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### RESEARCH ARTICLE

#### AWARENESS ABOUT HEPATITIS B VIRUS INFECTION (HBV) AMONG STUDENTS OF MEDICAL AND HEALTH COLLEGES HAIL UNIVERSITY, HAIL, KSA.

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#### Abstract

**Background:** Saudi sub-populations, including students in health colleges, and health care workers, pregnant women, remain at risk from infection with Hepatitis B virus (HBV). Medical students are a group of health care workers that are at high risk to get and spread HBV because their activities involve contact with patients or blood or other body fluids in healthcare, laboratories or public-safety settings.

**Objectives:** This study aims to make screening study about awareness of HBV among Students of Medical and Health Colleges in Hail University, Hail, KSA.

**Methods:** About 281 out of 400 students from Medical and Health Colleges were responding to the questionnaire (81.5% females and 18.5% males).

**Results:** About 73% of Saudi population needs educational support to know information about HBV disease, as only 19.9% of students knew the time for the HBV virus to be alive before go to infect any person (7 days). Only 37.7% of students knew that hepatitis B vaccination protect against infection and 46.3% of students were vaccinated against HBV. About 53.7% of students knew that sharing personal tools, saliva, shaking hands of patients were not safe practices and caused infection. While 74.7% of the students knew that HBV vaccination safe and effective and 80.1% knew the methods of disease transmission. It is highly **recommended** that HBV vaccine showed be given to all non vaccinated students with no cost to encourage them to take the HBV vaccine. HBV disease should be included in the educational curriculum as tutorials and assignments to effectively limit the hazardous effects of this disease and protect them from HBV infection.

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#### Introduction:-

Hepatitis refers to the inflammation of the liver caused with several types of viral hepatitis infection such as A, B, C, D, E, G and other non-viral and non-infectious causes. The Hepatitis B virus (HBV) is most common in developing countries and causes infection which can lead to death resulting from liver cirrhosis, cancer and liver failure<sup>1</sup>. HBV is a highly prevalent infection with approximately 350 million chronic carriers' world-wide, with high mortality rate

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about 1 million deaths each year<sup>2</sup>. Universally, an average of 2 billion people are infected with the HBV and well over 240 million of this number have developed chronic liver infection<sup>3</sup>. The Middle East is classified as an area of intermediate HBV prevalence, that is, 2-5%<sup>4</sup>. The Kingdom of Saudi Arabia (KSA) after HBV vaccine was introduced in 1989, following which there was a significant decrease in HBV sero-prevalence, from 7% before the vaccination program to 0.3% in 1997<sup>5</sup>.

Several Saudi sub-populations, including pregnant women, students in health colleges, and health care workers, remain at risk<sup>6,7</sup>. Medical students are a group of health care workers that are at high risk to get and spread HBV because their activities involve contact with patients or blood or other body fluids in healthcare, laboratories or public-safety settings<sup>8,9,10</sup>. Although an existence of a safe and efficacious vaccine, the current high prevalence, high mortality and lack of effective antiviral therapy make HBV a severe health problem<sup>2</sup>. The present study aims to make screening study about awareness of HBV among Students of Medical and Health Colleges in Hail University, Hail, KSA.

### **Subjects and Methods:-**

Screening study was done about awareness of HBV among Students of Medical and Health Colleges in Hail University, Hail, KSA. About 281 students out of 400 students from Medical and Health Colleges were responding to the questionnaire (81.5% females and 18.5% males). The objectives of the study were explained to the participants before distribution of the questionnaire, and the students were informed that their participation was voluntary. The questionnaire consisted of 14 questions divided on three sections: First, demographic and academic characteristics; second, HBV knowledge; third, perception of HBV vaccine and vaccination status.

### **Statistical Analysis:-**

Data were analyzed by the SPSS version 22. Frequency tables were used to present the distribution of nominal variables. We used chi square to analyze data and the significance level was at  $P < 0.05$ .

### **Results:-**

About 281 students from the health colleges, Hail University, KSA were responding to the questionnaire (81.5% females and 18.5% males). The ages of participants ranged from 18 to 25 years old, most of them (59.8%) from 21-23 year old. Figure 1 showed that most of students were from General Medicine College (28.5%), Dentistry (13.9%), Physiotherapy (13.2%), Health Informatics (12.5%), Nutrition (11.4%) and the rest of students were from Pharmacy (7.1%), Radiology (6.8%), Nursing (5.3%) and Laboratories colleges (1.4%). Table 1 showed that 26.3% of medical students believed that the educational support of Saudi community is not enough and 73% of medical students think that the Saudi community needs an educational support about HBV. The sources of knowledge are verified, most of them from Medical health colleges (59.1%) followed by Community (26.7%) and low percentages from TV (6%) and other sources (8.2%). Also, 93.2% of students replied with the true answer that virus is the cause of the disease, while 5.7% from bacteria and 1.1% from parasite.

In addition, Table 1 showed the awareness of medical students about the complications caused by HBV disease, we found that Kidney diseases (1.1%), Liver Cirrhosis (22.4%), Hepatic cancer (2.1%) while 74.4% of the students replied with true answer. While their knowledge about the safe practices which didn't cause infection with HBV, they said that all practices were not safe and should isolate the patient (53.7%) such as shaking hands (39.5%), mouth droplet and saliva (4.3%) and finally sharing personal tools (2.5%).

Only 19.9% of students replied with the true answer about the time for the HBV virus to be alive before go to infect any person (7 days), and the rest of students gave false answers (Figure 2).

Figure 3 shows the awareness of medical students about the method of HBV infection transmission, 10.3% said that infection transmitted by blood transfusion from patient, 1.1% from unprotected sex, 0.7% from mother to child during birth, 1.4% from saliva, 2.1% from septic tools used by dentist, 4.3% from using personal tools for a patient while 80.1% of the students replied with true answer which is all of the previous methods can transmit infection.

On the hand, Table 2 showed that 37.7% of students knew that hepatitis B vaccination protects against infection, while 27.4% said no, and the rest of them said they didn't know (34.9%). About 74.7% of the students replied the true answer that HBV vaccination safe and effective and 2.1% said no, while 23.1% didn't know. Only 0.4% of them were infected with HBV while 99.6 were not infected. About 7.1% of their families were infected but 92.9%

were not infected. Also, Table 2 showed that 46.3% of students were vaccinated against HBV, 32.4% were not, while 21.4 don't know. The last question in Table 2 about the symptom of HBV appears direct after infection or not. Some of students (9.3%) said yes, (54.1%) said no and the rest of students (36.7) said didn't know.

**Table 1:-**Numbers and percentages of student knowledge's about Hepatitis B Virus (HBV) from different Health Colleges, Hail University, KSA questions and responses in (n= 281)

Question	n(%)	n(%)	n(%)	n(%)
<b>1- Saudi society has enough information about HBV.</b>	<b>Enough</b>	<b>Not enough</b>	<b>Needs educational support</b>	<b>-----</b>
	<b>2 (0.7)</b>	<b>74 (26.3)</b>	<b>205 (73.0)</b>	<b>-----</b>
<b>2 - Sources of knowledge</b>	<b>Medical Health Colleges</b>	<b>Community</b>	<b>TV</b>	<b>Other</b>
	<b>166 (59.1)</b>	<b>75 (26.7)</b>	<b>17 (6.0)</b>	<b>23 (8.2)</b>
<b>3 - Knowledge about type of HBV infection.</b>	<b>Virus</b>	<b>Bacteria</b>	<b>Parasite</b>	<b>-----</b>
	<b>262 (93.2)</b>	<b>16 (5.7)</b>	<b>3 (1.1)</b>	<b>-----</b>
<b>4 - Knowledge about complications of HBV.</b>	<b>Kidney diseases</b>	<b>Liver Cirrhosis</b>	<b>Hepatic cancer</b>	<b>All of the Previous</b>
	<b>3 (1.1)</b>	<b>63 (22.4)</b>	<b>6 (2.1)</b>	<b>209 (74.4)</b>
<b>5 - Knowledge about safe practices for person dealing with patient infected with HBV</b>	<b>Shaking hands</b>	<b>Sharing personal tools</b>	<b>Mouth droplet and saliva</b>	<b>None of the Previous</b>
	<b>111 (39.5)</b>	<b>7 (2.5)</b>	<b>12 (4.3)</b>	<b>151 (53.7)</b>

n: number of students

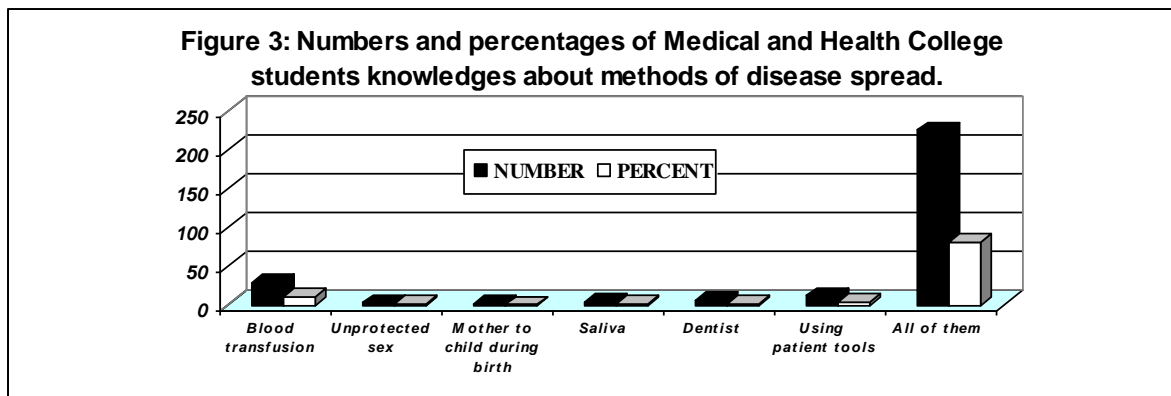
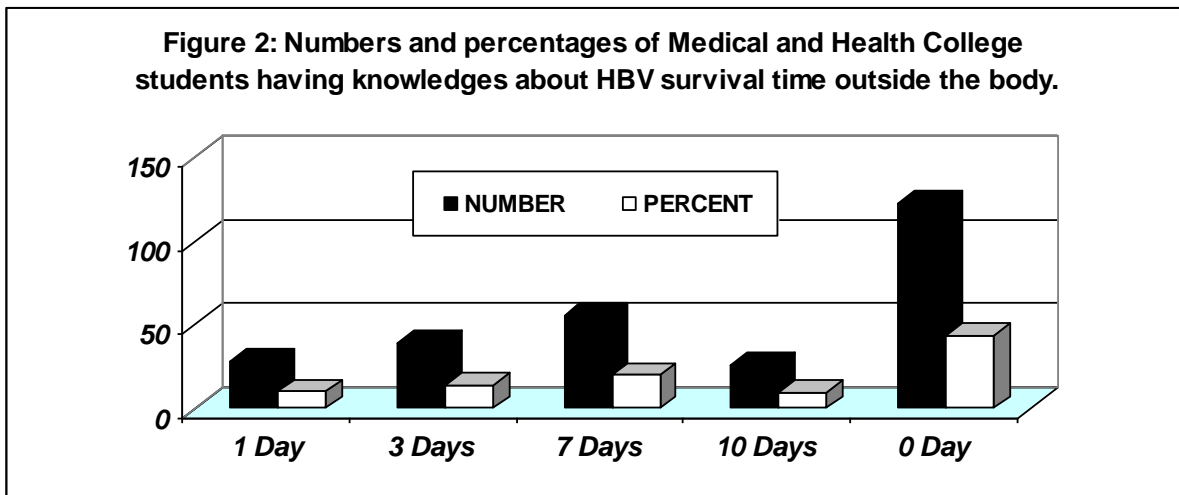
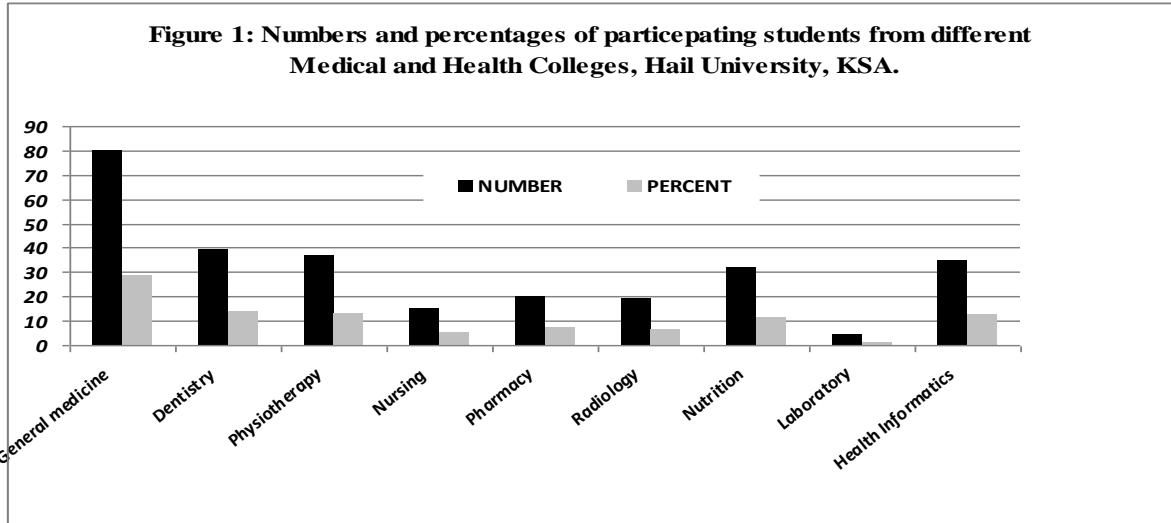
(%): Percentage of students in parentheses

**Table 2:-**Numbers and percentages of student knowledge's about Hepatitis B Virus (HBV) from different Health Colleges, Hail University, KSA questions and responses in (n= 281)

Question	Yes n(%)	No n(%)	I don't Know n(%)
<b>1- Does hepatitis B vaccination protect against the infection?</b>	<b>106 (37.7)</b>	<b>77 (27.4)</b>	<b>98 (34.9)</b>
<b>2- Does hepatitis B vaccination safe and effective?</b>	<b>210 (74.7)</b>	<b>6 (2.1)</b>	<b>65 (23.1)</b>
<b>3- Do you vaccinated against HBV?</b>	<b>130 (46.3)</b>	<b>91 (32.4)</b>	<b>60 (21.4)</b>
<b>4- Have you ever been infected with any liver disease before?</b>	<b>1 (0.4)</b>	<b>280 (99.6)</b>	<b>---</b>
<b>5- Does anyone in your family infected with HBV?</b>	<b>20 (7.1)</b>	<b>261 (92.9)</b>	<b>----</b>
<b>6- Does the symptom of HBV appear direct after infection?</b>	<b>26 (9.3)</b>	<b>152 (54.1)</b>	<b>103 (36.7)</b>

n: number of students

(%): Percentage of students in parentheses



## Discussion:-

This study was confined to evaluate knowledge among medical and health college students in Hail University, KSA. It aims to discover the defects in their knowledge and then try to make improvement in the prevention programs against hepatitis B. Therefore, they are expected to play a crucial role in limiting the increasing number of HBV infection cases and in promoting health education.

In the present study, 26.3% of medical students believed that the educational support of Saudi community is not enough and 73% of medical students think that the Saudi community needs an educational support about HBV. About 59.1% of Medical and health students have HBV knowledge from their Colleges followed by Community (26.7%) and low percentages from TV (6%) and other sources (8.2%). But in Jazan University, KSA the basic knowledges about HBV are from school (75%), but 11.3% of students did not hear about viral hepatitis and 10% did not recognize the specific organ of the disease. On the other hand, Nisar *et al.* (2009)<sup>11</sup> found that the students' information source is from teacher, books, media, friends, internet and relatives respectively. In the present study, awareness about the complications that caused by HBV disease (74.4%) are Kidney diseases, Liver Cirrhosis and Hepatic cancer, while in Jazan University 25% had no idea about the complications of Hepatitis B. Another study showed low degree of awareness between their Medical Students in Syrian Private University only 35.15% who knew<sup>12</sup> and in University of Sindh only 28% who knew<sup>13</sup>

Our medical and health student Colleges knew the cause of HBV is virus (93.2%) while 5.7% said it is from bacteria. Our results agreed with the study applied on first-year medical students in Syrian private University that 83.6% of students knew that virus is the cause of HBV, 2.34% (Bacteria), 1.56% (Protozoa) and 12.53% (Ibrahim *et al.*, 2014)<sup>19</sup>. In contrast, in Jazan University 26% of the participants either thinks that Hepatitis B infection is not caused by a virus<sup>14</sup>.

About 53.7% of our students aware that all practices are not safe which don't cause infection with HBV, they said that all practices are not safe such as shaking hands (39.5%), mouth droplet and saliva (4.3%) and finally sharing personal tools (2.5%). And 19.9% of students knew the time for the HBV virus to be alive before infecting any person (7 days). High awareness (80.1%) of medical students about the method of HBV infection transmission. our result agree with majority of students regarded blood transfusion, syringes, needles, surgical instruments, sharing of razors as important source of transmission of infection<sup>15,16</sup>. Other study in India agrees with this study, the correct answer was 81.55%. About 88% of students knew that transmission of HBV results from exposure to infectious blood or body fluids. Majority (95%) of the participants believed that transmission of HBV results from needlestick injuries, and patients undergoing surgical dental procedures to be investigated for HBV. India.<sup>17</sup> The study in Dammam University, KSA showed similar results to our study about student's awareness. There is an agreement that sexual contact, dental procedure, and Higiama as modes of transmission of HBV by 70.5%, 73.4% and 77.7% respectively. Availability of highly effective vaccine is appreciated by 76.3% of students meantime.<sup>18</sup> In contrast, the mean knowledge of mode of transmission among Jazan medical students was a moderate number (57.1%).<sup>14</sup>

In this study, 37.7% of students knew that hepatitis B vaccination protects against the infection, while 27.4% said didn't protect, and the rest of them didn't know (34.9%). Also, 74.7% of our students awarded of HBV vaccine, but it was low when compared with studies conducted among medical and dental interns in Arupadai Veedu Medical College and Mahatma Gandhi Dental College at Pondicherry, India (92.9%).<sup>19</sup> The result of study at Northern Border University, Arar in KSA gave high percent of agreement than our students, which said that 86.5% of students knew that a vaccine could prevent HBV infection but similar to our result as vaccination is safe and effective.<sup>20</sup> In the area of vaccination against HBV, it was encouraging to find the majority (63.0%) of medical students considered HBV vaccine is safe for people of all ages.<sup>8,21,22,23</sup> Also, they knew that the complete vaccine series induces protective antibody levels in  $\geq 90\%$  of infants, children and young adults.<sup>7,8,24</sup> It is well-underscored that the need for HBV vaccination among all medical students should be a priority.<sup>8,9,21,22</sup> In this study, only 0.4% of them infected with HBV while 99.6 not infected and 7.1% from their families are infected but 92.9% are not infected. Compared to study in Taibah University show that 4.8% had family history of hepatitis B.<sup>24</sup> Other study in Aljouf University shows 11% having a family member infected with HBV, while 89% said no.<sup>21</sup> Another study in Dammam shows 12% have hepatitis B in family, while 79% said no.<sup>18</sup> In this study, 46.3% of students are vaccinated against HBV, 32.4% not vaccinated, while 21.4 don't know. While at Taibah University, KSA, the percent of students who are vaccinated are less compared to our study. They show 36.2% of students were aware they received hepatitis B vaccine, 52.4% were not sure they received it, while 12 (11.4%) were not aware they received it.<sup>11</sup>

**Recommendation:-**

It is highly recommended that HBV vaccine should be given to all non vaccinated students with no cost to encourage them to take the HBV vaccine. HBV disease should be included in the educational curriculum as tutorials and assignments to effectively limit the hazardous effects of this disease and protect them from HBV infection.

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