

## ЈАВНО ЗДРАВЈЕ

## ПОЗНАВАЊЕ И ОДНЕСУВАЊЕ ВО ОДНОС НА ХЦВ ИНФЕКЦИИ ПОМЕЃУ СТУДЕНТИ НА МЕДИЦИНСКИ ФАКУЛТЕТ, УНИВЕРЗИТЕТ Св. КИРИЛ И МЕТОДИЈ, СКОПЈЕ

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## Извадок

**Цитирање:** Исјановски В, Исјановски И, Николовски П. Познавање и однесување во однос на ХЦВ инфекции помеѓу студенти на медицински факултет, Универзитет Св. Кирил и Методиј, Скопје. *Арх Ј Здравје* 2019;11(1):43-50**Клучни зборови:** Хепатитис Ц, знаење, ставови, студенти на медицина**\*Кореспонденција:** Виктор Исјановски, Медицински факултет, Универзитет „Св. Кирил и Методиј“, Скопје, Република Северна Македонија. E-mail: viktorisjanovski@yahoo.com**Примено:** 27-дек-2018; **Ревидирано:** 20-јан-2019; **Прифатено:** 28-фев-2019; **Објавено:** 15-мар-2019**Печатарски права:** © 2019 Виктор Исјановски. Оваа статија е со отворен пристап дистрибуирана под условите на нелокализирана лиценца, која овозможува неограничена употреба, дистрибуција и репродукција на било кој медиум, доколку се цитираат оригиналниот(ите) автор(и) и изворот.**Конкурентски интереси:** Авторот изјавува дека нема конкурентски интереси.

Цел на студијата е да се утврдат знаењата и ставовите на студентите по медицина за ХЦВ инфекција. Материјал и методи: истражувањето е аналитичка студија на пресек спроведена на Медицинскиот факултет, на примерок од 360 студенти. Анкетирани се студенти од вториот семестар се до завршната година. Притоа користен е специјално дизајниран прашалник, кој е развиен од страна на истражувачот. Прашалникот е составен од три дела: прашање поврзани со социо-демографски податоци, знаење за ХЦВ инфекции и став на студентите кон ХЦВ-позитивни пациенти. Резултати: Стапката на одговор на анкетата беше 90%. Оваа студија, посочи дека целокупното знаење на студентите по медицина е умерено (многу добро-7-8). Студентите имаат повеќе информации за превенција на хепатит Ц отколку за другите аспекти на болеста, како начин на пренесување и симптоми. Регистрирана е статистички значајна разлика помеѓу знаењето за хепатитис Ц со нивото на образование на студентите. Заклучок: Нашата студија покажа дека студентите по медицина имаат доволно знаење за ХЦВ, но потребно е да се продолжи со едукација на оваа тема.

## PUBLIC HEALTH

## KNOWLEDGE AND ATTITUDES FOR HCV INFECTION AMONG STUDENTS OF THE MEDICAL FACULTY, UNIVERSITY ST.CIRIL &amp; METHODIUS, SKOPJE

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## Abstract

**Citation:** Isjanovski V, Isjanovski I, Nikolovski P. Knowledge and attitudes for HCV infection among students of the medical faculty, University St. Cyril & Methodius, Skopje. *Arch Pub Health* 2019; 11 (1): 43-50 (English)**Key words:** Hepatitis C, knowledge, attitude, medical students**\*Correspondence:** Viktor Isjanovski, Faculty of Medicine, Ss. Cyril and Methodius University in Skopje, Republic of North Macedonia. E-mail: viktorisjanovski@yahoo.com**Received:** 27-Dec-2018; **Revised:** 20-Jan-2019; **Accepted:** 28-Feb-2019; **Published:** 15-Mar-2019**Copyright:** © 2019, Viktor Isjanovski. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author(s) and source are credited.**Competing Interests:** The author have declared that no competing interests

The aim of the study was to determine knowledge and attitudes for HCV infection among medical students. Material and methods: The research was an analytical cross-sectional study. The study was conducted at Medical faculty, and convenience sample of 360 students, interviewed students of the second semester to final year. Specially designed questionnaire was developed by the researcher. It was consisted of three parts include questions related to socio-demographic status, to level of knowledge for HCV infection, and question related to attitude of students towards HCV-positive patients. Results: The response rate of the survey was 90%. The present study, indicated that medical student overall knowledge is moderate (very good 7-8). Students had more information about hepatitis prevention than about other aspects of the disease such as mode of transmission and symptoms, there was a significant correlation among student's attitude and the total level of knowledge toward patients with hepatitis C in a way that higher knowledge is associated with better attitude. Conclusion: Our study has shown that medical students have a sufficient knowledge about HCV to face future challenges; they need further education on the subject.

## Introduction

Hepatitis can be manifested in acute form with jaundice, dark urine, anorexia, weakness, severe fatigue, pain and tender right upper quadrant. Viral hepatitis is one of the five important infectious causes of premature death in the world. At least one million people die from hepatitis in the world yearly. About two billion patients are suffering from hepatitis B, and there are more than 350 million carriers in the world. Hepatitis C is the most common viral liver disease and about 5.4 million people in the United States are infected with Hepatitis C, based on the results of several studies<sup>1</sup>. The carriers of this disease are about 3% and 3-4 people become infected annually<sup>2,4</sup>. Around 70 to 80% of patients with Hepatitis C enter the chronic phase and more than 50% of them are symptom-free and are not aware of their disease<sup>5,6</sup>. Hepatitis C is identified as an important factor in chronic liver diseases and liver cancer. Inability caused by Hepatitis C is not only limited to liver disease; 15% of cases have extra-hepatic symptoms, including glomerulonephritis, lymphoma, leukemia, Sjogren's syndrome, and lichen planus<sup>7-9</sup>. Also, Hepatitis C is the leading cause of liver transplantation, because of the high prevalence of the disease in the United States<sup>10</sup>. This disease has no vaccine and no cure, because of the high ability of mutations in the genome, and prevention is the only way to avoid it<sup>11</sup>. This infection is currently considered a health-related problem in different communities<sup>12</sup>. Because of the progressive nature of disease, preventing new cases and treating patients in the early stages, are the main methods for controlling it<sup>10,13</sup>. Appropriate perception of HCV (Hepatitis C virus) infection has a great importance among health care workers, because 80% of patients are initially assessed and diagnosed by them<sup>14</sup>. According to Souza'D and colleagues (2004), the majority of physicians in East London confessed to their little knowledge of chronic Hepatitis C and were in need of further training<sup>15</sup>. Zickmund and colleagues (2007) also assessed the knowledge and attitude of health care workers about HCV and showed that there are defects in their knowledge, which might be a barrier to receiving proper treatment<sup>16</sup>. The research of Laraqui et al (2009), regarding knowledge and function of health care workers in different cities of

Morocco, showed the risks of Hepatitis C and B infections are not respected enough by health care workers<sup>17</sup>.

In the study conducted in Iran, Rahmati Najarkolaei et al. (2013) demonstrated that educational intervention could improve the knowledge of the female students regarding HIV/AIDS<sup>18</sup>.

Medical students are at high risk for occupational exposure to blood-borne pathogens via sharp injuries such as needle stick injuries so it is necessary for students to know about risk factors, diagnosis, treatment, and side effects of Hepatitis C<sup>19</sup>. On the other hand, epidemiologic researches on Hepatitis C concerning infectious diseases such as AIDS or Hepatitis are limited and few studies have focused on the knowledge and attitude of students about this infection<sup>18</sup>. In Birmingham teaching hospitals, respondents to a questionnaire exhibited substantial lack of knowledge about HBV, HCV, and HIV transmission risks<sup>19</sup>. A study by Janjua et al<sup>20</sup> with healthcare workers in Pakistan has shown that education about infections leads to improved use of universal precautions against blood borne pathogens. As students of medicine or nursing as also exposed to the risk of contracting blood borne infections, education on infection control should also include them<sup>21</sup>. According to several studies of clinical practice, patients infected with HBV and HCV suffer from some level of stigmatization and avoidance of care<sup>22-23</sup>.

Hepatitis is a preventable disease and the students of medical sciences have an effective role in its prevention. The staff of health providing services should be familiar not only with treatment but also with epidemiological aspects of diseases such as transmission, prevention and control. Therefore, it is vital to study the level of information of this group in different fields including hepatitis, one of the most prevalent infectious diseases. General knowledge of health staff about viral hepatitis and its transmission and prevention can stop the spread of this disease in hospitals and in society. Since medical students are in constant contact with hepatitis patients during their studying and afterwards, they are in danger of acquiring viral hepatitis especially types B and C.

The aim of this study is to determine the knowledge of students of the Medical fac-

ulty about HCV infections, risk behavior, modes of transmission and prevention

## Material and methods

The research is an analytical cross-sectional study. The research was conducted at the Students of the Medical Faculty. The sample consists of 360 students, began with students in second semester till finish the study. Criteria for exclusion from the study are that the student does not want to participate in the study.

We used a non-standardized, anonymous, self-administering questionnaire, which was already used in a conducted study in Bitola by Prodanovska Stojcevska V. and colleagues<sup>24</sup> and is validated. The questionnaire is filled out by the students themselves (self-administering). The questionnaire consists of three parts: 1) socio-demographic data; 2) knowledge about HCV infections; and 3) students' attitude toward HCV-positive patients. The first part included data about the age, sex, years of study, type of study, secondary education, nationality, etc.. The second part includes a set of yes / no / I do not know questions about viral pathogenesis, ways of transmission, risk factors (blood transfusion prior to 1995, surgical or gynecological intervention, dental intervention, tattoos, piercings, intravenous drug

users, hemodialysis, and exposure to the workplace), symptoms, diagnosis and prevention of infection. The third section includes questions about attitudes towards people who might or have been infected with HCV.

The collected data were organized, tabulated and statistically analyzed using statistical package STATISTICA<sup>10</sup>. Descriptive measures, including frequency, percentage; mean and standard deviation were presented. The significance of the difference is tested by the Difference test. P value was statistically significant at level 0.05%. The collected data are shown in tables and figures.

## Results

Table 1 shows the socio-demographic data for students. The average age of the students are  $21.3 \pm 1.6$ y, a minimum of 18y, and a maximum of 25y. 72.2% of the female sex, 27.8% of the male sex, the percentage representing the structure of the students at the Medical faculty. 53.6% are with a gymnasium, secondary medical schools 42.2% and 4.2% have another high school. Students are from all years of study, but with a different percentage of representation. 59.2% of students are from Skopje and 98.6% were single (table1).

**Table 1.** Socio - demographic characteristics of the participants

	average	minimum	maximum	Стд.Дев.
Age	21.3	18.0	25.0	1.6
Gender	No		%	
Male	100		27.8	
Female	260		72.2	
School				
medical	152		42.2	
gymnasium	193		53.6	
else	15		4.4	
year of study				
I	63		17.5	
II	31		8.6	
III	137		38.1	
IV	74		20.6	
V	29		8.1	
VI	26		7.2	

<b>place of living</b>		
Skopje	213	59.2
rest	147	40.8
<b>marital status</b>		
single	355	98.6
yes	5	1.4

**Table 2.** Proportion of participants answered correctly statements regarding general knowledge and routs of transmission

General Knowledge/Questions	correct answer	%
Hepatitis c is caused by virus	350	97.2
<b>risk behavior</b>		
blood transfusion before 1995	269	74.7
surgical intervention	306	85.0
gynecological intervention	291	80.8
dental intervention	298	82.8
placement of piercing	325	90.3
placement of tattoo	310	86.2
using drugs	296	82.2
sniffing cocaine	116	32.2
hemodialysis	267	74.2
Hemophilia	185	51.4
professional exposure	255	70.8
the use of common personal hygiene maintenance equipment	303	84.2
frequently changing sexual partners	303	84.2
the role of the genotype of the virus	310	86.1
Contact with infected blood and blood derivatives	308	85.6
transferred from a positive mother to a child	285	79.2
79.2% of the students give the correct answer , that the virus can be transmitted from a positive mother to a child	285	79.2
Is there a HCV vaccine	136	37.7
Co-infection with HBV	218	60.6
Co-infection with HIV	240	66.7
if there is specific therapy	171	47.5
have avoided any therapeutic with a diagnosed or suspected person with hepatitis C	214	59.4
have avoided any contact with a diagnosed or suspected person with hepatitis C	85	23.6
do they consider that a healthcare worker may refuse / avoid treatment of HCV + person	156	43.3
No average minim. maxim. Std.Dev		
Average assessment of knowledge about HCV infection	336	6.2 1.0 10.0 2.151013

A large percentage of respondents answered that Hepatitis C causes a virus-97.2%, and 2.8% consider it a bacterium, the percentage difference is statistically significant for

$p < 0.05$  ( $p = 0.000000$ ) (tab 2). The profile of those who give an incorrect response to the causative agent of hepatitis C are women (80.0%), Macedonians (60.0%) and Albanians

(40.0%), gymnasium (80.0%), 50.0% are in the first year, 20.0% are second and 30.0% are third year. The dependence between the study year and the knowledge caused by Hepatitis C (Pearson Chi-square: 11.6186,  $p = .040405$ ) is recorded. 74.7% of those surveyed correctly responded that a blood transfusion before 1995 is a risky behavior for HCV infection. The knowledge of HCV transmission through surgical, gynecological and dental intervention (if basic hygiene measures are not maintained) ranges from 85.0% to 80.8%. The respondents' transmission of HCV by setting piercing or tattoo ranging from 90.3% to 86.2%. A large percentage of respondents -82.2% know that i.v. drug use represents a risk behavior for HCV infection. Only 32.2% of respondents know that sniffing cocaine represents risky behavior for HCV infection (table 2). 74.2% of respondents know that hemodialysis as a therapeutic method represents a risk for HCV infection. 51.4% of respondents know that the disease like hemophilia represents risk behavior for HCV infection. 29.2% of medical students do not know that occupational exposure is a risk, 70.8% knows. 84.2% of respondents know that the use of common accessories for personal hygiene, for shaving, toothbrushes and frequently changing sexual partner is a risk (table 2). Knowledge of risk behaviors (factors) for getting HCV infection among surveyed students ranges from 70.8% (occupational exposure) to 90.3% (tattoo). The highest percentage of inaccurate responses to risk behaviors (factors) for HCV infection among students is registered in cocaine-sniffing-67.8% and 48.6- in cases of hemophilia. Correct response to the role of the genotype of the virus (time duration of the disease and the success of treatment) - give 86.1% of the students. Correct answer for the transmission of the virus - give 85.6% of the surveyed students. 66.7% of the respondents believe that co-infection with HIV is possible and 60.6% with HBV. 47.5% of the students consider that there is a specific HCV infection. 35.0% of the students offered suggestions for preventive measures such as: careful blood and blood derivatives work, sharp objects, careful work in laboratories, wearing two pairs of protective gloves, masks, glasses, education of the population, and information about the transmission.

59.4% of those students would not have avoided therapeutic contact with diagnosed or suspected hepatitis C, and 23.6% would avoid anybody including sexual contact with a diagnosed or suspected hepatitis C disease. 11.4% of the respondents did not know if they would avoid treatment with a diagnosed or suspected hepatitis C disease, and 14.5% do not know if they would avoid anybody including sexual contact with a diagnosed or suspected hepatitis C disease. 29.2% of those would avoid treatment with diagnosed or suspected hepatitis C disease, and 61.9% would escape anybody including sexual contact with a diagnosed or suspected hepatitis C.

The average assessment of knowledge about HCV infection in 336 students according to their assessment is  $6.2 \pm 2.2$ , minimum 1, and a maximum of 10

## Discussion

The current study was conducted among medical students who are expected to have adequate background knowledge and a cautious attitude toward such contagious diseases as hepatitis C. The students have generally shown a high level of knowledge about HCV infection. We believe that this is the result of regular attendance to theoretical and practical classes.

Regarding the mode of HCV transmission, our study has shown that the level of awareness was not poor. However, some questions were good such as those on injections of drug users, infection through blood transfusion, and organ donation. These results were similar to findings reported by the study in University of Lome students<sup>25</sup> In the Medical College of Bitola, students showed a high-level of awareness of HCV transmission<sup>24</sup> and more than half of the medical students in medical colleges of Karachi, Pakistan, revealed excellent knowledge of HBV and HCV transmission<sup>26</sup>.

The students in this study showed good knowledge of the clinical presentation of hepatitis C. Similar results on the diagnosis of hepatitis B and C were reported of Karachi medical students<sup>26</sup> but our results were better than those of the medical students in Guilan University, Iran, which were poor<sup>27</sup>.

Persons with HCV infection are often asymptomatic and may not even be aware that they are infected though they are capa-

ble of infecting others.<sup>28-29</sup> Most of the medical students as in the Mansour-Ghanaei's study were unaware of the asymptomatic nature of HCV infection.<sup>27</sup> In the present study, most of the medical students knew that persons infected with hepatitis C can be asymptomatic. This was consistent with the responses reported in the study by Khan *et al*<sup>26</sup>.

The present study reported that more than half of medical students had fair knowledge of the treatment (59.4%) of Hepatitis C, which was better than the results of Karachi<sup>26</sup> and Guilan University medical students<sup>27</sup>.

Half of the studied group, the overall level of awareness of hepatitis C was fair, as in the study of University of Dammam(69.%)<sup>30</sup>. These results were better than a study among Najran medical students which found poor or inadequate knowledge of blood-borne infections.<sup>31</sup> The mean knowledge levels of medical students of Guilan University of hepatitis C were relatively low.<sup>27</sup> In study by Hu *et al*. Taiwanese dental students were uncertain of HCV infection, and their knowledge level was significantly lower on HCV than HBV and HIV.<sup>32</sup> However, our study was comparable to the result of a study conducted in medical colleges in Karachi by Khan *et al*<sup>26</sup> and University of Dammam<sup>30</sup>, which showed the overall knowledge of students about hepatitis B and C between 50% and 70% (50%-90% our study).

## Conclusions

In the current study, the students had knowledge of an fair level, acceptable public perceived risk, and moderate personal perceived risk and behavioral intention. Generally, greater age and education levels of students were associated with increased knowledge and perceived risk (personal and public) among students. As hepatitis is a very important health problem affecting almost 10% of the population.

Significant feedback between students' attitudes and levels of knowledge is registered. The views are directly influenced by the new knowledge. Therefore, it is necessary to increase the level and quality of training for HCV in order to prevent discrimination and prejudice towards infection and patients.

Successful implementation of the research and realization of the set goals provides the possibility for systemization and assessment of the knowledge and attitudes of medical students for HCV infection and risk factors, thus identifying the key parameters for creating appropriate programs for education and promotion of prevention.

The findings from this research can be used as a basis and improvement of specific targeted programs for raising the awareness of HCV infection and risk factors for its development, as well as proposals for prevention programs.

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