

# Awareness of Hepatitis B Infection in Jeddah Population of Saudi Arabia

Alattas S<sup>1,2\*</sup>, Alotibi A<sup>1</sup>, Bafail SK<sup>1</sup>, Alotaibi B<sup>1</sup>, Albakri M<sup>1</sup>, Bafail MA<sup>3,4</sup>, Allohibi Y<sup>5</sup>, Ibrahim AB<sup>6</sup> and Hussain Z<sup>3,7</sup>

<sup>1</sup>Department of Biological Sciences, College of Sciences, King Abdulaziz University, Saudi Arabia

<sup>2</sup>Department of Civil and Environmental Engineering, Massachusetts Institute of Technology, USA

<sup>3</sup>Department of Physiology, College of Medicine, Umm Al-Qura University, Saudi Arabia

<sup>4</sup>Department of Physiology, College of Medicine, King Abdulaziz University, Saudi Arabia

<sup>5</sup>Department of Haematology and Immunology, College of Medicine, Umm Al-Qura University, Saudi Arabia

<sup>6</sup>College of Medicine, King Saud bin Abdulaziz University for Health Science, Saudi Arabia

<sup>7</sup>University Medical Centre (UMC), Umm Al-Qura University, Ministry of Health, Saudi Arabia

## Abstract

Hepatitis B virus (HBV) infection is a major problem worldwide which causes chronic liver disease and may lead either to liver cirrhosis or liver cancer and causing death. The aim of the present work was to study the awareness of general public about the HBV infection among Saudi population in Jeddah city. Study was conducted based on survey (questionnaire). Data of age, sex, marital status (single, married, divorced, widowed), education (primary, middle, high school, university) and occupation (employed, unemployed, healthcare, student etc.) was collected during the period from 25 Nov 2017 to 10 Feb 2018 from the participants (n: 5106; age range: 21-36 years). The z score test was applied for the comparison of percentage values. The p value < 0.05 was considered statistically significant. Results showed highly significant variations for the participants having little or more knowledge (65.35%) compared to those with no knowledge (34.65%) about HBV infection. Significant variation for age, various levels of education, and existence, contagiousness, vaccine protection and treatment of HBV infection was found between those having awareness and those not having awareness of HBV infection. Quite high percent of participants (75.09 %) in the current study thought that there might be a vaccine for prevention against hepatitis B virus. Considering the results in the present survey report, it is recommended that the general public should have awareness about their life style interventions especially by decreasing the risk factors that may lead to better healthy life with fewer complications. It also seems equally essential to have training programs at the governmental level to provide awareness and general knowledge to masses about healthcare, hygiene and disease. Further survey studied are needed with this perspective to have idea about the attitudes of people about HBV and related infections that might help the general public to have knowledge and awareness of HBV infection, and better health care.

**Keywords:** Hepatitis B Virus (HBV) Infection; Hepatitis B Awareness; Vaccine Protection; Risk Factors

\***Correspondence to:** Sanaa Alattas, Department of Biological Sciences, College of Sciences, King Abdulaziz University, Jeddah, Saudi Arabia.

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## Introduction

The hepatitis B virus (HBV) is considered a global problem which threatens the public health [1-4]. It may cause chronic infection which develops to liver cirrhosis and leads to death. The population infected with HBV has been found to be about 2 billion people, whereas annually 360 million people getting chronic liver disease and 600 thousand facing death either from chronic liver disease or liver cancer globally [5]. It has been demonstrated that various regions were different for prevalence of HBV infection and were classified as high, low and moderate epidemiologically [6].

The lifetime risk of HBV infection in areas of intermediate endemicity is 20-60% where acute hepatitis B infection is the most common and a variety of infections occur in adults [6,7]. The average prevalence of chronic HBV infection in developed countries is 6.6% and in developing countries 7.6% [8,9]. World Health Organization (WHO) estimated high prevalence of 6.1 % in the African and 6.2 % in Western Pacific regions [10].

Saudi Ministry of Health (MOH) reported in 2007 that HBV infection is the second most common viral disease after Chickenpox Virus [11]. In Saudi Arabia, HBV chronic infection is considered as a serious condition. Hepatitis B virus (HBV) infection is endemic in the Kingdom of Saudi Arabia which is between 7% and 8% [12]. Depending on the regions, studying the prevalence of HBV in Saudi Arabia, at the last 2 years showed marked variations according to regions such as southwestern regions as 8.7%, the eastern region as 6.7%, and the northwestern region as 3.0% [12]. According to cities, Madina was considered having higher prevalence as 9.02 % but the central city of Riyadh was considered having lowest prevalence that was estimated as 1.5% [13-15]. In the last two decades in Saudi Arabia, prevalence of HBV infection among the general population and the infection in different age groups [8,16-19], in blood donors [13,20], health care workers [21], pregnant women [22], virus genotypes and its relation to hepatocellular carcinoma have thoroughly been studied [23,24]. These studies show that HBV infection is endemic in Saudi Arabia [13].



The first Saudi seaport is Jeddah city where millions of pilgrims from various countries come annually has a greater number of HBV infection, since it is multicultural coastal city [11]. A study showed that prevalence among pilgrims was 4.1%, and was higher in males (87.5%), age group of 40-59 years (60%) and in Nigerian pilgrims [25].

The prevalence of HBsAg in 1990s was high in Saudi Arabia among infants and children but when the national vaccination program was established, the HBV infection decreased in the early stage life in infants and children groups. However, the prevalence in the adults was still high since they did not take the vaccine doses earlier before their exposure to the infection [17,26]. When an individual is a non-responder to the first dose of vaccine, he/she should take second dose to be boosted [27]. Factors that affect a person's immunity and make someone a non-responder to HBV vaccine includes obesity, genetics, smoking, immune deficiency, male gender and technical errors in vaccine storage [28-31]. Since no study has precisely been carried out to have awareness about hepatitis B in Saudi Arabia, our aim in the present study was to estimate the awareness of hepatitis B virus among Saudi population in Jeddah city.

Awareness about the hepatitis B infection has been viewed in various perspectives [2-4,32-34]. However, further studies with various angles are required to have better awareness of the HBV and other infections.

## Materials and Methods

The present study was conducted in Jeddah city of Kingdom of Saudi Arabia (KSA). The prospective study was survey (questionnaire) based. The sample size in the study is 5106 subjects (total male subjects: 975; total female subjects: 4131). The age ranged between 21 to 36 years. The general status of the subjects (sex, marital status, region and education) is given in Table 1. Employment status of the subjects is given in Table 2.

**Table 1:** General status of participants.

General status of the subjects		Subjects	
		No.	%
<b>Sex</b>	Male	975	19.1
	Female	4131	80.9
<b>Marital status</b>	Single	2549	49.92
	Married	2379	46.59
	Widow	30	0.59
	Divorsed	148	2.9
<b>Region</b>	South	2787	54.58
	North	2309	45.22
	East	10	0.2
<b>Education</b>	Primary	89	1.74
	Middle	310	6.07
	High school	1623	31.79
	University	3084	60.4

No: number of subjects; total number of subjects/participants: 5106.

**Table 2:** Employment status of the subjects.

Employment	Subjects	
	No.	%
<b>Unemployed</b>	2207	43.22
<b>Employed</b>	2899	56.78
Jobs	1445	28.3
Healthcare	269	5.27
Prisoners*	233	4.56
Students*	952	18.65

No: number of subjects; total number of subjects/participants: 5106. \*prisoners and students obtained regular stipend.

The detailed questionnaire was designed by including the specific criteria. Aims and objectives of research were explained to all study subjects. After taking the consent of subjects, the detailed questionnaire was filled out by them. The questionnaire was used to collect sociodemographic and HBV-related awareness data from each study participant. The sociodemographic factors were: age, sex, marital status (single, married, divorced or widowed), education (primary, middle, high school, university) and occupation (employed, unemployed, healthcare, student etc). Data were collected during the period from 25 Nov 2017 to 10 Feb 2018. The z score test was applied for the comparison of percentage values. The p value < 0.05 was considered statistically significant. The collected data was initially analyzed statistically by SPSS software version 16.

## Results and Discussion

The present study included 5106 participants in Jeddah city of KSA. Most participants were single 49.92% (n=2549), followed by married 46.59% (n=2379), widow 0.59% (n=30) and divorced 2.90% (n=148). The majority of the sample is of Saudi nationality (95%; n=4849). For geographical distribution, most of the participants were from the south region 54.58 % (n=2787) compared to north region 45.22% (n=2309) while few of them from east region 0.20% (n=10). The economic status of most participants (81.94%; n=4184) was medium (Table 1).

The highest answer for the relationship with the infected person was cousin 13.9% (n= 708) followed by a friend 4.2% (n=216), and other reported relationships (prisoner, neighbor, husband, patient, wife, chief, workers) were found as about 4.99% (255), and only 0.7% (n=37) of the respondent revealed that they were the infected persons.

The participants in the present study were having different level of education: primary (1.74%; n=89), middle (6.07%; n=310), high school (31.79%; n=1623) and university (60.40%; n=3084) (Table 1). Majority of the participants were unemployed (43.22%; n=2207), but 28.30% (n=1445) were employed in different jobs, 5.27% (n=269) of them represented healthcare workers, 4.56% (n=233) represented prisoner and 18.65% (n=952) were students. In total the employed subjects were 56.78 % (n: 2899) (Table 2). Employed subjects were quite high in number and hence statistically significantly different from unemployed subjects (z score: -9.6017; p<0.00001) in the present study.

Regarding the knowledge about hepatitis B virus epidemiology among participants, 65.35% (n: 3337) had little or more information about HBV infection, whereas 34.65% (n=1769) had no any knowledge about HBV infection (z: 20.97; p<0.00001; Table 3).

The participants with high level education having awareness of HBV infection were 22.8% of total participants (n=1169) and in the groups of having and not having awareness of HBV infection differed with high significance (p<0.00001; Table 3), whereas 7.85% of total subjects (n=401) of high school education showed significant variation for those having compared to those not having awareness of HBV infection (p <0.00001; Table 3). The results for the group of middle education (n:120; 2.35% of total subjects) indicated significantly decreased awareness of HBV infection (p=0.0001; Table 3). The participants having primary education who were 0.4% (n:21) of total subjects with primary education were more in number for those having no awareness of HBV infection compared to those having awareness of HBV infection (p<0.00001; Table 3).

Knowledge regarding HBV was found to associate with the age of the participants (association present and association not present was noted in 22.15 % (n:1131) and 77.85 % (n: 3975) respectively showing z



**Table 3:** Knowledge of HBV infection and its association with other factors.

Knowledge of HBV infection and its association with other factors		Subjects		z	p	
		n	%			
1. Knowledge about Hepatitis B infection epidemiology	Have a little or more information	3337	65.35	20.9705	< .00001	
	Have no information	1769	34.65			
2. Knowledge of Hepatitis B infection and demographic characteristics (education)	Primary	Yes	21	23.6	-4.4046	< .00001
		No	68	76.4		
	Middle	Yes	120	38.71	-3.878	0.0001
		No	190	61.29		
	High school	Yes	401	24.71	-18.1827	< .00001
		No	1222	75.29		
University	Yes	1169	37.91	-13.0516	< .00001	
	No	1915	62.09			
3. Knowledge of Hepatitis B infection and age (21-35 years)	Yes	1131	22.15	-34.7713	< .00001	
No	3975	77.85				
4. Knowledge that Hepatitis is a contagious disease	Yes	2984	58.44	11.8935	< .00001	
	No	2122	41.56			
5. HBV infection in KSA	HBV infection cases present in KSA	3876	75.91	32.8764	< .00001	
	Only some infection cases present in KSA	1230	24.09			
6. Do they know that there is a vaccine that protects against the disease?	They know that there is a vaccine that protects against the disease	3834	75.09	32.0488	< .00001	
	They do not know that there is a vaccine that protects against the disease	1272	24.91			

n: no of subjects; total number of subjects/participants: 5106.

as -34.77 and  $p < 0.00001$ ) (Table 3). About 41.56% ( $n = 2122$ ) of participants had view that hepatitis B virus is not contagious while the rest of 58.44% ( $n = 2984$ ) thought it as contagious ( $z: 11.89$ ;  $p < 0.00001$ ; Table 3).

The 75.91% ( $n = 3876$ ) of participants believed that there are cases of HBV infection in Saudi Arabia, whereas only 24.09% ( $n = 1230$ ) revealed that they know some patients with Hepatitis B virus infection ( $z: 32.05$ ;  $p < 0.00001$ ; Table 3). The 75.09% ( $n = 3834$ ) of them believed that there is a vaccine that protects against this disease. The remaining 24.91% ( $n: 1272$ ) did not know that there is a vaccine that protects against this disease ( $z: 32.05$ ;  $p < 0.00001$ ; Table 3).

The present study determining the awareness of hepatitis B virus infection is quite similar to the previous studies though the prevalence and awareness of HBV infection in the mentioned studies differed in view of the applied methodologies for selecting, collecting and analyzing the data [15,35,36].

A substantial number of participants in the present study provided their views that there are ways hepatitis B virus can be controlled whereas in the previous study even higher number of participants viewed that hepatitis B infection is curable [35].

Furthermore, quite high percent of participants in the current study thought that there might be a vaccine for prevention against hepatitis B virus compared to the results in another study quite close to our study.

Available data provides us information that there is a relationship between awareness level and age. Furthermore, there is a tendency of awareness to increase as educational level increases. It is recommended that the general public should have awareness about their life style interventions especially by decreasing the risk factors that may lead to better healthy life with fewer complications. It also seems equally essential to have training programs at the governmental level to provide awareness and general knowledge to masses about healthcare, hygiene and disease. Further survey studied are needed with this perspective to have idea about the attitudes of people about HBV and related infections that might help the general public to have knowledge and awareness of HBV infection, and better health care.

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