded the 1976 Noble Prize in Physiology or Medicine for this discovery. The virus was fully described in the 1970s (Berinyuy et al., 2019). In recent times, the rapid and continuous discoveries of the viral disease around the whole world have improved our understanding of the complexity of this unusual virus. Although there has not been any substantial decrease in the overall prevalence of HBV, there is the hope that the next generation will see a decline in both the worldwide carrier rate and the incidence of new HBV infections if current HBV vaccinations are intensified (Batholomew, 2011)

Definition Hepatitis B

Hepatitis B is the most common serious liver infection in the world. It is caused by the hepatitis B virus that attack and injures the liver two billion people (or 1 in 3) have been infected and more than 292 million people are living with a chronic hepatitis B infection each year up to 1 million people die from hepatitis B despite the fact that it is preventable and treatable (Heph, 2020).

Types of Hepatitis

Hepatitis A
Hepatitis B
Hepatitis C
Hepatitis D
Hepatitis E

Transmission

The HBI can be transmitted by the same modes as with the human immunodeficiency virus (HIV), even though the HBV is hardier and 50-100 times more infectious than the HIV (WHO, 2008). Unlike HIV, the virus can survive outside the body for at least 7 days. During that time, the virus can still cause infection if it

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enters into the body of a person who is not infected. Transmission of hepatitis B virus results from exposure to infectious blood or body fluids. Possible modes of transmission include but are not limited to unprotected sexual blood transfusions, re-use of contaminated needles and syringes, and vertical transmission from mother to child during childbirth. Without intervention, a mother who is positive for HBsAg confers a 20% risk of passing the infection to her offspring at the time of birth (Berinyuy et al., 2019).

This risk is as high as 90% if the mother is also positive for HBeAg. The HBV infection can be transmitted between family members within households, possibly by contact of non-intact skin or mucous membrane with secretions or saliva containing HBV (Petersen et al., 1976). However, at least 30% of reported hepatitis B among adults cannot be associated with an identifiable risk factor (Berinyuy et al., 2019). In many developed countries (e.g. those in Western Europe and North America), patterns of transmission are different from those mentioned above. Today, most infections in these countries are transmitted during young adulthood by sexual activity and injecting drug use. HBV is a major infectious occupational hazard of health workers (Berinyuy et al., 2019). HBV is not spread by contaminated food or water and cannot be spread casually in the workplace. The virus incubation period is 90 days on average but can vary from about 30 to 180 days (AASLD, 2007). HBV may be detected 30 to 60 days after infection and persist for widely variable periods of time.

Stages of HBV Infection

Remarkable progress has been made in the understanding of the three (3) main natural stages of the HBV infection in hosts: acute infection, chronic asymptomatic and chronic symptomatic stages (Berinyuy et al., 2019). However, not all HBV-infected patients go through all the three stages. The risk to develop liver–related complications, such as cirrhosis and hepatocellular carcinomas increases as patient progresses from acute to chronic stage of the infection. Indeed, most HBV infections end up at the acute stage (~ 90%) with a few progressing on to the chronic stage.

- **Acute HBV infection:** This is the initial stage of the infection and every HBV- infected patient goes through this, even though not all patients transit beyond this stage. Early phases of this stage of the infection are characterized serologically by the presence of HBsAg, high serum HBV DNA, HBeAg, and normal level of serum aminotransferase level (ALT), and minimal or insignificant inflammation on liver biopsy (Berinyuy et al., 2019). A later phase, also called immunity phase, is marked by increased serum titres of anti-HBsAg IgG (HBsAb), anti-HBcAg IgG, lowered or disappearance of HBsAg and HBV DNA, normal liver histology. This is true for those who recover fully from the infection after attaining full and permanent immunity through exposure. The duration of either phase differs among patients but generally lasts between 5-8 months (Berinyuy et al., 2019). However, those patients who fail to mobilize adequate immune response factors to combat the infection end up with the fate of living with the disease their entire lifetime. In this case, it is said the disease has become chronic. The physical signs and symptoms, such as jaundice, fever, dark-urine formation, nausea, among others, would occur, even though they will last shortly after which they get resolved following recovery. Generally, transition from the acute stage to the chronic stage depends on several factors including age, gender, viral genotype, and host immune competence.
- **Chronic HBV infection**: This occurs as a progression of the early phase of the acute HBV infection due to the host‘s failure to mount the necessary immune stimulus to ensure total viral clearance and consequent resolution of the disease. It is serologically marked by relative rise in serum anti- HBcAg IgG, disappearance or lower titres of anti-HBsAg IgG, and either normal or significant liver damage as shown by ultrasonography (WHO, 2008). Also, this stage of the disease may be characterized by normal or elevated serum aminotransferase levels (aspartate amino transferase (AST) and alanine amino transferase (ALT)) and other markers of hepatic integrity (Berinyuy et al., 2019).

The serological presence of HBeAg is real in all stages of the disease. The presence of this antigen together with elevated viral load (HBV DNA > 10 3 copies/ml) and higher ALT (> 60 IU/l) is a strong indication of viral activity, replication, and infectivity (WHO, 2008). Patients with such manifestations are put on retroviral. A key event in the natural history of HBeAg – positive CHB patients is HBeAg seroconversion (Berinyuy et al., 2019)). It is believed that seroconversion of HBeAg to HBeAb is accompanied with cessation of HBV replication and remission of liver disease. Several studies have shown that seroconversion with a marked reduction in HBV replication is associated with biochemical and histological remission of inflammatory activity in the majority of patients (Berinyuy et al., 2019).

Complications of Hepatitis B

Fibrosis

One of the most common complications of chronic hepatitis is Fibrosis, A condition caused by liver scarring.2 in cases of fibrosis; the liver is damaged by constant inflammation, creating scar tissue to repair itself. Unfortunately, this scar tissue keeps the liver from working as it once did. The good news is that if fibrosis is controlled in time and limited to a small part of your liver, the rest of the organ can work harder and keep up with it normal functions. If fibrosis develops and becomes more extensive, then it is described as cirrhosis.

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Cirrhosis of the Liver

Extensive fibrosis is called cirrhosis. Hepatitis B, Hepatitis C, and alcoholic hepatitis can cause cirrhosis, as well as fatty liver disease and other liver-related conditions. Cirrhosis-related scarring is often irreversible and in severe cases and without treatment, the best course of action may be a liver transplant.

Cancer of the Liver

Liver cancer is a complication of Cirrhosis.3 Liver cancer may develop as one of two types: hepatocellular carcinoma and cholangiolar carcinoma. Hepatocellular carcinoma affects the liver cells, while cholangiolar carcinoma affects the bile ducts.

Liver Failure

Liver failure is a serious, but uncommon, complication of hepatitis.1 Doctors use different terms to describe variations of liver failure such as fulminant liver failure, fulminant hepatic failure or acute liver failure. If your liver no longer functions, this can lead your body to shut down, eventually causing you to die.

There are many specific causes of liver failure, but in general, failure results when your liver is so damaged that it is unable to keep up with your body's needs.

Glomerulonephritis

Glomerulonephritis is a kidney disorder caused by inflammation most often related to an immune response. It is most commonly seen in those with chronic hepatitis B and hepatitis C infections.4 without treatment, the inflammation can progress, severely damaging your kidneys (Chang, 2017).

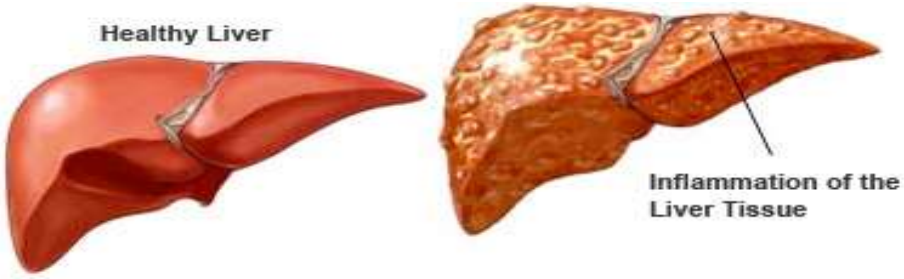

Figure 1: State of the liver before and after HBV invasion (WHO, 2020)

Prevention and Treatment of Hepatitis B

Even though HBV has become a major source of health concern worldwide, we should also be reminded by the good news that it is the only STD that can be prevented by vaccination (CDC, 2005).The prevention of HBV globally has become one of the topmost priorities of major political actors and decision makers in recent years. The disease is prevented using safe and effective vaccine which became available in 1982 through funding and implementation of hepatitis B immunization programs. Measures for HBV prevention have been geared towards avoidance of unsafe blood exposure or blocking of transmission before the advent of the vaccine. Unsafe blood transfusion has been a major force in the transmission of HBV globally (Berinyuy et al., 2019).

The enactment of a law for the donation and management of blood in blood banks across the world has aggressively fought this channel of HBV transmission. This notwithstanding, current researches have showed that blood transfusion is regaining its position as one of the major risk factors for HBV transmission globally. This finding is attributed to the presence of occult HBV infection (OHBVI) among blood donors (Berinyuy et al., 2019). It is also worth mentioning that the global acceptance of the auto-disposable syringes (ADS) has considerably reduced the incidence of HBV infections that occur due to unsafe injections. Also, as a result of the extensive use of invasive medical procedures, iatrogenic HBV infections are no longer frequent. There have also been speculations that dental care operations which are capable of causing oral mucous membrane injuries is becoming a major route to HBV transmission if steps are not taken to prevent it (Berinyuy et al., 2019).

HBV per se does not have a permanent treatment therefore, the surest antidote to the global epidemic is prevention. There has not been any universal agreement on drugs used for the temporary treatment of the HBV in the world even though two therapeutic agents such as interferon alpha (IFNa) and lamivudine are currently used by many countries for the treatment of the disease. Interferon-alpha is a potent cytokine with antiviral and immunomodulating actions which is produced in response to viral infection (Berinyuy et al., 2019). Temporary treatment of the disease is therefore aimed at suppressing viral replication, reducing the risk of progressing to advanced liver disease or inflammation of the liver and the development of complications such as liver failure or liver cancer (Adabara, Ajal, Momohjimoh, Hashimu & Agabi, 2012). Chronic hepatitis B is therefore easily managed rather than treated. Some of the general management strategies for HBV recommended by medical experts include the avoidance of:

- Heavy alcohol consumption.
- Unprotected sexual intercourse with partners who are not vaccinated

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- Sharing of needles or other items that potentially contain blood such as shavers or toothbrushes.
- Donation of blood or organs

EMPIRICAL REVIEW

Hepatitis B virus (HBV) and hepatitis C virus (HCV) are among the principal causes of severe liver disease, including hepatocellular carcinoma (HCC) and cirrhosis-related end-stage liver disease (Fufore, Cook & Kirfi, 2016). Hepatitis B virus (HBV) infection is leading health problem globally. There are approximately 2 billion people infected by HBV and about 400 million carriers worldwide (Prasad et al., 2015). Majority of these reside in Asia and West Pacific (Fufore, Cook & Kirfi, 2016).

Although HBV is present all over the world, its prevalence is significantly different across different countries (Prasad et al., 2015). An estimated 57% of cases of liver cirrhosis and 78% of cases of primary liver cancer result from HBV or HCV infection. In terms of endemicity, India comes in Intermediate zone (Prasad et al., 2015). According to WHO, the prevalence of Hepatitis B in general population in India ranges from 0.1% to 11%, whereas various studies about epidemiology of hepatitis B in India report HBsAg seropsitivity range from 2%-4.7% (Prasad et al., 2015).

The reason for this heterogeneity is variation in social, economic and health factors in different regions of India (Phukan, 2014). Most of these studies are carried in blood donors or antenatal mothers, but there is limited data of epidemiology of hepatitis B in community (Prasad et al., 2015) more so in rural population (Phukan, 2014). WHO report of hepatitis C suggests its prevalence 3% in the world which is a significant burden on public health (Prasad et al., 2015). hepatitis C is responsible of about one third of hepatocellular carcinoma (Prasad et al., 2015).

Hepatitis B and hepatitis C share a common risk factors and common mode of transmission, so it is rationale to study prevalence of these two together. In present study, 1833 randomly selected subjects were interviewed for risk factors for transmission and tested for markers of hepatitis B and hepatitis C infection. Study population was from a village in a rural area of Western Maharashtra, India.

Over the years there have been massive media and public awareness campaigns on HIV/AIDS in Nigeria (Omeje, Ibekwe, Ojukwu, Una & Ibe, 2017). These efforts have resulted in an increased knowledge about HIV, positive behavioral change,1 and a gradual decline of the national prevalence of HIV/AIDS from 5.8% in 20012 to 4.1% in 2010.2,3 The routes of transmission are similar for both human immunodeficiency virus (HIV) and HBV (Omeje et al., 2017).

Prevalence of Hepatitis B Virus in Nigeria

Prevalence of hepatitis B virus among blood donors

Anti-HBc screening of blood donations might prevent HBV transmission from HBsAg-negative blood donors that are positive for anti- HBc (Berinyuy et al., 2019). The prevalence of OHB varies significantly between geographical regions as well as among various patient populations tested. Recent Evaluation of hepatitis B virus sero-positivity among 300 voluntary blood donors at a centralized blood service center in Nigeria by (Damulak, Ogbenna, Rufai, Kut & Bodund, 2013) revealed that Thirty-three (13.8%) of first-time donors were positive for hepatitis B markers while all retained donors were sero-negative. There were 32 (13.3%) sero-positive reactions to HBsAg and 3 (1.3%) reacted to HBeAg.

In another study in Jos, Uneke and others reported a 14.3% HBsAg Seropositivity among their blood donors against a higher 25.9% among patients infected with HIV. They also noted higher infection rate of 44% in donors 51-60 years and 28% frequency within the age bracket of 31-40 years (Altiparmak, Olajumoke, Owolabi, Titilope & Adewumi, 2012). while studying Seroprevalence of hepatitis B e antigen (HBe antigen) and B core antibodies among hepatitis B surface antigen positive blood donors at a Tertiary Centre in Nigeria found a seroprevalence of 8.2% (22 of 267) HBeAg, 4 of 267 (1.5%) were indeterminate while 241 (90.3%) of their subjects tested negative. Only 27 out of 267 donors (10.1%) tested positive to IgM anti-HBcore, 234(87.6%) tested negative, while 6(2.2%) were indeterminate. A higher percentage of 60.7% (162 of 267) tested positive to IgG antiHBcore, while 39.3% (105 of 267) tested negative. They concluded that there is a low seroprevalence rate of HBeAg-positive chronic hepatitis and relatively high IgG anti-HBcore and IgM anti-HBcore rates in South West Nigeria (Altiparmak et al., 2012).

Another study among blood donors, in North Central Nigeria, at the Bishop Murray Medical Centre in Makurdi, age group prevalence of HBV was reported at 11.90%, 13.05% and 6.53% within the age ranges of 18-22, 23-27 and 28-32 years respectively (Aernan, Sar & Torkula, 2011). Jeremiah and others reported a prevalence of 8.6% HBsAg in Maiduguri, Northeast Nigeria with anti HBc IgM in 18.4% suggesting that donors negative for HBsAg are not necessarily uninfected with HBV and recommended the mandatory screening of HBc in donor blood (Jeremiah, et al., Malah, 2011).

In Southwest Nigeria Salawu and others reported the occurrence of other HBV markers in HBsAg negative blood donors and recommended the inclusion of routine testing of markers such as antibody to hepatitis B core (HBC) antigen in donor blood before transfusion (Salaw, Adegoke, Aboderin & Haraina, 2011). Japhet and his co-workers found an overall prevalence of

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transfusion transmissible infections of 32.6% in their study with 19.6% HBsAg positivity, 13.0% HBC antibody reaction and 8.9% hepatitis B envelop antigen (HBeAg) detection which marks infectivity of the virus and appears in blood after HBsAg (Japet, Adesina, Danbraye & Adewumi, 2011).

In Benin City of Nigeria, Mutimer and others reported an overall 14% prevalence of TTIS. They concluded that screening of blood routinely may not reduce the incidence of HBV infections (Berinyuy et al., 2019) Far in the North Eastern Nigeria, Harry and colleagues reported a high 22.0% HBsAg and 6.64% HBeAg among blood donors. They found only 11.6% and 1.39% of pregnant women subgroup of their study reactive for HBsAg and HBeAg respectively (Berinyuy et al., 2019).

Prevalence of hepatitis B virus among pregnant women

Adabara et al. (2012) evaluated the Prevalence of Hepatitis B Virus among Women Attending Antenatal Clinic in the General Hospital, Minna, Niger State, there results revealed that Thirteen (6.5%) out of the 200 subjects investigated were found to be positive for hepatitis B infection. On the basis of age, the distribution of HBV infection among the subjects revealed that the age group 20-29 has the highest rate of infection of 10.3% followed in descending order by 40-49 (4.5%), 30-39 (4.2%) and 10-19 (0.0%). The authors linked the prevalence of the virus to low level of awareness and the poor standard of living observed among the subjects (Eke, Uzoamaka, Charles, Ifeanyichukwu & Chukwuanugo, 2011) carry out a cross-sectional study over a 3-month period (August-October 2009).

On Prevalence and pattern of hepatitis B among 480 women attending antenatal clinics in Nnewi, Nigeria was done by simple random sampling using computer generated random numbers. Of these, 40 tested positive to HBsAg, accounting for 8.3% of the sample population. The age of the subjects studied varied from 14 to 45 years (mean age - 24.3 years) while the mean parity was 2.18. The HIV/HBV co-infection rate was 4.2% (Berinyuy et al., 2019).

Agarry and Lekwot also evaluated the prevalence of hepatitis B virus surface antigen (HBsAG) and hepatitis C (HCV) antibody amongst 200 pregnant women attending ante-natal clinic in Gwagwalada, Abuja.Of the 200 blood samples tested, 19 (9.5%) and 1 (0.5%) were positive for the presence of hepatitis B and C respectively. No mixed infection of both viruses was observed in the pregnant women tested (Agarry & Lekwot, 2010). While studying the seroprevalence of hepatitis B virus (HBsAg) antibodies in pregnant women In Akure, Ondo State found that out of Eight hundred and sixty pregnant women. Only forty (4.7%) were positive while eight hundred and twenty (95.3%) were negative, indicating an overall prevalence of 4.7% (Berinyuy et al., 2019).

The prevalence of Hepatitis B Virus (HBV) carrier and infectivity status among three hundred (300) pregnant women in Makurdi were evaluated Maternal HBV infectivity status was determined by testing all HBsAg positive samples for the presence of hepatitis B e antigen (HBeAg). Overall, 33 (11%) pregnant women were identified as carriers of HBV and 10 of the 33 (30.3%) pregnant women identified as HBV carriers tested positive for HBeAg. Hence, 3.3% of the entire study population was found to have high viral replication as well as high risk of transmitting HBV to their neonates (Berinyuy et al., 2019).

Prevalence of hepatitis B virus co-infections with other disease

Rescently Ejeliogu, Oguche, Ebonyi, Okpe & Yiltok (2014), evaluated the Prevalence of Hepatitis B Virus Co-infected Nigerian Children (2 months to 15 years) with Human Immunodeficiency Virus. Out of 452 Children that were screened, three hundred and ninety-four (87.2%) were monoinfected with HIV while 58 (12.8%) were co-infected with HIV and HBV (HIV/HBV). Egah et al while studying seropositivity to hepatitis B, C and the human immunodeficiency viruses among clergy men in training, in a seminary in Jos, found a 15.5% hepatitis B surface antigen positive reaction among their subjects who were a low risk blood donor group. They also documented a crude transfusion transmissible infection prevalence of 22.1% and HIV/ HBV co-infection rate of 0.4% in their study (Berinyuy et al., 2019).

Jibrin & Mustapha in Berinyuy et al. (2019), screened, two hundred consecutively recruited HIV-infected individuals comprising 97 males and 103 females for HBsAg using ELISA. A total of Fifty-three of the patients tested positive for HBsAg giving an overall prevalence rate of 26.5% which was significantly higher ($p < 0.001$) than the 10.4% recorded among non-HIV-infected individuals. Co-infection rate in males (24.7%) did not differ significantly from that of females (28.2%). Co-infection was highest in the 40-49 years age group (41.6%), while no case of co-infection was recorded in the $\leq$ 19 years. Among the different occupational groups businessmen had the highest coinfection rate (44%) followed by long distance drivers (39.5%). In relation to marital status, divorcees/widows had the highest proportion of those with coinfection (53%) followed by those who were unmarried (32.5%) and those married (21.6%).

According to Taiwo, Samuel & Emmanuel (2014) among patients in Lagos State University Teaching Hospital (LASUTH), Dual presence of HBsAg and anti-HCV was observed in 4(3.9%) of HIV infected patients, while 29(28.4%) and 15(14.7%) were repeatedly reactive for HBsAg and anti-HCV respectively. HIV negative blood donor controls have

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HBsAg and anti-HCV prevalence of (22) 6.0% and (3) 0.8% respectively. The prevalence of hepatitis co infection is higher among the male study patients 16(50%) than the female32 (45.7%).

Bola et al. (2016) evaluated the sero-prevalence of HCV in HIV sero-positive children in Lagos, Nigeria. A total of 132 blood HIV sero-positive children aged 1-15 years were serological assay for HCV. Out of the 132 HIV sero-positive samples, 6 were positive for HCV with a prevalence of 4.54% Zero prevalence was recorded between age groups 1-3 years while a sero-prevalence of 20% was found among age groups 12-15 years. Ejeliogu et al.(2015) evaluated the Prevalence of Hepatitis B Virus Co-infected Nigerian Children (2 months to 15 years) with Human Immunodeficiency Virus. Out of 452 Children that were screened, three hundred and ninety-four (87.2%) were mono-infected with HIV while 58 (12.8%) were coinfected with HIV and HBV (HIV/HBV).

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Similarly, Hamza et al. (2013) evaluated the prevalence of HIVHBV- patients in Kano State and find out that 54/440 were HB-HIV co-infected, also evaluated the prevalence of HIV-HBV- patients in Kano State and find out that 211/300 were HB-HIV coinfected Udeze et al. (2015), evaluated the prevalence rate of HB and C infections among HIV-infected patients accessing healthcare at HIV and AIDS section of University of Ilorin Teaching Hospital, Ilorin, Nigeria. Of the 356 HIV-infected participants, 114 (32.0%) and 14 (3.9%) were respectively positive for HBsAg and anti-HCV antibody.

Prevalence of hepatitis B virus among healthy individuals

James, Obinna, Georgebest, Echeonwu & Onyeka (2012) carried out a study to assess the seroprevalence of hepatitis B surface antigen (HBsAg) and associated risk factors among students of a secondary school in Jagindi Tasha, Kaduna State, Nigeria. Out of One hundred and ninety (190) apparently healthy students that were screened for HBsAg, 35 (18.4%) were sero-positive. Subjects aged 13-15 years recorded 6.8% positivity and male subjects had 25.5% positivity compared to 10.9% positivity for females. Risk factors such as blood transfusion was 32.0% among male subjects compared to 30.0% in females.

Moses et al. (2010) evaluated the prevalence of Hepatitis B virus infections in apparently healthy urban Nigerians. Of the 1,891 participants, 957 (50.6 %) were males and 934 (49.4%) were females. Overall 114 (6.0%) were positive, of whom 71 (7.4%) were males and 43 (4.6%) females. Those aged 21–30 years had the highest infection rate, and males were more likely to be infected with the virus than females. According to Berinyuy et al. (2019), out of 182 Fulani nomads in Toro, North-Eastern Nigeria the gender specific seroprevalence of HBsAg was found to be in the ratio of about 2:1 male-female. Infection rate was found to be higher in those between 25 and 29 years (8.2%) followed by those the age group 30-37 years (6.0%).

In a study conducted by Ndako, Onwuliri, Adelani, Olaolu & Dahunsi, (2014), a total of 188 Health personnel, which constitutes Nurses, Doctors, Medical Laboratory Scientists, Technicians/Assistants, Pharmacists and Ward Assistance in Uyo Metropolis, were screened for HBV surface antigen (HBsAg). Out of the one hundred and Eighty-eight (188) respondents screened. Thirty-two (32) representing 17.0% were found to be seropositive, female subjects recorded (17.3%) prevalence compared to (16.7%) recorded by the Male subjects. Frank et al., 2004 carried out epidemiology study of HBV infection among 124 unvaccinated Dutch missionaries and family members who lived in a rural area of Nigeria. Antibodies to hepatitis B core antigen were found in 5 (9.8%) of 51 adults (incidence rate, 1.7 per 1000 person-months at risk [PMAR]) and 9 (12.3%) of 73 children (incidence rate, 2.8 per 1000 PMAR).

Knowledge, attitude and prevention of Health workers to HBV

Knowledge, attitude and practice (KAP) by HCWs towards HB infection is generally inadequate in most of the developing countries (Adekanle et al., 2015). There are very few studies conducted on health professionals in Nigeria that assess their KAP towards HB infection (Kesieme et al., 2011).

Health-care workers (HCWs) are at a higher risk of contracting the virus because of their exposure to sharps, blood and body fluids (Abeje & Azage, 2015; Al-Hazmi, 2015). The prevalence of HB is increasing in the developing countries, including Nigeria, while HB preventive measures are not practiced by many HCWs (Abeje et al., 2015).

Knowledge, attitude and practice (KAP) by HCWs towards HB infection is generally inadequate in most of the developing countries (Adekanle, et al., 2015). There are very few studies conducted on health professionals in Nigeria that assess their KAP towards HB infection (Kesieme et al., 2011). The studies that have been carried out have mostly focused on medical

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students and dentists; most, if not all, of the studies were from the Southern part of the country, and none of these available studies appear to have been carried out upon ENT health professionals.

RESEARCH METHODS

Study Design

A descriptive research of survey type was used, most appropriately to the survey design and also record was collected from General Hospitals. It involves quantitative survey through the administration of structured questionnaire to assess the Risk Factors and prevention of Hepatitis B virus among the People of Ikenne Local Government, Ogun State, Nigeria.

Total population

The population of Ikenne local government based on 2006 national census is 118,735.

Inclusion criteria

The eligible group included in this research are all residents of Ikenne Local Government Ogun State, Nigeria, who are 18 years and above.

Exclusion criteria

The non-eligible group excluded in this research are all residents of Ikenne Local Government Ogun State, Nigeria, who are below 18 years of age.

Sample size Determination.

The sample size was determined by using the statistical formula of Fisher (Korlik & Higgins, 2015).

$N = z^2pq/d^2$

Z = 3.36, 95% confidence limit
d= 0.04549 as the acceptable margin of error
p= the probability of the event occurring = 0.08
q= 1-p = which is the probability of the event not occurring in this 1-p =0.92
The sample size will then be determined as follows;

$n= 3.36^2 (pq)/d^2$

$n= 3.36^2(0.08) (0.92)/ 0.00207025$

n=0.83091456/0.0020693401
n= 402

Sample and Sampling techniques

A Random Sampling Technique was used to recruit residents of Ikenne Local Government who were of 18 years and above for this study. Investigation was made in Ikenne Local Government, Ogun State, Nigeria. A simple convenience sampling system by coincidence was used to recruit the participants in the selected area of study; this procedure was conducted in the Local Government to obtain the sample size of 402 for the study.

Research Instruments

The questionnaire was designed to meet objectives of the research. The questionnaire was divided into two sections. **Section A** of the questionnaire was personal data of the respondents, Section B The knowledge, prevention and risk factors of Hepatitis B Virus. The researcher used four (4) point likert rating scale.

RESULTS OR FINDINGS

Data Analysis and Interpretation

Table 1: Respondents' Socio Demographic Characteristics (n = 402)

Socio-Demographic Variables	Frequency	Percentage
Gender		
Male	176	44%
Female	226	56%
Total	**402**	**100%**
Age group		
15-25 years	118	29%
26-36 years	100	25%
37-47 years	146	36%
48 years and above	38	10%
Total	**402**	**100%**
Education status		
Non formal education	84	19%
Formal education	318	81%
Total	**402**	**100%**
Religion		
Christianity	272	68%
Islam	122	30%
Traditional	8	2%
Total	**402**	**100%**
Marital Status		
Single	130	32%
Married	220	54%
Widowed	26	7%

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Divorced	26	7%
Total	**402**	**100**%
Occupation		
Unemployed	124	31%
Self employed	110	27%
Civil servant	90	22%
Private sector worker	78	20%
Total	**402**	**100**%

Discussion: Table 1 above shows the socio demographic information of respondents: the gender information shows that most 226 (56%) are females while 176 (44%) are males; age distribution shows that most 146 (36%) are between 37-47 years, 118 (29%) are between 15-25 years, 100 (25%) are between 26-36 years and 38 (10%) are 48 years and above; educational status shows that most 318 (81%) have formal education while 84 (19%) have no formal education; religion distribution shows that most 272 (68%) are Christians, 122 (30%) are Muslims and 8 (2%) are traditionalist; marital status shows that most 220 (54%) are married, 130 (32%) are single, 26 (7%) are widowed and 26 (7%) are divorced; occupation shows that most 124 (31%)are unemployed, 110 (27%) are self-employed, 90 (22%) are civil servants and 79 (20%) are private sector workers.

Table 2: Respondents knowledge of Hepatitis B Virus

Knowledge of Hepatitis B Virus (HBV)	**SA**	**A**	**D**	**SD**	**TOTAL**
Hepatitis B is caused by virus	250 (62%)	134 (33%)	16 (4%)	2 (1%)	402 100%
The liver is an organ affected by Hepatitis B	170 (42%)	216 (54%)	16 (4%)	0 (0%)	402 100%
Liver cancer and Cirrhosis are complications that can be caused by Hepatitis B	170 (42%)	198 (49%)	32 (8%)	2 (1%)	402 100%
Dust, Contaminated waste , Breast feeding are examples of mode of transmission of Hepatitis B	142 (35%)	206 (51%)	30 (8%)	24 (6%)	402 100%

Discussion: table 2 above shows the knowledge of respondents about Hepatitis B Virus: on if Hepatitis B is caused by virus, 384 (95%) agreed while 18 (5%) disagreed; on if the liver is an organ affected by Hepatitis B, 386 (96%) agreed while 16 (4%) disagreed; on if liver cancer and Cirrhosis are complications caused by Hepatitis B, 368 (91%) agreed while 34 (9%) disagreed; on if Dust, Contaminated waste, Breast feeding are of mode of transmission of Hepatitis B, 348 (86%) agreed while 54 (14%) disagreed.

Table 3: Observable risk factors of Hepatitis B Virus

Risk factors of Hepatitis B Virus (HBV)	**SA**	**A**	**D**	**SD**	**TOTAL**
Improper screening of blood before transfusion, can transmit Hepatitis B virus	208 (52%)	180 (45%)	12 (2%)	2 (1%)	402 (100%)
Hepatitis B virus can be transmitted through sexual intercourse	156 (39%)	200 (50%)	20 (5%)	24 (6%)	402 (100%)
Hepatitis B Virus can be transmitted through fluid e.g. Sweat, Saliva and Semen	110 (27%)	240 (60%)	44 (11%)	8 (2%)	402 (100%)
Hepatitis B Virus can be transmitted though mother to child	138 (34%)	200 (50%)	36 (9%)	28 (7%)	402 (100%)
Hepatitis B Virus can be transmitted through sharp object	124 (31%)	178 (45%)	58 (14%)	42 (10%)	402 (100%)

Discussion: table 3 above shows the observable risk factors of Hepatitis B Virus: on if improper screening of blood before transfusion, can transmit Hepatitis B virus, 194 (97%) agreed while 7 (3%) disagreed; on if Hepatitis B virus can be transmitted through sexual intercourse, 178 (89%) agreed while 22 (11%) disagreed; on if Hepatitis B Virus can be transmitted through fluids, 175 (87%) agreed while 26 (13%) disagreed; on if Hepatitis B Virus can be transmitted from mother to child, 169 (84%) agreed while 32 (16%) disagreed; on if Hepatitis B Virus can be transmitted through sharp object, 151 (86%) agreed while 50 (24%) disagreed.

Table 4: Means of preventing Hepatitis B Virus

Prevention of Hepatitis B Virus	**SA**	**A**	**D**	**SD**	**TOTAL**
Hepatitis B Virus can be prevented through vaccine	214 (53%)	170 (43%)	14 (3%)	4 (1%)	402 (100%)

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Hepatitis B Virus can be prevented through abstinent or by use of condom	108 (27%)	28 (52%)	60 (15%)	26 (6%)	402 (100%)
Hepatitis B Virus can be prevented through screening of blood infusion	204 (51%)	178 (44%)	16 (4%)	4 (1%)	402 (100%)
Hepatitis B Virus can be prevented through avoiding of alcoholic and smoking	170 (42%)	220 (55%)	12 (3%)	0 (0%)	402 (100%)
Hepatitis B Virus can be detected early through medical test, checkup and treatment	136 (34%)	214 (53%)	36 (9%)	16 (4%)	402 (100%)

Discussion: table 4 above shows the prevention of Hepatitis B Virus: on if Hepatitis B Virus can be prevented through vaccine, 384 (96%) agreed while 18 (4%); on if Hepatitis B Virus can be prevented through abstinence or by use of condom, 316 (79%) agreed while 86 (21%) disagreed; on if Hepatitis B Virus can be prevented through screening of blood infusion, 382 (95%) agreed while 20 (5%) disagreed; on if Hepatitis B Virus can be prevented through avoiding of alcoholic and smoking, 390 (97%) agreed while 12 (3%) disagreed; on if Hepatitis B Virus can be detected early through medical test, checkup and treatment, 350 (87%) agreed while 52 (13%). This affirms that Hepatitis B Virus can be prevented through vaccine, abstinent or by use of condom, screening of blood infusion, avoiding of alcoholic and smoking, medical test, checkup and treatment.

Answering Research Questions

Will the level of education influence the knowledge of Hepatitis B?

Table 5: Influence of education status on knowledge of hepatitis B

Knowledge of Hepatitis B Virus		**Educational Status**	
		Non Formal	Formal
Hepatitis B is caused by virus	SA	40	210
	A	36	100
	D	6	8
	SD	2	0
The liver is an organ affected by Hepatitis B	SA	40	130
	A	32	184
	D	12	4
	SD	0	0
Liver cancer and Cirrhosis are complications that can be caused by Hepatitis B	SA	32	138
	A	38	160
	D	14	18
	SD	0	2
Dust, Contaminated water , Breast feeding are examples of mode of transmission of Hepatitis B	SA	26	116
	A	30	180
	D	18	8
	SD	10	14
Total		336 (20.9%)	1272 (79.1%)

Table 5 above shows that majority 636 (79.1%) of the respondents have formal education and consequently have knowledge of Hepatitis B Virus while the remaining 336 (20.9%) had informal education and consequently have faint knowledge about knowledge of Hepatitis B Virus.

Will the knowledge of Hepatitis B influence the awareness of risk factors of Hepatitis B?

Items on Table 4.2 and table 4.3 were crossed. The output under appendix II shows that respondent's knowledge of Hepatitis B will influence their awareness to the risk factors of Hepatitis B.

Will the awareness on the risk factors of Hepatitis B influence the prevention of Hepatitis B?

Items on Table 4.3 and table 4.4 were crossed. The output under appendix II shows that respondent's knowledge

Hypotheses Testing

Hypothesis One*:* Level of education will not significantly affect the knowledge of Hepatitis B

Table 6: Chi square analysis investigating the influence of educational level on knowledge of hepatitis B

Knowledge of Hepatitis B Virus	**Level of Education**		**Row Total**	**Cal**	**DF**	**Crit. Value**	**REM**
	Formal	**Non-Formal**					

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Hepatitis B is caused by virus	84 (21%)	318 (79%)	**402**				
The liver is an organ affected by Hepatitis B	84 (21%)	318 (79%)	**402**	**22.73**	**3**	**0.35**	**Reject Ho**
Liver cancer and Cirrhosis are complications that can be caused by Hepatitis B	84 (21%)	318 (79%)	**402**				
Dust, Contaminated water, Breast feeding are examples of mode of transmission of Hepatitis B	84 (21%)	318 (79%)	**402**				
Column total	336	1,272	**1,608**				

Table 6 above shows the cross tabulation of level of education with knowledge of Hepatitis B Virus, it can be observed that the calculated chi-square values (22.73) is greater than the critical value is 0.35 with degree of freedom 3 at 0.05 alpha level of significance. Since calculated chi-square values are greater than critical value (0.35), we therefore reject null hypothesis. This means that level of education will significantly influence knowledge of Hepatitis B Virus.

Hypothesis Two*:* Knowledge of Hepatitis B will not significantly influence the prevention of Hepatitis B

Table 7: Chi square analysis investigating the influence of knowledge of hepatitis B on the prevention of Hepatitis B

s/n	**Items**	**SA**	**A**	**D**	**SD**	**Row total**	**Cal**	**D.F**	**Crit. value**	**REM**
1	Hepatitis B is caused by virus	250 (62%)	136 (34%)	14 (3%)	2 (1%)	**402**				
2	The liver is an organ affected by Hepatitis B	170 (42%)	216 (54%)	16 (4%)	0 (0%)	**402**				
3	Improper screening of blood before transfusion, can transmit Hepatitis B virus	208 (52%)	174 (43%)	18 (4%)	2 (1%)	**402**	**19.25**	**6**	**12.59**	**Reject Ho**
	Column total	**628**	**526**	**48**	**4**	**1,206**				

Table 7 above shows calculated chi-square value of 19.25, critical value of 12.59 with degree of freedom 6 at 0.05 alpha level of significance. Since calculated chi-square (19.25) is greater than critical value (12.59), we therefore reject null hypothesis. This means that Knowledge of Hepatitis B will significantly influence the prevention of Hepatitis B.

Hypothesis Three*:* knowledge of risk factors of Hepatitis B will not significantly affect the prevention of Hepatitis B.

Table 8: Chi square analysis investigating the influence of knowledge of hepatitis B on risk factors of Hepatitis B

s/n	**Items**	**SA**	**A**	**D**	**SD**	**Row total**	**Cal**	**D.F**	**Crit. value**	**REM**
1	Improper screening of blood before transfusion, can transmit Hepatitis B virus	208 (52%)	176 (44%)	16 (3%)	2 (1%)	**402**				
2	Hepatitis B virus can be transmitted through sexual intercourse	214 (53%)	170 (39%)	14 (1%)	4 (1%)	**402**				
3	Hepatitis B Virus can be prevented through vaccine	108 (27%)	208 (52%)	60 (15%)	26 (6%)	**402**				**Reject Ho**
	Column total	**530**	**554**	**90**	**32**	**1,206**	**62.9**	**6**	**12.59**	

Table 8 above shows calculated chi-square value of 62.9, critical value of 12.59 with degree of freedom 6 at 0.05 alpha level of significance. Since calculated chi-square (62.9) is greater than critical value (12.59), we therefore reject null hypothesis. This means that the knowledge of risk factors of Hepatitis B will significantly affect the prevention of Hepatitis B.

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DISCUSSION OF FINDINGS

The findings from the tested hypothesis one in table 4.8 revealed that level of education significantly influence knowledge of Hepatitis B Virus. Compared and disagree with the findings of (Adekanleet al., 2015). The difference in findings is traceable to geographical, methodological and research design difference.

The findings from tested hypotheses two in table 4.9 shows that knowledge of Hepatitis B Virus significantly influence the prevention of Hepatitis B. This result is in contrast with (Abeje & Azage, 2015; & Oyewusi et al., 2015) due to the influence of other variables included in this study which is omitted in theirs.

The findings of tested hypothesis three in table 4.10 revealed that knowledge of the risk factors of Hepatitis B significantly influence the prevention of Hepatitis B. This affirms the findings of (WHO, 2020).

SUMMARY

Socio Demographic Information of Respondents

Table 4.1 above shows the socio demographic information of respondents: the gender information shows that most 113 (56%) are females while 88 (44%) are males; age distribution shows that most 73 (36%) are between 37-47 years, 59 (29%) are between 15-25 years, 50 (25%) are between 26-36 years and 19 (10%) are 48 years and above; educational status shows that most 159 (81%) have formal education while 42 (19%) have no formal education; religion distribution shows that most 136 (68%) are Christians, 61 (30%) are Muslims and 4 (2%) are traditionalist; marital status shows that most 110 (54%) are married, 65 (32%) are single, 13 (7%) are widowed and 13 (7%) are divorced; occupation shows that most 62 (31%)are unemployed, 55 (27%) are self-employed, 45 (22%) are civil servants and 39 (20%) are private sector workers.

Research Questions

Table 5 shows that educational level of respondents influences their knowledge of Hepatitis B Virus; knowledge of Hepatitis B influences the awareness of the risk factors; while awareness of the risk factors of Hepatitis B influences the prevention of the virus.

CONCLUSION

It was concluded that most of dwellers of Sauka Community Kuje Area Council FCT-Abuja are formally educated and have knowledge of Hepatitis B Virus. Their knowledge of Hepatitis B Virus influences their awareness to the risk factors of Hepatitis B Virus; and awareness of risk factors of Hepatitis B Virus significantly influences the prevention of Hepatitis B Virus.

Recommendations

In sequel to the findings of this study, it is recommended that:

- Reduction in hepatitis B virus infection could be achieved by public enlightenment campaign, mass immunization of the children and adults at risk while antiviral drugs and immune-stimulatory therapy should be provided for those already infected.
- There is a need for health education campaigns for health workers so that they can understand the risks that they are exposed to based on the nature of their work.
- Developing and implementing a national HBV screening and vaccination programs are critical in winning the fight against the increasing morbidity and mortality caused by HBV infections.
- HCW must be trained up on the key areas of HBV infection, especially transmission routes, prevention means and treatment options.
- Access to HBV screening for pregnant women needs to be facilitated by providing RDT free of charge and making HBV treatment available for HBV-positive mothers.
- Effective community-based interventions should be implemented to identify homebirths and guarantee timely vaccination.

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