

# Knowledge, Attitude and Behavior Levels of University Students About Hepatitis A, Hepatitis B and Hepatitis C

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<https://doi.org/10.33880/ejfm.2019080401>

Original Research / Orijinal Araştırma

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## ABSTRACT

**Aim:** The aim of this study is to reveal the knowledge, attitude and behaviors of the university students about Hepatitis A, Hepatitis B and Hepatitis C.

**Methods:** This study was done among 1048 students from different faculties of five different universities in Ankara, was carried out between October 2012 and July 2013. A questionnaire was prepared by the authors by reviewing the literature and the participants were asked to fill this questionnaire. Knowledge level of participants was scored from 1 to 5 out of 100 according to the answers given about Hepatitis A, B and C.

**Results:** When the average points of knowledge about hepatitis A, B and C is considered, it is seen that the knowledge points of males according to females and the knowledge points of the students who study in medical faculties according to the other faculties are higher. Participants were found to have a risky attitude with respect to the spread of Hepatitis A, B and C infections. While males had more risky behaviors, it was seen that there was no significant difference between the students of medical faculties according to other faculties.

**Conclusion:** Despite advances in technology and health, Hepatitis A, B and C infections continue to be an important public health problem today. This study showed that even university students, whose education and intellectual levels are considered to be high according to society, have low level of knowledge about viral hepatitis and exhibit risky attitudes and behaviors, necessity of individual and social education. The most effective way to protect against these diseases is to increase the knowledge and awareness levels of the society and prevent the transmission of these diseases.

**Keywords:** hepatitis, knowledge, attitude, behavior, vaccines

## Üniversite Öğrencilerinin Hepatit A, Hepatit B ve Hepatit C Hakkındaki Bilgi, Tutum ve Davranış Düzeyleri

### ÖZ

**Amaç:** Bu çalışmadaki amacımız üniversite öğrencilerinin Hepatit A, Hepatit B ve Hepatit C hakkındaki bilgi, tutum ve davranış düzeylerini saptamaktır.

**Yöntem:** Bu çalışma Ankara'daki beş farklı üniversitenin farklı fakültelerindeki 1048 öğrencinin katılımıyla Ekim 2012 ve Temmuz 2013 tarihleri arasında yapılmıştır. Literatür taranarak bir anket formu oluşturulmuş ve bunun katılımcılar tarafından doldurulması istenilmiştir.

**Bulgular:** Erkeklerin ve tıp fakültesinde okuyan öğrencilerin ortalama bilgi puanları daha yüksek bulunmuştur. Ancak katılımcıların Hepatit A, B ve C enfeksiyonlarının yayılımı konusunda riskli tutum ve davranış özellikleri sergiledikleri tespit edilmiştir. Erkekler daha riskli davranışlar sergilemesine karşın, tıp fakültesi ve diğer fakülte öğrencileri arasında anlamlı bir fark tespit edilmemiştir.

**Sonuç:** Teknoloji ve sağlık alanlarındaki gelişmelere rağmen viral hepatitler önemli bir halk sağlığı sorunu olmaya devam etmektedir. Bu çalışmada, topluma göre eğitim ve entellektüel seviyelerinin daha yüksek olduğu kabul edilen üniversite öğrencilerinin bile viral hepatitler hakkında yeterli bilgiye sahip olmadıkları, riskli tutum ve davranış özellikleri sergiledikleri görülmüştür. Bu hastalıklara karşı korunmak için toplumun bilinçlendirilmesi gerektiği gösterilmiştir.

**Anahtar kelimeler:** hepatit, bilgi, tutum, davranış, aşılarda

Date of submission  
19.12.2018

Date of acceptance  
05.12.2019

**How to cite / Atıf için:** Dicle M, Gorpelioglu S, Aypak C. Knowledge, attitude and behavior levels of university students about Hepatitis A, Hepatitis B and Hepatitis C. Euras J Fam Med 2019;8(4):137-48. doi:10.33880/ejfm.2019080401

**Conflict of interest:** No conflict of interest was declared by the authors.

**Financial disclosure:** No financial disclosure was declared by the authors.

## Introduction

Viral hepatitis continues to be an important health problem in both developed and developing countries. Although there are many hepatotropic viruses identified, Hepatitis A, B, C, D and E viruses are the most important ones (1).

Hepatitis A virus (HAV) is common all over the world and is a typical infection of childhood in developing countries, as in other enteric viruses. Reduction in the incidence of HAV in developed countries can be explained by high quality water supply, good hand cleaning and the proper disposal of human waste (2). There are no realistic data on the incidence of the disease in many countries.

Hepatitis B virus (HBV) infection is one of the most important causes of liver diseases in our country. HBV-related acute hepatitis, chronic hepatitis, liver cirrhosis and hepatocellular carcinoma constitute a group of diseases which are important in terms of health problems which are related to medical surgical treatments and serious complications. HBV infection concerns approximately 4 million people in our country with an average carrier rate of 6% (4.4-12.5%) (3).

Hepatitis C virus (HCV) infection becomes much more chronic than hepatitis B infection and is an important part of the chronic liver diseases in our country. HCV infection is not as common as HBV. The prevalence of HCV in our country is between 0.3% and 1.8% and concerns about 600 thousand people (4). Approximately 100 million people worldwide are estimated to have HCV infection (5).

Despite advances in health, HAV, HBV and HCV infections maintain its importance. The most important reason for this is that the hepatitis A infection is usually asymptomatic in children, and its spread is by fecal-oral route (6). Hepatitis B and C infections are carried out through the formation of healthy-looking carriers and its spread is sexual intercourse, close family contact, personal care tools and body secretions (7,8). The most effective way to protect society from this disease is to prevent transmission to new individuals by increasing their knowledge and awareness. In this study, we aimed to

determine knowledge, attitude, behavior levels and missings about Hepatitis A, Hepatitis B and Hepatitis C among university students whose education and intellectual levels are considered high.

## Methods

This descriptive study was carried out among 1048 students from different faculties of five different universities in Ankara between October 2012 and July 2013. These faculties are Faculty of Engineering (n=300), Faculty of Economic and Administrative Sciences (n=241), Faculty of Education (n=228), Faculty of Tourism (n=126), Faculty of Medicine (n=94) and Faculty of Law (n=59).

Questionnaire was made about socio-demographic factors, the study of faculty, whether or not patients have relatives with Hepatitis B or Hepatitis C, knowledge, attitude and behavior levels about Hepatitis A, Hepatitis B and Hepatitis C and source of information about viral hepatitis. Knowledge level of participants was scored from 1 to 5 out of 100 according to the answers about Hepatitis A, Hepatitis B and Hepatitis C.

Data were analyzed by using Statistical Packages for the Social Science (SPSS) version 18. After the descriptive statistical analysis (frequency, percentage distribution, mean  $\pm$  standard deviation, median [minimum-maximum]) Chi-square test was used for group comparisons, where necessary Fisher's exact test, Mann Whitney U test for continuous numerical variables comparison, for multivariate analysis Logistic Regression Test was used. For statistical significance,  $p < 0.05$  was accepted.

## Results

A total of 1048 students, 486 women (46.5%) and 561 men (53.5%), from different faculties of five different universities in Ankara were enrolled in the study. According to the distribution of faculties, Faculty of Engineering 300 (28.6%), Faculty of Economic and Administrative Sciences 241 (23%), Faculty of Education 228 (21.8%), Faculty of Tourism 126 (12%), Faculty of Medicine 94 (9%) and Faculty of Law 59 (5.6%) students participated in our study. The mean age of the participants was  $20.5 \pm 1$  years ( $20.6 \pm 1.1$  for males and  $20.3 \pm 0.9$  for females).

When the mean scores of the participants' answers to the knowledge questions about Hepatitis A were evaluated, it was seen that both gender groups got more than 4 average points about the fact that contamination of drinking water by sewage waters leads to hepatitis A outbreaks. It is also seen that males have adequate knowledge about the transmission of disease among people.

When evaluated on the basis of the faculty, students in other faculties did not get an average score

of 4 or above from any of their answers. Medical students got an average score of 4 or above from all of their answers except the question about sharing toothbrush and life long immunity after Hepatitis A infection.

According to the distribution of gender and the faculties, the knowledge questions about Hepatitis A and the average scores of the students are shown in the Table 1.

**Table 1.** According to the distribution of gender and the faculties, the knowledge questions about Hepatitis A and the average scores

Knowledge	Average Scores			
	Other Faculties	Faculty of Medicine	Male	Female
Only hepatitis A patients with advanced stage are contagious	2,77	5	3,11	2,81
If a person with hepatitis A looks and feels healthy, does not infect others	2,75	4,96	3,03	2,86
Hepatitis A only causes disease in people with weak immune system	2,68	4,32	2,92	2,72
Hepatitis A transmission of humans is not in question	3,93	4,87	4,05	3,97
The use of condoms does not prevent the transmission of Hepatitis A disease by sexual contact	3,05	4,78	3,46	2,91
Using the toilet used by someone with hepatitis A does not cause the transmission of hepatitis A infection	3,4	4,28	3,37	3,61
Using the comb of someone with hepatitis A causes the disease to be transmitted	3,24	4,48	3,35	3,35
Inhaling the same air as a person with hepatitis A causes the disease to be transmitted	3,39	4,91	3,74	3,27
Hepatitis A is a chronic disease	2,98	4,13	2,72	2,92
Hepatitis A can cause liver cancer	2,99	4,95	3,14	3,19
There is no protective vaccine against hepatitis A disease	2,88	4,96	3,04	3,1
It is forbidden to legally marry someone with hepatitis A infection	3,51	4,7	3,81	3,4
Hepatitis A is transmitted by contact with feces of patients	3,08	4,9	3,46	3
Oral contraceptives do not prevent the transmission of hepatitis A disease by sex	3,19	4,06	3,24	3,09
Fruit and vegetables are eaten without washing causes hepatitis A disease	3,45	4,91	3,83	3,29
Using the glass of someone with hepatitis A causes the disease to be transmitted	2,96	4,7	3,2	3,02
Shaking hands with a person with hepatitis A causes the disease to be transmitted	2,82	4,06	2,9	2,97
Using the toothbrush of someone with hepatitis A causes the disease to be transmitted	3,21	3,13	3,26	3,15
Contamination of drinking water by sewage water can cause hepatitis A outbreaks	3,39	4,96	4,19	4,15
Once a person has hepatitis A disease, he / she would be immune for a lifetime	3	3,68	3,08	3,03

When the knowledge questions about hepatitis B and the participants' average scores were evaluated according to the distribution of gender; it was seen that males have adequate knowledge about the transmission of disease with blood transfusion and sharing toothbrush and presence of a protective vaccine. It was found that women only have enough knowledge that condom prevents disease transmission. Both males and females had a score of 4 or more about

hepatitis B transmission through sexual contact. Students studying at other faculties were able to score 4 or above from only the question of spreading the disease through sexual contact. The participants in the faculty of medicine received an average score of more than 4 on all questions. According to the distribution of gender and the faculties, the knowledge questions about hepatitis B and the average scores of the participants are shown in the Table 2.

**Table 2.** According to the distribution of gender and the faculties, the knowledge questions about hepatitis A and average scores

Knowledge	Average Scores			
	Other Faculties	Faculty of Medicine	Male	Female
If a person with hepatitis B looks and feels healthy, does not infect others	3,05	5	3,35	3,08
Only hepatitis B patients with advanced stage are contagious	3,12	4,96	3,18	3,4
Hepatitis B only causes disease in people with weak immune system	2,94	4,74	3,26	2,92
Hepatitis B can be transmitted only from animals to humans.	4,22	4,91	4,35	4,2
Hepatitis B does not transmitted through blood	3,82	4,96	4,04	3,79
Oral contraceptives prevent the transmission of hepatitis B disease by sexual contact.	3,56	4,87	3,64	3,71
Shaking hands with a person with hepatitis B causes the disease to be transmitted	3,47	4,82	3,61	3,58
Inhaling the same air as a person with hepatitis B causes the disease to be transmitted	3,57	4,87	3,91	3,44
Fruit and vegetables are eaten without washing causes hepatitis B disease	3,22	5	3,53	3,21
Contamination of drinking water by sewage water can cause hepatitis A outbreaks	2,95	4,79	3,37	2,82
There is no cure for hepatitis B.	2,85	4,9	2,97	3,12
There is no protective vaccine against hepatitis B infection	3,91	5	4,05	3,96
It is forbidden to legally marry someone with hepatitis A infection	3,04	4,53	3,48	2,83
Hepatitis B is transmitted by touching body fluids such as blood and saliva.	3,74	5	3,81	3,9
Sexual contact is one of the most important ways of transmission	4,23	4,91	4,35	4,23
The use of condoms prevent the transmission of hepatitis B disease by sexual contact	3,96	4,73	3,99	4,07
Using the toothbrush of someone with hepatitis B causes the infection to be transmitted	3,8	4,9	4,09	3,67
Using the comb of someone with hepatitis B does not cause the disease to be transmitted	3,08	4,78	3,12	3,37
Hepatitis B is a chronic disease	3	5	2,91	2,86
Hepatitis B can cause liver cancer	2,97	4,87	3,08	3,21

18 participants have explained that they know someone with hepatitis B infection. It was found that these students' average knowledge scores about hepatitis B infection were significantly higher ( $p < 0,001$ ) (Table 3).

**Table 3.** The average knowledge score of the students who had known someone with hepatitis B infection.

Knowledge	Students who has known someone with Hepatitis B (n=18)		Students who has not known someone with Hepatitis (n=1030)		p*
	Average score	Standart deviation	Average score	Standart deviation	
Hepatitis B	83,22	8,715	70,61	11,573	<0,001

\*Mann-Whitney U Test

When the knowledge questions about hepatitis C and the participants' average scores were evaluated according to the distribution of gender; it has seen that males have adequate knowledge only about the transmission of infection with blood transfusion. Women, on the other hand, were below the average score of 4 for all questions. When evaluated on the basis of the faculty, students studying at other faculties were less than 4 average points in all of their answers. The participants studying in the faculty of medicine scored an average of 4 or more of all questions. According to the distribution of gender and the faculties, the knowledge questions about hepatitis C and the average scores of the participants are shown in the Table 4.

**Table 4.** According to the distribution of gender and the faculties, the knowledge questions about hepatitis C and the average scores

Knowledge	Average Score			
	Other Faculties	Faculty of Medicine	Male	Female
If a person with hepatitis C looks and feels healthy, does not infect others	2,83	5	3,32	2,69
Only hepatitis C patients with advanced stage are contagious	2,92	4,87	3,1	3,09
Hepatitis C only causes disease in people with weak immune system	2,87	4,83	3,18	2,9
Hepatitis C can be transmitted only from animals to humans.	3,52	4,96	3,45	3,49
Hepatitis C does not transmitted through blood	3,66	4,83	3,71	3,83
Oral contraceptives prevent the transmission of hepatitis C disease by sexual contact.	3,59	5	3,76	3,68
Shaking hands with a person with hepatitis C causes the disease to be transmitted	3,46	4,61	3,64	3,47
Inhaling the same air as a person with hepatitis C causes the disease to be transmitted	3,37	4,96	3,46	3,58
Fruit and vegetables are eaten without washing causes hepatitis C disease	3,4	4,78	3,62	3,41
Contamination of drinking water by sewage water can cause hepatitis C outbreaks	3,53	4,83	3,76	3,51
There is no cure for hepatitis B.	2,79	4,87	3,16	2,76
There is no protective vaccine against hepatitis C infection	2,67	4,9	2,49	2,57
It is forbidden to legally marry someone with hepatitis C infection	3,28	4,32	3,66	3,04
Hepatitis C is transmitted by touching body fluids such as blood and saliva.	3,73	5	3,73	3,97
Sexual contact is one of the most important ways of transmission	3,58	4,96	3,49	3,94
The use of condoms prevent the transmission of hepatitis C disease by sexual contact	3,88	4,91	4,04	3,89
Using the toothbrush of someone with hepatitis C causes the infection to be transmitted	3,42	4,73	3,73	3,32
Using the comb of someone with hepatitis C does not cause the disease to be transmitted	2,94	2,52	2,94	2,87
Hepatitis C is a chronic disease	2,97	4,96	3,14	3,15
Hepatitis C can cause liver cancer	3,19	4,96	3,27	3,44

Five participants have explained that they know someone with hepatitis C infection. It was found that these students' average knowledge scores about hepatitis C infection were significantly higher ( $p=0,001$ ) (Table 5).

**Table 5.** The average knowledge score of the students who had known someone with hepatitis C infection.

Knowledge	Students who know someone with Hepatitis C (n=5)		Students who do not know someone with Hepatitis C (n=1043)		p*
	Average score	Standart deviation	Average score	Standart deviation	
Hepatitis C	85,8	4,087	67,62	9,804	0,001

\*Mann-Whitney U Test

When the most frequently used information sources about viral hepatitis were questioned in the general population, it was seen that they were newspapers (61.8%), internet (61.5%) and television programs (57%). The students of the faculty of medicine answered this question as the education they received at the university (100%).

When the attitude questions about viral hepatitis and the participants' average scores were evaluated, it was seen that both males and females show risky attitude characteristics except the questions about 'toothbrush should be personalized', 'vegetables and fruits should be washed with plenty of water before eating', 'public toilets should not be used as much as possible' and 'hands should be washed before meals and after toilet'. Males stated that they are considering getting tattoos or piercings more than women. When evaluated on the basis of the faculty they studied, it was found that the students of the faculty of medicine had similar attitudes to the students of other faculties. According to the distribution of gender and the faculties, the attitude questions about viral hepatitis and the average scores of the participants are shown in the Table 6.

**Table 6.** According to the distribution of gender and the faculties, the attitude questions about viral hepatitis and the average scores of the participants.

Attitude	Average Score			
	Other Faculties	Faculty of Medicine	Male	Female
I'm thinking of getting piercings or tattoos	3,99	4,04	4,2	3,76
Toothbrush should be personal	4,94	5	4,97	4,93
Nail scissors may not be personal	3,42	3,27	3,09	3,78
I wouldn't mind using my mother's nailfile	2,23	1,61	2,34	1,99
I wouldn't mind using my friend's nailfile	3,03	2,84	3,03	2,99
I don't mind using my father's razor blade*	2,38	1,82	2,28	-
I don't mind using my friend's razor blade*	3,22	3,52	3,23	-
Hands should be washed after toilette	4,83	5	4,9	4,78
Hands should be washed before and after meals	4,8	5	4,86	4,78
Public toilets should not be used as much as possible	4,67	5	4,65	4,76
Vegetables and fruits should be washed with plenty of water before eating	4,85	5	4,94	4,77

\*Questions that only males answered

In order to measure the level of behavior of the students participating in our study, questions were asked about their behaviors in their daily lives. They answered these questions as yes or no. When the behavioral questions were examined, it was seen that most of the females had manicure and pedicure occasionally ( $p<0,001$ ); and most of the males had shaving beard in barber shop ( $p<0,001$ ). It was determined that females were more careful than males in terms of hand washing habits before meals and after using toilettes ( $p<0,001$ ). It was found that females got more piercings or tattoos than males ( $p<0,001$ ). It was seen that females were more careful than males about using public toilet and water consumption ( $p<0,001$ ). When asked whether the participants had at least one

unprotected sexual experience in the behavioral questions, a very large part of the males answered the question as yes (72.5%) while 12.9% of the females answered as yes ( $p < 0,001$ ). There were no significant differences between males and females when other

behavioral questions were evaluated. The questions asked in order to measure the behavior levels and the answers of the students studying in the faculty of medicine and other faculties are shown in Table 7.

**Table 7.** According to the distribution of the faculties, the behavior questions about viral hepatitis and the average scores of the participants.

Behavior characteristics	Faculty of Medicine (n=94)		Other Faculties (n=954)		P
	Yes	%	Yes	%	
I have a piercing-tattoo on my body	11	11,7	123	12,9	0,741
Sometimes I do a manicure-pedicure	39	41,5	401	42	0,919
Sometimes i have a beard shave in barber *	47	50	356	37,3	0,016
Everyone's nail clippers are separate where I live	78	83	802	84,1	0,784
I share my toothbrush with others	0	0	2	0,2	1
I always wash my hands before every meal	43	45,7	558	58,5	0,017
I always wash my hands after every meal	39	41,5	532	55,8	0,008
I always wash my hands after every using toilet	90	94,9	905	94,9	1
I always wash my hands every time I come home	38	40,4	535	56,1	0,004
I always wash my hands after shaking hands with others	0	0	96	10,1	0,001
I've had unprotected sexual experience at least once	39	41,5	431	45,2	0,493
I occasionally use public toilets	94	100	801	84	<0,001
I wash with plenty of water before eating fruits and vegetables	86	91,5	837	87,7	0,284
I do not drink water if it is not boiled or prepared water	78	83	723	75,8	0,117

\*Questions that only males answered

## Discussion

The prevalence of hepatitis A infection varies greatly from country to country, even among regions within the same country. The reason for this difference and its prevalence throughout the world is; in the epidemiology of fecal-oral transmitted HAV infection, infrastructure, access to clean water, individual hygiene characteristics, sociocultural and economic factors can be shown to play an effective role (2).

In a study of viral hepatitis in a population of 21-64 years of age in Puerto Rico, it was reported that only 9.3% of respondents had adequate information about hepatitis A. In this study it was stated that 57.8% of the

participants knew that hepatitis A infection causes water outbreaks, 50.7% of the participants knew that there is a protective vaccine and 21.8% knew that it is spread by contaminated foods (9). In a study conducted in Italy, 48.7% of the participants, and in another study that included 394 women 11,1% of them had sufficient knowledge (10,11). In a study conducted with the participation of students from different faculties in Iran, only 15.1% of them stated that HAV infection was transmitted to people by contaminated water and food (12). In a study conducted in our country with the participation of 1674 nursing students from 14 different centers, it was stated that the

participants received an average of 6 points on a maximum of 9 points, and that they have sufficient knowledge about hepatitis A infection (13). When the level of knowledge about HAV was evaluated, similar to the studies in the literature, it was seen that students in faculty of medicine had an adequate knowledge and students' knowledge in other faculties was insufficient. In a study conducted with the participation of 411 dining hall staff, although they knew they needed to practice, it was stated that only 20.8% had washed their hands or used gloves before preparing food (10). In another study, although 93.2% of the participants knew that they needed to wash their hands with soap, it was shown that only 53.9% of them washed their hands and 50.4% of them used soap. In a study conducted with the participation of 404 airline passengers in the United States, 70% of the respondents stated that they would not drink open water and 65% would not use ice, 62% of participants were not afraid of eating salads in the countries they visited and only 14% believed that there is a protective vaccine (14). In our study, as in the other studies in the literature, when the attitudes and behaviors of the participants were compared, it was seen that they responded positively to the attitude questions but they did not apply them in their daily lives.

All over the world hepatitis B remains a major public health problem. Those who are exposed to HBV infection can act as a reservoir and infect others. Today, it is thought to have nearly 300 million Hepatitis B patients in the world (15). Apart from carriers, blood and body fluids of chronic patients and individuals undergoing acute infection play an important role in the transmission. Because of there is no an effective treatment of Hepatitis B infection, prevention and immunization are really important (16).

In a study conducted with the participation of 1654 people between the age of 21-64, it was shown that only %14,8 of the participants had enough knowledge about Hepatitis B infection, %78,7 of them stated that HBV can be transmitted by unsafe sexual contact and %82,7 of them said that a healthy-looking hepatitis B carrier would not spread the disease. When the

behavioral characteristics were questioned, it was found that 6.4% had at least one tattoo on his body and 6.1% had a sexual partner of 10 or more (9). In a study conducted in the Netherlands, 54% of the participants stated that a healthy-looking Hepatitis B carrier would not spread the disease, 53% stated that the unprotected sexual experience was risky and 52% stated that Hepatitis B transmission could not be prevented. At the end of the study, it was shown that the participants' level of knowledge was unadequate (17). In a study conducted with the participation of 292 dental faculty students in South Africa about the knowledge and behavior of Hepatitis B, 72% of the participants stated that oral secretion was infected, 69% of them stated that the use of common toothbrush was risky for transmission, and 10% of the participants stated that the infection can be transmitted by shaking hands. In this study, it was seen that 32% of the students thought that the use of antibiotics prevented the transmission after contact and 94% of them knew that there was a protective vaccine against hepatitis B virus (18). In a study conducted with the participation of 298 students from two different universities in Tehran, 48.1% of the participants stated that the infection could be transmitted through sexual intercourse and blood transfusion, and 35.6% stated that HBV infection was a risk factor for liver cancer. The most frequently used source question related to hepatitis B was answered by 53.9% of the students as television, internet and newspapers. In this study, it has been shown that medical students have higher level of knowledge than other faculties (12). In a study conducted in Saudi Arabia to evaluate the knowledge, attitude and behavior characteristics of the medical school students about hepatitis B infection, 96.1% of the participants stated that contaminated blood and body fluids, 82.7% stated that unprotected sexual intercourse constitute risk about transmission of the infection. %88,3 of the students stated that shaking hands does not cause transmission, %79,5 stated that there is an effective vaccine against to HBV and %56,7 of them stated that they had been vaccinated (19). In a study conducted in Pakistan with the participation of 530 university students from different faculties, 96.1% of the students



stated that transfusion of blood, 89.5% stated that had piercing, 86.7% stated that using unsterile tooth materials and 83.7% of them reported that unprotected sexual intercourse poses a risk for transmission. 87.8% of the participants said that there is a protective vaccine against Hepatitis B infection and 75.6% of them had previously been vaccinated. On the other hand, it was shown that students of the other faculties had unadequate knowledge about blood transfusion (%70,4), had piercing (%54,8), using unsterile tooth materials (%61,5) unprotected sexual intercourse (%65,1) and a protective vaccine (%55) (20).

When the level of knowledge about HBV was evaluated, similar to the studies in the literature, it was seen that students in faculty of medicine had an adequate knowledge level and students' knowledge level in other faculties was insufficient. When all of these attitude characteristics were evaluated, it was found that they were tend to exhibit risky behaviors in terms of transmission and they showed similar characteristics when compared to other studies in the literature. When the answers of the students in the faculty of medicine to the attitude and behavior questions were evaluated, it was found that they had similar features with other faculties and other studies in the literature.

It is reported that approximately 100 million people in the world are infected with HCV (15). HCV infections are the cause of 70% of chronic hepatitis and 20% of acute hepatitis. The frequency of anti-HCV among blood donors in our country is around 1% (4).

In a study conducted with the participation of 201 patients with hepatitis C in San Francisco, knowledge levels and behavior characteristics were investigated. 74% of the participants thought that sharing razor blade with others, 78% stated that had tattoo and piercing, 83% stated that blood transfusion and 63% said that unprotected sexual experience posed a risk to the transmission of hepatitis C infection. Only 54% of the patients knew that HCV could lead to liver cancer and 51% stated that it could lead to chronic disease. While 38% of the participants stated that there was a protective vaccine against hepatitis C, 61% thought that the disease could be transmitted with the use of

common toilets (21). In a study conducted with the participation of 96 barbers in Pakistan, it was stated that 12 of the participants knew that HCV was transmitted by blood, and that the shaving blades used were risky for the spread of hepatitis C infection. It was shown that only 18 of the participants had sterilized the shaving materials and only 7 of them knew that it was not a protective vaccine (22). In a study conducted in Sicily, it was stated that the presence of family contact, the use of a common razor blade and toothbrush, and the shaving of barbers that do not pay attention to the hygiene rules posed a risk for hepatitis C infection (23). In a study conducted with the participation of 408 medical students in Ethiopia, 97.5% of the students thought that blood transfusion and 79.2% stated that unprotected sexual contact poses risk of transmission to hepatitis C infection. 55% of the participants stated that an infected person may be asymptomatic, 14% said that there was a protective vaccine against HCV, and 92.4% stated that HCV might cause liver cancer. When the behavioral characteristics were evaluated, it was shown that 66.9% of the students used protective gloves during contact with the body fluids of patients and 50% of the participants avoided the risky behavior characteristics (24). In a study conducted in India to determine the knowledge, attitude and behavior levels of dental faculty students about viral hepatitis, 86.1% of the participants stated that infected blood and 58.2% stated that unprotected sexual intercourse causes transmission of hepatitis C infection. In the same study, tattoo / piercing (43%), multiple sexual partners (57%) and common injector use (72.2%) were shown to be risky behaviors in terms of transmission. Only 49.4% of the students stated that there was no protective vaccine against HCV (25). In a study on viral hepatitis among university students in Tehran, it was shown that blood transfusion, intravenous drug use, and unprotected sexual intercourse (48.1%) might cause the transmission of hepatitis C infection. 54.9% of the participants stated that HCV could lead to liver cancer. When asked about the most frequently used sources for information, society, visual and written media (53.9%) were mentioned (12).

When the level of knowledge about HCV was evaluated, similar to the studies in the literature, it was seen that students in faculty of medicine had an adequate knowledge and students' knowledge in other faculties was insufficient. When all of these attitude characteristics were evaluated, it was found that they were tend to exhibit risky behaviors in terms of transmission and they showed similar characteristics when compared to other studies in the literature. When the answers of the students in the faculty of medicine were evaluated, it was found that they had similar features with other faculties and other studies in the literature.

According to the distribution of the faculties, it was shown that the knowledge levels of faculty of medicine students about viral hepatitis were statistically significant than other faculties' students. It was observed that the students in the medical faculty had similar characteristics with other faculties and other studies in the literature in terms of their responses to behavior and attitude questions.

The participants in our study stated that they mostly benefit from the newspapers (61.8%) in order to get information about hepatitis A, B and C infections, while the second was the television programs (61,5%) and the third was internet (57%). In other studies, although the rankings vary due to ease of access, television, newspaper and internet are the most commonly used. Considering the department they studied, all of the medical students stated that their knowledge was related to the education they received at the university.

It has been reported that approximately 143

thousand in the USA and 1.4 million hepatitis A infections in the world every year (6). It is thought that approximately 300 million people in the world are infected with HBV and 100 million people are infected with HCV (15,21). Despite advances in technology and health, hepatitis A, hepatitis B and hepatitis C infections continue to be an important public health problem today. The most important reason for this, hepatitis A infection is usually asymptomatic in children, and is spreading by fecal-oral route, contaminated drinking water, improperly disposed human waste and personal hygiene is not taken into consideration. Hepatitis B and C infections are carried out through the formation of healthy-looking carriers and its spread is by close contact in the family, unprotected sexual intercourse, the contact of body secretions through the personal care tools. This study showed that even university students, whose education and intellectual levels are considered to be high according to society, have low level of knowledge about viral hepatitis and exhibit risky attitudes and behaviors, necessity of individual and social education. The most effective way to protect against these diseases is to increase the knowledge and awareness levels of the society and prevent the transmission of new individuals.

### **Conclusion**

In this aspect, it is of great importance to provide adequate and accurate information transfer on the transmission and protection pathways, clinical symptoms and risky attitudes and behaviors of viral hepatitis to the society by using easily accessible mass media such as newspapers, television and internet.

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