

ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCES

SCHOOL OF PUBLIC HEALTH

RISK PERCEPTION OF HEPATITIS B INFECTION AND UPTAKE OF HEPATITIS B VACCINE AMONG THE NURSES IN PRIVATE HOSPITALS IN ADDIS ABABA- A CROSS-SECTIONAL STUDY

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ACRONYMS

AAHB	Addis Ababa Health Bureau
AAU	Addis Ababa University
AOR	Adjusted Odd Ratio
BBP	Blood Borne Pathogens
CI	Confidence Interval
COR	Crude Odd Ratio
EPI	Expanded Programme on Immunization
HB	Hepatitis B
HBeAg	Hepatitis B e Antigen
HBsAg	Hepatitis B Surface Antigen
HBV	Hepatitis B Virus
HCC	Hepatocellular Carcinoma
HCWs	Health Care Workers
HIV	Human Immunodeficiency Virus
MSPs	Multiple Sexual Partners
NGO	Non-Governmental Organization
NSSIs	Needle Stick and Sharp Injuries
PEP	Post Exposure Prophylaxis
PHs	Private Hospitals
SPSS	Statistical Package for Social Sciences
STD	Sexually Transmitted Disease
STI	Sexually Transmitted Infection
WHO	World Health Organization

ABSTRACT

Background: Globally, hepatitis B infection is one of the major public health problems. It is the tenth leading cause of death among all diseases worldwide. Health care workers, especially nurses, are more exposed to the danger of acquiring the virus, due to their contact with blood or body fluids of infected person. The good thing is, hepatitis B is a vaccine preventable infection and this vaccine is safe, nearly 100% effective and has been available since 1982.

Objectives: To assess the level of risk perception of hepatitis B infection and uptake of hepatitis B vaccine and the related factors among the nurses in private hospitals in Addis Ababa.

Methods: Facility based cross-sectional survey was carried out among the nurses in private hospitals in Addis Ababa, between March and April 2018. Study participants were selected using simple random sampling technique. A total of 326 nurses were included in this study. Data was collected by using self-administered questionnaire, entered on Epidata version 3.1 and was exported to SPSS version 21 statistical software for analysis. Binary logistic regression analysis was done to identify important predictors.

Result: Among the study participants, 62% of them had high risk perception of hepatitis B infection while the remaining 119(38%) had low risk perception. About half of the respondents, 149(49.7%) were vaccinated at least once in their life time. Out of the total respondents vaccinated, 121(40.4%) were completely vaccinated with the appropriate vaccination schedule. Study participants who were lower degree holder (diploma) were found to be 0.28 times less likely to take HB vaccine. Those who were in Pediatrics and Surgical/Oncology/Dental among the in-patient unit were 0.07 and 0.17 times respectively, less likely to take HB vaccine. Overall risk perception was also found to be statistically significant.

Conclusion& Recommendation: This study revealed that the level of uptake of HB vaccine among the respondents, for at least once in their life time is about half. More than three-quarter of the total vaccinated, were completely vaccinated with appropriate vaccination schedule. Majority of the study participants of this study had high risk perception. Educational status, year of service or experience, being screened for HBsAg and the risk perception of HB infection were found to be independent predictors of level of uptake of hepatitis B vaccine of the respondents. Considering the importance of the HB vaccine, it should be made readily available at little or no cost through all the necessary channels and reminder should be sent for the next dose.

1. INTRODUCTION

1.1 Background

Hepatitis B infection is one of the major global health problems. It is a potentially life-threatening liver infection caused by hepatitis B virus. It is the tenth leading cause of death among all diseases worldwide. Major long-term adverse outcomes of chronic hepatitis B infection are liver cirrhosis, liver cancers and liver failure. Approximately 15–40% of infected patients will develop these long-term sequelae. About 500,000 to 1.2 million die annually from hepatitis B infection and its complications worldwide(1). It is more infective than human immunodeficiency virus [HIV], about 50–100 times.(2)

Hepatitis B virus[HBV] is one of the five viral hepatitis, hepatitis A, B, C, D, and E viruses that cause hepatitis which simply means inflammation of the liver. HBV is a Deoxyribonucleic Acid virus belongs to the hepadnaviridae family. The only natural host known is human being. It is the major viral causes of acute and chronic hepatitis worldwide. The virus is transmitted through the skin or mucosal exposure to the blood or other body fluids of an infected person. Major route of transmission are sexual transmission especially when there is history of unprotected sexual intercourse with multiple sexual partners [MSP], hence categorized to sexually transmitted infection [STI], sharing of needles when giving injection, occupational needle sticks or sharps exposure. It can also spread from mother to child at birth [perinatal transmission](3).

Across the globe, in 2015, an estimated 257 million people are living with chronic HBV infection(4) and about 887,000 deaths resulted from hepatitis B complications [including cirrhosis and hepatocellular carcinoma](3). Africa’s hepatitis B prevalence rate is second highest in the world, about 6.1% of adult population are infected(4).

Ethiopia, being part of sub-Saharan region, is ranked as medium to high endemic area for HBV infection, based on previous population surveys(5). Major complications of hepatitis B infection which are acute viral hepatitis, chronic hepatitis, cirrhosis of the liver and HCC account for 12% of hospital admissions and 31% of mortality on medical wards in Ethiopia(6).

Health care workers are always exposed to the dangers of acquiring hepatitis B due to the contact with blood or body fluids of an infected patient. HBV is mostly found in the blood with less

concentration in some body fluids like semen, vaginal secretions and saliva of an infected person. The most common routes of transmission from patient to HCW are needle stick and sharp injuries (NSSIs), followed by muco-cutaneous exposure. About 8–16 million HBV infections are gotten from contaminated needles every year, compared with 2.3 to 4.7 million HCV infections, and 80,000 to 160,000 HIV infection(1).

The good thing is hepatitis B is vaccine preventable infection and this vaccine is safe, effective [about 95%] and has been available since 1982(3).

1.2 Statement of the problem

The World Health Organization (WHO) report estimates that 40% of HBV infection is due to occupational exposure, and it has been estimated that 14.4% of HCWs are infected with HBV. Nurses are most commonly exposed to infections (41%) than other HCWs.(8).

According to Rampal (9), the risk of exposure varies among the HCWs but exposure rate is higher among the nurses due to a number of activities they are involved in more than others.

Nurses in private hospitals are more at risk because they spend more time with the patients in the hospital compare to their colleague in government hospitals due to their few numbers. Some private hospitals go as far as making their nurses to do two shift instead of common three shift in government hospitals thereby increases the number of hours on duty and also their off duty may be reduced.

One of the most serious occupational health hazard encountered by HCWs worldwide is exposure to blood borne pathogens; these blood-borne pathogens are mainly Hepatitis B, C, and HIV infections. Among the blood borne pathogens, hepatitis B is the most dreaded and much more infectious than others. It is about 100 times more contagious than HIV/AIDS. The estimated risk of a single needle stick injury indicate a risk of 300 hepatitis B virus infection (30% risk), 30 hepatitis C virus infection (3% risk) and 3 HIV infection (0.3% risk), per 1,000 respective exposures(10). Certain category of HCWs are at greater risk than others because of the amount and the level of their exposure to patient’s. The commonest group of HCWs experiencing needle stick injuries are the nurses. Health care workers especially the nurses are

more exposedto the dangers of acquiring hepatitis B due to contact with blood and body secretions of patients(11).

In the developed world, occupational surveillance are put in place in other to assess and monitor the health hazards related to blood borne pathogens and preventive measures to reduce the risk of transmission but this is far from what we have in the developing countries where exposure and health impacts are rarely monitored and much remains to be done to protect health care workers from such risk that causes infection.(12)

It has been established that the risk of acquiring hepatitis B infection on exposure to HBV contaminated blood or body fluid by an unvaccinated individual is about 6% to 30%(7).

The good thing is hepatitis B is vaccine preventable infection and this vaccine is safe, acceptable and its effectiveness in preventing hepatitis B infection and the development of chronic liver diseases and liver cancers as a result of HBV is nearly 100% in immunocompetent persons(13).Despite this, many health care workers including the nurses are still not vaccinated in developing countries(14). This may be due to how they perceived the risk of having HBV infection, availability of the vaccine, cost or other related factors.

In Ethiopia, the prevalence of hepatitis B infection is still high and the utilization of the vaccine is very low. A cross sectional study conducted in Tikur Anbessa specialized hospital and Ras Desta Damtew memorial hospital reported that the overall prevalence of HBV infection was found to be 51.3% and the infection prevalence increases with age, by taking Hepatitis B surface antigen (HBsAg) as the only marker of the infection(15). And also, a study done in Bahir Dar city administration to assess knowledge and vaccination status of health care workers showed that only 5.4% reported to have taken complete doses of hepatitis B vaccine(16).

Few or no study has been done to look at the risk perception and the uptake of the hepatitis B vaccine among the most exposed group of HCWs i.e. the nurses especially in private hospitals in Addis Ababa. Therefore, this study will addressed this aspect and try to fill the knowledge gap in this area.

1.3 Significance of the study

Hepatitis B vaccination is the major way to prevent the transmission of HBV and reverse the trend of the increasing rate of the infection. Health care workers, especially nurses, are at higher risk of acquiring the hepatitis B infection compared to the general population.

This study will look at how the nurses perceived the risk of having hepatitis B infection, the uptake of the vaccine and its associated factors in private hospitals in Addis Ababa.

The result of this study will help us to see how the nurses perceived the risk of having hepatitis B infection, the level of uptake of HB vaccine and identify factors responsible for its low uptake. It will also help the facility managers, health policy makers, and other stakeholders in health sector to develop strategies on how to reverse the increasing trend of hepatitis B infection among health care providers in general and nurses in particular.

2. LITERATURE REVIEW

2.1 Overview of Hepatitis B Virus

The discovery of hepatitis B virus occurred in 1965 by Dr. Baruch Blumberg and his colleagues, who won the Nobel Prize for his discovery. Originally, the virus was given the name “Australia Antigen” because it was named for an Australian aborigine’s blood sample that reacted with an antibody in the serum of an American hemophilia patient. HBV is a 42-nm DNA virus classified in the Hepadnaviridae family. Primary site of HBV replication is the liver. After exposure by a susceptible person, the virus enters the liver via the blood stream.

HBV remain viable for seven days or longer on environmental surfaces, and during this time, the virus can still cause infection if it enters the body of a person who is not protected by the vaccine(3) which makes it more dangerous and deadly than every other infections.HBV can produce either asymptomatic or symptomatic infection. The average incubation period is 90 (60-150) days from exposure to onset of jaundice and 60 (40- 90) days from exposure to onset of abnormal serum alanine amino trans-ferase (ALT) levels, one of the liver enzyme markers(17). HBV is a highly resilient, blood-borne and sexually transmitted virus, which in chronically infected individuals can be found in high concentrations in the blood, vaginal secretions and semen(18). It was the first recognized occupational blood-borne pathogen, as it was recognized that HCWs had a 10 times greater risk of HBV infection than did the general population(7).

Infants, children aged less than 5 years, and immunosuppressed adults with newly acquired HBV infection are usually asymptomatic, whereas some of the children aged greater than 5 years and adults have initial clinical signs or symptoms. These symptoms and signs include anorexia, malaise, nausea, vomiting, abdominal pain, and jaundice. Extra-hepatic manifestations of disease (e.g. skin rashes, arthralgia, and arthritis) can also occur. About 95% of primary infections in adults with normal immune status are self-limiting, with elimination of virus from blood and subsequent lasting immunity to re-infection(19).

Primary infections become chronic more frequently in immunosuppressed persons. Chronic infection occurs in less than 5% of infected persons in adult and aged greater than 5 years, 30-

50% of infected children aged less than 5 years, and 80- 90% of infected infants, and also have continuing viral replication in the liver and persistent viremia. About20–30% of adults who are chronically infected will develop cirrhosis and/or liver cancer(3).

Transmission of HBV is by percutaneous or mucosal exposure to infected blood or other various body fluids.People with hepatitis B e antigen (HBeAg) in addition to hepatitis B surface antigen (HBsAg) are much more infectious compared to those with HBsAg only, because they have a very high titer value of HBV in their blood. The two primary sources of HBV infection for adults are sexual contact and percutaneous exposure to blood. Sexual transmission of hepatitis B infection occur when unvaccinated men have sex with infected men or heterosexual persons with multiple sex partners or contact with commercial sexual workers. Other ways of contacting HBV infection are through the reuse of needles and syringes either in health-care settings or among persons who inject drugs, during medical, surgical and dental procedures, through tattooing, or through the use of razors and similar objects that are contaminated with infected blood.

In highly endemic areas, it has been reported that HBV is most commonly spread from mother to child at birth (perinatal transmission), or through horizontal transmission (exposure to infected blood), especially from an infected child to an uninfected child during the first 5 years of life(3).

2.2 Epidemiology of Hepatitis BVirus

Globally, there is occurrence of HBV infection. Out of over 2 billion people infected with HBV, more than 350 million have chronic (lifelong) infections. In 2015, the global prevalence of HBV infection in the general population was 3.5%. Among those born before the hepatitis B vaccine became available, the proportion of persons living with chronic HBV infection remains high. Prevalence was the highest in the African (6.1%) and Western Pacific regions (6.2%)(3).

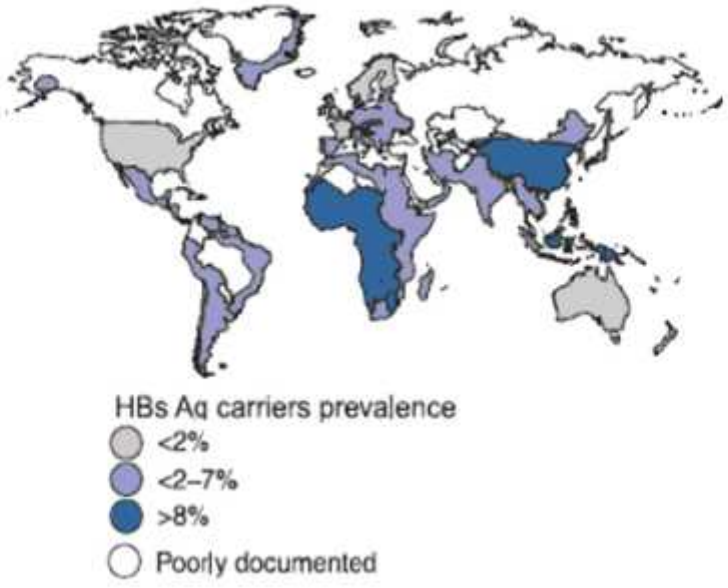
World health organization (WHO)has classified the whole world according to chronic hepatitis B prevalence intothree major blocks which include high, intermediate and low prevalence. High prevalence areashave a prevalence of chronic hepatitis B infection that is 8% and above, made up of countrieswith large population from North America, South America, Sub-Saharan Africa and most Asian countries where at least 8% of the population are HBV chronic carrier and 70–95%

of the population shows past or present serological evidence of HBV infection(1).Intermediate prevalence areas have a prevalence rate which ranges between 2% and 7% and this includes countries from South America, Western Europe, Eastern Europe, Japan and the Middle East. About 10- 60% of the population are in this category. Low prevalence areas are estimated to have a prevalence of chronic HBV infection less than 2% which includes most of the North American countries, Australia and most of Western Europe including the United Kingdom. In total, about 45% of the global populations live in areas of high chronic HBV prevalence.

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

In Africa, HBV infection plays a major role in the etiology of most liver diseases. The estimated HBsAg sero-prevalence ranges between 5% and 19%, and the total number of carriers may approach 58 million with as many as 12.5 million likely to die prematurely due to hepatitis B-induced liver disease(20).

Figure 1.Showing **Worldwide prevalence of HBV carriers (Adapted from Lavanchy, 2004)**



In Ethiopia as in other Sub-Saharan Africa, the prevalence of liver disease is high. They account for 12% of the hospital admissions and 31% of the mortality in medical wards of Ethiopian hospitals(6). According to a community based sero-prevalence study done in the capital city of Ethiopia, Addis Ababa, showed a 7% sero-prevalence of HBsAg, higher in males than females(21).

Prevention is always better than cure and as at present, there is really no confirm cure for hepatitis B infection. The major and most effective way of preventing HBV infection is by vaccination and avoidance of exposure to blood or any body fluid of an infected person. The first hepatitis B vaccine was created in 1982. The vaccine was initially by means of a plasma-derived HBsAg subunit which has largely been replaced by recombinant derived ones, which were introduced in 1986. In 1991, the WHO recommended that hepatitis B vaccine should be introduced into the Expanded Programme of Immunization (EPI)(1, 22).

Complete vaccination against hepatitis B is achieved by administration of a three-dose regimen, with the second and third doses being given one and six months after the initial dose respectively. A test for HBsAg should be carried out 6–8 weeks following the final dose of the primary course of vaccination. Antibody levels of over 100miu/mL indicate a good response to vaccination. Antibody levels between 10 and 100miu/mL indicate a poor response and a booster dose should be given immediately to improve response. A blood test should be carried out 6–8 weeks after the booster dose to check response (22, 23).

Even though HBV vaccine which is safe and effective has been available for more than three decades now, hepatitis B infection is still one of the global health problems.

2.3 Magnitude of HBV infection among health care workers

Health care workers are at risk of acquiring HBV, one of the major blood borne pathogens, as a result of exposure to blood by needle prick and injuries by sharp objects or muco-cutaneous contamination with body fluids of an infected persons. The risk of acquiring hepatitis B infection on exposure to HBV contaminated blood or body fluid by an unvaccinated individual is about 6% to 30%(7).Chronic Hepatitis B (CHB) infection is the principal cause of liver cirrhosis and

Hepatocellular Carcinoma (HCC).It was estimated that liver cancer represents approximately 4% of all new cancer cases diagnosed worldwide and that more than 50% of liver cancers were attributable to HBV(11).

Out of about 35 million HCWs world-wide, about 3million experience percutaneous exposures to blood pathogens each year and of these, 2 million are exposed to hepatitis B virus(18).

A training programme for prevention of occupational exposure to blood borne pathogens: impact on knowledge, behavior and incidence of needle stick injuries among student nurses in Changsha, People's Republic of China found out that nursing personnel experience a higher rate of workplace exposure than other HCWs. High risk percutaneous exposures are most frequently reported by nurses, most likely because nurses perform more bedside procedures than other health care workers. Chinese HCWs have higher rates of HBV and tuberculosis infection than the general population. Nurses working in central supply rooms, who are responsible for collecting, cleaning and sterilizing reusable equipment, have a high risk of exposure to infectious diseases(24).

A study done in Turkey has shown nurses are frequently exposed to occupational exposure for HBV and HCV infection, 22.4% had received sharp injuries and 63.6% had suffered needle stick exposures. The study also found 11.2% of nurses who had worked for a period of between 0 and 5 years and 37.1% of those who had worked for a period between 16 and 20 years had evidence of HBV or HCV infection. Of nurses working in surgical clinic, 59.4% had evidence of previous HBV or HCV infection and those working in hospital clinics had an 18.2% infection rate(25).

2.4 Hepatitis B vaccination among health care workers.

About 2 decades ago, WHO recommended that all countries with a high hepatitis B disease burden should introduce the hepatitis B vaccine in their routine immunization programme. However, uptake of the vaccine was slow and the targets were not met. Even when the initial high price of the vaccine came down substantially, most low-income countries were unable to secure the funds needed to introduce the vaccine(11).

In 2005, the World Health Assembly approved and the United Nations Children's Fund (UNICEF) Executive Board endorsed the Global Immunization Vision and Strategy (GIVS). The primary objective of GIVS was to reduce vaccine-preventable disease mortality and morbidity by two-thirds by 2015 compared to 2000(11).

Based on the occupational safety measures, all health care workers are required to be vaccinated against HBV. Unfortunately, WHO has estimated that HBV vaccination coverage amongst HCWs is only about 18-39% in low and middle-income countries compared to 67-79% in high-income countries(26).

Immunization among HCWs has two main purposes; the first purpose is to protect HCWs from several infectious diseases they may be exposed to through professional activities. Secondly, to minimize the odds of infecting the patients they are taking care of. It should be clear that both objectives are extremely important and should be a priority to any health system(27).

In the United States, hepatitis B vaccination coverage among health care personnel showed that 69.5% and 63.4% of HCP reported to have received one (incomplete) and three (completed) doses of Hepatitis B vaccine respectively which remained below the healthy people 2010 coverage goal of 90%(28).

A study conducted to assess Hepatitis B vaccination status among dental surgeons in Nigeria revealed the occupational risk of contracting hepatitis-B infection among dental surgeons was rated as either high or very high by 51 (72.9%) of the respondents. Amongst the respondents, 14 (20.0%) had received three doses of the hepatitis B vaccine, 34 (48.6%) either two doses or a single dose, and 22 (31.4%) were not vaccinated. The major barriers reported among the respondents who were not vaccinated were lack of opportunity and the fear of side effects of the vaccines. The suggested ways to increase the vaccination rate among the respondents in descending order include: Making the vaccine available at no cost (51.4%), educating dentists on the merits of vaccination (17.1%), and using the evidence of vaccination as a requirement for annual practicing license renewal (14.3%) and for the employment of dental surgeons (11.4%) and others (2.9%)(29).

A study done on epidemiology of needle stick-sharp injuries and potential high risk exposures among health professionals in Ethiopia revealed that of the total study participants, 9(3.5%) of

respondents were vaccinated against hepatitis B virus infection. The study declared that exposure for potentially infectious body fluids including blood, needle stick injuries, sharp injury and other risk factors was high. But, only very small percentages of health professionals were partially vaccinated for HBV(30).

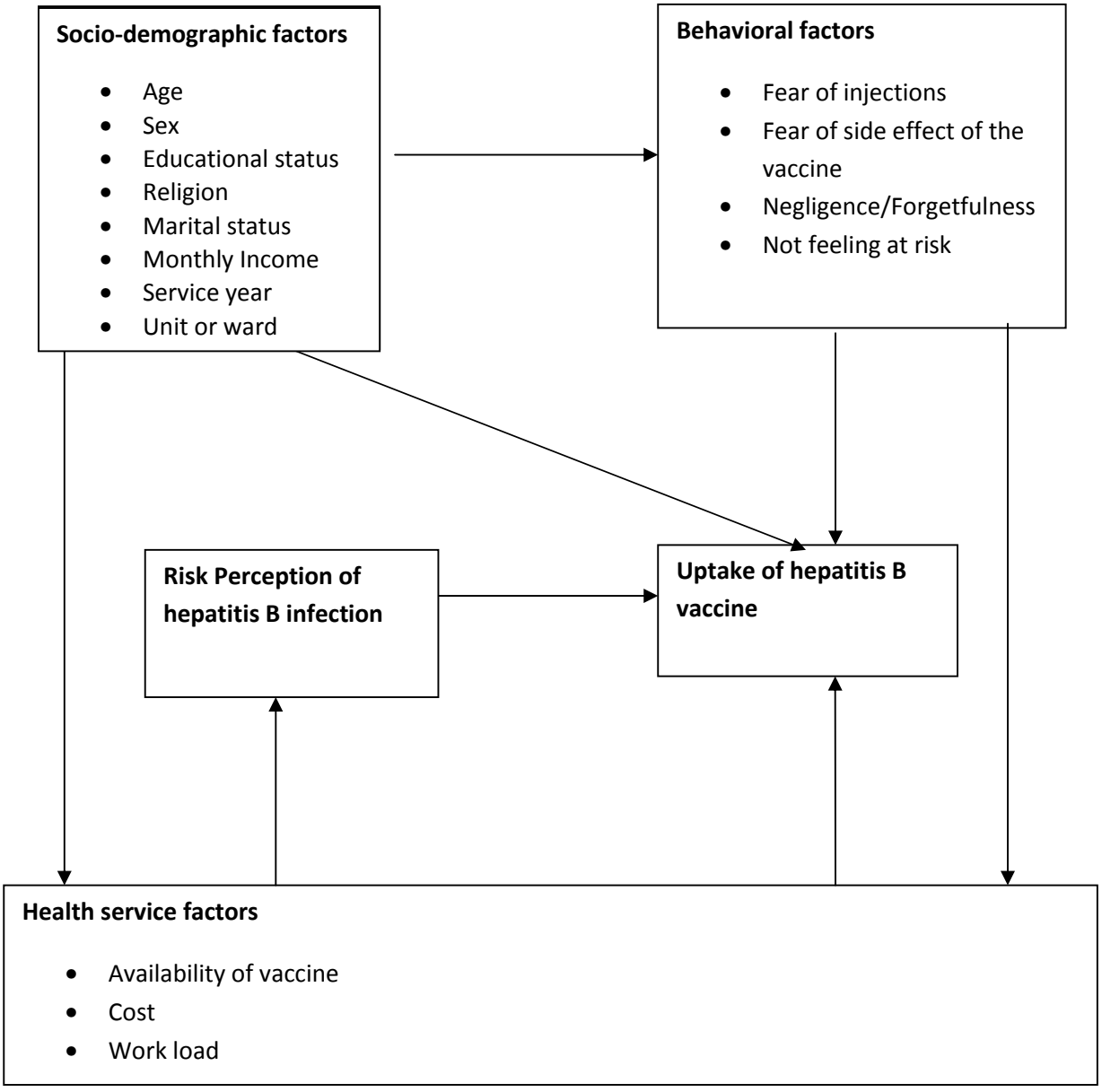
Hepatitis B vaccine knowledge and vaccination status among health care workers of Bahir Dar City Administration, Northwest Ethiopia was studied and it was found that of the total respondents, 370 responded to the question whether they were vaccinated or not at the time of interview. Only thirty seven (10%) respondents reported that they received one or more doses of hepatitis B vaccine. From these, only 20 (54%) received three or more doses which was only5.4% of the total HCWs. Among 333 respondents who were not vaccinated, 201(60.36%) and133 (39.93%) reported that the vaccine was not available and costly respectively(16).

A study done to assess the knowledge about HBV vaccine and vaccination status of nurses against HBV at governmental hospital in Addis Ababa revealed that more than half of the study participants (51.8%) had poor knowledge about the HB vaccine. Among the study participants only 67(24.4%) were vaccinated at least once in their life time. Out of those respondents who were vaccinated, only 35.8% were fully vaccinated. This study also identified vaccination status was associated with factors like the hospital where the respondents were working, hospital wards, history of exposure to needles and sharp injury and knowledge of respondents about the vaccine(31)

In summary, the risk of acquiring HBV is still high in Sub-Saharan Africa and also in Ethiopia, the uptake of hepatitis B vaccine among the HCWs and even the nurses in particular, is very low and the factors to have not been vaccinated differs. Few or no study has been done to look at the risk perception and the uptake of the hepatitis B vaccine among the most exposed group of HCWs i.e. the nurses especially in private hospitals in Addis Ababa. Therefore, this study will addressed this aspect and try to fill the knowledge gap in this area.

2.5 Conceptual Framework

The conceptual framework is adapted from different literatures and modified. It showed that factors such as, socio-demographic, behavioral and health service factors are considered to affect the risk perception of hepatitis B infection and uptake of hepatitis B vaccine among nurses. In this framework, socio-demographic factors influence behavioral and health service factors, behavioral factors influence health service factors and health service factors also influence risk perception which eventually influence uptake of the vaccine. All these factors in turn influence the uptake of hepatitis B vaccine.



Adapted from Belete 2016 with modification after review of literatures(43).

Figure 2: Schematic presentation of conceptual frame work

3. OBJECTIVES

3.1 General objective

To assess the level of risk perception of hepatitis B infection, uptake of hepatitis B vaccine and its related factors among the nurses in private hospitals in Addis Ababa.

3.2 Specific Objectives

3.2.1 To determine the level of risk perception of hepatitis B infection among the nurses in private hospitals in Addis Ababa.

3.2.2 To determine the uptake of hepatitis B vaccine among the nurses in private hospitals in Addis Ababa.

3.2.3 To identify factors associated with level of uptake of hepatitis B vaccine among the nurses in private hospitals in Addis Ababa.

4. METHODSAND MATERIALS

4.1 Study area and period

The study was conducted in private hospitals in Addis Ababa, the capital and the largest city of Ethiopia, a strictly urban region. The city has 10 sub-city administration and 116 Woreda administrations. In 2014, the estimated population of the city was 3,195,000. Males were said to be approximately 47.4%, while the rest were females(32). There are twelve public hospitals. There are 32 registered privately owned hospitals according to Food, Medicine and Health Care Administration and Control Authority (FMHACA) 2008 E.C data. The study was carried out among the nurses in selected private hospitals bbetween March and April 2018.

4.2 Study design

A facility based cross sectional quantitative study design was used to assess the level of risk perception of hepatitis B infection and uptake of hepatitis B vaccine among the nurses in private hospitals in Addis Ababa.

4.3 Population

4.3.1 Source of population

The source of population was all staff nurses who were working at different units of private hospitals in Addis Ababa.

4.3.2 Study population

All staff nurses from selected private hospitals in Addis Ababa, working during the study period. This category of health care workers is chosen because they are at higher risk of acquiring hepatitis B infection, due to their frequent contact with blood and body fluids of patients and also they are at risk of needle prick injury.

4.4 Eligibility criteria

4.4.1 Inclusion criteria

Staff nurses who are working in the selected private hospitals in Addis Ababa that is willing and available during the data collection period.

4.4.2 Exclusion criteria

Nurses who are working in both private and government hospitals in Addis Ababa and the student nurses.

4.5Sample size determination

The sample size (**n**) required for this study was calculated using formula for a single population proportion (**p**) by taking the proportion of uptake of hepatitis B vaccine to be 50%, 95% level of significance and 5% margin of error or precision(d). The sample size was 384. Assuming a 10% non-response rate, the sample size for the study was 422 participants.

$$n = \frac{[Z_{\alpha/2}]^2\, p\,(1-p)}{d^2} + 10\%\ \text{Non-response rate}$$

But the source population is less than 10,000, therefore the need to use infinite population correction formula:

nfinal = $n \div (1 + n/N)$ = 422÷(1+ 422/1440) = 326.4 ≈ 326

Where n = Sample size

N = Total number of nurses in private hospitals in Addis Ababa

= Average number of nurses in private hospitals × Total number of registered private hospitals in Addis Ababa = 45 × 32 = 1440.

4.6Sampling procedure

Addis Ababa has 10 sub-cities hosting 32registered private hospitals according to Food, Medicine and Health Care Administration and Control Authority (FMHACA) 2008 E.C data. Eight out of 32registered private hospitals was selected using simple random sampling technique by lottery method and this was based on Ethiopia Demographic and Health Survey, 2011 all basic vaccinations coverage(33, 34). All staff nurses who consented at the level of the selected hospitals and met the inclusion criteria were included in the study.

n= Selected number of nurses in each private hospital.

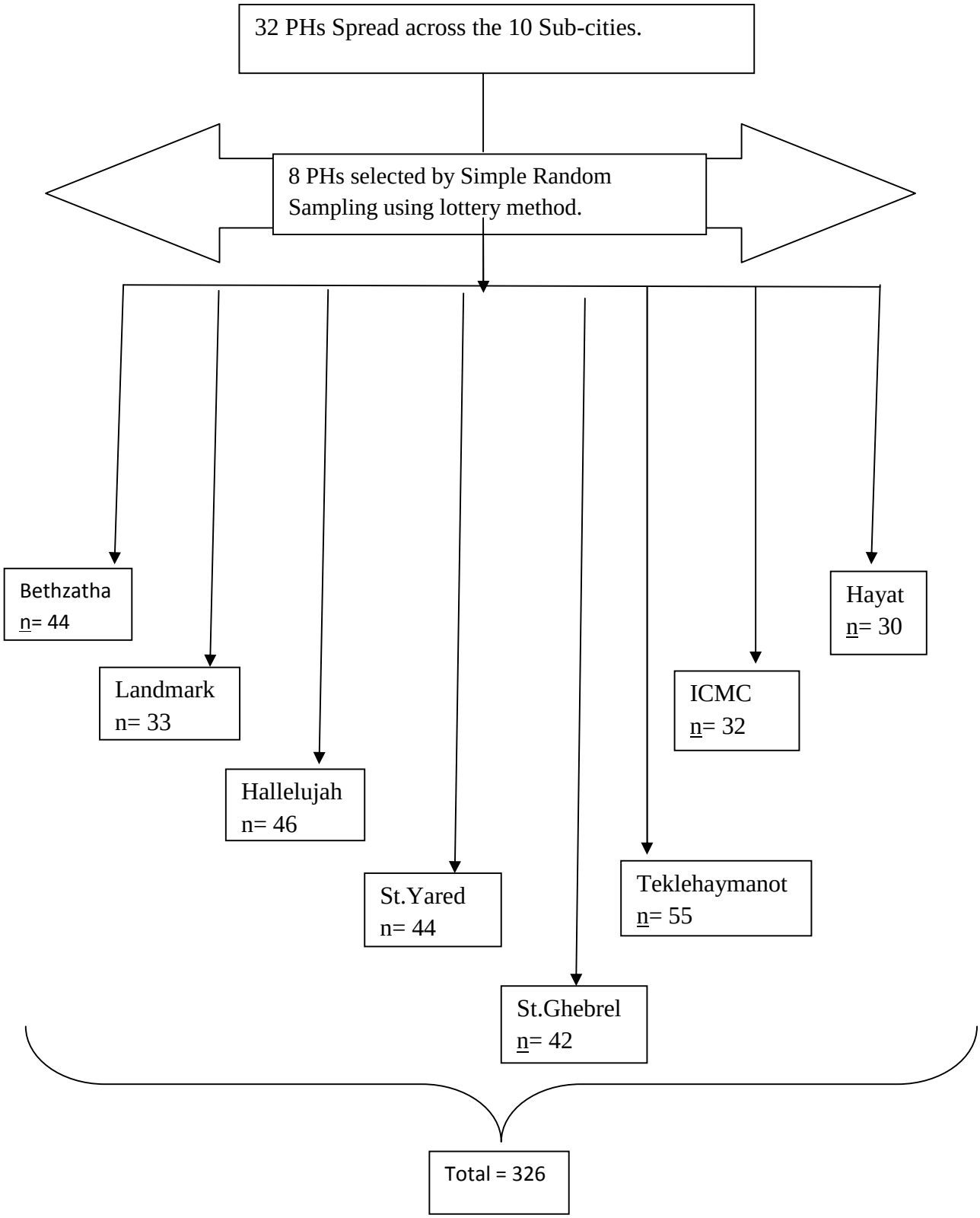


Figure 3: Schematic presentation of Sampling Procedure

4.7 Variables

4.7.1 Dependent/Outcome variable

- Uptake of hepatitis B vaccine among the nurses in private hospitals

4.7.2 Independent variables

Socio-demographic factors:

- Age
- Sex
- Educational status
- Religion
- Marital status
- Monthly Income
- Service year
- Unit or ward

Behavioral factors:

- Fear of injections
- Fear of side effect of the vaccine
- Negligence/Forgetfulness
- Not feeling at risk

Health service factors:

- Availability of vaccine
- Cost
- Work load

Risk perception of hepatitis B infection

4.8.1 Data collection instrument

Data was collected from study participants by using pre-tested, structured, self-administered questionnaire adapted and modified from other researches(35).The questionnaire was designed in such a way that it includes all the relevant variables to meet the study objectives.

4.8.2 Data collection procedure

Data collectors were recruited, those that are fluent in the local language (Amharic) and English language, training was given to them on objectives of the research, sampling and ethical issues, avoidance of incomplete filling of the questionnaire by the study participant and maintaining confidentiality. Data collectors administered pre-tested questionnaire after they have gotten informed consent from study participants in their various units or wards of each selected private hospitals. Questionnaire was collected after they have finished and checked to ensure that it was completed and properly filled.

4.9 Data quality control

The questionnaire was developed in English language and later translated into Amharic, the local language of the city; Consistency and accuracy check was done to ensure proper and correct translation of the questions by back translation to English. The questionnaire was pre-tested on 5% of the sample size in a private hospital of Addis Ababa other than the selected hospitals for the study and findings from the pretest were used to modify the questionnaire.
The filled questionnaires were checked for completeness and consistency daily by the principal investigator (P.I).

4.10 Operational definitions

Exposed- The staff nurses who had needle prick injury, blood or fluid contact from Hepatitis B patients during medical practice

Screened- The staff nurses who have been tested for HBV at least once in his life time

Not Vaccinated- The staff nurses who has never been vaccinated for HBV

Incompletely vaccinated- The staff nurses who took only one or two doses of hepatitis B vaccine.

Completely vaccinated–The staff nurses who took three or more doses of hepatitis B vaccine with the appropriate schedule.

High risk perception–Refers to those study participants who scored more than the mean score of the risk perception questions.

Low risk perception - Refers to those study participants who scored mean and less than the mean score of the risk perception questions.

Good Knowledge about HB vaccine- Refers to those study participants who scored more than the mean score of knowledge questions about HB vaccine.

Poor knowledge about HB vaccine- Refers to those study participants who scored mean and less than the mean score of knowledge questions about HB vaccine.

4.11 Data processing and analysis

Filled questionnaires were checked for completeness and coded by the PI. Data were entered on Epidata version 3.1 and was exported to SPSS version 21 for analysis. Frequencies were generated for categorical variables and summary measures for continuous variables. Tables and graphs were used to present the data. Descriptive statistics was use to show the frequencies and percentages of the characteristics. Cross tabulations (chi-square) were computed to establish relationships among the variables. Logistic regression analyses were used to determine the effect of factor(s) on the outcome variable and to control for possible confounders. P-value < 0.10 was considered to declare statistical significance.

4.12 Ethical considerations

Ethical clearance was obtained from the Research and Ethics Committee of School of Public Health, Addis Ababa University and the Addis Ababa City Administration Health Bureau public health research and emergency management core process. Permission was obtained from the various health facilities managers. All measure to maintain human rights including informed consent; the right to participate in the study, right to privacy and confidentiality and right to prevention from any type of harm were taken into consideration. All Participants were informed about the objectives of the study and that their participation is on voluntary basis. It was also clearly stated to the participants that the information they will provide whether orally or in writing will be for research purposes and strictly confidential.

4.13Dissemination of research findings

The final result of the study will be submitted to Addis Ababa University School of Public health, Federal Ministry of Health, Addis Ababa City Administration Health Bureau and the managers of the various health facilities in soft and hard copies. Presentation and publication of result will be carried out accordingly.

5. RESULT

5.1 Socio-demographic characteristics of study participants

A total of 326 staff nurses working in the selected private hospitals in Addis Ababa participated in this study, 313 responded to the questionnaire and included in the analysis making the response rate of 96.01%. Regarding socio-demography of the respondents almost three-quarter (73.5%) of those who responded to age were in the age group 20-29, the mean and standard deviation (SD) of the ages was 29(7) years, with the minimum and maximum ages of 21 and 65 years respectively. 86.3%(264) were females and 13.7%(42) males making the total number of people that responded to sex variable to be 306. Concerning the education status, the higher degree and lower degree holders were 162(52.8%) and 145(47.2%) respectively. Majority of the respondents were Orthodox Christianity, 230(75.2%) followed by Protestants, 53(17.3%). Approximately, sixty three percent were singles and half of the respondents had spent 1to 5 years in service. Forty seven (16.4%) of respondents were working in Surgical/Oncology/Dental unit, followed by Medical unit which were 45(15.7%)(Table 1).

Table 1: Socio demographic characteristics of nurses at Addis Ababa private hospitals, June, 2018.

Variables	Frequency	Percentage
Age Group		
20-29 years	169	73.5
30-39 years	44	19.1
40-49 years	9	3.9
50 and above years	8	3.5
Sex		
Male	42	13.7
Female	264	86.3
Educational status		
Diploma	145	47.2
Higher degree	162	52.8
Religion		

Orthodox	230	75.2
Protestant	53	17.3
Muslims	14	4.6
Catholic	5	1.6
Others	4	1.3
Marital status		
Single	192	62.5
Married	105	34.2
Separated/Divorced	5	1.6
Widowed/ widower	5	1.6
Year of Service		
Less than a year	31	10.7
1 – 5 years	144	49.5
6 – 10 years	88	30.2
More than 10 years	28	9.6
Unit/Ward		
Admin/Counseling	4	1.4
Pediatrics	15	5.2
Delivery/Gyn and Obs	29	10.1
Surgical/Oncology/Dental	47	16.4
Dialysis	9	3.1
Medical	45	15.7
OPD	32	11.1
Operation Room(OR)	26	9.1
Emergency	38	13.2
ICU	42	14.6

5.2 Hepatitis B exposure of study participants and training on infection prevention

A little more than half of the respondents, 173(56.4%) had heard exposure to blood or body fluids on intact skin in the past 12 months. Majority of the respondents had not heard the history of splash of blood or body fluids to eye or mouth, 253(81.1%) and also 232(74.8%) had not heard history of splash of blood on cut or unprotected skin.

Hundred and thirty eight (44.1%) of the respondents had ever taken training on infection prevention and out of this, only 40(29%) had taken the training more than once (Table 2).

Table 2: History of occupational exposure to conditions that predispose to HBV infection and training on infection prevention among nurses at Addis Ababa private hospitals, June, 2018.

Variables	**Frequency**	**Percentage**
History of exposure to blood or body fluids on intact skin		
Yes	173	56.4
No	134	43.6
History of splash of blood or body fluids to eye or mouth in the past 12 months		
Yes	59	18.9
No	253	81.1
History of splash of blood on cuts or unprotected skin		
Yes	78	25.2
No	232	74.8
Taken training on infection prevention		
Yes	138	44.1
No	175	55.9
Number of training taken		
Once	98	71
More than once	40	29

5.3 Knowledge about hepatitis B infection

Almost all (99.4%) of the study participants said they have heard of hepatitis B infection. 98.7% rightly identified the organ affected to be liver. Among the respondents, 34(11.2%) wrongly said the symptoms of hepatitis B viral infection appear within few days after the entrance of HBV in to the body.

Concerning the route of transmission of HBV infection, 97.4%, 94.6%, 95.8% and 86.3% of the respondents correctly cited blood and blood products, needle and sharp injury, sexual intercourse and vertically mother to child respectively as route of transmission for hepatitis B. But significant proportion of respondents incorrectly mentioned faeco-oral transmission (42.3%) and contaminated water (28.3%) as route of transmission.

Majority of respondents (88.4%) said HBV has higher risk of transmission than HIV through needle stick injury.

Almost all study participants (99.7%) correctly said HBV infection can be prevented by vaccination, 97.7% said by practicing standard working precautions, 98.7% said by avoiding needle or sharp injury, and 97.4% said by avoiding unsafe sex. Quite large proportion of respondents picked wrong ways for prevention of HBV transmission like avoiding drinking contaminated water (41.7%) and avoiding not well cooked foods (33.3%)(Table 3).

Table 3: Knowledge of nurses about HB infection at private hospitals, Addis Ababa, June, 2018.

Variables	**Frequency**	**Percentage**
Have you ever heard of Hepatitis B		
Yes	308	99.4
No	2	0.6
Organ affected by HBV		
Liver	307	98.7
Kidneys	1	0.3
Not sure	3	1.0
The symptoms of hepatitis B viral infection appear within few days always after the entrance of		

Hepatitis B virus to the body		
Yes	34	11.2
No	270	88.8
Route of transmission		
Blood and blood products		
Yes	303	97.4
No	8	2.6
Needles and sharp injury		
Yes	295	94.6
No	17	5.4
Sexual intercourse		
Yes	298	95.8
No	13	4.2
Vertically from mother to child		
Yes	258	86.3
No	41	13.7
Faeco-oral		
Yes	129	42.3
No	176	57.7
Contaminated water		
Yes	85	28.3
No	215	71.7
HBV has Higher risk of transmission than HIV through needle stick injury		
Yes	266	88.4
No	35	11.6
Ways of prevention of HBV transmission		
Vaccination		
Yes	308	99.7
No	1	0.3
Practicing standard working precaution		
Yes	302	97.7

No	7	2.3
Avoiding needle/sharp injury		
Yes	305	98.7
No	4	1.3
Avoid unsafe sex		
Yes	302	97.4
No	8	2.6
Avoid drinking contaminated water		
Yes	128	41.7
No	179	58.3
Avoid foods not well cooked		
Yes	100	33.3
No	197	65.7
Others	3	1

5.4 Knowledge about hepatitis B vaccine

Different questions were asked to assess knowledge of the respondents about HB vaccine, majority (96.5%) of study participants said there is effective vaccine to prevent HB infection. Only ninety-seven (32.8%) of the respondents correctly said HB vaccine can be given as post exposure prophylaxis. Two hundred and four (70.6%) of respondents wrongly said HB vaccine is contraindicated for immune compromised patients. Quite large number, 240(79.2%) of the respondents knew that HBV vaccine is not effective to treat patients with acute HB infection. One hundred and twenty-six (44.8%) of the study participants said HB vaccine is highly effective in preventing HB infection if given within 48 hours after exposure and majority of them, 301(98.4%) said it should be given to health care workers as part of work place safety. Hundred and eighty-nine(67.5%) of study participants correctlysaid full course of HB vaccine may give lifelong immunity but for health care professionals, one further booster after five years of taking the first dose is recommended. Substantial number of respondents (63.0%) wrongly said after taking full dose vaccination of HB there is no need for a blood test to confirm immunity against HB infection. Around three-quarter of study participants (76.3%) correctly said

full dose HB vaccine provides 100% protection for 90% of adults. When asked whether full dose of HB vaccine protects against HBV infection for at least 15 years or not, approximately 83.7% correctly said yes it will protect but the rest said no and only 36.9% of the respondents wrongly saidHB vaccine causes problem if given to people who are already immune. Finally, 300 (97.7%) of the respondents correctly said HB vaccination is recommended for all health care workers (Table 4) and 96.4% rightly said three or four doses of vaccine are in the schedule.

Table4: Knowledge about hepatitis B vaccine of nurses at Addis Ababa private hospitals, June 2018.

Variables	**Yes** Freq (%)	**No** Freq (%)
There is effective vaccine to prevent hepatitis B infection.	301(96.5)	11(3.5)
Hepatitis B vaccine can be given as post-exposure prophylaxis.	97(32.8)	199(67.2)
Hepatitis B vaccine is contra indicated for immune compromised patients.	204(70.6)	85(29.4)
Hepatitis B vaccine is effective to treat patients with acute hepatitis B infection.	63(20.8)	240(79.2)
Hepatitis B vaccine is highly effective in preventing hepatitis B infection if given within 48 hours after exposure.	126(44.8)	155(55.2)
Hepatitis B vaccine should be given to health care workers as part of work place safety	301(98.4)	5(1.6)
Full course of hepatitis B vaccine may give lifelong immunity but for Health professionals, one further booster after 5 years of the first dose is recommended.	189(67.5)	91(32.5)
After taking full dose vaccination of hepatitis B, there is no need for a blood test to confirm immunity against hepatitis B	179(63)	105(37)
Full dose hepatitis B vaccine provides 100%	225(76.3)	70(23.7)

protection for 90% of adults		
Full dose hepatitis B vaccine protects against HBV for at least 15 years	236(83.7)	46(16.3)
Hepatitis B vaccine causes problems if given to people who are already immune	103(36.9)	176(63.1)
Hepatitis B vaccine is recommended for all health care workers.	300(97.7)	7(2.3)

Respondents were asked 12 item questions to assess their knowledge about HB vaccine. The minimum and the maximum scores to the questions were 2.0 and 12.0 respectively. The mean knowledge score for HB vaccine was 7.42 with standard deviation of 1.83. Overall assessment of knowledge of respondents about HB vaccine indicated 158 (50.5%) had good knowledge about the HB vaccine by scoring above the mean score and the rest 155 (49.5%) had poor knowledge (Table 5).

Table 5: The overall knowledge of nurses about HB vaccine at Addis Ababa private hospitals, June, 2018.

Variable	**Frequency**	**Percentage**
Overall knowledge of HB vaccine		
Good knowledge	158	50.5
Poor knowledge	155	49.5

5.5 Risk Perception of Hepatitis B Infection

Concerning the risk perception of HB infection, majority of the study participants said the perception of risk of acquiring, the seriousness of the infection, contracting it in the future if preventive measures are not taken, chances of contracting it in the future if not vaccinated, level of concerned about contracting the infection and how bad the level of the feeling ones will have if to contract the infection in the future are very high with the following percentages; 55.3%,

82.3%, 64.1%, 60.3%, 40.9% and 82.3% respectively. About average (54.5%) of the respondents correctly said the chances of contracting HB infection in the future if one has been vaccinated is very low (54.5%) (Table 6).

Table 6: Risk Perception of Hepatitis B Infection among the nurses at private hospitals, Addis Ababa, June, 2018.

Variables	**Very low**	**Low**	**Medium**	**High**	**Very high**
	Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)
How do you perceived the risk of acquiring hepatitis B infection?	11(3.6)	14(4.5)	32(10.4)	81(26.2)	171(55.3)
How do you perceived the seriousness of hepatitis B infection?	2(0.6)	4(1.3)	8(2.6)	41(13.2)	256(82.3)
How do you perceived contracting hepatitis B infection in the future if you do not take any preventive measures?	9(2.9)	3(1)	17(5.4)	83(26.6)	200(64.1)

Suppose you have not been vaccinated against hepatitis B infection. How do you perceived your chance of contracting it in the future?	12(3.8)	7(2.2)	26(8.3)	79(25.3)	188(60.3)
Suppose you have been vaccinated against hepatitis B infection. How do you perceived your chance of contracting it in the future?	170(54.5)	95(30.4)	15(4.8)	13(4.2)	19(6.1)
What is the level of your concerned about contracting hepatitis B infection?	26(8.4)	27(8.8)	51(16.6)	78(25.3)	126(40.9)
Grade how bad you will feel if you were to contract hepatitis B infection in the future?	7(2.3)	3(1.0)	12(3.9)	33(10.6)	256(82.3)

Study participants were asked 7 item questions to assess their risk perception about HB infection. The minimum and the maximum scores to the questions were 7 and 35 respectively. The mean (standard deviation)risk perception score was 27.92(4.01). Finally the overall risk perception category of the study participants showed that more than half (62%) of the respondents had high risk perception about the infection by scoring more than the mean score and the remaining 119(38%) had low risk perception (Table 7).

Table 7: Overall risk perception of HB infection of respondents at Addis Ababa private hospitals, June, 2018.

Overall risk perception	**Frequency**	**Percentage**
High risk perception	194	62
Low risk perception	119	38

5.6 Hepatitis B virus screening and HB vaccine uptake

Majority of the respondents, 230(73.5%) have been tested for HBVand the result showed that almost all, 225(71.9%) were negative.

The reasons for not being tested among the remaining respondents included; Unavailability of the diagnosis (10.8%), cost (26.5%), negligence (53%), fear of positive results (16.9%), work load (9.6%) and others (0.6%) are shown in table 8 below.

Table 8: The overall screening status and the reasons for not tested against HBV among nurses at Addis Ababa private hospitals, June, 2018.

Variables	**Frequency**	**Percentage**
Ever tested for HBV		
Yes	230	73.5
No	83	26.5
Reasons for not ever tested for HBV		

Unavailability of the diagnosis	9	10.8
Cost	22	26.5
Negligence	44	53
Fear of positive result	14	16.9
Workload	8	9.6
Others	2	0.6

*Note: Due to multiple response for reasons for not tested for HBV, it is possible the sum of percentages >100

About half of the respondents, 149(49.7%) were vaccinated at least once in their life time.Out of the total respondents vaccinated, One hundred and twenty-one (40.4%) were completely vaccinated with the appropriate vaccination schedule (Table 9).

Table 9: Level of uptake of HB vaccine and the number of HB vaccine doses taken by the nurses in private hospitals in Addis Ababa, June, 2018.

Variables	**Frequency**	**Percentage**
Vaccination status		
Yes	149	49.7
No	151	50.3
Number of HB vaccine taken		
One dose	8	5.4
Two doses	19	12.8
Three doses	117	78.5
Three doses and a booster	4	2.7
I don't remember	1	0.7

The reasons given for not completed the vaccination are; forgot the schedule (25%), costly (10.7%), unavailability of the vaccine (42.9%), missed doses (10.7%), I did not know the correct schedule (3.6%) and others (7.1%) . Of those yet not vaccinated gave the following reasons;

unavailability of the vaccine through government channels, cost, fear of needles, fear of side effects of the vaccine, negligence, work load and others with the following percentages, 25.8%, 32.5%, 9.3%, 6%, 46.4%, 7.3% and 1.3% respectively (Table 10).

Table 10: Vaccination status of nurses in private hospitals in Addis Ababa, June 2018

Variables	**Frequency**	**Percentage**
Completion of vaccination with appropriate schedule		
Yes	121	40.4
No	28	9.3
Reasons for not completed the vaccination		
I forgot the schedule	7	25
It is costly	3	10.7
Unavailability of the vaccine	12	42.9
Missed doses	3	10.7
I didn't know the correct schedule	1	3.6
Others	2	7.1
Reasons for not yet vaccinated		
Unavailability of the vaccine through government channels	39	25.8
Cost	49	32.5
Fear of needles	14	9.3
Fear of side effects of the vaccine	9	6
Negligence	70	46.4
Work load	11	7.3
Others	2	1.3

*Note: Due to multiple response for reasons for not yet vaccinated, it is possible the sum of percentages >100

5.7 Factors associated with level of uptake of Hepatitis B vaccine

In the bivariate binary logistic regression analysis, under socio-demographic characteristics, sex, educational status, religion, year of service and current work unit of the respondents were the ones found to be significantly associated with hepatitis B vaccination status of the respondents.

The remaining variables that are significantly associated with the level of uptake of Hepatitis B vaccine are; history of exposure to blood or body fluids on intact skin, risk perception of HB infection and being tested for HBV.

Male respondents [COR: 0.40, 95%CI, (0.20- 0.81)] were 0.4 times less likely to receive HB vaccine compared to females. Those who are lower degree holders (diploma) [COR: 0.56, 95%CI, (0.35- 0.89)] were found to be 0.56 times less likely to receive hepatitis B vaccine as compared to higher degree holders. Study participants who are Muslim in terms of religion were 0.27 times less likely to receive hepatitis B vaccine compared to Orthodox [COR: 0.27, 95% CI, (0.07- 0.99)]. Study participants whose year of service were less than one year [COR: 0.14, 95% CI, (0.05- 0.46)] and those between 1- 5years [COR: 0.24, 95%CI, (0.10- 0.61)] were 0.14 times and 0.24 times less likely to receive hepatitis B vaccine as compared to those who were more than 10 years in service and those who were working in medical unit [COR: 0.36, 95%CI, (0.15- 0.87)] were 0.36 times less likely to receive HB vaccine compared to those in ICU.

Study participants who had history of exposure to blood or body fluids on intact skin [COR: 1.61, 95%CI, (1.01- 2.56)] were 1.6 times more likely to receive hepatitis B vaccine. Respondents who had low risk perception[COR: 2.44, 95%CI, (1.51- 3.95)] were 2.4 times more likely to receive hepatitis B vaccine as compared to those that had high risk perception. Those that had been screened for HBV were 49 times more likely to receive hepatitis B vaccine [COR: 49.32, 95%CI, (15.05- 161.59)].

All the variables with p-value <0.10 in bivariate binary logistic regression analysis were considered for multivariate logistic regression to see the independent predictors of uptake of HB vaccine of the respondents. Study participants who were lower degree holder (diploma) [AOR: 0.35, 95%CI, (0.16- 0.75)] were found to be 0.35 times less likely to take HB vaccine as compared to higher degree holder. Those who had spent 6 to 10 years in service were 0.10 times less likely to take HB vaccine in relation to those above 10 years in service. Overall risk

perception was also found to be statistically significant and finally those who had been screened were 242 times more likely to be vaccinated against HBV. All these were found to be independent predictors of level of uptake of hepatitis B vaccine of the respondents (Table 11).

Table 11: Showing the variables in the binary logistic regression.

Variables		**Hepatitis B vaccine uptake**		**COR(95%CI)**	**AOR(95%CI)**	**p-value**
		Yes	No			
Age	20- 29 years	79	82	0.72(0.16-3.32)		0.677
	30- 39 years	24	19	0.95(0.19-4.76)		0.948
	40- 49 years	3	6	0.38(0.05-2.88)		0.346
	≥ 50 years	4	3	1.00		
Sex	Male	13	29	0.40(0.20-0.81)	0.39(0.12-1.27)	0.010
	Female	133	119	1.00		
Educational status	Lower degree	58	80	0.56(0.35-0.89)	0.35(0.16-0.75)	0.014
	Higher degree	88	68	1.00		
Religion	*0.375					
	Orthodox	110	108	1.00		
	Muslim	3	11	0.27(0.07-0.99)	0.23(0.04-1.40)	0.048
	Catholic	2	3	0.66(0.11-4.00)	2.85(0.04-190.90)	0.646
	Protestant	27	25	1.06(0.58-1.94)	0.71(0.25-1.89)	0.849
	Other	2	2	0.98(0.14-7.10)	0.70(0.04-11.26)	0.985
Current marital status	Single	93	91	1.00		
	Married	44	56	0.77(0.47-1.25)		0.292
	Widowed	4	1	3.91(0.43-35.69)		0.226
	Divorced/Separated	4	1	3.91(0.43-35.69)		0.226
Year of service	*0.001					
	< 1 year	9	21	0.14(0.05-0.46)	0.15(0.01-1.68)	0.001

	1-5 years	58	80	0.24(0.10-0.61)	0.15(0.02-1.00)	0.002
	6-10 years	47	36	0.44(0.17-1.14)	0.10(0.01-0.68)	0.089
	>10 years	21	7	1.00		
Unit/Ward	*0.492					
	Admin/Counseling	2	2	0.60(0.08-4.72)	0.14(0.00-9.49)	0.627
	Pediatrics	6	9	0.40(0.12-1.35)	0.23(0.05-1.11)	0.139
	Delivery/Gyn&Obs	17	12	0.85(0.32-2.26)	3.75(0.69-20.47)	0.745
	Surgical/Oncology/ Dental	20	26	0.46(0.19-1.10)	0.56(0.16-1.93)	0.080
	Dialysis	5	4	0.75(0.17-3.24)	1.11(0.16-7.77)	0.700
	Medical	16	27	0.36(0.15-0.87)	0.65(0.19-2.29)	0.023
	OPD	14	18	0.47(0.18-1.20)	1.10(0.27-4.51)	0.115
	Operating room (OR)	13	11	0.71(0.25-1.98)	2.92(0.53-16.11)	0.512
	Emergency	19	16	0.71(0.28-1.79)	1.70(0.43-6.81)	0.472
	ICU	25	15	1.00		
History of exposure to blood or body fluids on intact skin	Yes	92	75	1.61(1.01-2.56)	1.82(0.86-3.88)	0.046
	No	55	72	1.00		
History of splash of blood or body fluids to eye or mouth in the past 12 months.	Yes	27	28	0.96(0.54-1.73)		0.903
	No	122	122	1.00		

History of splash of blood on cuts or unprotected skin	Yes	39	37	1.10(0.66-1.86)		0.713
	No	108	113	1.00		
Training on infection prevention	Yes	73	62	1.34(0.87-2.18)		0.168
	No	76	89	1.00		
No of times for training	Once	52	44	1.01(0.48-2.14)		0.973
	More than once	21	18	1.00		
Knowledge of HB vaccine	Good knowledge	49	68	1.31(0.83-2.06)		0.248
	Poor knowledge	100	83	1.00		
Risk perception of HB infection	Low risk perception	71	41	2.44(1.51-3.95)	2.70(1.23-5.90)	0.000
	High risk perception	78	110	1.00		
Tested for HB virus	Yes	146	75	49.32(15.05-161.59)	242(26.14-2211.19)	0.000
	No	3	76	1.00		
Result of the test	Positive	3	2	0.77(0.13-4.69)		0.773
	Negative	143	73	1.00		

COR- Crude Odds Ratio, AOR- Adjusted Odds Ratio, CI- Confidence Interval, *- Overall P-value of the category.

6. DISCUSSION

This study assessed the level of risk perception of hepatitis B infection and uptake of HB vaccine among the nurses working in private hospitals of Addis Ababa, Ethiopia, 2018. It also identified different factors affecting the level of uptake of hepatitis B vaccine in the study participants.

A little more than half of the respondents, (56.4%) had heard exposure to blood or body fluids on intact skin in the past 12 months. This result is similar to the study done at Addis Ababa governmental hospitals(31) but low when compared to a study done in Bahir dar city administration, Northwest Ethiopia in which (89.6%) reported history of occupational exposure(16). Despite the averagely high exposure, only about 55.3% of the respondents perceived the risk of acquiring HB infection to be very high. This proportion is relatively low as almost all nurses are expected to perceive the risk of acquiring HB infection to be very high. This is similar to the study done in Bahir dar city administration, Northwest Ethiopia in which about average of the respondents perceived the risk of acquiring HB infection to be very high. Overall risk perception of the study participants showed that about two-third (62%) of the respondents had high risk perception about the infection by scoring more than the mean score. This finding is important considering the fact that nurses are more exposed to the patients and the remaining 38% with low risk perception, approximately 4 in 10 nurses is of great concerns because this people will not likely practice standard working precautions and their willingness to get vaccinated will be low. The study done by Feleke (2016) in Amhara region, Ethiopia found those with low risk perception to be as high as 63%(36). Findings from this study is very similar to the study done in Nigeria by Olorunfemi Akinbode Ogundele et al (2017) in which 62.7% of HCWs perceived self to be at high risk of contracting HB infection and also that of Habiba et al. (2012) had similar result where it was observed that 62.5% of the health workers perceived themselves to be more at risk of contracting HBV infection but the study done by Mairo et al (2016) found a higher value (93.5%) perceived themselves to be more at risk(37-39). This difference might be due to the respondents being health care workers in government hospital and the exposure of being in teaching hospital for the study participants in Mairo et al's study(38).

Concerning the level of uptake of hepatitis B vaccine of the respondents, this study found approximately half of them (49.7%) to have been vaccinated and those with good knowledge about the HB vaccine stood at 50.5%. Out of the vaccinated 149 respondents, 121(40.4%) were

completely vaccinated. This finding is higher when compared to study done by Yimer YS et al.(2017) in which only 67(24.6%) of the study participants were vaccinated against HBV and out of the vaccinated 67 respondents, only 24 (8.82%) were fully vaccinated(40). It is also higher than the study conducted in Bahir Dar, Ethiopia, where only 37(10%) were vaccinated and out of which only 20(5.4%) were fully vaccinated(16). The difference might be due to the difference sinthe study area and period, and service availability. Findings from studies in Nigeria reported similar result, Mairo et al.(2016) found 50(40.3%) of the 124 respondents have ever been vaccinated against HBV infection and only 28(22.6%) of the 50 respondents that have been vaccinated against the infection had the recommended three doses of the vaccine(38). Adekanle et al.(2015) reported 65% of respondents complete HB vaccine in their study(41).About the reasons for not vaccinated against HBV, out of those 151 (50.3%) unvaccinated respondents, 70(23.3%) mentioned negligence, followed by unaffordable cost of the vaccine which is 49(16.3%)and unavailability of the vaccine through government channels 39(13%). The reasons mentioned were similar to the reasons mentioned on studies; conducted by Yimer et al. (2017), Feleke (2016) and the one conducted in Bahir dar city, Ethiopia study (2015); in which negligence, unaffordable cost, unavailability of the vaccine through government channels were frequently mentioned(36, 40, 42).Out of 28(9.3%) that did not complete the appropriate vaccination schedule, the main reasons given were unavailability of the vaccine12(4%), not remember the schedule 7(2.3%), unaffordable cost of the vaccine 3(1%), missed doses 3(1%), etc. The reasons mentioned in this study are more or less similar to studies done within and outside Ethiopia but there magnitude is different.

Educational status, the number of year(s) the participant has spent in service, the risk perception of HB infection and the screening of the respondents were found to be independent predictors of level of uptake of hepatitis B vaccine of the respondents. Significant association was found between the level of uptake of HB vaccine and those nurses with lower degree (diploma) holder. This means the higher the educational status of the nurses, the more likely they will be vaccinated against HBV. The presence of significant association between educational status and level of uptake of HB vaccine was also reported by a study conducted in Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia in which those with educational status of masters were found to be less likely to receive hepatitis B vaccine than those with specialization(43).Study participants whose number of year in service was between 6 to 10 years

were 0.1 times less likely to be vaccinated as compared to those who had spent more than 10 years in service. This means the more number of years they spend in service, the more likely they will get vaccinated. This is also in agreement that as they spend more years in service, they become more aware and knowledgeable about the HB vaccine. This findings is similar to the study done in Amhara region, Ethiopia in which the odds of vaccination increased by 7.27-fold(36). Also in Kenya, Nigeria and India, similar results were found in which year of service or experience were significant with the vaccination uptake of the respondents(10, 44, 45).

Finally, this study also revealed that risk perception of hepatitis B infection and being screened are independent predictors of level of uptake of HB vaccine. It showed that those with low risk perception are 2.7 times more likely to get vaccinated. This finding is inconsistent with the study done in Amhara region, Ethiopia and that of Georgia in which it is those with high risk perception that are more likely to get vaccinated and not the other way round(46, 47). The reason for the difference might be due to the difference in study population being health care workers, not nurses only. Those that had been screened were 242 times more likely to get vaccinated. Nurses that had been screened will be much more interested in getting vaccinated, especially with negative result. Adekanle et al. also found that ever screened for HBsAg is significant for uptake of HB vaccine among health care workers(41).

7. STRENGTH AND LIMITATIONS

7.1 Strengths of the study

- Adequate sample size representing nurses working in the hospitals were taken by using appropriate sampling techniques.
- High response rate.
- It explored risk perception of hepatitis B infection

7.2 Limitations of the study

- The cross-sectional design limits the results of the study to be used for establishing a cause-effect relationship.
- Some respondents could have given socially acceptable responses to some questions even though they were reassured about the purpose of the study.
- Reporting bias associated with self-administered questionnaires because nurses might tend to over-report compliance.

8. CONCLUSION AND RECOMMENDATION

8.1 Conclusion

This study revealed that the level of uptake of HB vaccine among the respondents, for at least once in their life time was about half. More than three-quarter of the total vaccinated, were completely vaccinated with appropriate vaccination schedule. This is an improvement comparing to previous studies done around Ethiopia, an explanation for this could be linked to recent awareness and campaign concerning hepatitis B vaccine by the government and non-governmental organizations.

Majority of the study participants of this study had high risk perception but it revealed that those with low risk perception are 3 times more likely to receive hepatitis B vaccine.

Educational status, year of service or experience, being screened for HBsAg and the risk perception of HB infection were found to be independent predictors of level of uptake of hepatitis B vaccine of the respondents.

8.2 Recommendations

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

For National Ministry of Health

- The government should put priority on infectious diseases, especially hepatitis B prevention by continuing and improving on national awareness campaign, spread screening and vaccination services in all the hospitals.
- They should work towards incorporating Hepatitis B vaccinations with the routine EPI program for health care workers, especially for nurses.
- HB vaccine should be made readily available at little or no cost through all the necessary channels and reminder should be sent for the next dose.

For Hospitals

- The management of the hospitals should take the responsibility of increasing their Nurses knowledge on hepatitis B infection, HB vaccine and also encourage them to get vaccinated.

For Nurses

- They should be aware of the seriousness of the hepatitis B infection, get tested and receive the full doses of the vaccine accordingly for the sake of themselves and the community at large.

For Researchers

- Further studies with better design and laboratory confirmation of vaccination status should be considered to avoid self-reporting bias.
- This study should be duplicated with different category of health care workers to see the differences in their vaccination status.

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10.ANNEXES

1. Information sheet

Addis Ababa University
School of public health

Study on *"risk perception of hepatitis b infection and uptake of hepatitis b vaccine among the nurses in private hospitals in Addis Ababa"*.

Greeting, first of all I would like to thank you for your time.

Good morning /Good afternoon, I am……working as data collector in this study. Dear respondents here are lists of questions with different sections, which are designed for Research work to be conducted in partial fulfillment of master Degree in public health by Idowu Lateef with collaboration of Addis Ababa university school of public health. The main purpose of the study is to assess *"risk perception of hepatitis b infection and uptake of hepatitis b vaccine among the nurses in private hospitals in Addis Ababa"*. I am inviting nurses who are working in private hospitals to contribute to the study. The study will not cause any harm to you except giving the information.

I will want you to answer some questions about yourself. It will take about 30 minutes. There are no anticipated problems but in case some questions make you feel uncomfortable; you are free to express your discomfort or decide not to respond. If you choose not to participate or withdraw from filling the questionnaire at any point, your job as a nurse in this hospital will not be affected in any way.

Your name will not be recorded and all the information you give will be kept strictly confidential and is to be used only for the purpose of this study.

At this time, do you want to ask me anything about the study? If you have any questions at any time even after the interview, feel free to ask. If you want to know more information you can contact Idowu Lateef at 0989739723 or **iclateef@gmail.com**

2. Consent form

I understand that the purpose of the study is to assess the level of *"risk perception of hepatitis b infection and uptake of hepatitis b vaccine among the nurses in private hospitals in Addis Ababa"*. I have read the above information, I have had the opportunity to ask questions about it and any questions that I have asked has been answered to my satisfaction. I consent voluntarily to participate as a subject in this study and understand that I have the right to withdraw from the study at any time without any way affecting my further social life or health care.

Signature of Informant _____ Date_____

3. Questionnaire in English

Questionnaire no._____ Date of Interview_____ Hospital _____

Instruction: Circle the responses for questions with alternatives and write for open ended questions on the space provided.

Part I: Respondents Socio-demographic characteristics

101. Age as at the last birthday in years …… years

102 Sex

1. Male

2. Female

103. Educational status

1. Diploma

2. Degree

3. Masters

4. Other (specify).....

104. Religion

1. Orthodox

2. Muslim

3. Catholic

4. Protestant

Other (specify).....

105. Current marital status

1. Single

2. Married

3. Widowed

4. Divorced/ Separated

106. How much is your total monthly income? …….birr

107. How many years of service do you have since you have started working? .....

108. In which unit or ward are you currently working? .....

Part II: History of occupational exposure to conditions that predispose to HBV infection among nurses and training on infection prevention

201. Have you ever had history of exposure to blood or body fluids on intact skin?

1. Yes 2. No

202. Have you ever had history of splash of blood or body fluids to eye or mouth in the past 12 months?

1. Yes 2. No

203. Have you ever had history of splash of blood on cuts or unprotected skin?

1. Yes 2. No

204. Have you ever taken training on infection prevention?

1. Yes 2. No

205. If yes, how many times?

1. Once 2. More than once

Part III: Knowledge of Nurses about Hepatitis B infection

301. Do you know or have you heard of Hepatitis B virus?

1. Yes 2. No

302. Which part of our organ is affected by HBV?

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

303. The symptoms of hepatitis B viral infection appear within few days always after the entrance of Hepatitis B virus to the body?

1. Yes 2. No

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

A. Blood and blood products?

1. Yes 2. No

B. Needles and sharps injury?

1. Yes 2. No

C. Sexual intercourse?

1. Yes2. No

D. Vertically from mother to child?

1. Yes 2. No

E. Faeco-oral?

1. Yes 2. No

F. Contaminated water?

1. Yes 2. No

G. Other specify _____

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

1. Yes 2. No

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

A. Vaccination?

1. Yes2. No

B. Practicing standard working precaution?

1. Yes2. No

C. Avoiding needle/sharp injury?

1. Yes 2. No

D. Avoid unsafe sex?

1. Yes 2. No

E. Avoid drinking contaminated water?

1. Yes 2. No

F. Avoid foods not well cooked?

1. Yes 2. No 3. Other specify_____

Part IV: Knowledge of Nurses about hepatitis B vaccine.

401. There is effective vaccine to prevent hepatitis B infection.

1. Yes2. No

402. Hepatitis B vaccine can be given as post-exposure prophylaxis.

1. Yes 2. No

403. Hepatitis B vaccine is contra indicated for immune compromised patients.

1. Yes 2. No

404. Hepatitis B vaccine is effective to treat patients with acute hepatitis B infection.

1. Yes 2. No

405. Hepatitis B vaccine is highly effective in preventing hepatitis B infection if given within 48 hours after exposure.

1. Yes 2. No

406. Hepatitis B vaccine should be given to health care workers as part of work place safety

1. Yes 2. No

407. Full course of hepatitis B vaccine may give lifelong immunity but for Health professionals, one further booster after 5 years of the first dose is recommended.

1. Yes 2. No

408. After taking full dose vaccination of hepatitis B, there is no need for a blood test to confirm immunity against hepatitis B

1. Yes 2. No

409. Full dose hepatitis B vaccine provides 100% protection for 90% of adults

1. Yes 2. No

410. Full dose hepatitis B vaccine protects against HBV for at least 15 years

1. Yes 2. No

411. Hepatitis B vaccine causes problems if given to people who are already immune

1. Yes 2. No

412. Hepatitis B vaccine is recommended for all health care workers.

1. Yes 2. No

413. How many doses of hepatitis vaccine are there?

A. One dose

B. Two doses

C. Three doses

D. Four doses

414. If more than 1 dose for above question, specify the gap between each dose_____

Part V: Questions on Risk Perception of Hepatitis B Infection

501	How do you perceived the risk of acquiring hepatitis B infection?	Very low	Low	Medium	High	Very high
502	How do you perceived the seriousness of hepatitis B infection?					
503	How do you perceivedcontracting hepatitis B infection in the future if you do not take any preventive measures?					
504	Suppose you have not been vaccinated against hepatitis B infection. How do					

	you perceived your chance of contracting it in the future?					
505	Suppose you have been vaccinated against hepatitis B infection. How do you perceived your chance of contracting it in the future?					
506	What is the level of your concerned about contracting hepatitis B infection?					
507	Grade how bad you will feel if you were to contract hepatitis B infection in the future?					

Part VI: Questions concerning HBV screening and Hepatitis B vaccine uptake

601. Have you ever been tested for Hepatitis B virus?

1. Yes
2. No

602. If yes, when was that? .....

603. What is the result of the test?

1. Positive
2. Negative

604. If no to Q. 041, what is your specific reason? (**Multiple responses are possible**)

1. Unavailability of the diagnosis
2. Cost
3. Negligence

4. Fear of positive results

5. Work load

6. Other (specify) …….

605. Have you ever received Hepatitis B vaccine?

1. Yes

2. No

606. If yes, how many number of doses of vaccine did you received?

1. 1dose

2. 2 doses

3. 3 completed doses

4. 3 completed doses and a booster dose

5. I do not remember

607. Have you completed the vaccination with the appropriate vaccination schedule?

1. Yes

2. No

608. If not completed the appropriate vaccination schedule, why?(**Multiple responses are possible**)

1. I forgot the schedule

2. Because it is costly

3. Unavailability of the vaccine

4. Missed doses

5. I did not know the correct schedule

6. Others (specify) ……

609. If not yet vaccinated, what are your reasons? (**Multiple responses are possible**)

1. Unavailability of the vaccine through government channels

2. Cost

3. Fear of needles

4. Fear of side effects of the vaccine

5. Negligence

6. Work load

7. Others (specify) ……

Thank you for participating.

1. የመረጃመስብሰቢያ

አዲስ አበባ ዩኒቨርሲቲ

ሰኩል ኦፍ ፐብሊክ ሄልዝ

“በአዲስ አበባ በሚገኙ የግል ሆስፒታሎች የሚገኙ ነርሶች ስለሂፒታይተስ ቢ ስጋት ያላቸው መረዳት እና የሂፒታይተስ ቢ ክትባትን ስለመውሰድ” የተደረገ ጥናት

ሰላም ለእርስዎ ይሁን በመጀመሪያ ጊዜ ስለሰጡኝ ማመስገን እፈልጋለሁ፡፡

እንደምን አረፈዱ/እንደምን ዋሉ እኔ …….. በዚህ ጥናት እንደ መረጃ ሰብሳቢ ሆኜ የምሰራ ነኝ፡፡ ውድ መላሽ በአዲስ አበባ ዩኒቨርሲቲ ስኩልኦፍ ፐብሊክ ሄልዝ ጋር በመተባበር ኢዶው ላቲፍ በፐብሊክ ሄልዝ የማስትሬት ዲግሪ ጥናቱን በከፊል ለማጠናቀቅ ለሚያከናውነው የምርምር ስራ እንዲጠቅሙ በተለያዩ ክፍሎች የተመደቡ የጥያቄዎችን ዝርዝሮች በዚህ ሰነድ ላይ ያገኛሉ፡፡ የዚህ ጥናት ዋና አላማ *“በአዲስ አበባ በሚገኙ የግል ሆስፒታሎች የሚገኙ ነርሶች ስለሂፒታይተስ ቢ ስጋት ያላቸው መረዳት እና የሂፒታይተስ ቢ ክትባትን ስለመውሰድ”* ማጥናት ነው፡፡ እኛ በግል ሆስፒታሎች የሚሰሩ ነርሶችን ለዚህ ጥናት አስተዋጽኦ እንዲያደርጉ እንጋብዛለን፡፡ ጥናቱ በእርስዎ ላይ ምንም አይነት ጉዳት አያስከትልም ነገር ግን አስፈላጊ የሆነ መረጃ እንዲያገኙ ይረዳዎታል፡፡

ስለራስዎት አንዳንድ ጥያቄ እጠይቅዎታለሁ፡፡ ቃለመጠይቁ ወደ 30 ደቂቃዎችን ይፈጃል፡፡ ምንም የሚጠበቅ ችግር አይኖርም፡፡ ነገር ግን ስለአንዳንድ ጥያቄዎች ምቾት ካልተሰማዎ ቅሬታዎን ለመግለጽ ወይም ለዚያ ጥያቄ ምላሽ ላለመስጠት ለመወሰን ነጻ ይሁኑ፡ በማንኛውም ወቅት በቃለመጠይቁ ላለመሳተፍ ወይም ለማቆም ከመረጡ በምንም ዓይነት ሁኔታ በዚህ ሆስፒታል እንደነርስ ባለዎት የሥራ መደብ ላይ ምንም አይነት ተጽእኖ አያሳድርም፡፡

ስምዎት አይመዘገብም እንዲሁም እርስዎ የምትሰጡት ማንኛውም መረጃ በሙሉ በጥብቅ ሚስጥራዊ ሆኖ ይያዛል፡፡ እንዲሁም መረጃው ለዚህ ጥናት ዓላማ ብቻ ይውላል፡፡

በዚህ ወቅት እኔን ስለጥናቱ ጥያቄ ለመጠየቅ ነጻነት ይሰማዎ። በማንኛውም ጊዜ ከቃለመጠይቁ በኋላ ጭምር ጥያቄዎች ካለዎ ለመጠየቅ ነጻ ይሁኑ። ለበለጠ መረጃ ኢዶው ላቲፍን በሞባይል ስልክ ቁጥር 0989739723 ወይም iclateef@gmail.com ማግኘት ይችላሉ።

2. የፍቃደኝነት መግለጫ ቅጽ

የዚህ ጥናት አላማ *"በአዲስ አበባ በሚገኙ የግል ሆስፒታሎች የሚገኙ ነርሶች ስለሂፒታይተስ ቢ ስጋት ያላቸው መረዳት እና የሂፒታይተስ ቢ ክትባትን ስለመውሰድ"* ማጥናት ነው። ከላይ የቀረበውን መረጃ አንብቤያለሁ ጥያቄዎችን ለማቅረብ እድል አግኝቼ ነበር። እንዲሁም የጠየቅኋቸው ጥያቄዎች በሙሉ በሚያረካ ሁኔታ ተመልሰውልኛል። በገዛ ፈቃዴ በዚህ ጥናት ለመሳተፍ ተስማምቻለሁ። እንዲሁም በማንኛውም ጊዜ ከዚህ ጥናት በማህበራዊ ህይወቴ ወይም የጤና እንክብካቤ ላይ ምንም ተጽዕኖ ሳይደርስብኝ አቋርጦ የመውጣት መብት እንዳለኝ ተረድቻለሁ።

የመረጃ ሰጪ ፊርማ፡- _____ ቀን፡- _____

3. **ጥያቄዎች በአማርኛ**

ጥያቄ ቁጥር _____ **የቃለ-መጠይቅ ቀን** _____ **ሆስፒታል** _____

መመሪያ፡- ለእያንዳንዱ ጥያቄዎች መልስዎን በማክበብ ይመልሱ፡፡ እንዲሁም መሞላት ላለባቸው ጥያቄዎች በቀረበ ክፍት ቦታ ላይ ይሙሉ፡፡

ክፍል I:- የመላሾች ሶሺዮዲሞግራፊክ ባህሪያት

101. **በመጨረሻ ባከበሩት የልደት ቀንዎ መሠረት እድሜዎ** _____ **ነው፡፡**

102 **ጾታ**

1. **ወንድ**
2. **ሴት**

103. **የትምህርት ደረጃ**

1. **ዲፕሎማ**

2. **ዲግሪ**

3. **ማስተርስ**

4. **ሌላ** (ያብራሩ) ……..

104. **ኃይማኖት**

1. **ኦርቶዶክስ**

2. **ሙስሊም**

3. **ካቶሊክ**

4. **ፕሮቴስታንት**

ሌላ (ያብራሩ) …….

105. የአሁን የጋብቻ ሁኔታ

1. ያላገባ/ች

2. ያገባ/ች

3. የትዳር አጋር የሞተበት/ባት

4. የፈታ/ች/የተለያየ/ች

106. ድምር ወርሃዊ ገቢዎ ስንት ነው? _____ ብር

107. ሥራ ከጀመሩ ስንት ዓመት አገልግለዋል? _____

108. በአሁኑ ጊዜ የሚሰሩበት ክፍል ወይም ዋርድ የትኛው ነው? _____

ክፍል II:- በነርሶች መካከል ስላለ ለሂፒታይተስ ቢ ቫይረስ ኢንፌክሽን ተጋላጭነት ስለሚያስከትል ከሥራ ጋር የተገናኘ ተሞክሮ እና ኢንፌክሽን ስለመከላከል ስልጠና ታሪክ

201. ከዚህ በፊት ከቆዳዎ ጋር በተነካካ ሁኔታ ለደም ወይም ከሰውነት ውስጥ ለሚወጡ ፈሳሾች የመጋለጥ ታሪክ ኖርዎት ያውቃል?

1. አዎ 2. አያውቅም

202. ባለፉት 12 ወራት በዓይንዎ ወይም በአፍዎ ውስጥ ደም ወይም ከአካል የሚወጣ ፈሳሽ ተረጭቶብዎት ያውቃል?

1. አዎ 2. አያውቅም

203. በተቆረጠ ወይም ጥበቃ ባልተደረገለት ቆዳዎ ላይ ደም ተረጭቶብዎ ያውቃል?

1. አዎ 2. አያውቅም

204. ኢንፌክሽን ስለመከላከል ስልጠና ወስደው ያውቃሉ?

1. አዎ 2. አላውቅም

205. አዎ ከሆነ ለምን ያህል ጊዜ፡-

1. ለአንድ ጊዜ 2. ከአንድ ጊዜ በላይ

ክፍል III:- ነርሶች ስለኢፒታይተስ ቢ ኢንፌክሽን ያላቸው እውቀት

301. ስለ ሂፒታይተስ ቢ ቫይረስ ያውቃሉ ወይም ሰምተው ያውቃሉ ወይ?

1. አዎ 2. አላውቅም

302. በሂፒታይተስ ቢ ቫይረስ የሚጠቃው የሰውነታችን አካል የትኛው ነው?

1. ጉበት 2. ልብ 3. ኩላሊት 4. አንጎል 5. እርግጠኛ አይደለሁም

303. የሂፒታይተስ ቢ ቫይረስ ኢንፌክሽን ሂፒታይተስ ቢ ቫይረስ ወደ ሰውነታችን ከገባ በኋላ በጥቂት ቀናቶች ውስጥ ምልክቶቹ ይታያሉ?

1. አዎ 2. አይታዩም

304. የሂፒታይተስ ቢ ኢንፌክሽን መተላለፊያ መንገዶች (ለእያንዳንዱ አማራጮች መልስ ስጥ)

ሀ. ደም እና የደም ምርቶች?

1. አዎ 2. አይደለም

ለ. መርፌዎች እና ስለታም ነገሮች በሚያደርሱት ጉዳት

1. አዎ 2. አይደለም

ሐ. የግብረስጋ ግንኙነት?

1. አዎ 2. አይደለም

መ. ከእናት ወደ ልጅ በቀጥታ

1. አዎ 2. አይደለም

ሠ. አይነምድር የነካ እጅን ወደ አፍ ውስጥ ማስገባት/ባልታጠበ እጅ መብላት

1. አዎ 2. አይደለም

ረ. የተበከለ ውሃ?

1. አዎ 2. አይደለም

ሰ. ሌላ አብራሩ፡- _____

305. በመርፌ ጉዳት የተነሳ ከኤችአይቪ ይልቅ ሂፒታይተስ ቢ በከፍተኛ ደረጃ የመተላለፍ እድል ይኖረዋል፡፡

1. አዎ 2. የለውም

306. የሂፒታይተስ ቢ ኢንፌክሽንን የምንከላከልባቸው መንገዶች (ለእያንዳንዱ ምርጫዎች ምላሽ ስጥ)

ሀ. ክትባት?

1. አዎ 2. አይደለም

ለ. ድረጃውን የጠበቀ የሥራ ቅድመ ጥንቃቄን ማክበር?

1. አዎ 2. አይደለም

ሐ. የመርፌ/ስለታም ነገሮች ጉዳትን ማስወገድ?

1. አዎ 2. አይደለም

መ. ደህንነቱ ያልተጠበቀ የግብረ ስጋ ግንኙነትን ማስወገድ?

1. አዎ 2. ኤደለም

ሠ. የተበከለ ውሃን መጠቀምን ማስወገድ?

1. አዎ 2. አይደለም

ረ. በደንብ ያልተቀቀሉ/ያልበሰሉ ምግቦች መጠቀምን ማስዎገድ

1. አዎ 2. አይደለም 3. ሌላ ይግለጹ _____

ክፍል IV፡- ነርሶች ስለሂፒታይተስ ቢ ክትባት ያላቸው እውቀት

401. ሂፒታይተስ ቢ ኢንፌክሽንን ለመከላከል ውጤታማ የሆነ ክትባት አለ?

1. አዎ 2. የለም

402.ሂፒታይተስ ቢ ክትባት አንድ ሰው ከተጋለጠ ሰው እንደ የበሽታ መከላከያ ሊሰጥ ይችላል

1. አዎ 2. አይችልም

403. የሂፓታይተስ ቢ ክትባት በሽታ የመከላከል አቅማቸው ለተዳከሙ ታካሚዎች መስጠት ጥሩ አይደለም።

1. አዎ 2. ጥሩ ነው

404. የሂፓታይተስ ቢ ክትባት ከባድ የሂፓታይተስ ቢ ኢንፌክሽን ያለባቸውን ታካሚዎች ለማከም ውጤታማ ነው።

1. አዎ 2. አይደለም

405. የሂፓታይተስ ቢ ክትባት አንድ ሰው ተጋላጭ ከሆነ በኋላ በ48 ሰዓታት ውስጥ ከተሰጠ የሄፓታይተስ ቢ ኢንፌክሽንን ለመከላከል ይችላል?

1. አዎ 2. አይችልም

406. የሂፓታይተስ ቢ ክትባት እንደ ሥራ ቦታ ደህንነት መጠበቂያ ክፍል ለጤና እንክብካቤ ሠራተኞች መሰጠት አለበት?

1. አዎ 2. የለም

407. የሂፓታይተስ ቢ ክትባት ሙሉውን መውሰድ ለህይወት ዘመን መከላከያ ሆኖ የሚያገለግል ሲሆን ለጤና ባለሙያዎች ግን የመጀመሪያውን ክትባት ከወሰዱ ከ5 ዓመታት በኋላ አንድ ተጨማሪ ማጠናከሪያ (ቡስተር) ክትባት መውሰድ አለባቸው?

1. አዎ 2. የለም

408. ለሂፓታይተስ ቢ ሙሉ ክትባት ከወሰድን በኋላ ለሂፓታይተስ ቢ መከላከል የሚያስችል አቅም እንዳገኘን ለማረጋገጥ የደም ምርመራ ማድረግ አያስፈልግም?

1. አዎ 2. አያስፈልግም

409. ሙሉ የሂፓታይተስ ቢ ክትባት ለ90% ለሚሆኑ አዋቂዎች 100% የመከላከል አቅም ይሰጣል?

1. አዎ 2. አይሰጥም

410. ሙሉ የሂፒታይተስ ቢ ክትባት ቢያንስ ለ15 ዓመታት የሂፒታይተስ ቢ ቫይረስን ይከላከላል፡፡

1. አዎ 2. አይከላከልም

411. የሂፒታይተስ ቢ ክትባት አንድ ጊዜ ለተከተቡ ሰዎች ከተሰጠ ችግር ሊያስከትል ይችላል፡፡

1. አዎ 2. አያስከትልም

412. የሂፒታይተስ ቢ ክትባት ለሁሉም የጤና እንክብካቤ ሠራተኞች እንዲከተቡ ይመከራል፡፡

1. አዎ 2. አይመከርም

413. ስንት የሂፒታይተስ ክትባቶች መጠኖች (ዶዞች) አሉ?

ሀ. አንድ ዶዝ

ለ. ሁለት ዶዝ

ሐ. ሶስት ዶዝ

መ. አራት ዶዝ

414. ከላይ ለቀረበው ጥያቄ ከአንድ በላይ ዶዝ ካለ በእያንዳንዱ ዶዝ መካከል ያለውን ክፍተት ግለጽ፡- _____

ክፍል V፡- ስለሂፒታይተስ ቢ ኢንፌክሽን ስጋት ያለ እውቀትን በሚመለከት ጥያቄዎች

		በጣም ዝቅተኛ	ዝቅተኛ	መካከለኛ	ከፍተኛ	በጣም ከፍተኛ
501	የሂፒታይተስ ቢ ኢንፌክሽን የመያዝ ስጋት ደረጃ እንዴት ነው?					
502	የሂፒታይተስ ቢ ኢንፌክሽን ከባድነትን ደረጃ እንዴት ነው?					
503	ማንኛውንም የመከላከያ እርምጃ ካልወሰዱ ለወደፊቱ በሂፒታይተስ ቢ					

	ኢንፌክሽን የመያዝ እድል እንዴት ነው?					
504	እርስዎ የሂፒታይተስ ቢ ኢንፌክሽን ክትባት አልወሰዱም እንበል ለወደፊቱ የመያዝ እድልዎት እንዴት ነው?					
505	እርስዎ የሂፒታይተስ ቢ ኢንፌክሽን መከላከያ ክትባት ወስደዋል እንበል ለወደፊቱ የመያዝ እድልዎ እንዴት ነው?					
506	በሂፒታይተስ ቢ ኢንፌክሽን ስለመያዝ ያለዎት የሀሳብ/ጭንቀት ደረጃ እንዴት ነው?					
507	ለወደፊቱ በሂፒታይተስ ቢ ኢንፌክሽን ቢያዙ የሚሰማዎት መጥፎ ስሜት እንዴት ነው?					

ክፍል VI:- ስለሂፒታይተስ ቢ ቫይረስ ምርመራ እና ሂፒታይተስ ቢ ክትባት አወሳሰድ ጥያቄዎች

601. ለሂፒታይተስ ቢ ቫይረስ ተመርምረው ያውቃሉ?

1. አዎ

2. አላውቀም

602. መልስዎ አዎ ከሆነ መቼ ነበር?

603. የምርመራ ውጤት ምንድን ነበር?

1. ፖዘቲቭ 2. ነጌቲቭ

604. ለጥያቄ ቁጥር 041 መልስዎ የለም ከሆነ ግልጽ ምክንያትዎ ምንድን ነው? (ከአንድ በላይ ምላሾችን መስጠት ይቻላል)

1. የምርመራ አለመኖር

2. ወጪው

3. ቸልተኝነት

4. የፖዘቲቭ ውጤቶች ፍርሃት

5. የሥራ ጫና

6. ሌላ (ይገለጽ) .....

605. የሂፒታይተስ ቢ ክትባት አግኝተው ያውቃሉ ወይ?

1. አዎ

2. አላውቅም

606. መልስዎ አዎ ከሆነ ምን ያህል የክትባት ዶዝ ተሰጥቶዎት ነበር?

1. አንድ ዶዝ

2. ሁለት ዶዞች

3. ሶስት ሙሉ ዶዞች

4. ሶሶት ሙሉ ዶዞች እና አንድ ቡስተር ዶዝ

5. አላስታውስም

607. ክትባቱ ተገቢ በሆነ የክትባት የጊዜ ሰሌዳ ወስደው አጠናቀዋልን?

1. አዎ

2. የለም

608. ተገቢ በሆነው የክትባት የጊዜ ሰሌዳ ካላጠናቀቁ ለምን? (ከአንድ በላይ ምላሾችን መስጠት ይቻላል)

1. የጊዜ ሰሌዳውን ስለረሳሁት

2. ወጪው ከባድ ስለሆነ

3. ክትባቱ ስለሌለ

4. ዶዞችን ስላላገኘሁ

5. ትክክለኛውን የጊዜ ሰሌዳ ስላላወቅሁ

6. ሌሎች (ይግለጹ) .....

609. ክትባት ካልወሰዱ ምክንያትዎ ምንድን ነው? (ከአንድ በላይ ምላሾችን መስጠት ይቻላል)

1. ከመንግስት በኩል ክትባቱ ስለሌለ

2. ወጪው

3. መርፌ ስለምፈራ

4. ክትባቱ የሚያመጣውን የጎንዮሽ አሉታዊ ውጤት ስለምፈራ

5. ቸልተኝነት

6. የሥራ ጫና

7. ሌሎች (ይግለጹ ...)

ስለተሳትፎዎ እናመሰግናለን