



FIELD EPIDEMIOLOGY TRAINING PROGRAM

**ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PRACTICE OF
VIRAL HEPATITIS PREVENTION METHODS AMONG ADULT
PEOPLE IN ADDIS ABABA, ETHIOPIA: COMMUNITY BASED
CROSS-SECTIONAL STUDY.**

**A RESEARCH TO BE SUBMITTED TO THE St. PAUL'S HOSPITAL
MILLENNIUM MEDICAL COLLEGE, DEPARTMENT OF PUBLIC
HEALTH IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR MASTER OF DEGREE IN PUBLIC HEALTH (EFELTP)**

SEPTEMBER 2019

ADDIS ABABA, ETHIOPIA.

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CROSS-SECTIONAL STUDY.**

BY: AHIMED MOHAMMED (MD, COHORT-3 EFELTP RESIDENT).

**ADVISOR: MR. TEWODROS GETINET (MSC, ASSISTANT
PROFESSOR OF BIOSTATISTICS).**

**CO-ADVISOR: MR. TEWODROS FANTAHUN (MSC,
BIOSTATISTICIAN).**

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MILLENNIUM MEDICAL COLLEGE, DEPARTMENT OF PUBLIC
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Table of Contents

Acknowledgement.....	1
Abstract	ii
List of Tables	iii
List of Figures.....	iv
Abbreviation and Acronyms	v
1. INTRODUCTION	1
1.1. Background.....	1
1.2. Statement of the Problem	3
1.3. Significance of the Study	5
2. LITERATURE REVIEW.....	7
2.1 Acute and chronic viral Hepatitis.....	7
2.2 Clinical Manifestation of Viral Hepatitis	8
2.3 Risk Factor for Viral Hepatitis	8
2.4 Mode of Transmission of Viral Hepatitis	9
2.5 Laboratory Diagnosis of Viral Hepatitis	9
2.6 Prevention and Treatment of Viral Hepatitis	10
2.7 Searched Literatures.....	12
3. OBJECTIVE.....	17
3.1 General Objective	17
3.2 Specific Objective	17
4. METHODOLOGY	18
4.1 Study Design	18
4.2 Description of the Study Area	18
4.3 Source and Study Population	18
4.4 Inclusion and Exclusion Criteria.....	18
4.5 Sample Size Determination	18
4.6 Sampling Procedures	19

4.7 Variables	20
4.7.1 Dependent Variable.....	20
4.7.2 Independent Variables	20
4.8 Data Collection Instruments.....	20
4.9 Data Collection and Management.....	21
4.9.1 Recruitment and training of data collectors.....	21
4.9.2 Data collection.....	21
4.9.3 Data quality control	22
4.10 Data Entry and Analysis	22
4.11 Ethical Consideration.....	23
4.12 Dissemination of Findings.....	23
4.13 Operational Definition.....	23
5. RESULTS	25
5.1 Socio-demographic characteristics.....	25
5.2 Assessment of knowledge towards Hepatitis Virus infection	27
5.2.1 Pattern of Knowledge in relation to participants demographic characteristics	28
5.3 Assessment of attitude towards Hepatitis Virus prevention methods	30
5.3.1 Pattern of Attitude level according to Demographic characteristics	32
5.4 Assessment of practice towards Hepatitis Virus prevention methods	32
5.4.1 Pattern of Practice level of Adult people relative to Demographic factors.	34
5.5 Association pattern of knowledge & attitude over practice of study participants	35
6. DISCUSSION	36
7. CONCLUSION AND RECOMMENDATIONS	39
8. STRENGTHS & LIMITATION OF THE STUDY.....	41
9. REFERENCE	42

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Abstract

Background-Infection by Hepatitis viruses especially Hepatitis B& C, leads to slow progressive liver disease that over a period of less than 30 years may result in liver cancer called hepatocellular carcinoma (HCC). These viruses are prevalent in different parts of the world including Ethiopia. But, their prevalence differs from one place to other and this difference in prevalence directly proportional to the level of communities' awareness, perception and prevention towards the disease. The objective of this study was to determine the Knowledge, Attitude and Practice (KAP) towards Hepatitis virus prevention Method among adult population of Addis Ababa, Ethiopia.

Methodology-Community based cross-sectional study conducted among Adult population residing in all sub-cities of Addis Ababa using multi-stage sampling techniques. Charts, Frequency tables and graphs were used to present the proportion of the results and its pattern. Analyses were performed using SPSS 20.0.

Result- Out of 634 distributed questionnaires; all were returned with a response rate of 100.0%. Four hundred and sixty-nine (74.0%) respondents were female with mean age of 36.09 years. One hundred and seventy six (27.8%) had secondary level of education and 335 (52.8%) were unemployed. Significant impacts of knowledge-attitude over practice status towards hepatitis disease prevention methods were observed. Over all the current study shows inadequate knowledge proportion of 61.7% (Mean of 10.10), proportion of negative attitude 93.2% (Mean of 1.65) and bad practice proportion of 93.7% (Mean of 2.69) towards hepatitis disease prevention methods among adult people in Addis Ababa, Ethiopia.

Discussion and conclusion- The association between knowledge-attitude over practice level reaffirms that better knowledge together with positive attitude can subsequently lead to good practices. This will further help in prevention and management of Hepatitis disease. Therefore, extensive health educational campaign should be provided to general population and the country needs to formulate policy and strategies in the areas of disease surveillance, risk group identification and screening. Adapting a recommended diagnostic and treatment algorithm of viral hepatitis in the routine healthcare systems and implementing prevention and control policies in the general population needs an urgent attention. Improving availability of data on viral hepatitis, access to low-cost generic drugs is also critical.

List of Tables

Table 1: Socio-demographic characteristics of study participants

Table 2: Relation of average knowledge score with socio-demographic distribution of study participants.

Table 3: Assessment of attitude level score of study participants towards hepatitis virus prevention methods.

Table 4: Assessment of practice level score of study participants towards hepatitis disease prevention methods.

Table 5: Correlation between knowledge, attitude and practice level score of study participants towards hepatitis disease prevention methods.

List of Figures

Figure 1: Distribution of study participants depending on their gender difference during study period.

Figure 2: Knowledge adequacy of study participants during study period.

Figure 3: Attitude status of study participants towards hepatitis disease prevention methods by their gender difference.

Figure 4: Practice level score of study participants towards hepatitis disease prevention methods during study period.

Abbreviation and Acronyms

CSA= Central Statistics Agency

DAAS= Direct Acting Anti Viral

DNA= Deoxy-Ribo Nucleic Acid

EIA= Enzyme Immuno Assay

HAV= Hepatitis A Virus

HBV= Hepatitis B Virus

HBsAg= Hepatitis B Surface Antigen

HBeAg= Hepatitis B E Antigen

HBcAg= Hepatitis B Core Antigen

HCC= Hepato Cellular Carcinoma

HCV= Hepatitis C Virus

HCW= Health Care Workers

HDV= Hepatitis D Virus

HEV= Hepatitis E Virus

HIV= Human Immuno Virus

PCR= Polymerase Chain Reaction

RNA= Ribo-Nucleic Acid

STD= Sexual Transmitted Disease

TB= Tuberculosis Bacteria

WHO= World Health Organization

1. Introduction

1.1. Background

Hepatitis is an infection of the liver caused by several viruses, the most common of which are hepatitis A, B and C and both hepatitis B virus (HBV) and C virus (HCV) are hepatotropic virus whose primary replication occurs in the liver and the HBV-associated delta agent or hepatitis D virus (HDV), and hepatitis E virus (HEV) as well as other transfusion-transmitted agents (e.g., "hepatitis G" virus and "TT" virus, have been identified but do not cause hepatitis (1).

Hepatitis B, C and D viruses are parenteral transmitted, occur both in the acute and chronic forms, and give rise to chronic hepatitis, cirrhosis and hepatocellular carcinoma and both Hepatitis B and C virus are members of two different viral families, HBV belongs to the family of hepadnaviridae, a group of hepatotropic mammalian and avian DNA viruses, which replicate via reverse transcription of a genomic RNA intermediate and contains a partially double stranded genomic DNA while HCV is member of the Flaviviridae, where it forms its own genus, Hepacivirus and a small, enveloped positive-sense, single stranded RNA virus, and its life cycle is thought to be predominantly cytoplasmic (2).

The natural history and clinical course of hepatitis B virus (HBV) differs from that of hepatitis C virus (HCV) infection. However, similarities may be drawn in the context of chronic disease and public health burden (3). The high mortality rate related with viral hepatitis is aggravated when we compare it with tuberculosis and even higher related to HIV. Because, patients co-infected with HIV plus HBV or HCV, fibrosis rates are accelerated compared with those infected with HBV or HCV alone, leading to faster progression to end-stage liver disease. Overall, the signs of end-stage liver disease in patients with HIV infection seem to be like the signs in patients without HIV infection, but survival after the first episode of decompensation is reduced (4). In Ethiopia 12% of medical admission and 31% of mortality in medical wards is due to liver disease (5).

According to 2013 World Health Organization (WHO) global health impact report of viral hepatitis, more than 240million and 15 million populations were affected by viral hepatitis disease due to HBV and HCV, respectively. According to this report 2 billion people have been infected with the hepatitis B virus (HBV), and more than 360 million have a chronic HBV infection. In addition, it has been estimated that up to 3% of the world's population has been infected with hepatitis C virus (HCV), of which 170 million people are chronically

infected, and an additional 3 to 4 million people are infected each year (6). It is estimated that out of the 360 million chronic global carriers of HBV, about 65 million of these chronic carriers live in Africa. Africa has the second largest number of chronic HBV carriers after Asia and is considered as a region of high endemicity such that of all the WHO regions, Africa is of interest. (7).

Recent data indicate that from 1990 to 2005 the prevalence of chronic HBV infection was reduced on average below 2% in Central and Tropical Latin American regions. While it remained between 2% and 4% in the Caribbean, Indian and Southern Latin American regions (9). High rates of chronic infections are also found in the Amazon and the southern parts of eastern and central Europe and in the Middle East and the Indian sub-continent; an estimated 2–5% of the general population is chronically infected. But, less than 1% of the population in Western Europe and North America is chronically infected (10).

All countries in the African Region consider viral hepatitis an urgent public health issue (9). The burden of viral hepatitis, though not accurately known, is believed to be one of the highest in the world and Hepatitis A, B, C and E are the types mostly found in the Region with the prevalence of hepatitis B surface antigen (HBsAg) positivity in Africa has been shown to range from about 3% in North Africa to 20% in West Africa (10). The prevalence of chronic HBV is estimated at 8% in West Africa and 5-7% in Central, Eastern and Southern Africa and the prevalence of chronic HCV is even higher in some areas, reaching levels of up to 10 %. Despite its high prevalence and highly infectious nature, HCV remains under-diagnosed and under-reported in most African countries. (11).

Hepatitis C virus infection is a more common cause of chronic viral hepatitis, cirrhosis of the liver and hepatocellular carcinoma than hepatitis B virus infection, especially in sub-Saharan Africa, including Ethiopia, and South-East Asia (6). Hepatitis B prevalence is highest in sub-Saharan Africa, where between 5–10% of the adult population is chronically infected and regarding HAV, Africa is known by high prevalence rate and nearly all older children and adults in the region acquired anti-HAV antibody immunity and HEV is also one of the leading causes of major outbreaks of acute viral hepatitis worldwide, especially in developing countries. Similarly, HDV is prevalent worldwide and associated with the most severe form of viral hepatitis (7). The implementation of universal immunization of infants and adolescents, as part of the existing EPI, against HBV (also against HDV), is long overdue in Ethiopia (8).

Unhygienic cultural and other practices, such as tattooing, ear-piercing, circumcision, scarification, tonsillectomy, and the use of unsterilized syringes and needles should be discouraged through public education, Blood and blood products must be screened prior to transfusion not only for HIV but also HBV and HCV, where affordable, HBV carriers may be offered interferon alpha 2B or lamivudine during the immune-tolerant phase and the rest of the carrier population should be given preventive education and a combination of interferon alpha 2B and ribavarin can be given to those with chronic HCV infection in addition the universal precaution measures must be strictly enforced in all health provision centers (8). While only about 10% of patients exposed to HBV infection become chronic carriers, more than 80% of those infected with HCV will remain carriers (9). As shown among Ethiopian patients with chronic hepatitis, cirrhosis and HCC, HCV infection is more prevalent than HBV infection. Thus, it is relevant that more studies should focus on HCV in the Ethiopian population, especially in the area of prevalence and mode of transmissions (10).

Many researchers have investigated knowledge, attitude and practice towards prevention method of HBV and HCV infections in various groups (university students, health care workers, blood donors, medical waste handlers, and others); however the studies conducted in Ethiopia, especially community based, are scares. Therefore, this study was designed to determine knowledge, attitude and practice towards prevention method of viral hepatitis among adult people in the community.

1.2. Statement of the Problem

Hepatitis disease is one of the major diseases of mankind and is a serious global public health problem (2). HBV infections result in 500,000 to 1.2 million deaths per year and its global prevalence varies from 0.5–20 %, due to differences in age at the time of infection and mode of acquisition (3). HCV is endemic worldwide, with an estimated global prevalence of 3%, which represents 170 million people and it is four to five times more prevalent than HIV globally (4). Prevalence of the carriers in different areas of the world is various according to which, the regions of the world were divided into three separate groups; the first group includes the United States, Canada, Western Europe, Australia and New Zealand which are among the regions with low prevalence (0.1% to 2%). The second group includes Mediterranean countries, Japan, central Asia, Middle East and South America which are among the regions with moderate prevalence (2% to 8%) and finally the high prevalence regions (8% to 20%) including South Asia, China and Africa (5).

In Southeast Asia, materno-fetal (vertical or perinatal) transmission accounts for the majority of HBV infection at an early age while in Africa the main modes of transmission appear different and remain incompletely understood and the serious global impact of HBV, with high morbidity and mortality, especially in the developing world, is manifested as acute hepatitis, chronic carrier state with or without histological signs of progressive liver disease, immune-complex disease, chronic hepatitis which, in turn, may progress to cirrhosis and/or hepatocellular carcinoma (10).

In Ethiopia, depending on age and sex, the HBsAg carrier state is between 8% and 12% and the overall HBV marker prevalence is between 42% and 79% in the general population and 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 and shows prevalence rates of 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 different socio-cultural environment (9). Overall sero-prevalence of HCV in subjects representing urban and rural populations to be 2.0% and revealed a low and different overall prevalence of HCV infection among different groups: 0.3% in Health professionals, 0.7% in consecutive blood donors, 0.9% in inhabitants of Addis Ababa, 1.3% in pregnant women attending antenatal clinic and 1.7% in Tigray and Amhara regions (10). Unlike hepatitis B, the incidence of new HCV infections may be declining in developed countries, but there is still a large reservoir of chronically infected patients who can serve as a source of transmission to others and are at risk of the severe consequences of chronic liver disease (11).

According to study done in 2016 at Black lion Hospital, among 249 patients with chronic liver disease, the HBsAg carrier prevalence was 36% in chronic hepatitis, 29% in cirrhosis and 23% in HCC, and the overall HBV marker prevalence was 86%, 82% and 76%, respectively (9). According to community-based sero-epidemiological survey in Addis Ababa, 292 (6.2 %) were HBsAg positive out of the 4736 samples screened (10).

In another study conducted in Tigray a total of 578 blood donors were screened in 2003 and 6.2% of them were HBsAg positive (20). According to a research conducted in Shashemene General Hospital in 2008, 5.7% of the total 384 VCT clients investigated were positive for HBsAg (21).

It is now generally agreed that implementation of a policy of universal immunization of infants, adolescents, or both, against hepatitis B, preferably integrated into EPI, should be adopted by all countries. This is particularly important and urgent in countries hyper-endemic for HBV (2). At present, the best approach to prevent hepatitis A and hepatitis E virus infection is by implementing nationwide public health education about personal and environmental hygiene and by improving the socioeconomic status of the people, Unhygienic cultural and other practices, such as tattooing, ear-piercing, circumcision, scarification, tonsillectomy, and the use of unsterilized syringes and needles should be discouraged through public education and the rest of the carrier population should be given preventive education (3).

Knowledge, attitude, and practice (KAP) surveys are representative of a specific population to collect information on what is known, believed and done in relation to a particular topic, and the most frequently used study tool in health-seeking behavior research (12). It was also known that the current prevalence rate of hepatitis disease is attributable to inadequate awareness and knowledge of Hepatitis virus transmission and prevention in general population (13). Therefore, we embarked on this study to evaluate the knowledge on Hepatitis infection in Adult people, their attitude on the prevention of both vertical and horizontal transmission of Hepatitis virus, and the use of prevention measures. We believe that our findings would have implications for other communities with similar socio-environmental characteristics as our study participant. Therefore, it is essential that the KAP status of adult people with respect to viral hepatitis were assessed by a standardized questionnaire. Such a questionnaire could be used as the best way to check the awareness, attitude and practice toward Hepatitis virus prevention methods. In addition, it can be used by community programmers and policy makers of health-related issues in order to evaluate the requirements for educational programs and potentially necessary interventions.

1.3. Significance of the Study

Moreover, according to the WHO report, Ethiopia is regarded as a country with no national strategy for surveillance, prevention and control of viral hepatitis, but the country is classified under the geographical regions with intermediate to hyper endemic viral hepatitis infections (7). Acute sporadic and epidemic viral hepatitis are common mainly in the developing countries, including Ethiopia and Hepatitis C virus infection is a more common cause of chronic viral hepatitis, cirrhosis of the liver and hepatocellular carcinoma than hepatitis B virus infection, especially in sub-Saharan Africa, including Ethiopia (8). South-East Asia and

recent developments in the identification of hepatitis virus markers have made it possible to diagnose the various types of viral hepatitis in Ethiopia (9).

In Ethiopia, an old clinical study showed that liver disease due to hepatitis virus accounted for 12% hospital admissions and 31% hospital mortality (9). Data regarding knowledge, attitude and practice towards prevention of Hepatitis virus among the community is scarce in Africa generally and Ethiopia Specifically, albeit the high prevalence of the infection in the general population (10, 11).

Prevention against any disease is proportional to KAP of the population and is reflective of the importance that is paid to health related issues by the society (12). KAP studies play an essential role in determining the obscurities of a society and are widely used in population reported assessment research worldwide (13). There is a need to assess the KAP status towards Hepatitis virus to develop a better and solid program for the society (14). People who are infected with hepatitis virus should be provided with appropriate information, counseling and clinical management including treatment to prevent complications, such as cirrhosis, liver cancer, and death (15).

The current study aimed to assess the knowledge, attitudes and practices of adult people towards Hepatitis virus prevention methods and this in turn important to program managers and health planners, to plan vaccination and other preventive strategies.

2. Literature Review

2.1 Acute and chronic viral Hepatitis

Hepatitis A and E are transmitted by the fecal-oral route and do not exist as chronic carrier states, hence they do not cause chronic liver disease while Hepatitis B, C and D viruses are parenterally transmitted, occur both in the acute and chronic forms, and give rise to chronic hepatitis, cirrhosis and hepatocellular carcinoma (1).

The first encounter with HBV results in an acute hepatitis B infection and in most of it is asymptomatic (3). In more than 95% of patients with acute HBV infection, the disease is self-limiting leading to complete recovery and life-long immunity. However, in 1-5% of immune competent adults the disease may progress to chronic hepatitis B infection (4).

The age of acquisition of the infection plays an important role in determining the course of the infection and up to 90% of those who acquire the infection during the perinatal period progress to CHB and less than 1% of individuals with acute hepatitis B infection may develop fulminant hepatic failure that has high mortality rate reaching approximately 80% (5).

Regarding hepatitis C virus, Patients infected with HCV have an 80 to 85 percent chance that the HCV infection will persist and that they will go on to have a chronic HCV infection (1). Chronic HCV infection has multiple manifestations, the most common of which is chronic progressive liver disease associated with inflammation and fibrosis that is some patients may progress to cirrhosis (6).

Children less than 6 years of age who become infected with the hepatitis B virus are the most likely to develop chronic infections such that in infants and children: 80–90% of infants infected during the first year of life develop chronic infections and 30–50% of children infected before the age of 6 years develop chronic infections (5). But, in adults: <5% of otherwise healthy persons who are infected as adults will develop chronic infection and 20–30% of adults who are chronically infected will develop cirrhosis and/or liver cancer and both conditions are common causes of morbidity and mortality in HCV infected patients (6).

Recent developments in the identification of hepatitis virus markers have made it possible to diagnose the various types of viral hepatitis in Ethiopia and the role of the non-A-E viruses, HGV, TTV and SENV, in the pathogenesis of acute and chronic liver diseases is yet to be defined, but so far they remain suspects as causes of viral hepatitis and there is a need to find

out their occurrence among the Ethiopian population and their possible role in liver diseases. (7).

2.2 Clinical Manifestation of Viral Hepatitis

Most infected individuals may not present clinical manifestations, or these manifestations may appear years after infection when the disease is already in an advanced stage and the most common clinical manifestations of viral hepatitis especially the chronic HB and HC virus are fever; weakness; abdominal pain; sickness, nausea; vomiting; loss of appetite; dark urine; jaundice; and pale feces (1).

Infection with HAV at a younger age is usually asymptomatic or subclinical but severity increases with age: children under 5 years of age have a case fatality rate of 1.5 per 1,000 and patients over 50 years of age have a case fatality of 27 per 1,000 (4). In Ethiopia, age-specific analysis of 959 healthy subjects, 89% of whom were children under 15 years of age, revealed that 84% of children below six months had IgG-specific antibody to HAV (anti-HAV-IgG) and the prevalence of anti-HAV-IgG dropped to 30% by one year of age but rapidly rose to 50% at 5 years and 100% at 15 years of age (5). In contrast, sero-epidemiological surveys in Australia, North America and Western Europe have revealed that the prevalence of anti-HAV positivity is much lower in early life but continues to rise with age, typical clinical signs and symptoms being more apparent in older children and adults (6).

2.3 Risk Factor for Viral Hepatitis

The risk factors for HBV infection are percutaneous or mucosal exposure to infected blood or body fluids, using inadequately sterilized medical equipment or contact with non-intact skin (1). The average risk for acquiring HBV infection after percutaneous exposure to infected blood has been estimated to be 6–30 %; whereas it is about 0.3 % for human immunodeficiency virus (2). The risk of occupational exposure to HBV infection is highly prevalent among HCWs in developing countries, where the prevalence of HBV is high in general population, and the health settings are poor (3). In developing countries, unsafe medical practices still represent a major risk factor for hepatitis virus transmission, as approximately 2 million hepatitis infections may be acquired annually from contaminated health care injections and may account for up to 40% of all hepatitis infections worldwide (4).

Relative to HAV infection, significant socioeconomic and hygienic improvement in Ethiopia and other developing countries is directly proportional to reduction in the rate of infection,

later appearance and typical presentations while clinical course of HEV infection is generally mild, short and self-limited in males and non-pregnant women (5). Risk factor for Hepatitis C virus is transfusion, intravenous drug use, tattooing, circumcision, body piercing, using contaminated instruments such as hypodermic needles, long-term hemodialysis and high-risk sexual behavior (6).

2.4 Mode of Transmission of Viral Hepatitis

HAV and HEV are transmitted by ingestion of contaminated food or water while HBV, HCV, and HDV are usually transmitted because of parenteral contact with infected bodily fluids, such as during transfusion of contaminated blood or blood products, invasive medical procedures using contaminated equipment, sexual intercourse, and horizontal and vertical transmission (from mother to child during childbirth) (1). Without intervention, a mother who is positive for HBV confers a 20% risk of passing the infection to her offspring at the time of birth and this risk is as high as 90% if the mother is also positive for HBeAg (2). There are multiple routes of transmission of HCV. Similarly, HCV is not transmitted very efficiently from mucosal exposures to blood or serum-derived fluids, such as birth to an infected mother or sexual contact with an infected partner (3). For sexual contacts, the risk of HCV transmission does not seem to increase among heterosexual couples in regular relationships, while it is increased among persons with multiple sexual partners and in patients with human immunodeficiency virus (HIV) or other sexually transmitted infections (4).

2.5 Laboratory Diagnosis of Viral Hepatitis

Acute HBV infection is characterized by the presence of HBsAg and immunoglobulin M (IgM) antibody to the core antigen, HBcAg and also during the initial phase of infection, patients are also sero-positive for hepatitis B e antigen (HBeAg); HBeAg is usually a marker of high levels of replication of the virus; presence of HBeAg indicates that the blood and body fluids of the infected individual are highly contagious (1).

Chronic infection is characterized by the persistence of HBsAg for at least 6 months (with or without concurrent HBeAg) and Persistence of HBsAg is the principal marker of risk for developing chronic liver disease and liver cancer (hepatocellular carcinoma) later in life (2).

Laboratory diagnosis of viral hepatitis includes enzyme immunoassays (EIA) or electrochemi luminescence immunoassays (ECLIA) to detect specific viral hepatitis antigens or antibodies, and molecular assays such as polymerase chain reaction (PCR) to detect and quantify the viral genome (3). Three main serological tests – HBsAg, anti-HBc and anti-HBs – are used to determine a patient's hepatitis B status: susceptible (to infection); immune

through vaccination or resolved infection; or chronically infected with hepatitis B and testing all three avoids missed diagnoses, unnecessary vaccination and recalling patients or adding tests (4).

Diagnosis of chronic hepatitis C is based on the detection of both HCV antibodies (anti-HCV) and HCV RNA. Since, in the case of a newly acquired HCV infection, spontaneous viral clearance is very rare beyond four to six months of infection, the diagnosis of chronic hepatitis C can be made after that time and Anti-HCV antibodies are the first line diagnostic test for HCV infection but if positive should be followed by HCV RNA (26). HBV DNA, or viral load, is a test to quantify the amount of virus in the blood and this is often measured in secondary care as it is an important measure used to determine treatment eligibility. Because, in the case of a newly acquired HBV infection, spontaneous viral clearance is very rare after six months of infection, the diagnosis of chronic hepatitis B can be made after that time (27). A measure of anti-HAV-IgG serology used for diagnosis of HAV disease (28).

2.6 Prevention and Treatment of Viral Hepatitis

There is no specific treatment for acute hepatitis B. Therefore, care is aimed at maintaining comfort and adequate nutritional balance, including replacement of fluids lost from vomiting and diarrhea as well as with drugs, including oral antiviral agents so that can slow the progression of cirrhosis, reduce incidence of liver cancer and improve long term survival (1). WHO recommends the use of oral treatments - tenofovir or entecavir, because these are the most potent drugs to suppress hepatitis B virus also they rarely lead to drug resistance as compared with other drugs, are simple to take (1 pill a day) and have few side effects so require only limited monitoring. However, in most people, the treatment does not cure hepatitis B infection, but only suppresses the replication of the virus. Therefore, most people who start hepatitis B treatment must continue it for life (2). To minimize and/or eliminate continued spread of infection, HBV carriers (HBsAg positive for more than 6 months) can be treated with interferon alpha 2B or lamivudine (3). In patients with active hepatitis, treatment is most effective when given during the immune-tolerant phase (HBV-DNA and HBeAg detectable in serum) (4). Unfortunately, the cost of these drugs is not affordable in Ethiopia and most of the developing countries (5).

With regard to hepatitis C virus treatment, Despite the increased morbidity and mortality in untreated chronic hepatitis C patients and the high efficacy of antiviral therapy, only a minority of chronic HCV patients is currently treated and this shows the larger proportion of HCV patients remains undiagnosed and only a small proportion of diagnosed HCV patients

receives treatment and also it is clear that the vast majority of chronic HCV patients remains untreated even in developed countries (5).

Because application of therapy for acute viral hepatitis is limited and chronic viral hepatitis is cumbersome and costly, emphasis is placed on prevention through immunization (3). Multi-center, randomized, controlled and double blind trials of a combination of interferon alpha 2B and ribavarin, administered for 24-48 weeks, have shown a sustained virological response in 50%-57% of cases with chronic HCV infection (4). However, these drugs are not affordable to the majority of Ethiopians (5). Since chronic HCV patients may remain completely asymptomatic for decades, they often neglect to seek treatment or to adhere to their evaluation process and additional factors that may prevent HCV diagnosed patients from seeking appropriate treatment include economic issues, such as lack of health insurance and/or fears of missed work obligations, fears for negative treatment effects on their quality of life, and social pressures including family obligations, language difficulties for immigrants, lack of social support, social rejection and stigmatization (6).

Hepatitis B virus infection can be prevented by adhering to universal precautions including use of protective barriers like gloves, proper sterilization of medical equipment, proper hospital wastes management system and vaccination (1). Such that World Health Organization (WHO) recommends all infants should receive the hepatitis B vaccine as soon as possible after birth, preferably within 24 hours followed by 2 or 3 doses to complete the primary series (2).

A pilot vaccination trial was conducted in 314 Ethiopian children, 2-14 years of age, using 2 doses of recombinant DNA yeast derived hepatitis B vaccine and both doses were found safe and equally immunogenic in the Ethiopian population (7). Another trial, using plasma-derived hepatitis B vaccine in neonates, 6 weeks to 6 months old, administered concurrently with the EPI, has also shown safety and satisfactory immunogenicity. It was also shown that these Ethiopian vaccinees were protected against HBV infection for at least five years (8). Since the majority of infections occur early in life and the clinical presentation at this age is mostly subclinical or asymptomatic, there is no need for a mass vaccination programme against HAV with or without the Expanded Programme of Immunization (EPI) in present day Ethiopia (9). However, there may be a place for prophylactic vaccination against HAV in patients with chronic hepatitis C virus infection and Regular immunoglobulin, administered in a dose of 0.06 ml/Kg body weight before or immediately after exposure to HAV, is 80% to 90% effective as a prophylaxis and those in close contact with HAV-infected patients,

especially children under 15 years of age, should be offered immunoglobulin prophylaxis (10). At present, there is an urgent need for drastic socioeconomic improvement and public health education about personal and environmental hygiene and protection of water supplies from fecal contamination, adequate chlorination and/or boiling of drinking water to control both HAV and HEV infection (11).

Generally, in present day Ethiopia emphasis should be on the following: 1) All health institutions must observe the universal precaution guidelines strictly. 2) Cultural practices such as circumcision, use of hypodermic needles and syringes outside health institutions, tattooing, scarification and tonsillectomy by unqualified personnel should be discouraged through repeated public education (8).

The goals of the WHO viral hepatitis strategy are:

- a) To reduce transmission of the agents that cause viral hepatitis,
- b) To reduce morbidity and mortality due to viral hepatitis and improve the care of patients,
- c) To reduce the socio-economic impact at individual community and population level.

This comprehensive framework proposes 4 axes for regions and countries to develop effective strategies and plans according to their specific hepatitis burden and challenges and these are: Axis 1 is raising awareness, promoting partnerships and mobilizing resources, Axis 2 is evidence-based policy and data for action, Axis 3 is prevention of transmission, Axis 4 is screening, care and treatment (2).

2.7 Searched Literatures

A cross-sectional study done on 1000 healthy adult population of Quetta, Pakistan shows 588 (75.4%) were within the poor knowledge range and 192 (24.6%) showed adequate knowledge about Hepatitis B also Over all the respondents had a negative attitude towards Hepatitis B and majority of the respondents, 756 (96.9%) never went for HB screening and 674 (86.8%) stated a negative immunized status against HB and these findings indicate a lack of understanding of the basics of infection control and the prevention of transmission of Hepatitis B so that Extensive health education campaign should be provided to general population and especially to the residents of rural areas (14).

There was also a cross-sectional study among high-risk individuals which include healthcare workers, hemo-dialysis patients, injection and inhalation drug users, men who have sex with men, patients who had multiple blood transfusions, non-healthcare workers with likelihood of exposure to blood, sexually active heterosexual men and women on KAP of Hepatitis B and Hepatitis C virus infection prevention in the Philippines shows, they had knowledge on

hepatitis virus (85%), a disease termed as hepatitis B or C (78%), that the disease affect liver function (80%), that it can affect any age group (58%), that jaundice is one of the common symptoms of hepatitis B and C (83%), that these diseases can be transmitted by unsterilized syringes, needles and surgical instruments (56%), that there is a vaccination available for these diseases (90%), and there is specific diet required for the treatment of hepatitis B (90%). However, majority of them replied that they do not have knowledge in terms of: hepatitis B and C are viral diseases (84%), that the diseases could cause liver cancer (77%), that the early symptoms of these diseases are the same like cold and flu (75%), that nausea, vomiting and loss of appetite are common symptoms of the diseases (72%), that the diseases could be transmitted by using blades of the barber or ear and nose piercing (57%), that the diseases could be transmitted by unsafe sex (78%), that the diseases could be transmitted from mother to child (83%), that the diseases are curable or treatable (55%) and mostly or 33% of the respondents talked to their spouses about their illness also majority or 75% of the respondents would go to health facility if they think they have symptoms of hepatitis B or C. Mostly or 33% of them would go to health facility after 3 to 4 weeks of the appearance of symptoms. Mostly or 40% of the respondents did not know as how expensive the diagnosis and treatment of hepatitis B or C also 36% of the respondents worried mostly when diagnosed with hepatitis B or C on fear of death and Majority of the respondents did not do screening for hepatitis B or C (94%), vaccinated against hepatitis B (72%), ask for a new syringe before use (83%), ask their barber to change blade or for safe equipment for ear or nose piercing (81%), go for further investigation if diagnosed with hepatitis B or C (90%) and participate in health education program related to hepatitis B and C (98%). In addition, more than half or 51% will not ask for screening of blood before transfusion. However, majority or 76% of the respondents avoided meeting with hepatitis B and C patients. Extensive health education campaign should be provided to general population and there must be a strict screening policy for Hepatitis B and C among high-risk individuals and Hepatitis B vaccination should be strongly reinforced and access to treatment should be made affordable if not free to the Hepatitis B and C (15).

The cross-sectional, descriptive study was carried out among 287 subjects on viral hepatitis perception in south-east and north of Brazil shows, Most of the participants claimed that a blood test can be used for diagnosis (91.8%) and that jaundice and fever are symptoms of hepatitis infection (91.0% and 76.1%, respectively) also most participants responded that blood (79.9%), sexual contact (70.1%), and water or vegetables without treatment could

transmit hepatitis (62.7%), but a minority of participants recognized seafood (26.1%) as a vehicle of transmission. Also, most participants were unable to identify precisely the virus transmitted by seafood, blood, sexual intercourse, or ingestion of untreated water or vegetables (percentages varied from 76.9 to 91.8%) and most of the participants cited the use of condoms (73.9%), screening of blood donors (70.6%), piped water (69.3%), and septic tanks and sewage systems (64.4%) as effective measures in the prevention of hepatitis transmission and 72.5%% of participants were aware of viral hepatitis vaccines, but 75.8% did not know the type of virus prevented by vaccination and 46.4% of individuals believed that vaccine can prevent viral hepatitis (16).

Southeast Asians have higher rates of liver cancer than any other racial/ethnic group in the United States. Chronic carriage of hepatitis B virus (HBV) is the most common underlying cause of liver cancer in most Asian populations and some studies also show age dependency variation of Knowledge, Attitude and Practice (KAP) towards hepatitis virus prevention method. community based in person survey study done on 800 randomly selected Vietnamese American men and women living in Seattle shows, Eighty-one percent of the respondents had heard of hepatitis B (76% of men, 86% of women) and 67% reported HBV testing (66% of men, 68% of women) and Most of the participants knew that HBV can be transmitted during sexual intercourse (71% of men, 68% of women), by sharing toothbrushes (67% of men, 77% of women), and by sharing razors (59% of men, 67% of women). But, less than one-half knew that hepatitis B is not spread by eating food prepared by an infected person (46% of men, 27% of women), nor by coughing (39% of men, 25% of women). One-third of our respondents did not recall being tested for HBV. Important knowledge deficits about routes of hepatitis B transmission were identified and continued efforts should be made to develop and implement hepatitis B educational campaigns for Vietnamese immigrant communities. (17).

While study done in Port said, Egypt to assess the awareness, knowledge, and attitudes of the general public towards Hepatitis C a KAP cross-sectional study was conducted on 395 randomly selected individuals over 18 years of age and shows, almost 95% of the population studied had heard about hepatitis C but only half were aware that it is a public health problem, Fewer than 20% of them knew that Hepatitis C can cause liver cancer, Only 7.5% had seen any advertisements/ slides shown in the mass media in the last six months about Hepatitis C, or any posters or information material regarding Hepatitis C in public and health care places and Less than half the study population knew the correct answers regarding the

modes of transmission of Hepatitis C also three-quarters of the study population knew that there was no complete cure for hepatitis C. On the other hand, almost 90% mistakenly thought that there was a vaccine for Hepatitis C and finally the study recommends that more attention should be given to providing health education to the general public about risk factors and prevention of hepatitis virus infections in general (18).

A cross-sectional study done on 322 randomly selected health professionals (medical and health science students on clinical attachment) in Haramaya University Hospital, Oromia region, Ethiopia shows, 48.4% of the students were not aware about the availability of post exposure prophylaxis for hepatitis disease. Mean scores for knowledge and practice were 11.52 ± 2.37 and 2.76 ± 1.1 respectively. Significant and positive linear correlations between knowledge-practice ($r=0.173$, $p=0.002$) was observed. Study department was significantly associated with mean knowledge and practice of study respondents. This study indicates that lack of awareness about Hepatitis disease, its route of transmission and modes of prevention among the medical students entering the profession. Similarly, 95.3% the students were not fully vaccinated against Hepatitis B, which makes them vulnerable to the disease (26). According to Hospital based cross-sectional study conducted on 117 randomly selected participants in three selected hospitals of Addis Ababa in 2014 shows, prevalence of HBsAg and HCV was 34.2% and 18.8% respectively (1). Related with literacy level, Urban residents are much more likely educated than rural residents and according to 2016 EDHS, Addis Ababa has the lowest proportions of both females and males with no education (16% and 8% respectively), while the Somali region has the highest proportion (66% and 51% respectively) (21).

A population-based serological survey was conducted in Dhaka, Bangladesh to determine the prevalence and risk factors of HBV and HCV infection on 1,997 participants, HBV-seropositivity was documented in 582 (29%) participants and Four (0.2%) participants were positive for anti-HCV also Ninety-six/246 (39%) family members residing at same households with HBsAg positive participants were also HBV sero-positive [74 (30.1%) for anti-HBc and 22 (8.9%) for both HBsAg and anti-HBc] (22).

Despite increasing prevalence of HBV and health care workers (HCWs) being at high risk for HBV, there is paucity of information on knowledge, attitude and practice (KAP) concerning HBV among HCWs, especially among developing countries and a cross-sectional study done

in Bantam, Ghana amongst 175 HCWs of Suntreso Government Hospital shows that correct response range from 74-91.4% for transmission of HBV, 74.9 to 89.1% for preventive measures of HBV, majority of the participants (89.3%) believed that HBV vaccination should be compulsory and 25.13% of the participants stated that they were scared of vaccination, while almost 2.28% of participants did not trust HBV vaccination and 2.28-25.13% were within the negative attitude range whereas 69.14- 91.9% showed a positive attitude towards HBV and 4.57-5.7% were unaware of the issues, about 74.4% had taken HBV vaccine while about 41.8% had their immunity checked also the study concluded that HBV related low level of knowledge can be contributory towards increasing frequency of HB. Hence, educational campaigns among HCWs should be intensified with focus being on attitude change and behavior modification (23).

Hepatitis virus especially hepatitis B and C poses a major health concern and is the world's most common blood borne viral infection placing healthcare workers at higher occupational risk and a cross-sectional study done on Dental health professionals in Madhya Pradesh, India on a randomized sample of 280 dental professionals to know the awareness, attitude and practice regarding hepatitis virus prevention method and showed 82.15% had a good level of awareness regarding the epidemiology and the route of transmission of hepatitis and 95.36% had good knowledge about vaccination of hepatitis B, where 76% did not have the knowledge regarding post exposure prophylaxis and also 58.22% showed a positive attitude towards HBV patients Whereas 89% showed a good level of knowledge about the investigation and diagnosis of hepatitis B and C. Thus, this study also reflects the need of advising screening and diagnostic tests for Hepatitis virus in patients who are clinical suspects of the disease undergoing minor and major surgical procedures and professionals should be aware of post exposure prophylaxis regimen in case of any accidental exposure to hepatitis virus can prevent the infection and subsequent development of the chronic infection or the liver disease (24).

3. Objective

3.1 General Objective

- To determine level of knowledge, attitude and practice regarding Viral Hepatitis Prevention Methods among adult people in Addis Ababa, Ethiopia, 2019.

3.2 Specific Objective

- To determine the level of knowledge towards hepatitis virus prevention methods among adult residents of Addis Ababa during study period.
- To assess attitude towards hepatitis virus prevention methods among adult residents of Addis Ababa during study period.
- To assess practice related to Hepatitis Virus prevention methods among adult residents of Addis Ababa during study period.

4. Methodology

4.1 Study Design

Community based cross sectional study design was used during March 21- July 21/19.

4.2 Description of the Study Area

This study was conducted in Addis Ababa, the capital city of Ethiopia. Addis Ababa lies 9°1'48"N latitude and 38°44'24"E longitude. The city is located at the heart of the country, at an altitude ranging from 2,100 meters at Akaki in the south to 3,000 meters at Entoto Hill in the North. The city occupies a total area of 540 Sq. Km². At the time of this study, the city is divided into ten sub-cities which are the second administrative units next to city administration (29). The sub-cities are also divided into woreda's, which are the smallest administrative unit in the city. There are 116 woreda's in the City Administration. The number of woreda varies based on their size (30). Addis Ababa city had a population of 3,434,000 that comprises 1,625,000 Males and 1,809,000 Females according to the population projection of Ethiopia for all regions at woreda level from 2014-2017 survey with annual growth rate of 3.8% and an average of 3.5 persons per household (31).

4.3 Source and Study Population

All house-holds with adult person (≥ 18 years of age) from all ten (10) sub-cities of Addis Ababa city administration was used as the source of study participants and all adult person (≥ 18 years of age) living within eligible house-hold of randomly selected woreda in sub-cities of Addis Ababa city administration was used as study participant. The study unit is households.

4.4 Inclusion and Exclusion Criteria

- All house-hold with at-least one living adult person (≥ 18 years old) in selected sub-city of Addis Ababa city Administration permanently were eligible.
- Those identified house-holds with no adult person (≥ 18 years old) available to interview after three attempts has failed to get adult respondent at the time of the study period were excluded from the study.

4.5 Sample Size Determination

Sample size (n) was determined based on the assumption: 50% of study population had an adequate knowledge, Attitude and Practice towards hepatitis virus prevention method (since

there is no available published article on same topic at similar setting, P taken as 50% to get maximum sample size). Expected margin of error (e) of 0.05 and with 95% confidence level ($Z_{\alpha/2}$), 10% contingency for non-response (k), sample design effect of 1.5(f),

$$n = ((Z_{\alpha/2})^2 * P (1 - P)) / (e^2) * (f)$$

Where: n= sample size.

$$n = (1.96)^2 * (0.5) (1-0.5) / (0.05)^2 * (f)$$

$$n = 0.9604 / 0.00258 * (f)$$

$n = 384 * f + k$ (non-response rate =58), the result was;

$$n = 576 + 58 = 634$$

Therefore, the required sample size for the above studies was 634.

4.6 Sampling Procedures

A multi- stage sampling technique was employed to select the required study units and the city was stratified to 10 sub cities and 116 woreda's. Two sub- cities was selected out of ten sub-cities for the study (at least 2 out of 10 sub cities that shows 20% coverage of target population) from which Gulelle and Addis Ketema sub cities was selected simple randomly by lottery method, then two woreda's out of ten (10) woreda's from each selected sub-city (woreda 05 & 06 from Addis Ketema and woreda 08 & 09 from Gulelle sub-city) was selected again by lottery method of simple random sampling. A 2013 projected population estimate showed that the 10 woreda's in Gulelle has a population of 345,497 with total household size of 81,704, whereas Addis Ketema Sub city has a total population of 329,659 and house hold size of 77,959 (31).

The study was conducted in randomly selected Gulelle Sub-city's woreda 8 and 9 with projected total population and house-hold size of 37,641 (8,902 HH) and 17,713 (4,190 HH) respectively while the projected total population and house-hold size of randomly selected woreda 5 and 6 of Addis Ketema Sub-city shows 32,829 (7,764 HH) and 30,720 (7,265 HH) respectively during the study period.

Information on the number of households and list of house numbers in each of the selected woreda from each selected sub-city was obtained from the respective administrative health offices of the sub-city. The calculated sample size of 634 house-holds were distributed for selected four woreda's by using probability-proportional to house-hold size living in each

selected woreda and hence woreda 05, 193(30.4%) HH and woreda 06, 181(28.5%) HH from Addis Ketema sub-city while woreda 08, 177(28.1%) HH and woreda 09, 83(13%) HH from Gulelle sub-city were recruited. The list of the house-hold was used as sampling frames. The required numbers of house-holds from each woreda were selected by systematic random sampling techniques from the lists of house-holds made by the researcher (my-self) prior to distribution of data collection tool followed by systematic non random sampling techniques for choice of element from subsequent interval (n^{th} interval). The sampling interval (n^{th} interval) used in each woreda was determined by dividing the total number of households in a woreda by the number of households (N/n) selected to be interviewed for current study from that woreda and found to be every 44-45th house-hold interval and the first adult respondent per house-hold from each 44-45th house-hold in a list were recruited randomly then the next house-hold were selected systematically based on sampling interval. If a visited household had more than one eligible woman and/or man, the ones who were interviewed were randomly selected.

4.7 Variables

4.7.1 Dependent Variable

- Knowledge of all adult people towards prevention methods of Hepatitis virus.
- Attitude of all adult people towards prevention methods of Hepatitis virus.
- The practice of the study participants towards hepatitis virus prevention methods.

4.7.2 Independent Variables

- Sex, age, residence areas, religion, ethnicity, level of education, level of income, occupation & marital status of study participants and
- Knowledge and attitude relation with practice level of study participants towards hepatitis disease prevention methods among adult population.

4.8 Data Collection Instruments

The data was collected using pre-coded, pre-tested, structured, questionnaires comprising of four sections. In addition to the demographic data that comprises gender, age, marital status, education level and monthly In-come, 21 questions explored knowledge towards Hepatitis virus prevention, 7 questions focused on attitude and 7 questions addressed practices towards Hepatitis virus prevention. The primary version of the questionnaire was developed through extensive literature review in English language (13, 14, 16 and 18). It was later translated into Amharic language by using standard translating procedures (33). The Amharic version of the

questionnaire was tested for its clarity, understandability and completeness and was found to be clear, understandable and complete (34). The questionnaire was then piloted with 32 respondents (5% of total sample size of current study) in other area (sub-city) out of study area. As the consistency and constructed validity (based on statistical procedure that shows greater variance between KAP on hepatitis etiology, sign/symptom & transmission related questions with KAP towards hepatitis disease prevention method related questions) of the study questionnaire was stabilized, the instrument was made available for data collection.

4.9 Data Collection and Management

4.9.1 Recruitment and training of data collectors

Eight data collectors (Health Extension Workers) per each selected woreda were recruited. Training of one day was given to data collectors as to how they should fill out the questionnaire, what sort of approach they need to have towards sampled households. The data collectors were introduced to the objectives of the survey during the training. Training manual prepared in English was distributed to each data collector and the general procedures while conducting the survey was discussed thoroughly. Then, the data collectors were instructed to approach adult (Husband/ wife/individuals) who were above the age of 18 years. Before the actual survey conducted, the data collectors had conducted a pre-test on 32(5%) adults of randomly selected HHs in one of the woreda's not included in the study. The findings and experiences from the pretest were utilized in modifying the data collection procedures and tools. After the pre-test, those variables found to be irrelevant or missed it was modified, removed or incorporated from the questionnaire accordingly. In addition, the time of data collection was made mainly on the weekends as it was difficult to get the adults of HHs at home during the weekdays.

4.9.2 Data collection

The survey was conducted by trained data collectors over a month's period. To ensure full co-operation of the study participants, the data collectors explained the rationale behind the study to the study participant. The data collectors were made a house to house survey in strict adherence to the sample frame to select the house-holds. Those who could read and write were asked to fill up the questionnaire themselves, help was offered if required. To all other participants, questionnaire was read out and filled by the field staff. When the study participant in a sampled household was not available in the first visit, the data collectors were made a special note for that house and alternative visits was arranged. Data collectors were made three repeated visits to get the study participant not found in the first visit. If he/she was

not available in all these visits or unwilling to participate in the study, that household was jumped and next household in the sampling frame according to sampling interval was considered.

4.9.3 Data quality control

The questionnaires were prepared in English and translated into Amharic; working language of the city, and then to English to maintain consistency and was pretested carefully and modified accordingly. Training was given for all data collectors that enabled them to collect clear data. Validation of the questionnaire was carried out from the onset based on statistical procedure done on variance of KAP on hepatitis etiology, sign/symptom & transmission related questions with KAP towards hepatitis disease prevention method related questions. The collected questionnaires were checked for completeness, accuracy, clarity and consistency by the PI on daily basis before data was entered.

4.10 Data Entry and Analysis

After conducting the study, the completed questionnaires were returned to the principal investigator. Then, the data was edited, coded and entered into a computer using Epi Info and imported data from Epi Info exported and analyzed using Statistical Package for Social Science (SPSS) version 20.0 software. Data was entered every day after collection from the field. Frequency tables and graphs was used to present the Knowledge, Attitude and Practice of study participants towards hepatitis virus prevention method and also determined and assessed its pattern. Descriptive statistics for continuous variables included the mean and for categorical variables the numbers (frequency) and percentages. The number of correct answers given to the knowledge, attitude and practice questions and their percentage distribution were tabulated by items and by gender (as appropriate). Knowledge was assessed by questions focusing on hepatitis virus etiology, sign and symptoms, transmission and treatment. Each response was scored as 'yes' or 'no'. The scoring range of the questionnaire was 1 to 20. A cutoff level ≤ 11 was considered as poor whereas > 11 was considered as adequate knowledge about hepatitis virus. Knowledge scores for individuals were calculated and summed up to give the total knowledge score. The cutoff value was taken from similar study in Pakistan (13). Attitude towards hepatitis virus prevention methods were assessed out of 7 questions. Each question was labeled with positive or negative attitude with a score range of 0 to 7 and classified positive attitude with score >4 (encouraging) and negative attitude with score of ≤ 4 (discouraging). The cutoff value was taken from similar study in Pakistan (13). Practices towards hepatitis disease prevention were assessed by asking eight

questions. Each question was labeled with good or bad practice. A score of 1 was given to good while 0 was given to bad practice with a score range of 0 to 8. The scale classified practice as good with score > 4 (encouraging) and bad ≤ 4 (discouraging). The cutoff value was taken from similar study done in Pakistan (13).

4.11 Ethical Consideration

Ethical approval was sought from the Ethics Review Committee of SPHMMC department of Public Health and Addis Ababa City Administration Health Bureau. A letter was submitted to each Health Center to get permission to undergo the study. Participants of the study were asked for informed verbal consent for their voluntary before participating in the study. They were provided with the information regarding the purpose of the study, why and how they are selected to participate in the study and what is expected from them. Participants was assured of information they give will never be exposed to third body by any means; personal identifier will never be included into questionnaire and possible to jump any question if do not want to respond to it and also possible to exit from study at any stage.

4.12 Dissemination of Findings

The findings of this study will be disseminated to the Federal Ministry of Health (MOH), SPHMMC department Of Public Health, Addis Ababa City Health Bureau, and all Woreda Health Offices, for peer reviewed journal, publication and scientific presentation.

4.13 Operational Definition

Prevention-Prevention is defined as way to protect one-self from Hepatitis virus infection relative to their knowledge, attitude and practice level towards the disease (9).

Head- Husband or Wife or Individuals above 18 years of age (19)

Knowledge- Scored out of 20 items.

Good knowledge: if the respondents were able to answer 11 or more of knowledge items correctly (13).

Poor knowledge: if the respondents answered less than 11 of knowledge items (13).

Attitude- Scored out of 7 items.

Positive attitude: if the respondents where can give the correct answer for 4 or more of attitude items (13).

Negative attitude: if the respondents answered less than 4 of attitude items (13).

Practices or behaviors- Scored out of 8 items.

Good practice: when the study participants were at least able to answer 5 or more practice items correctly (13).

Bad-practice: when the participants were unable to answer 5 of practice items correctly or $\leq 70\%$ (13).

Hakeem- It is complementary and alternative way of providing medication through spiritual leaders by providing ‘Du’a’ for Muslims and ‘Tsebel’ for Christian religion (14).

Household- Person constituting a household is called member of the household. The following are considered as members of a household:

i) All persons who lived and ate with the household for at least six months including those who were not present at the time of the survey but were expected to be absent from the household for less than six months.

ii) All guests and visitors who ate and stayed with the household for six months or more.

iii) Housemaids, guards, baby-sitters, etc. who lived and ate with the household, even for less than six months (14).

Traditional- It is complementary and alternative way of giving home prepared medication like herbal and leaf based medicine for Hepatitis virus infected patients (14).

Not Employed - those study participants currently (during study period) has no regular and officially known monthly in-come including house-wives and students (14).

Community- A group of people living in the same defined area sharing the same basic values, organization and interests (15)

Sero-prevalence-The proportion of individuals with positive hepatitis virus marker status (11)

5. Results

5.1 Socio-demographic characteristics

From a total of 634 study subjects of which 193(30.4%), 181(28.5%) from woreda 05 and 06 of Addis Ketema sub-city respectively and 177(28.1%), 83(13%) from woreda 08 and 09 of Gulelle sub-city respectively, were included in the analysis giving a response rate of (100%). Most of study participants were un-employed, married, females majority of them in age category of 28-37 years, as shown on (Table 1) below.

Table 1: Socio-demographic characteristics of study participants

Characteristics	Frequency	Percentage
Age category		
18-27	164	25.9
28-37	233	36.8
38-47	145	22.9
48-57	87	13.7
≥ 58	5	0.7
Gender		
male	165	26.0
female	469	74.0
Education level		
illiterate	57	9.0
Read and write only	144	22.7
Elementary school	150	23.7
Secondary school	184	29
Diploma and above	99	15.6
occupation		
Un-Employed	335	52.8
Govt employer	85	13.4
Private employer	165	26.0
Self employer	38	6.0
Non govt employer (NGO)	11	1.7
Marital status		
Married	371	58.5

Not married	180	28.4
Divorced	47	7.4
Widowed	36	5.7
Income		
≤ 2000birr*	232	36.6
2001-4000birr*	276	43.5
≥ 4001birr*	126	19.9
Source of Hepatitis disease information		
News paper magazine	123	19.4
Health workers	191	30.1
Family /friend/ neighbor	263	41.5
Radio / internet	51	8.0
Religious leader	4	0.6
Hepatitis information leaflet/brochures	2	0.3
*1 Eth-Birr (Ethiopian birr)= 0.034482 USD (US dollar)		

The Gender distribution of study participant shows 469 (74.0%) of adult females as shown below on (Fig. 1) and 187 (80.26%) were in the age group between 28 and 37 years old.

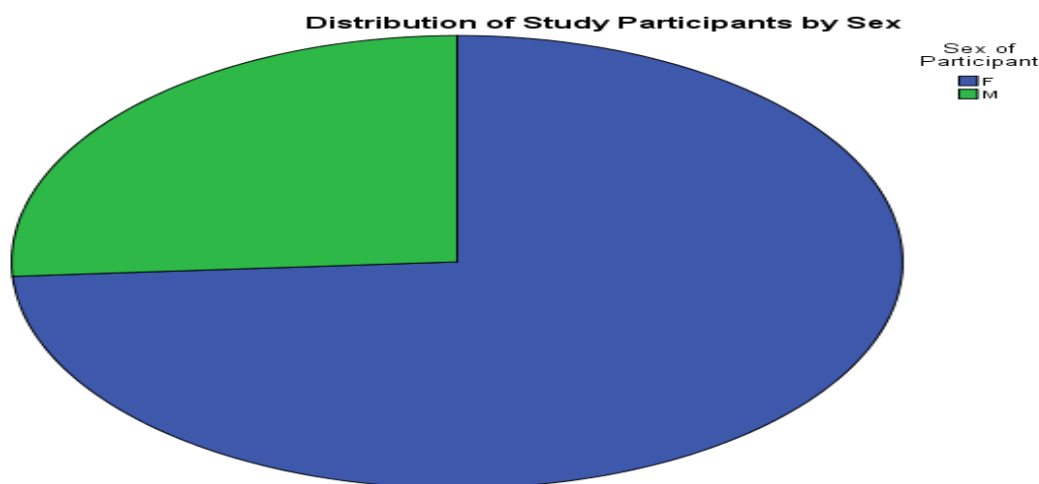


Fig. 1: Distribution of study participants depending on their Gender difference.

Mean age of the study participants was 35.49 years and one hundred and seventy six (27.8%) had secondary level of education and 335 (52.8%) were unemployed (including house wives

and students) and depending on gender, adult males comprises high in number on secondary and higher education level than adult females.

Two hundred and seventy six (43.5%) had monthly income of Ethiopian birr (Eth. Birr) of in between 2001-4000 birr and the mean in-come level for female was 2798.93 Birr and 2638.67 for males. The major source of information regarding Hepatitis virus was from family/friend/neighbors 263 (41.5%), followed by 191 (30.1%) from Health extension workers.

5.2 Assessment of knowledge towards Hepatitis Virus infection

Responses of the participants towards Hepatitis virus knowledge were assessed by questions focusing on Hepatitis virus etiology, sign and symptoms, transmission and management. Each response was scored as 'yes' or 'no'. The scoring range of the questionnaire was 20 (maximum) to 0 (minimum) (14).

Knowledge scores for individuals were calculated and summed up to give the total knowledge score classified as adequate or poor depending on cut-off taken from similar study in Pakistan (14). According to our result, Poor knowledge was apparent in responses to questions relating to etiology. For example, only 33.6% of the participants know that liver Cancer can be caused by at least one of Hepatitis virus type and from those questions related to sign & symptoms, only 47.2 and 47% of study participants know that the early symptoms caused by at least one of Hepatitis virus types are same with cold and flu & there can be no symptoms of the Hepatitis disease in some of the patients respectively. Poor knowledge was also identified relative to questions on transmission of Hepatitis virus and shows, only 30.3, 38.3 and 33.3% of participants know that at least one of Hepatitis virus type can be transmitted by un-sterilized syringes, needles and surgical instruments, at least one of Hepatitis virus type can be transmitted by using blades of the barber/ear and nose piercing & also at least one of Hepatitis virus type can be transmitted by ingesting contaminated water/food prepared by person suffering with hepatitis disease respectively. As low as 43.2% of study participants are aware that at least one of hepatitis virus type can be prevented by vaccination. While, 24.6% of study participants believed that at least one of Hepatitis virus type can be self-cured by body.

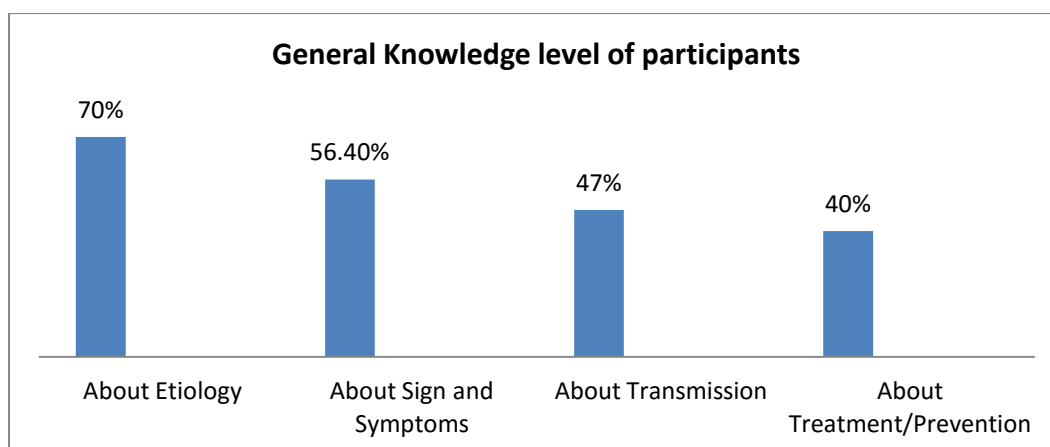


Fig. 2: knowledge level of study participants during study period.

A good level of knowledge of hepatitis virus was seen based on some knowledge related questions like 96.1% of study participants have heard about disease termed as hepatitis, 64.5 and 83.4% responded that they have known at least one of hepatitis virus types and at least one of hepatitis virus type can affect liver, respectively. While 83.1% of respondent have believed that yellowish discoloration of the eye was among common sign of hepatitis disease, 51.7 and 67.8% of study participants have known that at least one of hepatitis virus type can be transmitted from mother to child and also can be treated respectively. This study also showed that those who had adequate knowledge with etiology may not had with sign and symptoms or transmission or treatment/prevention and vice versa as seen on (Fig. 2) above. When we assess the general knowledge adequacy level relative to different socio-demographic status; good knowledge level was seen within 18-27 age category (41.4%), adult male sex (39.4%), higher education level (46%), married (47%) and those with more than 4001birr monthly in-come (45%). Over-all the current study shows out of 634 study participants, 249 (39.3%) of them had adequate knowledge towards hepatitis disease prevention methods. Generally, with Mean knowledge score of 10.10 that was less than or equal to cut-off value of 11 showed poor knowledge of current study participants towards hepatitis disease prevention methods among adult population.

5.2.1 Pattern of Knowledge in relation to participants demographic characteristics

All predictor variables (sex, age, marital status, education level and monthly in-come) were checked for the presence of association with their knowledge level and Cross-tabulation was done individually for each predictors. Knowledge scores also analyzed for the presence of any association and those with significantly associated was presented on the (Table 2) below.

Table 2: Pattern of Knowledge score with Socio-demographic distribution of study participant

			Knowledge category		Total	Chi-square (P-value)
			Poor	Adequate		
Education Category	Illiterate	Count	46	11	57	X ² =23.112 P=0.001
		% with in Education Category	80.7%	19.3%	100%	
	Only can read and write	Count	98	46	144	
		% within Edu-Cat.	68.1%	31.9%	100%	
	Elementary school(1-8)	Count	93	55	148	
		% within Edu-cat.	62.8%	37.2%	100%	
	High school(9- 12)	Count	95	81	176	
		% within Edu-Cat.	54.0%	46.0%	100%	
Higher education	Count	53	56	109		
	% within Edu-Cat.	48.6%	51.4%	100%		
In-Come Category	<=2000*	Count	158	74	232	X ² =9.07 P=0.011
		% within In-Come- Cat.	68.1%	31.9%	100%	
	2001- 4000*	Count	75	51	126	
		% within In-Come- Cat.	59.5%	40.5%	100%	
	>=4001*	Count	152	124	276	
		% within In-Come- Cat.	55.1%	44.9%	100%	
*1 Eth-Birr (Ethiopian birr)= 0.034482 USD (US dollar)						

The above table shows that 51.4% of those study participants in higher education (Diploma and above) had adequate knowledge level, while only 19.3% of illiterate participants had adequate knowledge. The knowledge level also assessed among different monthly in-come category such that; those with monthly in-come of greater than or equal to 4001birr had more knowledge adequacy (44.9%) than 40.5 and 31.9% of those with monthly in-come of 2001-4000birr and less than or equal to 2000birr respectively. Both variables were significantly associated with knowledge level as seen on the above (Table 2).

5.3 Assessment of attitude towards Hepatitis Virus prevention methods

Attitude towards HB was assessed by asking seven questions as shown in (Table 3) below; each question was labeled with positive or negative attitude. A score of 1 was given to positive while 0 was given to negative attitudes with a score range of maximum of 7 to a minimum of 0.

Table 3: Assessment of attitude score of study participants towards Hepatitis Virus prevention methods

Question number		Yes*		No	
		Number	Percentage	Number	Percentage
3.1		180	71.6%	454	28.4%
3.2	Fear*	415	65.5%	219	35.5%
	Shame	93	14.7%	541	85.3%
	Surprise	79	12.5%	555	81.5%
	Sadness	15	2.4%	619	97.6%
	I do not mind	32	5.0%	602	95%
3.3	To physician	122	19.2%	512	80.8%
	To partner	372	58.7%	262	41.3%
	To parent	26	4.1%	608	95.9%
	To child	13	2.1%	621	97.9%
	To relative	56	8.8%	578	91.2%
	To friend	42	6.6%	592	93.4%
	To any one [¥]	3	5%	631	95%
3.4	To health facility*	119	18.8%	515	91.2%
	To hakeem (spiritual	192	30.3%	442	69.7%
	To traditional healers	266	42.0%	368	58.0%
	Will not go any where	57	9.0%	577	91.0%
3.5	Not	227	35.8%	407	64.2%

	improved with self medication				
	Within 3-4 weeks	163	25.7%	471	74.3%
	Soon diagnosed with hepatitis disease*	189	29.81%	445	70.19%
	Do not go to health facility	55	8.7%	579	91.3%
3.6	Free	57	9.0%	577	91.0%
	Reasonable	63	9.9%	571	90.1%
	Somewhat expensive	102	16.1%	532	83.9%
	Expensive	164	25.9%	470	74.1%
	Do not know [¥]	248	39.1%	386	60.9%
3.7	Free of death	304	47.9%	330	52.1%
	Fear of disease spread	158	24.9%	476	
	Fear of cost	102	16.1%	532	83.9%
	Fear of isolation [¥]	46	7.3%	588	82.7%
	Nothing worried	24	3.8%	610	96.2%

*Positive attitude, ¥Negative attitude. Note: Attitude was assessed by giving 1 to positive and 0 to negative attitude. The scale classified attitude as positive with score >4 and negative ≤4.

Out of the 634 participants, negative attitude was apparent in responses to question relating to their thought of acquiring the infection. For example, 454(71.6%) thought that they can never be infected while only 180(28.4%) thought that they can be infected. Five hundred and fifteen (81.2%) of the study respondents were of opinion to use complementary and alternative system in case of Hepatitis disease infection. In addition, 122 (19.2%) of study participants

agreed to consult a physician as their first choice of treatment and had also high chance (18.8%) of visiting health facility as their first choice. However, respondents were ready to disclose their disease to their spouse (n = 372, 58.7%), relative (n=56, 8.8%) and parents (n = 26, 4.1%). Generally the attitude level scored relative to different socio-demographic status shows that; Positive attitude towards hepatitis disease prevention method was seen within 18-27 age category (6.7%), adult male sex (6.4%), married (5%), higher education level (4%) and those with monthly income greater than 4001birr (3.4%). Over all the respondents had a positive attitude of 43 (6.8%). Generally, with the mean attitude score of 1.65 that was less than cut-off value of 4 showed negative attitudes towards hepatitis disease prevention method among adult population of study area.

5.3.1 Pattern of Attitude level according to Demographic characteristics

All predictor variables (sex, age, marital status, education level and monthly in-come) were checked individually for the presence of association in Cross-tabulation. The significant association was seen with both participants' education category at Pearson Chi-square value of ($X^2 = 55.63$) and significance value of ($P = 0.000$) as shown on (Fig. 3) below. Relative to marital status; 8.4% of those study participants got married had positive attitude towards hepatitis disease prevention method among adult population than both of those with not-divorced & married marital status with both values of 0.0% at Pearson Chi-square value of ($X^2 = 8.74$) and significance value of ($P = 0.033$).

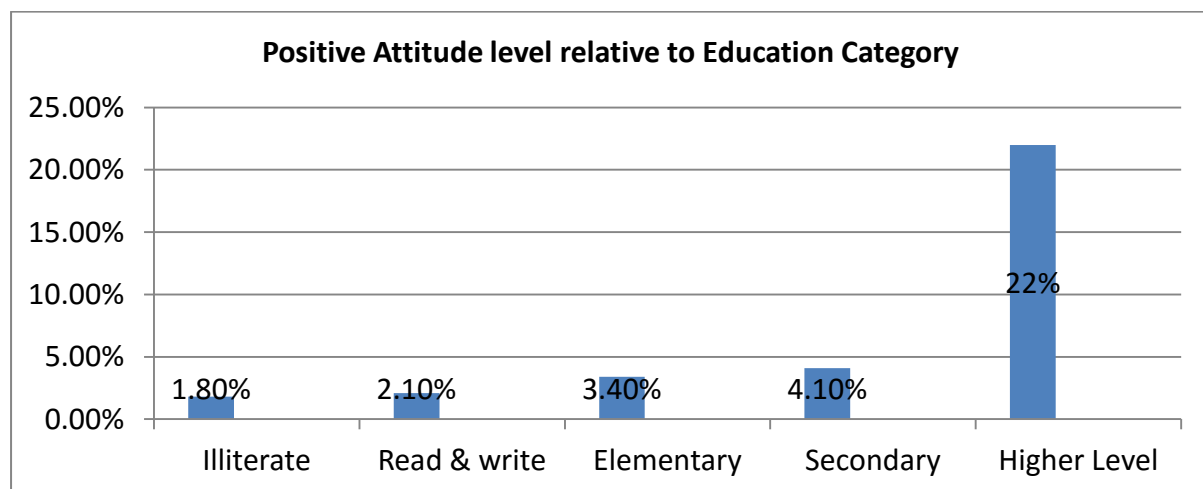


Fig. 3: Attitude status of study participants by their education level difference.

5.4 Assessment of practice towards Hepatitis Virus prevention methods

Practices towards Hepatitis disease were assessed by asking eight questions as shown in below (Table 4). Each question was labeled with good or poor practice. A score of 1 was given to good while 0 was given to bad practice with a score range of maximum of 8 to a

minimum of 0. Majority of the respondents, 491 (77.4%) never went for Hepatitis disease screening and 616 (97.2%) stated a negative immunized status against Hepatitis. It was interesting to know that 439 (69.2%) never asked for a new syringe when required, while only 365 (57.6%) agreed with the statement that they ask for screening of blood and blood products before transfusion. Three hundred and eighty seven (61%) respondents either never asked the barber to use new blade, or for safe and clean equipment for nose and ear piercing and 492(77.6%) have suggested that they will undergo for additional diagnosis and treatment if found to have the disease. But, 435(68.6%) of study participants believe in isolating themselves from positively diagnosed patient and most of the study participants 596(94.0%) was not participated in health education related with current topic of study.

Table 4: Assessments of Practice level score of study participants towards hepatitis disease prevention methods.

Question number.	Yes		No	
	Number	Percentage	Number	Percentage
Have you done screening for at least one of Hepatitis virus?	143	22.6%	491	77.4%
Have you got yourself vaccinated against at least one of Hepatitis virus?	18	2.8%	616	97.2%
Do you ask for a new syringe before use?	195	30.8%	439	69.2%
Do you ask for screening of blood before transfusion?	269	42.4%	365	57.6%
Do you ask your barber to change blade/Or for safe equipments for ear and nose piercing?	247	39.0%	387	61.0%
In case you are diagnosed with Hepatitis disease, would you go for further investigation and treatment?	142	22.4%	492	77.6%
Do you avoid meeting Hepatitis virus infected patients?	435	68.6%	199	31.4%

Have you ever participated in health education program related to Hepatitis disease?	38	6.0%	596	94.0%
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Note: Practice was assessed by giving 1 to good and 0 to bad practice. The scale classified practice as good with score >5 and poor ≤ 5 .

Generally practice level was assessed relative to different socio-demographic factors and shows; Good practice towards hepatitis disease prevention method was seen within 18-27 age category (5.2%), adult male sex (7%), married (4.3%), higher education level (7.3%) and those with monthly income greater than 4001birr (8%). Over all the respondents had a good practice towards Hepatitis disease prevention methods of 40(6.3%). Generally with mean practice score of 2.94 that was less than cut-off value of 5 showed that the current study participants had bad practice towards hepatitis disease prevention method among adult population of study area.

5.4.1 Pattern of Practice level of Adult people relative to Demographic factors.

All predictor variables (sex, age, marital status, education level and monthly in-come) were checked individually for the presence of association in Cross-tabulation. The significant association was seen with both participants' education category at Pearson Chi-square value of ($X^2 = 41.6$) and significance value of ($P = 0.000$) as shown on (Fig. 4) below. Relative to marital status; 9.4% of those study participants who got married had good practice towards hepatitis disease prevention method among adult population than those with not-married marital status with value of 0.0% at Pearson Chi-square value of ($X^2 = 15.139$) and significance value of ($P = 0.002$) as shown on (Fig. 4) below.

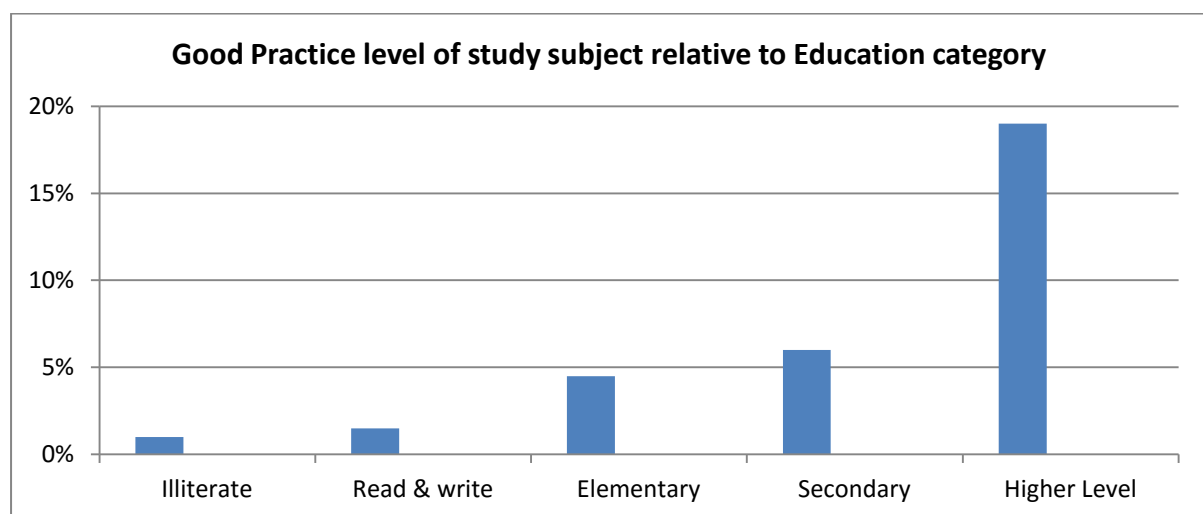


Fig. 4: The overall practice level of study participant relative to education level during study period.

5.5 Association pattern of knowledge & attitude over practice of study participants

Of all the study participants with good practice, 57.5% of them had adequate knowledge while 42.5% had poor knowledge and 62.5% of them had positive attitude while 37.5% had negative attitude towards hepatitis disease prevention methods among adult population. The result reaffirms the relationship between knowledge & attitude over practice with Pearson's Chi-square and significant level kept on (Table 5) below. It also showed that those study participants with poor knowledge and negative attitude are both at risk or more likely to practicing inappropriately towards hepatitis disease prevention method than those study participants with adequate knowledge and positive attitude with odds value at 95% Confidence Interval of 5.94(2.8, 12.7) and 13.7(6.42, 29.06) respectively.

Table 5: Pattern of knowledge & attitude over practice scores

		Knowledge Category		OR(95% CI)	Pearson Chi-square (P-value)
		Poor	Adequate		
Bad Practice	Count	376	218	OR=5.94 CI= (2.8,12.7)	X ² =26.157 P-value of= 0.009
	% with in Practice category	63.3%	36.7%		
Good Practice	Count	17	23		
	% with in Practice category	42.5%	57.5%		
		Attitude Category		OR(95% CI)	Pearson Chi-square (P-value)
		Negative	Positive		
Bad Practice	Count	569	25	OR=13.7 CI= (6.418,29.06)	X ² =70.267 P-value of= 0.000
	% with in Practice Category	95.8%	4.2		
Good Practice	Count	15	25		
	% with in Practice category	37.5%	62.5%		

6. Discussion

Viral hepatitis and its disease burden are getting little attention in many low-income countries, including Ethiopia. In Ethiopia, Community awareness on the disease transmission and its sequel as well as attitude and practice towards prevention methods is poor and no specific literature showing the community level knowledge, attitude and practice level in adult population is available. Therefore, this study may fill a gap by evaluating KAP towards hepatitis disease prevention methods among adult individuals. The overall knowledge score was 39.3% (mean of 10.10) indicating poor level of knowledge towards hepatitis disease prevention methods among the adults of current study cohort and this finding goes with study done in three council of Mansehra, Pakistan (35%) during 2010, Quetta of Pakistan (43%) during 2012 and Malaysia (42.6%) shows poor knowledge level of study participant was seen using the same measurement with the one used for current study (13, 14 and 19). But, against study done among barber and their client in Gharbia governorate of Egypt (80%), shows adequacy of knowledge among study participants (18). Possible reasons that can be attributed to this difference of response are demographic variation of the study population, study location and as well as the study tool used for data collection.

A small percentage of respondents (40%) from all prevention related knowledge and (43.2%) specifically with vaccine availability for at least one of hepatitis virus types, knew about prevention methods of Hepatitis disease. Goes on same direction with study done in Addis Ababa among Pregnant mother, adult population of Pakistan and among barber & their client in Egypt showing low level of study participant's prevention knowledge specifically for availability of vaccine with values of 16.1% 33.3% and 40% (12, 14, 18) respectively. But, against study done in two cities of Brazil showing good knowledge towards hepatitis disease prevention method specifically with vaccine availability of 75.8 % result (16). Lack of knowledge towards hepatitis disease prevention perhaps because of Family/Friends/Relatives was the only source of information for most of study participants and may be due to demographic variation of study populations and difference in study setup.

Knowledge level of current study was significantly associated with monthly income and level of education and also this finding goes with the one done in Brazil and Vietnam (16, 17). These results demonstrate the role of formal education in the dissemination of infectious disease perception and the low level of knowledge in poor communities. Although majority (64.5%) of current study subjects recognized the existence of viral hepatitis, only 37.4% of them knew a virus as only cause of disease and this result was higher than study done among

pregnant mother with result of (18.9%) in Addis Ababa (12) and slightly lower than study done in Quetta Pakistan (45.8%) of knowledge towards etiology (14). This difference was possible with different socio-demography as well as study setting.

Attitude score was also found lower in the current study participants with positive attitude result of 6.8% (mean of 1.65). For example, only 19.2% of current study participants' consult physician about the disease as their first choice and as large as 42.0% of current study participant prefer traditional alternative way for getting treatment. This also goes on the same direction with study done among high risk population of Philippines showing 18.0% consult physician as first choice and 24.9% prefer traditional way of treatment (15), showing low attitude related response. But, higher than study done in Quetta, Pakistan showing 13.3% of study participants consult physician as first choice (14). Relative to time of visiting health facility, current study shows 53.5% of study participants decided soon to visit health facility and this result higher than study done in risk group of Philippines of 24.7% soon visit health facility (15). It is imperative to account that delay in seeking medical treatment for the infection results in further deterioration of the condition and can cause spread of infections both horizontally and vertically (12). Knowing the facts and having proper attitudes and behaviors are critical to prevent the spread of these infections (22). An important feature of patient care revolves around the Health Belief Model which highlights individuals' attitudes and beliefs responsible for particular health behavior (23). The availability of multiple treatment options and low awareness among the community as well as in appropriate source of information made majority of current study participants to attend traditional medication like herbal and spiritual way resulted in medical pluralism. Multiple opinions from such entities can complicate and disseminate irrational information and practices towards hepatitis disease in the population. The results notwithstanding, it is important that the general population should be educated on all aspects of hepatitis disease rather than on a single or a few issues. It should also be addressed by social, civic societies and medical researchers foregoing achieve a fuller understanding of the underlying issues while the outcome of such studies should be utilized in policy and decision-making by government officials and members of the health care team. Within this context, poverty, cultural beliefs and perceived severity of illness as well as unreliable source of information can be the reasons of seeking alternative methods of treatment. Though not infected yet, majority of the participants perceived hepatitis disease treatment as costly. This could be due to their experiences with neighbors, friends and family members having difficulties in bearing the cost of hepatitis

disease treatment. Cost of treatment and wrong perception like long duration of stay with modern treatment are another factor which forces the patients to seek help from traditional healers as well as spiritual healers. In developing countries like Ethiopia, access to the traditional healers is economical than seeking treatment at medical health care facilities.

Participants of the current study showed good practice of 6.3% (mean of 2.94) towards hepatitis disease prevention method. Majority of the participants were not concerned about the safety measures which defiantly expose them to the danger of acquiring hepatitis infection. For example, despite having medium awareness (43.2%) regarding the availability of hepatitis disease vaccines, majority of the participants were not immunized against hepatitis disease (97.2%). Similar results were reported from study done among pregnant mother in Ethiopia showing 97.6% of them not vaccinated (12). But, against healthy population of Quetta city of Pakistan and Philippines in whom 86.8% and 72.2% of them not vaccinated respectively (14, 15). This difference between current study and those done in Pakistan done among only healthy population and Philippines done among risky population group was attributable with socio-economic difference and different study settings. Furthermore, the current study showed that knowledge and attitude among participants was reported adequate/positive was directly proportional to the good practices of the participants. Education level and marital was the only significant factor associated with the practice scores. This goes on same direction with study done in Brazil and Vietnam (16, 17).

The association patterns between knowledge-attitude over practice in this study reaffirm the relationship between knowledge-attitude over practice importance in infection control measures. It is concluded that adequate knowledge together with positive attitude resulting in good practices towards hepatitis disease prevention method among adult population. The findings are in line with the results from study done in Bhopal city of India (34).

7. Conclusion and Recommendations

Since the majority reported that they have never been attending any health education program on hepatitis disease and from those reported to have attended, most of them was married women and got participated in health education while attending follow up for pregnancy condition and others from health extension workers, extensive health education campaign should be provided to general population and specifically to women's about risk factors, transmission and prevention of infections. We recommend the adaptation of collaborative care where physicians, pharmacists and nurses should play their role in providing hepatitis disease education to the society and also shortening queues or reducing fees to maximizes the potential effectiveness of hepatitis disease control activities that aim to increase use of services. We recommend empowering the people by providing them ample education and targeting at least one member of each family to have adequate information about hepatitis disease at house-hold level through health extension workers that can help directly in managing and controlling the hepatitis infection. We found several differences in knowledge between adult males and females about specific routes of hepatitis disease prevention methods though not significant, suggesting additional benefit in further tailoring educational messages to all specifically for adult female in providing educational campaigns focused upon reducing the disparately high burden of hepatitis disease infection and reduce its transmission rate. Providing hepatitis related health education especially on disease prevention at health facility, at schools (starting from secondary school up to higher education), at social events, community meeting and texting hepatitis related health education especially prevention methods on mobile cell phone through (SMS) by collaboration of Federal ministry of health and Information technology. The Federal Ministry of Health (FMOH) required initiating national hepatitis Screening programs in collaboration with other stakeholders to identify patients at an early stage and positive cases should be offered counseling and treatment at each and every health facility specifically as starting site at current study area. Analysis of the data suggests that health education and media efforts should focus on informing the public of correct transmission and prevention, and that hepatitis disease services are reasonable, rather than building awareness of hepatitis or messages, such as "Hepatitis disease is curable". Integrate current KAP on hepatitis disease prevention methods into hepatitis information materials and media packages distributed to mass media and journalists. Educate political, religious & community leaders and encourage them to draw attention to create prevention related awareness towards hepatitis disease in

their public addresses. Show knowledge gaps or identify populations with special needs and to act accordingly. Identify the most popular community events for to attend in order to raise awareness of hepatitis disease prevention, symptoms and treatment.

At the last but not the least the current study enable programme managers to set hepatitis programme priorities (e.g. to address the most common problems or to identify specific subgroups whose needs may differ from other groups), to estimate resources required for various activities, to select the most effective communication channels and messages, to establish baseline levels and measure change that results from interventions, and for advocacy (e.g. to show the magnitude of a challenge, which in turn, may inform resource needs). The current KAP towards hepatitis prevention methods result provide national hepatitis programme managers and their staff with the fundamental information needed to make strategic decisions.

8. Strengths & Limitation of the Study

STRENGTHS:-

- The findings of the study particularly the KAP of adult population about hepatitis disease can be used as base line information for other researchers; it will initiate more studies on this subject.
- Provide baseline data for designing health interventions and policy formation in Addis Ababa specifically and Ethiopia generally.
- There is high response rate, which is about 100%.

LIMITATION:-

- There is no any KAP document recorded (published) among Ethiopian adult people to compare our results and those available have focused on high risk groups such as university students, pregnant mothers and chronic liver disease patients. However, it was possible to compare with KAP of adult people from other studies though not the recent one.

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