



## The Results of a Hepatitis Training Provided for Nursing Students

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### ABSTRACT

**Aims:** The aim is to determine the effect of the hepatitis education provided for nursing students. **Methods:** The population ( $n=278$ ) and sample ( $n=200$ ) of this quasi-experimental study consisted of nursing students. Data were obtained through the "Personal Information Form" and "Hepatitis Knowledge Level Assessment Form" prepared by the researchers. The efficiency of this training was evaluated using the tests that were conducted prior to and post-training. The analyzing of data was used mean and percentage calculations, The Kruskal-Wallis H, Mann-Whitney U and the Wilcoxon signed-rank tests. **Results:** It was gathered that there was a statistically significant difference among the total mean pre- and post-test scores in the hepatitis training, and between age, sex, class during the training, status of injection with hepatitis vaccine and the total mean pre-test and post-test scores ( $p<0.05$ ). There was no significant difference between whether the family or themselves experienced hepatitis and the total mean pre-test and post-test scores ( $p>0.05$ ). **Conclusion:** It was determined hepatitis education raised the nursing students' levels of knowledge and awareness regarding hepatitis. Improving the knowledge levels is not adequate for behavioural change as the rate of vaccinated students is low. Therefore, vaccination campaigns should be organized further in school and country health policies concerning on this matter should be improved accordingly.

**Keywords:** Hepatitis education, level of knowledge, nursing students

### INTRODUCTION

Various procedures that are performed for diagnostic and therapeutic purposes in environments healthcare services are provided carry risks of infection. In such environments, the aim is to dispose of or restrain the source of infection and create a safe environment to provide protection from infections. Nurses are in danger of catching hospital-acquired infections (hepatitis, human immunodeficiency virus, tuberculosis, varicella and salmonella etc.). It was reported that amongst these infections, Hepatitis A is observed with the rate of 20%, Hepatitis B with 30% and Hepatitis C with 3% [1]. Healthcare workers are constantly in contact with infected patient blood and bodily fluids. Being in contact with blood and bodily fluids is defined as being injured directly through patient blood, contaminated needle or sharp objects, the contact of open wound or mucus with these liquids [2]. The most efficient approach to resolving health problems is providing health-protecting measures on an adequate level. In prevention of infectious diseases, knowing the transmission ways and planning the necessary precautions accordingly is vital. Therefore, people who provide health service must have sufficient level of knowledge pertaining to infectious diseases that are frequently experienced within the society such as hepatitis [3]. Hepatitis has an extensive definition that includes inflammation, damage and dysfunction occurring due to a number of infection-related or other reasons such as viral, toxic, pharmacological agents in the liver or immunological reasons [4,5]. Viral hepatitis triggered by an attack in particular is an important health problem that is very common in the world and a deep concern in Turkey. It has been reported that 70% to 90% of the people in societies with lower socioeconomic status are infected with Hepatitis A, the number of Hepatitis B carriers is around 400-500 million in the world, 1-2 million people die directly due to Hepatitis B infection and complications in the world each year, and Hepatitis C affects approximately 1% of all people. The clinical condition for A- and E-type viral hepatitis is rarely fulminant and usually heals, does not become chronic. However, B, C and D-type viral hepatitis get chronic and cause fatal clinical conditions such as cirrhosis of the liver and cancer [2,6,7]. Therefore, all teams within healthcare should be informed about hepatitis infections and in-service trainings should be provided regularly in accordance with the current guidelines. The importance of the educational need can also be observed in the previous studies. These studies report that healthcare workers have a low level of knowledge

regarding the complications and treatment of Hepatitis B although they show a high level of knowledge on the Hepatitis B transmission ways [8,9].

Schools of nursing where nurses are trained as a key part of healthcare team include the subject of hepatitis in their curriculums. Such training programs help nursing students recognize the viruses causing hepatitis, know the symptoms of the disease, be aware of the transmission ways and seriousness of infections. However, despite this fact, most students neglect vaccination for certain types of hepatitis [10]. Training programs with detailed information on hepatitis infections should be provided particularly in schools where healthcare team members are taught, raising their levels of awareness. Furthermore, the efficiency of the training must be assessed. There are studies in the literature [7,8,10-12] that analyzed levels of knowledge and attitudes of students in nursing and other health departments regarding various types of hepatitis infections, whereas no research has been found about the effects of a hepatitis training program on students. Accordingly, this study was aimed to determine the effects of a hepatitis education provided for nursing students.

## METHODS

**Research Method and Samples:** The population of this quasi-experimental study consisted of Amasya University Health School nursing students (n=278), whereas the samples included students who agreed to participate in the study (n=200). The data were gathered through “Personal Information Form” and “Hepatitis Knowledge Level Assessment Form-HKLAF” that were prepared by the researchers. Provided by the researchers, the training lasted approximately 40 minutes each time with one-hour breaks within the same day and took place in the respective classroom for each class of the nursing program. The knowledge levels were evaluated by the pre-test, completed before the training, and the post-test, given immediately after the training.

### Data collection tools

**1. Personal information form:** Prepared by the researchers, this form consisted of 27 questions that analyzed the characteristics of the participants such as age, sex, training class, history of chronic illness, history of hepatitis of the person and their family, experience with hepatitis vaccination, which vaccinations the participant had had as well as whether or not they had hepatitis education in the past.

**2. Hepatitis knowledge level assessment form (HKLAF):** This form included 62 questions in total that measured the level of knowledge on Hepatitis A, B and C, involved subtopics of active viruses, transmission ways, symptoms, ways of prevention and were in three-point Likert-type scale. The subtopic “Active” in this form was given scores of “Yes=1” and “Others=0” while the subtopics of “Transmission way”, “Symptom” and “Way of prevention” were scored as “Knows=2”, “Knows partially=1” and “Does not know=0”. Therefore, the total maximum score whilst calculating the levels of knowledge was considered 21, adding up the maximum scores of the subtopics active (3 points), transmission (6 points), symptom (6 points) and prevention (6 points). Lastly, the pre-test and post-test scores gathered from all topics were converted into the percentage scale.

### Ethical approach

The ethics approval of this study was obtained from Amasya University Scientific Ethics Committee in a written form. Furthermore, verbal permission was given the students that participated in the study in accordance with the principles of volunteering.

### Statistical analysis

The data were analyzed using mean and percentage calculations, Kruskal-Wallis H, Mann-Whitney U and the Wilcoxon signed-rank tests on the SPSS 20 packaged software. The statistical significance was considered  $p < 0.05$ .

## RESULTS

The mean age of the students was  $20.5 \pm 18$ . Of the students, 80.5% were female, 44.0% were staying in a state dormitory, 93.5% had no hepatitis in their family history, 88.5% did not have any chronic illness, 51.0% had had hepatitis vaccinations and 96.0% had not experienced hepatitis (Table 1).

**Table 1** The Distribution of the students' demographic and hepatitis-related characteristics (n=200)

Variables	Characteristics	n	%
Sex	Female	161	80.5
	Male	39	19.5
Age	18-19	57	28.5
	20-21	82	41
	22 or older	61	30.5
Marital Status	Married	5	2.5
	Single	195	97.5
Class	1	34	17
	2	39	19.5
	3	63	31.5
	4	64	32
Place of Residence	State Dormitory	88	44
	Private Dormitory	30	15
	House	82	41
Family History of Hepatitis	Yes	13	6.5
	No	187	93.5
Presence of a Chronic Disease	Yes	23	11.5
	No	177	88.5
History of Hepatitis vaccination	Yes	102	51
	No	98	49
History of Hepatitis	Yes	8	4
	No	192	96
Preference of Hepatitis-Related Education Method	Conferences	35	17.5
	Lessons	16	8
	Brochures	15	7.5
	All of the above	133	66.5
	Others	1	0.5
Request of Receiving Information Regarding Hepatitis	Prevention Ways of Hepatitis Disease (A,B,C)	6	3
	Information Regarding the Hepatitis Virus (A,B,C)	1	0.5
	Transmission Ways of Hepatitis Disease (A,B,C)	3	1.5
	Symptoms of Hepatitis Disease (A,B,C)	4	2
	All of the above	185	92.5
	None	1	0.5
Total		200	100

It was determined that 81.0% of the students wished to have a general training on hepatitis, 58.0% could easily express it when they become ill with hepatitis, 86.6% had not caused injury with the injector used for a hepatitis patient, 83.0% wanted to get information about the procedures to perform in case of an injection injury to a patient with positive Hepatitis B or C even though 67.5% knew these procedures (Table 2). Furthermore, the question "What vaccination should be performed on a baby immediately after birth?" was answered with Hepatitis A by 7% of the students (n=14), Hepatitis B by 59.5% (n=119), Hepatitis C by 1.5% (n=3) and "I do not know" by 32% (n=64) before the training, whereas, 89.0% (n=178) answered with Hepatitis B at the end of the training.

Table 2 The students' views on hepatitis (n=200)

The Students' Views	Yes n (%)	No n (%)	Have No Idea n (%)
Do you wish to receive hepatitis-related education?	162 (81.0%)	32 (16.0%)	6 (3.0%)
Have you had training on hepatitis before?	107 (53.5%)	89 (44.5%)	4 (2.0%)
Do the notices, billboards, information cards in hospitals regarding hepatitis catch your attention?	140 (70.4%)	46 (23.1%)	13 (6.5%)
Did you ever lose a friend to hepatitis?	16 (8.0%)	178 (89.0%)	6 (3.0%)
Could you express it easily if you had the hepatitis disease?	116 (58.0%)	52 (26.0%)	32 (16.0%)
Should a healthcare worker have hepatitis vaccination?	186 (93.0%)	12 (6.0%)	2 (1.0%)
Did a patient's injector ever prick your hand whilst working at the hospital?	16 (7.9%)	175 (86.6%)	9 (4.5%)
Have you ever had physical contact with the blood products of a patient whilst working at the hospital?	22 (11.0%)	163 (81.5%)	15 (7.5%)
Has an injector of a patient whose serological condition was unknown to you pricked your hand? Have you ever had contact with their blood or bodily fluids?	50 (25.0%)	139 (69.5%)	11 (5.5%)
Are you aware of the procedures to perform in case of an injury with an injector of a patient with positive Hepatitis B or C?	135 (67.5%)	52 (26.0%)	13 (6.5%)
Would you like to be informed about the procedures to perform in case of an injury with an injector of a patient with positive Hepatitis B or C?	166 (83.0%)	23 (11.5%)	11 (5.5%)
Can patients with hepatitis get married?	115 (57.5%)	23 (11.5%)	62 (31.0%)
Can a mother with Hepatitis A,B,C nurse her baby?	53 (26.5%)	77 (38.5%)	70 (35.0%)
Is monogamy essential in prevention of hepatitis?	148 (74.0%)	11 (5.5%)	41 (20.5%)

It was found that there was a statistically significant difference ( $p < 0.05$ ) in the mean pre- and post-test results based on the subtopics of hepatitis education level of knowledge "Active", "Transmission", "Symptom", "Prevention", and there was a significant increase in the mean total knowledge level scores in every subtopic of HKLAF in the post-test (Table 3).

Table 3 Total mean pre- and post-test scores of hepatitis education knowledge levels (n=200)

Group	X ± SS	z	p*
Pre-test	58 ± 14.1	-12.071	0.001
Post-test	80 ± 8.79		

\*Wilcoxon Signed-Rank Test

There was a statistically significant difference between age, sex, training class, history of hepatitis vaccination and the mean total pre-test and post-test scores ( $p < 0.05$ ). However, there was no significant difference between their history and family history of hepatitis and the mean total pre-test and post-test scores ( $p > 0.05$ ) (Table 4).

Table 4 Comparison of Sociodemographic and Hepatitis-Related characteristics and the Pre-test and Post-test Results of Hepatitis Knowledge Levels (n=200)

Variables	n	Pre-test	Post-test	p
		X ± SS	X ± SS	
Age Group	Aged 18-19	57	50.46 ± 13.46	0.001*
	Aged 20-21	82	59.81 ± 14.78	
	22 or older	61	61.83 ± 13.00	
Sex	Female	161	59.27 ± 14.48	0.001**
	Male	39	51.53 ± 13.51	
Class/Year	First Year	34	45.94 ± 14.68	0.001*
	Second Year	39	55.31 ± 11.44	
	Third Year	63	58.20 ± 16.35	
	Fourth Year	64	65.10 ± 9.14	
History of Hepatitis Vaccination	Yes	102	60.27 ± 12.78	0.021**
	No	98	55.15 ± 15.92	

History of Hepatitis	Yes	12	50.40 ± 19.10	78.97 ± 11.39	0.911**
	No	188	58.20 ± 14.19	80.24 ± 8.63	
Presence of Hepatitis in Family History	Yes	13	54.58 ± 9.45	75.46 ± 5.09	0.015**
	No	187	57.98 ± 14.88	80.49 ± 8.90	
*Kruskal Wallis-H Test					
**Mann-Whitney-U Test					

## DISCUSSION

It is crucially important to be aware of the viral factors, transmission ways, symptoms and prevention ways of hepatitis infections that cause a serious health problem worldwide. Our society should be informed of these infections at an early age. Determining the attitude and level of knowledge of the young people that make up a big part of Turkey's population could be directive in planning the learning content that should be applied for the prevention of hepatitis infections. Keeping the knowledge of hepatitis infections up to date and evaluating the knowledge levels of especially nursing students who are candidates of being healthcare professionals may help making the learning more permanent.

We determined that the students (96.0%) and their families (93.5%) did not have a history of hepatitis, and even though 93.0% of the healthcare workers believed the necessity of hepatitis vaccination, 51.0% had not had hepatitis vaccination. In a study with medical students, 89.7% had had a total-dose of hepatitis B vaccination [13], while the rate of vaccination was 39.5% for the university students in another study [10]. University students' awareness must be raised by providing the required education on infectious diseases such as hepatitis for them on their first year and the significance of this disease and vaccination in preventing it must be emphasized.

Students who receive their education in various programs in universities learn information that may or may not be correct under different methods and circumstances. When the informational sources on hepatitis university students possess were investigated, it was found that they gathered information from mostly books, brochures, school, healthcare workers and their families [3,8,10], and that a big part (83.0%) of the important sources were obtained during university education [14]. While the nursing students in this study had received hepatitis education (53.5%), 81.0% of them stated that they still wanted another training and preferred conferences, lectures and brochures as teaching methods and materials (66.5%). Internal diseases nursing, infectious diseases nursing, paediatric health and diseases nursing are among the main lessons given within the nursing curriculum in Turkey that include hepatitis. However, they are not sufficient in raising the awareness level of students regarding hepatitis. Therefore, along with classes, conferences should be held and interesting brochures should be handed out in order to draw attention to this problem, keep people up to date on this subject and make the information permanent.

Our study showed that the students wanted to receive an extensive education involving the factors, transmission, and prevention ways of hepatitis (92.5%). In another study, it was reported that 73.3% of the research assistants who worked at a medical faculty had stated they had wanted in-service training about hepatitis, however, there had been no difference between those who had had training and between those who had not in terms of knowledge levels on hepatitis [15]. Being a healthcare team candidate/member does not remove the necessity of getting an education regarding infections such as hepatitis. Contrarily, hepatitis infections should be covered in detail in both vocational health schools and hospitals while creating changes in the attitude and behaviours of healthy individuals regarding prevention. Accordingly, 70.4% of the students in our study reported that they found the posters, billboards and informative notes in the hospital regarding hepatitis eye-catching. We gathered that this subject is considered an insignificant part of the curriculum, and having regular training programs is important for drawing attention to this whole issue and raising awareness.

In a study that has been performed with medical students, it was reported 84.4% of the students were infected through skin or mucosa from blood and/or bodily fluids, 79.5% were exposed to injuries by sharp objects contaminated with patient materials, and 61.5% of the students who were influenced by this issue had not reported it [13]. In another study by Yoldaş, et al. [16] where they determined the risk of infected blood and bodily fluids for healthcare students, they report that nurses experienced exposure with the highest rate (48.5%), 40.9% of the participants were pinpricked, 27.9% had experienced spattering in their eyes or mucosa, and 26.8% reported exposure to injury by sharp objects. In our study, only a small number of students reported injury with a hepatitis patient's injector (7.9%), contact with a hepatitis patient's blood product (11.0%), and injury with an injector or contact with blood/bodily fluids of a patient

whose serological tests were unknown (25.0%). Although the students stated that they could easily express it if they have hepatitis infection (58.0%) and 67.5% claimed to know the procedures to perform in case of an injury through a patient's injector, 83.0% offered their desire to be informed about the aforementioned procedures once more, thus proving that repetitive training programs are essential. Students and healthcare workers should be warned in regard to taking protective measures for individual patients who carries a hepatitis factor or has suspected hepatitis. It should be ensured that necessary notices are given in accordance with the institution policy in case of injury through contact with patients' blood or bodily fluids or sharp objects. In cases of injuries that involve sharp objects, all healthcare organizations that accept inpatients in Turkey are obligated to fill a "Incident/Accident Report Form" and report it to the directorate of nursing services and hospital quality unit.

Age and class of training were found to have an effect on level of knowledge in our study. Older age groups and final-year nursing students had higher total mean pre-test scores. Students of older age groups and health-related departments have been reported to have higher levels of knowledge in a number of studies regarding knowledge levels of students from various age groups and health-related departments in the literature [3,8,12,17-19]. There was a statistically significant difference between the total mean pre-test and post-test scores of knowledge levels within the hepatitis education provided for the nursing students in our study. This indicates that the hepatitis education that was provided was effective. There have been no studies relevant to this issue found in the literature. However, Rani [20] concluded the mean post-test scores of the group that had received training were high in their study of only Hepatitis B. Furthermore, there are various descriptive studies concerning hepatitis that analyze the knowledge levels of students and healthcare workers [6,7,9,11,12,14,18,19,21-23].

There was a statistically significant difference between the students' family history of hepatitis and their total mean pre-test and post-test scores of knowledge levels. Unexpectedly, the students who did not have hepatitis in their family history had higher levels of knowledge. This could be caused by the fact that the number of the students with hepatitis in their family history was low. On the other hand, there was no relationship between the students' own history of hepatitis and their levels of knowledge. Therefore, experiencing a disease alone cannot be considered a sufficient factor to increase level of knowledge on the disease. There are studies in the literature in which the total mean scores of hepatitis knowledge levels for the students with hepatitis in their family history were higher compared with the other groups [10,12] while another study reports that the students with no previous experience of hepatitis had lower levels of knowledge and behaviour regarding hepatitis [24].

All the studies demonstrate the effectiveness of training on hepatitis. Thus, such training programs should be repeated in regular intervals while assessing students' knowledge levels and ensuring that students maintain a long-term memory of the information concerning hepatitis infections.

### CONCLUSION

We concluded that the hepatitis training program provided for nursing students was effective and the students' knowledge levels of hepatitis increased. It was determined that the students wanted to experience the education again despite the fact that they had received information related to hepatitis prevention methods in the classes. Improving the knowledge levels is not adequate for behavioural change as the rate of vaccinated students is low. Therefore, vaccination campaigns should be organized further in school and country health policies concerning on this matter should be improved accordingly. Repetition of such training programs is considered beneficial in especially preventing infectious diseases such as hepatitis and keeping the disease from becoming chronic.

### CONFLICT OF INTEREST

The authors declare no conflict of interest.

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