

# Knowledge, Attitude and Practice towards Hepatitis B Virus Prevention and its Associated Factors among Private Medical/Health Sciences College Students, Bahir Dar, Ethiopia

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## Research article

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# Abstract

**Background:** Hepatitis B virus (HBV) infection is a huge public health problem. Among health professionals, medical and health sciences college students are risk groups. **Objective:** The objective of the study was to determine the knowledge, attitude, and practices towards Hepatitis B virus prevention and associated factors among private Medical, and Health Science's College students in Bahir Dar city, North West Ethiopia. **Methods:** An institution-based cross-sectional study was conducted from May 1st – 30th /2017. All the available four private Medical and Health Sciences Colleges in Bahir Dar city were considered and included in the study to select 390 students using a systematic sampling technique. A pre-tested structured questionnaire, which has socio-demographic, knowledge, attitude and practice sections, was used to collect the data. Data were coded, entered and cleaned using Epi data version 3.1 and exported to SPSS version 21.0 software for analysis. Bivariate logistic regression analysis was used to identify potential variable for multivariable logistic regression and those variables with 0.2 and less P-value entered in the next logistic regression model to identify the possible factors associated with knowledge, attitude, and practice towards Hepatitis B virus prevention. Significance level was set at P-value less than 0.05. **Results:** The age of the respondents ranged from 18-48 years with the mean ( $\pm$ SD) age of 23.74(3.48). About eighty-four, percent (83.8%) of respondents had good knowledge, whereas 44.6% had a favorable attitude and 32.6% had a good practice. Being unmarried (AOR=2.34, 95% CI: 1.32-4.15), age category 20-24 (AOR=11.5, 95% C.I: 2.60-51.5), and  $\geq 25$  (AOR=11.6, 95% CI: 2.47-54.4) was associated to knowledge, whereas study year (AOR=1.59, 95% CI: 1.01,2.51) and practice (AOR=2.95, 95% CI: 1.89, 4.58) were significantly associated to attitudes; and good knowledge (AOR=2.07, 95% C.I: 1.06, 4.04) and favorable attitude (AOR=2.79, 95% CI: 1.79,4.34) were significantly associated with practice, respectively. **Conclusion:** The overall knowledge status of the respondents about Hepatitis B virus prevention was good. But their attitudes and practices were unfavorable and not good respectively.

## Introduction

Hepatitis is a disease of the liver usually caused by viral infections that are transmitted through infected blood and body fluids and be transmitted through sexual intercourse, and a mother to child (1, 2). Hepatitis B, virus (HBV) infection is the most common serious liver infection in the world that attacks liver cells and can lead to liver failure, cirrhosis, or cancer of the liver later in life (3).

Modern medicine has contributed much to the increase in the cases and spreading the disease in society. HBV infection is usually due to a break in the sterilization technique of instruments or the improper health facility waste management as 10% to 20% health care waste is considered hazardous, and it may create different health risks (4).

HBV infection is a global pandemic and it is estimated that annually about 2 billion people are infected with HBV infection worldwide; of which more than 350 million have chronic HBV infection and 1.2 million dies from chronic hepatitis, cirrhosis and hepatocellular carcinoma. Regions like South East Asia and sub-Saharan Africa are high endemic areas for HBV infection(4, 5). Ethiopia being a part of this region, is

ranked as an area with media to high endemicity for HBV infection, on previous population surveys (6). Medical and other health science's students, like other health workers, are part of the health care delivery system and are exposed to HBV infection with the same size of risk as other health care workers when they meet patients and contaminated instruments. They are the first level of contact between patients and medical care and surgical instrumentation (7, 8). Health workers are exposed to a large pool of specimens including body fluids from patients suffering from HBV infection. They seem to have a poor perception of the risk of infections and are not compliant with the principles of universal work precautions (9). Prevention against any disease is proportional to knowledge, attitude, and practice of the population and reflection of the import that is paid to the health-related issue by the society (10).

High-risk, everyone that is prone to viral infection includes; health care teams in contact with blood and human body fluids secretions, hemodialysis unit staffs, oncology and chemotherapy nurses, all personnel at the risk of needlestick/sharps injuries. The later groups, which include those working in theater rooms and laboratories, respiratory therapists, surgeons, nursing, dentists, medical, and dental and nursing, students are at special high risks (11).

Medical and Health Science students are expected to undertake activities related to patient care with the beginning of their clinical years. They are vulnerable when they come into contact with patients and contaminated surgical materials.

In this study area there is no similar study of knowledge, attitude and practice (KAP) on prevention of HBV infection among private medical or health science college students. Hence, this study tried to assess knowledge, attitude and practice, and associated factors among private medical and health science's college students towards the prevention of HBV infection.

Higher education medical and health sciences students are well thought out the upcoming health care workers that will enhance infection prevention through different and contemporary implementation modalities. These segmented educated populations are anticipated to own good KAP towards HBV infection prevention. Thus, explore their level of knowledge, attitude, and practice on sexually transmitted diseases so that appropriate interventions can be rectified or planned accordingly sometimes. Hence, here was undertaken to assess the knowledge, attitude, and practice of medical and health science's students towards prevention of HBV infection.

## **Methods And Materials**

### **Study Setting**

Bahir Dar is the capital city of Amhara National Regional State, is located about 565 km away from Addis Ababa, the capital city of Ethiopia. It is located in the North West direction of Addis Ababa at an elevation of 1,840 meters above the sea level. The city is bordered by Lake Tana in North, South Gondar in the East and West Gojjam in the South and West directions. The city currently has four private medical and/or health science's colleges that providing training with a total of 4554 students attending paramedical and

medicine disciplines (12). The institutional-based cross-sectional study design was conducted from May 1<sup>st</sup> – 30<sup>th</sup> /2017.

## Sample size determination and sampling technique

The sample size was determined using a single population proportion formula and assumptions of; 95% confidence level, 5% margin of error or level of precision and the knowledge, attitude, and practice level regarding prevention of HBV infection was taken as 50% and by considering the above assumptions as well as using correction formula and 10% non-response rate the final calculated sample size becomes 390 students. First, the four private colleges were enrolled and stratified by their departments. Once these departments have been selected, the calculated sample size was distributed proportionally to each discipline using the students' list. Then, the sample students were selected by a systematic sampling technique following the interval determined by dividing the total students to the sample sizes. The first student from each department was selected by a lottery method. Then, in each college the sample students who are the third year and above with at least having one clinical attachment exposure preceding the survey were interviewed and two visits were made for absences in the first visits. All students who were the third year and above and having at least one clinical attachment exposure preceding the data collection were considered as a study population whereas students who were sick and unavailable during the two trip visits during the data collection period were excluded from the study.

## Data collection tools and techniques

A pretested interviewer-administered structured questionnaire compiled from different literature and comprised of socio-demographic knowledge, attitude, and practice towards HBV prevention and control assessing characteristics. It was first prepared in the English language version and then translated into the Amharic (indigenous) language, and finally back to English to maintain its consistency. Finally, the data were collected using the Amharic version questionnaire. To keep the validity of the data collecting tools, three days of rigorous training was given to the data collectors and the supervisor. Roleplay held by the enumerators before the pretest and the actual data collection. The enumerators and the supervisor were university graduates.

## Running definitions

*Good knowledge to HBV prevention:* If the participants responded 70 % or more of the knowledge assessing questions correctly, they were considered as having good knowledge otherwise having poor knowledge (13).

*Favorable attitude towards HBV prevention:* If the participants responded 70 % or more of the attitude assessing questions correctly, they were considered as having a favorable attitude otherwise having an

unfavorable attitude(13).

*Good practice to HBV prevention:* If the participants responded 70 % or more of the practice assessing questions correctly, they were considered as having good practice otherwise having poor practice. (13).

## Data analysis

Data were assessed for its completeness on a daily basis, coded, entered and cleaned using Epi Data version 3.1 and exported to SPSS version 21.0 statistical software for further analysis. Descriptive statistics computed and presented in tables. A binary logistic regression model was fitted independently to identify factors associated with the outcome variables. Crude and adjusted odds ratios (OR) with a 95% CI were computed to assess the strength of association between the independent and outcome variables. Variables with a p-value of less than 0.05 were considered as statistically significant predictors of KAP on HBV prevention.

## Results

### Socio-demographic characteristics

A total of 390 participants belonging to 3<sup>rd</sup> to 6<sup>th</sup>-year students from five different departments were approached for the study and all of them gave complete responses that make a response rate of 100%. Almost half of the students, 50.3% were from a rural area. The age of the respondents ranged from 18–48 years with the mean ( $\pm$ SD) age of 23.74(3.48) and above. Two-third of them, (67.9%) were in the age group of 20–24 years. Seventy percent were unmarried. Majority of the respondents (71.8%) were 3<sup>rd</sup>-year students. about one-third of the respondents (31.7%) was nurses and 3.3% of the respondents were medical attending students (Table 1).

### Knowledge level of the respondents towards HBV transmission, prevention, and control

In this study out of 390 respondents, 83.8% had good knowledge. Among the respondents, 94.4% understood that all age groups can be affected by HBV. Regarding the mode of transmission 94.1%, respondents said that contact with blood and blood products of infected patients was one of the mechanisms for the transmission of HBV and 87.7% mentioned that unsafe sex was one of the routes of transmission. In terms of prevention and control of HBV, 367(94.1%) answered that HBV is preventable (Table 2).

### The Attitude of the respondents towards HBV transmission, prevention, and control

Based on our cut of point set in the operational definition among questions prepared to assess the attitude of respondents, 44.6% of the study participants had a favorable attitude. To assess their attitudes toward the vaccine of HBV, 49.2% of respondents agreed that the vaccine was safest and effective. Stigma on HBV carriers, we asked whether they are comfortable in treating HBV patients and 32.6 % of the students had responded in agreement to the inquiry. On the other hand, 75.9 % of the students think that all patients need to be tested before receiving any health care services (Table 3).

## **The Practice of the students towards HBV prevention**

This study showed that 32.6% of respondents had a good practice. Among the respondents, 95.9% never screened for HBV and 96.7% stated that they have not vaccinated against HBV. More than three-fourths, 88.8% of the respondents never participated in the health education program of HBV (Table 4).

## **Factors associated with Knowledge towards HBV transmission, prevention, and control**

To identify associated factors with knowledge on HBV prevention, transmission, and control both bivariate and multivariate analysis was done on different selected variables. After adjustment made the odds of those whose age between 20–24 were almost twelve times higher than the age category nineteen and below to be knowledgeable about HBV prevention, transmission and control (AOR = 11.5, 95% CI: 2.60, 51.5) and the odds of those whose age 25 and above were almost twelve times higher than 19 years of age and below to be knowledgeable about HBV prevention, transmission and control (AOR = 11.6, 95% CI: 2.47, 54.4), being unmarried were about two times more likely to be knowledgeable about HBV prevention, transmission and control (AOR = 2.34, 95% CI: 1.32, 4.15). (Table 5)

## **Factors associated with attitudes towards HBV prevention, transmission, and control**

To identify factors associated with attitude on HBV prevention, transmission, and control, both bivariate and multivariate logistic regression analysis was done on different selected variables. After adjustment has made having a good practice of the students, and their study year had associated to attitudes of the respondents. The odds of those who have a good practice on HBV prevention, transmission and control were 3 times higher to have favorable attitude than the odds of those who have poor practices (AOR = 2.95, 95% CI: 1.89, 4.58).

When study year of respondents increases, attitudes towards prevention of HBV was also increased, those who were 4<sup>th</sup> year and above were almost 2 times (AOR = 1.59, 95% CI: 1.01, 2.51) more likely to have favorable attitudes than 3<sup>rd</sup>-year participants (Table 6).

# Factors associated with HBV prevention and control practice

To identify factors associated with HBV prevention, transmission, and control practice, both bivariate and multivariate logistic regression analysis was done on different selected variables. After adjustment made having a good knowledge and a favorable attitude were statistically associated with good practice of the respondents towards prevention and control of HBV infection. The odds of those who have good knowledge and favorable attitude were about two (AOR = 2.07, 95% CI: 1.06, 4.04) and three (AOR = 2.79, 95% CI: 1.79, 4.34) times more likely to have good practice their counterparts, respectively. (Table 7)

## Discussion

Professional knowledge regarding HBV prevention and control has a paramount contribution to the implementation of set strategies and planned activities. The level of Knowledge among medical and health science college students in this study was lower than study results done at University of Gondar (13). However, the knowledge level was higher than the study results conducted at Harmaya University. In the same way, this study result was higher than the study results conducted in Iraq (10, 14). The difference in knowledge level between this study and result from Iraq might be due to the fact that Iraq is more advanced in medical care and more emphasis might not be given to the communicable disease that may contribute for the knowledge level of health sciences, students. It is more ideal that when the emphasis is given to some issue, the knowledge level and the attitude also changed similarly.

In the present study, 88.5 % of respondents reported that there was a vaccine available for HBV. This was lower than 93.2% of the study conducted at Haramaya University(10) This difference might be most of the students who were attained in the colleges were inhabitant from a single region, whereas in Harmaya university from different regions and will share their knowledge.

Among the study participants, 61.3% of respondents knew that HBV has post-exposure prophylaxis. This result was lower than 67.1% of the study conducted in medical and health science college students, University of Gondar (13). While it was higher than a study conducted at Haramaya University, which accounts for 51.6% of the respondents(10). This difference might be the time gap of the present study from the previous study.

Prevention about HBV, 94.1% reported that transmission of HBV can be prevented this result was a little lower than 97.5% the study conducted at Haramaya University(10). While it was higher than 84.6% the study conducted at the University of Gondar(13).

A high proportion of the study participants 94.4% knew that HBV has a laboratory test. This result was in line with the study which was conducted at Haramaya University (10).

Regarding the transmission of HBV, 94.1 % mentioned contaminated blood and blood products, 74.4% open wound/cut, 93.6%Unsterilized syringe with needle and Surgical materials were listed.

While this result was lower than 97.2% and 93.5% the study conducted in University of Gondar respectively (13). It was higher than the study conducted in Haramaya University (10).

In this study, the overall attitude towards HBV transmission, prevention, and control among the participants was Unfavorable. Only 49.2 % of the respondents believe that the HBV vaccine is effective and safe. This finding was nearly two times lower than 81.7% and 86.2% studies conducted in the University of Gondar and Saudi Arabia among dentists respectively (13). This difference might be unlike HIV/AIDS HBV and its vaccine maybe not given stress in the current curricula. Feelings towards caring of people

with HBV was asked and the present study showed that 32.6% of respondents felt comfortable to take care patients, While this study was significantly More than 2 folds lower than 82.1% the study conducted in University of Gondar (13).

The present study showed that 63.8% reported that following infection control guideline will protect from being infected with HBV at work. This result was lower than 83.3% of the study conducted at the University of Gondar (13).

This study revealed that most of the study participants had poor practice towards HBV prevention and control, in spite of their good knowledge of transmission; control the disease and its prevention measures.

When compared with the reports from other studies, 4.1 % of respondents have screened for HBV and 3.3% have vaccinated against HBV. These findings were at least two times lower than 14.3% and 9.3% conducted In Haramaya and the University of Gondar, Ethiopia(10, 13).

Vaccination status against HBV of the respondents, this finding which was 3.3% lower than 4.9% and 13.4% conducted at Haramaya and University of Gondar(10, 13). Health education is one of the methods, which contributes to the creation of awareness and gears to prevention and control of the diseases. In this study, only 11.2% of participants participated related to HBV, which was nearly two times lower than 23.9% of the finding of Haramaya University, Ethiopia(10). This difference might be due to demand and access of vaccine is not proportional.

Regarding the multivariate analysis of knowledge on HBV is a dependent phenomenon which is affected by different socio-demographic factors. The level of knowledge was highly significant with increment age of the participants; those in the age category 20–24 were almost twelve times more likely Knowledgeable towards prevention and control of HBV than in the age category 19 and below and also being older than or equal to 25 years was almost twelve times more likely knowledgeable than the reference age. The possible reason might be when age increases, searching and updating for self-knowledge also increase.

Being unmarried was two times more likely to have good knowledge of HBV prevention as compared to those who were engaged. The possible reason might be, unmarried students are highly vulnerable for

acquiring sexually transmitted infections, and this might enhance their health information-seeking behavior which helped them to be more knowledgeable towards prevention of HBV.

According to the current study; the year of students was associated with the attitude towards prevention of HBV. Those students who were 4<sup>th</sup> year and above were almost two times more likely to have a favorable attitude towards prevention of HBV as compared to 3<sup>rd</sup>-year students. This difference might be 4<sup>th</sup> year and above students take different courses respective to their department.

Those who have good practice almost 3 times more likely to have a favorable attitude towards prevention and control of HBV than those who have poor practice. Having good knowledge was positively associated with participation or to practice on prevention of HBV. Those who have good knowledge almost 2 times more likely to practice towards prevention and control of HBV. The difference might be knowledge is a prerequisite to practice on prevention and control of HBV. Having a favorable attitude was positively associated with practice on prevention and control of HBV. Those who have favorable attitude almost three times more likely to participate in the prevention and control of HBV.

#### *Limitations of the study*

Due to its cross-sectional nature of the study, it is difficult to establish a causal relationship between the predictor and response variables. In addition, it was not a mixed-method study where the qualitative study will try to explore in-depth reasons why students didn't have a favorable attitude and good practice towards HBV prevention.

## **Conclusion**

Among the study participants, the overall knowledge of HBV was good. But their Attitude and practices were unfavorable and not good respectively. Being unmarried, age category (20–24 and > 25), practice, study year, knowledge and attitude were significantly associated with HBV prevention.

## **Acronyms**

- AOR: Adjusted Odd Ratio
- CI:- Confidence Interval
- COR:- Crude Odd Ratio
- EPI-Data: - Epidemiological Data
- HBV:- Hepatitis B Virus
- SPSS:- Statistical Package for Social Scientists
- WHO:-World Health Organization

## **Declarations**

### *Ethics approval and consent to participate*

Ethical clearance was gained from the research and ethics committee of GAMBY College of medical sciences. The aim of the study explained to the interviewees and, the participation was on an unpaid basis and written consent obtained from them. The consent form was linked with each questionnaire and ahead of the interview, each interviewee provided her/his consent. The research and ethics committee permitted this research with protocol No: GC 271/09.

### *Consent to publish*

Not Applicable

### *Availability of data and materials*

The data can be accessed from the corresponding author through the following address [tigabu456@gmail.com](mailto:tigabu456@gmail.com). The data will be accessed for research purpose and this is because during the ethical clearance process we agree with the research and ethics committee of GAMBY College of medical sciences to keep the confidentiality of the data set.

### *Competing interests*

We the authors declare that we have no competing interests.

### *Funding*

The cost of the study was covered by the investigators only; no fund is searched for.

### *Authors' Contributions*

"TB was involved in the design, data collection, statistical analysis and interpretation, and manuscript drafting. GM helped to conceive the study, manuscript drafting, and critical revision. AM was involved in the interpretation and critical revision. All authors read and have given approval for this manuscript to be published."

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## Tables

**Table 1: Socio-demographic characteristics of medical / health sciences college students at private medical/health science colleges, Bahir Dar city, Ethiopia, 2017 (n=390)**

Variable	Frequency(n)	Percent (%)
Sex:		
Female	170	43.3
Male	220	56.7
Residence before joining to College:		
Urban	194	49.7
Rural	196	50.3
Age (in years):		
<19	8	2.1
20-24	265	67.9
>25	117	30.0
Marital status:		
Unmarried	273	70.0
Married	117	30.0
Departments:		
Medicine	13	3.3
Public health	79	20.2
Nurse	124	31.7
Midwifery	64	16.4
Pharmacy	110	28.4
Year of study:		
3rd year	281	71.8
4th year	102	26.4
5th year	4	1.0
6th year	3	0.8

Table 2: Knowledge status of respondents towards HBV transmission, prevention, and control among private medical / health science college students, Bahir Dar city, Ethiopia, 2017(n=390)

HBV knowledge item	Yes	No
	N (%)	N (%)
Can HBV affect any age group	368 (94.4)	22 (5.6)
HBV can affect liver	377 (96.7)	13 (3.3)
HBV can affect other organs other than liver	264 (67.3)	126 (32.7)
Jaundices one of the common symptoms of HBV	359 (92.1)	31 (7.9)
HBV is transmitted by contaminated blood and blood products	367 (94.1)	23 (5.9)
HBV is transmitted by un-sterilized needles and surgical materials	365 (93.6.)	25(6.4)
HBV can be transmitted by unsafe sex	342 (87.7)	48 (12.3)
Hepatitis B can be transmitted from mother to child	351( 90.0)	39 (10.0)
Hepatitis B can be transmitted by contaminated water/food Prepared by a person suffering from these infections	210 (53.8)	180(46.2)
Hepatitis B Virus transmitted through open wound/cut	290 (74.4)	100 (25.6)
HBV can be detected via laboratory	350 (94.4)	40 (5.6)
Hepatitis B virus is curable/treatable	259 (66.4)	131(33.6)
We can prevent HB virus transmission	367 (94.1)	23 (5.9)
There is an available vaccine for Hepatitis B virus prevention	345 (88.5)	45 (11.5)
HBV has post-exposure prophylaxis	239 (61.3)	151(38.7)

**Table 3: Attitudes of the of students towards HBV prevention, control and transmission among private medical / health sciences college students, Bahir Dar city, 2017(n=390)**

Attitude questions	Agree to	Disagree	Not sure
	N (%)	N (%)	N (%)
I have no concern about being infected with HBV	96(24.6)	270 (69.2)	24 (6.2)
Hepatitis B vaccine is safe and effective	192(49.2)	142(36.4)	56(14.4)
Do you think that All patients should be tested for HBV before they receive health care	296(75.9)	63 (16.2)	31 (7.9)
I do not feel comfortable to take care of people with HBV	241(61.8)	127(32.6)	22(5.6)
Following infection control guidelines will protect from being infected with HBV at work?	249(63.8)	131(33.5)	10(2.7)

Table 4: Practice of the students towards HBV infection prevention among private medical and health science college students, Bahir Dar city, 2017(n=390)

Hepatitis B Practice item	Yes	No
	N (%)	N (%)
Have you done screening for Hepatitis B?	16(4.1)	374(95.9)
Have you got yourself vaccinated against Hepatitis B?	13(3.3)	377(96.7)
Do you ask donors for the screening of blood before transfusion?	142(36.4)	248(63.6.)
Do you ask for a new syringe before use?	157(40.2)	233(59.7)
Have you ever participated in a health education program related to Hepatitis B?	44(11.2)	346(88.8)

Table 5: Simple logistic regression to identify factors associated with knowledge on HBV prevention among private medical / health science college students, Bahir Dar City, 2017(n=390)

Variable	Knowledge level		COR(95% CI)	AOR(95% CI)
	Good N (%)	Poor N (%)		
Resident				
Urban	157(80.9)	37(19.1)	0.64(0.37,1.12)¥	0.70 (0.39,1.23)
Rural	170(86.7)	26(13.3)	1.00	1.00
Age				
≤ 19	3(37.5)	5(62.5)	1.00	1.00
20-24	226(85.3)	39(14.7)	0.33(0.06,1.749)¥	11.5(2.60,51.5)**
>=25	98(83.7)	19(16.3)	0.76(0.49,1.18)¥	11.6(2.47,54.4)**
Marital status				
Unmarried	238(87.1)	35(12.9)	0.46(0.26,0.81)¥	2.34(1.32,4.15)**
Married	89(76.0)	28(24.0)	1.00	1.00
Sex				
Male	146(85.9)	24(14.1)	1.31(0.75,2.27)	
Female	181(82.3)	39(17.7)	1.00	
Department				
Medicine	11(84.7)	2(15.3)	0.73(0.14,3.70)	0.63(0.11,3.37)
Public health	66(83.6)	13(16.4)	0.68(0.29,1.56)	0.62(0.25,1.51)
Nurse	103(83.0)	21(17.0)	0.65(0.31,1.38)	0.53(0.23, 1.18)
Midwifery	50(78.1)	14(21.9)	0.47(0.20,1.09)	0.42(0.17,1.04)
Pharmacy	97(88.1)	13(11.9)	1.00	1.00
Study year				
3rd year	238(84.6)	43(15.4)	1.00	
4th year	89(81.6)	20(18.4 )	0.80(0.44,1.44)	

¥= unstandardized P-value <0.2, \* = standardized P -value < 0.05, \*\* < 0.01

Table 6: Simple logistic regression to identify factors associated with the attitude of Hepatitis B Virus prevention among private medical/health science college students, Bahir Dar City, 2017 (n=390)

Variable	Attitude level		COR(95% CI)	AOR(95% CI)
	Favorable N (%)	Unfavorable N (%)		
Resident				
Urban	82(42.2)	112(57.8)	0.82(0.55,1.23)	
Rural	92(46.9)	104(53.1)	1.00	
Age				
≤ 19	2(25.0)	6(75.0)	1.00	1.00
20-24	114(43.0)	151(47.0)	2.26(0.44,11.43)	1.77(0.329,9.58)
≥ 25	58(49.5)	59(50.5)	2.94(0.57,15.21)¥	1.86(0.33,10.34)
Marital status				
Unmarried	120(43.9)	153(56.1)	0.91(0.59,1.41)	
Married	54(46.1)	63( 53.9)	1.00	
Sex				
Male	83(48.8)	87(51.2)	1.35(0.904,2.02)¥	1.24(0.81,1.88)
Female	91(41.3)	129(58.7)	1.00	1.00
Department				
Medicine	7(53.8)	6(46.2)	2.04(0.64,6.49)	1.54(0.45,5.31)
Public health	34(43.0)	45(47.0)	1.32(0.73,2.38)	1.51(0.81,2.81)
Nurse	63(50.8.0)	61(49.2)	1.80(1.07,3.05)¥	1.93(1.11,3.35)
Midwifery	30(46.8)	34(53.2)	1.54(0.82,2.88)¥	1.49(0.77,2.90)
Pharmacy	40(36.3)	70(63.7)	1.00	1.00
Study year				
3rd year	117(41.6)	164( 58.4)	1.00	1.00
4th year	54( 49.5)	52(50.5)	1.53(0.98,2.39)¥	1.59(1.01,2.51)*
Knowledge				
Poor	27(42.8)	36(57.2)	1.00	
Good	147(44.9)	180(54.1)	1.08(0.63,1.87)	
Practice				

Poor	95(36.1)	168(63.9)	1.00	1.00
Good	79(62.2)	48(37.8)	2.91(1.87,4.51)¥	2.95(1.89,4.58)**

¥= unstandardized P-value <0.2, \* = standardized P -value < 0.05, \*\* < 0.01

**Table 7: Simple logistic regression to identify factors associated with the practice of Hepatitis B Virus prevention among private medical/health science college students, Bahir Dar City,2017 (n=390)**

Variable	Practice Level		COR(95% CI)	AOR(95% CI)
	Good N (%)	Poor N (%)		
Residence				
Urban	62(31.9)	132(68.1)	0.94(0.62,1.44)	
Rural	65(33.1)	131(66.9)	1.00	
Age (in year)				
≤ 19	2(25.0 )	6(75.0)	1.00	
20-24	80(30.1)	185(69.9)	1.29(0.25,6.56)	
≥ 25	46(39.3)	71(60.7)	1.94(0. 37,10.04)	
Sex				
Male	65(38.2)	105(61.8)	1.57(1.03,2.41)¥	
Female	63(28.6)	157(71.4)	1.00	
Marital status				
Unmarried	87(31.8)	186(68.2)	0.85(0.53,1.347)	
Married	41(35.0)	76(65.0)	1.00	
Department				
Medicine	4(30.7)	9(69.3)	1.08(0.31,3.77	1.07(0.28,4.06)
PH	23(29.1)	56(70.9)	1.00(0.53,1.89)	1.41 (0.38,5.18)
Nurse	43(34.6)	81(65.4)	1.29(0.74,2.25)	2.06 (0.53,7.93)
Midwifery	26(40.6)	38(59.4)	1.10 (0.81,2.99)¥	1.71(0.29,4.07)
Pharmacy	32(29.0)	78(71.0)	1.00	1.00
Study year				
3rd year	93( 33.0)	188(67.0)	1.00	
≥4th year	35(32.1)	74(67.9)	0.97(0.60,1.55)	
Knowledge				
Poor knowledge	93 (33.0)	188 (67.0)	1.00	1.00
Good Knowledge	35 (32.1)	74(67.9)	2.30(1.18,4.49)**	2.07(1.06,4.04)*
Attitude				

Not favorable	49(22.6)	167(77.4)	1.00	1.00
Favorable	79(45.4)	95(54.6)	2.91(1.87,4.51)¥	2.79(1.79,4.34)**

¥= unstandardized P-value <0.2, \* = standardized P -value < 0.05, \*\* < 0.01