

Assessing the Knowledge on
HEPATITIS B INFECTION

Among Freshman Students at the
University of Liberia

By:

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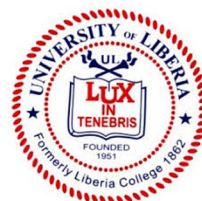
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Acronyms

HBV- Hepatitis-B Virus

CDC - Centre for Disease Control

CDCP - Centre for Disease Control and Prevention

WHO - World Health Organization

HIV- Human Immune Virus

AIDs - Acquired Immune Deficiency Syndrome

STDs – Sexually Transmitted Diseases

PATH – Program for Appropriate Technology In Health

HBsAg – Hepatitis B s Antigen

HBeAg – Hepatitis B e Antigen

NPHIL – National Public Health Institute of Liberia

DECLARATION BY THE CANDIDATE

I the undersigned solemnly declare that the project report is based on my own work carried out during the course of our study under the supervision of Director of LITPS Mrs Mamawa Freeman-Moore MSc/UL.

I assert the statements made and conclusions drawn are an outcome of my research work. I further certify that:

- I. The work contained in the report is original and has been done by me under the general supervision of my supervisor.
- II. The work has not been submitted to any other Institution for any other degree/diploma/certificate in this university or any other University of India or abroad.
- III. We have followed the guidelines provided by the university in writing the report.
- IV. Whenever we have used materials (data, theoretical analysis, and text) from other sources, we have given due credit to them in the text of the report and giving their details in the references.
- V. Any reference to work done by any other person or institution or any material obtained from other sources have been duly cited and referenced. I/We further certify that the research paper has not been published or submitted for publication anywhere else nor it will be send for publication in the future.

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Abstract

Hepatitis means inflammation of the liver. The liver is a vital organ that processes nutrients, filters the blood, fight infections. When the liver is inflamed or damaged, its function can be affected. Heavy alcohol use, toxins, some medications, and certain medical conditions can cause hepatitis. However, hepatitis is most often caused by a virus. The most common types of viral Hepatitis are: Hepatitis A, Hepatitis B, and Hepatitis C. (CDC, 2018)

According to the World Health Organization (WHO, (2012), hepatitis B is the world's most common liver infection, which is caused by a DNA-virus, the hepatitis B virus (HBV). The virus is highly contagious, 50-100 times more infectious than HIV. There are more than 2 billion people World-wide, having evidence of recent or past HBV infection and 350 million are chronic carriers. In south East Asian Region, there are estimated 80 million HBV carriers (about 6% of the total population) (Malik & Lee, 2000).

This study aims at assessing the knowledge of HBV infections among freshman at the University of Liberia. This study used information gathered from interview of currently enrolled students at the University of Liberia. Records of two hundred freshman students at the University of Liberia were gathered through interviewed about their knowledge on HBV.

Findings from the study revealed that majority of the students (92%) were aware of HBV infection. The major source of information about Hepatitis B Virus (HBV) infection was the Media (77%). There was also a high level of knowledge among students on HBV infection. Majority of the students answered nearly 7 out of 11 questions on knowledge correctly.

However, only 35.5% knew HBV could cause liver cancer. About 51.5% also wrongly stated that people could get HBV through air. Only 20% knew HBV could be transmitted from sexual intercourse. These findings correlate with other studies. Ma and co-workers (2007) for instance examined the knowledge of HBV and liver cancer among 256 Vietnamese Americans.

Their results showed that the participants had general knowledge of HBV, but only 22% knew that HBV could spread through unprotected sex. Many of their respondents did not know that HBV could cause liver cancer. Similarly, Hwang, Huang and Yi (2010) found that about 87% of respondents had heard about HBV before and had significantly greater knowledge compared to those who had not heard about the disease.

Again, Vu and co-workers (2012) found that about half of respondents knew that HBV could spread by unprotected sex.

CHAPTER ONE

1.0 INTRODUCTION

1.1 BACKGROUND

Hepatitis means inflammation of the liver. The liver is a vital organ that processes nutrients, filters the blood, fight infections. When the liver is inflamed or damaged, its function can be affected. Heavy alcohol use, toxins, some medications, and certain medical conditions can cause hepatitis. However, hepatitis is most often caused by a virus. The most common types of viral Hepatitis are: Hepatitis A, Hepatitis B, and Hepatitis C (CDC, 2018).

Hepatitis A, B and C are all liver infections caused by three different viruses. Although each can cause similar symptoms, they are spread in different ways and can affect the liver differently. Hepatitis A is usually short-term infection and does not become long-term infection. Hepatitis B and Hepatitis C can also begin as short-term infections but in some people, the virus remains in the body, and cause chronic, or lifelong infection. There are vaccinations to prevent Hepatitis A and B; however, there is no vaccine for Hepatitis C (CDC, 2018).

Hepatitis B is a liver infection caused by the Hepatitis B virus (HBV). It is transmitted when blood, semen, or another body fluid from person infected with the Hepatitis B virus enters the body of an uninfected person. This can happen through sexual contacts; sharing needles, syringes, or other drug-injection equipment; or from mother to baby at birth. For some people, HBV is an acute or short-term illness, but for others, it can become long-term, chronic infection (CDC, 2018).

Acute Hepatitis B refers to a short-term infection that occurs within the first 6 months after someone is infected with the virus. The infection can range in severity from mild illness with few or no symptoms to serious conditions requiring hospitalization. Some people, especially

adults, are able to clear, or get rid of the virus without treatment. People who clear the virus become immune and cannot get infected with the hepatitis B virus again. (CDC, 2018)

Chronic Hepatitis B is referred to as a lifelong infection with the Hepatitis B virus. The likelihood that a person develops a chronic infection depends on the age at which the person becomes infected. Up to 90% of infants infected with hepatitis B virus will develop a chronic infection. In contrast, about 5% of adults will develop chronic Hepatitis B. over time, chronic Hepatitis B can cause serious health problems, including liver damage, cirrhosis, liver cancer, and even death (CDC, 2018).

Hepatitis B is the world's most common liver infection caused by a DNA-virus, the hepatitis B virus (HBV). The virus is highly contagious, 50-100 times more infectious than HIV (WHO, 2012). There are more than 2 billion people World-wide having evidence of recent or past HBV infection and 350 million are chronic carriers. In south East Asian Region, there are estimated 80 million HBV carriers (about 6% of the total population) (Malik & Lee, 2000).

The most common ways of transmission are by unprotected sex, unsafe blood transfusions, and unsafe use of needles, from mother to child at birth, close household contact and between children in early childhood. HBV is unique compared to other sexually transmitted diseases, because it can be prevented with vaccine (WHO, 2012). It became possible to identify people with HBV in 1964 using serological testing and searching for hepatitis B surface antigen (HBsAg) (Weinbaum *et al.*, 2009).

All HBV infections do not give symptoms, meaning that there is a risk that people are contagious without knowing it (Weinbaum *et al.*, 2009; WHO, 2012). However, some people may experience acute symptoms like jaundice, fatigue, loss of appetite, nausea and/or abdominal pain. For almost all adults, 90% of the infection heals and they become healthy, but for infants and young children, there is a 90% and 30-50% risk respectively that the infection may lead to chronic hepatitis B (WHO, 2012). This provides an increased risk, approximately

25% that later in life will suffer from liver cirrhosis and/or liver cancer, if the infection is not medically managed (Chao, *et al*, 2010; WHO, 2012).

Modes of transmission of Hepatitis B virus (HBV) is the same as the human immunodeficiency virus (HIV), however, HBV is 50 to 100 times more infectious (WHO, 2012). HBV infection has been recognized as an important occupational hazard for health care workers (WHO, 2012 b). Health care workers are at risk of infection through exposure to blood and other body fluids coupled with the high contagiousness of HBV. Fortunately, infective hepatitis B is largely preventable by hepatitis B vaccine which is 95% effective in preventing such disease and its chronic consequences (WHO, 2012 c).

Transmission of infection is rare among persons who have been immunized and transmission rate may be as high as 30% among those who are not immunized (CDC, 1991). In health care delivery, HBV transmission possess a major challenge to both patients and health workers especially those who frequently come in contact with blood. These groups of people stand a higher chance of contracting the disease if care is not taken. Apart from health workers, some people in the general public are more prone to contracting hepatitis B than others e.g. drug users or injectors, people who pierce or tattoo their bodies and unprotected sex engaged in by adolescents due to their lack of knowledge about sexual negotiation and safe sex practices.

1.1 STATEMENT OF PROBLEM

Hepatitis B (HB) is a serious and common infectious disease of the liver. The World Health Organization (WHO) in 2009 reported Hepatitis-B to infect nearly 2 billion people around the globe. Furthermore, out of those 2 billion, 350 million suffered from chronic lifelong infection. Moreover, an estimated 15–40% of chronic HB carriers were susceptible to develop liver cirrhosis and hepatocellular carcinoma (Lok & McMahon, 2007). Hepatitis B infection may result in acute and chronic morbidity and mortality. Neonatal hepatitis B infection frequently persists in a chronic carrier state and confers significant risk of morbidity and mortality from

liver disease such as cirrhosis and hepatocellular carcinoma in early adulthood. Infection with hepatitis B during adolescence and adulthood is associated with a lower risk of chronic infection but is an important public health problem (CDC, 2016).

The prevalence of HBV chronic infection is particularly high in sub-Saharan Africa, ranging from 7 to 26% (Andre, 2000). Numerous studies have investigated the burden of the disease in many countries. However empirical data on the occurrence of Hepatitis-B in Liberia remains scarce. Obtaining scientific data on the knowledge regarding Hepatitis-B among freshman students at the University of Liberia will be essential in informing health awareness programs regarding the disease.

1.4 OBJECTIVES OF THE STUDY

General Objectives

The general objective of the study is to assess the knowledge on hepatitis B among freshman students at the University of Liberia.

Specific Objectives

1. To assess the knowledge regarding HBV among freshman students University of Liberia.
2. To identify factors that can be adopted to improve the knowledge of Freshman Students on HBV.

1.5 RESEARCH QUESTIONS

The study aimed to answer the following questions to achieve the objectives of the research;

1. What is the knowledge regarding HBV infection among freshman students at the University of Liberia?

2. What are the strategies that can be employed to improve the knowledge of freshman students attending the University of Liberia on HBV infection?

1.6 DELIMITATION

There are multiple areas of Hepatitis B Virus infection that are required for investigation. However, this research only focuses on the knowledge and awareness of HBV infection as well as strategies to improve the knowledge of freshman students on HBV infection at the University of Liberia.

1.7 LIMITATION OF THE STUDY

After careful observation, it was realized that the sample size was not proportional to the total number of students, which can limit the power of statistics. Again, there was a problem of time constraints in the data collection for a much longer period of survey.

Most of the respondents were not ready to volunteer information that was sought.

CHAPTER TWO

2.0 LITERATURE REVIEW

HEPATITIS B

The etiological agent for the HBV was discovered in 1966 (Ocama et al., 2005). Hepatitis B infection is a major health problem with a characteristic geographic distribution (Halfon et al., 2005). The major risk factors associated with HBV infection include poor sterilization technique and contact with infected blood and body fluids (Buster et al., 2003). All health care workers in contact with blood and body fluids should know their antibody status and be vaccinated for HBV if they have not previously had HBV infection and should adhere to universal protective measures (Fry, 2007).

2.1 BRIEF HISTORY OF HEPATITIS B VIRUS

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 (Blumberg et al, 1965, 1977). 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 (Dane et al, 1970). 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.

2.2 TRANSMISSION ROUTE OF HEPATITIS B

Grob and Esteban (1995) stated that HBV may be transmitted horizontally and vertically. Horizontal transmission occurs during adolescence or childhood, throughout sexual exposure,

needle stick (both accidental or through intravenous drug use), and blood transfusion (Alter et al, 1990). Therefore, any person with a bad history of sexually transmitted diseases (STDs), multiple sexual partners or an injecting drug user stands a higher chance of being infected with HBV (CDC, 2002). Exposure to blood is also by means of open wounds in households, other close contacts, and multiple transfusions in hemophiliacs (Meheus, 1995). This view of exposure to risk was also shared by (Margolis et al, 2000) who argued that most of the infections occur among adolescents and young adults due to exposure to high risk activities they engage in at this stage of life.

A vertical transmission occurs when an infected mother transmits the virus directly to the neonatal during childbirth. Such transmissions are usually possible when the expectant mother suffers an acute infection of hepatitis B during pregnancy or if she is a chronic carrier during that period. The mode of this vertical transmission is not clearcut, but indications are that, infection might occur through a placenta cutting during childbirth. Majority of countries in Southeast Asia, the Western Pacific and Africa have high endemicity of HBV. In these settings the major mode of HBV transmission has been identified as vertical, where by mothers directly transmit virus to their infants during prenatal periods or where infected siblings, playmates, other members of different households transmit the virus to their younger ones (Maynard et al, 1988). A cross sectional study by Margolis et al (1991) clarified that without prophylaxis, an estimated number of 6000 infants born to carrier mothers each year in the USA would develop chronic HBV infection as a consequence of prenatal transmission.

A part from the above mentioned major modes of transmission, tattooing and body piercing tools have been recently discovered to contribute significantly to the spread of the disease. The incidence of reported hepatitis B in different age groups in the USA is indicative of a life style disease linked with at-risk behaviour in late adolescence (15-19 years) and young adulthood (20-29 years). The disturbing risk factors are mostly sexual misconduct, tattooing, body-piercing, drug use or injection. In less developed countries, the use of crude methods during injections such as reused unsterilized or improperly sterilized needles and syringes are

estimated to cause millions of cases of hepatitis B and C as well as HIV and other blood borne diseases globally (Kane, 1998).

2.3 GLOBAL SITUATION OF HEPATITIS B

Despite the fact that since 1982 there is a vaccine against HBV that gives 90-100% protection against infection, there are in the world today more than 350 million people living with chronic hepatitis B. The consequence of this is approximately 600,000 HBV related deaths every year around the world, where the cause is primary liver cirrhosis or liver cancer (Dunford et al., 2012; WHO, 2012). The virus is transmitted differently between geographic regions and countries depending on how endemic the HBV is there. In regions where the endemicity is low, it is more common that the virus is transmitted through horizontal routes such as injecting drug use, high-risk sexual behaviour and receiving blood products. When in regions with high endemicity, for example in Vietnam, HBV is primarily spread by vertical transmission early in childhood or perinatally, from mother to child at birth (Dunford et al., 2012).

In the U.S., approximately 1.4 million residents are chronically infected with HBV (Weinbaum et al., 2009; Nguyen et al., 2010). According to the fact that during the years 1974-2008 17.6 million people born in countries of intermediate or high prevalence of chronic hepatitis B have immigrated to the U.S., there is an increased burden of chronic hepatitis B in the country (Mitchell, Armstrong, Hu, Wasley & Painter, 2011). More than half of the estimated chronic hepatitis B cases were from the Western Pacific region, from countries such as the Philippines, China and Vietnam. These were the main countries of birth for imported cases of chronic hepatitis B. Africa was the second largest region for imported cases of chronic hepatitis B. According to systematic review (Rossi et al., 2012) migrants from East Asia, the Pacific and Sub-Saharan Africa represented a high sero prevalence of chronic hepatitis B, 10.3-11.3%, and migrants from Eastern Europe, Central Africa and South Asia were intermediate sero-prevalence. The sero-prevalence of chronic hepatitis B was low among migrants from the

Caribbean, Latin America, the Middle East and North Africa. Refugees and asylum seekers had higher sero prevalence of chronic hepatitis B compared to migrants.

2.4 HEPATITIS B EPIDEMIOLOGY IN GHANA

The exact hepatitis B prevalence in Ghana is not known as different studies targeted different segments of the population and does not give a clear picture of the situation on the ground. Although there is a relatively low prevalence of HIV with an estimated number of 260,000 carriers as compared to an estimated number of four million carriers of HBV, much of the attention of Ghana Health Service and other health related organizations is focused on HIV prevention and treatment through health education programs and provision of anti-retroviral drugs to the neglect of equally deadly diseases like hepatitis B. Meanwhile, few studies conducted in the country about HBV revealed its continuous increase. In a hospital-based study conducted among blood donors it was revealed that HBV is endemic in the country with prevalence rates ranging from 6.4% to 10% among blood donors, 6.4% among pregnant women and 16% for children among the general population (Foli et al, 1971; Acquaye et al, 1991, 1994; Martinson et al, 1998).

Another hospital-based study conducted in two different hospitals in Jirapa and Tumu in the Upper West Region of Ghana by a Cuban Medical Brigade has shown that in 2009, 128 admitted patients were tested HBV positive and that majority of the cases were between the ages of 30-44 years (GHS, 2009). In a cross-sectional study of children aged 15 years and younger in the rural Ashanti-Akim North district of Ghana Martinson et al (1998) estimated the HBV prevalence at 5.4%. A hospital-based study of pregnant women in Accra the capital of Ghana, estimated the prevalence at 2.5% (Lassey et al, 2004). Adjei et al (2006) performed a cross-sectional study of prison inmates in two regional central prisons in Ghana and found that the HBV prevalence was 19%. Prisoners have been found to be part of the high-risk groups of hepatitis prevalence in Ghana. The congested nature of most prisons in the country coupled

with the fact that prison inmates are not usually screened before serving their prison sentence exposes them to HBV infection.

Unpublished data on causes of deaths in Ghana's premier hospital, Korle Bu Teaching Hospital, over a 20-year period (1980-2000) from the Department of Pathology revealed that the commonest cause of liver diseases leading to death at autopsy in Ghana was cirrhosis of the liver. Although statistics from the Ghana Health Service mentioned liver cirrhosis as the major cause of all liver related deaths in Ghana, there have been very few studies of the possible role of hepatitis B and other possible risk factors that account for the deadly epidemic in the country. This is a clear manifestation that hepatitis

B related causes of liver cirrhosis are relegated to the background and not much documentation on it. In view of the above-mentioned factors and forces facilitating the spread of the disease worldwide, being knowledgeable about the facts and figures on the ground and having positive attitudes and behaviours are paramount in the fight against the spread of the global epidemic.

2.5 HEPATITIS B VIRUS VACCINE

The HBV vaccine was introduced 1982 in the U.S. (Weinbaum et al., 2009) and in 1997 infant HBV vaccination was introduced in Vietnam. It was part of a trial and was implemented in two cities; Hanoi and Ho Chi Minh City (Nguyen, Law & Dore, 2008; Program for Appropriate Technology in Health [PATH], 2012). In 2003, a universal infant vaccination programme was implemented in the whole country, but in 2006 still only 64% of the new-borns got the birth-dose vaccine within 24 hours. If the birth-dose of hepatitis B vaccine is given within the first 24-hours of birth, it prevents 80-90% of the virus transmission between mother and child. In 2010, the Vietnamese Ministry of Health re-emphasized their recommendation of birth-dose vaccine in an attempt to increase the prevalence of vaccinated infants (PATH, 2012).

The HBV vaccine gives healthy infants, children and adults a protective concentration of anti-HBs in 90-100% of the cases if following the vaccination schedule properly. The vaccine

is typically given in a three-dose series. Persons who are immunosuppressed or over 40 years old are less likely to develop protective concentrations (Shepard, Simard, Finelli, Fiore & Bell, 2006). It is not known if the HBV vaccine gives lifelong protection against HBV and if boosters are necessary. However, it is known that the protection is long lasting, at least 10-15 years, if the vaccination schedule is followed correctly (Socialstyrelsen, 2008). Fever and pain at the injection site are the most common side effects of the HBV vaccine. Allergic reactions have been reported but are not common (Shepard et al., 2006).

To investigate the hepatitis B immunization coverage among 1508 Vietnamese American children in three different metropolitan areas in the U.S., a telephone survey was made in 1994 (Jenkins, McPhee, Wong, Nguyen & Euler, 2000). Approximately one-third of the children reported to know someone with liver disease, and half of them had heard about HBV infection. Less than 25% knew that doses of hepatitis B vaccine were available for free. The results showed also that among 4-year olds the three doses vaccine coverage was 37%, while among 17-18 year olds the reported coverage was 0%. In the age group 12-18 year olds only 4% had had three doses of the vaccine (Jenkins et al., 2000). In a study made in Taiwan (Su et al., 2012) the authors analysed data from an acute hepatitis B surveillance during eight years. They found that the execution of the immunization programme effectively had reduced the prevalence of acute hepatitis B among young adults and adolescents. Although many infants are vaccinated, there is still a high incidence of acute hepatitis B among the infants due to mother to baby transmission at birth. The combination of hepatitis B vaccine and hepatitis B immunoglobulin within the first 24 hours was given to new-borns whose mothers were tested positive for HBsAg and HBeAg, hepatitis B e antigen that gave 85-95% effective preventing HBV infection (Su et al., 2012).

2.6 KNOWLEDGE ON HEPATITIS B INFECTION

Ma and co-workers (2007) examined the knowledge of HBV and liver cancer among 256 Vietnamese Americans with low socioeconomic status. The results showed that the participants

had general knowledge of HBV, but only 22% knew that HBV could spread through unprotected sex. Many did not know that liver cancer is preventable or that it is curable. Only a third of the participants knew about the vaccine that protects against HBV. An average knowledge is confirmed by Vu and co-workers study (2012) that investigated knowledge about HBV among 433 Vietnamese men in Australia. About half of the respondents knew that HBV could spread by unprotected sex. Only 32% of them knew that sharing food and drink with an infected person is not a risk factor for being infected with HBV. Knowledge about the progression and character of the disease was higher. Approximately 60% knew that long-time infection still can transmit the disease, be asymptomatic and that treatment is available. Less than half of the respondents knew that it could turn into a lifelong disease.

A study was carried out in China (Chao et al., 2010) to investigate the knowledge about HBV among 250 health professionals by handing out a questionnaire at the “China national conference on the prevention and control of viral hepatitis”. The results showed that even among highly educated health professionals the knowledge and education was deficient. One-third of the respondents did not know that it is common for chronic HBV infection to be asymptomatic or that it can lead to liver cancer, liver cirrhosis and premature death. The authors believe that this increases the risk of health professionals overlooking the significance of screening even those who are asymptomatic, and vaccinating those who need it. Mohamed and co-workers (2012) also found that factors associated with greater knowledge about HBV are high educational level or employment in professional jobs. The study by Taylor and co-workers (2005) investigated knowledge and awareness of hepatitis B among randomly selected Vietnamese adults living in the United States. About 81% of the 715 adults that participated in the study had heard of hepatitis B and 67% had been tested for HBV. The knowledge of the infection was generally good, with about three-quarters knowing the different ways of transmission but only 69% knew about infection through unprotected sex.

Hwang, Huang and Yi (2010) investigated knowledge about HBV and predictors of HBV vaccination among 251 Vietnamese American college students. More than half of the participants were aware that HBV could be transmitted via unprotected sex and contaminated blood; though most of the participants' thought that HBV was transmitted through food and water. Less than one third knew that Asian Americans have higher risk of being infected with HBV than other people. About 87% had heard about HBV before and they had significantly greater knowledge compared to those who had not heard about the disease. The knowledge was also greater among those who had been screened for, or vaccinated against HBV, or had family members diagnosed with HBV or liver cancer. The study also indicated that women had greater knowledge about HBV compared to men. About 43% of the participants reported being vaccinated against HBV and they had greater knowledge than those who had not been vaccinated. Older participants or participants who were sexually active and/or knew someone with HBV were less likely to have been vaccinated.

CHAPTER THREE

3.0 METHODOLOGY

3.1 STUDY DESIGN

This study used a descriptive, cross-sectional design with standardized, self-administered structured questionnaire to assess the knowledge on hepatitis B among freshman students at the University of Liberia. The purpose for employing the deductive approach is to obtain data on different variables at a given point of time so that the variables are measured and compared and eventually assist in drawing inferences on the research findings.

3.2 STUDY AREA

The study was conducted at the University of Liberia's both campuses (Capitol Hill Campus and Fendell Campus). The University is located in Monrovia (Montserrado County), the capital city of Liberia. The University is the largest public university in the country, with the highest amount of Students within the republic.

3.3 STUDY POPULATION

The targeted population for the study was all freshman students at the University of Liberia that are currently enrolled. There are three campus of the University of Liberia which includes: The Capitol Hill Campus or the Main Campus, The Fendell Campus and The David Starz-Sinje Technical College.

3.4 SAMPLE SIZE AND SAMPLING PROCEDURE

A sample size was determined by convenient sampling. A total number of 200 freshman students both males and females were included in this study. These numbers of respondents were chosen because of the high number of freshman at the University and factors such as time and financial constraints were taken into consideration. It also represents the interest of the

researcher to make generalisation on the knowledge of freshman students at the University of Liberia.

3.5 RESEARCH INSTRUMENTS

A designed standardized questionnaire was the tool used for the formative research quantitative analysis for the data collected. The questionnaire focused on assessing the knowledge of freshman students on hepatitis B infection.

3.6 DATA COLLECTION PROCEDURES

The researcher gave the questionnaires to eligible students, introduced the objective and obtained oral consent from them. Participants were given sufficient time to consider whether or not to participate in the study.

3.7 DATA ANALYSIS

Data collected were checked for completeness and information validated by the researchers upon collection of questionnaires from the students. This was done to check for missing data and correction of mistakes in order to avoid deviations and errors in data collected. The corrected data sheets were serially numbered by the researchers. The checked questionnaires were kept by the researchers ready for data processing and analysis. Statistical analyses were performed using the Microsoft Word and Microsoft Excel for Windows, version 20.0, 2010).

3.8 ETHICAL CONSIDERTATION

The researchers did not obtain ethical approval for this study, as the study was approved by the University of Liberia and informed consent was obtained for each study participant.

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 DEMOGRAPHIC DETAILS OF RESPONDENTS

The analysis of the demographic characteristics of the respondent's looks at two demographic details; the gender of respondents and age. The demographic characteristics of the students are presented in Table 4.1 below. The participation group consisted of 89 males representing 44.5% and 111 females representing 55.5%. Nearly all the respondents (96%) were below 20 years, while 4% indicated that they were 20 years and above.

Table 4.1: Demographic Details of Respondents ($n = 200$)

Characteristics	Frequency	Percentage (%)
Gender Male		
	89	44.5
Female	111	55.5
Age (years)		
< 20	192	96
≥ 20	8	4

4.2 KNOWLEDGE OF HEPATITIS B VIRUS INFECTION

The below tables shows the number of respondents, as it relates to the awareness on Hepatitis B Virus (HBV) infection. The reports revealed that the majority of the respondents 175 (88.3%) had heard of HBV infection, whilst the rest of the respondents said they hadn't heard of it yet 17 (8.5%), or they have no idea 6 (3.0%). Respondents also mentioned that their major source of information is the media, which accumulated to (83%) of the total respondents.

Figure 4.1: Awareness about Hepatitis B Virus (HBV) Infection

Have You Heard of HBV Infections?	YES		NO		NO IDEA
	175 (88.3%)		17(8.5%)		6 (3.0%)
What is your source of information	School	Hospital	Media	Family/Friends	No Response
	17(8.58%)	16(8.0%)	147(74%)	14 (7.0%)	4 (2.0%)

Table 4.2 in the section below display the respondents' level of knowledge about Hepatitis B Virus (HBV) infection. From the statistics below it was established that a great number of respondents (50%) answered correctly that HBV could not be inherited. Most of the respondents (50%) answered wrongly that HBV is an airborne virus. Only 19% of the respondents knew HBV is a sexually transmitted disease. A minute number of respondents (40.9%) knew correctly that HBV could be transmitted during childbirth. A significant number (60%) of the respondents were right that HBV cannot be transmitted by sharing food with an infected person or eating food that has be prepared by an infected person. Most of the respondents (81.0%) rightly stated that people could get HBV by eating food that has been pre-chewed by an infected person, and (71%) had knowledge that HBV could be transmitted by sharing a toothbrush with an infected person.

The below table also presents that (84.8%) of respondents knew that contact in the form of holding hands with an infected person could not transmit HBV. A good number of respondents (63.9%) did not know HBV causes liver cirrhosis, whereas 26.8% said HBV could not cause liver cancer; but most of them (65%) answered correctly that infected person can have signs or symptoms. Most of the respondents (86.2%) also indicated that they have not yet been vaccinated.

Table 4.2: Knowledge about HBV Infection among Freshman Students (n = 200)

<u>Knowledge</u>	<u>Yes</u> <u>N</u> <u>(%)</u>	<u>No</u> <u>N</u> <u>(%)</u>	<u>Don't know</u> <u>N</u> <u>(%)</u>	<u>Total</u> <u>N</u> <u>(%)</u>
Do people get HBV from genes?	19(10.4)	92(50.8)	70(38.6)	181(100)
Do people get HBV through the air?	100(50.0)	39(19.5)	61(30.5)	200(100)
Do people get HBV from sexual intercourse?	38(19.0)	88(44.0)	74(37)	200(100)
Do people get HBV during birth?	79(40.9)	69(35.7)	45(23.3)	193(100)
Do people get HBV by sharing spoons or bowls for food?	14(7.0)	120(60)	66(33.0)	200(100)
Do people get HBV by eating food prechewed by an infected person?	158(81.0)	18(9.2)	19(9.7)	195(100)
Do people get HBV by sharing a toothbrush with infected person?	140(71.9)	40(20.5)	16(8.2)	195(100)
Do people get HBV by holding hands with an infected person?	6(3.0)	168(84.8)	24(12.1)	198(100)
Does HBV have signs?	118(65.0)	43(24.0)	18(10.0)	179(100)
Does HBV cause liver cancer?	18(9.2)	52(26.8)	124(63.9)	194(100)
Have you been vaccinated?	16(8.1)	170(86.2)	11(5.5)	197(100)

**Percentages are in parenthesis*

DISCUSSIONS

This study was limited to freshman students at the University of Liberia. As students represent the enlightened future of the country, their knowledge on Hepatitis B Virus (HBV) infection could go a long way in making primary prevention of the condition more effective on the long run. Therefore, this study attempted to assess knowledge towards Hepatitis B Virus infection among freshman students. The researcher tried to find out the level of awareness and knowledge of students towards HBV.

Findings from the study revealed that majority of the students (50.8%) were aware of HBV infection. The major source of information about Hepatitis B Virus (HBV) infection was the Media (74%). There was also a high level of knowledge among students on HBV infection. Majority of the students answered nearly 7 out of 11 questions on knowledge correctly. However, only 9.2% knew HBV could cause liver cancer. About 50% also wrongly stated that people could get HBV through air. Only 19% knew HBV could be transmitted from sexual intercourse. These findings correlate with other studies. Ma and co-workers (2007) for instance examined the knowledge of HBV and liver cancer among 256 Vietnamese Americans. Their results showed that the participants had general knowledge of HBV, but only 22% knew that HBV could spread through unprotected sex. Many of their respondents did not know that HBV could cause liver cancer. Similarly, Hwang, Huang and Yi (2010) found that about 87% of respondents had heard about HBV before and had significantly greater knowledge compared to those who had not heard about the disease. Again, Vu and co-workers (2012) found that about half of respondents knew that HBV could spread by unprotected sex.

CHAPTER FIVE

5.0 CONCLUSION

The findings above showed that majority of the students were aware of HBV infection. There was also a high level of knowledge among students on HBV infection. From the data collected above it was also understood that majority of the students are not aware of the major diseases that are associated with the chronic infection of HBV, this shows that there is need to conduct a further research on the attitude and perception of HBV among the freshman students at the University of Liberia. After careful analysis of the data collected, this study has provided some empirical evidence on knowledge on Hepatitis B Virus (HBV) infection among freshman students at the University of Liberia.

5.1 RECOMMENDATION

After a careful review of the above results to address the situation, I would like to make the following recommendations:

1. Apply more effort to improve surveillance for HBV infection among young adults (freshman students and senior high school students).
2. Increase the knowledge and awareness among healthcare and social-service providers and the public, especially those at-risk, on HBV infection and the complications associated with chronic infection.
3. Improved HBV vaccine coverage; and improved viral hepatitis services and access to those services.
4. Due to the poor healthcare system in Liberia; healthcare training sessions be conducted for healthcare practitioners specifically on the treatment and prevention of HBV.

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