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Knowledge and Practices Regarding Hepatitis B among Staff Nurses at Isra University Hospital Hyderabad: A Cross-Sectional Study

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ABSTRACT

This study aimed to assess the knowledge and practices regarding Hepatitis B among staff nurses at Isra University Hospital Hyderabad. A cross-sectional survey was conducted among staff nurses at Isra University Hospital, using a structured questionnaire to assess their knowledge, and practices regarding Hepatitis B. The data collected was analyzed using IBM SPSS Version 23. The study utilized a non-probability convenience sampling technique to select participants, with a sample size of 50 staff nurses. Most participants (86%) were female, with 90% aged 20-30 years. Most nurses had heard of Hepatitis B (92%) and were aware of its liver impact (94%) and transmission routes (78%), though knowledge of its connection to liver cancer was lower (62%). While 84% recognized the availability of a vaccine, only 60% had received it. Practices related to Hepatitis B transmission were generally positive, but 60% believed the body could self-cure Hepatitis B. It was concluded that while nurses demonstrated satisfactory knowledge and practices regarding Hepatitis B, gaps in understanding and vaccine uptake were evident. Targeted educational programs and interventions are needed to address these gaps and improve vaccination rates among healthcare workers

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Introduction

Hepatitis B, caused by the Hepatitis B virus (HBV), is a major global health concern, particularly in healthcare settings where occupational exposure to infected blood and bodily fluids is common(Senoo-Dogbey, Naab, et al., 2024). It is a highly infectious disease that can lead to serious complications, including acute and chronic liver disease, cirrhosis, and

hepatocellular carcinoma. Among healthcare professionals, staff nurses are particularly vulnerable due to their frontline role in patient care(Begum et al., 2024). Constant interaction with patients, blood and body fluids exposes these healthcare workers to HBV at the workplace. However, there are still knowledge deficits and compliance inconsistencies that exist even with the use of preventive measures like vaccination, and the practice of infection prevention measures exposes health care workers and consequently, the patients they attend to, to the risk of acquiring the infection(Senoo-Dogbey, Ohene, et al., 2024). According to the WHO, about 296 million people around the globe were suffering from chronic Hepatitis B in 2019(Ou et al., 2024). Healthcare workers are a major high-risk category as they can be exposed to HBV through accidents with contaminated needles, direct skin contact or contact with open wounds, or contact with infected body fluids(Alajlan & Jahan, 2024). The prevention of transmission of HBV in healthcare facilities involves early recognition and awareness of the risk factors; personnel training and appropriate use of safeguards measures. Some of these measures include vaccination; which gives an individual immunity against HBV(Li et al., 2024). However, research studies from different countries reveal that knowledge concerning the transmission of HBV vaccination coverage and inconsistent usage of personal protective measures such as gloves, masks, and gowns are always incomplete among healthcare workers, especially nurses(OGADA, 2023). In healthcare institutions, knowledge and practice regarding hepatitis B infection among the staff nurses are important considerations. While nurses are involved in the promotion of patients' safety and infection control the focus should be put on the safety of the nurses and their practices against occupational risks(Alshammari et al., 2024). The assessment of the nurses' knowledge regarding the transmission of HBV; the preventive measures; and the role of vaccination may be useful to identify gaps. Further, assessing the healthcare workers' compliance with different practices like practicing safe Injection, proper disposal of sharps, and use of PPE for instance can show areas deemed most dangerous for carrying the infection(AiedAlnawafleh, 2024). Several factors determine the level of knowledge and Compliance with safety measures among the nurses. These are things such as access to training programs, the availability of specialties such as vaccines/PPEs, workload concerns, and institutional infection control policies(Cheuyem et al., 2023; Olakunde et al., 2023). Thus, potential barriers like low awareness about the disease, inadequate training on the importance of vaccination, and low importance placed on vaccination can lead to increased risks of spreading HBV in healthcare facilities.

These are known barriers to safety practice and the burden of Hepatitis B among healthcare workers and it is important to identify them to come up with effective interventions in the fight against Hepatitis B(Mazhnaya et al., 2024; Olakunde et al., 2023). Therefore, the objective of this study is to assess the knowledge and practice of staff nurses of Isra University Hospital about Hepatitis B infection. Through their knowledge levels in HBV Transmission, prevention, and management and their performances in practical HBV infection control measures, the research aims to establish areas of deficiencies that require attention. The study results will be useful for analyzing the ongoing initiatives to raise the level of nurse education, increase overall staff safety levels, and improve the hospital's infection control guidelines.

Aim of The Study

- The aim of the study is to assess the knowledge and practices regarding Hepatitis B virus (HBV) among staff nurses working at Isra University Hospital Hyderabad.

Review of Literature

Hepatitis B is a viral disease which is caused by the hepatitis B virus that produces inflammation in the liver. This is contracted from the Hepatitis B virus and it spreads through contact with infected blood and other products of the human body(Hassan et al., 2024). It is also a major cause of acute and chronic liver diseases, cirrhosis, and liver cancer worldwide. According to the WHO, approximately 240 million people are currently living with chronic HBV globally (World Health Organization, 2021)(Rahman et al., 2024).Therefore, although there are now vaccines available for HBV this disease remains a significant health problem in the world today, especially among people occupying areas at high endemicity and healthcare workers who are at greater risk due to the high likelihood of exposure to the virus(Issa et al., 2023). Nurses and other healthcare workers (HCWs) are at high risk of getting infected with HBV because of their occupational exposure to blood and other potentially infected body fluids at the workplace. In high-risk categories, exposure risk is exacerbated by the type of work they do for instance handling sharp items like needles, drawing blood, and attending to patients who may be infected with HBV. It has been estimated that healthcare workers are even at a higher risk for HBV than the general population (Garzillo et al., 2020; Mahamat et al., 2021). The Centers for Disease Control and Prevention (CDC) estimates that healthcare personnel have 2-10 higher risks of exposure to HBV relative to risks among the general population because of their working conditions (Garzillo et al., 2020; Schillie, 2020). For instance, a survey carried out in Vietnam showed that healthcare personnel are exposed often to needle stick injuries which are the common route of transmission of HBV(Nguyen et al., 2021). HBV transmission in health-care facilities is more widespread in low and middle-income countries due to poor infection control measures, poor sterilization of tools and equipment, and universal vaccination coverage(Said & El-Sayed, 2022). Healthcare providers are at additional risk as Pakistan has a high seroprevalence of HBV and there is a lack of stringent infection control practices in the health care set(NAQVI et al.).

The knowledge of healthcare workers of the virus could be an important determinant of their capability in preventing and controlling the virus. Some research has evaluated the knowledge of healthcare workers regarding the transmission, prevention, and control of HBV. One research survey carried out on nurses in Nigeria revealed that while most of them were fully knowledgeable about the fact that HBV is a liver disease, they lacked sufficient information on how to prevent the disease through vaccination, post-exposure prophylaxis, and other preventive measures(Alabi et al., 2023). In the same way, a study done in Saudi Arabia showed that while the healthcare workers had a general knowledge of HBV, there were glaring disparities in the healthcare workers' knowledge of infection control measures and the importance of early diagnosis of the disease(Alshareef, 2022). Knowledge of Hepatitis B among medical professionals was recently surveyed in India and although most doctors were aware of basic modes of transmission, only a small proportion possessed adequate information about vaccination and the currently recommended management protocols(Rudramurthy et al., 2024). This clearly shows that education and training are necessary to reduce exposure risks as much as possible since healthcare workers form the basis of preventing the spread of infections. The education and training to increase the awareness and competencies of healthcare workers of HBV is very essential. Some research has explained that interventions done in attempting to enhance knowledge among healthcare workers have had some success in altering the knowledge of transmission of HBV, how it is prevented, and why vaccination is crucial. For instance, research carried out among healthcare workers in Iran demonstrated that the flow content of training leads to enhanced

knowledge improvement of HBV and also increased awareness of scheduled vaccination(Alinejad et al., 2023).

However, some studies have shown that the knowledge of HBV impacts the attitude of healthcare workers toward vaccination. Healthcare workers who were trained regularly on HBV were more likely to be vaccinated themselves and to promote the vaccine among patients in a study done in Turkey(Acikgoz et al., 2021). The conclusions stress the importance of the training seminars held with references to the educational intervals, especially for the nurses as they may not have the direct knowledge of how the infection control procedures look like from their studying, unlike doctors. There are vaccines available for the prevention of HBV infection, although healthcare workers taking the vaccine remain low. These are awareness, knowledge/knowledge deficiency, and practicality hurdles that lead to poor uptake of HBV vaccines by HCWs. According to a survey conducted in Egypt, most of the HCWs were informed about the HBV vaccine still, but only half of the workers completed the HBV vaccine regimen. The main reasons for this were the inability to get it during working hours, as well as misconceptions regarding the vaccine's side effects(Aly et al., 2020; El-Sokkary et al., 2020). Meanwhile, negative attitudes among the healthcare workers toward vaccination are seen with some of the participants agreeing that the risk of exposure to HBV is low and that therefore vaccination is not necessary. This demonstrates the significance of addressing these misconceptions with focused educational initiatives focusing on the value and safety of immunization. Healthcare workers continue to be at risk of HBV exposure due to weak infection control measures, inadequate post-exposure protocols, and inadequate reporting of needle stick injuries (Efua et al., 2024; Shah et al., 2020).

Research Methodology

Research Design and Duration: A cross-sectional study design was used in the period from July to September 2024.

Research Setting: This study was carried out at Isra University Hospital, Hyderabad.

Study Population: The target population was male and female staff nurses who worked at above specified hospital.

Sample Size: The sample size for the study was 50 staff nurses, calculated using the Raosoft online sample size calculator with a 5% margin of error and a 95% confidence interval.

Sampling Technique: The study utilized a non-probability convenience sampling technique to select participants.

Inclusion Criteria

- All staff nurses (male and female) working at Isra University Hospital, Hyderabad.
- Staff Nurses willing to participate in the study.
- Staff Nurses who were present during the data collection period.

Exclusion Criteria

- Student nurses, midwives, and intern nurses.
- Staff Nurses were unwilling to participate in the study.

- Staff Nurses were absent during the data collection period.

Research Tool

The data collection tool was a validated questionnaire adapted from previous studies. It consisted of three sections:

Section A: Gathered socio-demographic data, including age, gender, marital status, area of work, educational qualifications.

Section B: Contains 10 questions assessing participants' knowledge of Hepatitis B virus transmission, prevention, and management.

Section C: Included 10 questions focused on practical aspects of HBV prevention and infection control measures.

Data Collection Process

During the data collection period, eligible staff nurses were approached and briefed about the study's objectives. Written and verbal consent was obtained from participants who agreed to take part. The questionnaire was distributed to staff nurses across various departments, and responses were collected confidentially to ensure honest and accurate reporting.

Data Analysis

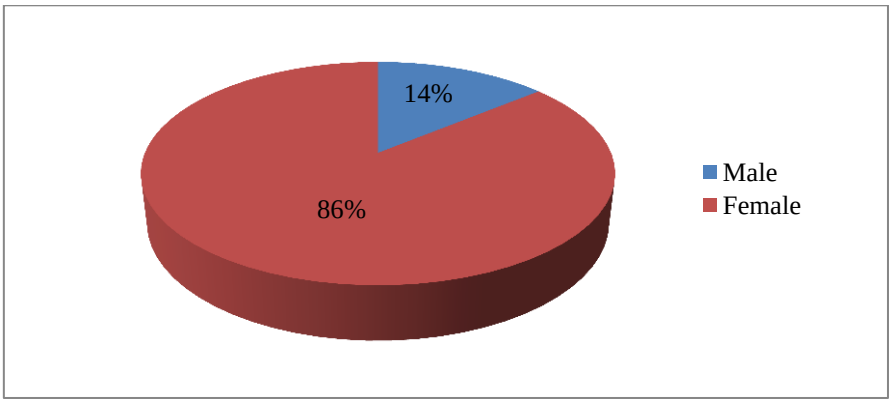
The data collected was analyzed using IBM SPSS Version 23. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were employed to summarize socio-demographic characteristics and assess knowledge and practice scores.

Ethical Considerations

Ethical considerations were strictly adhered to throughout the study. The autonomy, confidentiality, and voluntary participation of all participants were respected. Informed consent was obtained from each nurse, ensuring they fully understood the study's purpose, procedures, potential risks, and benefits. Nurses were assured they could withdraw from the study at any stage without consequence. Ethical approval for the study was obtained from Isra University Hospital's administration before commencement.

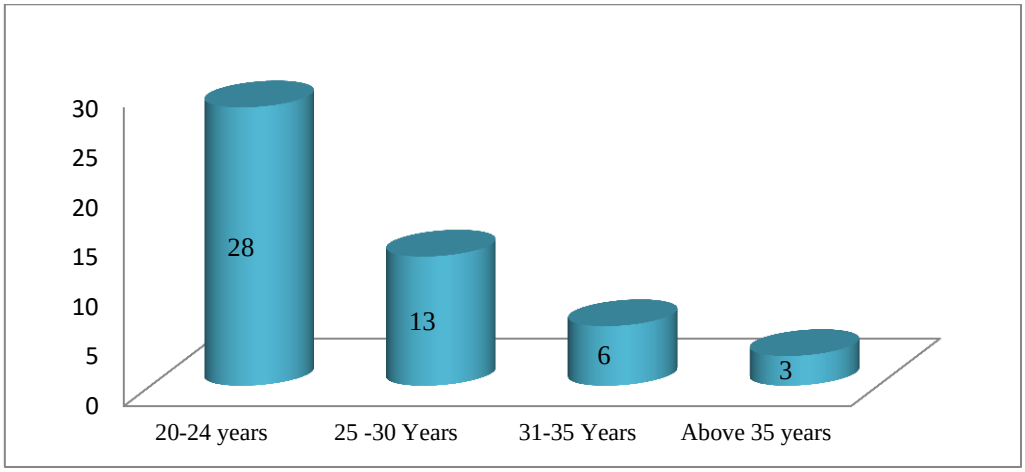
Results

Graph 1: Gender of Participants



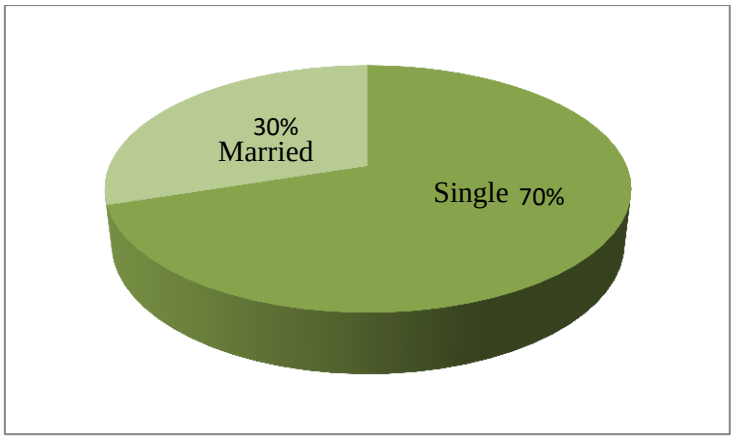
The graph shows that of the 50 participants, 7 (14%) were male and 43 (86%) were females.

Graph 2: Age of Participants



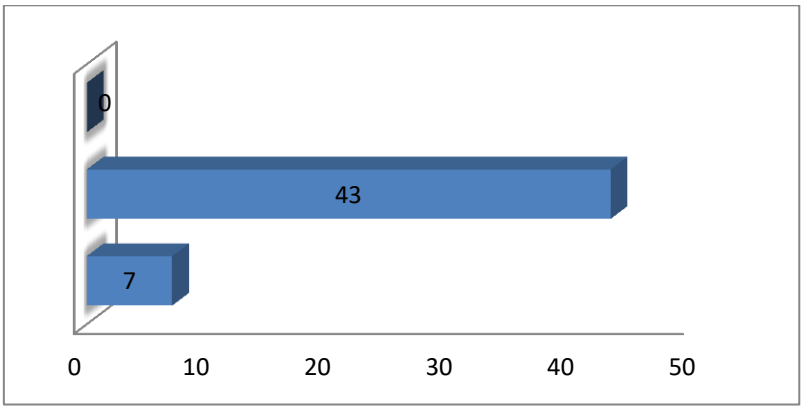
Graph 2 shows that 56% of participants were aged 20-24 years, 26% were 25-30 years, 12% were 31-35 years, and 6% were above 35 years. Most participants were in the younger age groups, particularly 20-24 years.

Graph 3: Marital Status of Participants



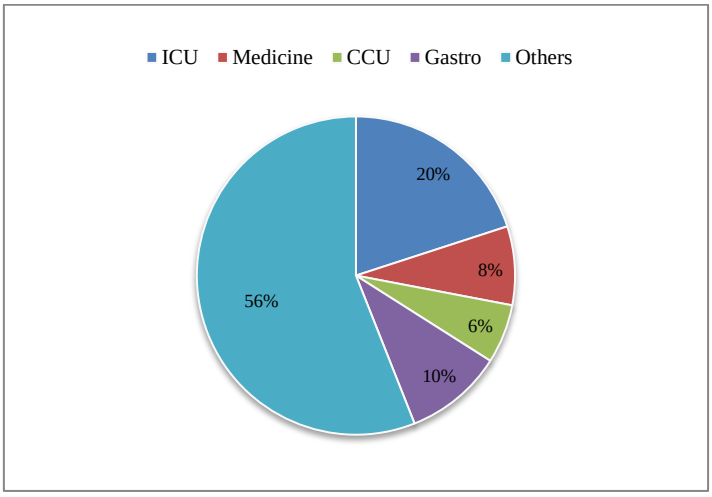
Graph 3 displays that 70% of participants were single, while 30% were married**.**

Graph 4: Qualification of Participants



Graph 4 indicates that 14% of participants had a Diploma in Nursing, 86% had a BSN, and no participant had an MSN degree.

Graph 5: Area of Working Of Participants



Graph 5 displays that 20% of participants worked in the ICU, 8% in Medicine, 6% in CCU, 10% in Gastro, and 56% in other specialized units.

Table 1: Knowledge Regarding Hepatitis B

STATEMENT		Yes	No	DK	Mean	St. Devi.
Have heard of Hepatitis?	Freq	49	1	-	1.020	.141
	%	98%	2%	-		
Have heard of Hepatitis B?	Freq	46	4	-	1.080	.274
	%	92%	8%	-		
Is Hepatitis a viral disease	Freq	40	8	1	1.400	1.456
	%	80%	16%	2%		
Does Hepatitis B have an impact on liver function?	Freq	47	2	1	1.080	.340
	%	94%	4%	2%		
Can liver cancer result from Hepatitis B?	Freq	31	17	2	1.420	.574
	%	62%	34%	4%		

Can any age group be affected by hepatitis B?	Freq	30	20	1	1.400	.494
	%	60%	40%	2%		
Are the initial signs of Hepatitis B similar to those of the flu and cold?	Freq	28	20	2	1.480	.574
	%	56%	40%	4%		
One of the common signs of Hepatitis B is jaundice.	Freq	45	4	1	1.120	.385
	%	90%	8%	2%		
Are Loss of Appetite, Vomiting, and Nausea Typical Hepatitis B Symptoms?	Freq	44	5	1	1.140	.4045
	%	88%	10%	2%		
Can Surgical Instruments, Needles, and Unsterilized Syringes Spread Hepatitis B?	Freq	39	11	1	1.220	.4184
	%	78%	22%	2%		

Table 1 emphasizes that the majority of respondents (98%) have heard of hepatitis, with a mean of 1.02 and a low SD of 0.14, indicating high consistency in awareness. For Hepatitis B, 92% are aware of the virus, with a mean of 1.08 and SD of 0.27, reflecting a similarly strong but slightly more varied understanding. The knowledge of Hepatitis B's impact on liver function is also high, with 94% of participants answering correctly (mean = 1.08, SD = 0.34). However, awareness of Hepatitis B causing liver cancer is lower, with 62% of respondents correctly identifying the link (mean = 1.42, SD = 0.57), showing more variability in understanding. Other aspects, like the association of symptoms with cold and flu (56%, mean = 1.48, SD = 0.57) and the recognition of jaundice as a common symptom (90%, mean = 1.12, SD = 0.39), also show high awareness, though with some inconsistencies in responses. The transmission route through unsterilized needles and instruments is acknowledged by 78% (mean = 1.22, SD = 0.42).

Table 2: Practice Regarding Hepatitis B

STATEMENT		Yes	No	DK	Mean	St. Devi.
Can contaminated blood and blood products transmit Hepatitis B?	Freq	42	6	2	1.200	.494
	%	84%	12%	4%		
Can a barber's blades or a nose or ear piercing spread Hepatitis B?	Freq	39	10	1	1.240	.476
	%	78%	20%	2%		
Is it possible for a child to contract Hepatitis B from their mother?	Freq	40	9	1	1.220	.464
	%	80%	18%	2%		
Can food or water prepared by someone with Hepatitis B Spread the Infection?	Freq	34	14	2	1.360	.562
	%	68%	28%	4%		
Is Hepatitis B Treatable?	Freq	37	11	2	1.300	.543
	%	74%	22%	4%		

Is the body capable of healing itself from Hepatitis B?	Freq	30	19	1	1.420	.537
	%	60%	38%	2%		
Is there a Hepatitis B vaccine available?	Freq	42	8	1	1.160	.370
	%	84%	16%	2%		
Have you been vaccinated against Hepatitis B?	Freq	30	19	1	1.420	.537
	%	60%	38%	2%		
Do you inform your parents about the severity and transmission of Hepatitis B?	Freq	39	9	2	1.260	.527
	%	78%	18%	4%		
Do you know what Hepatitis B treatments are available?	Freq	44	3	2	1.340	.146
	%	88%	6%	4%		

Table 2 shows that the majority of respondents (84%) understand the potential for contaminated blood and blood products to spread Hepatitis B, with a mean of 1.20 and a standard deviation (SD) of 0.49, indicating strong consensus. Similarly, 78% recognize the risk of transmission through barber blades and ear/nose piercing tools (mean = 1.24, SD = 0.48) and 80% are aware of mother-to-child transmission (mean = 1.22, SD = 0.46). Fewer participants (68%) acknowledge that contaminated food and water can spread the virus, with a mean of 1.36 and SD of 0.56. Regarding treatment, 74% believe Hepatitis B is treatable (mean = 1.30, SD = 0.54), and 84% are aware of the availability of a vaccine (mean = 1.16, SD = 0.37). However, only 60% report having received the vaccine (mean = 1.42, SD = 0.54), and 60% think the body can self-cure Hepatitis B (mean = 1.42, SD = 0.54). In terms of education, 78% educate their parents about Hepatitis B (mean = 1.26, SD = 0.53), and 88% are aware of available treatments (mean = 1.34, SD = 0.15).

Discussion

The research findings on knowledge and practices regarding the Hepatitis B virus (HBV) provide important insights, particularly when compared to recent global studies. The findings indicate a high level of awareness about Hepatitis B, with most participants recognizing it as a viral disease that affects liver function. This is consistent with global trends, which found that 90% of respondents were familiar with the virus and its impact on the liver (OGADA, 2023).

The knowledge of liver damage was relatively high, with 85% of participants acknowledging that HBV causes liver damage, but only 62% knew that it causes liver cancer; similar understandings were found in studies conducted in the South Asian region (Chen et al., 2024), where only 50% of participants knew that HBV can lead to cancer. This further underlines the prevalence of increasing awareness of the late-stage impact of HBV. Regarding transmission, the majority of the participants (84%) reported contaminated blood as a mode of transmission, 80% for mother-to-child transmission, and 78% for unsafe piercing practices. These findings are comparable with recent research and a survey conducted in Europe by (Shamarina et al., 2023) which identified the approximate prevalence of knowledge about blood-borne and vertical transmission. Nonetheless, (68%) of participants were aware of the fact that it can also spread through contaminated foods and water, which is not a very popular mode of spread. Similarly, studies in Southeast Asia

(Nguyen et al., 2021; Soe et al., 2019) also show similar knowledge deficits; again identifying food and waterborne transmission routes as underappreciated and therefore recommending a focus on raising awareness for food and water transmission. Concerning prevention, 84% of the participants indicated that they were aware of the Hepatitis B vaccine, and this result can be affiliated with (Larebo et al., 2024; Liu et al., 2023) in China where 87 % of the participants knew the vaccine. There is a notable discrepancy between knowledge and practice, nevertheless, since only 60% of respondents said they had obtained the vaccination despite their awareness of it. The results are consistent with international research, such as one conducted in India, where vaccination uptake was significantly lower than awareness, highlighting constraints such as perceived lack of personal risk, cost, and accessibility(Rudramurthy et al., 2024). Participants' awareness of treatments was also high, where 88% of participants indicated awareness of available treatments for Hepatitis B. But, one alarming misconception was identified, whereby 60 % of the participants agreed that the body can cure hepatitis B without the need for medical treatment. This misconception was similarly found in another study by (Chen et al., 2021)in Taiwan where respondents believed and may delay the use of healthcare services. This highlights the necessity of highlighting the chronic nature of Hepatitis B and the significance of immediate medical treatment. Lastly, even though a large number of participants said they had taught family members about Hepatitis B, research from Korea, has demonstrated that this information transfer does not always result in behavior changes like vaccination or routine tests (Chung et al., 2024). This suggests that although there is a high level of awareness, further effort is required to convert information into preventative measures.

Conclusion

The study concluded that staff nurses' knowledge and practices on Hepatitis B were good; but there are still some gaps, especially when it comes to their knowledge of the disease's connection to liver cancer and how it is spread through contaminated drinking water and food. The study also found a significant gap between vaccination uptake and knowledge. There were also common misconceptions regarding the self-curation of Hepatitis B. Implementing focused educational initiatives is advised to close these gaps, encourage nurses to get vaccinated against Hepatitis B, and enhance prevention and early treatment measures.

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Author's Contributions

1. **Saira Sagheer Hussain Ghanghro**: Conceptualization & Study Planning
2. **Nasreen Rebecca Wilson**: Supervision; Final Approval
3. **Samiullah Sagheer Hussain Ghanghro**: Manuscript Drafting; Literature Review

4. **Maryam Memon** : Data Acquisition and Methodology
5. **Noshaba Asghar Ali Boohar**: Statistical Analysis/ Review and Editing

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