

KNOWLEDGE OF HEPATITIS B AMONG THE HEALTHY POPULATION IN COMMUNITY

Monika Neloska¹, Viktor Isjanovski², Igor Isjanovski²

¹ Ss. Cyril and Methodius University in Skopje, Faculty of Medicine, Public Health Doctoral Studies, Republic of North Macedonia

² Ss. Cyril and Methodius University in Skopje, Faculty of Medicine, Republic of North Macedonia

Abstract

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Key words: hepatitis B, hepatitis B virus, knowledge, transmission

***Correspondence:** Monika Neloska. Ss. Cyril and Methodius University in Skopje, Faculty of Medicine, Public Health Doctoral Studies, Republic of North Macedonia. E-mail: monika@neloski.biz

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Hepatitis B is the world's most common blood-borne viral infection, accounting for 2 billion infections, 350 million carriers, and 6 lakh deaths annually. Aim of the paper was to determine the level of knowledge among healthy population in the Republic of North Macedonia regarding Hepatitis B virus infection. Material and methods: A community-based cross-sectional study was undertaken. Questionnaire was administered to 600 healthy individuals, who heard about hepatitis B. Data handled and analyzed by using statistical package SPSS. Results: The profile of those who give the correct answer regarding the cause of hepatitis B that it is a virus are women (65.3%), aged 40 to 49 (42.8%), by nationality are Macedonian, have higher education (52.8%), 92.8% live in urban areas, 74.3% are married, employed (79.2%) and have a moderate monthly income (68.9). About one-third of the sample said that loss of appetite, diarrhea, nausea/vomiting also associated with hepatitis B. There is a significant difference in knowledge related to early (prodromal) (symptoms such as cold and flu - fever, runny nose, cough) symptoms of hepatitis infection. Only 17.7% give the correct answer that they register, and 81.7% do not. Jaundice is one of the common symptoms of hepatitis, 32.2% give the correct answer, and 25.8% of the symptoms that are present and common are nausea, vomiting and loss of appetite. The percentage difference registered between the correct answers to the questions QP 18,19 and 20 versus the incorrect answers is significant for $p < 0.05$ ($p = 0.0000$) in favor of the incorrect answers. Conclusions: Important knowledge deficits about the routes of hepatitis B transmission/prevention were identified. Continued efforts should be made to develop and implement hepatitis B educational campaigns/health promotion for these communities.

ЈАВНО ЗДРАВЈЕ

ЗНАЕЊЕ ЗА ХЕПАТИТИС Б КАЈ ЗДРАВА ПОПУЛАЦИЈА ВО ЗАЕДНИЦАТА

Моника Нелоска¹, Виктор Исјановски², Игор Исјановски²

¹ Универзитет „Св. Кирил и Методиј“ во Скопје, Медицински факултет, Докторски студии по јавно здравје, Република Северна Македонија

² Универзитет „Св. Кирил и Методиј“ во Скопје, Медицински факултет, Република Северна Македонија

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***Кореспонденција:** Моника Нелоска, Универзитет „Св. Кирил и Методиј“ во Скопје, Медицински факултет, Школа за докторски студии по јавно здравје, Република Северна Македонија. E-mail: monika@neloski.biz

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Извадок

Хепатитис Б е најчестата вирусна инфекција во светот која се пренесува преку крв, со 2 милијарди инфекции, 350 милиони носители и 6 милиони смртни случаи годишно. Цел на трудот е да се утврди нивото на знаење кај здравата популација во Република Северна Македонија во врска со инфекцијата со вирусот Хепатитис Б. Материјал и методи: Беше спроведена студија на пресек во заедницата. Прашалникот беше администриран на 600 здрави индивидуи кои слушнале за хепатитис Б. Податоците се анализираа со помош на статистички пакет SPSS. Резултати: Профилот на оние кои даваат точен одговор во однос на причината за хепатитис Б дека е вирус се жени (65,3%), на возраст од 40 до 49 години (42,8%), по националност се Македонки, со високо образование (52,8%), 92,8% живеат во урбани средини, 74,3% се во брак, вработени (79,2%) и имаат умерени месечни примања (68,9). Околу една третина од примерокот знаеле дека губењето на апетит, дијареа, гадење/повраќање се поврзани со хепатитис Б. Постои значајна разлика во знаењето поврзано со раните (продромални) (симптоми како настинка и грип - треска, течење на носот, кашлица) симптоми на инфекција со хепатитис. Само 17,7% даваат точен одговор дека се регистрираат, а 81,7% не. Жолтица е еден од најчестите симптоми на хепатитис, 32,2% го даваат точниот одговор, а 25,8% од симптомите кои се присутни и чести се гадење, повраќање и губење на апетит. Процентуалната разлика регистрирана помеѓу точните одговори на прашањата 18,19 и 20 наспроти неточните одговори е значајна за $p < 0,05$ ($p = 0,0000$) во корист на неточните одговори. Заклучоци: Идентификувани се важни недостатоци во знаењето за патитштата на пренос/превенција на хепатитис Б. Треба да се направат континуирани напори за развој и спроведување на едукативни кампањи за хепатитис Б/промоција на здравјето за овие заедници.

Introduction

About 240 million persons worldwide are chronically infected with hepatitis B virus (HBV)¹ with heterogeneous prevalence throughout the world. There is an intermediate to high prevalence in the Asia-Pacific region, representing three-quarters of chronic HBV-positive subjects worldwide.² In South-East Asia region, the estimated burden of chronic HBV infection is around 100 million.³ During HBV infection, an estimated 15%–40% of chronic hepatitis B patients would develop complications such as acute exacerbation, liver cirrhosis, and hepatocellular carcinoma.^{4,5} The HBV is 50–100 times more infectious than HIV.⁶⁻⁸

Hepatitis B is a vaccine-preventable infection. Universal HBV vaccination in newborns has dramatically changed the epidemiology of chronic HBV infection.^{1,9}

By knowing facts, having proper awareness, and attitudes the menace of this disease can be prevented to a great extent.¹⁰

In the present study, we have made an attempt to document the knowledge status among the general healthy population. It is part of bigger study of knowledge, awareness and practice of hepatitis B and HBV vaccine. This assessment will identify the gaps in knowledge and will be helpful in planning effective health education campaign for health care people.

Material and methods

Study setting

The time period is not limited, the study lasts until the fulfillment of the number, ie. sample size.

Study sample and sampling

An estimated sample size of 600 participants. Criteria for inclusion in

the study is that the respondents are residents of the Republic of Northern Macedonia, to be older than 18, to be healthy, not to use any type of medication, not to be mentally and physically handicapped, and to participate voluntarily. They were interviewed through a KAP (knowledge, attitudes and practices) questionnaire. Information was obtained regarding socio demographic and knowledge variables. The method of data collection is through a paper questionnaire, smart phone, tablet, questionnaires sent via Google forms or Kobo toolbox specified on basis of feasibility of use. The study was conducted using a structured questionnaire consisting of two parts: I. socio-demographic data-8 questions and II. Knowledge - 25

The first part includes data on age, gender, education, nationality, area of residence, marital status, etc.

The second part includes 25 questions. Participants can choose between three predefined options which were (Yes), (No) and (I do not know). Every correct answer gets one point, and zero for incorrect and do not know answers. The range is from zero (minimum score) to 2 (maximum score). The questions are about the knowledge of hepatitis B about viral pathogenesis, modes of transmission, risk factors (blood transfusion, surgical or gynecological intervention, dental intervention, tattoos, piercing, intravenous drug users, hemodialysis, and occupational exposure), symptoms, diagnosis, and prevention of infection.

The results of knowledge are classified into three levels: poor, moderate, and good. The scale of classified levels of knowledge is: bad (poor) level of knowledge of <50%, moderate level of knowledge of 50% -75% points and good level of knowledge of > 75% points. Similar cut-offs are used in the literature points values for a good level of knowl-

edge. For example, “good knowledge” cut-off points vary in Indonesia studies 80%¹¹⁻¹⁵ and Nepal¹⁶, or 75% points in Saudi Arabia¹⁷⁻¹⁸, in Malaysia¹⁹, or 70% in Yemen²⁰, and Vietnam²¹.

Study analysis

Data obtained were entered and analyzed by using statistical package SPSS. Descriptive statistics was done to document the knowledge level, and Difference also performed to understand the significant difference ($P < 0.05$). The chi-square test was used to assess the statistical significance to different risk factors and the multiple logistic regression, was also used to get the most significant

risk factors of hepatitis B. The logistic regression model was used to check the significant risk factors of hepatitis B, in which we considered knowledge about hepatitis B and the remaining variable such as age, sex, area, marital status, education, piercing, re-use of syringes, affected mother to child, multiple sexual relation, affected blood were considered as independent variables.

Results

A total of 600 subjects were involved in the study. Table-1 shows the details of descriptive statistics-the socio-demographic characteristics of the studied participants are summarized.

Table 1 . Overview of the socio-demographic characteristics of the respondents

<i>age-years.</i>	<i>број</i>	<i>%</i>
<=29	178	29.7
30 - 39	137	22.8
40 - 49	238	39.7
>-50	47	7.8
<i>gender</i>		
man	208	34.7
woman	392	65.3
<i>nationality</i>		
Macedonian	523	87.2
Albanian	65	10.8
Turkish	8	1.3
Roma	1	0.2
else	3	0.5
<i>education</i>		
elementary	8	1.3
high	266	44.3
higher	45	7.5
university	281	46.8
<i>place of residence</i>		
urban	553	92.2
rural	47	7.8

<i>marital status</i>		
no	167	27.8
yes	433	72.2
<i>employment status</i>		
employee	460	76.7
unemployed	42	7.0
student	98	16.3
<i>monthly income</i>		
Low	74	12.3
Moderate	406	67.7
High	58	9.7
Does not want to share this information / I do not know	62	10.3

All the participants were in the age between 20–67 years with a mean age of 36.7 ± 9.6 years. 39.7% participants belonged to age range 40-49 years, 29.7% less than 29 years and 7.8% above 50 years of age. Majority (65.3%) was females, while 34.7% were male. Seventy two percent were married, 27.8% unmarried. Regarding educational status, 44.3% had intermediate, 1.3% elementary, 46.8% graduate and postgraduate education. Most of the participants were employed (76.7%), they belong to the Macedonian nationality, 67.7% are with moderate monthly income and were from urban area.

Table 2 describes participants' responses to HB knowledge. Knowledge was assessed with questions focusing on the etiology of HB, signs, symptoms and transmission. The participants in the study showed a moderate level of knowledge-54% points (50% -75% points). Out of 600 participants, 439 (73.2%) were within the poor (poor) range of knowledge, while 161 (26.8%) showed adequate knowledge of HB. Poor knowledge was evident in the answers to the questions related to the symptoms

(questions 18-21), some of the questions related to the transmission of HB (questions 8.10) and the questions related to the consequences (Q18-19). The correct answers 89%, 87.2%, 83.7%, 81.5% were the highest in answer to questions 1, 2, and 9 respectively.

To the question "Have you heard of hepatitis B? (Q1) 89.0% of respondents answered positively - YES (heard before the study), and 66 (11.0%) respondents did not hear about hepatitis B. Correct answer, correct information to the question "Hepatitis B causes" virus have 83.7% of respondents, and 16.3% think it is a bacteria, the percentage difference is statistically significant for $p < 0.05$ ($p = 0.000000$)

The profile of those who give the correct answer regarding the cause of hepatitis B that it is a virus are women (65.3%), aged 40 to 49 (42.8%), by nationality are Macedonian, have higher education (52.8%), 92.8% live in urban areas, 74.3% are married, employed (79.2%) and have a moderate monthly income (68.9).

Knowledge about mode of transmission of hepatitis B

Results revealed that most of the respondents were unaware of the hepatitis B infection. The transmission by blood and blood products (74%), needles and sharps (75%), unprotected sex (67.7%) knowledge level found to be intermediate.

In terms of knowledge about the mode of transmission, the majority of respondents, i.e. participants in the study showed a moderate level of knowledge - 56.6% points (50% -75% points). Poor knowledge was evident in the answers to the questions related to the transfer question 8 (piercing-48.3%) and the question related to the transfer question 10 (cocaine sniffing - 21.0%). Correct answer in the study that showed a good level of knowledge was i.v. drug use 87.2% (Q 9).

Respondents rate the transmission of HBV through piercing or tattoo from 48.3% to 66.2%. Ignorance and negation of piercing and tattoo placement as a possible mode of transmission ranges between 51.7% (non-8.0% and 43.7% know) to 33.8% (non-8.0% and 25.8% know). More than half of the 54.5% of the respondents know that hemodialysis as a therapeutic method and its implementation

can be transmitted and HBV. 57.3% of respondents give the correct answer that hemophilia as a disease in which blood and blood products are received is a possible transmission of HBV. The percentage difference registered between those who give the correct answer versus those who do not know or give the wrong answer is significant for $p < 0.05$ ($p = 0.0000$)

Half of the respondents (51.3%) know that frequent change of sexual partner is risky behavior and 67.7% of respondents know that unsafe sex is a risk for HBV transmission.

66.5% of respondents know that hygienic habits - using common utensils to maintain personal hygiene (for shaving, for dental hygiene - toothbrushes, for injecting drugs) is correct. The percentage difference that is registered between the correct answer, the incorrect answer and I do not know according to the Difference test is statistically significant for $p < 0.05$ ($p = 0.0000$).

Perinatal and sexual transmission of HBV were recognized by 52% and 51% of respondents

Table 2. Knowledge about HBV and mode of transmission (Q1-Q17)

<i>Q1 have you heard of Hepatitis B.</i>	<i>број</i>	<i>%</i>
<i>yes</i>	534	89.0
<i>no</i>	66	11.0
<i>Q2 Hepatitis B causes</i>		
<i>virus/correct</i>	502	83.7
<i>bacteria/incorrect</i>	98	16.3
<i>Q3 Transfusion of infected blood and blood product</i>		
<i>correct</i>	444	74.0
<i>incorrect</i>	65	10.8
<i>I do not know</i>	91	15.2
<i>Q4 Surgery</i>		

correct	355	59.2
incorrect	95	15.8
I do not know	150	25.0
Q5 Gynecological intervention		
correct	316	52.6
incorrect	148	24.7
I do not know	136	22.7
Q6 Dental intervention		
correct	355	59.2
incorrect	46	7.7
I do not know	199	33.2
Q7 tattoo		
correct	397	66.2
incorrect	48	8.0
I do not know	155	25.8
Q 8 piercing		
correct	290	48.3
incorrect	48	8.0
I do not know	262	43.7
Q9 i.v. drug use		
correct	523	87.2
incorrect	18	3.0
I do not know	59	9.8
Q10 cocaine sniffing		
correct	126	21.0
incorrect	331	55.2
I do not know	143	23.8
Q11 hemodialysis		
correct	327	54.5
incorrect	161	26.8
I do not know	112	18.7
Q12 hemophilia		
correct	344	57.3
incorrect	41	6.8
I do not know	215	35.8

Q13 hygiene habits - using common utensils to maintain personal hygiene		
correct	399	66.5
incorrect	31	5.2
I do not know	170	28.3
Q14 often changing sexual partner		
correct	308	51.3
incorrect	173	28.8
I do not know	119	19.8
Q 15 contaminated syringes and needles		
correct	450	75.0
incorrect	99	16.5
I do not know	51	8.5
Q 16 from a positive mother to a child		
correct	303	50.5
incorrect	67	11.2
I do not know	230	38.3
Q 17 through unsafe sex		
correct	406	67.7
incorrect	109	18.2
I do not know	85	14.2

Knowledge about symptoms of hepatitis B

About one-third of the sample said that loss of appetite, diarrhea, nausea/vomiting are also associated with hepatitis B. There is a significant difference in knowledge related to early (prodromal) (symptoms such as cold and flu - fever, runny nose, cough) symptoms of hepatitis infection. Only 17.7% give the correct answer that they register, and 81.7% do not. Jaundice is one of the common symptoms of hepatitis, 32.2% give the correct answer, and 25.8% of the symptoms that are

present and common are nausea, vomiting and loss of appetite. The percentage difference registered between the correct answers to the questions QP 18,19 and 20 versus the incorrect answers is significant for $p < 0.05$ ($p = 0.0000$) in favor of the incorrect answers (Table 3).

18.5% of respondents know that patients with HBV often show no symptoms, the percentage difference between the correct answer to question 21 versus the incorrect answer is significant for $p < 0.05$ ($p = 0.0000$) in favor of the incorrect answer (Table 3).

Table 2. Knowledge about HBV and mode of transmission (Q1-Q17)

Q18 The early symptoms of hepatitis B are the same as the common cold and flu (fever, runny nose, cough)		
	N	%
correct	106	17.7
incorrect	490	81.7
I do not know	4	0.6
Q 19 Jaundice is one of the common symptoms of hepatitis B?		
correct	193	32.2
incorrect	404	67.3
I do not know	3	0.5
Q 20 Are nausea, vomiting and loss of appetite a common symptom of hepatitis B?		
correct	155	25.8
incorrect	440	73.3
I do not know	5	0.8
Q 21 Are there no symptoms of hepatitis B in some patients?		
correct	111	18.5
incorrect	480	80.0
I do not know	9	1.5

In the univariate analysis, age, marital status, educational level and family income were associated with good knowledge. Gender, ethnicity, and type of employment had no association with participants' knowledge. Higher HBV knowledge was statistically significantly associated with younger age ($p = 0.014$), higher education ($p < 0.0001$), place of living ($p < 0.00$), employment status-employee ($p < 0.00$) and monthly income-moderate ($p < 0.00$). Compared to the youngest age group (<29 years), participants aged 30-49 years had 2.2 times higher odds of having good knowledge (OR: 2.21; 95% CI: 1.39-3.50). Compared to individuals who had only completed primary school and high school increased odds observed among participants who had completed university diploma certificate (OR: 5.46). A moderate monthly income was also associated

with good knowledge.

After excluding predictor variables with $P > 0.25$ from the analysis, the multivariate model revealed that age, ethnicity, education and family income were significant predictors of good knowledge. Having a post-graduate was the strongest predictor factor for good knowledge (OR: 3.20; 95% CI: 1.06-9.62) followed by individuals with the highest family income (OR: 1.87; 95% CI: 1.15-3.06). They were positive predictor of higher HBV knowledge in our study. Nationality was not identified as a positive predictor of higher HBV knowledge in our study.

Discussion

Accurate knowledge is not only critical for decreasing the infection rate, but also important to dispel persistent myths, partial knowledge can

further perpetuate the risk of infection²².

This study was a part of much bigger study to assess HBV knowledge, attitudes and practices. The current study sought to document the knowledge toward hepatitis B among healthy individuals. Results of the study demonstrated a “reasonable” level of HBV knowledge toward hepatitis B, majority of people still unaware about the disease and its vaccine .

HB is probably the most important chronic viral infection affecting people. However, despite the development of an effective vaccine against HBV, this infection remains a serious threat to public health in world and in North Macedonia, still.

A study was conducted to know the knowledge in community. Younger age was found to be a positive predictor of higher HBV knowledge in our study, a possible explanation is that the Internet is being utilized more frequently in recent years by younger individuals for health information²³.

Higher education was another positive predictor of higher HBV knowledge in our study. Such an association has been well documented in the literature^{24, 25, 26-29, 30, 31-38}.

This finding is comparable with previous studies in Malaysia. A study of community members, healthcare workers and university students found 39.1% of respondents had good knowledge (using a cut-off point of 73.3%). Among university students (undergraduate, master and PhD students), 50.3% of the respondents had good knowledge (using a cut-off point of the median score)³⁹. In a population of people with chronic HB, the mean knowledge score was only 12.57/20 (62.85%)³¹. In this study,

38.8% of respondents are categorized as have good awareness. Low awareness towards HB has also been reported among community members^{40,41} and among dentists⁴² in Malaysia. Together, these figures indicate that knowledge³⁹⁻⁴² and awareness^{41, 42} towards HB is low in Malaysia. The lack of knowledge is a major obstacle for putting forth an effective population /community agenda, and also has implications for the continued spread of the infection. Our findings of low knowledge highlight the need to improve public knowledge towards HB through the dissemination of information on HB to community members.

One of the strongest predictors for poor knowledge and awareness towards HepB is low education. The impact of education on good knowledge of HB has been reported in studies from Australia⁴³, British Columbia, Canada⁴⁴, Canada⁴⁵, China⁴⁶, Kenya⁴⁷, Malaysia³¹, Poland⁴⁸, Singapore⁴⁹, and among Cambodian Americans in the US⁵⁰. There are at least two reasons for this finding. Firstly, HB is a complex disease with variations in natural history, progression and clinical management; individuals with low levels of education could have difficulty in understanding and interpreting information related to HB. Secondly, individuals with higher education have greater access to information related to HB from various sources and therefore are more likely to have better knowledge. These findings have two important implications. Firstly, community members with low educational attainment are the most appropriate group to be targeted in intervention programs to improve knowledge towards HB in Macedonia. Secondly, information related to HB being used in prevention programs needs to be simplified so that it is easy to

understand for households with low academic education.

Study conducted among health workers in White Nile state in Sudan, showed that the level of knowledge was significantly associated with occupation and educational degree⁵¹.

These results indicate that there is a need for more HBV health promotion, targeted education, and training. Other studies reported that the level of the knowledge of hepatitis is low among different populations, in several areas worldwide⁵²⁻⁵⁴.

Conclusion

Our findings revealed gaps in respondents' knowledge and understanding of the transmission risks of hepatitis B. Comprehensive hepatitis education strategies should be developed to address gaps in knowledge among the Macedonian public towards viral hepatitis

Important knowledge deficits about routes of hepatitis B transmission/prevention were identified, though these health populations are aware of at least a symptom of HB. Continued efforts should be made to develop and implement hepatitis B educational campaigns/health promotion for these communities. Emphasis should especially be laid on awareness campaigns to educate the public that hepatitis B is vaccine-preventable disease and do not spread by polluted water or by sharing utensils and that it could be easily prevented by three simple, easily available, inexpensive shots of hepatitis B vaccine. There is an urgent need for community-based interventional study for improving the knowledge and awareness level of these healthy population regarding hepatitis B and its vaccine.

In summary, there is an urgent need to raise public awareness and knowledge of HBV in order to avert its perpetuation in the community.

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