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ARTICLE

Knowledge and Practice level regrading Prevention and Nutritional Management of Hepatitis B among Blood Donors in some Selected Territory Hospital of Dhaka City Bangladesh

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ABSTRACT

Background: Hepatitis B virus (HBV) infection is a global public health concern, affecting an estimated 240 million individuals worldwide. Blood donors' knowledge and practices related to HBV remain underexplored. **Objective:** This study aimed to assess the knowledge and practices of blood donors regarding nutritional management and prevention of HBV. **Method:** A cross-sectional study was conducted with 120 blood donors using a simple random sampling technique and semi-structured face-to-face interviews. Data were analyzed using statistical procedures such as t-tests, Pearson Chi-square tests, and frequency distributions. **Result:** The mean age of participants was 34.5 years, with 83% female and 50% aged between 31 and 40 years. Results indicated that 56.7% of blood donors exhibited good practices related to HBV, while only 25.0% demonstrated strong knowledge. Statistical analysis revealed that blood donors from rural areas had a significantly higher level of knowledge (p=0.001), with rural participants scoring 0.80 compared to 0.78 in urban participants. Female donors had a higher mean practice score (0.81) than male donors (0.70) with a p-value of 0.02. Additionally, Muslim donors exhibited significantly better practices compared to their counterparts (p=0.035), with Muslim donors scoring 0.89 versus 0.79 among non-Muslim donors. **Conclusions:** This study highlights the gaps in knowledge and practices concerning HBV among blood donors, especially regarding nutritional management. Gender, location, and religion significantly influenced knowledge and practice scores.

Keywords: HBV, Blood Donors, Health Care Worker, Nutritional Management.

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INTRODUCTION

Globally, one of the major threats to public health is infectious diseases, particularly those brought on by the hepatitis B virus (HBV). Conferring to recent estimates, approximately one-third of the world's population is diseased with HBV [1]. As a silent killer, HBV is a major

public health concern on a worldwide scale [2]. The World Health Organization (WHO) estimates that 240 million people worldwide—or one in thirty—have a chronic HBV infection, accounting on behalf of around one-third of all individuals who consume ever contracted the virus [2]. In Bangladesh, viral hepatitis is the most prevalent liver illness. In Bangladesh, hepatitis B has affected over 10 million people [3]. Hepatitis B, commonly known as "serum hepatitis," is an acute systemic infection caused by HBV that primarily affects the liver and is typically spread through parenteral means. Clinically, it is distinguished by a propensity for a protracted incubation period and a protected sickness with a range of consequences. It is often an acute, self-limiting infection that can be symptomatic or subclinical [4]. There are over 10 million HBV carriers in Bangladesh, where the prevalence rate of infection ranges from 2.3% to 9.7% [5, 6]. Unsafe use of therapeutic injections [9], blood transfusions, unsafe sexual behaviors [10], and vertical transmission from mother to child or horizontal transmission from infected children [7, 8] are the three ways that HBV is contracted. However, perinatal or vertical transmission of HBV is rare in Bangladesh due to the low HBsAg positive rate (30.1%) among pregnant females infected with HBV.

The prevalence of HBV carriers varies greatly among Bangladesh's high-risk groups, including those who donate blood professionally: 19.0–29.0%, HBsAg carrier family members: 20.6%, healthcare professionals: 8.7%, parenteral drug users: 6.2%–12.0%, truck drivers: 5.9%, and prostitutes: 9.7%, and recipients of numerous units of blood: 13.8% [11]. Additionally, HBV infection is the main cause of liver illness in Bangladesh, accounting for 19.0% to 35.0% of cases. With notable declines in deaths from infectious, acute, and parasitic diseases and rises in non-communicable, degenerative, and chronic diseases during the past 20 years, Bangladesh is undergoing an epidemiological transition [12–18]. Although there has been a safe, immunogenic, and effective vaccine for hepatitis B since 1982, its use is still inadequate, and a significant percentage of healthcare workers never receive vaccinations despite the possibility of occupational risk [19].

Bangladesh is located in the zone with an intermediate frequency of HBV infection. In this case, the lifetime risk of contracting HBV ranges from 20% to 60%. [20]. Physical activity level and nutritional status are two factors that may increase the risk of Hepatitis B advancement, including the transition to the B, C virus. High lipid, carbohydrate, and protein intakes (i.e., high caloric intake) were linked to high grades of fibrosis in a study of hepatitis B patients who had uncontrolled dietary intake. Numerous researches involving the general public, medical students, and barbers have come to the same conclusion: the majority of participants knew very little about HBV prevention and nutritional status. [20–23]. Having the right amount of knowledge about nutrition and prevention is crucial to preventing infections in the general public, particularly among blood donors, who are the front-line committed individuals. In order to fill this research gap, this study was conducted. This study's only goal was to assess the level of knowledge among blood donors who lived in Dhaka, Bangladesh, on HBV prevention and nutrition. The study also aimed to close the current research gap and give decision-makers useful information for creating suitable policies.

MATERIALS AND METHODS

Study Design

Under a quantitative study design, a cross-sectional prospective survey was used to conduct this investigation. The cross-sectional study design was chosen because it was thought to be an effective method of gathering data.

Study area

Medical College for women and Hospital, Uttara Sector-1, Dhaka and private hospitals in Dhaka city of Bangladesh.

Study Population

Blood donors between the ages of 18 and 50 who were evaluated at the Medical College for Women and Hospital, Uttara Sector-1, Dhaka, as well as private institutions in Dhaka, Bangladesh, made up the study population.

Sample extent

The equation of sample size calculation are specified below

$(n) = Z^2\, pq/d^2$

Where,

n= assumed/ desired sample size

z= the standard normal deviation 1.96;

p= percentage of knowledge is 91.5%= 0.915

q= 1-p

d= Degree of error (5%) = 0.05

The percentage of people with good knowledge was high (91.5%) during the literature search (p=0.915) [24].

Equation (1) indicates that the study's sample size when p=0.915 is

$$n = (1.96)^2 \times 0.915 \times (1-0.915)/(0.05)^2 = 120$$

Sampling method

Convenience sampling was employed to choose the samples.

Inclusion criteria

Age limitation 18-50 years

Male and female was integrated

Blood donors in Medical College hospital with Private hospitals in Dhaka city.

Subjects who are cheerfully participate

Exclusion criteria

Hepatitis B & C carrier. HIV positive.

High Blood pressure patient

Patients with have never donated blood

During any antibiotic taken with weight loss or malnutrition

Mental disorder patients.

Data collecting tool

A demographic information chart and a structured questionnaire were employed to gather data, along with the following:

Anthropometry measurement assessment.

Information on the state of knowledge in nutritional management.

During that period, other essential supplies were utilized, including paper, pencils, scales, files, clipboards, diaries, computers, and pen drives.

Technique of data collection

The researcher developed the data through conversation and personal connections. As much as possible, the conversation was held in confidence. Prior to the data collection, the qualified accused were also given an explanation of the study's components, and they signed familiar engraved agreements. No one else was permitted to sway the defendant's response during the quiet conversation in the residence. It allotted a normal twenty minutes to cover one defendant's whole speech.

Data Analysis

Analysis of the data continued. The Statistical Package for the Social Sciences (SPSS) version 22.0. Microsoft Office Excel 2013 and version 15.0 were used to decorate tables, bar graphs, pie charts, and other visual aids. The results of the advanced modification still provided trending, quantitative data. There was some signal that was tranquil in an auspicious way. The correlation matrix was used to analyze the multicollinearity of the dataset. We were able to verify that the data was independent, not dependent, and that multicollinearity did not exist by using the Kolmogorov-Smirnov test. To determine which characteristics were substantially correlated with KP, we employed the Pearson chi-square test. Afterwards, t-tests and ANOVA were conducted. Weight, length, and MUAC were all anthropometric parameters that were transformed to z scores using.

Ethical consideration

The World Health Organization's (WHO) investigative techniques protocols and the Asian Institute of Disability and Development's Human Research Ethics Committee (HREC) granted ethical permission for this study. The investigation was carried out with permission from the directors of several private hospitals in Dhaka City as well as the principal of the Medical College for Women and Hospital Uttara, Dhaka.

Conversant consent

Written consent addendum was given to all participants prior the completion of the questionnaire. Every participant provided written consent, including their signature. It was clear to the participants that their information would be kept confidential.

RESULTS

Table 1: Socio-demographic characteristics of the respondents

Characteristic	Frequency f (%)	Percentage f (%)
Age		
Below 30 years	39	32.5
31-40 years	60	50.0
Above 41 years	21	17.5
Sex of the respondents		
Male	21	18
Female	99	83

Educational Status		
Up to primary	1	0.8
Up to secondary	7	5.8
Up to higher secondary	27	22.5
Graduate and above	85	70.8
Monthly Family in come in taka		
Below 10000 BDT	44	36.7
10000-20000 BDT	57	47.5
Above 20000 BDT	19	15.8
Area of Residence		
Urban	57	47.1
Rural	58	48.6
Slump	5	4.3
Religious of the respondents		
Muslim	117	97.5
Non-Muslim	3	2.5
Marital status		
Married	96	80
Unmarried	17	14.3
Widows	7	5.7
Occupation		
Farmer	22	18.6
Retailer	41	34.3
Housewife	21	17.1
Day labor	09	7.2
Service	25	21.4
Students	02	1.4

Demonstrates the respondents' socio-demographic traits. The majority of respondents (50.0%) were found to be between the ages of 31 and 40, with 17.5% of respondents being 41 years of age or older. About 70.8% had graduated, 22.5% had finished upper secondary school, and 34.3% had the greatest percentage of retail occupations. A family income of 10001-20000 BDT per month was earned by nearly half of the participants. Since the study included participants from the Medical College for Women and Hospital, where the majority of them (97.5%) were Muslims, rural participants were more common.

Table 2: Knowledge regarding Hepatitis B Virus with prevention among respondents

Knowledge related characteristic	No f (%)	Yes f (%)
Have heard of Hepatitis	3(2.5)	117(97.5)
Have a heard of Hepatitis B?	4(3.3)	116(96.7)
Is Hepatitis B being viral diseases	1(0.8)	119(99.2)
Can Hepatitis B affect Liver function	6(5.0)	114(95.0)
Can Hepatitis B cause liver cancer?	7(5.8)	113(94.2)
Can Hepatitis B affect any age group?	18(15.0)	102(85.0)
Are the early symptoms of Hepatitis B are same as cold and flu?	39(32.5)	81(67.5)
Jaundice is one of the common symptoms of Hepatitis B?	6(5.0)	114(95)
Are nausea vomiting and loss of appetite common symptoms of Hepatitis B?	19(15.8)	101(84.2)
Can Hepatitis B transmitted by un sterilize syringe needles and surgical instruments?	5(4.2)	115(95.8)
Can Hepatitis B transmitted by contaminated blood and blood products?	2(1.7)	118(98.3)

Can Hepatitis B transmitted by using a blades of the ear and nose piercing?	17(14.2)	103(85.8)
Can Hepatitis B transmitted by unsafe sex?	7(5.8)	113(94.2)
Can Hepatitis B transmitted by from mother to child?	5(4.2)	115(95.8)
Can Hepatitis B transmitted by contaminated water/food prepared by a person suffering from this infection?	69(57.5)	51(42.5)
Is Hepatitis B treatable?	19(15.8)	101(84.2)
Can Hepatitis B self-cured by the body?	73(60.8)	47(39.2)
Is vaccination is available for Hepatitis B?	10(8.3)	110(91.7)
If yes can do you know about vaccination schedule for both infants and adults?	16(13.3)	104(86.7)
Can a person denote blood if he/she Hepatitis B?	84(70.0)	36(30.0)
Do you know how Hepatitis B diagnosed?	11(9.2)	109(90.8)
Can Hepatitis B prevented by vaccination?	6(5.0)	114(95.0)

Table 2 shows the participants' level of HBV knowledge. 95.0% of the 120 respondents agreed that HBV causes liver disease, 94.2% agreed that HBV causes liver cancer, 85.0% recognized that HBV affects people of any age, and 97.5% of the respondents knew about hepatitis, 96.7% heard of a disease called HBV, and 99.2% knew that hepatitis is a viral disease. The knowledge of early hepatitis signs was 67.5%. 95.0% of respondents said that HBV had an impact on liver function. 84.2% were aware of the typical signs of HBV, 95.8% of respondents agreed that surgical tools, needles, and syringes can spread HBV. 98.3% were aware that blood and blood products tainted with HBV can spread the virus. 85.8% were aware that ear and nose piercings and barber blades can spread HBV. 94.2% of individuals agreed that risky intercourse was the source of HBV, and 95.8% were aware that HBV was water or food prepared by an individual with these infections, 84.2% agreed that HBV is treatable, 39.2% knew that the body can cure itself, 91.7% were aware of the HBV vaccination schedule, 86.7% were aware of the HBV diagnosis, 95.0% confirmed that the vaccine prevents HBV, and 70.0% disagreed that an HBV-affected person can donate blood.

Table 3: Information related to blood donors practice regarding Hepatitis B Virus

Practice related characteristic	**No f (%)**	**Yes f (%)**
Have received the Hepatitis B vaccination?	34(28.3)	86(91.7)
Are you aware of treatment for Hepatitis B?	10(8.3)	110(91.7)
Have you received specific training on Hepatitis B prevention and management in the last year?	72(60.0)	48(40.0)
Do you practice safe behavior to prevent Hepatitis B Transmission in your workplace?	13(10.8)	107(89.2)
Do you educate your relatives about the spread and severity of Hepatitis B?	10(8.3)	110(91.7)
Have you received vaccination for Hepatitis B?	35(29.2)	85(70.8)
Are you test blood for Hepatitis B?	22(18.3)	98(81.7)
Do you used condom avoid the risk of Hepatitis B?	4(3.3)	116(96.7)

Demonstrates how blood donors' Hepatitis B practices are distributed. The majority of 120 individuals of various ages—91.7%—practiced getting vaccinated against HBV, 91.7% were aware of the available treatments for HBV, 60.0% had poor practices regarding specific training on HBV prevention and management in the previous year, 89.2% had good practices regarding preventing HBV transmission in the workplace, 91.7% agreed with practices regarding educating your relatives about the severity and spread of HBV, 70.8% had good practices regarding receiving an HBV vaccine, 81.7% had good practices for testing blood for HBV, and 96.7% practiced using condoms to reduce the risk of contracting Hepatitis B.

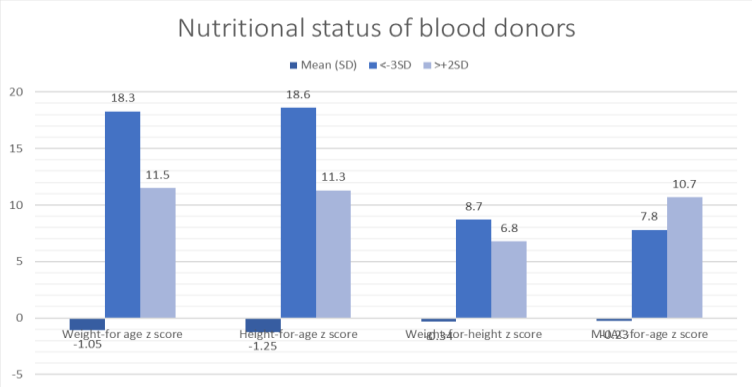

Figure 1: Nutritional status of participating of Blood donors

Demonstrate the blood donors' nutritional level. WAZ, HAZ, WHZ, and MUACZ had respective means (SD) of -1.05 (2.0), -1.25 (2.72), -0.34 (1.79), and -0.23 (1.87). According to WHZ, 8.7% of blood donors were extremely wasted, 28.6% were severely stunted, 18.3% were very underweight, and 7.8% were severely wasted, as reported by MUACZ.

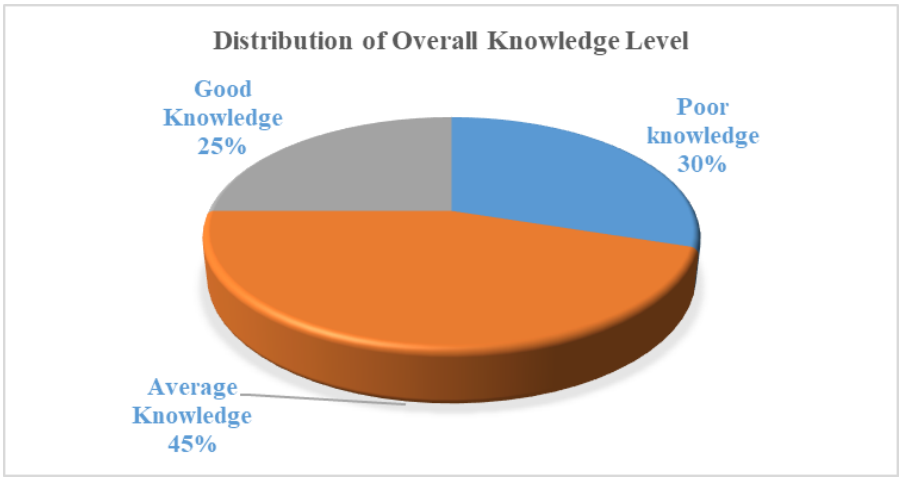

Figure 2: Overall knowledge and practice level of the respondents

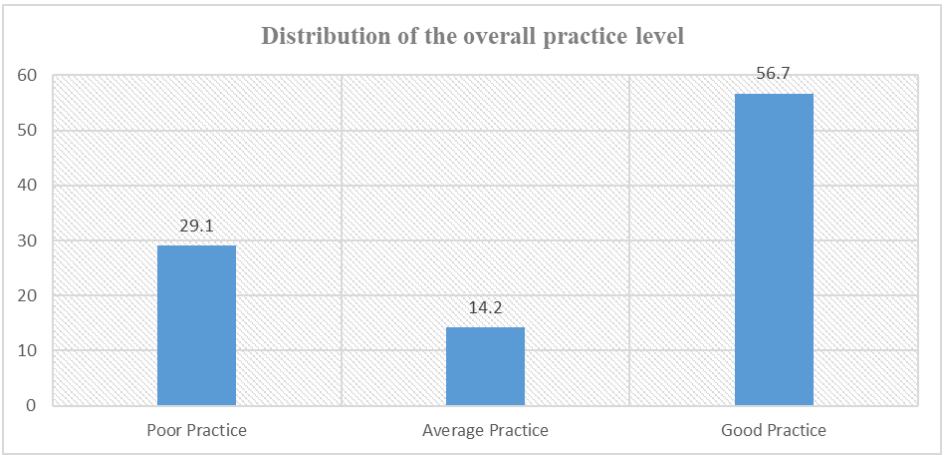

Figure 3: Distribution of the overall practice level

Shows the respondents' average level of knowledge, attitude, and behavior along with how they relate to age. Only 45.0% of respondents had average understanding about HBV, whilst 25.0% had poor knowledge. In the same way, 14.2% of respondents had a mediocre level of HBV practice, compared to just 56.7% who had an excellent level.

Table 4: Variation in Knowledge and Practices of the respondents

Characteristic	n	Mean knowledge score (CI)	P* Value	Mean Practice Score (C.I)	Pμ Value
Age					
Below 30 years	39	0.81(0.79-0.83)	0.10	0.79(0.73-0.86)	0.966
31-40 years	60	0.79(0.77-0.81)		0.79(0.74-0.84)	
Above 41 years	21	0.77(0.74-0.79)		0.79(0.69-0.88)	
Monthly Family in come in taka					
Below 10000 BDT	44	0.81(0.78-0.83)	**0.311**	0.79(0.73-0.85)	**0.815**
10000-20000 BDT	57	0.79(0.77-0.81)		0.78(0.73-0.83)	
Above 20000 BDT	19	0.78(0.74-0.81)		0.82(0.73-0.90)	
Sex of the respondents					
Male	21	0.79(0.76-0.83)	**0.939**	0.70(0.59-0.81)	**0.02**
Female	99	0.79(0.78-0.81)		0.81(0.77-0.85)	
Area of Residence					
Urban	57	0.78(0.77-0.79)	**0.0001**	0.79(0.75-0.83)	**0.185**
Rural	58	0.87(0.81-0.92)		0.81(0.68-0.94)	
Slump	5	0.77(0.62-0.93)		0.77(0.70-0.84)	
Religious of the respondents					
Muslim	117	0.79(0.78-0.81)	**0.217**	0.89(0.76-0.93)	**0.035**
Non-Muslim	3	0.85(0.68-0.92)		0.79(0.61-0.87)	
Marital status					
Married	96	0.80(0.78-0.81)	**0.411**	0.79(0.75-0.83)	**0.67**
Unmarried	17	0.78(0.73-0.83)		0.82(0.69-0.94)	
Widows	7	0.88(0.66-1.09)		0.87(0.82-0.91)	
t test/ANOVA test for knowledge/ μ t test/ANOVA test for practice					

There was a notable disparity in the respondents' understanding and use of sociodemographic traits. In this case, rural individuals had a higher knowledge score than their counterparts [0.87 (0.81-0.92) versus 0.78 (0.77-0.79), p=0.001]. In terms of practices, religion and sex were linked to the mean practice score. In comparison to male blood donors, female blood donors had a considerably higher practice score [mean practice score: among female blood donors [0.81 (0.77-0.85) versus male blood donors 0.70 (0.59-0.81), p=0.02]. Comparing non-Muslim blood donors to Muslim blood donors, the mean knowledge and practice scores were also considerably higher: knowledge score: [0.79 (0.78-0.81) compared 0.85 (0.68-0.92), p=0.217] and practice score: [0.89 (0.76-0.93) versus 0.79 (0.61-0.87), p=0.035].

DISCUSSION

Blood donors are always at risk of catching HBV from infected people because of their early exposure to hospital settings [26]. Accurate knowledge, a positive attitude toward prevention, and regular adherence to hygienic procedures are essential for reducing the risk of infection. This study's only goal was to evaluate Bangladeshi blood donors' knowledge and practices of HBV prevention and nutritional management. According to the study's findings, 45.0% of retailers had a moderate comprehension of HBV, and 34.3% demonstrated proficient practice. There was a significant relationship between the respondents' level of knowledge and where they lived. It was shown that age was linked to attitude, while gender and religion were closely linked

to activities pertaining to HBV. One-fourth of the retailers in the current study had strong awareness about HBV, whereas nearly half of the participants had moderate understanding. Thirty percent of participants in a comparable study that evaluated HBV knowledge and preventive behaviors among retailers and service holders in a few chosen hospitals in Dhaka City, Bangladesh, had inadequate knowledge about the virus [27]. The majority of students (more than 1.4%) in another survey did not know the indications, symptoms, or repercussions of an HBV infection [28].

In terms of practice level, one-third of respondents had poor practice with HBV infection prevention, whereas the rest of participants had good practice. Other research indicates that in many parts of the world, especially among blood donors, hepatitis is not well known [29]. In Sudan, however, various outcomes had been observed. More than 80 percent of blood donors showed that they were aware of the HBV guidelines. Additionally, our investigation confirmed that these professionals regularly followed procedures like using condoms, among other things [30]. According to the results of the current study, there is a significant correlation between an individual's level of knowledge and where they live. In China, one's level of HBV knowledge is correlated with where they live. It was discovered that respondents had good expertise about the urban area [31]. Tanzania had a similar outcome [31]. Our result, however, runs counter to earlier research. We discovered that the rural respondents were well-informed. On the other hand, a different study of health care workers in Sudan's White Nile state revealed a substantial correlation between knowledge level and occupation and educational attainment [32].

A WHO top global target study on the high prevalence of malnutrition in low-income countries with regard to HBv found no significant correlation between respondents' age and nutrition [25]. It has been demonstrated that Afghan women blood donors are more likely to exhibit excellent HBV behaviors [33]. In Saudi Arabia, the outcome was different. Regarding the use of HBV, they found no discernible difference between male and female healthcare workers [34]. Our study demonstrated that female participants had higher favorable practices about HBV. Numerous studies have demonstrated that occupation and highest degree are important determinants of HBV-related knowledge practice and nutritional status [35]. However, our research revealed no research did not discover any statistically significant correlation between these characteristics and the nutritional management and knowledge practices of HBV blood donors.

Limitations and strengthens

The limited sample size and the fact that the respondents only submitted self-reported data are drawbacks of this study. One of the other drawbacks is the cross-sectional nature of the research design. Notwithstanding its shortcomings, this study provides policymakers and stakeholders with some crucial information regarding the knowledge and nutritional management of Hepatitis B blood donors among the frontline retailer service holder population regarding HBV. To the best of our knowledge, this is the first study on blood donors' knowledge and practices related to nutritional treatment of HBV to be carried out in Bangladesh.

CONCLUSION

Although most blood donors were able to prevent HBV, the study found that their general awareness and practices were lacking. It was discovered that their general level of experience and knowledge regarding HBV infection and its effects was insufficient. They were quite concerned about the way it was transmitted. Large-scale research is therefore required to develop a strategy for informing patients about the spread of HBV and its consequences. In order to prevent HBV infection, the knowledge gap identified by this study needs to be sufficiently filled by appropriate health education. In addition to launching specifically targeted hepatitis B knowledge and prevention-raising campaigns for general and high-risk populations at the healthcare and community levels, an efficient health promotion program that encourages urban males to modify their risky behaviors must be developed and put into action.

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Conflict of interest

None.

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