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Knowledge of Hepatitis B Virus Infection and Attitudes towards Hepatitis B Virus Vaccination among Students of the Faculty of Medicine and Health Sciences at the National University of Timor-Lorosae

Hendri Keta da Silva
Faculty of Medicine and Health Sciences, University National Timor-Lorosae
Corresponding author email: dasilvahendriketa@gmail.com

Jose Dionisio Ximenes
Faculty of Medicine and Health Sciences, University National Timor-Lorosae

Maria Manuela Alves
Faculty of Medicine and Health Sciences, University National Timor-Lorosae

Natalia Pereira
Faculty of Medicine and Health Sciences, University National Timor-Lorosae

Eugenia Carvalho M. Part
Faculty of Medicine and Health Sciences, University National Timor-Lorosae

Etelvina Salsinha
Faculty of Medicine and Health Sciences, University National Timor-Lorosae

Elisa de Deus
Faculty of Medicine and Health Sciences, University National Timor-Lorosae

Ermelinda Monteiro
Faculty of Medicine and Health Sciences, University National Timor-Lorosae

Abstract---*Timor-Leste is a high HBV endemicity area with a prevalence of 12.4%. So far there have been no reports of hepatitis B incidence in Timor-Leste in the latest data collection at hospitals in Timor-Leste. HBV infection is most commonly found at the age of 20 to 35 years with different incidence in men and women. For this reason, it is considered necessary to conduct research on the knowledge and attitudes of students at the Faculty of Medicine and Health Sciences of the National University of Timor-Lorosae (UNTL) and the differences between male and female students. This study used a cross-sectional design with quantitative methods. The research sample was 169 students of the seventh semester of the Faculty of Medicine and Health Sciences of the University of Nacional Timor-Lorosae who were selected using the simple random sampling technique. The research measurement tool is a questionnaire divided into three parts, namely questionnaires about demographic characteristics, knowledge about HBV infection, and attitudes towards HBV vaccination. The data were analyzed descriptively and inferentially at a 95% meaningfulness level (alpha = 0.05). The results of the study concluded that knowledge about infection and transmission of the Hepatitis B virus among students at the Faculty of Medicine and Health Sciences, UNTL, was*

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still lacking, but the majority of students had given the correct attitude towards infection and vaccination against the Hepatitis B virus. There was no difference in knowledge and attitudes (p > 0 .05) among students at the UNTL Faculty of Medicine and Health Sciences regarding Hepatitis B infection and vaccination between men and women.

Keywords---*HBV infection, hepatitis B, students, vaccination, viral infection.*

Introduction

The hepatitis B virus (HBV), a DNA virus, is the cause of hepatitis B, the most prevalent liver illness worldwide, according to the World Health Organization (WHO, 2012). Via blood, semen, vaginal secretions, and tatis membranes, the virus can spread between individuals and is 50–100 times more contagious than HIV. Unprotected sex, risky blood practices, improper needle usage, mother-to-child transmission at birth, close household contact, and early childhood interactions are the most frequent modes of transmission. Vaccine-preventable HBV sets it apart from other sexually transmitted infections (WHO, 2012). Hepatitis B surface antigen (HbsAg) was developed in 1964, making it feasible to identify HBV patients by serological testing (Weinbaum et al., 2009).

People run the danger of becoming contagious without realizing it because all HBV infections are asymptomatic (Weinbaum et al., 2009; WHO, 2012). Acute symptoms, however, can include jaundice, exhaustion, appetite loss, nausea, and/or abdominal pain in certain individuals. According to WHO (2012), there is a 90% chance that the infection clears up in adults and they return to health, but for newborns and young children, the risk is 30%–50% and 90%–90%, respectively, that the infection results in chronic hepatitis B. If the infection is not treated medically, there is a 25% higher chance that they may develop liver cirrhosis and/or liver cancer later in life (Chao et al., 2010; WHO, 2012). Since there is no known cure for acute hepatitis B, patients will only be treated for their symptoms. Interferon, which inhibits HBV and boosts immunological status to strengthen protection against HBV, may be used as a treatment for patients with chronic hepatitis B (WHO, 2012).

Blood tests can be used to identify infected individuals early, which helps stop the virus from spreading and enable antiviral medication to be administered as needed (Nguyen et al., 2010; Weinbaum et al., 2009). Permitting the identification and immunization of others who live in the same household as an infected person, as well as those who may have been sexual partners, is also crucial. Those who test positive for HBV can take a few precautions to prevent infection. For instance, they should advise those living with them and their sexual partners to vaccinate against HBV and to test themselves for the virus. By controlling their alcohol intake and keeping a close eye on their condition, HBV-positive individuals can postpone or even avoid liver damage (Weinbaum et al., 2009). It has been demonstrated that using tatist in conjunction with HBV infection increases the risk of hepatotoxicity (Tan et al., 2005).

The authors of a Taiwanese study Su et al. (2012) examined data from eight years of acute hepatitis B surveillance. They discovered that the incidence of acute hepatitis B in young adults and adolescents has decreased as a result of the efficient execution of immunization programs. Despite widespread vaccination, newborns are still at high risk of contracting acute hepatitis B as a result of mother-to-child transmission. combination of tatistic with the hepatitis B vaccination Hepatitis B antigens are 85–95% efficient in preventing HBV infection during the first 24 hours of hepatitis B treatment given to infants whose moms tested positive for HbsAg and HbeAg (Su et al., 2012).

In spite of the existence of a vaccine against HBV that offers 90–100% protection against infection since 1982, over 350 million individuals worldwide still suffer from chronic hepatitis B. This has the resultant effect of causing primary liver cirrhosis or liver cancer to be the cause of about 600,000 HBV-related deaths annually worldwide (Dunford et al., 2012; WHO, 2012). The virus spreads differently among nations and geographical areas based on the amount of tatist HBV. It is more typical for the virus to spread horizontally through injectable drug use, high-risk sexual conduct, and getting blood products in areas with low endemicity. HBV is mostly transmitted by blood during early infancy or perinatally, from mother to child at birth, in regions with high endemicity, such as Vietnam (Dunford et al., 2012).

Tan et al. (2005) conducted a study in Singapore wherein 39 individuals afflicted with HBV were interviewed to examine the causative behavior of those infected with the virus. Individuals who have liver abnormalities themselves or have family members with HBV-related liver illness are more likely to seek medical attention. They are curious about whether their own liver is operating regularly, but they are also afraid to learn the test findings. The authors come to the conclusion that patients' low follow-up adherence is caused by the common belief that there is no effective treatment for the illness. Many patients view western medicine as ineffective and prefer traditional therapies like herbs.

Mohamed et al. (2012), examined the knowledge, attitudes, and practices of 483 individuals in Malaysia who were infected with chronic HBV. According to the study, over 50% of individuals experienced anxiety about receiving a diagnosis and about infecting friends and family with HBV. A third of the individuals expressed embarrassment while disclosing their diagnoses. While the majority of them would notify their family and friends, roughly 11.6% said they would not disclose their HBV positive status to their dentist or physician. Numerous individuals had altered their way of living subsequent to being diagnosed with HBV. About half of the individuals increased their daily food intake and made healthier food choices, whereas the majority of those who had smoked and drunk did so to lower their intake levels. Following an HBV diagnosis, there were also significant increases in the recommendation for family members to screen for the virus (Mohamed et al., 2012).

Roughly 1.4 million Americans have a persistent HBV infection (Weinbaum et al., 2009; Nguyen et al., 2010). There is an elevated burden of chronic hepatitis B in those countries as a result of the 17.6 million people who were born in those nations between 1974 and 2008 who emigrated to the US and had a medium or high frequency of the disease (Mitchell et al., 2011). Vietnam, China, and the Philippines are among the nations in the Western Pacific region that account for more than half of the estimated cases of chronic hepatitis B. It is the primary nation of origin for instances of chronic hepatitis B that are imported. The second-largest region in the world for imported cases of chronic hepatitis B is Africa.

A systematic analysis Rossi et al. (2012) found that immigrants from Eastern Europe, Central Africa, and South Asia had an intermediate incidence of chronic hepatitis B, whereas migrants from East Asia, the Pacific, and Sub-Saharan Africa had a high prevalence, ranging from 10.3 to 11.3%. Among immigrants from the Caribbean, Latin America, the Middle East, and North Africa, the seroprevalence of chronic hepatitis B is low. Compared to migrants, refugees and asylum seekers had a greater seroprevalence of chronic hepatitis B (Ocama et al., 2005; Wong et al., 2012).

Although Timor-Leste has a 12.4% prevalence of HBV, it has a high endemicity (Da Silva et al., 2018). In Timor-Leste, where new data is being collected in hospitals, there have not yet been any reports of hepatitis B incidence. According to Silva's 2018 study, the incidence of HBV infection varies across men and women and is most common between the ages of 20 and 35 (Da Silva et al., 2018).

In Timor-Leste, giving blood is a common social activity that all citizens participate in when necessary. Donors come in two varieties: surrogate donors and willing donors. based on information from the Dili Blood Bank and the Baucau Blood Bank Unit, which together had 6750 donors in 2022 and are the two blood bank units that conduct most blood donation activities. The study aims to ascertain the following: (a) the knowledge and attitudes of UNTL students in the Faculty of Medicine and Health Sciences regarding Hepatitis B Infection and Hepatitis B Virus Vaccination; and (b) the disparities in knowledge and attitudes between male and female students in the same faculty (Chen, 2009; Shouval, 2003).

Method

Research Design and Procedure

This study used a cross-sectional design with quantitative methods. The research procedure is as follows:

a. The participants were National University of Timor-Lorosae faculty of medicine and health sciences students.
b. The writers spoke to them orally in a classroom about the research.
c. Questionnaires to complete were given to study participants who were invited to take part. After finishing, they turn in the questionnaire to the co-supervisor or the author.
d. It took the participants five to ten minutes to complete the survey. Participants can ask the author or co-supervisor, who is always present in the room, any questions they may have regarding the study or questionnaire.

Research Samples

A basic random selection strategy was used to choose seventh-semester students from the University of Nacional Timor-Lorosae's faculty of medicine and health sciences. They were notified and invited to take part in the research. The participants had to meet certain requirements in order to be included in the study. They had to be at least 20 years old, seventh-semester students in the college of medicine and health sciences, willing to engage in the study, and complete the questionnaire. The study involved 169 college students in all, a mix of male and female.

Data collection

An investigation team from the Faculty of Medicine and Health Sciences created the questionnaire for this study. The questionnaire draws on Timor-Leste culture and literature (Lee et al., 2007; Taylor et al., 2005). After being written in English, the questionnaire was translated into East Timorese. Three sections comprised the questionnaire: attitudes on HBV vaccination, knowledge of HBV infection, and demographic variables.

a. The first part (Part I) of the questionnaire contains of ten questions about the respondent's age, gender, tatistic, religion, marital status, occupation, length of time in Ho Chi Minh City, roommates, knowledge of HBV, and vaccination history. If the participants do not want to use the prepared responses, they can type their own replies in place of the given ones. For instance, there are four preset answers for the fourth question, "Religion": non-religious, Catholic, Christian, and Buddhist. In addition to typing "other" for the fifth choice, the respondent may also type the name of another faith.
b. Part II consists of 12 questions and asks about understanding of hepatitis B virus infection. The alternatives that the participants can select from are "yes," "no," and "don't know."
c. Part III, which addresses views concerning HBV vaccine, has six questions. Some examples of the questions in this area are: who needs the vaccination, where can you obtain it, and how much does it cost? The three prepared alternatives that the participants may select from were "yes," "no," and "don't know."

Data analysis

SPSS 21.0 was utilized in this study's Statistics for Social Sciences analysis of the data. There are non-parametric data in the questionnaire. Part I of the study, which focuses on demographic variables, uses nominal scales to generate numerical encoded data, which is then entered into the SPSS software through descriptive statistics (Polit & Beck, 2008). The variables in Parts II and III are likewise based on a nominal scale, with the following rankings: yes (0), no (1), and no know (2). In part II, "yes" is sometimes the right response and sometimes not, depending on how the question is phrased. After comparing various variables to templates containing the right answers, each question in part II is given a new label. The response is classified as correct (0), incorrect (1), or don't know(2) if, for instance, the answer to a question is "yes". When "no" is the proper response to a question, it is labeled as incorrect(0), correct(1), or don't know (2) instead of being answered correctly. The Pearson chi-squared test was employed to examine disparities in attitudes and knowledge between male and female college students. These assessments reveal whether male and female students had different attitudes toward the HBV vaccine and different levels of knowledge about HBV infection. A significant difference is indicated by a p value of less than or equal to 0.05 (Polit & Beck, 2008). Text and tables are used to display the results.

Results and Discussion

Demographic background of UNTL students

The demographic background of UNTL students is as follows:

Table 1
Demographic background of UNTL students (N = 169)

Demographic characteristics	Total N	%	Man N	%	woman N	%
Age (year)						
19	1	0.6	0	0.0	1	0.6
20	7	4.1	2	1.2	5	3.0
21	24	14.2	2	1.2	22	13.0
22	56	33.1	16	9.5	40	23.7
23	41	24.3	13	7.7	28	16.6
24	19	11.2	9	5.3	10	5.9
25	11	6.5	4	2.4	7	4.1
26	3	1.8	2	1.2	1	0.6

Demographic characteristics	Total N	%	Man N	%	woman N	%
29	2	1.2	0	0.0	2	1.2
32	1	0.6	1	0.6	0	0.0
36	1	0.6	0	0.0	1	0.6
38	1	0.6	0	0.0	1	0.6
42	1	0.6	0	0.0	1	0.6
43	1	0.6	1	0.6	0	0.0
Education (Programe)						
LBC	30	17.8	10	5.9	20	11.8
NDT	26	15.4	9	5.3	17	10.1
Farmacy	54	32.0	8	4.7	46	27.2
Nursing	59	34.9	23	13.6	36	21.3
Region						
Catholic	162	95.9	50	29.6	112	66.3
Protestant Christen	6	3.5	0	0.0	6	3.5
Other	1	0.6	0	0.0	1	0.6
Partner boyfriend/girlfriend						
No	45	26.6	16	9.5	29	17.1
Yes	124	73.4	34	20.1	90	53.3
Extra Job						
No	135	79.9	42	24.9	93	55.0
Yes	34	20.1	8	4.7	26	15.4
Time stay in Dili Municipality						
1-10 years	123	72.8	42	24.8	81	48.0
11-20 years	11	6.5	2	1.2	9	5.3
>21 years	31	18.3	5	2.9	26	15.4
Living together with						
by my self	16	9.4	5	2.9	11	6.5
Friend	5	2.9	4	2.3	1	0.6
Others	1	0.6	0	0.0	1	0.6
others(uncle)	1	0.6	1	0.6	0	0.0
parents/Family	145	85.8	40	23.7	105	62.1
with my aunt	1	0.6	0	0.0	1	0.6
Have you heard about HBV Infection						
No	53	31.4	17	10.1	36	21.3
Yes	116	68.6	33	19.5	83	49.1
Have you get the hepatitis B vaccinarions						
No	117	69.2	32	18.9	85	50.3
Yes	52	30.8	18	10.7	34	20.1

Based on Table 1. The age of UNTL students is in the range of 19 to 43 years with a total of 169 student respondents, the number of women is more than men, namely women as many as 119 (70.4%) and men 50 (29.6%). In this age range, the age of 22 years is the largest number, namely 56 students (33.1%). There are 4 education programs with almost even distribution, namely the LBC program of 30 students (17.8%), NDT 26 students (15.4%), Farmacy 54 students (32.0%), and Nursing 59 students (34.9%). The distribution according to religion, the most is Catholicism 162 students (95.9%) then Protestant Christianity 6 students (3.5%), and other religions by 0.6%.

Respondents who have more partners (boyfriends / girlfriends) than those who do not have partners, namely 124 students (73.4%) have partners and 45 students (26.6%) do not have partners. Students who have partners certainly have a higher risk if there is transmission of the HBV virus. The majority of students live in Dili Municipality

between 1-10 years, with 123 students (72.8%). The remaining 6.5% live in Dili between 11-20 years and 18.3% who have lived in Dili for more than 21 years. Most of the students who were respondents in this study lived with their parents or families, namely as many as 145 students (85.8%). While those who live alone there are 16 students (9.4%), the rest are living with friends or others (Oncu et al., 2005; Ghomraoui et al., 2016).

When asked about whether they had heard of hepatitis virus infection (HBV), the majority of respondents said yes (ever) by 116 students (68.6%) and there were 31.4% of students who said they had never heard. This figure of 31.4% is a lot, therefore further research is needed to provide socialization about hepatitis B virus infection and transmission to students at UNTL. Of the 169 respondents, only 52 students (30.8%) received hepatitis B vaccination. the remaining 69.2% of students have not received hepatitis B vaccination. This vaccination needs to be done to avoid the emergence of infection or transmission of hepatitis B virus in students or the general public (Taylor et al., 2005).

Knowledge of HBV infection among students of the Faculty of Medicine and Health Sciences at UNTL

Research data on knowledge of HBV infection among students of the Faculty of Medicine and Health Sciences at UNTL are shown in Table 2 below.

Table 2
Knowledge about hepatitis B (HBV) Infection

Knowledge	Total			Male			Female			x2	p-value
	Yes N (%)	No N (%)	Donot know N (%)	Yes N (%)	No N (%)	Donot know N (%)	Yes N (%)	No N (%)	Donot know N (%)		
Do people Get HBV from Genes (heredity) (Turunan)	93(55.0%)	63 (37.3)	13 (7.7%)	27 (16.0%)	20 (11.8)	3 (1.8%)	66 (39.1)	43 (25.4)	10 (5.9)	0.192	0.909
Do people Get HBV through the air (coughing or staying in the same room) ?	42 (24.9)	103 (60.9)	24 (14.2)	14 (8.3)	28 (16.6)	8 (4.7)	28 (16.6)	75 (44.4)	16 (9.5)	1.987	0.798
Do people Get HBV from sexual relationshisp ?	90 (53.3)	71 (42.0)	8 (4.7)	20 (11.8)	28 (16.6)	2 (1.2)	70 (41.4)	43 (25.4)	6 (3.3)	0.226	0.893
Do people Get HBV during birth ?	68 (40.2)	84 (49.7)	17 (10.1)	16 (9.5)	31 (18.3)	3 (1.8)	52 (30.8)	53 (31.4)	14 (8.3)	6.463	0.167
Do people Get HBV by sharing spoons or bowls for food ?	67 (39.6)	87 (51.5)	15 (8.9)	17 (10.1)	27 (16.0)	6 (3.6)	50 (29.6)	60 (35.5)	9 (5.3)	2.787	0.594
Do people Get HBV by eating food prepared by an infected person ?	52 (30.8)	109 (64.5)	8 (4.7)	15 (8.9)	33 (19.5)	2 (1.2)	37 (21.9)	76 (45.0)	6 (3.6)	13.051	0.011
Do people	57 (33.7)	84 (49.7)	28 (16.6)	14 (8.3)	25 (14.8)	11 (6.5)	43 (25.4)	59 (34.9)	17 (10.1)	8.514	0.074

Knowledge	Total			Male			Female			x2	p-value
	Yes N (%)	No N (%)	Donot know N (%)	Yes N (%)	No N (%)	Donot know N (%)	Yes N (%)	No N (%)	Donot know N (%)		
Get HBV by eating food that has been prechewed by an infected person ?	61 (36.1)	93 (55.0)	15 (8.9)	16 (9.5)	28 (16.6)	6 (3.6)	45 (26.6)	65 (38.5)	9 (8.9)	2.286	0.683
Do people Get HBV by sharing a toothbrush with an infected person ?	35 (20.7)	125 (74.0)	9 (5.3)	11 (6.5)	37 (27.8)	2 (1.2)	24 (14.2)	88 (52.1)	7 (4.1)	1.578	0.813
Do people Get HBV by holding hands with an infected person ?	116 (68.6)	39 (23.1)	14 (8.3)	33 (19.5)	16 (9.5)	1 (0.6)	83 (49.1)	23 (13.6)	13 (7.7)	1.134	0.889
Does HBV have sigs or symptom ?	105 (62.1)	42 (24.9)	22 (13.0)	35 (20.7)	13 (7.7)	2 (1.2)	70 (41.4)	29 (17.2)	20 (11.8)	4.748	0.314
Does HBV cause liver Cancer	90 (53.3)	54 (32.0)	25 (14.8)	30 (17.8)	13 (7.7)	7 (4.1)	60 (35.5)	41 (24.3)	18 (10.7)	3.696	0.449
If someone is infected with hepatitis B but they look and feel healthy. do you think that person can spread hepatitis B ?											

Table 2 shows respondents' knowledge of hepatitis B virus (HBV) infection. All questions in Table 2 showed no significant difference between men and women (p value > 0.05) in knowledge of hepatitis B infection (HBV). This also means that men and women have the same knowledge about hepatitis B infection. Knowledge of whether hepatitis B comes from heredity or not, the majority of students said yes (55.0%) the rest said no. This shows the lack of understanding of students about hepatitis B infection, so it is considered necessary for further counseling, because HBV transmission is not due to heredity (WHO, 2012; Tong et al., 2013; Zhang et al., 2019). Hepatitis B is not contagious due to handshakes, air flowing in the same room, food eaten together, and the majority of students have answered yes, but there are still many who answer no. someone who has hepatitis B but looks healthy, then the person can still transmit hepatitis B, and in the questionnaire the majority of students have answered yes (53.3%), however, there are still 32.0% of students who answered no. this needs to be an increase in student knowledge of hepatitis B (Lok, 2000; Thiers et al., 1988).

Attitudes towards HBV vaccine among students of Faculty of Medicine and Health Sciences UNTL students

Research data on attitudes towards HBV vaccine among students of the Faculty of Medicine and Health Sciences UNTL students are shown in Table 3 below.

Table 3
Attitudes towards vactination among UNTL student

Attitudes	Total			Male			Female			x2	p-value
	Yes N (%)	No N (%)	Donot know N (%)	Yes N (%)	No N (%)	Donot know N (%)	Yes N (%)	No N (%)	Donot know N (%)		
Do you know if healthy people need vaccination ?	141 (83.4)	27 (16.0)	1 (0.6)	41 (24.3)	9 (5.3)	0 (0.0)	100 (59.2)	18 (10.7)	1 (0.6)	1.220	0.269
Do you know if you need a vaccination at your age ?	107 (63.3)	49 (29.0)	13 (7.7)	33 (19.5)	14 (8.3)	3 (1.8)	74 (43.8)	35 (20.7)	10 (5.9)	4.758	0.313
Do you know if only children less than 2 years old need to be vaccinated ?	112 (66.3)	38 (22.5)	19 (11.2)	31 (18.3)	15 (8.9)	4 (2.4)	81 (47.9)	23 (13.6)	15 (8.9)	3.408	0.492
Do you know the place where one can get hepatitis B immunizations ?	111 (65.7)	38 (22.5)	20 (11.8)	36 (21.3)	12 (7.1)	2 (1.2)	75 (44.4)	26 (15.4)	18 (10.7)	1.266	0.867
Do you know if vaccinations can be free or low-cost through certain programs ?	89 (52.7)	43 (25.4)	37 (21.9)	35 (20.7)	8 (4.7)	7 (4.1)	54 (32.0)	35 (20.7)	30 (17.8)	5.176	0.521
Do you think you will receive hepatitis B vaccinations ?	97 (57.4)	42 (24.9)	30 (17.8)	32 (18.9)	13 (7.7)	5 (3.0)	65 (38.3)	29 (17.2)	25 (14.8)	3.483	0.480

Table 3 above shows that the majority of students of the Faculty of Medicine and Health Sciences at the National University of Timor-Lorosae have given the right attitude. For example, in the first question item about healthy people whether they need vaccination, 141 students (83.4) said yes, 27 students (16.0%) said no, and 1 student (0.6%) said they did not know. Question points 2 and 3 about the need for vaccination at the age of respondents and over 2 years old, the majority of students stated yes. Even the place of hepatitis B immunization which is the question in point 4, the majority of students 65.7% stated that they knew the place. Further on the question that the cost of hepatitis B vaccination is cheap, the majority of students (52.7%) said yes. Table 3 also shows the attitude of students that they think they will receive hepatitis B vaccination by 57.4% (in the last question). This means that students of the Faculty of Medicine and Health Sciences at the National University of Timor-Lorosae have an attitude of being ready to get hepatitis B vaccination (Chang, 2007; Wright & Lau, 1993).

Table 3 also shows that there is no difference in attitudes between men and women ($p > 0.05$), meaning that students' attitudes in making actions against HBV between men and women can be considered the same. Student attitudes on HBV issues are the key to success in improving public health, because students are agents of change in society, especially students of the Faculty of Medicine and Health Sciences. Based on the findings of this study that students' knowledge and attitudes about HBV infection and transmission need to be improved again because there are still some students who have incorrect knowledge and attitudes about HBV infection and transmission. It is recommended that further counseling and research on HBV infection and transmission is not only at the student level but to the wider community.

Conclusion

Based on the results and discussion above, it can be concluded as follows:

a. Knowledge about infection and transmission of the Hepatitis B virus in students of the Faculty of Medicine and Health Sciences UNTL is still lacking, but the majority of students have given the right attitude towards hepatitis B virus infection and vaccination.
b. There is no difference in the knowledge of students of the Faculty of Medicine and Health Sciences UNTL, about Hepatitis B Infection between male and female students
c. There is no difference in attitudes towards Hepatitis B Virus Vaccination between male and female students at UNTL's Faculty of Medicine and Health Sciences.

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