

KNOWLEDGE LEVEL OF NURSING STUDENTS ON HEPATITIS B INFECTION**HEMŞİRELİK ÖĞRENCİLERİNİN HEPATİT B ENFEKSİYONU HAKKINDAKİ BİLGİ DÜZEYLERİ**

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ABSTRACT

Objective: In reducing the risk of transmission of hepatitis B infection, nursing students should have the necessary knowledge, attitude and sensitivity about hepatitis B. The aim of this study is to determine the knowledge level of nursing students about the problems caused by the Hepatitis B Virus (HBV), its transmission routes and prevention methods.

Materials-Methods: This descriptive study was conducted with fourth-year students at nursing department of a university. Questionnaire Form (QF) consisting of questions about sociodemographic information and questions about HBV and disease information was used in the collection of data. Descriptive statistics such as percentage, mean and standard deviation were used in the analysis of the data.

Results: The mean age was 22.10±1.14. They got an average of 68.76±13.17 points from the hepatitis B disease QF. 99% stated that "HBV infection is a contagious disease"; 80.4% "It can cause cirrhosis"; 64.9% "It can cause liver cancer"; 62.9% "Risk of HBV transmission due to sharpening injuries is higher than HIV" correctly. 80.4% answered the wrong statement "A single dose hepatitis B vaccine is enough" correctly. To the incorrect statements about the routes of transmission, 68% answered correctly that it can be transmitted by kissing, 53.6% by sharing food and 29.9% by using shared bathrooms and toilets. 97.9% of them answered correctly that changing gloves, 94.8% getting hepatitis B vaccine and 86.6% washing hands is among the ways of protection.

Conclusion: The knowledge level about hepatitis B was above the moderate level. It is important to increase the level of knowledge about transmission routes. In this direction, it is thought that this study will be a guide for studies with larger samples.

Keywords: Contagious Diseases, Hepatitis B, Knowledge Level, Nursing Students

ÖZET

Amaç: Hepatit B enfeksiyonunun bulaşma riskinin azaltılmasında, hemşirelik öğrencilerinin hepatit B hakkında gerekli bilgi, tutum ve duyarlılığa sahip olmaları gerekmektedir. Bu araştırmanın amacı, hemşirelik öğrencilerinin hepatit B virüsünün neden olduğu sorunlar, bulaşma yolları ve korunma yöntemleri hakkında bilgi düzeylerini belirlemektir.

Gereç-Yöntem: Tanımlayıcı türde olan bu araştırma; bir üniversitenin sağlık bilimleri fakültesinin hemşirelik bölümünde araştırmaya katılmayı kabul eden dördüncü sınıf öğrencileriyle gerçekleştirildi. Sosyo-demografik sorular ve 20 soruluk Anket Formu (AF) kullanıldı. "AF" ndaki her sorunun doğru yanıtı için "5 puan" verildi. Verilerin analizinde yüzdelik, ortalama, standart sapma gibi tanımlayıcı istatistikler kullanıldı.

Bulgular: Öğrencilerin yaş ortalaması 22.10±1.14 olup Hepatit B hastalığı AF'ndan ortalama 68.76±13.17 puan aldığı belirlendi. Öğrencilerin %99'u hepatit B hastalığına ilişkin "HBV enfeksiyonu bulaşıcı bir hastalıktır"; %80.4'ü "Hepatit B ileri karaciğer hastalığına (siroz) neden olabilir"; %64.9'u "Hepatit B karaciğer kanserine neden olabilir"; %62.9'u "Delici-kesici alet yaralanmalarına bağlı HBV bulaş riski HIV'den yüksektir" ifadelerini; %80.4'ü "Hepatit B aşısı tek doz yapılırsa yeterlidir" yanlış olan ifadesini doğru yanıtlamıştır. Hepatit B bulaşma yollarına ilişkin yanlış olan ifadeler ise %68'i yanaktan öpüşerek, %53.6'sı yiyecek paylaşarak ve %29.9'u ortak banyo-tuvalet kullanımıyla bulaşabileceğini doğru cevaplamıştır. %97.9'u bir hastadan diğerine geçerken eldiven değiştirmenin, %94.8'i Hepatit B aşısı yaptırmanın ve %86.6'sı hasta muayenesi öncesi ve sonrası el yıkamanın hepatit B'den korunma yolları arasında olduğunu doğru yanıtlamışlardır.

Sonuç: Hemşirelik öğrencilerinin, hepatit B hastalığına ilişkin bilgi düzeylerinin orta düzeyin üzerinde olduğu belirlendi. Öğrencilerin özellikle bulaşma yollarına ilişkin bilgi düzeylerinin artırılması önemlidir. Bu doğrultuda, bu araştırmanın tanımlayıcı verilerinin daha büyük örneklemli araştırmalara rehber olacağı düşünülmektedir.

Anahtar kelimeler: Bilgi düzeyi, Bulaşıcı hastalıklar, Hemşirelik öğrencileri, Hepatit B

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INTRODUCTION

Chronic hepatitis B infection that caused by the Hepatitis B Virus (HBV) can cause complications such as cirrhosis and hepatocellular carcinoma. The incubation period of HBV varies between 30 and 180 days, and it can be detected in blood within 30 to 60 days after infection (<https://www.who.int>). HBV can survive outside the body for at least 7 days, and during this time, if the virus enters the body of a person who has not been vaccinated against HBV, it can cause infection. HBV is most commonly transmitted from mother to child during pregnancy and childbirth, contact with blood or other body fluids during sexual intercourse with an infected partner, unsafe injections or stab wounds (<asi.saglik.gov.tr>; Turkey Viral Hepatitis Diagnosis and Treatment Guide 2017).

It is reported that approximately 1/3 of the world's population have encountered HBV, and approximately 350-400 million people carry this virus. The World Health Organization (WHO) estimates that 296 million people lived with Chronic Hepatitis B (CHB) infection in 2019 and 1.5 million new hepatitis B diseases were diagnosed each year. (<https://www.who.int>). In addition, WHO states that 820,000 people died in 2019 due to hepatitis B related complications (<https://www.who.int>). Turkey is among the middle endemic regions with a prevalence of 3-5.2% of hepatitis B (Tosun, 2013). According to the Turkey Viral Hepatitis Prevention and Control Program (2018-2023) Report, it is reported that one third of individuals over the age of 18 have encountered HBV and only 12% of 2 million people whose HBsAg test is estimated to be positive are aware of their disease (<https://hsgm.saglik.gov.tr>). Although the prevalence of hepatitis B has decreased in recent years (<https://hsgm.saglik.gov.tr>), it is estimated that the demographic structure that has changed as a result of immigration to Turkey and Turkey's migration route will increase the prevalence of HBV (Akarca et al., 2022). For these reasons, encountering viruses that cause infectious diseases is shifting towards younger population (<https://hsgm.saglik.gov.tr>).

According to the Turkish Statistical Institute (TUIK) 2021 data, 15.3% of the total population is composed of young people in the 15-24 age group (<www.data.tuik.gov.tr>). The risk of contracting infectious diseases such as hepatitis B increases due to the fact that university students, who are among the young population, live separately from their families, increase the sense of independence, start sexual life early, get tattoos, and increase the rate of injecting drug use (Setia et al., 2013; Ünsar et al., 2019; WHO 2017). In addition, healthcare workers and intern students are among the groups at risk for HBV infection (<https://hsgm.saglik.gov.tr>). One of the aims of the Ministry of Health within the scope of Turkey Viral Hepatitis Prevention and Control Program (2018-2023) is to increase the level of knowledge and awareness of 90% of health workers, who are among the groups at risk for HBV infection, about viral hepatitis (<https://hsgm.saglik.gov.tr>). .tr).

In line with this information, nursing students in the young age group are also in the risk group in terms of hepatitis B disease in their education process and professional life, and they have an important role in informing the society about hepatitis B and raising awareness. In order to be protected from hepatitis B disease, healthcare professionals and nursing students should have sufficient knowledge (Aniaku et al., 2019). The fact that if nursing students who will take part in future health care and inpatient clinics (Chhabra et al., 2019), especially the last (4th) year nursing students who are closer to starting the profession compared to other classes, have wrong information about hepatitis B, it will be difficult to control the disease. In this context, it is necessary to determine the knowledge levels of the nursing students who are in the risk group for hepatitis B infection (Acikgoz et al., 2021) and to prevent hepatitis B virus infection, and to ensure that they have the necessary knowledge, attitude and sensitivity (Aniaku et al., 2019; Balegha et al., 2021).

It has been determined that there are limited number of studies (Acikgoz et al., 2021; Ünsar et al., 2019; Yamazhan et al., 2011) in Turkey evaluating the hepatitis B knowledge levels of nursing students in recent years. This research was planned as a descriptive study in order to determine the knowledge level of fourth year nursing students about hepatitis B disease. The research carried out to answer the question "How is the knowledge level of nursing students about hepatitis B?"

MATERIAL AND METHODS

The study was carried out with the fourth year students of the faculty of health sciences, nursing department of a university. Inclusion criteria were determined as being a fourth-year nursing student of the faculty at the time of the study and voluntarily agreeing to participate in the study. Exclusion criteria was determined as having a known psychiatric disorder. The universe of the research consisted

of all fourth-year students (n=115) of the faculty of health sciences nursing department of a university in the fall semester of the 2022-2023 academic year. Sampling method was not used in the study, and a sample of 97 students who voluntarily agreed to participate in the study and met the inclusion criteria of the study was formed. The rate of students participating in the research was 84.3%. 15.7% (n=18) of the students did not participate in the research because they did not volunteer and did not comply with the inclusion criteria.

Data Collection Tools

In this study, a 3-part questionnaire form developed by the researchers under the guidance of the literature (Tuells et al., 2021; Ünsar et al., 2019; Yamazhan et al., 2011) was used.

In the first part, there were 2 questions on socio-demographic (age and gender) characteristics. In the second part, there were 6 closed-ended questions on the characteristics of hepatitis B virus and disease information (getting information, getting hepatitis B vaccination, experiencing stab wounds in clinical practice ...etc.). In the third part, there were 20 questions to measure the knowledge of general subjects, ways of transmission and prevention of hepatitis B infection. The scope of the questionnaire form was evaluated by an infectious diseases and clinical microbiology specialist. The students answered a total of 20 questions in the third part as "true", "false" and "I don't know". The evaluation of the information form was made out of 100 points, and the participants received "5" points for correct questions and "0" points for incorrect questions. There is no reverse item. An increase in the score indicates an increase in knowledge.

Collection of Research Data

Necessary explanations were given to the students who will participate in the research, and the questionnaire form created to collect the data was shared with the students via Google forms.

Analysis of Data

Evaluation of the obtained data was analyzed in SPSS for Windows 25.0 statistical program. Descriptive statistics such as percentage, mean and standard deviation were used in the analysis of the data.

Ethical Aspect of Research

In order to carry out the research, the research was started after the written permission from the institution where the research was conducted and the permission of the Ethics Committee (Erzincan Binali Yıldırım University Human Research Health and Sports Sciences Ethics Committee, 31/01/2023 and Protocol No: 01/03). The purpose and benefits of the research, their role in the research were stated to the students who made up the sample, and the willingness to participate in the research and the principle of volunteering were paid attention to. The students answered the research questions after giving informed consent for the research in the online questionnaire form.

Limitations of the Research

Since this research was carried out only with the fourth year students of the faculty of health sciences, nursing department of a university, it is not possible to generalize the results to all nursing students. In addition, it should be considered that the questionnaire form used in the research was created by the researchers.

RESULTS

The mean age of the fourth-year nursing students participating in the study was 22.10 ± 1.14 (Min: 20- Max: 26). 66% (n=64) of the students were female and 34% (n=33) were male. It was determined that 95.9% (n=93) of the nursing students had received information about hepatitis B before, and the most (92.8%, n=90) source of information was undergraduate education. 74.2% (n=72) of the students were vaccinated against HBV, 61.9% (n=60) had periodic screening for the level of antibodies against HBV, and 17.5% (n=17) having a history of contact with a patient with hepatitis B virus infection. It was determined that 18.6% (n=18) of them stated that they had an occupational accident as a result of stab wounds in clinical practice (Table 1).

Table 1. Students' sociodemographic characteristics and knowledge about hepatitis B virus and disease (n=97)

Age (Mean±SD)	22.10±1.14 years (Min:20- Max:26)	
Variables	n	%
Gender		
Female	64	66
Male	33	34
Information retrieval status		
Yes	93	95.9
No	4	4.1
Information source		
Undergraduate education		
Yes	90	92.8
No	7	7.2
Healthcare worker		
Yes	38	39.2
No	59	60.8
Book/magazine/newspaper		
Yes	20	20.6
No	77	79.4
Internet		
Yes	47	48.5
No	50	51.5
Getting the hepatitis B vaccine		
Yes	72	74.2
No	25	25.8
Periodic screening for antibody level		
Yes	60	61.9
No	37	38.1
Caring for a patient with hepatitis B virus infection		
Yes	17	17.5
No	80	82.5
Occupational accident due to stab wound in clinical practice		
Yes	18	18.6
No	79	81.4

Table 2 shows the distribution of the students' responses to the information form on hepatitis B infection. 99% (n=96) of the students stated that "HBV infection is a contagious disease"; 80.4% (n=78) stated that "A single dose of hepatitis B vaccine is sufficient"; 80.4% (n=78) stated "Hepatitis B can cause advanced liver disease (cirrhosis)"; 64.9% (n=63) stated that "Hepatitis B can cause liver cancer"; 62.9% (n=61) stated that "The risk of HBV transmission due to stab wounds is higher than the risk of HIV transmission"; 47.4% (n=46) stated that "The risk of HBV transmission due to stab wounds is higher than the risk of HCV transmission". Regarding the ways of hepatitis B transmission, 93.8% (n=91) of the nursing students stated that it was transmitted by blood, 85.6% (n=83) stated that it was transmitted from the mother to the child at birth and 58.8% (n=57) stated that it was transmitted sexually. 68% (n=66) of the students stated that HBV would not be transmitted by kissing on the cheek, 53.6% (n=52) stated that it would not be transmitted by sharing food, and 29.9% (n=29) stated that it would not be transmitted by using shared bathrooms and toilets. 97.9% (n=95) of the students stated that changing gloves when passing from one patient to another, 94.8% (n=92) of them stated that getting hepatitis B vaccine, 86.6% (n=84) of them stated that hand washing before and after the patient examination is among the ways of protection from hepatitis B.

Table 2. Questionnaire form responses regarding hepatitis B infection (n=97)

Hepatitis B Virus and Disease Information	True		False	
	n	%	N	%
1. HBV infection is a contagious disease. (T)	96	99	1	1.0
2. Hepatitis B is treatable. (T)	43	44.3	54	55.7
3. A single dose of hepatitis B vaccine is sufficient. (F)	78	80.4	19	19.6
4. Hepatitis B can cause advanced liver disease (cirrhosis). (T)	78	80.4	19	19.6
5. Hepatitis B can cause liver cancer. (T)	63	64.9	34	35.1
6. HBV infection can turn into Hepatitis C infection. (F)	32	33.0	65	67.0
7. HBV transmission risk due to stab wounds is higher than HIV transmission risk. (T)	61	62.9	36	37.1
8. HBV transmission risk due to stab wounds is higher than HCV transmission risk. (T)	46	47.4	51	52.6
9. A person infected with or vaccinated with HBV is also protected against Hepatitis A, C, D and E. (F)	42	43.3	55	56.7
Transmission Routes				
10. Hepatitis B can be transmitted sexually. (T)	57	58.8	40	41.2
11. Hepatitis B can be transmitted through blood. (T)	91	93.8	6	6.2
12. Hepatitis B can be transmitted from the mother to the child at birth. (T)	83	85.6	14	14.4
13. Hepatitis B can be transmitted by sharing food. (F)	52	53.6	45	46.4
14. Hepatitis B can be transmitted by kissing on the cheek. (F)	66	68	31	32
15. Hepatitis B can be transmitted through the use of shared bathrooms and toilets. (F)	29	29.9	68	70.1
Protection Ways				
16. Being sexually monogamous is one of the ways to prevent hepatitis B infection. (T)	79	81.4	18	18.6
17. Using condoms during sexual intercourse is one of the ways to protect against hepatitis B infection. (T)	67	69.1	30	30.9
18. Hand washing before and after patient examination is one of the ways to prevent hepatitis B infection. (T)	84	86.6	13	13.4
19. Changing gloves when passing from one patient to another is one of the ways to prevent hepatitis B infection. (T)	95	97.9	2	2.1
20. Getting the hepatitis B vaccine is one of the ways to prevent hepatitis B infection. (T)	92	94.8	5	5.2

HBV: Hepatitis B Virus, HIV: Human Immunodeficiency Virus, HCV: Hepatitis C Virus

It was determined that 76.2% of the students gave correct answers to the 1st, 2nd, 4th, 5th, 7th, 8th, 10th, 11th, 12th, 16th, 17th, 18th, 19th and 20th items that should be correct. It was determined that 48.6% of them gave incorrect answers to the 3rd, 6th, 9th, 13th, 14th and 15th items that should be wrong. It was determined that the students within the scope of the study scored an average of 68.76 ± 13.17 (min:35-max:90) out of 100 points from the questions on the hepatitis B infection information form.

DISCUSSION

It is necessary for university students to have a good level of knowledge about hepatitis B, to have a healthy future life (Aslan et al., 2014) and to reduce the risk of transmission by increasing the awareness of the society they will serve as nurses. In our study, which aimed to determine the knowledge level of fourth-year nursing students about hepatitis B infection, it was determined that 95.9% of the students stated that they had previously received information about hepatitis B and that they received the most (92.8%) information in undergraduate education. Similarly, Yamazhan et al. (2011) determined that the most information sources were university education with a rate of 93.7%.

For nurses, immunization against hepatitis B should be done to prevent infection. Because hepatitis B is among the top occupational risks for nurses (Sönmez and Akben, 2020). In this study, it was determined that the hepatitis B vaccination rate of the students was 74.2% and 61.9% had periodic screening for the antibody level against hepatitis B. In the study of Sönmez and Akben (2020), 65.4% of nursing students received three or more doses of vaccine; In the study of Yamazhan et al. (2011) 85% of nursing students; In the study of Setia et al. (2013), approximately 88% of the nursing students, who constitute 78.2% of the research group; In the study of Chhabra et al. (2019), it was

stated that 70% of nursing students were vaccinated and 49.2% of those vaccinated completed the three-dose vaccination program. The fact that the HBV vaccination rate of nursing students in our country is higher than other international studies is due to the fact that the media raises awareness in parents and that the Ministry of Health offers free vaccination to risky groups (Yamazhan et al., 2011). The reason for the high rate of vaccination in this study is that the students who will go into clinical practice are routinely vaccinated according to the vaccination schedule of the Ministry of Health.

More than 35 million healthcare workers around the world are at risk of injury with instruments contaminated with the Human Immunodeficiency Virus (HIV), Hepatitis B and Hepatitis C Virus (Prüss-Üstün, Rapiti, & Hutin, 2005). It has been determined that HBV vaccine protects nursing department students and nurses from hepatitis B at a rate of 90-95% (WHO 2017; www.hsgm.saglik.gov). Students studying in health-related departments, which are part of the health system, like other healthcare professionals, are exposed to the risk of infection when they come into contact with patients and contaminated equipment (Gebremeskel et al., 2020). In our study, it was found that the rate of students who stated that they had a history of contact with a patient with HBV infection was 17.5%, and the rate of stab wounds/occupational accident was 18.6% in terms of hepatitis B infection risk. In the study of Wang et al. (2021), conducted with nursing students, 67%; In the study of Prasuna et al. (2015), 39.76%; In the study of Yamazhan et al. (2011) 28.1% and in the study of Çakar et al. (2019) 27.8% experienced stab wounds. The reason for the low rate of stab wounds in this study is thought to be due to the emphasis on infection control measures in educational institutions and internships (clinical practice). However, although this rate is lower than the findings of other studies, necessary measures such as in-clinic training should be taken to reduce the rate.

Hepatitis B Virus and Disease Information: The average score of the students, which was determined as 68.76 ± 13.17 out of 100 points from the questions about general information about hepatitis B disease, transmission and prevention methods, shows that the students' knowledge level about hepatitis B disease is at a moderate level. In the study of Yamazhan et al. (2011) the mean knowledge score of nursing students was found to be 23.7 ± 4.6 (71/100) and it was found to be significantly higher in fourth-year students than in third-year students. It is known that nursing students have more knowledge than students who do not study in the health-related department because they take courses on infectious diseases (Chingle et al., 2017; Ünsar et al., 2019). Considering the studies aiming to determine the hepatitis B knowledge level of nursing students; In the study of Chhabra et al. (2019), the rate of students who stated that they had general knowledge about the disease was found to be 33.9%. It was stated that the knowledge and attitudes of Spanish nursing students in the study of Tuells et al. (2021) are at a good level (mean score for knowledge is 44.6 ± 4.3), which indicates generally positive qualities. Gebremeskel et al. (2020) conducted a study in Ethiopia with health sciences students, including nursing students, and it was revealed that 52% of the students had a good level of knowledge about HBV, but considering the high rate of infectious diseases in African countries such as Ethiopia, rate is insufficient.

Transmission Routes: Nurses/students constitute the highest risk group among healthcare workers in terms of transmission of diseases such as HIV, HBV and HCV with a rate of 45% (Green-McKenzie and Shofer, 2007). Nursing undergraduate students will be at occupational risk for hepatitis B infection when they will be healthcare workers (Chhabra et al., 2019). In the research of Açıkgöz et al. (2021), 85.3% of the students stated that blood, sexual contact and body fluids are the most important ways of transmission of infection. In Şahin's (2009) research evaluating the knowledge and attitudes of university students, including nursing students, 27.8% of the students stated that they knew the ways of transmission about hepatitis B. In the research conducted by Ünsal et al. (2019) with students of the Faculty of Health Sciences and the Faculty of Economics and Administrative Sciences, compared to other students, 94% of the nursing students knew the transmission routes of HIV/AIDS, hepatitis B, hepatitis C and 95.1% of them stated that as the sexual partner increases, risk of transmission increases. In this respect, it is important for nursing students to have sufficient knowledge about the transmission routes. In our research, it was found that the majority of nursing students knew that HBV was transmitted from the mother to the child through blood, sexually and at birth. On the other hand, there were students who stated that it is true that it cannot be transmitted by kissing on the cheek ($n=66$), sharing food ($n=52$) and using shared bathroom-toilet ($n=29$).

Protection Ways: Hepatitis B infection, which can cause illness and death, is among the infectious diseases that can be prevented by safe and effective vaccination (www.vhds.org). The most

effective method of protection from infectious diseases is immunization (vaccination). It is also one of the aims of Turkey Viral Hepatitis Prevention and Control Program (2018-2023) (www.hsgm.saglik.gov). Immunization is of great importance not only as an individual measure, but also in terms of preventing infectious diseases in the community (Dybsand et al, 2019; Godoy et al., 2015). In the research of Tuells et al. (2021), it was stated that nursing students in Spain had a good attitude about vaccines (37.2 ± 3.9). In previous researches, it is stated that only 39.5% of nursing students apply the means of protection from HBV (vaccination, wearing gloves, etc.) (Gebremeskel et al., 2020). In our research, students stated that being sexually monogamous (81.4%), using condoms during sexual intercourse (69.1%), washing hands before and after the patient examination (86.6%), changing gloves when passing from one patient to another (97.9%) and hepatitis B vaccination (94.8%) were among the ways of protection from hepatitis B.

CONCLUSION

As a result, about 20 of the short-term deviations disappear each year. The resulting deviations will reach the long-run equilibrium after approximately 0.049 periods. According to the different significant results, it has been proven that there is a bidirectional causality relationship between carbon emission and the burden of disease, carbon emission and crude death rate, carbon emission and deaths due to respiratory diseases, and a unidirectional causality relationship between carbon emissions and per capita health expenditures.

Carbon emissions have a significant impact on health indicators. Since air pollution is a definitive cause of health expenditures, years spent with diseases, death due to respiratory diseases, as well as crude death rates, it is thought that countries' adopting sustainable environmental policies and investing in renewable energy sources can make a significant contribution to the health of future generations.

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Conflict of interest

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