

# Knowledge and Practice of Adult Population Regarding Hepatitis B Virus (HBV) in Riyadh, Saudi Arabia

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## Abstract

**Background:** Hepatitis B virus (HBV) Infection is a serious worldwide community health problem. HBV is the 10<sup>th</sup> leading reason of global death. Tentatively, hepatitis B is a serious infection activated by HBV, which attacks the liver and can cause both acute and chronic disease. **Aim:** To explore the adult population's Knowledge and Practice regarding Hepatitis B Virus (HBV) in Riyadh, Saudi Arabia. **Design:** To achieve the aim of the current study a descriptive correlation design was used. **Method:** 402 adult Saudi male and female were recruited in the current study from different regions in Riyadh; data was collected by a questionnaire developed in English by the researchers then translated to Arabic, the tool consisted of 3 sections; *section 1:* Contained questions related to socio-demographic and biomedical data. *Section2:* contained 17 questions for knowledge assessment. *Section3:* contained 10 questions for practice assessment. **Results:** The study results showed that the total knowledge mean score  $\bar{x} \pm SD$  was  $22.23 \pm 4.22$ , the total practice mean score  $\bar{x} \pm SD$  was  $7.43 \pm 4.19$  and revealed that there was a statistically significant differences between total knowledge score and total practice score with  $r = 0.113$  and  $P = 0.023$  and also showed a statistical significant differences between the level of education with knowledge  $r = 0.12$  and  $P = 0.015$  however, there is no statistical significant differences between the level of education and practice  $r = -0.04$  and  $p = 0.94$ . **Conclusion:** The knowledge regarding HBV among Saudi population in Riyadh was fair while the practice was poor, which indicated the need of more awareness and education campaigns regarding the good practice about HBV.

**Keywords:** Hepatitis B virus (HBV), Knowledge, Practice.

## INTRODUCTION:

Hepatitis B virus (HBV) Infection is a serious worldwide community health problem (Abdela, Woldu, Haile, Mathewos, & Deressa, 2016). HBV is the 10th leading reason of global death (Essam, 2014). Tentatively, hepatitis B is a serious infection activated by HBV, which attacks the liver and can cause both acute and chronic disease. (shigui, et al., 2017). Viral hepatitis, particularly those produced by HBV, represents a worldwide momentous reason of morbidity and mortality (al-thaqafy, balkhy, ibrahim, makhdum, & al-amri, 2012). HBV is more communicable disease than Human Immunodeficiency Virus (HIV) and hepatitis C virus (HCV) infection. About 80% of HCV etiologically related to HBV (Roushan, Toosi, Meysamie, Esteghamati, & Hajrassuliha, 2013). It is 50-100 times more infectious than HIV and 10 times more infectious than HCV. (fadwa, sulaiman, muhmmmed, hayat, & sarwar, 2011). Furthermore, HBV is a silent eradicator disease of the liver with many transporters not recognizing that they are infected with the virus (fadwa, sulaiman, muhmmmed, hayat, & sarwar, 2011). Additionally, the mode of spread of HBV is via blood-to-blood contact, unprotected sex with diseased person, using infected needles, occupational contact and from an infected mother to her neonate during birth. Furthermore, in developing countries other reasons of infections can contain household contact, vertical transmission hemodialysis, transmission from a physician, and the receiving of organs or blood products. In addition, it remains the major cause of liver-related morbidity and mortality (UC, et al., 2017).

Infection with HBV is highly prevalent worldwide. Globally, 2 billion individuals in the world are unprotected to the virus, while 350 million of them are diseased with chronic HBV (fadwa, sulaiman, muhmmmed, hayat, & sarwar, 2011). Over 686000 persons die every year due to complications of HBV, involving cirrhosis and hepatocellular carcinoma (HCC). Approximately, half of the worldwide population lives in areas of highest HBV endemicity (shigui, et al., 2017). Chronic HBV infection results in cirrhosis in 20–40%, and leads to 500,000–700,000 deaths annually worldwide (alan, et al., 2016). In addition, 2 billion people have evidence of historical or current HBV infection, and internationally, an estimated 240 million people chronically infested with HBV (shigui, et al., 2017).

HBV infection is endemic in Asia and is common in Asian immigrants to the United States (Dam, et al.,

2016). In Asia, 10 to 15 million people suffer from HBV. Furthermore, in developing countries in Asia, Africa, and the Middle East, HBV prevalence rates are much higher, reaching 5–20% in the general population (UC, et al., 2017). In Asia, HBV contagion is endemic where 70–90% of the population becomes diseased by the age of 40 and where 8–20% are chronic transporters (alan, jo-ann, jessica, willie, alan, & eric, 2016). While the international prevalence of HBV contagion is varied, and is utmost in sub-Saharan Africa and East Asia, where 5–10% of the adult people is chronically infected. However, studies show that the minor screening rate related to demographic factors is presented in the Asian-American migrant clusters. For instance, younger age, lower level of education, poor language ability, lower socio-economic status, not having a health insurance, lower levels of knowledge and awareness about HBV (Veen, Voeten, Zwart, & Richardus, 2010). All over, Asia is the home for 75% of all HBV carriers and the Middle East has moved from intermediate rate of HBV in the past to the current low HBV seroprevalence of 1.7% and strategies for HBV decrease is still a national public health priority (Roushan, Toosi, Meysamie, Esteghamati, & Hajrassuliha, 2013).

Generally, there are limited appropriately published data about the epidemiology of HBV in the Arabian Gulf area (Essam, 2014). In Saudi Arabia, HBV infection designates a chief public health problem. Kingdom of Saudi Arabia is among the countries, which had the all-out endemicity of seropositive hepatitis B surface antigen (HBsAg) (al-thaqafy, balkhy, ibrahim, makhdum, & al-amri, 2012). As specified by the Ministry of Health (MOH) in Saudi Arabia, HBV was classified the second most common viral disease after chickenpox, with additional than five thousand new cases diagnosed in 2009. In Jeddah, a multinational coastal city, reported new HBV infections, the risk level actuality 50% greater than any other city in Saudi Arabia (al-thaqafy, balkhy, ibrahim, makhdum, & al-amri, 2012). The incidence and prevalence HBV seropositive graded the second reportable communicable disease among Saudi Arabia National Guard (SANG) persons in all regions and the first among SANG persons in Jeddah. While the risk of HBV seropositive was stated to be greater in the military population than the general population of Saudi Arabia. Even with the fact that HBV seropositive in Saudi Arabia was one of the highest in the world, there was a certain lack of studies assessing knowledge, attitude and practice among military persons of Saudi Arabia (al-thaqafy, balkhy, ibrahim, makhdum, & al-amri, 2012).

## **OBJECTIVES OF THE STUDY:**

### **Aim**

The aim of the current study was to explain the adult population's Knowledge and Practice regarding Hepatitis B Virus (HBV) in Riyadh, Saudi Arabia.

### **Specific Objective:**

1. To assess the adult population's knowledge regarding HBV in Riyadh, Saudi Arabia.
2. To investigate the adult population's practice regarding HBV in Riyadh, Saudi Arabia.

### **Secondary objective of the study:**

- To assess the relationship between selected sociodemographic variables and the adult population's knowledge regarding HBV in Riyadh, Saudi Arabia.
- To assess the relationship between selected sociodemographic variables and the adult population's Practice regarding HBV in Riyadh, Saudi Arabia.

## **MATERIALS AND METHODS:**

### **Study Area/ Sitting:**

The current study was conducted in different regions in Riyadh; north, south, east & west. Covered different places (e.g. shopping malls, supermarkets, general gardens, etc.)

### **Study Subject:**

402 adults male and female in Riyadh were included in the current study with the following inclusion criteria; age 18-60 years old, able to read and write, lived in Riyadh, decided to participate in the study and didn't engaged in any health professions.

### **Study Design:**

To achieve the aim of current study a descriptive correlation design was used. The descriptive correlation design was conducted to examine the relationships between two or more variables in a single group in a study.

### **Sample Size:**

Using the sample size calculator available on: <http://www.surveysystem.com/sscalc.htm> to calculate the sample size for the current study selected the confidence level 95% and confidence interval is 5 and the total number of population in Riyadh in 2017 is 8000000 the calculated sample size was 384. To ensure representativeness, the sample was increased to 402 subjects.

### **Sampling Technique:**

A convenient sample of 402 adults male and female with the previously selected inclusion criteria were recruited in the current study. A convenience sample is a specific type of non-probability sampling technique in which the sample is taken from a group of people easy to reach or to contact them.

### **Data Collection methods, instruments used, measurements:**

To achieve the aim of the current study, data was collected by a questionnaire developed in English by the researchers then translated to Arabic by 2 bilingual Arabic - English speakers to be used in Arabic. The tool contained 3 sections;

**Section 1:** Contained questions related to socio-demographic and biomedical data such as; age, gender, nationality, marital status, level of education, employment status and Vaccinated against HBV.

**Section 2:** This section was consisted of 17 questions for knowledge assessment with total ranging from 0-34, the greater the score the higher the knowledge level. Each participant was select “yes, no and I don’t know”. The correct answer was get 2 scores, wrong answer was 0 score and I don’t know was get 1 score. Regarding the total level of knowledge categories there were three. 0-11 indicated poor knowledge, 12-22 considered as fair knowledge, whereas 23-34 revealed good knowledge.

**Section 3:** This section was contained 10 questions for practice assessment with total score ranging from 0-20, the greater the score the better the practice. Each participant was select “yes, no and I don’t know”. The correct answer was get 2 scores, wrong answer was 0 score and I don’t know was get 1 score. Regarding the total level of practice categories there were also three. 0-6 indicated poor practice, 7-13 considered as fair practice, whereas 14-20 revealed good practice. In order to test the feasibility and applicability of the study’s tools a pilot study was done on 20 subjects who were excluded from the study.

Content and item Validity were assessed by 3 experts in the field who are suggested some modifications which done accordingly. Reliability of the study tools was examined by Cronbach’s alpha and it was 0.78.

In the current study, the researchers interviewed each participant and explained the contents of questionnaire, and let them to sign the consent form. The researchers declared that all the information will be kept confidential and no one will get access to it except the researchers. All the participants had to choose the answers from the given options and they spent around 20 minutes to fill the questionnaire. The data collection was conducted between the period of November and December 2017.

### **Data Management and Analysis Plan:**

The collected data for the current study was entered and analyzed using the Statistical Package for the Social Science (SPSS, version 21). Descriptive statistical analysis like percentage, frequency distribution, median and mean were used to describe the research sample and subjects’ responses to questionnaire items. Furthermore, Pearson Product moment Correlation was used to investigate the relationship between selected variables. The Statistical significant will be set at  $p \leq 0.05$ .

### **Ethical Considerations:**

To ensure the ethical aspect in the current research study, the research proposal was submitted to the research unit of college of Nursing, king Saud bin Abdul-Aziz university for health sciences in Riyadh after that it was submitted to the institutional review board (IRB) in King Abdullah International Medical Research Center (KAIMRC) for approval. After receiving the approvals the researchers were started the data collection. Written informed consent was given to each participant before the data collection. Each participant was informed regarding the purpose of the study prior the data collection. Participant’s anonymity was kept and the collected data was kept confidential and was used only for the research purpose. The participants were informed that they were free to withdraw from the study at any time.

**RESULTS:**

**Table 1:** Frequency distribution of the **Socio-demographic** Characteristics of the Sample: (N=402)

Variable	Number	Percent %
<b>Age</b>	Mean $\pm$ SD: 33.66 $\pm$ 1.03	
<b>Gender</b>		
• Male	102	25.4
• Female	300	74.6
<b>Nationality</b>		
• Saudi	357	88.8
• Non-Saudi	45	11.2
<b>Marital Status</b>		
• Single	134	33.3
• Married	236	58.7
• Divorced	22	5.5
• Widowed	9	2.2
<b>Educational Level</b>		
• Elementary	6	1.5
• Intermediate	12	3.0
• Secondary	49	12.2
• Diploma	64	15.9
• Bachelor	245	60.9
• Master	24	6.0
• PhD	2	0.5
<b>Employment Status</b>		
• Non-employment	77	19.2
• Retired	6	1.5
• Housewife	37	9.2
• Employed	282	70.1
○ Accounting	15	3.7
○ Administrative	73	18.2
○ Community and social service	13	3.2
○ Education	140	34.8
○ Other	117	29.1
<b>Monthly income</b>		
• $\leq$ 2,000 S.R	93	23.1
• 3,000 – 6,000	116	28.9
• 7,000 – 9,000	82	20.4
• $\geq$ 10,000	110	27.4

Table1: showed Frequency distribution of the Socio-demographic Characteristics of the Sample.

The mean age was 33.66 + 1.03 more than half of the sample (74.6%) were females. Regarding the nationality, the majority of the sample (88.8%) were Saudi. Regarding the marital status, half of the sample (58.7%) were married. Regarding the educational level, more than half (60.9%) of the sample had bachelor degree. While only (0.5%) of the sample had PhD. Regarding the employment status, the highest percentage (70.1%) were employed. About (28.9%) of the sample had monthly income ranged between 3000 – 6000 S.R. While only (20.4%) of the sample had monthly income ranged between 7000 – 9000 S.R.

**Table 2:** Frequency distribution of the **Knowledge** about Hepatitis B Virus of Adult Population in the Sample: (N=402)

Knowledge	Correct		wrong		Don't know	
	#	%	#	%	#	%
Hepatitis B can be preventable by vaccination	280	69.7	49	12.2	73	18.2
HBV spread by sexual intercourse	205	51.0	124	30.8	73	18.2
HBV spread by blood	296	73.6	55	13.7	51	12.7
The mother spread HBV to her child during birth	189	47.0	110	27.4	103	25.6
HBV spread by sharing eating utensils	135	33.6	187	46.5	80	19.9
HBV cause lifelong infection	179	44.5	125	31.1	98	24.4
HBV can cause advanced liver disease (e.g. cirrhosis)	246	61.2	57	14.2	99	24.6
HBV cause liver cancer	149	37.1	91	22.6	162	40.3
carriers can only be identified by a blood test	283	70.4	53	13.2	66	16.4
If a person infected with HBV but her/his look and feel healthy, that person can spread hepatitis B	221	55.0	87	21.6	94	23.4
Eating food prepared by an infected person with HBV could cause hepatitis B	159	39.6	164	40.8	79	19.7
Sharing a toothbrush with an infected with HBV person may spread hepatitis B	249	61.9	76	18.9	77	19.2
HBV can be spread by holding hands with an infected person	76	18.9	249	61.9	77	19.2
HBV can cause death	201	50.0	87	21.6	144	28.4
There is effective treatment for HBV	190	47.3	63	15.7	149	37.1
HBV can be diagnosed by blood test	291	72.4	40	10.0	71	17.7
In most cases, HBV is only a temporary infection (like flu)	202	50.2	80	19.9	120	29.9
<b>Total Mean Score <math>\pm</math> SD</b>	<b>22.23 <math>\pm</math> 4.22</b>					

Table2 showed Frequency distribution of the **Knowledge** about Hepatitis B Virus of Adult Population.

Regarding the Hepatitis B can be preventable by vaccination, the majority of the sample (69.7%) answered correctly. Regarding the HBV spread by sexual intercourse, half of the sample (51.0%) answered correctly. Regarding the HBV spread by blood, (73.6%) of the sample answered correctly. Regarding the mother spread HBV to her child during birth, most of the sample (47.0%) answered correctly. Regarding the HBV spread by sharing eating utensils, almost half of the sample (46.5%) answered wrong. Regarding the HBV cause lifelong infection, most of the sample (44.5%) answered correctly. Regarding the HBV can cause advanced liver disease (e.g. cirrhosis), more than half of the sample (61.2%) answered correctly. Regarding the HBV cause liver cancer, most of the sample (40.3%) they did not know about it. Regarding the carriers can only be identified by a blood test, the majority of the sample (70.4%) answered correctly. Regarding if a person infected with HBV but her/his look and feel healthy, that person can spread hepatitis B, half of the sample (55.0%) of answered correctly. Regarding the Eating food prepared by an infected person with HBV could cause hepatitis B, most of the sample (40.8%) answered wrong. Regarding the sharing a toothbrush with an infected with HBV person may spread hepatitis B, more than half of the sample (61.9%) answered correctly. Regarding the HBV can be spread by holding hands with an infected person, half of the sample (50.0%) answered correctly. Regarding the There is effective treatment for HBV, most of the sample (47.3%) answered correctly. Regarding the HBV can be diagnosed by blood test, the majority of the sample (72.4%) answered correctly. Regarding the HBV is only a temporary infection (like flu), half of the sample (50.2%) answered correctly. Total mean score of Knowledge was 22.23  $\pm$  4.22

**Table 3:** Frequency distribution of the **Practice** regarding Hepatitis B Virus of the Adult Population in the Sample: (N=402)

Practice	Correct		wrong		Don't know	
	#	%	#	%	#	%
Screening for HBV	120	29.9	261	64.9	21	5.2
Screening of blood before transfusion	138	34.3	222	55.2	42	10.4
Barber/nail salon equipment changed before used	261	64.9	110	27.4	31	7.7
Share food/utensils/water etc. with others	183	45.5	194	48.3	25	6.2
Practice safe sex	89	22.1	233	58.0	80	19.9
Avoid meeting people who had HBV before	90	22.4	235	58.5	77	19.2
Participate in health education program related to HBV	75	18.7	293	72.9	34	8.5
Wash hands after shake hand with other people	152	37.8	208	51.7	42	10.4
Pregnant women done screening for HBV before delivery	74	18.4	225	56.0	103	25.6
If your child had HBV before, you avoid touch your child	42	10.4	270	67.2	89	22.1
<b>Total Mean Score <math>\pm</math> SD</b>	7.43 $\pm$ 4.19					

Table 3: showed Frequency distribution of the Practice about Hepatitis B Virus of the Adult Population in the Sample. Regarding the screening for HBV, (64.9%) of the sample did not do the screen. Regarding the screening of blood before transfusion, more than half (55.2%) of the sample did not ask for screening of the blood before transfusion. Regarding the Barber/nail salon equipment changed before used, the majority (64.9%) of the sample asked to change the equipment before used. Regarding the share food/utensils/water, etc. with others, (48.3%) of the sample did not share their equipment with others. Regarding the practice safe sex, more than half (58.0%) of the sample did not practice safe sex. Regarding the avoid meeting people who had HBV before, (58.5%) of the sample did not avoid meet these people. Regarding the participate in health education program related to HBV, the majority (72.9%) of the sample did not participate in health education program. Regarding the wash hands after shake hand with other people, (51.7%) of the sample did not wash their hand. Regarding pregnant women done screening for HBV before delivery, more than half (56%) of the sample did not the screen for HBV before delivery. Regarding if your child had HBV before, you avoid touch your child (67.2%) of the sample did not avoid touch their child. Total mean score was 7.43  $\pm$  4.19

**Table 4:** Association between age with knowledge and practice total mean scores

Age		
	r	P
Knowledge total mean score	0.061	0.225
Practice total mean score	0.049	0.328

Table 4: showed Association between age with knowledge and practice total mean scores. There was no statistical significant differences between age with knowledge and practice total mean score (r=0.061) (p=0.225), (r=0.049) (p=0.328) respectively.

**Table 5:** Association between the gender with knowledge and practice total mean scores

Gender						
	Male		Female		t	P
	Mean	SD	Mean	SD		
Knowledge total mean score	21.9	3.96	22.3	4.3	-.89	0.518
Practice total mean score	8.62	3.75	7.03	4.26	3.35	0.28

Table 5: showed Association between the gender with knowledge and practice total mean scores. There was no statistical significant differences between gender with knowledge and practice total mean score (t=-.89) (p=0.518), (t=3.35) (p=0.28) respectively.

**Table 6:** Association between the level of Education with knowledge and practice total mean scores

Level of education		
	r	P
Knowledge total mean score	0.12	0.015
Practice total mean score	-0.04	0.94

Table 6 showed Association between the level of Education with knowledge and practice total mean scores. There was a Statistical Significant Differences between the level of education with knowledge with (r=0.12) and (p=0.015). However, there was no statistical significant differences between the level of education with practice with (r=-0.04) and (p=0.94).

**Figure1** Frequency Distribution of Total Knowledge Score Categories of adult population (N=402)

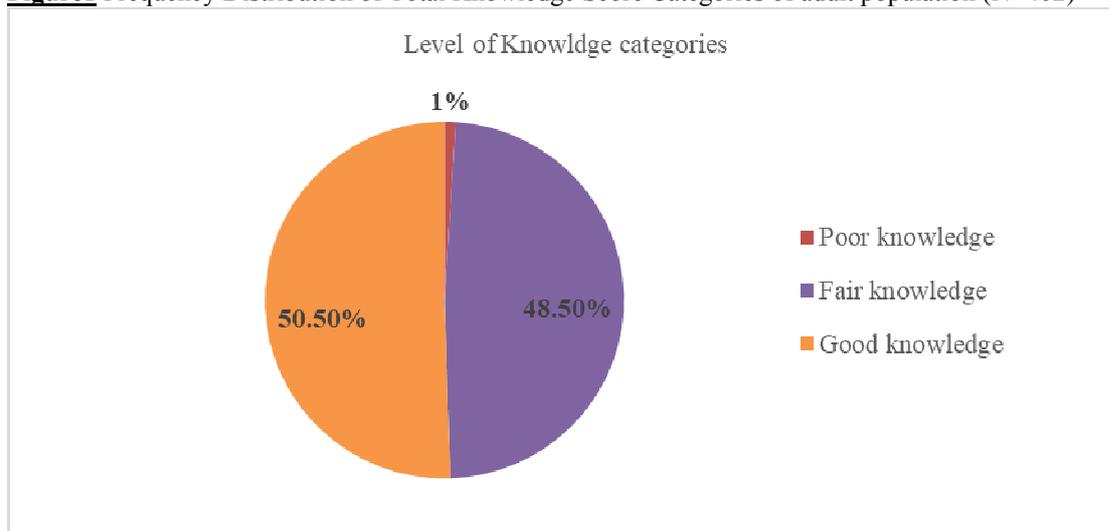


Figure-1 Showed the Frequency Distribution of Total Level of Knowledge Categories of the HBV of the sample. Only 1% of the sample had poor knowledge. About 48.50% of the sample had fair knowledge. While half of the sample (50.50%) had good knowledge.

**Figure2** Frequency Distribution of Total Level of Practice Categories of the HBV in the sample of (N=402)

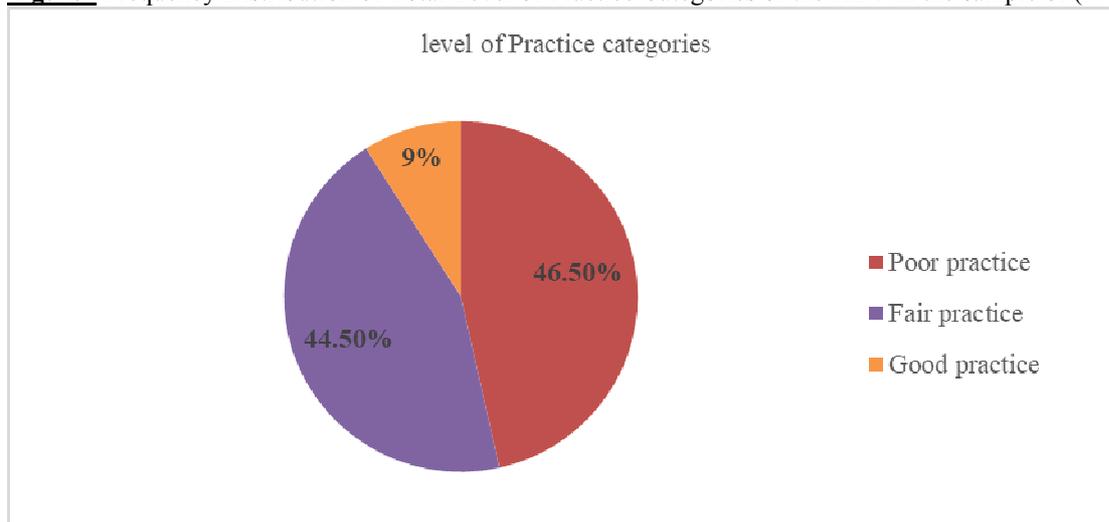
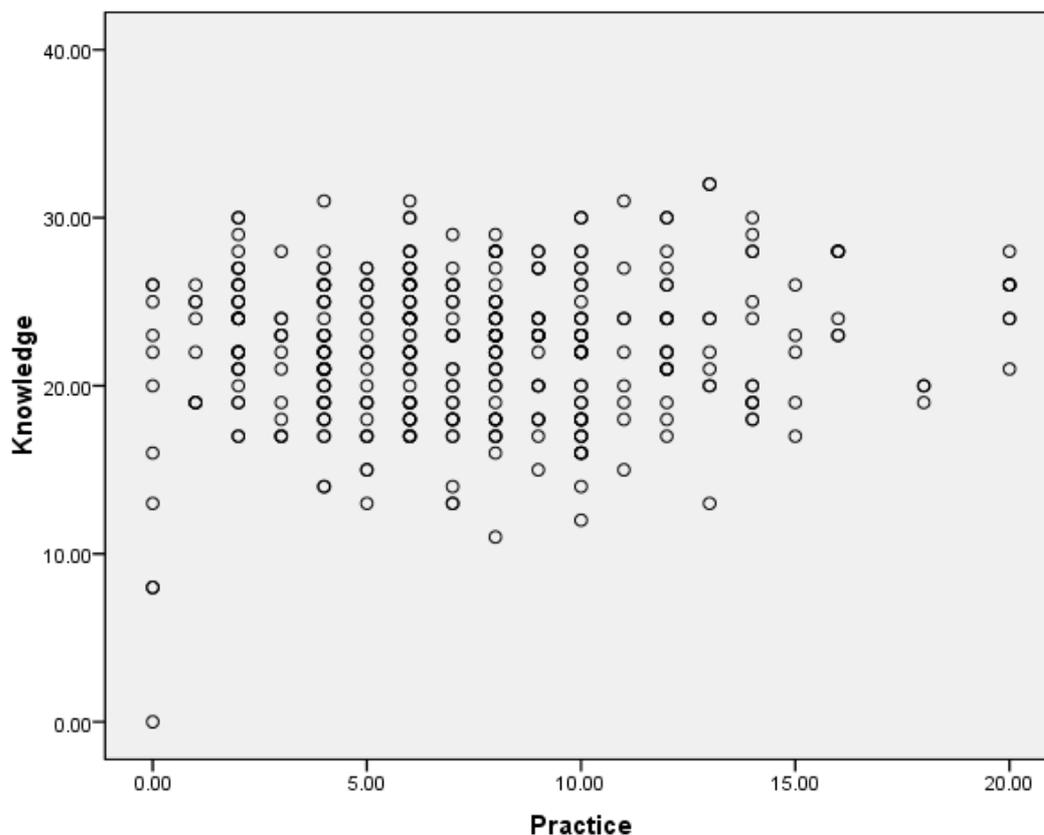


Figure-2 Showed the Frequency Distribution of Total Level of Practice Categories of the HBV of the sample. Only 9% of the sample had good practice. About 44.50% of the sample had fair practice. While 46.50% of the sample had poor practice.

**Figure3:** Relationship between the Total Knowledge Score and Total Practice Score of the sample (N=402)



$$r = 0.113 \quad P = 0.023$$

Figure 3 showed relationship between the Total Knowledge Score and Total Practice Score of the sample of (N=402). There was a statistically significant positive relationship between total knowledge score and total practice score with  $r = 0.113$  and  $P = 0.023$

#### DISCUSSION:

The current study aimed to explore the adult population's Knowledge and Practice regarding Hepatitis B Virus (HBV) in Riyadh, Saudi Arabia. The obtained data was collected by paper and online questionnaire. The online questionnaire was a benefit for population we can't reach, mostly for females. This opportunities are likely to be low as a result of cultural values and norms of the country. On the other hand, using online survey lower the chances for illiterates, elderly and who don't have internet access to participate in the study.

Regarding the knowledge about HBV, more than half of the participants exhibited a good knowledge regarding HBV and about half of the population exhibited fair knowledge. This could be clarified that most of the people had attended educational classes or gained information through several sources (e.g. internet) regarding health and awareness about hepatitis infection in general and specifically hepatitis B, and this percentage was matching with a study was conducted in Arar, Kingdom of Saudi Arabia among students (Algarni, et al., 2017), where they found that the student exhibit a good knowledge regarding the transmission of the disease. In addition, this percentage was lower than the findings obtained by Elbur, et al (2017). As they found that the majority of the participants had the knowledge about HBV. Moreover, our study showed that there was a significant differences between the level of education and knowledge, in where the higher level of education was the more knowledgeable about HBV. Similarly, a study was conducted in Kintampo Municipality of Ghana showed that the participants with higher level of education are more likely to be aware and have knowledge of HBV (Abdulai, Baiden, Adjei, & Agyei, 2016).

The majority of the sample knew that HBV could be prevented by vaccination and this match with a study conducted in Korea regarding the vaccination against HBV (Lee, Lee, Son, Kim, Kim, & Ko, 2017) where they found that the majority of their population knew that HBV was preventable by vaccination, another study in Nigeria exhibited the same percentage regarding vaccination (Chingle, Osagie, Adams, Gwomson, Emeribe, & Zoakah, 2017) in where more than half of the responders to the study get their full doses of vaccination. Unlike a study in Tanzania, assessing the knowledge of HBV transmission (Debes, Kayandabila, & Pogemiller, 2016) the

result showed that nearly all the population had never received HBV vaccine. Furthermore, half of our participant were aware that HBV can spread by sexual intercourse and blood and this was different to a research which conducted in China, among pregnant women (Han Z. , et al., 2017) where they reported that more than half of the participant didn't know that HBV can spread through sexual intercourse. Likewise, a study conducted in Taif, Saudi Arabia said that half of the participant knew that HBV can be spread by unsafe sex. (Elbur, Almalki, Alghamdi, & Alqarni, 2017).

Even more, nearly half of the participants were aware that the disease can spread from the mother to her baby through childbirth, similarly, the same study conducted in Taif, Saudi Arabia and reported that less than half of the participants were aware that the disease can be transmitted from mother to her child through delivery (Elbur, Almalki, Alghamdi, & Alqarni, 2017). Conversely, a study was conducted in China among pregnant women that about half of the women didn't recognize that it could be transmitted by unprotected sexual intercourse. (Han Z. , et al., 2017). On the other hand , minority of the participants didn't knew that HBV can cause cancer, contradicting with this results, a study was conducted in Quetta, Pakistan regarding the knowledge, attitude and practice towards Hepatitis B (Haq, Hassali, Shafie, Saleem, Farooqui, & Aljadhey, 2012) which reported that almost quarter of the participants knew that HBV can cause liver cancer. Roughly, half of the participants knew that the HBV infection is temporary like flu. The problem with such finding it may result in delay of the detection, diagnosis and treatment of the disease. Despite the asymptomatic nature of the disease, less than quarter of the participant didn't know there is effective treatment for HBV, while less than half of the participants were aware that there is cure for HBV. Indeed, in Ganczak, et al. the outcome was similar to our study. (Ganczak, Daniłow, Korzeń, Dąbrowska, & Szych, 2016) where almost half of the participant of the study didn't know that the treatment of HBV is available.

Regarding practice about HBV, nearly half of participants were demonstrate a poor practice regarding HBV, high percentage exhibited fair practice and few of them showed good practice. Unfortunately, the majority of the participants didn't conduct screening for HBV, and this result was similar to a study was conducted in China among older Chinese people (Tanaka, Edmund, Chen, & Wang, 2014) in where the majority of their participants were not aware about the HBV screening. A study conducted in China among chronically infected patients and uninfected persons (Guan, et al., 2016) and indicated that few of their participants shared meals and utensils with chronic hepatitis B patients. And this was contradicting with our results, in where almost half of our participants did not share food or utensils with others. However, more than half of the population did not participate in health education class related to HBV, and this could be related to the poor knowledge regarding the disease. Mostly three quarters of the participants knew that the disease can be transmitted through blood (Han Z. , et al., 2017), yet few participants asked for blood screening before transfusion. On the other hand, the majority of them asked their barber\ nail salon to change the equipment which were used before, and this was similar to a study which was conducted in Islamabad among barbers of urban and rural areas (Shah, et al., 2015) which reported that, almost all of their participants were used new blade for every customer., But even so, less than quarter of the pregnant women who did HBV screening prior to delivery and some of them only had practiced safe sexual intercourse and this was different than the results of a study conducted in United States of America among pregnant women (Niu, Marzio, Fenkel, & Herrine, 2017) and revealed that, nearly all of their participants did screening for HBV during pregnancy. Another study was conducted in china among pregnant women (Han Z. , et al., 2017) and denoted that, the majority of them screened for HBV during pregnancy. Knowing this information indicates the importance in providing health education to influences other knowledge scopes such as preventive measures, transmission and possible treatment of the disease. Despite the knowledge gain, there is a gap between the knowledge and participant's practice in the standards to prevent the transmission of the disease.

Regarding the association between age with knowledge and practice, there was no statistical significant differences between age with knowledge and practice in, and this was similar to a study conducted in Cameroon (Tatsilong, et al., 2016) which indicated that, there was no statistical difference between age and gender with knowledge and practice in which they found that the mean age to exhibit good knowledge and practice was 30.5 years old.

Regarding the association between gender with knowledge and practice which reported that, there was no statistical difference between gender with knowledge and practice which is logic because now the females are equal to male in getting the same education and working, likewise, the same study which was conducted in Cameroon (Tatsilong, et al., 2016) found that there was a statistical difference between gender with knowledge and practice where they found that male were 3.20 more likely to exhibit a good level of knowledge than female.

Regarding the association between level of education with knowledge and practice, there was a statistical significance differences between level of education with knowledge and practice, which is expected that the higher education demonstrates good knowledge and practice and this was matched with the same study conducted in Cameroon (Tatsilong, et al., 2016), where they found that the participants with a university study level were more likely to have a good knowledge than those with a high or secondary school level.

### Conclusions:

In conclusion, the level of knowledge about HBV was relatively high in a highly educated participants compared to practice. The participants showed a positive knowledge and practice related to preventable measures such as vaccination, screening for blood before transfusion and change equipment before used in salon and barber. However, they showed weak knowledge and practice in some areas related to treatment and early detection of the disease and spread of the disease through childbirth in pregnant women.

### Recommendations:

Public education on HBV is essential, and health education can be provided through different platform and program such as campaigns to focus on low educated people. However, many health education information and messages can be provided through videos, internet, social media, posters about common symptoms of the disease for early detection, mode of transmission and treatment. Furthermore, patients who had hepatitis B before can provide health education about the disease and share their experience to others. Health care providers should give continuous health education for parents, pregnant women and public to get vaccination and screening especially for those who have high risk to have the disease. The education for the disease can be provided in many sittings such as primary health centers, malls and even studying areas.

### Limitations:

The study was proposed to be done by 500 participants but for the time limits it was conducted by only 402 participants.

### Relevance to clinical practice:

Accurate assessment of adult population's knowledge and practice regarding hepatitis B virus (HBV) in Riyadh, Saudi Arabia could help in increase the level of awareness about good knowledge and practice of HBV.

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