ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCES
SCHOOL OF ALLIED HEAITH SCIENCES
DEPARTMENT OF NURSING AND MIDWIFERY

ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PRACTICE TOWARDS HEPATITIS B VIRAL INFECTION AMONG ADDIS ABABA UNIVERSITY, REGULAR UNDERGRADUATE STUDENTS OF COLLEGE OF HEALTH SCIENCE, ADDIS ABABA ETHIOPIA, 2014

BY:

HIKMA SHIKURE (Bsc N.)

A THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES OF ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTERS OF SCIENCE IN ADULT HEALTH NURSING

JUNE, 2014

ADDIS ABABA, ETHIOPIA

ADDIS ABABA UNIVERSITY
COLLEGE OF HEALTH SCIENCES
SCHOOL OF ALLIED HEAITH SCIENCES
DEPARTMENT OF NURSING AND MIDWIFERY

ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PRACTICE TOWARDS HEPATITIS B VIRAL INFECTION AMONG ADDIS ABABA UNIVERSITY, REGULAR UNDERGRADUATE STUDENTS OF COLLEGE OF HEALTH SCIENCE, ADDIS ABABA ETHIOPIA, 2014

BY:

HIKMA SHIKURE (Bsc N.)

ADVISOR:

ATO TEFERI FETE (RN, Bsc, Msc)

JUNE 2014

ADDIS ABABA, ETHIOPIA

APPROVED BY THE BOARD OF EXAMINATION

THIS THESIS BY HIKMA SHIKURE AYSACO IS ACCEPTED IN ITS PRESENT FORM BY THE BOARD OF EXAMINERS AS SATISFYING THESIS REQUIRMENET FOR THE DEGREE OF MASTERS OF SCIENCE IN ADULT HEALTH NURSING.

INTERNAL EXAMINER:

_____	_____	_____
FULL NAME	**RANK**	**SIGNATURE AND DATE**

RESARCH ADVISOR/ SUPERVISOR

ATO TEFERI FETE (RN, Bsc, Msc)	_____	_____
FULL NAME	**RANK**	**SIGNATURE AND DATE**

_____	_____	_____
CHAIR DEPARTMENT	**RANK**	**SIGNATURE AND DATE**

Acknowledgement

First of all, Praise be to Allah, who makes all things done in their appropriate time.

I would like to thank my advisor Ato Teferi Fete (RN, Bsc, Msc) for his unreserved comments throughout the research period.

My heartfelt gratitude goes to Addis Ababa University, School of Allied Health Science department of Nursing and Midwifery administrators who provided me all the necessary data for proposal preparation and data collection of this study which was very important to conduct this study.

My special gratitude and appreciation goes to the students of Addis Ababa University department of Nursing, Midwifery and Medical Laboratory technology who facilitate their class mate for the successful data collection, also for the whole study subjects who respond for the study questions.

My beloved family members and friends for their support, in making this research document to end. I would like to say all of them thank you.

Table of content

Page

List of figures

List of tables

ABBREVIATION/ ACRONYMS

AAU: Addis Ababa University

AOR: Adjusted Odds Ratio

CI: Confidence Interval

COR: Crude Odds Ratio

EPI: Expanded Programme of Immunization

HBF: Hepatitis B Foundation

HBIG: Hepatitis B Immuno Globulin

HB: Hepatitis B

HBsAg: Hepatitis B surface Antigen

HCC: Hepatocellular Carcinoma

HCWs: Health Care Workers

HIV/AIDS: Human Immunodeficiency Virus/ Acquired Immuno-Deficiency Syndrome

KAP: Knowledge, Attitude and Practice

SAHS: School of Allied Health Science

SPSS: Statistical Package for Social Sciences

WHO: World Health organization

ABSTRACT

Background: Hepatitis B is blood born liver infection caused by hepatitis B virus (HBV). It is the tenth leading cause of death among all diseases worldwide and the fifth leading cause of death from infectious disease worldwide, surpassed only by lower respiratory tract infections, diarrheal diseases, HIV/AIDS, and Tuberculosis

Objective: To assess knowledge, Attitude and Practice towards Hepatitis B viral infection among Addis Ababa University, regular undergraduate students of College of Health Science.

Method: Institution based cross sectional study was conducted among Addis Ababa University students of college of Health Science, from October 2013 to June 2014. The study population was selected among students of College of Health Science undergraduate program, with a sample size of 422 students. Data was collected by using self-administered, structured and pre tested questionnaire. Data was cleaned, coded and entered into computer and analyzed using SPSS version 20. The degree of association between dependent and independent variables was described using crude odds ratio (COR) and adjusted odds ratio (AOR) with 95% confidence interval (CI).

Results: A total of 415 students were interviewed with a response rate of 98.3%, among them 91.1% had good knowledge, 89.9% had positive attitude and 68.92% had good practice towards hepatitis B. The attitude and practice of the respondents was found to be significantly associated with their academic year, however, it was not found to have association with the knowledge of the study participants.

Conclusion: KAP of the study participants in this study was high, though the effect of little lack of knowledge, positive attitude and good practice can affect the community in which the study participants work now and then.

Recommendations: Hepatitis B prevention and control implementation guideline and hepatitis B data has to be derived, and from this guideline each concerned bodies including Health Science College of universities could work out their own strategy on hepatitis B.

1. INTRODUCTION

1.1. BACKGROUND

Hepatitis B infection is a potentially life-threatening blood born liver infection caused by hepatitis B virus (HBV). It can cause chronic liver disease and chronic infection and puts people at high risk of death from cirrhosis of the liver and liver cancer (World health organization (1). It is the tenth leading cause of death among all diseases worldwide (2) and the fifth leading cause of death from infectious disease worldwide, surpassed only by lower respiratory tract infections, diarrheal diseases, Human Immunodeficiency Virus Acquired Immuno-Deficiency Syndrome (HIV/AIDS), and Tuberculosis (3).

HBV is concentrated most highly in blood with low concentration in certain body fluids, such as semen, vaginal secretions, and saliva, of persons infected with HBV (4). Person-to-person spread of HBV can occur among those living with someone chronically infected with hepatitis B. it is mainly spread by sexual contact with an infected person, sharing needles during injection drug use; occupational needle sticks or sharps exposure, or transmission from an infected mother to her baby during birth (5).

People at high risk include health care workers (HCWs) in contact with blood and human secretions, haemodialysis staff, oncology and chemotherapy nurses, all personnel at risk of needle stick/sharps injuries, which includes those working in operating rooms and clinical laboratories, respiratory therapists, surgeons, doctors, dentists, as well as medical, dental and nursing students (6).

An exposure that might place health care professional at risk for HBV is defined as a percutaneous injury, (a needle stick or cut with a sharp object) or contact of mucous membrane or non-intact skin with blood, tissue, or other body fluids that are potentially infectious: cerebro spinal fluid (CSF), synovial fluid, pleural fluid, peritoneal fluid, pericardial fluid and amniotic fluid are also considered potentially infectious (7).

It is not possible, on clinical grounds, to differentiate hepatitis B from hepatitis caused by other viral agents and, hence, laboratory confirmation of the diagnosis is essential (1). In clinical practice diagnosis of HBV infection is established by the serological detection of HBV protein products antigens as well as host-produced antibodies. Serological markers are key elements in diagnosing acute HBV infection and determining its possible evolution towards chronicity (8).

HBV is unique compared to other sexually transmitted diseases, because it can be prevented with vaccine which is highly efficacious that protects against HBV infection 90-100% (1). Primary vaccination consists of greater or equal to three doses of hepatitis B vaccine administered intramuscularly with the interval of one month between the first and the second dose and six months between the second and the third dose produces a protective antibody response in approximately 30%–55% of healthy adults aged $\leq$40 years after the first dose, 75% after the second dose, and >90% after the third dose (9).

Hepatitis B Immuno Globulin (HBIG) is a sterile solution of ready-made antibodies against hepatitis B. HBIG is prepared from human blood from selected donors who already have a high level of antibodies to hepatitis B and used in passive immunoprophylaxis (2). Passive immunoprophylaxis is used in five situations first after needle stick exposure second newborns of mothers infected with hepatitis B; third after sexual exposure; fourth after liver transplantation and fifth after contamination of the eye (10).

There is no specific treatment for acute hepatitis B. Care is aimed at maintaining comfort and adequate nutritional balance, including replacement of fluids that are lost from vomiting and diarrhea (1). The aims of treatment of chronic HBV infection are to achieve sustained suppression of HBV replication and to induce remission of liver disease before cirrhosis and hepatocellular carcinoma (HCC) develop. Several antiviral agents that were developed for the treatment of HIV infection proved to be effective in inhibiting HBV replication. It is well accepted that antiviral therapy for chronic hepatitis is effective to improve prognosis of patients with HBV by preventing development of hepatitis state and HCC (7).

1.2 STATEMENT OF THE PROBLEM

Hospital acquired infections are a problem in both developed and developing countries and are important causes of death (11). HCWs are potentially exposed to blood and body fluids containing transmissible diseases and are at increased risk to acquire these pathogens (12, 13). Hepatitis B is blood borne pathogens, which might be acquired occupationally. Occupational exposure to blood and body fluids occur frequently among health professionals (14, 13).

The most serious occupational health hazard faced by HCWs worldwide is exposure to blood-borne pathogens; these blood-borne pathogens are mainly Hepatitis B, C, and HIV infections (2). Hepatitis B is by far the most dreaded and more infectious than the other blood-borne pathogens, it is one hundred times more contagious than HIV/AIDS, the estimated risk of a single needle stick injury indicate a risk of 300 hepatitis B virus infection (30% risk), 30 hepatitis C virus infection (3% risk) and 3 HIV infection (0.3% risk), per 1,000 respective exposures (15).

A serologic study conducted in the United States found that, HCWs had a prevalence of HBV infection approximately 10 times higher than the general population (12). WHO Report estimates that 40% of HBV infection is a result of occupational exposure, it has been estimated that 14.4% of hospital workers are infected with HBV. Nurses were most commonly exposed to infection (41%) than other HCWs (16). Although nurses are clearly a high-risk sub group for such events, nursing students may be at a similar or even at a greater risk due to their limited clinical experience (17).

Because students who consist future health staff face the threat of percutaneous injuries with the consequent risk of contracting hepatitis B, their general knowledge, attitude and practice towards hepatitis B infection can stop the spread of this disease in hospitals and society (18). Therefore this study was tried to identify the level of knowledge, Attitude and Practice towards Hepatitis B viral infection among regular undergraduate students of College of Health Science, Addis Ababa University.

1.3. SIGNIFICANCE OF THE STUDY

Prevention is the only safe strategy against high prevalence of HBV, having enough knowledge and proper Attitude towards this infection are the corner-stones of preventing the spread of the virus.

The significance of this study is to describe the knowledge, Attitude and Practice towards Hepatitis B viral infection among Addis Ababa University, regular undergraduate students of College of Health Science, which enable to identify the gap of KAP in the study population in order to reduce all the effects of HBV on these students and their patients, if this category of HCWs is not taken care of, the future patients' care will be at stake.

The result of this study will assist the college managers, the clinical facilities managers governmental and non-governmental organizations in collaboration with Ministry of Health to be aware of the extent of vaccination uptake, and develop strategies for promoting awareness creation and improving HBV immunization uptake amongst students, also end results of this study can also be used as a base line for further study.

2. LITERATURE REVIEW

2.1 Historical Background of HB

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. Dr Baruch Samuel Blumberg was awarded the 1976 Noble Prize in Physiology or Medicine for this discovery (19). A few years later, Dane (1970) visualized the HBV. Since then, considerable progress has been made regarding the epidemiology, virology, natural history, and treatment of this hepato-tropic virus (20).

Merck created the first hepatitis B vaccine in 1982, this was plasma derived, but these have largely been replaced by recombinant derived ones, which were introduced in 1986. In 1991, the WHO recommended that HB vaccine should be introduced into the Expanded Programme of Immunization (EPI) (2).

2.2 Epidemiology of HB

Despite the fact that since 1982 there is a vaccine against HBV that gives 90-100% protection against the infection, it is continuing to be the major diseases of mankind and serious global public health problem (21).

The Hepatitis B Foundation (HBF) estimates that there are more than 2 billion peoples infected with HBV, of whom about 400 million people are chronically infected and approximately 10-30 million people become infected and 1 million people die from HBV induced liver disease (chronic hepatitis, cirrhosis, and hepatocellular carcinoma) per year, which equates to about 2 HBV-related deaths occur per minute worldwide (22).

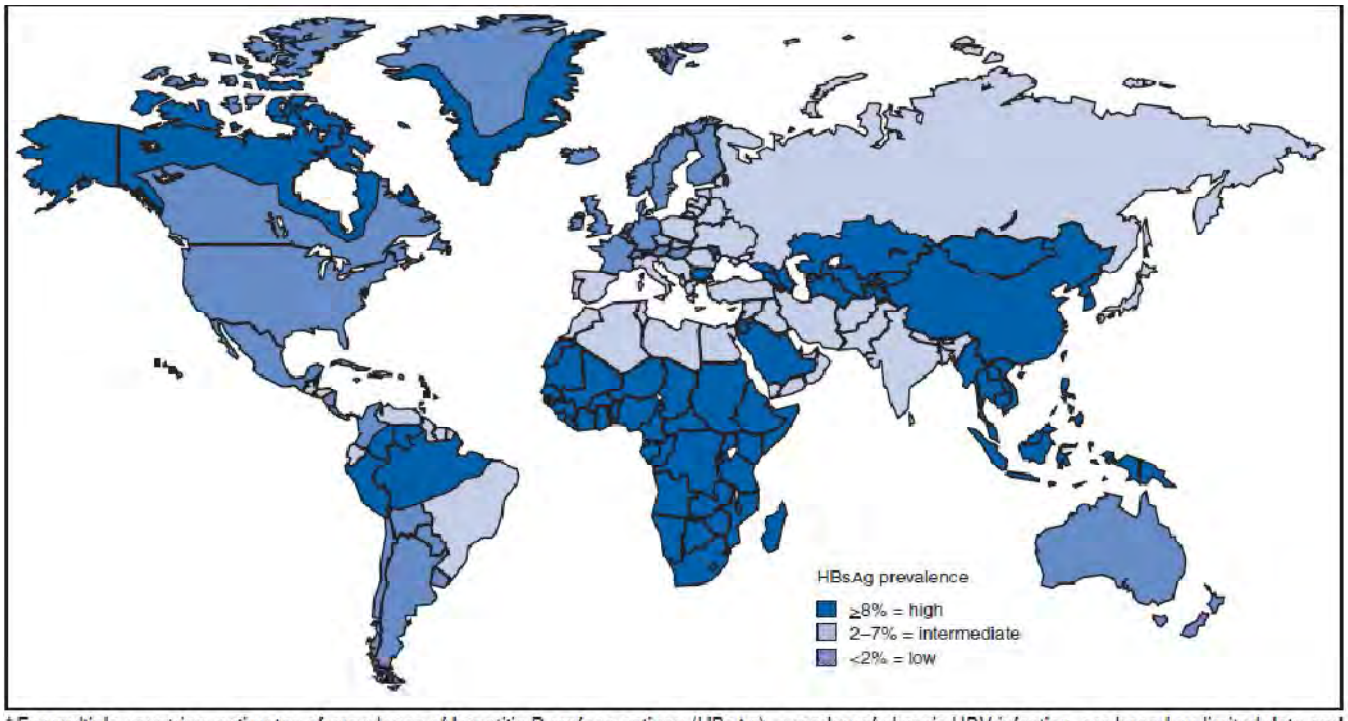
HBV infection prevalence varies markedly in different geographical areas of the world, as well as in different population subgroups. It ranges over 10% in some Asian and Western Pacific countries to under 0.5% in the United States and northern European countries (23).

The WHO has therefore demarcated the world according to chronic hepatitis B prevalence into three major blocks which include high, intermediate and low prevalence. High prevalence areas have a prevalence of chronic hepatitis B infection that is equal to or greater than eight percent (>8%) made up of countries with large population from North America, South America, Sub-Saharan Africa and most Asian countries where at least 8% of the population are HBV chronic carrier and 70–95% of the population shows past or present serological evidence of HBV infection. Intermediate prevalence areas have a prevalence rate which ranges between 2% and 7% and include countries from South America, North Africa, Western Europe, Eastern Europe and the Indian subcontinent, between 10-60% of the population have evidence of infection, and 2-7% is chronic carriers. Low prevalence areas are estimated to have a prevalence of chronic infection less than (2%) which includes most of the North American countries, Australia and most of Western Europe including the United Kingdom (UK). Overall, approximately 45% of the global populations live in areas of high chronic HBV prevalence. (2, 23).

Hepatitis B transmission route varies according to the prevalence rate of the virus. Countries with very high prevalence rate usually have vertical transmission as the main route of transmission which is mostly found during childhood. Countries with intermediate prevalence rates normally have horizontal transmission as its major route where the disease is transmitted through sexual contact or through injecting of drugs. In countries with low prevalence rates such

as the United Kingdom, the epidemic is mostly acquired during adulthood through sexual intercourse or injecting of drugs (24).

In regions of the world where hepatitis B is highly endemic, HBV accounts for around 3% of the total mortality, ranking with other vaccine preventable childhood diseases such as measles, tetanus, pertussis, and polio (25).



* For multiple countries, estimates of prevalence of hepatitis B surface antigen (HBsAg), a marker of chronic HBV infection, are based on limited data and might not reflect current prevalence in countries that have implemented routine childhood hepatitis B vaccination. In addition, HBsAg prevalence rates might vary within countries by subpopulation and locality.

Figure 1: Map of global prevalence of chronic infection with HBV by country, CDC 2005.

The burden of chronic carriage falls predominantly in Asia where 75% of chronic HBV carriers live. Africa has the second largest number of chronic carriers. Of approximately 470 million people living in Africa, about 50 million are lifetime (chronic) carriers of the virus and as many as 12.5 million will eventually die due to hepatitis B induced liver disease. This represents a mortality risk of 25% among chronic carriers (26).

In Africa, infections with HBV play a major role in the etiology of most liver diseases. The WHO African region includes all of Sub-Saharan Africa estimated hepatitis B surface antigen (HBsAg) seroprevalence ranges between 5% and 19.It is quite clear that the whole of sub-Saharan Africa falls into the high endemicity category (HBsAg carrier rates 9-20%). Between 56% and 98% of the adult population shows evidence of past exposure to and infection with HBV (26).

Table 1; Prevalence of HBsAg and HBV markers in the adult population of sub-Saharan Africa

Country	HBsAg positive (%)	HBV marker* positive (%)
Burundi	11.0	76.0
Ethiopia	11.0	79.0
Gambia	10.0	90.0
Kenya	11.4	56.2
Mali	11.3	97.7
Mozambique	14.6	75.2
Namibia	14.0	87.5
Nigeria	10.6	72.5
South Africa	9.6	76.0
Senegal	11.8	91.0
Zaire	20.6	78.9
Zimbabwe	10.0	76.0

*HBV marker includes HBsAg, anti-HBc, and anti-HBs.

Adapted from Dr C F Kiire, 1996

In Ethiopia as in other Sub-Saharan Africa, the prevalence of liver disease is high. They account for 12% of the hospital admissions and 31% of the mortality in medical wards of Ethiopian hospitals (27). A nationwide sero-epidemiological study of hepatitis B markers prevalence was conducted in Ethiopia on 5,270 young males from all regions of the country, the overall prevalence rates were 10.8% for HBsAg and 73.3% for "at least one marker positive";a remarkable geographical and ethnic variability of marker prevalence was observed, reflecting the wide differences existing in Ethiopia in socio-cultural environment and activities such as tribal practices and traditional surgery. Sexual practices and medical exposure also play some role as determinants of hepatitis B marker prevalence in Ethiopia (28).

In Ethiopia, the prevalence of HBV markers has also been studied among blood donors, the HBsAg carrier rate was found to be 11% with a total HBV infection rate of 79% (including antibodies). Once more, the predominant form of HBV transmission in Ethiopia was found to be horizontal interfamilial spread, with factors such as tattooing, tonsillectomy, circumcision, and ear piercing using unsterile instruments possibly playing a part (29).

A community based seroprevalence study in the capital city of Ethiopia; Addis Ababa has shown a 7% seroprevalence of HBsAg, higher in males than females. The age at which 50% had evidence of infection was around 20 years (30). Screening sera of all male donors appearing at the blood bank of a regional hospital in Northwest Ethiopia (Gondar) in 1994 and 1995, for HBsAg was carried out on 549 consecutive sera. The crude seroprevalence of HBsAg was 14.4% (31). One or more hepatitis B virus markers were found in 86% of chronic hepatitis, 88% cirrhosis and 78% hepatocellular carcinoma patients studied in Addis Ababa (32).

A cross sectional study conducted on 267 HCWs of Tikur Anbesa University Hospital and Ras Desta Damtew Memorial Hospital the overall prevalence of HBV infection was found to be 51.3%, by taking HBsAg and Anti HBc as the only marker of infection (7).

2.3 Review of different studies on HBV infection Knowledge, Attitude and Practice of higher educational institution students.

Institution based cross-sectional observational study conducted in Teresina, Brazil to assess Knowledge about hepatitis B, Vaccine Situation and Seroconversion of Dentistry Students of a Public University mentioned that almost all (98.9%) of the respondents have heard or know about hepatitis B. Ninety seven point two percent (97.2%) of the respondents know that there is a vaccine against the disease, 1.1 % and 1.7% of the students say no about the availability of vaccine and don't know about the availability respectively. Among those respondents who knows the availability of HBV vaccine most of them (87.4%) says there is three dose of complete HBV vaccine. Seventy nine point nine percent (79.9%) of dentistry students were received hepatitis B vaccine, among them 62.2% were fully vaccinated, those who didn't take and have no idea whether they take or not were 9.5% and 10.6% respectively. Forgetfulness were the most frequently answered reason for not receiving HBV vaccine (50%) and the least frequently answered reason were lack of interest (5.6%) (33).

In a study investigating Attitudes and Awareness Regarding Hepatitis B and Hepatitis C Amongst Health-care Workers of a Tertiary Hospital in India, revealed that all respondents were aware of the hepatitis B infection. The awareness regarding modes of transmission of hepatitis B suggested that all nursing interns knew about blood and blood products, as a mode of transmission, but awareness in relation to other modes of transmission is slightly low that only

58.3% of them know HBV is a nosocomial infection, 61.8% of the respondents answer HBV can be transmitted through sexual intercourse and 43.6% of them answer incorrectly HBV can also be transmitted through feco-oral and contaminated water. Sixty three point six percent (63.6%) of nursing interns believed that HCWs are at a risk of developing hepatitis B infection owing to their profession due to constant contact with their patients, which pre-disposes them to acquire and transmit infection, These results revealed that not all interns believe that the HCWs can acquire hepatitis B infection owing to their professional contact with their patients. Some interns felt that they were safe from any transmission of infection via patients, which showed a lack of awareness among these interns. Regarding the vaccine against HBV 87.3% of nursing interns were aware of the presence of vaccine against HBV and 78.2% of them were vaccinated against the disease, 72% had received a complete dose and 14% of the nursing students had received only a single dose for the vaccine against HBV (34).

A research done on 753 Residents in Kuala Lumpur and Selangor, Malaysia regarding Awareness of Hepatitis A and Hepatitis B, A high proportion of undergraduates (85.0%) had knowledge on hepatitis compared to the public from town areas (63.6%) and rural areas (52.7%). Most of the public knew about the diseases through the mass media; undergraduates, however, acquired knowledge of the diseases through formal education. All the undergraduates and almost all the HCWs knew that hepatitis would affect the liver compared to only 69.4% and 50.3% of the public from town areas and from rural areas, respectively (35).

In a study conducted to assess Knowledge and attitude of medical science students in Guilan University, Iran toward hepatitis B and C infections less than half percent of males (33.3) and females (34.8%) answer correctly for the question, always after the entrance of HBV to the body symptoms appear. Fifty one point seven percent (51.7%) of the respondent agree that health professionals who are HBV positive should not give health care services to patients, 29% of the respondent doesn't know about it and the remaining are disagree for the question. Sixty five point eight (65.8%) of the students agree for they are delivering the same standard of care to patients with HBV as they do for other patients, 18.4% and 15.8% of them don't have any idea about the question and disagree by the idea to give the same standard of care to HBV patients as other patients respectively. In relation to this 27.1% of the students don't want to treat patients with HBV and 38% of them disagree with this idea. Sixty five point six percent (65.6%) of the respondents often use additional infection control precautions when treating patients with HBV. Slightly higher than half percentile of the students (56.8%) feel that they do not have the skills needed to effectively and safely treat patients with HBV, and relatively less number of the respondents (11.8%) disagree with this idea and believe that they do have a skill to handle HBV patients effectively and safely. Majority of the respondents (74.5%) agree that following infection control guidelines will protect them from being infected with HBV at work 5.2% didn't agree for this question and the remaining don't have any idea about it. Slightly greater than half of the respondents (54.5%) answer correctly that there is no specific pharmaceutical treatment available to cure hepatitis B (36).

A study conducted to assess the knowledge of Iranian dental students about hepatitis B Virus Infection and Its Control Practices indicated that 95.8% of the respondents know that there is a high risk of HBV than HIV transmission through needle stick injury. Ninety six point five

percent (96.5%) of the respondents answer yes for the question Dentists are at higher risk of HBV infection than the general population. Regarding treatment of HBV-infected patients 60% of sixth year dental students reported having treated at least one HBV-infected patient. When the students were asked about their willingness to treat HBV-infected patients, 20% of them answered they would not treat such patients. The remaining students mostly preferred to postpone the treatment of HBV-infected patients. In three independent questions, students were asked: if infection control methods are not followed in the dental setting would patient-to-patient, patient-to-dentist, and dentist-to-patient transmission risk increase? For the three questions, 81.0%, 83.1%, and 55.6% of the total students answered yes respectively (37).

Avoid needle/sharps injury were the most frequently answered (92.1%) prevention method of HBV followed by Proper disposal of sharps, needles and blood (90.8%) and Avoid casual sex or/and multiple sexual partners (74.2%), in the study to assess Knowledge, Attitudes and Self-Reported Behavior of Primary Health Care Workers for Hepatitis B and C Virus and other Health Care Associated Infection in two randomly selected heath regions of Kuwait, incorrect answers like Avoid drinking contaminated water and avoid foods which are not well cooked are also answered as a prevention method of HBV by 30% and 25.7% of the respondents respectively. Regarding HBV vaccination 65.9% of the respondents knows Doses of Hepatitis B Vaccine required for complete protection is three and 44.4% answers correctly the Expected Interval between last dose and dose preceding it. Majority of the study groups are agree for questions concerning their risk for HBV and importance of vaccination against it, 80.5% of the primary HCWs agree that their job put them at risk of getting HBV, 87.1% were accept the need of protection against HBV and 86.3% of them were Considered it necessary to receive vaccine (38).

A school based study on prevention of HBV among final year nursing students in Gauteng province South Africa revealed that majority (89.1%) of the students mentioned a vaccine against HBV can protect the infection effectively, 2.9% of the respondent answer no for the question can HBV vaccine prevents HBV infection effectively? And 5.8% of the respondents didn't know about it. 69% of the respondents didn't agree for the question that mentions they are not at risk of acquiring HBV 3.6% and 27.4% of the respondent agree and don't have idea about this question respectively. Regarding the coast of HBV vaccine majority of the respondents are not sure about HBV vaccine cost, 24.7% and 15.3% were agree and disagree that the coast of HBV vaccine is too much respectively (39).

A research conducted in south Nigeria to assess Health workers' knowledge, attitude and behavior towards hepatitis B infection, wearing of gloves were the most frequently answered (92.6%) measures taken to protect against hepatitis infection followed by adequate disposal of sharps and avoid patients diagnosed with hepatitis B with a respective percentile of 88.9% and 29.6%, a significant number of respondents (61.1%) answer use antibiotics after contact as measures taken to protect against hepatitis infection. Seventy point two percent (70.2%) of the respondents had already receive vaccine and the remaining did not, among those who did not receive HBV vaccine majority (44.4 %) of them have no reason and 22.2% them mention they are busy as a reason not to be vaccinated (40).

A cross sectional study was conducted at the University of Kassala, Sudan to assess the non medical profession student's knowledge and awareness about Hepatitis B and HIV. regarding HBV, poor knowledge was found among the students. The causes of HBV, and its vaccination were known to 110 (27.8%) and 39 (09.9%) of the students respectively. Only 49 (12.4%) of the students were aware of the symptoms of the disease and 15 (3.8%) had good knowledge of the transmission route, while the prevention methods were known only by 12.7% of the students (41).

2.4 Conceptual Framework

The Conceptual framework was adopted from Health Belief Model, the primary concept of the Health Belief Model is used to predict why people decide, or do not decide, to control, prevent or screen for different illness conditions. The primary concepts are perceived susceptibility, benefits, severity, barriers and cues to action and self-efficacy

The conceptual framework showed the boundary that the study was covered and the relationship which has been proven after going through all research steps. The relationship was proposed between categories of independent variables and dependent variable; KAP on hepatitis B among study participants. It was prepared by principal investigator after reviewing for different literatures.

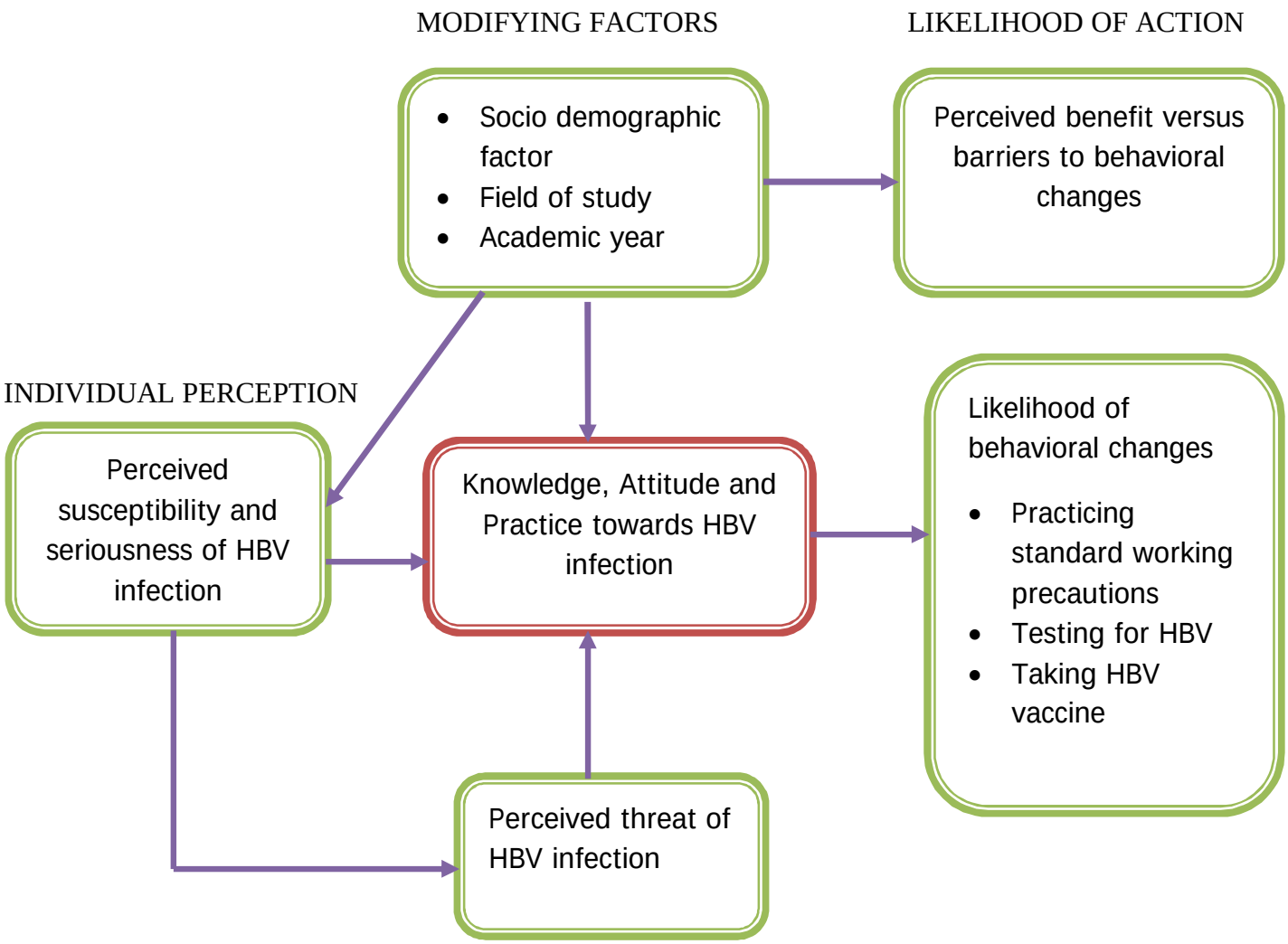


Figure 2. Conceptual frame work on assessment of knowledge, attitude and practice towards hepatitis B viral infection among Addis Ababa University, College of Health Science

Source: Modified from Health belief model

3. Objectives

3.1 General Objective

The general objective of the study was;

- To assess knowledge, Attitude and Practice towards Hepatitis B viral infection among regular undergraduate students of College of Health Science, Addis Ababa University, Addis Ababa Ethiopia, 2014.

3.2 Specific Objectives

The specific objectives were;

1. To assess the level of knowledge about Hepatitis B viral infection among regular undergraduate students of College of Health Science, Addis Ababa University.
2. To examine level of Attitude among students of College of Health Science, Addis Ababa University, towards Hepatitis B viral infection.
3. To assess the level of Practice about Hepatitis B virus infection among undergraduate students of College of Health Science, Addis Ababa University.

4 METHODS AND MATERIALS

4.1 Study area and period

The study was conducted in Addis Ababa University (AAU) Health Science College, School of Allied Health Science (SAHS). AAU was established in 1950. The university is the oldest and largest higher education institution in Ethiopia which made a remarkable contribution to the country through provision of trained manpower, research and community services. The service it has rendered in the training of high level skilled manpower and professionals in various key areas of development is unprecedented, and yet shines everyday as it stood the only University for decades. It currently runs 65 undergraduate and 220 graduate programs (of which 69 are PhD) in 14 campuses.

The College of Health Sciences (CHS), AAU is a professional health sciences college, established in 2009/10 by the reorganization of previously separate institutions of health under one umbrella. The CHS is comprised of four schools and one teaching hospital. The four schools are the School of Medicine, the School of Pharmacy, the School of Public Health and SAHS. The SAHS offers professional trainings in nursing, midwifery and medical laboratory technology. The Tikur Anbessa Specialized Hospital (TASH) is the teaching hospital of the College, which is the largest specialized hospital in Ethiopia, with over 700 beds, and serves as the training center for undergraduate and postgraduate students, who shoulder the health problems of the community and the country at large. This study was conducted from October 2013 to June 2014.

4.2 Study design

A quantitative Institution based cross-sectional study design was used to assess knowledge, Attitude and Practice towards Hepatitis B viral infection among Addis Ababa University, regular undergraduate students of College of Health Science.

4.3 Population

4.3.1 Source population

The source population was all Addis Ababa University, College of Health Science undergraduate regular students, 2014.

4.3.2 Study population

The study populations were those students of Addis Ababa University, College of Health Science undergraduate program who meet the inclusion criteria and selected for the study.

4.4 Eligibility criteria

4.4.1 Inclusion criteria

All students studying in Addis Ababa University, College of Health Science, regular undergraduate program, who were present in the class room during data collection day.

4.4.2 Exclusion criteria

- Those who are absent from class room for different reasons during data collection day
- Those who are unable to communicate for different reasons
- Those who don't have clinical experience to answer practice questions

4.5 Sample size Determination

The sample size is calculated using a formula for single population proportion considering the following assumptions

Assumptions: With the assumptions of Confidence interval = 95%, Critical value $Z\alpha/2 = 1.96$, Degree of precision d = 0.05. The proportion (p) = 50% since there was no research done in the same setting as this study concerning knowledge, attitude and practice of students towards hepatitis B viral infection. Non-response rate 10%.

Using $n = \frac{Z_{\alpha/2})^2 p(1-p)}{d^2}$

Where, n= the required sample size

$Z_{\alpha/2}$= the standardized normal distribution curve value for the 95% confidence interval (1.96)

P= the level of KAP of students learning in AAU were unknown so we take as 50%

d= degree of precision (the margin of error between the sample and population, 5%) = 0.05

$$n = \frac{(1.96)2(0.5(1-0.5))}{(0.05)^2}$$

n= 384

By taking additional 10% contingency for non-response rate, the sample size were = 422

4.6 Sampling Technique

Among the four schools of College of Health Science school of Public Health is not included under this study since it has no undergraduate program under it. Among the three schools, School of Allied Health Science is selected by using lottery method. There are three departments under the school of Allied Health science which are Nursing, Midwifery and Medical Laboratory Technology, the study participants were selected from each department as well as from each year by proportion to population size based on the total number of students in each department and systematic random sampling method was used to select specific student from the class room by using their list in the role sheet the first student was selected by lottery method and the next respondent were selected in the interval of three according to their order in the list. In case of absent students the next student was taken as a respondent and the interval continue as in the previous.

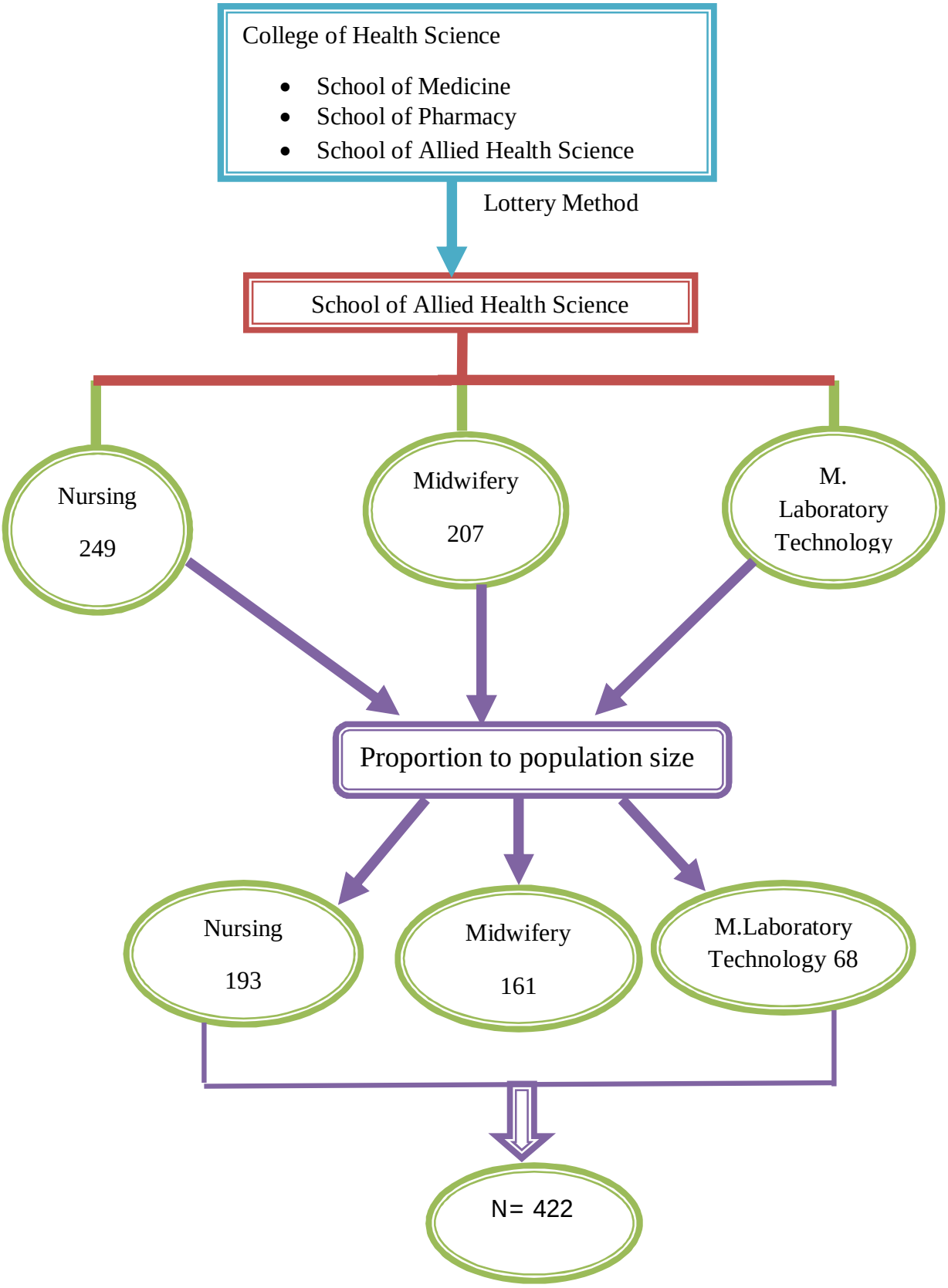


Figure 3: Schematic presentation of sampling procedure

4.7 Method and tools of data collection

The data was collected from study subjects by self-administered questionnaire using pre-tested structured questionnaire adopted from previous researches on the same topic with proper author permission asked by their email address. The questionnaire consisted thirty five questions divided into four sections that cover questions to assess socio demographic characteristics, knowledge of respondents, Attitude of the respondents and practices of respondents.

4.8 Variables

4.8.1 Dependent variable

- Knowledge
- Attitude and
- Practice of the students towards Hepatitis B

4.8.2 Independent variables

- Age
- Sex
- Ethnicity
- Field of study
- Academic year
- Last cumulative GPA

4.9 Operational definitions

Good Knowledge: Refers for those study participants who answer more than half of knowledge questions correctly.

Poor knowledge: Refers for those study participants who answer half and less than half of knowledge questions correctly.

Good Attitude: Refers to those study participants who scored point greater than the mean of attitude questions

Poor Attitude: Refers to those study participants who scored point equal to and less than the mean of attitude questions

Good Practice: Refers to those study participants who correctly respond to practice questions and score above the median value

Poor Practice: Refers to those study participants who correctly respond to practice questions and score median value and below median value.

4.10 Data collection procedures

The questionnaire was handed out to a group of students and completed under the supervision of ten assigned supervisors divided in to second, third and fourth year students who were working in the institutions and can speak Amharic and English language, so that the students can't consult each other, go on to the internet, or visit the library to find the answer of knowledge questions.

4.11 Data quality assurance

In order to keep the quality of the data, the questionnaire was pre tested on 5% of the sample size on another private health science college in Addis Ababa one week before the actual data collection period. In addition, the supervisors were adequately trained for two days on the rules and regulations during data collection and closer supervision was undertaken during data collection in a way that bias could not occur.

4.12 Data processing and analysis

The collected data was cleaned, coded and entered to Epi Info version 3.5.4 imported and analyzed into the statistical Package for Social Sciences (SPSS) version 20. To identify the determinants of KAP of the students, binary and multiple logistic regression models with KAP of the students towards hepatitis B viral infection as a dependent variable was constructed. The degree of association between dependent and independent variables was described using crude

odds ratio (COR) and adjusted odds ratio (AOR) with 95% confidence interval (CI). Analysis of data was done using stepwise logistic regressions in order to evaluate the effects of independent variables on the dependent. The results of the study were presented in the form of texts, tables and charts.

4.13 Ethical Consideration

The proposal was approved by Institutional Review Board (IRB) and Ethical clearance was obtained from the Ethical Committee of Department of Nursing and Midwifery School of Allied Health Science, College of Health Science, Addis Ababa University before conducting the study. Autonomy was insured by explaining the aims and objectives of the study to the students beforehand, and informing them that if they do not want to take part in the study they do not have to, and that this non-participation had no bearing on their grades. Confidentiality was ensured since the participants were anonymous. A statement was included at the top of the questionnaire, requesting students not to include identification, and that by completing the questionnaire and handing it in, they are consenting to take part in the study.

4.14 Dissemination and utilization of the result

The study result was presented to Addis Ababa University, College of Health Science Allied School of Health Sciences, department of Nursing & Midwifery. The finding of the study was disseminated to all responsible bodies in the study area. Further efforts will be made to published the findings on national and international peer reviewed journals.

5. RESULT

5.1 Socio-demographic characteristics of the study subjects

A total of 415 Addis Ababa University Health Science students were enrolled in the study giving a respondent rate of 98.3%. The study participants from nursing department constituted 44.8% while 38.6% and 16.6% of students were from Midwifery and Medical Laboratory technology departments respectively. More than half 285 (68.7%) of the study subjects were males and the remaining 130 (31.3%) were females, large number of the study participants 357 (86%) were belongs to the age group 20 to 24 years old with a minimum and maximum age of 16 and 30 respectively. Most 162 (39.0%) of the study subjects were from fourth academic year while the least 124 (29.9%) were from third academic year. Majority of the study subjects 158 (38.1%) were from Amhara ethnic group followed by Oromo ethnic group 91 (21.9%) and 280 (67.5%) of the total study subjects were followers of Orthodox Christianity followed by Muslims 63 (15.2%).

Table 2: Socio-Demographic Characteristics of Addis Ababa University, undergraduate regular Health Science Students. Addis Ababa June 2014.

variables	Frequency(n=415)	Percent (%)
Age		
15-19	13	3.1
20-24	357	86
25-29	41	9.9
30-34	4	1
Sex		
Male	285	68.7
Female	130	31.3
Religion		
Orthodox	280	67.4
Muslim	63	15.2
Protestant	59	14.2
Catholic	4	1.0
Others (Wakefecha, Pagan)	9	2.2
Ethnicity		
Amhara	158	38.1
Oromo	91	21.9
Tigre	70	16.9
Gurage	26	6.3
Hadiya	20	4.8
Silte	13	3.1
Sidama	6	1.4
Others (Argoba, Wolaita)	18	4.3
No response	13	3.1
Department		
Nursing	186	44.8
Midwifery	160	38.6
Medical Laboratory	69	16.6
Academic Year		
Two Years	129	31.1
Three Years	124	29.9
Four Years	162	39.0

5.2 Primary source of Hepatitis B viral infection information

About 254 (61.2%) of the study participants had got information about Hepatitis B from Lectures and seminars followed by books and journals, media and family and friends with a respective frequency of 105 (25.3%), 25 (6.0%) and 16 (3.9%). Special workshops on Hepatitis B virus takes the least 7 (1.7%) place as a source of information for the study subjects. (Table-)

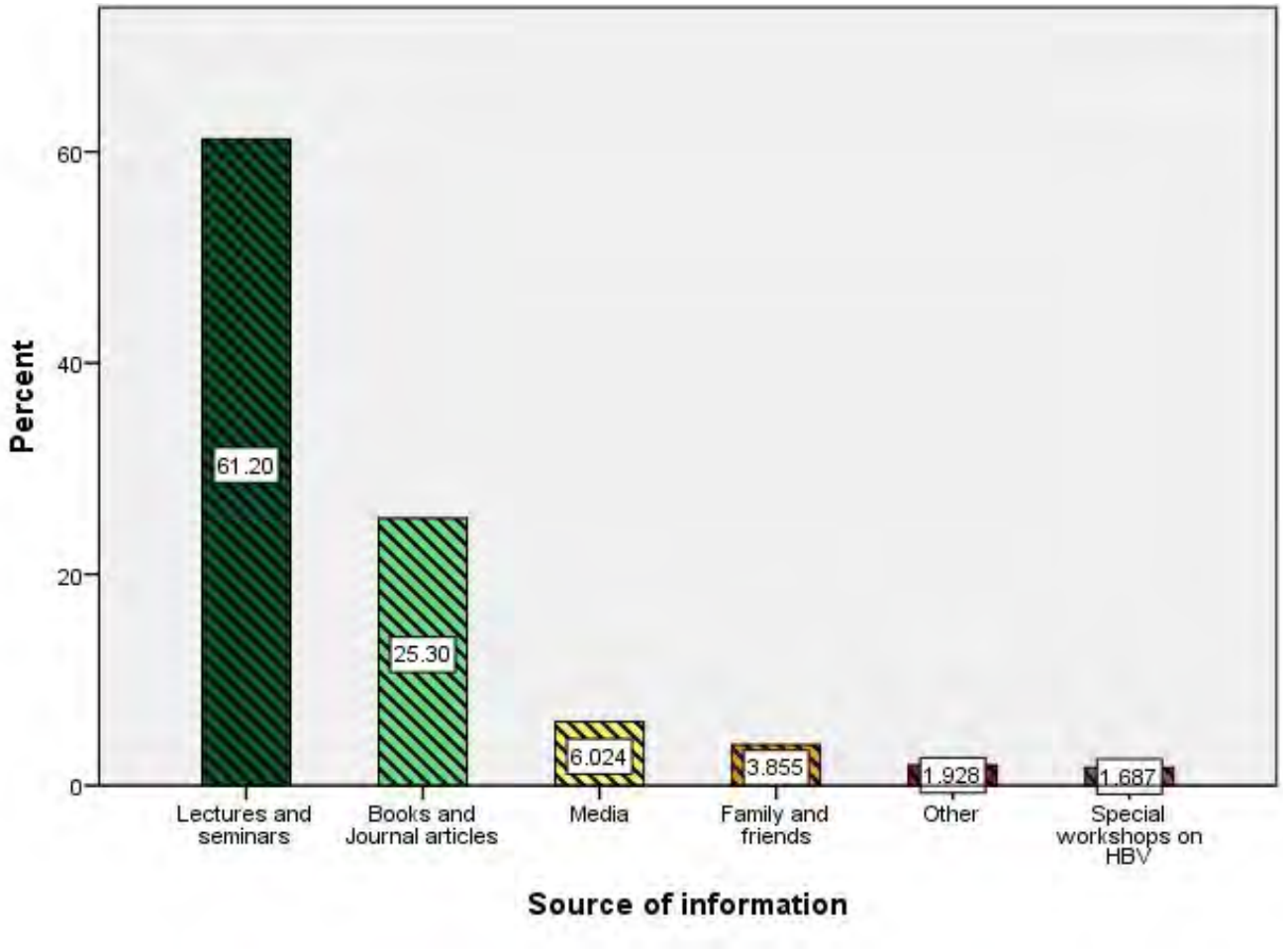


Figure 4: Primary source of information about Hepatitis B viral infection among Addis Ababa University undergraduate regular Health Science students June 2014.

Other: - Internet and Pamphlets

5.3 Hepatitis B Viral infection Knowledge, Attitude and Practice among Addis Ababa University undergraduate regular Health Science students

5.3.1 Hepatitis B viral infection Knowledge

Almost all of the study subjects know or hear of hepatitis B. Regarding the Knowledge of the respondents about the organs affected by Hepatitis B majority 385 (92.8%) of the respondents correctly answered to it by choosing Liver, while a least number of study participants choose incorrect answer Kidney and Brain with a respective frequency of 1 (0.2%) and 2 (0.5%) the remaining 27 (6.5%) of the study subjects were not sure about which organ does hepatitis B affects.

About the appearance of hepatitis B viral infection symptoms; 112 (27.0%) of the study participants respond correctly that the symptoms doesn't appear within few days always after the entry of hepatitis B virus to the body, while 209 (50.4%) and 94 (22.6%) answer incorrectly and doesn't know about the topic respectively.

To the study which queried about route of transmission of hepatitis B viral infection 409 (98.6%), 398 (95.9%), 352 (84.8%) and 283 (68.2%) of the respondents answer correctly that blood and blood products, needle and sharp injury, sexual intercourse and vertically mother to child can be a route of transmission for hepatitis B virus.

Three hundred and fourteen (75.7%) of the respondents noticed that there is a high risk of hepatitis B transmission through needle stick injury than HIV while 56 (13.5%) and 45 (10.8%) of the respondents answer there is no high risk of hepatitis B virus transmission than HIV through needle stick injury and they don't know about the risk respectively.

Regarding prevention of hepatitis B viral infection 391 (94.2%), 372 (89.6%), 384 (92.5%), 349 (84.1%) of the respondents answer correctly that vaccination, standard working precaution, avoiding needle and sharp injury and avoiding unsafe sex will prevent hepatitis B viral infection.

Among those who answers vaccine as a means of hepatitis B virus prevention 321 (77.3%) of them answers that the vaccine can prevent the disease effectively. Regarding the dose of the vaccine only 162 (39.0%) of the respondents answer the correct dose of hepatitis B virus vaccine which in three dose. The expected interval between the last dose and the dose preceding it were answer correctly by 94 (22.7%) of the respondents.

Slightly less than half 202 (48.7%) of the respondents were answer hepatitis B doesn't have specific pharmaceutical treatment which cures the disease, which was the correct answer.

Table 3: knowledge of Hepatitis B viral infection among AAU undergraduate regular Health science students. Addis Ababa June 2014

Knowledge assessment questions	Frequency(n=415)	Percent (%)
Organ affected by HBV		
Liver	385	92.8
Kidneys	1	0.2
Brain	2	0.5
Not sure	27	6.5
Symptom of HB appear within few days after entering into the body	209	50.4
Yes	112	27.0
No	94	22.6
I don't know		
HBV route of transmission		
Blood & Blood product		
Yes	409	98.6
No	6	1.4
Needle & sharp injury		
Yes	398	95.9
No	17	4.1
Sexual intercourse		
Yes	352	84.8
No	63	15.2
Vertically from mother to child	283	68.2
Yes	132	31.8
No		
Feco-Oral	112	27
Yes	303	73
No		
Contaminated water	69	16.7
Yes	346	83.3
No		
There is high risk of HBV transmission than HIV through needle stick injury		
Yes	314	75.7
No	57	13.7
I don't know	44	10.6

Table 3: knowledge of Hepatitis B viral infection among AAU undergraduate regular Health science students. Addis Ababa June 2014……. Continued

Ways of preventing HBV		
Vaccination		
Yes	391	94.3
No	24	5.7
Standard working precaution		
Yes	372	89.7
No	43	10.3
Avoid needle/sharp injury		
Yes	384	92.5
No	31	7.5
Avoid unsafe sex		
Yes	349	84.1
No	66	15.9
Avoid drinking contaminated water	108	26.1
Yes	307	73.9
No		
Avoid foods not well cooked	77	18.6
Yes	338	81.4
No		
Can Hepatitis B vaccine prevent the disease effectively		
Yes	320	81.9
No	71	18.1
How many dose of Hepatitis B vaccine are there		
One dose	37	8.9
Two dose	83	20.0
Three dose	162	39.0
Four dose	21	5.1
I don't know	112	27.0
There is specific treatment available to cure Hepatitis B		
Yes	100	24.1
No	202	48.7
I don't know	113	27.2
The expected interval b/n the last dose & dose preceding it		
<6 months	119	28.6
≥ 6 months	94	22.7
I don't know	202	48.7

Out of the total mark (19) the overall knowledge category of the study participants shows that majority 378 (91.1%) of the respondents had good knowledge and the remaining 37 (8.9%) had poor knowledge with a maximum and minimum value of 7 and 3 points respectively.

Figure 5: Graphic representation of overall knowledge category among Addis Ababa University undergraduate regular Health Science students, June 2014.

Table 4: Overall knowledge of Hepatitis B viral infection in each of the three departments among AAU undergraduate regular Health science students. Addis Ababa June 2014

Variables	Knowledge	
	Poor Knowledge N (%)	Good knowledge N (%)
Department		
Nursing	18 (9.7)	168 (90.3)
Midwifery	14 (8.8)	146 (91.3)
Laboratory technology	5 (7.2)	64 (92.8)
Total	37 (8.9)	378 (91.1)

5.3.2. Attitude towards hepatitis B viral infection

Most of the study participants 373 (89.9%) were agreed that their job puts them at a high risk of acquiring Hepatitis B virus and 386 (93%) of the study participants agreed that they are in need of protection against HBV.

Three hundred and ninety seven (95.7%) of the respondents consider that it is necessary to receive vaccine even though 288 (69.4%) of the respondents think hepatitis B vaccine costs too much.

One hundred fifty six (37.6%) of the study subjects feel that they do not have skill needed to effectively and safely care patients with hepatitis B and 109 (26.3%) of them says they do not want to serve (care) people with hepatitis B in their clinical practice.

Table 5: Attitude towards hepatitis B among AAU undergraduate regular Health science students Addis Ababa June 2014

Indicators of attitude	Likert Scale		
	Agree N (%)	Not sure N (%)	Disagree N (%)
Your job puts you at higher risk of acquiring hepatitis B virus	373 (89.9)	12(2.9)	30(7.2)
You are in need of protection against hepatitis B viral infection	386(93.0)	13(3.1)	16(3.8)
It is necessary to receive vaccine	397(95.7)	5(1.2)	13(3.1)
Health professionals who are hepatitis B virus positive should not give health care service	85(20.4)	35(8.4)	295 (71.0)
You do not have the skill needed to effectively and safely care patients with hepatitis B	98(23.6)	59(14.2)	258(62.1)
Testing out patients for hepatitis B is not necessary	66(15.9)	27(6.5)	320(77.1)
Following infection control guide lines will protect you from being infected with hepatitis B	347(83.6)	29(7.0)	37(8.9)

Out of the total (9) make the overall attitude category of study participants towards hepatitis B virus prevention shows that majority 373 (89.9%) of the respondents had positive attitude and the remaining 42 (10.1%) had negative attitude towards the prevention of hepatitis B viral infection, with a maximum and minimum value of 8 and 1 respectively.

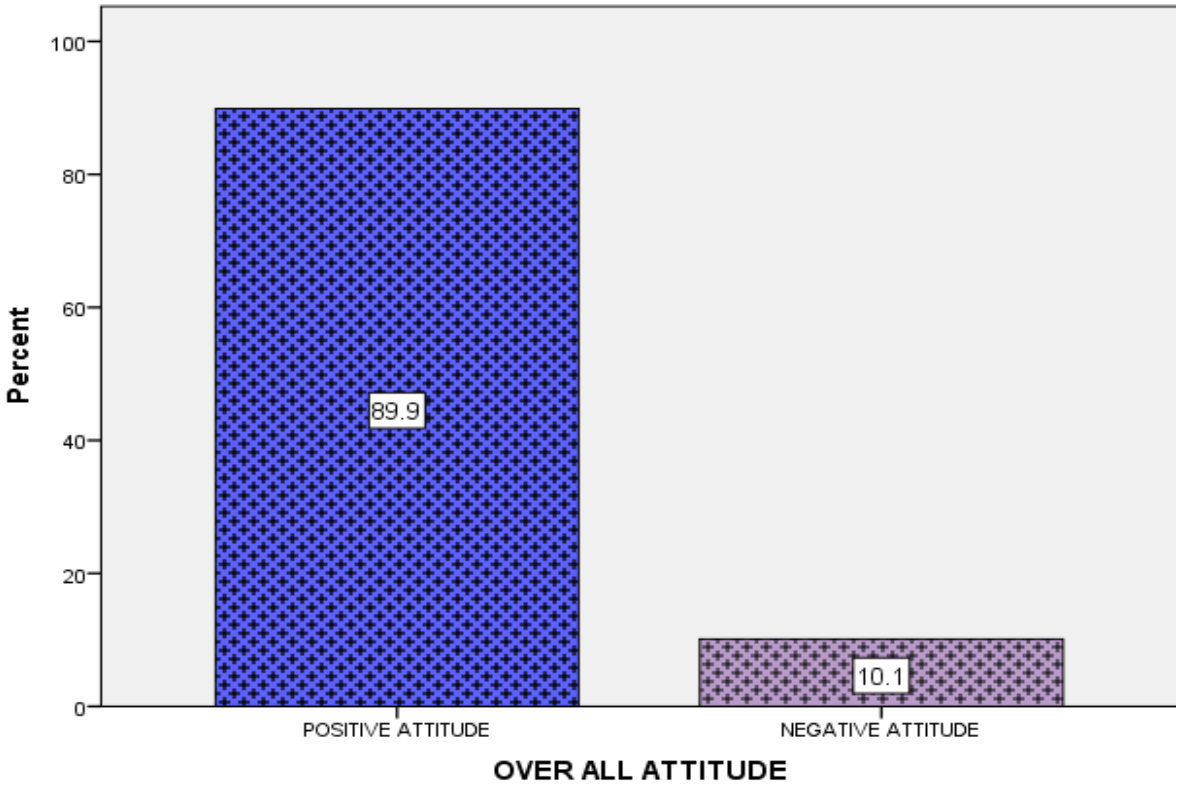


Figure 6: Graphic representation of overall Attitude category among Addis Ababa University undergraduate regular Health Science students, towards hepatitis B virus prevention, June 2014.

5.3.3 Practice of Hepatitis B viral infection

Among the study subjects 235(56.6%) of them responded that they deliver the same standard of care to patients with hepatitis B as they do for other patients but the remaining 177(42.7%) do not.

Two hundred and ninety three (70.6%) of the study subjects often use additional infection control precaution when they are caring for patients with Hepatitis B. Among the measures the respondents use to protect themselves against Hepatitis B Glove, Google, Accurate sharp disposal of sharp materials is practiced by 406(97.58%), 323(77.8%), and 393(94.7%) of the study subjects

respectively. while 88 (21.2%), 178 (42.9%) and 191(46.0%) of them use incorrect measures against hepatitis B as avoiding patients diagnosed with Hepatitis B, multivitamins and Antibiotic respectively.

Regarding Hepatitis B virus test only 92(22.17%) of the total respondents were tested for Hepatitis B virus and 24 (5.8%) of them were received Hepatitis vaccine. among those who received the vaccine only 2(8.3%) of them completed the dose.

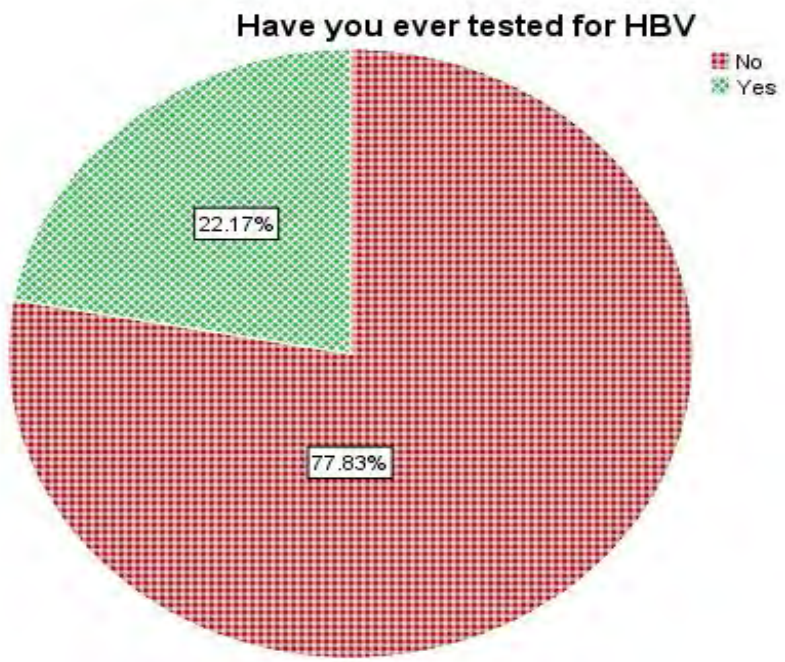


Figure 7: Distribution of hepatitis B viral test among Addis Ababa University undergraduate regular Health Science students. Addis Ababa, June 2014.

All of the study subjects who didn't take even one dose of hepatitis B virus vaccine had their own reason shown in the table below

Table 6: Reasons for not being vaccinated among Addis Ababa University, undergraduate regular Health Science students, Addis Ababa, June 2014.

Reason for not being vaccinated	Frequency (n=391)	Percent (%)
No reason	138	35.4
Negligence	35	9
I can't be infected with hepatitis B	25	6.3
Unavailability of the vaccine through government channels	158	40.4
Unwilling to spend time and money for the vaccine	6	1.6
Fear of the vaccine side effect	15	3.8
Other	14	3.5
Total	391	100

Out of the total (12) marks the overall practice category of study participants towards hepatitis B virus prevention were 286 (68.92%) for good practice and 129 (31.08%) for poor practice towards hepatitis B virus prevention, with a maximum and minimum value of 9 and 1 respectively.

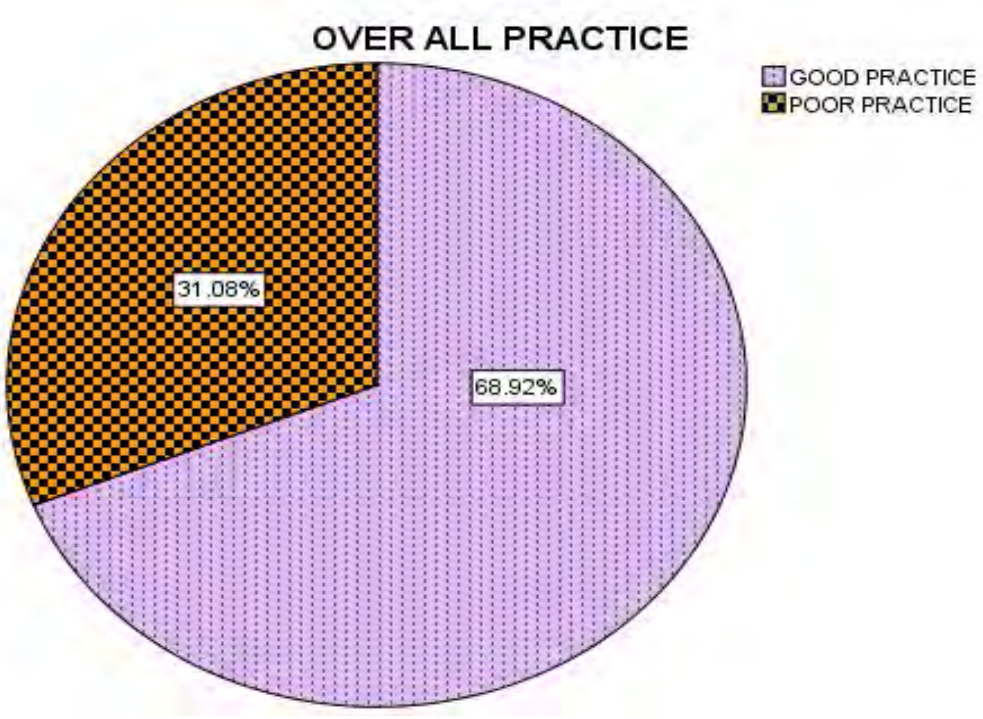


Figure 8: The overall Practice category among Addis Ababa University, undergraduate regular Health Science students, towards hepatitis B virus prevention, June 2014

Among the total respondents who had good knowledge 68.5% of them have good practice too the remaining 31.5 % had poor practice.

Table 7: Cross tabulation between overall knowledge and overall practice of Addis Ababa University, undergraduate regular Health Science students, Addis Ababa, June 2014.

Overall Knowledge	Overall Practice		Total N (%)
	Poor practice N (%)	Good Practice N (%)	
Poor Knowledge	10 (27)	27 (73.0)	37 (100)
Good Knowledge	119 (31.5)	259 (68.5)	378 (100)
Total	129 (31.1)	286 (68.9)	415 (100)

5.4. Factors associated with knowledge, attitude and practice of hepatitis B viral infection

5.4.1 Factors associated with knowledge about hepatitis B

After controlling for possible confounding variables, sex of the respondents was found to be significantly associated with their knowledge towards hepatitis B, female students were found to have 2.522 times more good knowledge than male students [AOR= 2.522,95% CI (1.025, 6.205)].

The bivariate analyses were confirmed that there was no significant association between the respondents knowledge about hepatitis B and socio demographic factors other than sex.

Table 8: Association of knowledge about hepatitis B viral infection with socio demographic factors among Addis Ababa University, undergraduate regular Health Science Students, Addis Ababa June 2014.

Variables	Knowledge of hepatitis B		Odds Ratio (95% CI)	
	Poor Knowledge N (%)	Good knowledge N (%)	Crude	Adjusted
Age				
15-19	1 (7.7)	12 (92.3)	1	
20-24	32 (9.0)	325 (91.0)	0.841 (0.107, 6.721)	
25-34	4 (9.8)	41 (90.2)	0.791 (0.77, 8.107)	
Sex				
Male	31 (10.9)	254 (89.1)	1	1
Female	6 (4.6)	124 (95.4)	2.522 (1.025, 6.205)*	2.522 (1.025, 6.205)*
Ethnicity				
Amhara	19 (12.0)	139 (88.0)	1	
Oromo	5 (5.5)	86 (94.5)	2.351 (0.847, 6.528)	
Tigre	7 (10.5)	63 (90.0)	1.230 (0.492, 3.076)	
Gurage	1 (3.8)	25 (96.2)	3.415 (0.438, 26.690)	
Others**	4 (7)	53 (93)	1.230 (0.394, 3.842)	
No respond	1 (7.7)	12 (92.3)	1.640 (0.202,13.336)	
Department				
Nursing	18 (9.7)	168 (90.3)	1	
Midwifery	14 (8.8)	146 (91.3)	1.117 (0.537, 2.325)	
Laboratory	5 (7.2)	64 (92.8)	1.371 (0.489, 3.848)	
Academic Year				
Two years	11 (8.5)	118 (91.5)	1	
Three years	11 (8.9)	113 (91.1)	1.095 (0.485, 2.473)	
Four years	15 (9.3)	147 (90.7)	1.048 (0.464, 2.370)	

Note: * Reminded the significance of the variable **(P value <0.05).**

:**Reminded Hadiya, Silte, Sidama, Argoba and Wolaita

5.4.2 **Factors associated with attitude towards hepatitis B prevention**

Before and after adjusting for confounding variables a significant association was found between sex of the study participants and the participants attitude towards hepatitis B; female respondents had 0.433 times less likely to have positive attitude towards hepatitis B prevention than males. [AOR= 0.433, 95% CI (0.217, 0.787)].

The crude analysis revealed as the religion of the respondents was significantly associated with their attitude towards hepatitis B; Catholic respondents had 0.068 times less likely to have positive attitude towards hepatitis B than Orthodox respondents. [COR= 0.068, 95% CI (0.007, 0.616)]. But this association was insignificant after adjusting for confounding variables.

According to the result of multivariate analysis, academic year of the respondents was significantly associated with their attitude towards hepatitis B prevention; those respondents who were in third academic year was found to had 2.237 times more positive attitude than second academic year students. [AOR= 2.237, 95% CI (1.046, 4.787)]. Alike with third academic year student's respondents from fourth academic year was found to have 5.537 times more positive attitude towards hepatitis B prevention than second academic year students.
[AOR= 5.537, 95% CI (2.160, 14.194)]

The bivariate analyses were confirmed that there was no significant association between the respondents attitude towards hepatitis B prevention and there hepatitis B knowledge and practice .

Table 9: Association of attitude towards hepatitis B prevention with socio demographic and other factors, among Addis Ababa University, undergraduate regular Health Science Students, Addis Ababa June 2014.

Variables	Attitude of hepatitis B		Odds Ratio (95% CI)	
	Negative Attitude N (%)	Positive Attitude N (%)	Crude	Adjusted
Age				
15-19	2 (15.4)	11 (84.6)	1	
20-34	40 (10)	362(90)	1.645 (0.352, 7.688)	
Sex				
Male	21 (7.4)	264 (92.6)	1	1
Female	21 (16.2)	109 (83.8)	0.413 (0.217, 0.787)*	0.433 (0.221, 0.848)*
Ethnicity				
Amhara	14 (8.9)	144 (91.1)	1	
Oromo	10 (11.0)	81 (89.0)	0.788 (0.335, 1.853)	
Tigre	9 (12.9)	61 (87.1)	0.659 (0.271, 1.604)	
Gurage	4 (15.4)	22 (84.6)	0.535 (0.161,1.772)	
Others**	3 (5.3)	54 (94.7)	3.792 (0.484, 29.731)	
No respond	2 (15.4)	11 (84.6)	0.729 (0.151, 3.519)	
Department				
Nursing	19 (10.2)	167 (89.8)	1	
Midwifery	18 (11.3)	142 (88.8)	0.898 (0.454, 1.776)	
Laboratory	5 (7.2)	64 (92.8)	1.456 (0.522, 4.065)	
Academic Year				
Two years	24 (18.6)	105 (81.4)	1	1
Three years	12 (9.7)	112 (90.3)	2.133 (1.015, 4.482)*	2.237 (1.046, 4.787)*
Four years	6 (3.7)	156 (96.3)	5.943 (2.349, 15.035)*	5.537 (2.160, 14.194)*
Knowledge				
Poor knowledge	1 (2.7)	36 (97.3)	1	
Good knowledge	41(10.8)	337 (89.2)	0.228 (0.030, 1.710)	

Table 9: Association of attitude towards hepatitis B prevention with socio demographic and other factors, among Addis Ababa University, undergraduate regular Health Science Students, Addis Ababa June 2014, …… Continued

Practice				
Poor Practice	16 (12.5)	112 (87.5)	1	
Good Practice	26 (9.1)	260 (90.9)	1.429 (0.738, 2.767)	

Note: *Reminded the significance of the variable **(P value <0.05).**

:**Reminded Hadiya, Silte, Sidama, Argoba and Wolaita

5.4.3 Factors associated with practice of hepatitis B prevention

In multivariate analysis, age of the respondents was found to be associated with the practice of hepatitis B prevention; those respondents who were in the age group of 20 to 24 years old was found to have 3.553 times more good practice towards hepatitis B prevention than respondents from the age 15-19 years old. [AOR= 3.553, 95% CI (1.124, 11.234)]. Those respondents who were in the age group of 25 to 34 years old was found to have 5.622 times more good practice towards hepatitis B prevention than respondents from the age 15-19 years old.[AOR= 5.622, 95% CI (1.460, 21.657)].

After controlling for possible confounding variables, the department of the respondents was found to be significantly associated with their practice towards hepatitis B prevention; respondents from Midwifery department were found to have 1.796 times more good practice towards hepatitis B prevention than respondents from Nursing department. [AOR= 1.796, 95% CI (0.809, 2.993)].

According to the result of multivariate analysis, academic year was significantly associated with practice towards hepatitis B prevention; respondents from fourth academic year had 4.069 times good practice towards hepatitis B prevention than those respondents from second academic year. [AOR= 4.069, 95% CI (2.261, 7.322)].

Both multivariate and bivariate analyses were confirmed that there was no significant association between the respondents' hepatitis B prevention practice and their hepatitis B knowledge and attitude.

Table 10: Association of practice towards hepatitis B prevention with socio demographic and other factors, among Addis Ababa University, undergraduate regular Health Science Students, Addis Ababa June 2014.

Variables	Practice of hepatitis B		Odds Ratio (95% CI)	
	Poor Practice N (%)	Good Practice N (%)	Crude	Adjusted
Age				
15-19	8(61.5)	5(38.5)	1	1
20-24	110(38.8)	247(69.2)	3.593 (1.149, 11.230)*	3.553 (1.124, 11.234)*
25-34	10 (22.8)	34 (77.2)	5.440 (1.451, 20.389)*	5.622 (1.460, 21.657)*
Sex				
Male	87(30.6)	197(69.4)	1	
Female	41(31.5)	89(68.5)	0.959 (0.613, 1.500)	
Ethnicity				
Amhara	49(31.0)	109(69.0)	1	
Oromo	28(30.8)	63(69.2)	1.011 (0.579, 1.768)	
Tigre	22(31.4)	48(68.6)	0.981 (0.535, 1.799)	
Gurage	9(34.6)	17(65.4)	0.849 (0.354, 2.038)	
Hadiya	8(42.1)	11(57.9)	0.618 (0.234, 1.632)	
Silte	7(53.8)	6(46.2)	0.385 (0.123, 1.206)	
Sidama	2(33.3)	4(66.7)	0.899 (0.159, 5.074)	
Others**	2(11.8)	15(88.2)	3.596 (0.796, 16.249)	
No respond	1(7.7)	12(92.3)	5.394 (0.682, 42.651)	
Department				
Nursing	69(37.3)	116(62.7)	1	1
Midwifery	40(25.0)	120(75.0)	1.784 (1.120, 2.843)*	1.796 (1.102, 2.930)*
Laboratory	19(27.5)	50(72.5)	1.565 (0.854, 2.871)	1.557 (0.808, 2.993)

Table 10: Association of practice towards hepatitis B prevention with socio demographic and other factors, among Addis Ababa University, undergraduate regular Health Science Students, Addis Ababa June 2014……. Continued

Academic Year				
Two years	59(45.7)	70(54.3)	1	1
Three years	43(34.7)	81(65.3)	1.588 (0.957, 2.635)	1.345 (0.790, 2.291)
Four years	26(16.1)	135(83.9)	4.376 (2.540, 7.542)*	4.069 (2.261, 7.322)*
Knowledge				
Poor knowledge	10 (27)	27 (73)	1	
Good knowledge	118 (31.3)	259 (68.7)	0.813 (0381, 1.734)	
Attitude				
Negative attitude	16 (38.1)	26 (61.9)	1	
Positive attitude	112 (30.1)	260 (69.9)	1.429 (0.738, 2.767)	

Note: *Reminded the significance of the variable **(P value <0.05).**

: **Reminded Argoba and Wolaita

6. DISCUSSION

6.1 Hepatitis B information

According to the result of this study all of the study participants know or heard of hepatitis B similar to study investigating attitude and awareness regarding hepatitis B and C among health care workers of territory hospital in India (34).

As it was found from this study most 254 (61.2%) of the study participant had got their primary information about Hepatitis B from lectures and seminars congruent with a study done in Kuala Lupmur and Selangor, Malaysia most (88.1%) of health care workers had got their information from education, but in reverse and with less value than the health care workers, the rural area community of Kuala Lumpur and Selangor had got only 20% of the information from education (35).

6.2 Hepatitis knowledge

In this study 382 (92.8%) of study participants knows that the organ which can be affected by hepatitis B virus is liver , in contrary with the study done in Kuala Lupmur rural area community in which only 50.3% of them had know that hepatitis B would affect the liver (35). This can be due to the difference in level of education and the extent of exposure to health information.

According to a study done in university of Kassal, Sudan among non-medical students, only 21%, 12.9%, 8.9% and 9.1% of the study participants know that contaminated blood, contaminated sharp instrument, sexual intercourse and vertical from mother to child transmission can be route of Hepatitis B virus transmission respectively. In the same study this students know route of transmission of HIV better than Hepatitis B transmission contaminated blood, contaminated sharp

instrument, sexual intercourse and vertical from mother to child transmission of HIV was known by 71.9%, 73.7%, 88.4and 64.1%of the study participant respectively .This results are lower than the result of knowledge of Hepatitis B transmission in this study (4). Those discrepancies could be due to difference in field of study that health science students may get more information than the non-medical students and these findings may be attributable to the efforts of HIV /AIDS control program through mass media, lectures, and seminars in Sudan as it was also mentioned by the researcher.

As it was found from these study 75.7 % of respondents know that there is a high risk of hepatitis B virus than HIV transmission through needle stick injury which is less than the study done in Iran (95.8%) among Iranian dental medical students (37). This discrepancy may be due to less information coverage that the stake holders give to hepatitis B prevention and control as compare to HIV/AIDS.

This research has showed that the study respondents know ways of preventing hepatitis B virus like avoid Sharpe needle injury, and avoiding unsafe sex with a respective percentile of 92.1% and 74.2%. This figure is similar to the study done in Kuwait among primary health care workers. Also incorrect answers like avoiding drinking contaminated waters and food which are not well cooked as a prevention of hepatitis B result mentioned in a study conducted in Kuwait is approximately similar to the result of this study(38).

Regarding the availability of hepatitis B vaccine studies which are conducted in India (87.3%) and Brazil (97.2%) had know that there is vaccine for Hepatitis B viral infection (34,33), this figure are approximately in line to this study finding (94.3%) and it may be due to study subjects access of information from their field of study .

A study done in South Africa revealed that majority (89.1%) of the respondents mentioned that a vaccine against hepatitis B virus can protect the disease effectively (39). This finding is congruent with the result of this study in which 81.9% of the respondents among those who respond the availability of vaccine was mention the vaccine is effective to protect the disease.

A study done in Teresina, Brazil decline that 87.4% of the respondent know that there is three dose of Hepatitis B virus vaccine (33).another study conducted in Kuwait reported that 65.9 % of the respondent know dose of Hepatitis B vaccine required for complete protection is three and 44.4% of them answers correctly the expected interval between last dose and dose preceding it is grater or equal to six months (38). On the other hand the result of this study was only 20% of the study participants know the correct full dose of Hepatitis B vaccine and only 22.7% of them knows the correct interval between the last dose and dose preceding it. This difference may rises from lake of awareness creation activities through different methods towards hepatitis B vaccine.

Regarding the overall knowledge of the study participants, the vast majority (91.1%) of the study participants had good knowledge and 8.9 % of them had poor knowledge. similarly a study conducted in Gauteng province; South Africa revealed that 87% of the study participants had indicated good knowledge and the remaining 13% had poor knowledge regarding hepatitis B viral infection (39).

Eight point nine percent (8.9%) poor knowledge when comparing to the total study subject it may not be significantly large number but when we analyze the number of population who will be served by this poor knowledgeable study participants it will be a great number of population that need knowledge regarding different health concerning issues including hepatitis B viral infection.

According to the Federal Democratic Republic of Ethiopia Ministry of health, Health Sector Development Programme report of 2010 one nurse is for 3,870 populations, one midwife is for 13,204 populations, one laboratory technician is for 25,961 populations (42), and when we calculate how much population does a respondent of this study with poor knowledge will serve it becomes 69,660 population will be served by the nurses,184,856 population will be served by midwifes and 129,805 population will be served by medical laboratory technicians. Totally 329, 270 populations will be served by health care professionals who have poor knowledge about hepatitis B infection.

Comparing the knowledge that the student had regarding Hepatitis B viral infection which was nearly hundred percent (91.1%) with their practice towards hepatitis B prevention 68.5% of them had good practice, it confirms all the notion that states knowledge does not always translate in to practice.

6.3 Hepatitis B Attitude

About 90% of the respondents in this study were agreed that their job puts them at a higher risk of acquiring Hepatitis B viral infection nearly the same as in the study conducted in Iran and Kuwait were 96.5% and 80.5%, of the study subject agreed with this idea (37,38). With some result discrepancy in the studies conducted in India and South Africa were 63.6% and 69% of the respondent were agreed that their job puts them at the higher risk of acquiring hepatitis B infection respectively (34,39). This may be due to the respondent's good knowledge towards hepatitis B viral infection risk of transmission in their working place.

In a study conducted in Kuwait majority 87.1% and 86.3% of respondents agreed that they are in need of protection against hepatitis B and also they consider it necessary to receive vaccine against the virus respectively (38). In congruent with the finding of this study were 93.0% of the

respondents were agreed that they are in need of protection against hepatitis B and 95.7% of the study subjects were consider it is necessary to receive vaccine against the virus. This may be due to the study participant's positive attitude towards the risk of hepatitis B virus.

Twenty six point three percent (26.3%) of this study participants were do not want to serve or give care for people with Hepatitis B virus . this may be due to a feeling that they do not have the skill needed to effectively and safely care for peoples with Hepatitis B virus with a figure of 23.6% of this study participants. A slightly higher percentile (56.8%) and (38%) of study participants were also feel that they do not have the skill to effectively and safely care for people with hepatitis B virus and do not went to serve people with Hepatitis B virus , as it is reported from a study conducted in Iran (36).

Majority (83.6%) of the study participant of this study agreed that following infection control guidelines will protect hepatitis B infection, 89% and 7% of the study participants disagree and not sure about this topic. similar to a study done in Iran that greatest than half (74.5%) of the respondent agreed that infection control guidelines will protect hepatitis B infection (36). This contingency may be due to study participant's good knowledge concerning hepatitis B virus transmission and risk of health care givers.

According to multivariate analysis, academic year of the respondents was significantly associated with their attitude towards hepatitis B prevention; as the academic year of the students increase positive attitudes of the student towards hepatitis B prevention is also increase, this association is may be due to increasing of courses related to the disease like communicable disease control in their third academic year curriculum and get more clinical experience from their practical attachment.

The overall attitude of the study participants of this study was 89.9% with positive attitude and 10.1% with negative attitude. According to the health sector development programme ratio of health care professional with population they serve (42), respondents of this study with poor attitude towards hepatitis B prevention will serve a total of 441,007 populations. Since the main purpose of teaching these study participants is to prepare them to give good health care to the community even small number of respondents with poor attitude towards hepatitis B prevention can affect large population.

6.4 Hepatitis B Practice

Even though 70.6 % of respondents of this study and 65.6% of respondents of a study conducted in Guilan University Iran reported that they were using additional infection control precautions while caring for hepatitis B patient (36), 42.7% of the study participants of this study didn't practice the same standard of care for peoples living with hepatitis B as they do for other patients, also 21.2% of the study participants practice avoiding of patients with hepatitis B as a measure to prevent hepatitis B. In contrast a study conducted in Guilan University Iran among medical science students only 15.8% of the participants were respond that they were not giving same standard of care for hepatitis B patients (36). This figure is may be due to the difference in characteristics of the study subjects.

The fact that 46.0% of Addis Ababa University Health Science students in this study answered wrong that using antibiotics after contact also found in a study conducted in south Nigeria that 61.0% of the respondents practicing the same unnecessary precautionary actions as a measure of hepatitis B prevention (40). This indicates that they do not understand the correct measure to be taken against hepatitis B.

Majority of the study participants of this study didn't get hepatitis B vaccine, while only 5.8% of the total study subject were vaccinated, among these only 2 (8.3%) of them had complete the full dose of the vaccine. This figure is highly contradicted with several studies conducted in different countries. A study conducted in Brazil shows 79.9% and 62.2% of the study participants had receive vaccine and completed the full dose respectively (33). Also in a study conducted in India 78.2% 72.0% of the study subjects had received the vaccine and complete the dose respectively (34). Here in our continent south Nigeria a study revealed that 70.2% of the study participants received hepatitis B vaccine (40). This difference may be due to un-affordability of the vaccine for the students and lack of free access of it.

Among the reason for not being vaccinated which is answered by the majority of the study subjects who didn't take the vaccine, unavailability of the vaccine through government channels is chosen by most (40.4%) of the study participants of this study than other reasons, this can be an indicator that low vaccination status can be due to lack of access. Contrary to this figure forgetfulness (50%) and having no reason are the most frequently answered choices as a reason for not being vaccinated in a study conducted in Brazil and Nigeria respectively (33,40).

As the multivariate analysis shows age of the respondents had significant association with their practice towards hepatitis B prevention; as the age of the respondents increase good practice towards hepatitis B also increase, this association is may be due to experience that they learn through life is increased when they become older and mature enough to care and value their life.

According to multivariate analysis, academic year of the respondents was significantly associated with their practice towards hepatitis B prevention; fourth academic year students had good practice towards hepatitis B prevention than second academic year students, this association is may be due to more clinical experience they get from their practical attachment in hospitals and health centers.

The overall practice of this study participants were 68.92% and 31.08% with good and poor practice towards hepatitis B prevention respectively, using the health sector development programme ratio of health care professional with population they serve (42), a total of 238 respondents with poor practice towards hepatitis B prevention will serve 1,288,449 populations all over the country.

7. STRENGTH AND LIMITATION OF THE STUDY

7.1 Strength of the study

- Adequate sample size representing all the departments Nursing, Midwifery and Medical Laboratory Technology, were taken by using appropriate sampling techniques.
- The utilization of appropriate statistical methods to minimize biases was made and the data was analyzed using appropriate statistical test.

7.2 Limitations of the Study

- Shortage of domestic literatures done in related study area
- Qualitative study design was not hired
- Other health science students were not included because of different resource constraint

8. CONCLUSION AND RECOMMENDATIONS

8.1 Conclusion

In this study much more than half of the respondents had good knowledge, positive attitude and good practice towards hepatitis B, while minority of the study subjects had poor knowledge, negative attitude and poor practice towards hepatitis B, which generally have a great impact on the population they are serving and they will serve in the future.

The attitude and practice of the respondents was found to be significantly associated with their academic year, however, it was not found to have association with the knowledge of the study participants.

Lastly it is of great important that the students who in the near future will be a part of the Ethiopia health care system have sufficient knowledge, positive attitude and good practice towards hepatitis B, not only for themselves but also for the purpose of the large community in which this students will influence the knowledge, attitude, practice and the decision making towards several health related issues including hepatitis B. Therefore Addis Ababa University administrators including administrators of College of Health Science must view this issue as essential.

8.2 Recommendations

Based on the finding from this study, the following recommendations are made.

For Ministry of Health

- Hepatitis B prevention and control implementation guideline and hepatitis B data has to be derived, and from this guideline each concerned bodies including Health Science College of universities could work out their own strategy on hepatitis B.
- Hepatitis B training package should also be prepared to mainstream hepatitis B related issues to health care professionals including students, instructors, college administrators and other concerning stakeholders.

For Addis Ababa University College of Health Science

- The college management should work to build the capacity of the school teachers and students through different mechanisms including training in collaboration with other concerned bodies.

For Ministry of Information Communication

- Give sufficient coverage about hepatitis B prevention and control issues through different Medias like television, radio and magazines.
- Fix a free telephone line in which people can get information about hepatitis B 24 hours without payment.

For Researchers

- A study which assesses KAP of the large community towards hepatitis B and their determinant factors is recommended to be undertaken.
- Further study is needed to investigate the factors affecting hepatitis B knowledge, Attitude and Practice of higher education students as well as the community.

9. REFERENCES

1 World Health Organization. (2012). Hepatitis B World Health Organization. Collected 9th of January, 2013, from http://www.who.int/mediacentre/factsheets/fs204/en/index.html

2 Lavanchy D. 2004. Hepatitis B virus epidemiology, disease burden, treatment, arid current and emerging prevention and control measures. *Journal of Viral Hepatitis* vol. 11, no. 2: pp 97–107.

3 Wiersma S. 2009. Scaling up Global Access to Hepatitis B Vaccine. 5th IAS Conference on HIV Treatment, Pathogenesis and Prevention, Cape Town, abstract WeBS 102.

4 Department of Health and Human service Center for Disease Control and Prevention. December 8, 2006.A Comprehensive Immunization Strategy to Eliminate Transmission of Hepatitis B Virus Infection in the United States. Vol. 55: No. RR-16.

5 Communicable Disease Control. April 2009. New Hampshire Department of Health and Human Services. pp 10.

6 Smelzer SC and Bare B. 2003. Brunner and Suddarth's Textbook of medical surgical nursing.10th edition.

7 Centers for Disease Control and Prevention. 2001. Updated U.S Public health service guidelines for the management of occupational exposures to HBV, HCV, and HIV and75 recommendations for post exposure prophylaxis. *MMWR* **50:** RR-11.

8 Doctor Kedir Yimer Seid. 2005. Serological and Molecular Characterization of Hepatitis B, C and D Viruses Infections among Health Professionals in Ras Desta and Tikur Anbessa Hospitals, Addis Ababa, Ethiopia.

9 Zajac BA, West DJ, McAleer WJ, Scolnick EM. 1986. Overview of clinical studies with hepatitis B vaccine made by recombinant DNA. Journal of Infect vol 13: pp 39–45.

10 Banatvala J E, Van Damme P. 2003. Hepatitis B vaccine – do we need boosters. *J Viral* Hepat vol 10:pp 1–6.

11 Sridhar MR, Boopathi S, Lodha R, Kabra SK. 2004. Standard precautions and postexposure prophylaxis for preventing infections. Indian J Pediatr vol 71: pp 617-25.

12 Catalani C, Biggeri A, Gottard A, Benvenuti M, Frati E, Cechini C. 2004. Prevalence of HCV infection among health care workers in a hospital in central Italy. Eur J Epidemiol vol 19: pp 73-7.

13 Canini SR, Gir E, Hayashida M, Machado AA. 2002. Needle stick injuries among nursing workers at a university hospital in the interior of the Sao Paulo state. *Rev Lat Am* Enfermagem vol 10: pp172-178.

14 West DJ. (1984). The Risk of Hepatitis B infection among Health Professionals in the United States: A Review. *Am J Med* Sci vol 287: pp 26-33.

15 Sarrazin U, Brodt H, Sarrazin C, and Zeuzem S. 2005. 'Prophylaxe gegen¨uber HBV, HCV und HIV nach beruflicher Exposition'. *Deutsches Arzteblatt*, vol 102, no. 33, pp 2234 – 2239.

16 Tetali S, Choudhury PL. 2006. Occupational exposure to sharps and splash risk among health care providers in three tertiary care hospitals in South India. Indian J Occup Environ Med vol 10: pp 35-40.

17 Smith DR, Leggat PA. 2005.Needlestick and sharps injuries among nursing students. *J Adv Nurs* vol 5: pp 449-55.

18 Ghahramani F, Mohammadbeigi A and Mohammadsalehi N. 2006. A survey of the students' knowledge about hepatitis. Hepat Mon vol 6: pp 59-62.

19 Blumberg BS, Alter HJ, Visnich S. 1965. A "new" antigen in leukemia sera. JAMA *vol* 191: pp 541-546.

20 Glanz, K., Rimer, B.K. & Lewis, F.M. 2002. Health behavior and health education theory, research, and practice. 3rd ed. San Francisco: Jossey-Bass.

21 Dunford L., Carr M.J., Dean J., Nguyen L.T., Ta T.T.H., Nguyen, B.T., Connell J., Coughlan, S. Nguyen, H.T. Hall, W.W. & Nguyen T.L.A. 2012. A multicentre molecular analysis of hepatitis B and blood-borne virus co-infections in VietNam. *PLoS ONE 7*(6). doi:10.1371/ journal.pone.0039027.

22 Hepatitis B Foundation. ―Statistics.‖ Available at: http://www.hepb.org/hepb/statistics.htm

23 McMahon BJ. 2005. Epidemiology and natural history of hepatitis B. Semin Liver Dis vol 25: pp 3-8.

24 Margolis HS, Alter MJ, Hadler SC. 1991. Hepatitis B: evolving epidemiology and implications for control. Semin Liver Dis vol 11: pp 84- 92.

25 World Health Organization. 1983. Prevention of liver cancer, Report of a WHO Meeting, WHO Tech Rep Ser; vol 691: pp 8-9.

26 Dr C F Kiire. 1996. The epidemiology and prophylaxis of hepatitis B in sub-Saharan Africa: a view from tropical and subtropical Africa.

27 Tsega E. 2000. Epidemiology, prevention and treatment of viral hepatitis with emphasis on new developments. *Ethiop Med J vol* 38:pp 131-141

28 Kefene H, Rapicetta M, Rossi GB, Bisanti L, Bekura D, Morace G, Palladino P, Di Rienzo A, Conti S, Bassani F. 1988. Ethiopian national hepatitis B study. *J Med Virol vol* 24: pp 75-84.

29 Tsega E, Mengesha B, Nordenfelt E, Hansson B, Lindberg J. 1987. Prevalence of hepatitis B virus markers among Ethiopian blood donors: Is HBsAg necessary? Trop Geogr Med vol 39: pp 336-40.

30 Abebe A, Nokes DJ, Dejene A, Enquselassie F, Messele T, Cut FT. (2003). Sero-epidemiology of hepatitis B virus in Addis Ababa, Ethiopia: transmission patterns and vaccine control. *Epidemiol* Infect vol **131**: pp 757-70.

31 Rahlenbeck SI, Yohannes G, Molla K, Reifen R, Assefa A. (1997). Infection with HIV,syphilis and hepatitis B in Ethiopia: a survey in blood donors. *Int J STD AIDS vol* 8: pp 261-264.

32 Tsega E, Nordenfelt E, Hansson BG, Mengesha B, Lindberg J. 1992. Chronic liver disease in Ethiopia: a clinical study with emphasis on identifying common causes. *Ethiop Med J* vol 30: pp 1-4.

33 Marina Sena Lopes da Silva Sacchetto, Simone Souza Lobão Veras Barros, Thaís de Alencar Araripe, Aryvelto Miranda Silva, Symonara Karina Medeiros Faustino, José Mário Nunes da Silva. 2013 October. Hepatitis B: Knowledge, Vaccine Situation and Seroconversion of Dentistry Students of a Public University. Hepatitis Monthly doi:10.5812/hepatmon.13670.

34 Setia S, Gambhir RS, Kapoor V, Jindal G, Garg S, Setia S.2013. Attitudes and Awareness Regarding Hepatitis B and Hepatitis C Amongst Health‑care Workers of a Tertiary Hospital in India. Annals of Medical and Health Sciences Research Vol 3 Issue 4: pp 551-558.

35 Ho Chiew Lim, Hesham Rashwan. 2003. Awareness of Hepatitis A and Hepatitis B among Residents in Kuala Lumpur and Selangor. Malaysian Journal of Pharmacy 1(3): pp 76-85.

36 Roya Mansour-Ghanaei, Farahnaz Joukar, Fatemeh Souti, Zahra Atrkar-Roushan. March 31, 2013. Knowledge and attitude of medical science students toward hepatitis B and C infections. Int J Clin Exp Med 6(3):pp 197-205.

37 Seyed Moayed Alavian, Nima Mahboobi, Nastaran Mahboobi, Maryam Mohammadi, Savadrudbari; Pardis Soleimanzade Azar; Sedigheh Daneshvar. 2011. Iranian Dental Students' Knowledge of Hepatitis B Virus Infection and Its Control Practices. Journal of Dental Education Volume 75, Number 12: pp 1627-1634.

38 Areej Alkandari, Shaikha Aljodar, Hanouf Adnan Albahhouh, Gamal Makboul, Medhat El-Shazly. January 2013. Knowledge, Attitudes and Self-Reported Behavior of Primary Health Care Workers for Hepatitis B and C Virus and other Health Care Associated Infection. Greener Journal of Medical Sciences Vol. 3 (1): pp. 018-031.

39 Mpho Margaret Satekge. 2010. Knowledge, Attitudes and practices regarding the prevention of Hepatitis B virus infection, in final year College Student Nurses in Gauteng Province.

40 Samuel S. O, Aderibigbe S. A,. Salami T. A. T and. Babatunde O. A. October, 2009. Health workers' knowledge, attitude and behavior towards hepatitis B infection in Southern Nigeria. International Journal of Medicine and Medical Sciences Vol. 1(10): pp 418-424.

41 Khalid FA, Eltayeb AA, Elbadawi NEE. 2013. Awareness and Knowledge of Hepatitis B and HIV/AIDS, Among the University of Kassala Students, Sudan. J AIDS Clin Res vol 4: 194. doi:10.4172/2155-6113.1000194

42 Federal Democratic Republic of Ethiopia, Ministry of Health. October 2010. Health Sector Development Programme report, Vol IV, pp 23.

10. APPENDIX

10.1 Annex I: Information Sheet

Addis Ababa University College of Health Science,
School of Allied Health Sciences
Department of Nursing and Midwifery

Here, I the undersigned, at Addis Ababa University College of Health Science, School of Allied Health Sciences Department of Nursing and Midwifery Graduate studies Program, currently I will be undertaking research entitled assessment of knowledge, Attitude, Practice and factors associated with it towards Hepatitis B viral infection among Addis Ababa University, regular undergraduate students of College of Health Science, For this study you are selected as a participant and before getting your consent or permission of your participation you need to know all necessary information related to the study. Thus, this information will be detailed as;

***Objective*:** To assess knowledge, Attitude, Practice and factors associated with it towards Hepatitis B viral infection among Addis Ababa University, regular undergraduate students of College of Health Science.

Significance of the study: This study is important in providing ways to prevent Hepatitis B viral infection based on the gap in knowledge, Attitude and Practice identified.

Participants: Selected students of Addis Ababa University, School of Allied Health Science.

Confidentiality: All information you give will be kept confidential and won't be accessible to any third party. You are not asked to write your name on the questionnaire sheet so that you will not be identified.

Risks*:* The procedure doesn't bear any physical or psychological trauma on you. You will not be forced to respond to the information you do not know.

Benefits: For your participation in the study no payment will be granted. But, participating in the study and giving your information to questions asked will have great input in efforts to describe the knowledge, Attitude and practice of the study population towards hepatitis B viral infection.

Consent: Your participation in the study will be totally based on your willingness. You have the right not to participate from the beginning, or stop any time after starting participation. You will not be forced to respond to the information you do not know.

Name of principal investigator: Hikma Shikure (Bsc N.)

Date: _____

Signature_____

Address of PI Phone Number +251913173801 or +251911332952

Email: hikmashikure@gmail.com

10.2 Annex II- Questionnaire

Addis Ababa University College of Health Science,

School of Allied Health Sciences

Department of Nursing and Midwifery

Structured questionnaire

Consent form

Dear Respondent; my name is Hikma Shikure. Currently I am a graduate student at Addis Ababa University, college of Health Sciences, School of Allied Health Science Department of Nursing and Midwifery. I am conducting a research to assess knowledge, Attitude, Practice and factors associated with it towards Hepatitis B viral infection among Addis Ababa University, regular undergraduate students of College of Health Science. The main purpose of the study is to collect information necessary to describe the level of knowledge, Attitude and practice of the students towards HBV infection and in order to identify the gap to recommend possible solutions. To attain this purpose your honest and genuine participation is very important and highly appreciable. I, therefore, kindly request you to fill this questionnaire as accurately and carefully as possible.

Please be assured that all the information gathered will be kept strictly confidential and your name does not need to written in any page of the questionnaire. Only the researcher has the access of the information and used it for the study purpose only. You have a full right not to participate in this study.

Are you willing to participate? Yes ☐ No ☐

Thank you

Section A: Socio-demographic characteristics of the respondent

1. What is your age? _____
2. Sex 1. Male 2. Female
3. Religion
    1. Muslim
    2. Orthodox
    3. Protestant
    4. Catholic
    5. Other, specify _____
4. From which part of Ethiopia do you came from?
    1. Central Ethiopia
    2. North Ethiopia
    3. South Ethiopia
    4. East Ethiopia
    5. West Ethiopia
    6. From abroad, specify _____
    7. Ethnicity _____
5. Which program are you studying?
    1. Nursing
    2. Midwifery
    3. Medical Laboratory technology
6. How long have you stayed in Addis Ababa University school of Allied Health science?
    1. Two years
    2. Three years
    3. Four years
    4. More than four year specify the year_____
7. How much is your last cumulative GPA specify _____

Section B: Respondents Knowledge about Hepatitis B infection

8. Do you know or have you heard of Hepatitis B? (if no go to question No 10)

    1. Yes
    2. No

9. If you hear, from where did you hear

    1. Books and journal articles
    2. Lectures and seminars
    3. Media
    4. Family and friends
    5. Special workshops concerning HBV
    6. Other specify_____

10. Which part of our organ does Hepatitis B affects?

    1. Liver
    2. Heart
    3. Kidneys
    4. Brain
    5. Not sure

11. The symptoms of hepatitis B viral infection appear within few days Always after the entrance of Hepatitis B virus to the body

    1. Yes
    2. No
    3. I don't know

12. Route of transmission of Hepatitis B infection (answer each of the following choices)

1. Blood and blood products yes ☐ No ☐
2. Needles and sharps injury yes ☐ No ☐
3. Sexual intercourse yes ☐ No ☐
4. Vertically from mother to child yes ☐ No ☐
5. Faeco-oral yes ☐ No ☐
6. Contaminated water yes ☐ No ☐
7. Other specify _____

13. There is a higher risk of Hepatitis B than HIV transmission through needle stick injury.

1. Yes
2. No
3. I don't know

14. Ways of preventing Hepatitis B infection can be through (answer each of the following choices)

1. Vaccination yes ☐ No ☐
2. Practicing standard working precaution yes ☐ No ☐
3. Avoid needle/sharp injury yes ☐ No ☐
4. Avoid unsafe sex yes ☐ No ☐

5. Avoid drinking contaminated water yes ☐ No ☐

6. Avoid foods not well cooked yes ☐ No ☐

7. Other specify _____

15. If your answer is yes for Q.No 14 choice 1, Can Hepatitis B vaccine prevents the disease effectively?

1. Yes
2. No

16. How many doses of hepatitis vaccine are there?

1. One dose
2. Two doses
3. Three doses
4. Four doses

17. What is the Expected Interval between last dose and dose preceding it?

1. < 6 months
2. ≥ 6 months
3. I don't know

18. There is specific pharmaceutical treatment available to cure hepatitis B

1. Yes
2. No
3. I don't know

Section C: Respondents Attitude Regarding Hepatitis B viral infection

19. Do you think your job puts you at a high risk of acquiring Hepatitis B virus?
    1. Yes
    2. No
    3. I don't have idea
20. Do you think hepatitis B vaccine costs too much?
    1. Yes
    2. No
21. You are in need of protection against Hepatitis B viral infection
    1. Agree
    2. Disagree
    3. I don't have idea
22. Do you consider it necessary to receive vaccine?
    1. Yes
    2. No
23. Do you think that health professionals who are Hepatitis B virus positive should not give health care services to patients?
    1. Yes
    2. No
24. Do you feel that you do not have the skills needed to effectively and safely care patients with Hepatitis B?
    1. Yes 2. No
25. Do you want not serve people with Hepatitis B in your clinical attachment?
    1. Yes
    2. No
26. Testing outpatients for Hepatitis B is not necessary
    1. Agree
    2. Disagree
    3. Don't have idea

27. Following infection control guidelines will protect you from being infected with Hepatitis B

    1. Agree
    2. Disagree
    3. Don't have idea

Section D: Respondents Practice Regarding Hepatitis B viral infection

28. Do you often use additional infection control precautions when you caring for patients with Hepatitis B

    1. Yes
    2. No

29. Do you deliver the same standard of care to patients with Hepatitis B as you do for other patients?

    1. Yes
    2. No

30. Measures taken to protect against hepatitis B infection (answer each of the following choices)

    1. Wearing of gloves yes ☐ No ☐
    2. Wearing of goggles yes ☐ No ☐
    3. Adequate disposal of sharp materials yes ☐ No ☐
    4. Avoid patients diagnosed With hepatitis B yes ☐ No ☐
    5. Multivitamin/Blood Tonic yes ☐ No ☐
    6. Use antibiotics after contact yes ☐ No ☐
    7. Other Specify _____

31. Have you ever tested for hepatitis B virus?

    1. Yes
    2. No

32. Have you ever received hepatitis B Vaccine? (if yes answer question No 33 & 34)

    1. Yes
    2. No

33. If “yes” for question number 32, Number of doses of vaccine you received

    1. 1 dose
    2. 2 dose
    3. ≥ 3 dose

34. Do you complete vaccination schedule?

    1. Yes
    2. No

35. If “No” for question number 32, reason for not being Vaccinated

    1. No reason
    2. Negligence
    3. I can’t be infected with hepatitis B
    4. Unavailability of the vaccine through government channels
    5. Unwilling to spend time and money for the vaccine
    6. Fear of the side effect of the vaccine
    7. Other specify_____

11. DECLARATION

I, the undersigned, declare that this thesis is my original work, has not been presented for a degree in this or another university and that all sources of materials used for this thesis have been fully acknowledged.

Name: **Hikma Shikure**

Signature: _____.

Name of the institution: **ADDIS ABABA UNIVERSITY**

Date of Submission: **June, 2014**

This thesis work has been submitted for examination with my approval university advisor.

Advisor's name: **Ato Teferi Fete (RN, BSc, Msc)**

Date and Signature: _____