

**THE PREVALENCE OF HEPATITIS B VIRAL INFECTION AMONG
PATIENT AGE 15-35 YEAR ATTENDING HEALTH SERVICES
AT NGETTA HCIV LIRA DISTRICT, UGANDA**

EBONG DANIEL

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DECLARATION

I hereby declare that this research and its finding are my original work made with my effort and have never been presented for any academic award or qualification in any other institution of higher learning. Referencing has been made where citation of other work of people has been done appropriately.

EBONG DANIEL

Signature..... Date.....

SUPERVISOR'S APPROVAL

This research has been generated under my supervision and is hereby submitted to the faculty of Allied Health Science with my supervisor's approval.

Dr. AMBROSE ODWEE

Signature..... Date.....

DEDICATION

I greatly dedicate this case study report to my lovely guidance aunty Magret, Mollyz, Pasca Mr. Francis Olang, my sisters Harriet Akello, Juliet, Sandra Abonyo and my brothers Joshua Ocen, Bro Ronald, Bro Isaac Odok, Bro Mosez, and Bro Keneth Odongo. Finally to all my relatives and friends who contributed towards my academic progress.

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LIST OF ABBREVIATION AND DEFINITION

ALT	Alanine Transaminase
AST	Aspartate Transaminase
CDC	Center for Disease Control
CHB	Chronic Hepatitis B
DNA	Deoxyribonucleic Acid
EEG	Electro-encephalography
GOPD	General Outpatient Department
HBeAg	Hepatitis B Envelope Antigen
HBsAg	Hepatitis B Surface Antigen
HBV	Hepatitis B Virus
HCC	Hepatocellular Carcinoma
HCIV	Health Centre IV (four)
HCV	Hepatitis C Virus
HIV	Human Immunodeficiency Virus
IFNa	Interferon alpha
IgM	Immunoglobulin M
MOH	Ministry of Health
RNA	Ribonucleic Acid recall novel biomarker
WHO	World Health Organization

OPPERATIONAL TERMS

Acute hepatitis B; Clinical signs and symptoms of HBV infection that emerged from 6 months or less.

Antibody to HBsAg (anti HBs); the antibody that develops following recovery from and after vaccination.

Anti-HBcAg(core antibody) ; This is an antibody which develops in all HBV infections, appears shortly after HBsAg in acute disease and indicates HBV infection at some undefined time in the pass. Anti-HBcAg only occurs after HBV infection and does not develop in persons whose immunity to HBV is from vaccine

Blood- borne pathogens: Infectious microorganisms that survive in the blood. Pathogens of good examples are; hepatitis B virus (HBV), hepatitis C virus (HCV) and human immunodeficiency virus.

Chronic Hepatitis B Virus Infection: This a persistence of HepB viral infection occurring from beyond 6months.

Cirrhosis: This is a progressional scarring complication of Hep B resulting to permanent liver damage (scarring).

Combination Vaccine: A vaccine made by combining antigens that prevent different diseases (e.g.DPT).

Hepatitis B envelope antigen (HBeAg): A marker of increased infectivity in persons who are infected with hepatitis B virus. This indicates HBV replication and high chance of infectivity to others

Hepatitis B surface antigen (HBsAg): Formally called Australia antigen or hepatitis associated antigen, is an antigenic determinant found on the surface of the virus. it also a marker present in persons who are currently infected with hepatitis B virus (i.e. persons with both recent and chronic infections).

ABSTRACT

Hepatitis B is a viral infection that attacks the liver and can cause both acute and chronic disease. Hepatitis B is a potentially life-threatening liver infection caused by the hepatitis B virus.

A cross-sectional study carried out at Ngetta Mission HCIV to assess the prevalence of hepatitis B viral infection among patients age 15-35 year old on one hundred thirty eight respondents.

A qualitative and a quantitative data collection method was used whereby the questionnaires were given to the consented participants to fill in, the current record during data collection for which others were tested (new cases) and the laboratory medical book register was requested from the staff of laboratory department for the old cases as the study aimed at finding both new and old cases (prevalence).

Socio-demographically, most of the participants were females 76(55%) and males 62(45%) with a greater percentages being Christians (protestant and catholic), 106(76.8%) with very few Muslim 3(2.2%) and the rest unknown or others 29(21%) while the single 60(43.5%) were more than the married 46(33%) followed by the widow and divorce. However, majority have studied though occupationally they were very few salary earners because most of them were ongoing student and point generally to be living below the poverty level.

In conclusion, the prevalence of hepB was 0.6 per 100 and was highest among age group of 31-35 year old youth. In conclusion, Knowledge about hepatitis B was generally good however the prevalence of hepB and management still remained a biggest challenge. Regarding risk factors for hepB infection, having multiple sex partners found most high though other factors like tooth extraction, human bite and blood transfusion seen to carry added risk.

As per the research finding, suggested recommendation indicates the need for further research to be done, also there is need to set up more health centers or hospital in hard to reach rural areas to cut off the long distance covered and more health initiative on hepB to the community to create awareness and need to organize hepatitis B national day to have people screened and vaccinated.

CHAPTER ONE

1.0 Introduction

This chapter includes the following; background information, problem statement, general and specific objectives of the study, research questions, justification, significance and scope of the study.

1.1 Background

Hepatitis B is a viral infection that attacks the liver and can cause both acute and chronic disease. Hepatitis B is a potentially life-threatening liver infection caused by the hepatitis B virus. It is a major global health problem. It can cause chronic infection and puts people at high risk of death from cirrhosis and liver cancer. (WHO, July, 2016)

Globally, some 240 million people have chronic hepatitis B virus with the highest rates of infection in Africa and Asia. People with chronic hepatitis B infection are at increased risk of dying from cirrhosis and liver cancer. (WHO, 2015)

The sub-Saharan Africa is ranked highly endemic, Africa has the second largest number of chronic HBV carrier rate after Asia, with over 50 million people being life time carriers. It has been estimated that over 12 million people will die due hepatitis B- induced liver disease, representing a 25% risk among carrier (Kiireet *al*, 2015).

In sub-Saharan Africa, the Pacific, and particularly Asia, HBV infection is highly endemic, with the majority of individuals becoming infected during childhood. (World Health Organization. Childhood diseases in Africa, 2016)

Hepatitis B prevalence is highest in sub-Saharan Africa and East Asia, where between 5–10% of the adult population is chronically infected. High rates of chronic infections are also found in the Amazon and the southern parts of eastern and central Europe. In the Middle East and the Indian subcontinent, an estimated 2–5% of the general population is chronically infected. Less than 1% of the population of Western Europe and North America is chronically infected. (WHO, July, 2016)

In Uganda, It's estimated that approximately 3.5 million (10%) people out of the total population of 35 million are infected with the Hepatitis B virus. 30% (1,050,000) of those infected are chronically ill and require treatment, from the 2005 sero- HIV survey, which included screening for hepatitis B, prevalence rates were mapped out across the country, the highest was recorded in Karamoja (23.9%), Northern Uganda (20.7%), West Nile (18.5%), and Western Region (10.0%); and the lowest infection rates were in Central Region (6%) and South-Western (3.8%). (MOH-UGANDA, 2016)

Hepatitis B is also spread by percutaneous or mucosal exposure to infected blood and various body fluids, as well as through saliva, menstrual, vaginal, and seminal fluids. Sexual transmission of hepatitis B may occur, particularly in unvaccinated men who have sex with men and heterosexual persons with multiple sex partners or contact with sex workers. Infection in adulthood leads to chronic hepatitis in less than 5% of cases. Transmission of the virus may also occur through the reuse of needles and syringes either in health-care settings or among persons who inject drugs. In addition, infection can occur during medical, surgical and dental procedures, through tattooing, or through the use of razors and similar objects that are contaminated with infected blood. (CDC, 2016)

1.2 Problem statement

An estimated 400 million people worldwide have chronic hepatitis B virus (HBV) infection, and more than 750,000 deaths are attributed annually to HBV-related complications (McMahon, 2015).

According to Kiire, (2015), Africa is approximated to be having the largest number of individuals with chronic Hepatitis B virus infection after Asia, approaching to 58 million people.

the prevalence of hepB was 0.6 per 100 and was highest among age group of 31-35 year old youth of which out of 138 participants, 83 (60.1%) had positive test. This pictured a figure of current update on the prevalence of hepatitis B virus infection as per the study target especially in Ngetta, Lira District, Northern Uganda. In contrast to MoH, (2015), In Uganda 10% (more than 3.5 million Ugandans) are living with chronic Hepatitis B virus infection. The Uganda HIV Sero-behavioural Survey of 2014/2015 estimated the prevalence of hepatitis B in northern

Uganda ranges between 18.4% and 24.3% much higher than the National average of 10%. However, the government has intervened a massed immunization in the few of the selected districts highly infected with hepatitis B virus through ministry of health, Uganda.

1.3 Study objectives

1.3.1 The purpose of the study

To find out the prevalence of hepatitis B viral infection among patients aged 15-35 year attending health services at Ngetta HCIV.

1.3.2 Specific Objectives

1. To identify the prevalence and the level of knowledge (awareness) toward hepatitis B viral infection among people aged 15-35 year attending health services at Ngetta HCIV.
2. To identify the risk-factors of hepatitis B infection among people aged 15-35 year attending health services at Ngetta HCIV
3. To identify the treatment challenges for hepatitis B viral infection among people aged 15-35 year attending health services at Ngetta HCIV.

1.4 Research Questions

1. What are the prevalence and the level of awareness on hepatitis B infection among people aged 15-35 year attending health services at Ngetta HCIV?
2. What are the risk-factors predisposing to hepatitis B infection among people aged 15-35 year attending health services at Ngetta HCIV?
3. What are the treatment challenges for hepatitis B viral infection among people aged 15-35 year attending health services at Ngetta HCIV?

1.5 Justification of the study

The general inhabitant of Lira District were outdated on the prevailing impact of hepatitis B however the government intervention put in place to ensure that entire community were equipped with new information pointing onto the picture of hepatitis B prevalence but due to low level of awareness and the low educational level in different villages created hardship for which this study captured the community from all of their outreaches. The study identified the prevalence and level of awareness (knowledge), risk-factors and treatment challenges among patients aged 15-35 years of age who attended health services at Ngetta HCIV.

1.6 Significance of the study

Results from the study identified the high progressive rate of Hep B prevalence, poor control measures, need for further research and the information was forwarded to the stake holders which will help to come up with the interventions to reduce the levels of infections and associated morbidity and mortality and updating the available information concerning hepatitis B in the area. Results that obtained in this study is expected to enable the stakeholders to plan better on how to reach the community and how best to reduce mortality and morbidity arising from hepatitis B infections. The information obtained in this study will be used as baseline for further intervention in prevention, treatment and control of hepatitis B in northern Uganda especially Lira District.

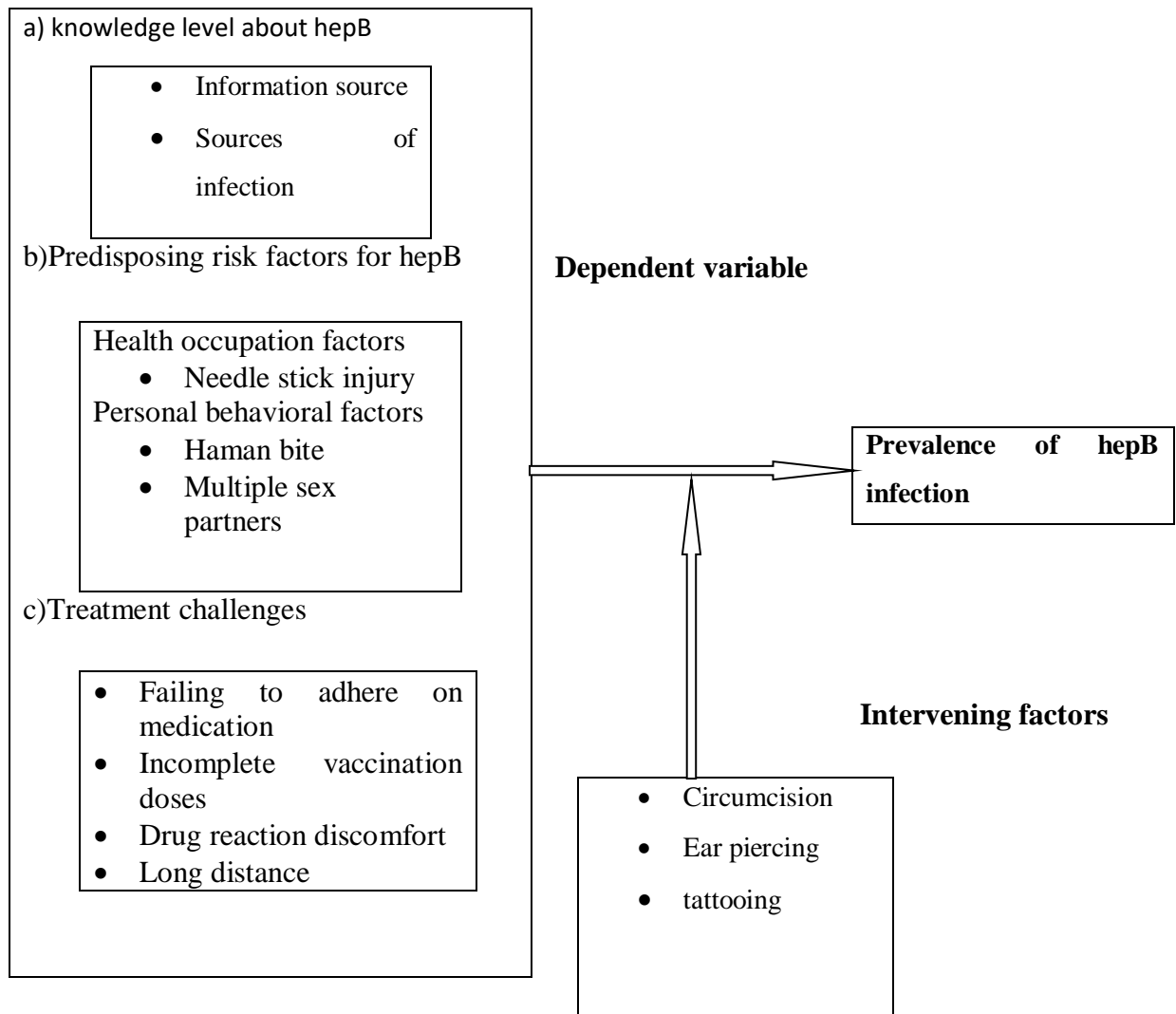
1.7 Conception framework

The illustrations below represent and explain the varying predisposing risk factors related with the cause and transmission of hepatitis B among the individuals, of which health occupation like needle prick injury during the administration of drugs either intravenously or intramuscular and fluid (blood, water of injection etc) have a risk of transmitting infection from the patient to the health worker and vice versa. Limitations to adequate information and knowledge about the source of acquiring infection have impact on more spread and cause of hep B.

Failure of patients to adhere on medication, drug reaction and long distance to the health center has also made the management a challenge cause of resistance and worsening relapse are

concurrent. Furthermore, other factors such as traditional circumcision, ear piercing and cultural tattooing found to be an added factor for transmitting hepB.

Independent variable



CHAPTER TWO

LITERATURE REVIEW

2.1 Prevalence of Hepatitis B

Globally, Hepatitis B virus (HBV) is seen to be a public burden of causing the world's major infectious diseases of which 350 million people being chronic carriers of the virus. Hepatitis B infection is the 10th leading cause of death worldwide, as a significant number of the chronic carriers go on to develop liver cirrhosis or hepatocellular carcinoma (HCC) and over 1 million die annually from HBV associated liver disease .(Wright,2009) According to Lavanchy,(2011) HCC account for 320 000 deaths per year despite the antiviral drugs that are available for HBV infected individuals that may prevent the danger progression of chronic liver disease, which allow for the significance identification of infected individuals and monitoring the prevalence of the disease.(Weinbaum et al.,2009)More than 750000 deaths are due to HBV-related complications. (Lozano et al., 2010) Early diagnosis and prompt treatment of chronic hepatitis B (CHB) infection is important for reducing morbidity and mortality.

Hepatitis B is an important occupational hazard for health workers. However, it can be prevented by currently available safe and effective vaccine. Hepatitis B has a potential of causing life-threatening liver infection caused by the hepatitis B virus. It is a major global health problem. It can cause chronic infection with a progress in people putting them at high risk of death from cirrhosis and cancer of the liver. (WHO, July 2016).

Several well-defined antigen–antibody systems are associated with HBV infection. HBsAg, formerly called Australia antigen or hepatitis-associated antigen, is an antigenic determinant found on the surface of the virus. It also makes up sub viral 22-nm spherical and tubular particles. HBsAg can be identified in serum 30 to 60 days after exposure to HBV and persists for variable periods. HBsAg is not infectious. Only the complete virus (Dane particle) is infectious. During replication, HBV produces HBsAg in excess of that needed for production of Dane particles. HBsAg is antigenically heterogeneous, with a common antigen (designated a) and 2 pairs of mutually exclusive antigens (d, y, w [including several sub determinants] and r), resulting in 4 major subtypes: adw, ayw, adr and ayr. The distribution of subtypes varies

geographically; because of the common “a” determinant, protection against one subtype appears to confer protection against the other subtypes, and no differences in clinical features have been related to subtype. (Center for disease control and prevention, DC, 2008)

In Africa ,HIV infection has a major impacts on the course of HBV infection, causing uprising liver disease and increasing mortality up to 8-fold compared to those infected by HIV alone (Thio et al., 2011). According to [Modi and Feld, \(2007\)](#), the prevalence of HBV co-infection among HIV-infected Africans vary from approximately 5 to 25% on estimation but the prevalence and existence of HIV-HBV co-infection is unknown in many sub-Saharan African populations. Improved understanding of the course of HBV infection in the setting of HIV could inform HBV prevention strategies including both vaccination efforts and treatment strategies for HIV/HBV co-infected persons in Africa

In Uganda, Its estimated that approximately 3.5 million (10%) people out of the total population of 35 million are infected with the Hepatitis B virus. 30% (1,050,000) of those infected are chronically ill and require treatment. (MOH, 2015).

2.2 Knowledge on Hepatitis B

Viral hepatitis is a common term used referring to the inflammation of hepatocytes with no prior differentiation in clinical, etiology and epidemiological differences with responsible viruses. Hepatitis A (formerly called infectious hepatitis) and hepatitis B (formerly called serum hepatitis) have been recognized as separate entities since the early 1940s and can be diagnosed with specific serologic tests. Delta hepatitis is an infection dependent on the hepatitis B virus (HBV). It may occur as a co-infection with acute HBV infection or as super infection of an HBV carrier.

Epidemic jaundice was described by Hippocrates in the 5th century. The first recorded cases of “serum hepatitis,” or hepatitis B, are thought to be those that followed the administration of smallpox vaccine containing human lymph to shipyard workers in Germany in 1883. In the early and middle parts of the 20th century, serum hepatitis was repeatedly observed following the use of contaminated needles and syringes. The role of blood as a vehicle for virus transmission was further emphasized in 1943, when Beeson described jaundice that had occurred in seven

recipients of blood transfusions. Australia antigen, later called hepatitis B surface antigen (HBsAg), was first described in 1965, and the Dane particle (complete hepatitis B virion) was identified in 1970. Identification of serologic markers for HBV infection followed, which helped clarify the natural history of the disease. Ultimately, HBsAg was prepared in quantity and now comprises the immunogen in highly effective vaccines for prevention of HBV infection. (CDC, 2005)

2.5 Transmission risks of hepatitis B

The hepatitis B virus can survive outside the body for at least 7 days. (World Health organization. Fact Sheet. Hepatitis B). Several factors influence the risk of transmission of HBV infection, including the viral load of the source in a healthcare occupational context, the level that is regarded as “high” for a viral load differs in various regions. In America and Ireland, HCWs who are infected with HBV but have a circulating viral burden $<10^4$ genome equivalents/ml are allowed to continue working unrestricted. (Henderson et al., 2010). Transmission of HBV via percutaneous route is considered unlikely at HBV DNA levels below 10^7 genome equivalents/ml. (Buster, van der Eijk, and Schalm, 2011)

2.5.1 Health Occupational Predisposition

Needle stick injuries

Those who are e antigen positive generally have higher viral loads, and the transmission rate of HBV following a needle stick injury from a source who is e antigen positive is estimated to be between 30% and 62%. (CDC, 2007) The same injury with exposure to blood from a source who is antigen negative is associated with 6-37% risk of serological evidence of HBV infection in the recipient. (Department of Health and Children, 2008). Some patients are infected with pre-core mutant viruses. This is associated with a high viral load in the absence of the e antigen, and thus is also associated with a high risk of HBV transmission risk from needle stick injuries in the community is more difficult to estimate and the exact incidence of needle stick injuries and the transmission rate is unknown. The limited published case reports would indicate that there is a very low risk of HBV transmission associated with community acquired needle stick injuries. (Res and Bowden, 2011).

Healthcare setting exposures

Spring loaded lancets have been implicated in the transmission of HBV to patients (Polish et al., 2010) as have reusable sub-dermal EEG electrodes. (CMAJ, 2010). There is a report of transmission of HBV to a patient during an endoscopic procedure, although no biopsies were taken, but bleeding gastric ulceration was identified. The presumed source was HBeAg positive. (Birnie et al., 2014)

Cleveland et al report that HBV infection prevalence in dentist's increases with longer duration in practice. (Cleveland et al., 2009) Although rates in a reference control population were not included in this report, increasing prevalence with longer duration of practice indicates that there is potential for transmission to dentists during their work.

2.5.2 Personal behavioral factors

Percutaneous exposures

There are case reports documenting the transmission of HBV among butchers, these are attributed to small hand cuts, and sharing knives, which can carry the virus on the handle. It is also thought that HBV can be transmitted via small cuts acquired in barber shops. (Mariano et al., 2008) HBV is transmitted by percutaneous and mucous membrane exposures to infectious body fluids, such as serum, semen, and saliva. (Murray et al., 2010)

Body fluid exposures

HBV DNA has been detected in body fluids apart from blood, including saliva, urine, nasopharyngeal fluid, semen, cervicovaginal fluids and tears. (Kidd-ijunggren et al., 2006) HBV transmission can occur following exposure to non-intact skin and mucous membranes

Human bite

HBV virus can be transmitted via a human bite, when associated with the skin being broken. (Hui et al., 2009)

Sexual exposure

The prevalence of HBV in heterosexuals is increased in those with multiple sexual partners and those who have markers for HIV or syphilis, an infection rate of is seen in regular heterosexual partners of HBV infected patients In addition, female commercial sex workers with a history of having anal intercourse had an increased risk of HBV infection, the risk of developing HBV infection is particularly high among men who have sex with men.

2.6 Treatment challenges to hepatitis B

According to Zoulim and Durantel ,(2015), the prevention and control of Chronic Hepatitis B (CHB) virus infection have greatly improved .Despite different available anti-HBV reagents and the updated variable guidelines, the control of HBV becomes more difficult .(Huang et al.,2015) Now a days, available therapies popularly used in the whole world are safe, well tolerated, and highly effective in anti-HBV therapy, both reducing HBV viremia and improving clinical course and prognosis (Zoulim and Locarnini ,2009). However, due to antiviral resistance and HBV, long-term administration remains a clinical challenge: only long-term virologic control, elimination of HBV and the recovery of CHB patients are not possible (Ohara et al., 2011)

Diagnosis of HBV infection is based on clinical, laboratory and epidemiological analysis. According to CDC, (2008), hepB cannot be distinguished basing on clinical symptoms alone, and realistic diagnosis depends on the laboratory results of serologic testing. Serologic markers of HBV infection vary depending on whether the infection is acute or chronic.

HBsAg is the most commonly used test for diagnosing acute HBV infections or detecting carriers. HBsAg can be detected as early as 1 or 2 weeks and as late as 11 or 12 weeks after exposure to HBV when sensitive assays are used. The presence of HBsAg indicates that a person is infectious, regardless of whether the infection is acute or chronic.

Anti-HBc (core antibody) develops in all HBV infections, appears shortly after HBsAg in acute disease, and indicates HBV infection at some undefined time in the past. Anti-HBc only occurs after HBV infection and does not develop in persons whose immunity to HBV is from vaccine. Anti-HBc generally persists for life and is not a serologic marker for acute infection.

IgM anti-HBc manifests in persons with acute disease about the time of illness onset and indicates recent HBV infection. IgM anti-HBc can be detected from 4 to 6 months after onset of illness and is the best serologic marker of acute HBV infection. A negative test for IgM-anti-HBc together with a positive test for HBsAg in a single blood sample identifies a chronic HBV infection. HBV DNA assays are used to monitor response to treatment, assess the likelihood of maternal-to-child transmission of HBV, and to detect the presence of occult HBV infection (i.e. infection in someone who tests HBsAg negative). (Lewis et al., 2009)

Two major groups of antiviral treatment have been licensed for the treatment of chronic HBV infection in many countries. These include interferon alpha (IFNa) and nucleoside or nucleotide analogues such as lamivudine, adenofovir, entecavir telbivudine, and tenofovir. Many other drugs are being evaluated. Although the decision to treat and choosing the appropriate therapy remain challenging, considerable progress has been made in the treatment of persons with chronic HBV infection. Patients generally are considered for treatment when they have HBV DNA levels above 2000 IU/ml, serum alanine aminotransferase levels above the upper limit of normal, and severity of liver disease assessed by liver biopsy (or non-invasive markers once validated in HBV-infected patients) showing moderate to severe active necroinflammation and/or at least moderate fibrosis using a standardized scoring system. The majority of patients will require prolonged treatment in order to maintain suppression of viral replication. Consequently, treatment costs in both developing and developed countries are currently prohibitively high. The efficacy of combination therapy will have to be studied further, but it is likely to diminish the occurrence of virus mutants resistant to treatment. Medications have significant side effects that require careful monitoring. (Institute of Medicine, 2012)

Persons with acute or chronic HBV infections should prevent their blood and other potentially infective body fluids from contacting other persons. They should not donate blood or share toothbrushes or razors with household members. (Poland and Jacobson, 2012)

Several factors have been associated with nonresponse to hepatitis B vaccine. These include vaccine factors (e.g., dose, schedule, injection site) and host factors. Older age (40 years and older), male sex, obesity, smoking, and chronic illness have been independently associated with nonresponse to hepatitis B vaccine. Additional vaccine doses for persons who receive post-

vaccination testing and who fail to respond to a primary vaccination series administered in the deltoid muscle produce adequate response in 15% to 25% of vaccines after one additional dose and in 30% to 50% after three additional doses. (CDC, 2011)

CHAPTER THREE

METHODOLOGY

3.1 Study area

The study was carried out in Ngetta Mission HCIV in Lira District, Northern Uganda. The coordinates of the district are: 02 20N, 33 06E (Latitude: 02.3333; Longitude: 33.1000).and in 2012, the population of Lira District was estimated at about 403,100. The majority of the population are ethnic Langi and the predominant language spoken is Luo

3.2 Study design

The study was a cross sectional study basing upon the health personnel's view on the study and the data were collected by the used of questionnaires.

3.3 Target Population

The study included all the patients' age 15-35 year old that attended the general outpatient department of Ngetta HCIV with or without any prior confirmed diagnosis Hepatitis B Viral infection within the study scheduled period and it was specific for those who consented to participate in the study.

3.4 Inclusion criteria

The patients (15-35 years) who attended the general outpatient department of Ngetta HCIV and have consented to participate in the study were enrolled.

3.5 Exclusion criteria

The patients with critical emergency condition that demanded immediate medical intervention or attention and patient with mental abnormality were excluded in the study since their informed consent were not feasible.

3.6 Sample size

The sample size of this study was calculated using the statistical formula below

$$N = \frac{ZX^2P(1-P)}{d^2} \quad (\text{Swinscow, 1997})$$

Where the variables are defined as; N= Sample required, P= a prevalence of Hepatitis B virus infection which is 10%, Z_X= Level of significance (1.96) for confidence interval 95% and

d= standard error of deviation = 0.05.

$$N = \frac{1.96^2 \times 0.1(1-0.1)}{0.05^2}$$

N= 138. 2972 subjects

Therefore, a total of 138 participants that will have consented shall be the sample size.

3.7 Sampling technique

Designated sampling technique was used to select the study population. Only patients at the GOPD who consented and had willing to participate in the study were selected and interviewed.

Convenience sampling method was used to obtain participants' responses by the use of questionnaires

3.8 Data collection

The data were collected within the due schedule. Different responses from the patients ticked against short questionnaires were used to obtain socio-demographic information from study subjects.

Laboratory medical records information was requested from the staff of laboratory department to affirm beside only the patient's response that was availed on the questionnaire sheets.

3.9 Data collection tools

Data were collected by the use of questionnaire and writing materials like pens.

3.10 Data collection method

Permission to interview the general outpatient department and the other staff was requested through a letter of introduction from KIU faculty of Allied health science. Auxiliary staffs were requested to participate in the study by filling in the questionnaires. The questionnaires were collected immediately after the participants were done with filling in them.

3.11 Pretesting

Questionnaires were given to the few chosen individuals to assess the acceptability of data collection tool before administering the questionnaire to the participants. Necessary adjustments were done to ensure adequate data collection

3.12 Data analysis and presentation

The collected data were analyzed statistically using Microsoft excel 2007, and presented in the form of frequency tables, graphs, and pie charts.

3.13 Limitations of the study

The study was a handicap as there was insufficient funding since it was self-sponsored, transport to reach the participant and time especially on busy schedule by the hospital staffs.

3.13.1 Solutions to the study limitation

Pledge cards were given to the interested people about the study outcomes to raise funding for transport and miscellaneous. The hospital staffs and administrators were informed earlier through the introductory letter from KIU faculty of Allied health science on the exercise to limit busy schedule and a request was passed to the GOPD staffs.

3.14 Ethical consideration.

The participants' confidentiality was obtained, not violated and their consent was valued and treated with utmost respect. An introductory letter was obtained by the researcher from the administration of KIU faculty of Allied health science which was presented to the relevant authorities of the area of the study. The report will be presented to the university research ethic committee for approval.

CHAPTER FOUR

RESEARCH STUDY RESULTS

4.0 INTRODUCTION

The study was conducted to assess the prevalence of hepatitis B viral infection among patients of age 15-35 year old attending health services at Ngetta HCIV in Lira district, Northern Uganda. It was a cross sectional study for which 138 participants were enrolled. The obtained Results were analyzed using statistical methods and presented in form of tables, graphs and pie charts.

4.1 SOCIO-DEMOGRAPHIC DATA

The tables below represent the information on different socio-demographic characteristics of patients' age 15-35 year old. For 138 participants under study 76 (55.1%) were females while 62(44.9%) were males. Most of the patient were protestant 56(40.6%) followed by catholic 50(36.2%) while a few Muslim 3(2.2%) and the unknown (others) 29(21.0%).

A great number of participants were single 60(43.5%) followed by the married patients, widows 30(21.7%) and divorce 2(1.4%) respectively, educationally most of the patients were educated 125(90.6%) and very few who were illiterate 13(9.4%). Occupation status reflected few salary earners who are civil servants, most of them being students followed by the business men and women while the rest being peasant. The detailed of the finding were as shown in the table below.

The table blow shows the socio-demographic data of 138 study Participants.

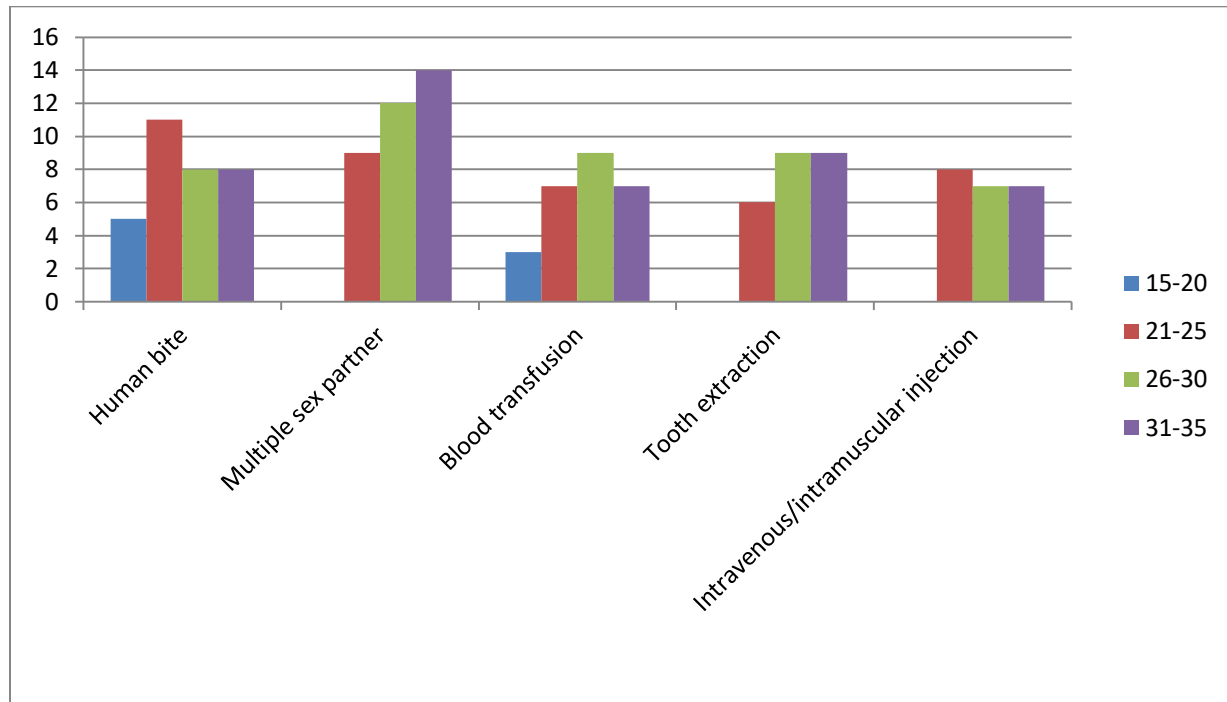
Participants age Range(year)	Males' frequency	Females' frequency	Total	Percentage (%)
15- 20	21	15	36	26.1
21- 25	14	23	37	26.8
26- 30	15	27	42	30.4
31-35	12	11	23	16.7
Total	62(44.9%)	76(55.1%)	138	100
Religion				
Catholic	22	28	50	36.2
Protestant	31	25	56	40.6
Muslim	03	00	3	2.2
Traditional religion	00	00	0	0.0

Others	08	21	29	21.0
			138	100
Marital status				
Single	23	37	60	43.5
Married	19	27	46	33.3
Divorce	00	02	2	1.4
Widow/widower	00	30	30	21.7
			138	99.9
Education level				
Primary	13	09	22	15.9
Secondary	43	28	71	51.4
Tertiary/vocational	20	12	32	23.2
Uneducated	04	09	13	9.4
			138	100
Occupation				
Civil servant	07	05	12	8.7
Business	31	13	44	31.9
Student	42	25	67	48.6
Peasant farmer	11	04	15	10.9
			138	100

4.2 PREDISPOSING RISK FACTORS/CAUSES OF VIRAL HEP B INFECTION

The column chart below represent the information indicating the research finding of the study carried on 138 participants assessing the predisposing risk factors responsible for the cause of hepB among patients of different age groups ranging from 15-35 years old of which are; human bites, multiple sex partners, blood transfusion, tooth extraction and intramuscular/intravenous injection or infusion

A column graph showing a variation of risk factors responsible for hepatitis B with different age groups of both female and male



4.3 THE PREVALENCE AND KNOWLEDGE LEVEL OF THE PATIENTS ABOUT HEP B INFECTION

4.3.1 PREVALENCE OF HEPATITIS B VIRAL INFECTION AMONGST PATIENT

At least most of the participants out of 138 enrolled, 83(60.1%) participants had known their sero-positive status and 55(39.9%) got tested and had a sero-negative status of hep B infection. The finding of the study conducted to obtain the prevalence of hepB infection are portrayed in the table below

A table showing the frequency and percentages in variation of different age ranges with the new and recent diagnosed individual responses on test for hep B

Age ranges(years)	Individual responses on test			
	Positive (%)			Negative (%)
	New test	Old test	total	
15-20	6(4.3)	4(2.9)	10(7.2)	21(15.2)
21-25	15(10.9)	9(6.5)	24(17.4)	16(11.6)
26-30	17(12.3)	5(3.6)	22(15.9)	13(9.4)
31-35	24(17.4)	3(2.2)	27(19.6)	05(3.6)
TOTAL	62(44.9)	21(15.2)	83(60.1)	55(39.9)

4.3.2 PATIENT KNOWLEDGE LEVEL ABOUT HEP B SOURCES OF INFECTION FOLLOWING A SAMPLE RESPONSE

most of the participated patients had attitude in knowing the related other factors which would expose them to hepB infection and when explained to them about the mode of transmission they were reassessed to which common sources they could acquire hepB ,128(92.6%) participants responded appropriately however only 10(7.2%) respondent showed less understanding about hep B as in the table below.

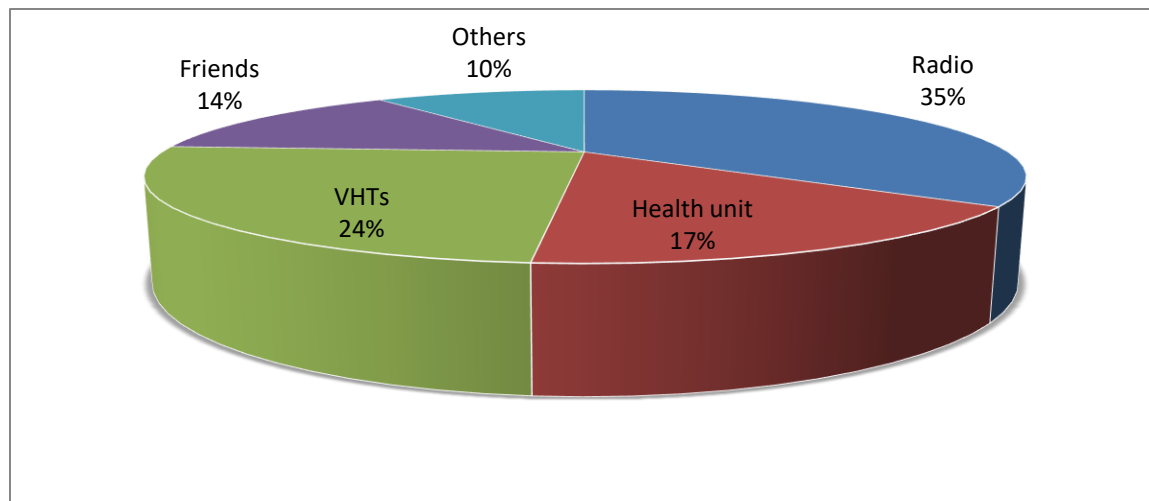
A table showing knowledge on sources of hepB viral infection by patients of different age groups

SUGGESTED SOURCES OF INFECTION	AGE DISTRIBUTIONS(Frequency and their percentages)			
	15-20	21-25	26-30	31-35
Drinking unboiled water	02(1.4)	00(0.0)	05(3.6)	03(2.2)
Unsafe tattooing and ear piercing with unsterilized materials	04(2.9)	15(10.9)	08(5.8)	05(3.6)
Sharing eating plates with an infected individuals	09(6.5)	21(15.2)	09(6.5)	07(5.1)
Having multiple sex partners	12(8.7)	13(9.4)	16(11.6)	09(6.5)

4.3.3 PATIENTS SOURCE OF INFORMATION ABOUT HEPATITIS B

The research finding indicated most of the participants to have heard about hepatitis B for which one hundred thirty eight (138) participants that met the inclusion criteria display different sources of the information from which the public have attained awareness on hepB viral infection.48 (35%) participants received information on hepB via Radio, 23(17%) of individuals got noticed through the nearby health centers and 34(24%) got from VHTs meanwhile 19(14%) and14 (10%) were able to get information via friends and other relevant sources respectively as indicated in the pie chart below.

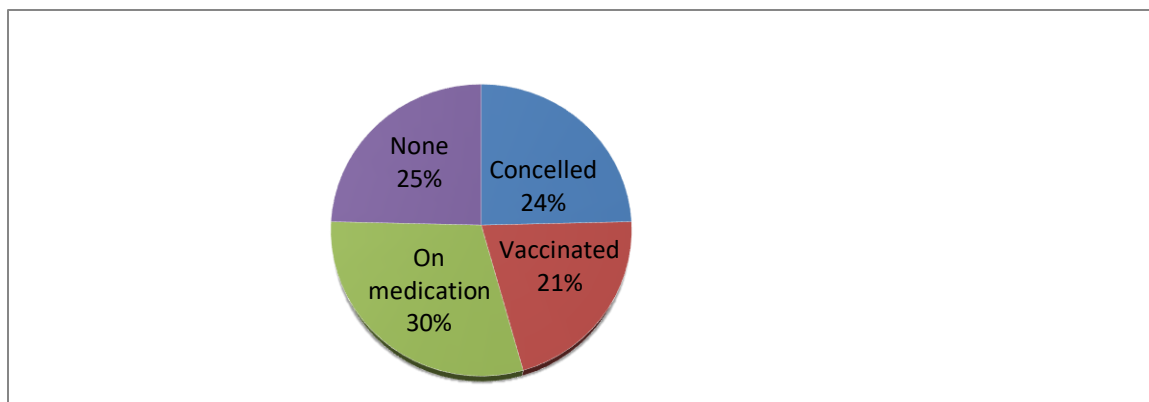
A pie chart showing knowledge of the patients on how different source of information about hepB is attained.



4.4 TREATMENT CHALLENGES FOR HEPATITIS B

With the total of 138 participated patients, the finding, majority of the patients 103(75%) at least benefited from the services offered at hep B screening center or at hospital among were; counseling ,33(24%), on medication 41(30%),vaccinated 29(21%) while 35(25%) participants showed not to have received such services as indicated in the pie chart below

A pie chart showing Individual responses to different services offered by health workers at health centers or hospitals



4.4.2 INDIVIDUAL RESPONSE ON MEDICATION CHALLENGES

According to the research analysis, most of the patient had varying complains on access to hepB medication. About 86(62.3%) participants out of 138 enrolled for the study pointed out drug reaction discomfort 26(18.8%), long distance 21(15.1%) and those who didn't complete

vaccination doses 20(14.5%) and failing to adhere on medication 19 (13.8%) while those who adhered on medication 16 (11.6%), completed vaccination doses 12 (8.7%), no drug reaction 13(9.4%) and travelling a short distance 11(8.0%) were as shown in the table below.

A table showing patients response to varying challenges in accessing hepatitis B services

Patients characteristics	Yes (frequency and percentages, %)	No (frequency and percentages, %)
Adherence on medication	16(11.6)	19(13.8)
Completion of vaccination doses	12(8.7)	20(14.5)
Drug reaction discomfort	26(18.8)	13(9.4)
Long distance to access of hep B services	21(15.2)	11(8.0)
Total	75(54.3)	63(45.7)

CHAPTER FIVE

DISCUSSION OF RESULTS, RECOMMENDATION AND CONCLUSION

5.1 PATIENTS PREVALENCE AND KNOWLEDGE LEVEL ON HEPB INFECTION

The greatest percentage of participants attained the information via Radio with 48(35%) followed by VHTs as linkage facilitators 34(24%), these facilitators visit the health centers daily and interact directly with both local communities at home and the patients or clients at the hospital. Besides, 23(17%) and 14(10%) got the information from friends and unidentifiable sources (others) respectively.

A total of One hundred thirty eight (138) participants were enrolled into the study after meeting the inclusion criteria. Out of the 138 participants, 83(60.1%) had hepatitis B Virus infection and 55 (38.9%) were negative.

However according to MOH,(2015),their finding also show that In Uganda 10% (more than 3.5 million Ugandans) are living with chronic Hepatitis B virus infection. The Uganda HIV Sero-behavioural Survey of 2014/2015 estimated the prevalence of hepatitis B in northern Uganda ranges between 18.4% and 24.3% much higher than the National average of 10%. In contrast, Out of 138 participants, the prevalence of hepB is shown to be highest in the age group of 31-35 years with 19.6%,second being age group of 21-25 years(17.4%) followed by those of 26-30 years(15.9) and the least being 15-20 with 7.2% as per research finding conducted.

Most of the participant enrolled out of 138, all of them had an existing knowledge and they used them to integrate the variable sources of infection. The greatest, 49(35%) participants were those of age ranging from 12-25 year old followed by 38(27.5%) among 26-30 year old while the rest also knew some few sources. The finding indicated majority of enrolled participants had relevant knowledge and information about hepatitis B viral infection.

5.2 PREDISPOSING RISK FACTORS/ CAUSES OF HEPB VIRAL INFECTION

According to the finding results, it shows that out of 138 enrolled participants, the most contributing factor was found to be multiple sex partners with 34 patients with highest occurrence among the age group of 31-35 year old, reflection on human bites also indicated to

occur most among the 21-26 year old with 32 respondents. Blood transfusion third with a total of 26 respondents mostly amongst 26-30 year of age while tooth extraction shared equal number of respondents ,9(nine) each with the age group of 31-35and 26-30 year old and the least factor being intramuscular/ intravenous injection or infusion with 22 respondents occurring most in the age group of 21-25 year old. However the study finding is parallel to Mariano et al., (2008) as HBV was found to be transmitted by percutaneous and mucous membrane exposures to infectious body fluids, such as serum, semen, and saliva. (Murray et al., 2010)

5.3 TREATMENT CHALLENGES FOR HEPATITIS B

The greatest percentages of the participated patients shows most of them to have benefited from the services offered at HIV/HEP B clinic of which out of 138 participants,103(75%) participants achieved services like; vaccination 29(21%) counseling 33(24%) and medication 41(30%) while the rest (none),35(25%) responded not to have benefited from any of the above services. Despite the government intervention under ministry of health to have every one tested and treated or vaccinated accordingly, there still stand a treatment challenges regarding hepatitis B infection.

Of 138 participants have been found that 39(28.3%) patients of which 19(13.8) and 20(14.5%) declined on adhering to medication and completing vaccination doses respectively while others 47(34%) equivalent to 26(18.8%) and 21(15.2%) patients reported of having drug reaction discomfort and long distance to the service hepB point respectively. This study finding greatly opposed to the Zoulim and Durantel,(2015) because of difficulties encountered by health workers from patients. A total of 52(37.7%) participants have followed the treatment guide by adhering on medication and completing vaccination doses while 86(62.3%) participants tried but due to drug reaction, long distance and failure to complete doses for vaccination has hindered effective management of hepB infection as according to Huang et al.,(2015), the control of HBV has becomes more difficult .

5.4 STRENGTH AND WEAKNESS DURING DATA COLLECTION

The three weeks for collecting data coincided with time for hep B screening and vaccination, this made it easier since the patients were many more than the expected sample size and the overall data was obtained in a week only. The patient unsettledness struggling to be vaccinated

was the only problem encountered during the session as they had attention deviation towards the study.

5.5 RECOMMENDATION

As per the study finding above, recommendation on the needs to be done or established on ground of which are emphasized are as suggested below.

The government has to design effective means of communication for which the indigenous people in far rural areas to attained the adequate information. Here the government has to reinforce VHTs and designing national hepB campaign day.

Government has to set up more health centers and deploying more health workers in all hard to reach areas.

Government has to put forward an initiative program to educate the people on mode of transmission and prevention of hepatitis B viral infection.

Local hospital administrators to collaborate with the district health committees to ensure a public health education for all local communities.

Cited above, there is need for more research to be carried out in relation to the prevailing threatening prevalence of hepatitis B.

5.6 CONCLUSION

According to the socio-demographic data analyzed, great number of people enrolled under study were women, single marital status and religiously protestant followed by catholic. Most of them were educated with an average ongoing students and a few were salary earners while others were self-employed though on average there were massive people living below poverty level.

The prevalence of hepB is very high and common among 31-35 age bracket of which out of 138 participants,83(60.1%) had positive test. Knowledge on hepB was generally good

Of the risk factors analyzed, multiple sex partners are leading to a vast transmission of hepB However; factors like human bite, tooth extraction, blood transfusion and

intramuscular/intravenous injection or infusion respectively are also contributing to the spread of hepB infection.

Patient management still remain a great challenged as seen ,adherence on medication and failure to complete vaccination doses are worsening hepB management. To some extend despite health workers effort and patients ability to access and benefit from hepB services, antiretroviral drug reactions and long distant are letting patients attitude off services

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APPENDICES

APPENDIX ONE: CONSENT FORM

I Ebong Daniel, a student of Kampala International University-Western Campus, Uganda, pursuing clinical medicine and community health here to conduct a research on the prevalence of hepatitis B viral infection among patient age 15-35 year.

I therefore request you to participate in the study and all the information obtained shall be kept with utmost confidentiality.

Your cooperation towards answering these questions will be highly appreciated

Signature.....

Email;ebongdaniel1993@gmail.com

THANK YOU.

RESPONDENT

The study topic and its objective have been read, explained thoroughly by the researcher and I have understood to the details, I therefore undertake a voluntary participation in answering the provided questionnaire in the view of my opinion

Signature/thumb.....

APPENDIX TWO: RESEARCH QUESTIONNAIRES

PART ONE: SOCIO-DEMOGRAPHIC DATA

Tick as appropriate in the BOX ☐ and write in the space where necessary.

1. Age of the patient (years)

a) 15-20 ☐ b) 21-25 ☐

c) 26-30 ☐ d) 31-35 ☐

2. Sex/gender

a) Male ☐ b) Female ☐

3. Religion

a) Catholic ☐ b) Protestant ☐ c) Moslem ☐

d) Traditional religion ☐ e) other, specify.....

4. Marital status

a) Single ☐ b) Married ☐ c) divorced ☐

d) Widow ☐

5. Educational Level

a) Primary ☐ b) Secondary ☐ c) tertiary ☐

d) Uneducated ☐ e) other, specify.....

6. Occupational status

a) Civil servant ☐ b) Business person ☐ c) student ☐

d) Peasant farmer ☐

**PART TWO: PREDISPOSING RISK FACTORS/CAUSES OF VIRAL HEP B
INFECTION**

Have you ever involved yourself in any of the under listed practices;

7. Tooth extraction a) Yes ☐ b) No ☐

8. Bitten by human being a) Yes ☐ b) No ☐

9. If yes, in number 7 above were those instruments (blade, needle, knife, etc.) used clean and sterilized at the spot when you were present?

a) Yes ☐ b) No ☐ c) Not observed ☐

d) Don't know ☐

10. Do you recall having a multiple sexual partners or currently?

a) Yes ☐ b) No ☐

11. Have you ever been transfused with blood?

a) Yes ☐ b) No ☐

13. Do you free yourself or relax your mind with drinking alcohol when with friends or when stressed up?

a) Yes ☐ b) No ☐

14. Ever since have you been administered /given drug or any fluid intravenously or medicated by intramuscular injection?

a) Yes ☐ b) No ☐

**PART THREE: ASSESSMENT OF PREVALENCE, PATIENT'S ATTITUDE AND
KNOWLEDGE ON Hep B INFECTION.**

(A) Prevalence assessment

15. Within the family or in the entire community, have you ever heard of someone living with a positive hepB or you witness with your eyes?

a) Yes ☐ No) ☐

16. Have you ever been confirm diagnosed with liver disease from any hospital or mass campaign of blood testing?

a) Yes ☐ b) No ☐

17. Have you been tested, diagnosed and confirmed on your hepatitis B status when you went for blood test?

a) Yes ☐ b) No ☐

. If yes, what was the result according to the duration below?

a) Negative ☐

b) Positive; i) last six 6months ☐ ii) from this month, May ☐

(B) Knowledge assessment

18. Have you ever heard or been informed about hepatitis B infection?

a) Yes ☐ b) No ☐

19. If yes, from where?

a) Radio ☐ b) Health unit ☐ c) VHT ☐ d) Friends ☐ e) Other,
specify.....

20. On your awareness and attitude, are you able to prevent yourself from being infected with Hep B infection?

a) Yes ☐ b) No ☐

21. What are the practices that you know can strongly infect anyone with HepB out of the listed ones?

- a) Drinking unboiled water ☐
- b) Unsafe tattooing and ear piercing with unsterilized materials ☐
- c) Sharing eating plates and spoon with anyone infected with HepB ☐
- d) Having multiple partners ☐

22. Do you have any suggestion of what can be done to prevent the spread of HepB infection?

- a) Yes ☐ b) No ☐

23. If yes, what are these preventive measures for the HepB Infection?

a).....b).....

24. Who in our family or the community is at risk of getting the infection?

- a) Father ☐ b) Mother ☐ c) children <15year ☐
- d) Grand/elderly ☐ e) anyone in the community ☐

PART FOUR: TREATMENT CHALLENGES

25. Have you ever been to a place whether hospital or anywhere they were carrying hepB test campaign or an established Centre?

- a)Yes ☐ b) No ☐

26. Were you offered any of the following services?

- a) Cancelled ☐ b) Vaccinated ☐ c) Put on medication ☐ d) None ☐

27. Did you complete all the doses of vaccination?

- a) Yes ☐ b) No ☐

28. If no, why?

29. Are you adhering on medication?

- a) Yes ☐ b) No ☐

c) If no, why?

30. Are you having any difficulty in accessing HepB medical services in health unit?

.....

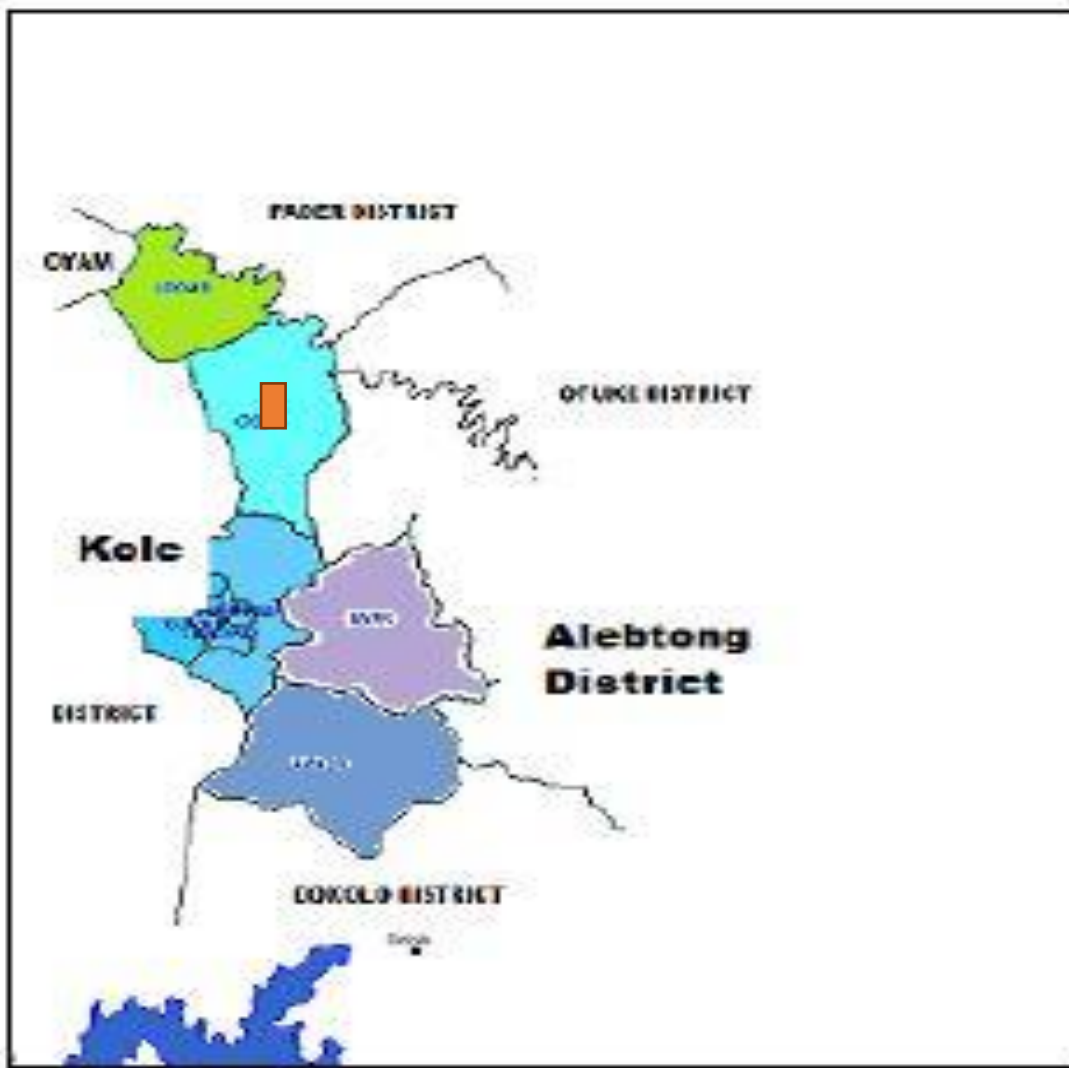
31. Are you experiencing any discomfort with medication hindering you from adhering on your drug?.....

Thank for giving your time and contributing towards this study, may Gog bless you abundantly

[illegible]

LIRA DISTRICT

APPENDIX FOUR: MAP OF LIRA DISTRICT LOCATION OF NGETTA HCIV



KEY

**NGETTA HCIV, LIRA DISTRICT**

APPENDIX FIVE: INTRODUCTORY LETTER



School of Allied Health Sciences (SAHS) Ishaka,
P.O. BOX 71 Bushenyi,
Tel: 0703786082/0773786082
Email: christinekyobuhaire@gmail.com

OFFICE OF THE ADMINISTRATOR –SAHS

3rd May 2017

The incharge Ngetta HCIV
LIRA DISTRICT



Dear Sir/ Madam,

SUBJECT: DATA COLLECTION

Academic research project is an Academic requirement of every student pursuing a 3 year Diploma in Clinical Medicine & Community Health (DCM) of Kampala International University- Western Campus (KIU-WC). DCM program is housed in the School of Allied Health Sciences (SAHS).

The students have so far obtained skills in Proposal writing especially chapter one, Three & Questionnaire design. The student's topic has been approved by SAHS Research Unit and is therefore permitted to go for data collection alongside full proposal & dissertation writing. As you may discover the student is in the process of full proposal development. However, the student MUST present to you his questionnaire and his research specific objectives that he wishes to address. We as academic staff of Allied Health Sciences are extremely grateful for your support in training the young generation of Health Professionals. I therefore humbly request you to receive and allow the student **EBONG DANIEL** Reg. No. **DCM/0046/143/DU** in your health facility to carry out his research. His topic is hereby attached. Again we are very grateful for your matchless support and cooperation.

Topic: **THE PREVALENCE OF HEPATITIS B VIRAL INFECTION AMONG PATIENT AGE 15-35 YEAR ATTENDING HEALTH SERVICES AT NGETTA HCIV DISTRICT, UGANDA.**

Sincerely yours,

Christine Kyobuhaire, Administrator- SAHS

CC: Dean SAHS

CC: Associate Dean SAHS

CC: Coordinator, Research Unit- SAHS

CC: H.O.D Dept. Public Health

CC: H.O.D Laboratory Sciences

CC: Coordinators; TLC & DEC

"Exploring the Heights"