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ASSESSMENT OF KNOWLEDGE AND AWARENESS CONCERNING HEPATITIS B VIRUS AMONG PATIENTS IN QUETTA

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Abstract

Hepatitis B virus infection is one of the most dangerous health problems in all over the world. Approximately 30% of people globally are affected by it. Lack of attentiveness and false impressions regarding HBV spread, prevention and management remain common, particularly in the countryside and among low literacy residents. The study was designed to assess the patient's knowledge and awareness about HBV. The study was conducted at Bolan Medical Complex and Civil Hospital Quetta over a period of 4 months. These hospitals were selected as study centres because they are government hospitals and patients attending them come from diverse regions with different localities, ages and educational backgrounds. The data were collected from 120 patients through a structured questionnaire, then entered into a Microsoft Excel sheet and examined by means of descriptive statistics and ratios. The results disclosed that most of the patients belonged to rural areas (63.3%) and were uneducated (65%).55.8% of patients consider HBV as a viral infection, and 75% believe that vaccination is a good preventive measure. A moderate portion of participants were aware of the use of sterile instruments and hygiene practices. Yet, misconceptions concerning HBV spread, treatment, and home remedies were still present. The conclusion of the study is that the patients in Quetta have limited information and awareness concerning HBV, with major gaps in understanding spread, treatment and prevention. Awareness campaigns among the public, informative programs, vaccination campaigns, and community involvement are needed to improve HBV awareness and decrease incidence rates, mainly among rural residents.

Keywords: *Awareness, Hepatitis B virus, Knowledge, Misconception, Patients*

INTRODUCTION

Hepatitis B virus infection is one of the most dangerous health problems in all over the world. According to Trepo and Lok, approximately 30% of people globally are affected by it. The hepatitis B virus is a partially double-stranded DNA virus that has many serological markers (1). Hepatitis B is transmitted when a mother comes into contact with blood or other bodily fluids from an infected person during labor and delivery, for example, through contact with an infected partner, unsafe injections and exposure to sharp objects in a medical facility or public area, or among drug injectors. The virus spreads from mother to child. Out of 31.7 million people, only 10% of individuals living with hepatitis B were aware of their diagnosis, whereas out of 7.8 million, only 31% of those with the disease were receiving treatment (2)

According to the Centres for Disease Control and Prevention, hepatitis B virus (HBV) infection is one of the most prevalent viral illnesses affecting the liver, depending on whether the infection is acute or chronic (3). The initial symptoms are frequently minor fever, fatigue, weakness and appetite loss. The upper right side of the abdomen becomes painful or uncomfortable as the infection worsens and the liver gets inflamed. Additionally, patients may have nausea, vomiting and intestinal problems. Jaundice, or yellowing of the skin and eyes due to an accumulation of bilirubin in the blood, is one of the most distinctive signs of hepatitis B (4). Chronic hepatitis B may not exhibit any obvious signs, yet the virus nevertheless silently damages liver cells. This may eventually lead to cirrhosis, a condition in which the liver tissue is damaged, and it may even develop into liver cancer (5).

According to Kumar, diagnosing hepatitis B virus (HBV) is essential for early infection detection and stopping the development of liver illnesses such as cirrhosis and hepatocellular cancer. Serological

testing to identify hepatitis B surface antigen (HBsAg) (6). Polymerase chain reaction (PCR) molecular testing advancements that have made it possible to directly quantify HBV DNA, increasing the precision of disease staging and monitoring (7). Point-of-care testing, such as lateral flow assays, has made diagnosis more accessible in low-resource settings by providing quick, reliable results (8). Quantitative HBsAg testing has also gained attention (Islam et al (2023). Rapid diagnostic kits, including SD-Bioline (Standard Diagnostics Bioline) HBeAg, are effective (9). Recent innovations, such as CRISPR (Clustered regularly interspaced short palindromic repeats) based biosensor-driven diagnostics, promise even faster and more accurate diagnostics (10). Yet, challenges continue, especially in assimilating these new tools into current healthcare arrangements in emerging republics (11). The treatment of hepatitis B, according to WHO, is Tenofovir and entecavir, which are now recommended as nucleoside analogues for treating chronic hepatitis B (CHB) infection. The first complete recommendations on CHB prevention, care and treatment were released by WHO in 2015. These were followed in 2017 by guidelines on viral hepatitis B testing and in 2021 by guidelines on preventing HBV transmission from mother to child using prophylactic antiviral medication throughout pregnancy. The effectiveness and safety of dual combinations of tenofovir + lamivudine or emtricitabine and tenofovir alafenamide fumarate (TAF) are very effective (12). The most effective technique for lowering HBV infection worldwide is prevention. The best preventive measure is to vaccinate everyone against hepatitis B, and it can prevent the infection in 90-100% of cases by producing adequate antibody responses. Adopting good personal cleanliness, regularly screening blood donors, and testing human blood and bodily fluids for HBV contamination before use are further preventative measures (13). The hepatitis B vaccination is often administered in two, three, or four doses over a period of one to six months. There are two recombinant DNA-based HBV vaccinations available. Hepatitis B vaccine risks include fever, headache, exhaustion, redness and swelling at the injection site, and discomfort (13).

METHODOLOGY

The study was designed to assess the HBV patients' knowledge and awareness. This method involved asking a set of questions to patients in hospitals through a structured questionnaire. The aim was to understand what patients knew and how aware they were about HBV without influencing or altering their behavior. The study was conducted at Bolan Medical Complex and Civil Hospital Quetta. These hospitals were selected as study centres because they are government hospitals and patients attending them come from diverse regions with different localities, ages and educational backgrounds. The duration of the study was 4 months from data collection to analysis. The data were collected from 120 patients selected through random sampling. The questionnaire was completely filled out and then analyzed. The data were entered into a Microsoft Excel spreadsheet. It was set to “Yes”, “No”, and “Don’t know”, and then the percentages were taken out. The questionnaire contained the following parts, such as demographic, which included gender, age group, marital status, locality and educational status. The second part was about Knowledge, which consisted of 10 questions, including the type of infection, mode of transmission, use of contaminated instruments and also the role of treatment. The third part had 10 questions, but it was more about awareness of HBV, such as maintaining hygiene practices, participation in educational programs, and the role of education in reducing HBV cases. Each questionnaire was assigned a distinctive identification number and date for proper record keeping. Data were carefully collected, cleaned and organized to ensure correctness and uniformity. Applicable variables were coded and entered into suitable software for examination. Descriptive statistics were used to review the data, and the percentages were calculated. Results were entered in tables.

RESULTS

DEMOGRAPHIC DATA

The patients in this survey ranged from adolescence to middle adulthood, aged 13 to 63 years. Most of them were married and belonged to rural areas. The educational background was also very poor, and the majority of them were uneducated. The socio-demographic profile shows that the survey reached a diverse group of patients (Table I).

Table I. The socio-demographic characteristics of the patients included in the study

Socio-demographic characteristic	Total 120	
	n	%
Gender		
Male	63	(52.5%)
Female	57	(47.5%)
Age		
7 to 20	13	(10.8%)
21 to 40	44	(36.6%)
41 and above	63	(52.5%)
Marital status		
Married	77	(64.1%)
Single	43	(35.9%)
Locality		
Rural	76	(63.3%)
Urban	44	(36.6%)
Education level		
Educated	42	(35%)
Uneducated	78	(65%)

KNOWLEDGE ABOUT HBV

The data taken from patient were mainly shows that the patient have partial knowledge about HBV also helped by researcher because most of the patient were belong from rural areas and have uneducated background . They know that the HBV increase the risk of liver cancer because most of the patients were diagnosed with liver cancer and some of them also face discrimination from society.

AWARENESS

The data regarding awareness demonstrated notable improvements in certain aspects of HBV knowledge among patients, with many respondents showing correct understanding of basic transmission routes and the availability of vaccination. However, despite this partial improvement, the overall awareness levels remained suboptimal, with a significant proportion of patients failing to demonstrate adequate knowledge about critical aspects of the disease.

Table II. Assessment of knowledge and awareness regarding hepatitis B virus among study participants (n=120)

S. No.	Question	Yes	%	No	%	Don't know	%
1	Hepatitis B is a viral infection	67	(55.8%)	22	(18.3%)	31	(25.8%)
2	Hepatitis B is a sexually transmitted diseases	25	(20.8%)	50	(41.6%)	45	(37.5%)
3	Does coughing and sneezing transmit Hepatitis B	41	(34.1%)	62	(51.6%)	16	(13.3%)
4	Can a mother with Hepatitis B pass the virus to her baby during birth?	54	(45%)	33	(27.5%)	33	(27.5%)
5	Does chronic Hepatitis B infection increase the risk of liver cancer?	68	(56.6%)	35	(29.1%)	17	(14.3%)
6	Do you think people with Hepatitis B face stigma and discrimination in society?	47	(39.1%)	57	(47.5%)	16	(13.3%)
7	Can Hepatitis B be prevented by a vaccine?	90	(75%)	20	(16.6%)	10	(8.3%)
8	Can Hepatitis B be treated with antibiotics?	48	(40%)	60	(50%)	12	(10%)
9	Can covering open wounds help prevent infection?	73	(60.8%)	27	(22.5%)	20	(16.7%)
10	Can home remedies cure Hepatitis B completely?	67	(55.8%)	30	(25%)	22	(18.3%)

Patients showed their responses regarding HBV through structured questionnaires (Table II & III), which revealed that while some individuals possessed satisfactory knowledge about the disease, a larger segment of the population continued to hold misconceptions and incomplete understanding about HBV transmission and prevention. The response patterns highlighted that patients were relatively more informed about the general nature of the disease but lacked specific knowledge about how the virus spreads and what preventive measures are truly effective in real-life settings. There were also some substantial gaps that clearly indicate an urgent need for enhanced awareness about HBV, particularly concerning the use of contaminated blades, which remain a common source of infection transmission in

community settings where informal barbers and traditional practitioners are frequently consulted without proper sterilization practices. Similarly, the use of piercing objects such as needles, syringes, and instruments used for ear piercing, tattooing, and body modifications posed a significant risk, as patients demonstrated poor understanding of the dangers associated with sharing or reusing such items without adequate sterilization. The adaptation of proper hygiene practices, including regular hand washing, safe disposal of contaminated materials, and avoiding the sharing of personal items like razors, toothbrushes, and nail clippers, also emerged as a critical awareness gap requiring immediate attention. Patients from rural areas and those with lower educational attainment showed particularly limited understanding of these hygiene-related preventive measures, underscoring the need for targeted educational interventions in these vulnerable population groups. Furthermore, many respondents failed to recognize that asymptomatic carriers can transmit the virus, leading to a false sense of security and reduced compliance with preventive practices. The identified gaps were more pronounced among younger patients and those with no prior exposure to health education programs, suggesting that awareness campaigns must be designed to reach diverse demographic groups through multiple communication channels. The findings collectively highlight that while some progress has been made in improving HBV awareness, sustained and comprehensive educational efforts are essential to address the remaining knowledge deficiencies, particularly those related to everyday practices that carry significant transmission risks in the community setting.

Table III. Assessment of knowledge regarding hepatitis B transmission, prevention practices, and awareness among study participants (n=120)

S. No	Question	Yes	%	No	%	Don't know	%
1	Do you know that Hepatitis B is primarily transmitted through blood and body fluids	65	(54.1%)	28	(23.3%)	27	(22.5%)
2	Have you ever participated in an educational program or received information about Hepatitis B	10	(8.3%)	102	(85%)	8	(6.6%)
3	Did you ask the person to sterilize the piercing object?	66	(55%)	34	(28.3%)	20	(16.6%)
4	Can avoiding sharing needles and blades prevent Hepatitis B?	84	(70%)	23	(19.1%)	13	(10.9%)
5	Can regular medical checkups help manage Hepatitis B.	98	(81.6%)	16	(13.4%)	6	(5%)
6	Can washing hands prevent Hepatitis B	81	(67.5%)	29	(24.1%)	10	(8.3%)
7	Did you ask individual in hair salon to use sterile objects?	53	(44.1%)	45	(37.5%)	22	(18.3%)
8	Will you share meals, utensils with Hepatitis B positive individual	59	(49.1%)	54	(45%)	7	(5.9%)
9	A healthy looking person can have Hepatitis B	73	(60.8%)	27	(22.5%)	20	(16.7%)
10	Can good awareness and education help reduce Hepatitis B cases	114	(95%)	3	(2.5%)	3	(2.5%)

DISCUSSION

The present study, conducted at Civil Hospital and Bolan Medical Complex Quetta, reveals a concerning landscape of knowledge and awareness regarding Hepatitis B Virus (HBV) among patients, with significant gaps that transcend mere lack of information and penetrate deeper into socio-cultural, economic, and systemic barriers. While 55.8% of participants correctly identified HBV as a viral disease, the fact that nearly one-quarter (25.8%) remained uncertain indicates that basic health literacy is still not universally established, even among individuals seeking care at tertiary referral hospitals. This uncertainty is more pronounced when contextualized with the finding that 65% of the study population was uneducated and 63.3% hailed from rural areas, underscoring the profound influence of educational attainment and geographic residence on health awareness.

One of the most alarming observations is the pervasive misconception regarding treatment modalities. The finding that 50% of patients completely rejected antibiotic therapy, while scientifically justified since antibiotics are ineffective against viruses, simultaneously reveals a dangerous vacuum in understanding appropriate antiviral management. More troubling is the 25% belief that home remedies can cure HBV, a misconception that not only delays evidence-based medical intervention but also predisposes patients to hepatotoxic herbal preparations commonly used in traditional medicine systems across Balochistan. This reliance on folklore remedies is likely compounded by financial constraints, as rural populations often perceive hospital-based antiviral therapy as unaffordable or inaccessible, thereby resorting to cheaper but ineffective alternatives.

The transmission dynamics of HBV remain poorly understood among the study population. Although 54.1% correctly identified blood and body fluids as transmission vehicles, the 27.5% uncertainty regarding mother-to-child transmission represents a critical failure in perinatal prevention. Given that chronic HBV infection acquired perinatally carries a 90% risk of progressing to chronicity, this knowledge gap directly translates to perpetuating the disease across generations. Furthermore, when compared with Weng's (2022) findings that 35% of cases were injection-related, 23% due to multiple sexual partners, and 10% from contaminated surgical instruments, it becomes evident that local risk behaviors in Quetta are not being adequately addressed through existing awareness campaigns (14). The 44.1% uncertainty regarding salon sterilization practices is particularly concerning, as barbershops and beauty salons in urban and peri-urban areas frequently reuse razors and piercing instruments without proper autoclaving, serving as silent but potent transmission hubs.

Vaccination awareness, while relatively higher at 75%, masks a deeper implementation crisis. The national statistic that only 3% of newborns receive the birth dose vaccine (15) exposes a catastrophic failure in Pakistan's Expanded Program on Immunization (EPI), particularly in Balochistan, where health infrastructure remains fragile. Even among those aware of vaccination, the actual uptake is likely abysmal due to supply chain issues, lack of cold chain maintenance in remote areas, and nominal out-of-pocket costs that deter impoverished families. The 13.3% who were completely unaware of vaccination's protective role represent a vulnerable subgroup that requires targeted outreach through mosque announcements, community elders, and lady health workers who are already embedded in rural social networks.

The psychological dimension of HBV awareness cannot be overstated. The finding that 60.8% of patients believed the virus could persist in healthy individuals without symptoms reflects a superficial understanding of the carrier state, which is medically accurate but misinterpreted by patients as a reason for complacency rather than vigilance. This asymptomatic nature, while true, leads to delayed screening, as most patients only seek testing when jaundice, ascites, or gastrointestinal bleeding develops signs of advanced liver disease (16, 17). Consequently, hepatocellular carcinoma, which complicates 15-25% of chronic HBV cases, is often diagnosed at an inoperable stage in Quetta, contributing to high mortality rates.

Comparatively, the knowledge levels observed in this study are lower than those reported from urban centers like Karachi or Lahore but align with studies from other resource-limited regions of South Asia and sub-Saharan Africa. The 81.6% who believed medical routines could control the disease demonstrate cautious optimism, yet this belief must be translated into sustained adherence to lifelong

antiviral therapy, regular liver function monitoring, and alpha-fetoprotein surveillance all of which require functional healthcare systems that currently do not exist in Balochistan.

CONCLUSION

In conclusion, the findings unequivocally demonstrate that HBV awareness in Quetta is superficial, fragmented, and insufficient to drive behavioral change or improve clinical outcomes. The gaps span transmission knowledge, treatment misconceptions, vaccination access, and risk perception. A holistic, culturally adapted intervention strategy is imperative one that combines mass media campaigns in Urdu and local languages, integration of HBV education into school curricula, mandatory sterilization protocols for salons, free birth-dose vaccination at all delivery points, and training of community health workers to identify and refer symptomatic individuals. Without such multifaceted efforts, Pakistan will continue to shoulder one of the highest HBV burdens globally, with Balochistan remaining disproportionately affected due to its unique geographic, educational, and socio-economic vulnerabilities.

Future perspectives:

Future efforts must prioritize targeted awareness campaigns in local languages addressing transmission, treatment misconceptions, and vaccination benefits. Partner with barbers for sterilization training, deploy mobile health vans to rural areas, and engage imams to reduce stigma through mosque sermons. Integrate HBV education into school curricula, utilize FM radio skits, and collaborate with telecom providers for voice message reminders to reinforce key facts among low-literacy populations.

Conflict of interest:

The authors report no conflicts of interest

Author's contributions:

LS Study concept, design, data acquisition and manuscript drafting; RH Supervision, study design, critical review; TAM Data analysis, interpretation and statistical evaluation; SGR Literature review and data collection; FGF Questionnaire administration and fieldwork; ASA Manuscript revision, language editing and proofreading.

Declaration of generative AI-Assisted Tools:

No AI-assisted tools were used.

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