



## A CROSS-SECTIONAL STUDY ON THE AWARENESS OF THE GENERAL POPULATION IN KARACHI, PAKISTAN TOWARDS HEPATITIS B VIRUS AND THE DISEASE

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### ABSTRACT

Hepatitis B Virus (HBV) causes a serious infection that has been increasingly spreading in Pakistan in recent years. The probable causes may include illiteracy, absence of appropriate health services, and less community awareness about the spread of major infectious diseases. This study has evaluated the awareness of HBV infection in different areas of Karachi. A survey-based questionnaire with a total of 25 awareness questions was filled out by the general population as well as people related to the medical field. The data was analyzed using the SPSS version 20 and chi-square tests were used for the p-significance value. A total of 646 responses were collected out of which, 56.50% were medical personnel and 43.50% belong to the general population. In the current study the awareness of HBV was categorized into highly aware, moderately aware, and less awareness level and it was assessed based on gender, marital status, residential area, and educational background. The awareness level was found to be very low in the general population mostly belonging to the rural areas, which ultimately leads to the morbidity rate of hepatitis B virus infection. To improve the level of awareness about infectious diseases, it is necessary to conduct awareness campaigns among people that are not related to the medical community.

**Keywords:** Hepatitis B Virus, Awareness, Infectious Disease.

### INTRODUCTION

Hepatitis B virus (HBV), formerly named serum hepatitis causes infection in the liver. HBV is related to the family called

Hepadnaviridae which is a relatively circular double-strand DNA virus [1-4]. HBV is a globally alarming health problem [5-8]. Two billion human beings around the world are



exposed to HBV and 350 million people out of them suffer chronically from this infection [4, 8]. In Pakistan, HBV is the most prevalent infection, and about nine million humans are infected with this virus and its rate is steadily increasing [9-11]. HBV is fifty to hundred folds more contagious and infectious than HIV and ten times more than HCV [12]. Developing countries like Asia, Pacific Islands, and Africa has more prevalence rate of HBV as compared to America, Australia, and Western Europe. Pakistan is one of the developing countries that have a high rate of mortality [13].

WHO (World Health Organization) reported that Pakistan falls into the prevalence region along with the 3 percent infected population by HBV [10, 14, 15]. The HBV exposure rate in Pakistan is unknown conclusively but data indicate 35-38 percent prevalence with four percent carriers and thirty-two percent with anti-HBV antibodies surface by natural conversion [10].

The main components that contribute to the spread of HBV involve unsafely administered therapeutic injections [16], tattooing [17], blood transfusion [18], transmission between mother to child, and unsafe sex practices [19, 20].

Considering the gravity of this infectious disease and the potential risk of spread, the latest study was commenced to determine the degree of awareness of HBV infection among university students in Karachi, Pakistan.

## **MATERIALS AND METHODS**

A survey-based questionnaire containing 25 questions to gauge awareness was filled out by the survey population.

### ***Study design and the general population***

The data was statistically analyzed using SSPS version 20 and the chi-square test was used for the hypothesis testing.

Among the world population, Pakistan represents 2.83% population and approximately 16 million population of Karachi which ranks 7th among the most populated cities around the world [21]. The data were collected in an online questionnaire containing a stratified sampling technique. The population was divided into strata, based on their medical and non-medical personnel. The community-based cross-sectional study was conducted in 2nd half of the year 2022 in Karachi, Pakistan.

### ***Study sample and sampling***

The stratified method was used for sampling in Karachi, Pakistan. The approximate sample size is 646 candidates.

### ***Data collection procedure and tools***

The cross-sectional study contained close-ended questions on demographic, HBV awareness, and prevention. This study was conducted to analyze the awareness among medical and non-medical personnel to overcome HBV infection.

### ***Statistical analysis***

The online data was collected and downloaded in an MS excel sheet. The excel sheet was exported to the statistical package for social sciences (IBM SPSS statistics 20)



to analyze the awareness level and the chi-square test was used for the p-significance value ( $p < 0.05$ ).

A total of 678 subjects (table 1) responded to the questionnaire (table 3).

**RESULTS**

**Table 1: General properties of respondents**

	Frequency	Percentage
<b>Gender</b>		
Male	228	34.50%
Female	432	65.50%
<b>Marital Status</b>		
Married	68	10.30%
Unmarried	592	89.60%
<b>Residency</b>		
Urban	531	80.50%
Rural	129	19.50%
<b>Profession</b>		
Medical	373	56.50%
Non-medical	287	43.50%

**Table 2: Awareness of respondents against HBV infection**

	Highly aware	Moderately aware	Unaware
<b>Gender</b>			
Male	172 75.40%	48 21.10%	8 3.50%
Female	363 84%	61 14.10%	8 1.90%
<b>Marital Status</b>			
Married	60 88.20%	8 11.70%	0 0
Unmarried	475 80.20%	101 17.06%	16 2.70%
<b>Residency</b>			
Urban	440 82.90%	84 15.80%	7 1.30%
Rural	95 73.60%	25 19.40%	9 7%
<b>Profession</b>			
Medical	336 90.10%	36 9.70%	1 0.30%
Non-medical	199 69.30%	73 25.40%	15 5.20%

The subjects from the medical profession were 56.50% (n= 373) and from non-medical profession included 43.5% (n=287). The study was conducted on rural and urban

populations in a proportion of 19.5% (n=129) and 80.5% (n=531) respectively. The female proportion was 65.5% (n=65.50), while the male population was



34.50% (n=228). The 10.30% (n=68) married population participated in this study and the 89.60% (n= 592) subjects were unmarried. The larger percentage of the

female population in this study reflects the typical makeup of higher medical education institutes in Pakistan.

**Table 3: Statements in the questionnaire with responses**

STATEMENTS	Yes	No	Total	Yes %	No %
Have you heard about HBV?	638	22	660	96.666	3.333
Do you think HBV is a deadly infection?	508	152	660	76.969	23.030
Do you know HBV infection can effect any age group?	620	40	660	93.939	6.060
How do you think HBV infection can be transmitted?	525	135	660	79.545	20.454
Do you think most chronic HBV infection cases are asymptomatic?	592	68	660	89.696	10.303
Is it important to conduct HBV tests before marriage?	604	56	660	91.515	8.484
Have you ever taken part in a health care education program related to HBV?	73	587	660	11.060	88.939
Do you think you (as a healthcare professional) is at high risk of having HBV infection than the general population?	512	148	660	77.575	22.424
Do you know someone in your family or outside, who's been diagnosed with HBV infection?	128	532	660	19.393	80.606
Have you got vaccinated against HBV?	428	232	660	64.848	35.151
Do you have any history of HBV infection in the past? If yes, then specify.	436	224	660	66.060	33.939
Do you think chronic HBV infection can lead to liver cirrhosis/failure?	596	64	660	90.303	9.696
What do you think how HBV infection can be prevented?	623	37	660	94.393	5.606
Are you aware that HBV vaccination is given in intervals?	240	420	660	36.363	63.636
HBV infections can be diagnosed via:	608	52	660	92.121	7.878
Do you think HBV is fatal & cannot be treated?	484	176	660	73.333	26.666
What can be the cause of HBV?	515	145	660	78.030	21.969
Do you think HBV infection treatment can be expensive that is why the mortality rate is high or it can be due to unawareness among the people?	512	148	660	77.5757	22.424



The awareness of the survey participants was measured and reported in table 2 explaining scores based on gender, marital status, residential area, and profession. It was found that each population has more than 60% of awareness regarding HBV.

In the H01, we investigated if HBV awareness is independent of gender. Given that the P-value was less than 0.05, the null hypothesis was rejected. The computed Cramer's V value of 0.025 indicated that gender influences HBV awareness, but the degree of correlation is quite weak.

In H02, a statistical test was run to see if the profession is independent of HBV awareness. Given that the p-value is less than 0.05, the null hypothesis was rejected.

The level of HBV awareness was not correlated with the profession as indicated by the computed Cramer's V value of 0.001.

## DISCUSSION

The burden of HBV infection in developing nations like Pakistan is continuously rising, making it a worldwide health issue [4]. There are two major problems with HBV. First off, the majority of HBV-positive people are unaware of their infection, indicating a larger need for screening in high-risk populations. Second, just a small percentage of HBV-infected individuals who need treatment are now receiving it. There are a variety of factors contributing to this lack of screening and linkage to care, including low health literacy and other hurdles caused by monetary, linguistic, and cultural constraints [22]. In the current

study, the awareness of HBV was assessed based on gender, marital status, residential area, and educational background mentioned in table 2. The study showed that 84% of the females were highly aware of HBV as compared to the males with a 75.4% awareness level. However, in the case of moderate awareness levels results indicated 21.10% and 14.10% awareness for males and females respectively. Only 1.90% of females and 3.50% of males were unaware of the HBV. This variation in the awareness level based on gender can be justified by the reason that females have more exposure to mass media including newspapers, watching TV, or listening radio as compared to males. Here, it's also critical to remember that the media has two key obligations to contribute to disease prevention. First and foremost, it is in charge of raising knowledge about the factors that contribute to illness, as well as the treatments and precautions that can be taken. Second, it must prevent false information about any health-related concern to combat infodemics [23]. This result is consistent with the study carried out in other parts of the world [24]. From the table 2 it was demonstrated that the respondents from medical backgrounds were highly aware (90.10%) as compared to non-medical background individuals (69.30%). However non-medical subjects were found to have a 25.40% moderate awareness level in comparison with medical subjects revealed a 9.70% awareness level. In addition to taking specific preventative



measures, healthcare professionals are well-informed about Hepatitis B infections, the value of immunizations, and the application of basic hygiene practices. When medical students interact with patients and contaminated equipment as part of the healthcare delivery system, they run the same kind of danger as other healthcare workers. The necessity of education is one key finding of this research. More educational efforts should be made to educate non-medical students about the significance of viral hepatitis and must participate more in national, regional, and international meetings about hepatitis to contribute to the prevention of viral hepatitis. Medical students play an important role in knowledge dissemination and raising awareness among their communities. Moreover, educational programs should emphasize preventing infections and getting medical attention if exposed to contaminated body fluids which play a key role in the spread of HBV [25, 26]. It was revealed from the survey that the urban population possessed a higher awareness level of 82.9% than the rural population with a 73.6% awareness level. It is obvious that rural people have low education levels and lack knowledge about the prevention of the spread of HBV due to less use of mass media contributed to the reduction in the awareness level of the rural population. Married respondents showed an 88.20% awareness level while an 80.20% awareness level was displayed by non-married subjects.

## CONCLUSION

The study has identified some gaps in the awareness campaigns about HBV and emphasizes that these awareness programs must be prioritized to improve people's understanding of the virus and disease so they may contribute towards restricting the spread of infection.

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