Received: 24 February 2022 / Accepted: 5 June 2022 / Published online: 30 June 2022

DOI 10.34689/SH.2022.24.3.012

UDC 616-053.2 (574.41)

EVALUATION OF AWARENESS OF BEAUTY EMPLOYEES ABOUT HEPATITIS B VIRUS INFECTION

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Abstract

Introduction. The incidence of hepatitis B virus infection (HBV) remains one of the main public health problems in Kazakhstan. According to official data, nowadays more than 67000 people with HBV are registered in Kazakhstan. A preventive examination for the detection of hepatitis B and C virus infections has been carried out for many years among workers in the field of beauty and cosmetology. Despite the measures taken, the rapid spread of HBV has a noticeable tendency to increase and is often associated with insufficient health literacy of this group.

Aim: To evaluate the knowledge level and practice among the beauty staff about epidemiology and prevention of HBV.

Materials and methods. This cross-sectional descriptive study was performed in 2021 in eight districts of Nur-Sultan. Questionnaire included items on the transmission routes, prevention, vaccination, and treatment of the infections. The data were collected by completing a checklist and a questionnaire and analyzed using by MS Excel 2015 software package.

Results. In the study, 103 beauty employees participated. The main causes for the prevalence were revealed: indifference to one's own health, irregular medical examination (47%), lack of a medical history (28%), incomplete disinfection of reusable instruments (16%).

Conclusion: To increase the awareness of this population group about the factors that increase the risk of occurrence, it is necessary to conduct and improve sanitary and information educational activities. The basics of the methods of carrying out are reflected in our recommendations.

Keywords: *hepatitis B virus, risk factors, prevention, beauty sphere.*

Резюме

ОПРЕДЕЛЕНИЕ УРОВНЯ ИНФОРМИРОВАННОСТИ О ВИРУСНОМ ГЕПАТИТЕ В СРЕДИ РАБОТНИКОВ СФЕРЫ КРАСОТЫ

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Актуальность. Заболеваемость вирусными гепатитами остается одной из актуальных проблем общественного здравоохранения Казахстана. По данным официальных источников на сегодняшний день на диспансерном учёте состоит более 67000 человек, болеющих вирусным гепатитом В. В Казахстане профилактическое обследование на выявление вирусных гепатитов В и С проводится на протяжении многих лет среди работников сферы красоты,

косметологических кабинетов. Несмотря на проводимые мероприятия, довольно быстрое распространение вирусных гепатитов В имеет заметную тенденцию к росту и нередко связано с недостаточной санитарной грамотностью данной группы в этой области.

Цель: Оценка знаний и степени информированности об эпидемиологии и профилактике вирусных гепатитов В.

Материалы и методы. Данное описательное кросс-секционное исследование было проведено в 2021 году в восьми районах Нурсултана. Анкета включала вопросы о путях передачи, профилактике, вакцинации и лечении ВГВ. Данные были собраны путем заполнения разработанной анкеты и проанализированы с помощью пакета программного обеспечения MS Excel 2015.

Результаты. Общее количество включенных респондентов составило 103 человека от 18 до 55 лет. Выявлены основные причины распространённости: равнодушие к собственному здоровью, не регулярное прохождение медицинского осмотра (47%), отсутствие медицинской книжки (28%), неполная дезинфекция многоразовых инструментов (16%).

Выводы: Для повышения осведомлённости о факторах, повышающих риск возникновения, необходимо проведение и совершенствование санитарно-просветительных, информационно – образовательных мероприятий. Основы методов проведения отражены в изложенных нами рекомендациях.

Ключевые слова: *вирусный гепатит В, факторы риска, профилактика, сфера красоты.*

Түйіндеме

СҰЛУЛЫҚ САЛАСЫНДАҒЫ ҚЫЗМЕТКЕРЛЕР АРАСЫНДА В ВИРУСТЫҚ ГЕПАТИТ ТУРАЛЫ ХАБАРДАР БОЛУ ДЕҢГЕЙІН АНЫҚТАУ

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Кіріспе. Вирустық гепатиттермен сырқаттану Қазақстанның қоғамдық денсаулық сақтау саласындағы өзекті мәселелердің бірі болып қалуда. Ресми дереккөздердің деректері бойынша бүгінгі күні диспансерлік есепте В вирустық гепатитімен ауыратын 67000-нан астам адам тұрады, Қазақстанда В және С вирустық гепатиттерін анықтауға профилактикалық тексеру көптеген жылдар бойы сұлулық саласының, косметологиялық кабинеттердің қызметкерлері арасында жүргізіледі. Іс-шараларға қарамастан, В вирустық гепатиттерінің тез таралуы айтарлықтай өсу тенденциясына ие және көбінесе осы топтың осы саладағы санитарлық сауаттылығының жеткіліксіздігімен байланысты.

Мақсаты: В вирустық гепатиттерінің эпидемиологиясы және алдын-алу туралы білімі мен хабардар болу дәрежесін бағалау.

Материалдар мен әдістері. Бұл көлденең сипаттамалық зерттеу 2021 жылы Нұрсұлтан сегіз ауданында жүргізілді. Сауалнамада инфекцияның берілу жолдары, алдын-алу, вакцинация және емдеу туралы сұрақтар болды. Деректер бақылау тізімі мен сауалнаманы толтыру арқылы жиналды және MS Excel 2015 бағдарламалық жасақтамасының көмегімен талданды.

Нәтижелері. Енгізілген респонденттердің жалпы саны 18-ден 55 жасқа дейінгі 103 адамды құрады. Таралуының негізгі себептері анықталды: өз денсаулығына бей-жай қарамау, медициналық тексеруден тұрақты емес өту (47%), медициналық кітапшаның болмауы (28%), көп реттік құралдарды толық дезинфекциялamау (16%).

Тұжырымдар: Пайда болу қаупін арттыратын факторлар туралы хабардар болуды арттыру үшін санитарлық - ағарту, ақпараттық – білім беру іс-шараларын жүргізу және жетілдіру қажет. Жүргізу әдістерінің негіздері біз ұсынған ұсынымдарда көрсетілген.

Түйінді сөздер*: В вирустық гепатиті, қауіп факторлары, алдын-алу, сұлулық саласы.*

Библиографическая ссылка:

Turgambayeva A.K., Saussakova S.B., Imashpayev D.M., Tebenova K.S., Asselah T. Evaluation of awareness of beauty employees about hepatitis B virus infection // *Nauka i Zdravookhranenie* [Science & Healthcare]. 2022, (Vol.24) 3, pp. 88-94. *doi 10.34689/SH.2022.21.3.012*

Тургамбаева А.К., Саусакова С.Б., Имашпаев Д.М., Тебенова К.С., Асселах Т. Определение уровня информированности о вирусном гепатите В среди работников сферы красоты // Ғылым және Денсаулық сақтау. 2022. 3 (Т.24). Б. 88-94. *Doi10.34689/SH.2022.24.3.012*

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Introduction

Hepatitis virus infection is widespread, progressive, and therefore presents a serious problem in modern medicine. The global strategy of healthcare sector on hepatitis calls for the elimination of hepatitis as a public health threat by 2030 (reduction of new infections by 90% and mortality by 65%) [1-3]. There are approximately 300-500 million patients with hepatitis B virus infection (HBV) in the world [4].

Hepatitis occurs in the following ways: the oral mechanism of infection (typical for hepatitis A and E viruses) and the parenteral mechanism of infection (typical for hepatitis B, C, D viruses) [5].

HBV is one of the most common life-threatening liver infections. It can lead to the development of chronic liver disease and pose a high risk of death from cirrhosis and liver cancer [6].

5-10% of all patients with acute HBV infection develop chronic hepatitis B or become inactive carriers. Among adults, less than 5% of infected adults develop chronic infections, and 15–25% of adults chronically infected during childhood die from hepatitis B-related cancer or cirrhosis [1].

The level of primary morbidity of acute HBV in Kazakhstan decreased by 4,5 times with indicators of 3,21 per 100 thousand population in 2009 to 0,19 per 100 thousand population in 2020 year [7].

Employees in the field of cosmetology and beauty are at risk of viral hepatitis [8], due to the fact during beauty procedure, tattoo, manicure or pedicure, piercing ears with non-sterile needles beauty staff may accidentally expose to their clients' blood [9].

More recent reviews from the United States [10] confirm the risk for HBV and hepatitis C virus infection (HCV) transmission in nail salons cannot be excluded.

Adequate instrument sterilization as the basis of prevention of HBV [11] must include all of the following steps: washing in hot soapy water, scrubbing or ultrasonic cleaner, soaking in disinfectant for required time, sterilization with a glass bead steriliser or autoclave. Salons should store the sterilized instruments in a suitable manner (i.e. UV cabinet, clean unused food grade plastic bag), as this is required in order to maintain the sterility.

In recent years, several studies have investigated the level of knowledge about viral hepatitis [12-13].

In Iran, hairdressers with secondary school education showed a high level of knowledge about HBV and HCV [14].

Studies conducted in Ghana reported poor awareness of barbers about HBV and job-related factors contributing to spread of infections among the vast majority of the barbers studied [15-16].

In Brazil, during a study of masters of manicure and pedicure in 2010 [17], a low level of knowledge was determined about the methods of transmission, prevention and risk perception of infectious carriers during their professional activities, as well as the lack of instructions for biosafety rules. The prevalence of HBV among these professionals is higher than among the general population, indicating that they constitute a distinct risk group in the city of Sao Paulo and pose a threat to their clients and personal contacts.

In the United States, the nail bar staff is mostly Vietnamese Americans, many of whom are immigrants [4,18]. Refugee and immigrant communities are often exposed to exploitation by workers (including human trafficking) and face cultural and linguistic barriers that can make them vulnerable to occupational health and safety risks, including HBV transmission [19].

Retrospective epidemiology analysis of HBV transmission features in Nur-Sultan city [20] demonstrated low level of sanitary and hygienic knowledge among general population.

Given the relevance of this topic, we conducted a study to determine the level of awareness of beauty employees about the risk factors for the development and prevention of HBV.

Material and Methods.

This cross-sectional descriptive study was conducted from February 2021 to April 2021 in the beauty salons in eight districts of Nur-Sultan city. The group of participants comprised both genders and inclusion criteria required participants to be 18 years of age.

A specific questionnaire consisting of 23 items was developed to collect information about the socio-demographic characteristics of respondents, knowledge towards transmission and prevention method of hepatitis B virus and practice towards prevention HBV.

Socio-demographic data included gender, age, specialization, work experience.

Participants' understanding of some viral hepatitis aspects, such as general information, diagnosis, clinical manifestation, transmission, risk factors, and prevention, were assessed. This section of the questionnaire consisted of 4 questions requiring one or more responses and a further 8 questions with the following options: "yes/no", or "do not know". In 6 questions, individuals were required to inform about their actions during to client's visit.

The Russian and Kazakh versions of the questionnaire was used to collect the information from the respondents.

The questionnaire was standardized by applying it to a set of individuals characteristically representative of but not included in the study population (data not shown and statistical analysis not conducted).

The participants were anonymously responded to the items on the questionnaire.

Data was checked for completeness and consistency. Statistical processing of the data obtained during the study was carried out using the MS Excel 2015 software package. The percentage value of each question was calculated.

Results.

In the study, 103 beauty employees from 18 to 55 years old participated, of which 91,3% were females, and 8,7% were male respondents. Most of participants were nail masters (62,5%) (Table 1).

Prevention of HBV among the decreed population groups depends not only on knowledge, but also on job experience. 55,3% have work experience from 1 to 3 years.

48% of the participants work in beauty salons. 40% of respondents have a separate office (in business centers, etc.), and only 12% work from home.

98% of respondents are aware of the possible transmission of HBV through blood (Figure 1).

Table 1. **Characteristics of respondents.**

Indicators	Total (n=103)
Gender	
Female	94 (91,3%)
Male	9 (8,7%)
Age category	
18-24 years old	59 (57,3%)
25-30 years old	32 (31,1%)
31-40 years old	9 (8,7%)
41-50 years old	1 (1%)
Over 50 years old	1 (1%)
Professions	
Nail master	64 (62,5%)
Cosmetologist	18 (17,5%)
Tattoo artist (tattoos)	13 (12,6%)
Tattoo artist (eyebrows, lips)	7 (6,8%)
Job experience	
Up to 1 year	29 (28,2%)
1-3 year	57 (55,3%)
3-5 year	12 (11,7%)
More than 5 years	5 (4,9%)

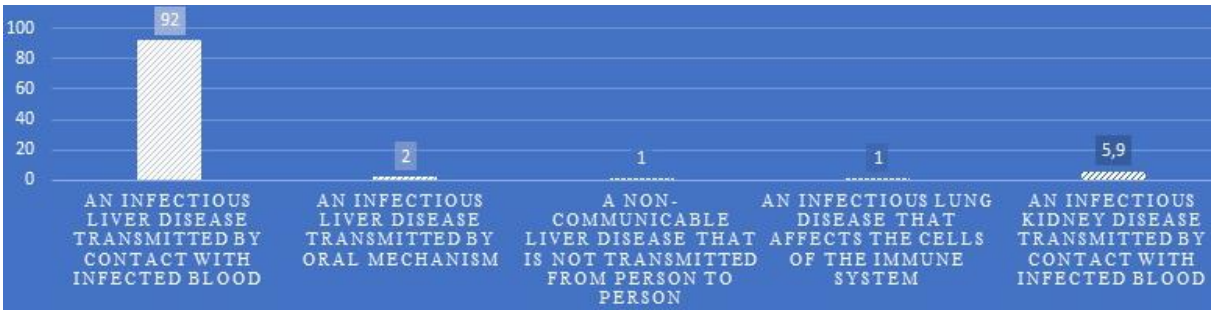

Figure 1. Transmission's ways of HBV.

When asked about the risk group, 86% (89) of the respondents answered that they did not consider themselves to be at risk for HBV.

Measures to prevent HBV are known to many in the world, as well as to our respondents. 97% (100) answered positively.

The main sources of information on measures to prevent hepatitis B. 40,2% of the respondents answered that they are informed by doctors and medical staff. Further, the mass media are engaged in propaganda of measures to prevent HBV – 34,3%.

21,6% of the respondents learned from acquaintances, friends and relatives. 2% came across their own experience, 1% from medical literature, and 1% from Internet resources (Figure 2).

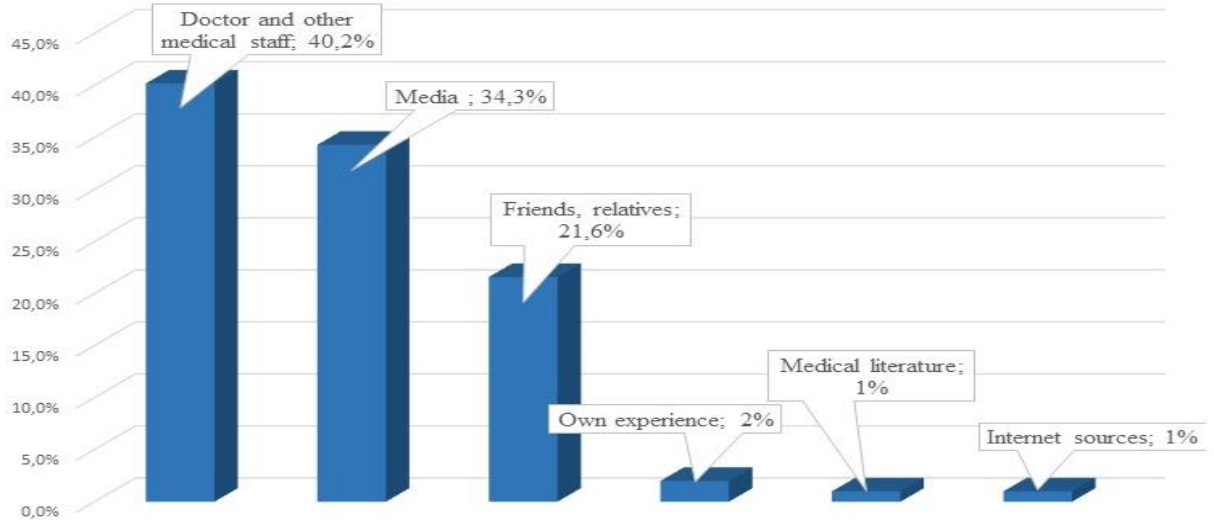

Figure 2. Information sources about measures for preventing HBV.

It is noticed that 75(72%) of respondents are aware of the existence of vaccine prevention against HBV in the Republic of Kazakhstan. However, 27% of participants don't know about vaccination.

When we asked about the employer's instruction on prevention of HBV transmission on the first working day, 53(51%) answered positively.

The presence of a medical history is an important key link in the prevention of transmission of not only HBV, but also other infectious and non-infectious diseases. 75 (72%) of the respondents answered in the affirmative.

45,6% of respondents undergo medical examinations and screenings on a regular basis, 47,6% undergo medical examinations only when necessary, and 6,8% of respondents do not undergo medical examinations at all (Figure 3).

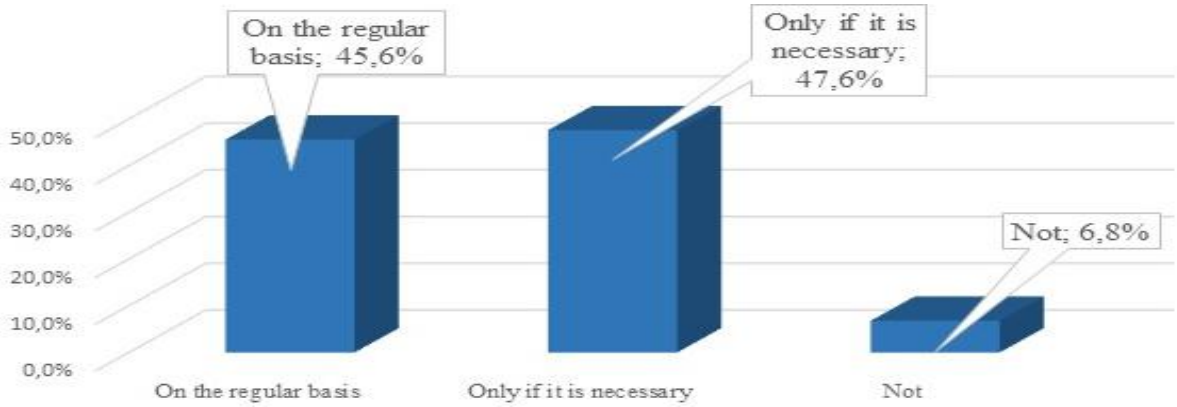

Figure 3. Medical examination and screening.

The number of professional tools is individual for each client. According to the answers, most of the respondents use 5 sets – 16,7%. The type of instruments used by 50% of the respondents is disposable, the remaining 50% are reusable.

Disinfection of instruments is an important part of the work of our respondents, since in most cases there is contact with blood. 84,5% of the respondents sterilize in stages, 10,7% do not completely sterilize, treating only with alcohol, 3,9% do not treat with alcohol, using only a dry oven, and 1% do not disinfect (Figure 4)

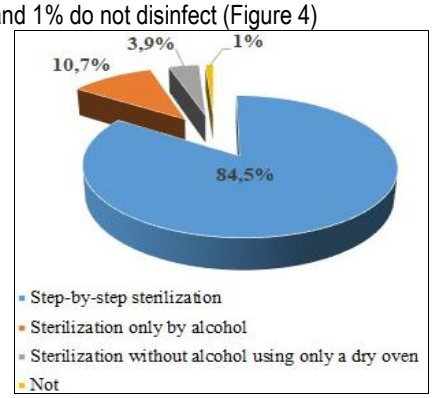

Figure 4. Disinfection of instruments.

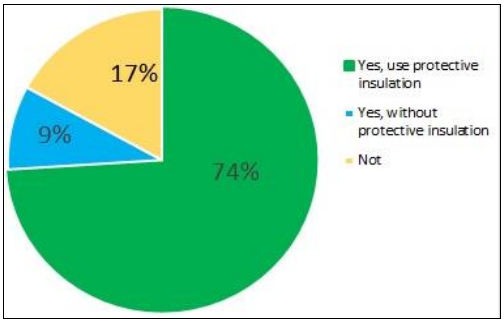

Figure 5. Acception clients when master have open microtrauma, scratches, abrasions, cracks, pustular diseases.

64% of respondents have a special journal with a schedule for disinfection of instruments.

74% of respondents accept clients, at a time when the respondent himself has open microtrauma, scratches, abrasions, cracks, pustular diseases and at the same time use protective insulation (fingertips, adhesive plaster), 9% also accept clients, but do not use protective isolation (fingertips, adhesive plaster), and 17% do not receive (Figure 5).

66 (64%) of the respondents answered in the affirmative that they accept clients when they have open microtrauma, scratches, abrasions, cracks, pustular diseases.

Our findings showed the respondents made the following suggestions for prevention of HBV spread:

Raising public awareness – 32%

Thorough disinfection – 16%

Regular examination, personal protection devices – 13%

Use of disposable instruments – 12%

Social surveys conduction – 9%

Increasing a responsibility to one's own health – 6%

Further study of prevention and treatment issues – 5%

Training courses conduction – 5%

Vaccination – 2% of respondents.

Discussion. Beauty procedures have grown in popularity in recent years, resulting in an increase in the number of salons offering various treatments. Many staff and clients have low awareness of the potential risks that these services can pose [17, 21].

Yang et al. [10] investigating risk for hepatitis B and C virus transmission in nail salons and barbershops in the USA stated compliance is needed to prevent HBV/HCV transmission in these businesses.

In 2018 the Department of Public Health of Astana identified 16 cases with chronic hepatitis B and C viruses among employees of beauty salons and hair salons [22]. This is due to the fact that employees are irresponsible to their own and even more so to other people's health. It is

also explained by the lack of dry-heating cabinets in beauty salons, the necessary tools for processing tools and a workplace. Employees who were diagnosed with hepatitis were suspended from work until they recovered and provided a negative test result. Some of them have already undergone treatment and returned to work, while others are still being treated.

Sakupova et al. [7] analyzing primary incidence of HBV by occupational and social status reported this infection prevails in work staff (21,4% in 2009 and 25,7% in 2020). The largest number of cases of HBV in Nur-Sultan city was registered in the age group of 20-29 years (from 2009 to 2015) and 30-39 years (since 2016), which make up the most active, reproductive part of the population [7,20].

The Dutch Municipal Health Service reported that the most probable source of infection for two cases of acute HBV was a piercing salon that both had visited on the same day [23].

Some studies [12,13] confirmed the results of our study about influence of factors on awareness about HBV. These authors have reported that awareness of HBV can be influenced by many factors, including socio-demographic such as, education, health literacy, family income, age, the knowledge of the severity of illness, and access to information.

Our respondents identified the vehicles of transmission as the same as those observed by hairdressers regarding HCV transmission in Italy [24]. In the comparison barbers from Pakistan did not know the transmission routes of HBV and HCV [25,26,27]. Study conducted by Mutocheluh et al [15] demonstrated only 7% of barbers in Ghana knew the route of transmission of HBV.

Our results are consistent with one study [28] investigated viral hepatitis perception among residents in Brazil which reported 72.5% subjects known about the existence of a viral hepatitis vaccine. Since 1998 HBV vaccination has been recommended in Brazil for all children at birth such in Kazakhstan. In Ghana [15] only 2% of the barbers knew HBV vaccine was available in their country.

Adoba et al [16] reported respondents did not perceive themselves to be at risk for HBV same as our participants. This is in line with the observations of Wazir et al [29].

Our findings demonstrated respondents carry out complete disinfection of instruments, which is a positive indicator for preventing the spread of HBV when instruments come into contact with blood, and have a special journal with a schedule for disinfection of instruments. Nevertheless, the number of answers about the stages of disinfection was correct in the almost answers.

On the contrast, study conducted in New-Zealand [11] almost half of reviewed salons in failed to store or treat the equipment in a way as to prevent recontamination, also have no written infection control protocols for staff to follow, or cleaning schedules. Johnson I et al [21] reported about a need for the development of infection control protocols for manicure and pedicure establishments due to gap in knowledge and a lack of adequate infection control measures in Canada.

Unfortunately, according to our results beauty employees are very indifferent to their own health, which remains the main reason for the spread of HBV.

Reception of clients with open microtrauma without the use of protection devices also carries a high risk of HBV transmission through the blood. If contaminated blood gets on the instrument, transferring it to the next client without a full-stage disinfection entails unpleasant consequences.

Helen van Mil et al. [21] reported that beauty masters in New-Zealand would not provide the manicure and pedicure if they observed the client had an infection. On the contrast, *Adoba et al* [16] reported few barbers were aware of the risk posed by unsafe shaving practices and the mode of transmission of HBV and HCV infections.

Most of our study participants answered that they accept clients with open microtrauma, scratches, abrasions, cracks, pustular diseases without using protection, and accept if the respondent has an open injury, but using protective insulation.

Conclusion. The results of the survey dictate the need to take measures to raise awareness of the causal factors of the occurrence and spread of HBV among beauty employees, as well as the statistical situation of the incidence of HBV. There is both a need and interest within the industry, for education and resources to be provided regarding infection control practices in beauty salons.

The basics of the methods of carrying out are reflected in the following practical recommendations outlined by us:

1. Organization of health education for beauty employees through the media, social networks, lectures, education workshops with the participation of public health professionals.

2. Dissemination of health education information for workers in the field of beauty and health services (booklets, leaflets, brochures and posters).

3. Inclusion of a course on the prevention of blood-borne infections in the training program for beauty professionals.

4. Strengthening the information and explanatory work of the population regarding the receipt of procedures in beauty salons and parlors; the importance of a responsible attitude to the choice of masters, beauty salons and parlors; the need to use individual or disposable instruments and materials when receiving the procedure.

5. Development of cooperation between public organizations and beauty salons to raise the level of education of the population.

Thus, the scale and nature of the problems associated with HBV dictate the need for closer attention to the organizational and methodological strategies of preventive measures.

Further studies are required to assess the effect of interventions and how to enhance awareness among this target group.

Acknowledgement

Declaration of conflicting interests: *The authors declare that there is no conflict of interest in the present study.*

Funding: *None.*

Author contribution statement:

All authors were equally involved.

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