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A SURVEY OF KNOWLEDGE OF PARAMEDICAL STAFF IN OB-GYN FACILITY ABOUT HEPATITIS B

Shazia Saaqib[1*], Amna Zia[2], Yasaan Saaqib[3]

[1*]Allama Iqbal Medical College Lahore
[2]Fatima Jinnah Medical University, Lahore
[3]Gujranwala Medical College, Gujranwala

[*]**Corresponding Author:** Shazia Saaqib
Allama Iqbal Medical College Lahore

Abstract:
Objective: This study aimed to assess the knowledge and behavior of paramedical staff working in an obstetrics and gynecology (Ob-Gyn) facility regarding the transmission and prevention of Hepatitis B.
Method: A prospective, cross-sectional study design was employed to assess paramedical staff knowledge about hepatitis B. The study was conducted at Lady Willingdon Hospital, reserved only for Ob-Gyn services after ethical approval from King Edward Medical University. A convenience sampling method was used to recruit participants, which included nurses, student nurses, operation theatre assistants and helpers and ward helpers. Data was collected using a newly developed questionnaire in English and Urdu, covering socio-demographic information and knowledge and behavior towards hepatitis B. The questionnaire was validated through a pilot test, and data were analyzed using descriptive statistics in SPSS 20.0 and Excel.
Results: Out of 400 questionnaires sent out, 192 valid questionnaires were recovered, giving a response rate of 48%. The mean age of respondents was 30.94±9.93years, with 84.3% being female. The majority of respondents was from Lahore (55.9%) and had completed their nursing education (9.4%). The survey revealed a low overall level of knowledge about Hepatitis B, with only 19.7% of participants showing adequate basic knowledge. Misconceptions were prevalent, particularly regarding transmission routes and prevention methods.
Conclusion: The study highlights the need for targeted educational programs to improve knowledge and awareness of Hepatitis B among paramedical staff. Addressing knowledge gaps can enhance infection control practices and improve patient outcomes in obstetrics and gynecology settings.

Keywords: Hepatitis B, paramedical staff, obstetrics and gynecology, knowledge assessment, healthcare-associated infections

Introduction:

Hepatitis B virus (HBV) infection is a global health problem, with an estimated 350 million individuals worldwide living with chronic HBV infection. [1]In Pakistan, the prevalence of HBsAg is reported to be 2.5%, contributing to the global burden of the disease.[2]The impact of HBV infection is severe disease, leading to approximately 780,000 deaths annually due to complications such as cirrhosis and hepatocellular carcinoma.[3, 4]Despite efforts like universal HBV immunization programs,

the burden of HBV infection remains high in many regions, emphasizing the need for continuous vigilance and education.[5]

Healthcare workers, including nurses, are considered a high-risk population for HBV transmission due to the nature of their work.[6]Studies has shown that gaps exist in healthcare workers' knowledge about HBV transmission, prevention, and treatment, highlighting the importance of ongoing education and training programs to mitigate the risk of transmission in healthcare settings.[7-10]Improving healthcare workers' knowledge can not only protect themselves but also enhance patient care and contribute to better public health outcomes.[11]Assessing the paramedical staff about Hepatitis B can help identify areas for improvement in educational programs and guide the development of targeted interventions to enhance their understanding of HBV.[12]

The objective of this study is to assess the knowledge and behavior of paramedical staff working in Lady Willingdon Hospital (LWH), Lahore regarding the transmission and prevention of Hepatitis B. Located at the entrance of Lahore city, the hospital staff is providing exclusive Obs-Gyn services. By conducting staff assessments, targeted educational programs can be implemented to reduce the risk of nosocomial HBV transmission, improve patient care, and ultimately benefit the community in Pakistan and globally.

Methods and study design

Data collection instrument

Data was collected on a newly developed questionnaire. The questionnaire was derived by deductive reasoning of the main theme - Knowledge, Perception and Attitude towards Hepatitis B and comprised two sections. The first section collected socio-demographic information, including gender, age, marital status, parity, education level, income and residence area. The second section assessed knowledge and behavior towards hepatitis B through 25 questions covering four constructs or subthemes: mode of transmission, disease severity and inquiries about hepatitis B vaccination status, preventive measures and attitudes towards hepatitis B carriers.

The questionnaire was developed in English and Urdu to cater to the language preferences of the participants. This process involved several steps. Initially, questions were drafted based on the survey objectives, with five main constructs or subthemes including awareness of transmission modes, perception of disease severity and complications, knowledge of preventive measures and social behavior towards hepatitis patients further divided into categories and subcategories from which measuring units were derived Once the English Performa was finalized, it underwent translation into Urdu by a professional translator.

Table1: Deducted Questionnaire from survey Theme: Assessment of Knowledge, Perception and Attitude (KPA) towards Hepatitis B

No.	Subthemes	Main Category	Subcategories	Measuring Unit
1	Awareness of Transmission Modes	Hepatitis B Transmission	- Sharing syringes- Contaminated needle pricks	Can Hepatitis B spread by sharing syringes, contaminated needle pricks?
2	Awareness of Transmission Modes	Hepatitis B Transmission	- Reuse of contaminated instruments and linen	Can Hepatitis B spread by reuse of contaminated surgical instruments and linen?
3	Awareness of Transmission Modes	Hepatitis B Transmission	- Contaminated IV fluids and Blood	Can Hepatitis B spread by contaminated IV fluids and blood?
4	Awareness of Transmission Modes	Hepatitis B Transmission	- Contact with infected secretions	Can Hepatitis B spread by contact of secretions like saliva, semen, vaginal fluids with torn skin, or mucous membranes?
5	Awareness of Transmission Modes	Hepatitis B Transmission	- Unprotected sexual contact	Can Hepatitis B spread by unprotected sexual contact?
6	Awareness of Transmission Modes	Hepatitis B Transmission	- Unsanitary dietary habits	Can Hepatitis B spread by unsanitary dietary habits?

7	Awareness of Transmission Modes	Hepatitis B Transmission	- Mosquito bites	Can Hepatitis B spread by mosquito bites?
8	Awareness of Transmission Modes	Hepatitis B Transmission	- Sharing plates or utensils	Can Hepatitis B spread by sharing plates or eating utensils?
9	Perception of Disease Severity and Complications	Hepatitis B Knowledge	- Hepatitis B as a serious disease	Is hepatitis B a serious disease?
10	Perception of Disease Severity and Complications	Hepatitis B Knowledge	- Perceived curability of Hepatitis B	Is hepatitis B a curable disease?
11	Perception of Disease Severity and Complications	Hepatitis B Knowledge	- Effectiveness of treatment	Can hepatitis B be controlled by treatment?
12	Perception of Disease Severity and Complications	Hepatitis B Knowledge	- Complications of chronic hepatitis	What are complications of chronic hepatitis?
13	Knowledge of Preventive Measures	Hepatitis B Prevention	- Precautions for marrying hepatitis carriers	What is precaution for getting married to hepatitis carriers?
14	Knowledge of Preventive Measures	Hepatitis B Prevention	- Pregnancy in hepatitis carriers	Can hepatitis carriers become pregnant?
15	Knowledge of Preventive Measures	Hepatitis B Prevention	- Breastfeeding by hepatitis carriers	Can carriers of hepatitis B breastfeed their babies?
16	Knowledge of Preventive Measures	Hepatitis B Prevention	-Treatment of hepatitis B during pregnancy	Can mothers be treated for hepatitis B during pregnancy?
17	Knowledge of Preventive Measures	Hepatitis B Prevention	- Vaccination against hepatitis B during pregnancy	Can mothers be vaccinated against hepatitis B during pregnancy?
18	Knowledge of Preventive Measures	Hepatitis B Prevention	- Transmission to newborns during delivery	Can mothers transmit the virus to newborns during delivery?
19	Knowledge of Preventive Measures	Hepatitis B Prevention	- Preventive measures during delivery	Can a cesarean section prevent the transmission of hepatitis B to the fetus?
20	Knowledge of Preventive Measures	Hepatitis B Prevention	- Preventive measures for vertical transmission	How is vertical transmission of Hepatitis prevented?
21	Perception about Vaccination	Self-protection	- Personal vaccination status	Are you vaccinated against hepatitis B?
22	Perception about Vaccination	Self-protection	- Perceived effectiveness of immunization program	Do you think the immunization program is effective in preventing hepatitis B infection?
23	Social behavior	Careful attitude	Knowledge about Asymptomatic Carriers	Do you know any asymptomatic carriers of the hepatitis B virus?
24	Social behavior	Avoiding patient	- Handshaking	Can Hepatitis B spread by handshaking?
25	Social behavior	Avoiding patient	- Close contact with family members	Can Hepatitis B spread by close contact with family members?

To ensure the accuracy of the Urdu version, a process of forward and backward translation was conducted. Any discrepancies between the original Urdu Performa and the back-translated Urdu version were addressed through discussion and revision by the study team. A panel of five medical specialist including a hepatologist reviewed questionnaire for content validity. Reliability of the Urdu Performa was assessed by a pilot test conducted with a sample of 30 participants to ensure that the questions were understood as intended and to identify any potential issues. Two experts rated participants interrater reliability quite similar. Cronbach's alpha coefficient was calculated, showing

strong reliability ($\alpha = 0.74$). Finally, both the English and Urdu Performa were compared to remove any discrepancies.

Study Design

This study employed a prospective, cross-sectional design to assess paramedical staff knowledge about hepatitis B. The target population consisted of nurses, student nurses, operation theatre assistants (OTA), operation theatre and ward helpers working in Lady Willingdon Hospital, a community-based, exclusive Obstetrics & Gynecology a hospital affiliated with King Edward Medical University (KEMU). The Ethical Committee of KEMU approved this study with IRB 712/RC/KEMU on 02-05-2019. However, due to the onset of COVID-19, the study was postponed due to the no availability of half of the staff. The study was eventually carried out from August 1, 2021, to February 28, 2022, for a period of six months. A convenience sampling method was used to recruit participants. The study forms were filled in the presence of medical officers trained to clear any discrepancy in understanding.

Sample Size

Population of paramedical staff in Lady Willingdon Hospital is 397 including 29 head nurses, 147 nurses, 85 student nurses and midwives, 48 theater attendants and helpers and 85 ward helpers. For a population of 400,We calculated a sample size of 197 at 95% confidence level and 5% acceptable margin of error, using Rao soft Software which can also be accessed at http://www.raosoft.com/samplesize.html .Assuming 50% drop out rate for a questionnaire study, sample size was calculated to be 400.

Inclusion criteria for the study included paramedical staff working in the wards of Lady Willingdon Hospital, regardless of their years of experience or ward distribution. Exclusion criteria included paramedical staffs who were not directly involved in patient care, such as gatekeepers and security guards. The study form after completion were signed and received by the assigned medical officer who kept it in the study file stored in unit research cell. To ensure confidentiality and anonymity, the data were kept anonymous, and any identifiers were removed from the dataset after completion of the research. Access to the data was restricted to the research team only.

Data Analysis

Data were entered in excel and analyzed using SPSS 20.0 statistical software by the statistician of the study team. Descriptive statistics were used to summarize sociodemographic characteristics and knowledge scores. Out of 25 questions. a knowledge score of 15 points or above (≥60% correct) was considered indicative of adequate knowledge about hepatitis B.

Results

- Out of a total of 400 questionnaires sent out, 192 valid questionnaires were recovered, giving a response rate of 48%. Sixty-five respondents did not complete the basic questionnaire information and were excluded, ultimately leaving a total of 127 completed questionnaires. Of the respondents, 20 were male (15.7%) and 107 were female (84.3%), with a mean age of 30.94 ± 9.93 years. More than half (55.9%) came from Lahore and 81 (63.8%) had completed their nursing.

Table2: characteristics of the study population

Age		30.94±9.93
Gender	Male	20(15.7%)
	Female	107(84.3%)
Marital status	Unmarried	16(12.6%)
	Married	111(87.4%)
Experience in years		9.11±8.84%
Designation	Nurse	12(9.4%)
	Student nurse	59 (46.5%)

	OTA	20(5.7%)
	Theatre helper	17(13.4%)
	Ward helper	19(15%)
Ward postings	Obstetric ward	54(42.50%
	Pediatric ward	10(7.9%)
	Gynecology ward	38(29.9%)
	ICU	7(5.5%)
	Operation theatre	18(14.2%)
Residence City	Lahore	81(63.8%)
	Okra	15(11.8%)
	Narowal	11(18.7%)
	Sahiwal	5(3.9%)
	Nankana Sahib	5(3.9%)
	Kasur	10(7.9%)

Basic knowledge about hepatitis B transmission and prevention was assessed by questions focusing on transmission, knowledge about pregnancy and prevention of vertical transmission from mother to newborn.

Each response was scored as correct, incorrect or unsure and the total knowledge score, which could range between 0 and 27, was calculated. The scoring system used assigned 1 score for a correct response, 0 score for an incorrect or unknown response. A knowledge score of <15 was considered as poor and ≥15 was considered as adequate basic knowledge about hepatitis B. The results of the survey revealed that the mean score of the entire cohort was 8.65 ± 5.1, indicating a relatively low overall level of knowledge about Hepatitis B. Specifically, 103 participants (80.3%) were classified as having poor basic knowledge, scoring below the threshold for adequacy, while only 24 participants (19.7%) showed adequate basic knowledge, scoring 15 or higher.

Table 3: Responses of Paramedical Staff in Ob-Gyn Wards of Lady Willingdon Hospital to Basic Hepatitis B Knowledge

No	Statement	Correct n (%)	Incorrect n (%)	Unsure n (%)
1	Can Hepatitis B spread by sharing syringes, contaminated needle pricks?	102(80.3)	11(8.7)	14(11)
2	Can Hepatitis B spread by reuse of contaminated surgical instruments and linen?	69 (54.3)	12(9.4)	46(36.2)
3	Can Hepatitis B spread by contaminated IV fluids and blood?	105(82.7)	15(11.8)	7(5.5)
4	Can Hepatitis B spread by contact of secretions like saliva, semen, vaginal fluids with torn skin, or mucous membranes?	49 (38.6)	31 (24.4)	47(37)
5	Can Hepatitis B spread by unprotected sexual contact?	44 (34.6)	21 (16.5)	62(48.8)
6	Can Hepatitis B spread by unsanitary dietary habits?	40 (31.5)	40 (31.5)	47(37)
7	Can Hepatitis B spread by mosquito bites?	27(21.3)	380 (29.9)	62(48.8)
8	Can Hepatitis B spread by sharing plates or eating utensils?	39 (30.7)	34 (26.8)	54(42.5)
9	Can Hepatitis B spread by handshaking?	49(38.6)	21(16.5)	57(44.9)
10	Can Hepatitis B spread by close contact with family members?	32 (25.2)	18 (14.2)	77(60.6)
11	Do you know any asymptomatic carriers of the hepatitis B virus?	43 (33.9)	27 (21.3)	57(44.9)
12	Is hepatitis B a serious disease?	91(71.7)	9 (7.1)	27(21.3)
13	Is hepatitis B a curable disease?	25 (19.7)	60 (47.2)	42(33.1)

14	Can hepatitis B be controlled by treatment?	32 (25.2)	37 (29.1)	58(45.7)
15	What are complications of chronic hepatitis?	43 (33.9)	17 (13.4)	67(52.8)
16	What is precaution for getting married to hepatitis carriers?	39 (30.7)	37 (29.1)	51(40.2)
17	Can hepatitis carriers become pregnant?	34 (26.8)	18 (14.2)	75(59.1)
18	Can carriers of hepatitis B breastfeed their babies?	38 (29.9)	79 (62.2)	10(7.9)
19	Can mothers be treated for hepatitis B during pregnancy?	37 (29.1)	11 (8.7)	79(62.2)
20	Can mothers be vaccinated against hepatitis B during pregnancy?	43 (23.6)	42 (33.1)	42(33.1)
21	Can mothers transmit the virus to newborns during delivery?	32 (25.2)	35 (27.6)	60(47.2)
22	Can a cesarean section prevent the transmission of hepatitis B to the fetus?	38 (29.9)	29(22.8)	60(47.2)
23	How is vertical transmission of Hepatitis prevented?	35 (27.6)	57 (44.9)	35 (27.6)
24	Are you vaccinated against hepatitis B?	113 (89)	14(11)	0
25	Do you think the immunization program is effective in preventing hepatitis B infection?	37 (29.1)	9 (29.1)	81(63.8)

The survey also found that several questions, such as those related to the route of hepatitis B transmission and prevention, had incorrect answers or "unknown" selected by more than 50% of respondents, indicating a lack of awareness in these areas (only 43.78% correct answers were selected). These results highlight the need for targeted education programs to improve knowledge and awareness of Hepatitis B among paramedical staff.

The survey regarding Hepatitis B knowledge and attitude revealed a mix of accurate understanding and notable misconceptions. Encouragingly, majority of respondents correctly identified sharing syringes and contaminated needle pricks as routes of transmission. However, there were concerning misconceptions, such as 45.7% believing that hepatitis B could not spread through the reuse of contaminated surgical instruments and linen, indicating a need for education on proper sterilization practices. Additionally, while 82.7% recognized contaminated IV fluids and blood as a mode of transmission, only 38.6% were aware of the risk posed by contact with infected bodily secretions. This highlights the importance of clarifying the modes of transmission to prevent misconceptions.
Regarding sexual transmission, 34.6% recognized unprotected sexual contact as a risk factor, but a significant 48.8% were unaware, indicating a need for enhanced awareness of sexual transmission risks. Similarly, misconceptions were observed regarding unsanitary dietary habits, with 31.5% believing this could spread the virus. It is also concerning that 26.5% thought that sharing plates or eating utensils could transmit the virus whereas 42.5% did not know about it. These findings underscore the need for education on the actual modes of transmission of Hepatitis B.

Misconceptions were also prevalent regarding vertical transmission, with 27.6% believing that mothers cannot transmit the virus to newborns during delivery. Only 29.9% were aware that a cesarean section can prevent the transmission of hepatitis B to the fetus, indicating a need for education on preventive measures. Additionally, while 89% of respondents were vaccinated against hepatitis B, 63.8% were unsure about the effectiveness of the immunization program. This highlights the importance of promoting vaccination and enhancing awareness of its efficacy in preventing hepatitis B infection. Furthermore, 33.9% knew asymptomatic carriers, indicating a need for education on the identification of carriers. These results underscore the importance of targeted education and awareness campaigns to correct misconceptions and promote accurate understanding of Hepatitis B transmission and prevention among healthcare workers.

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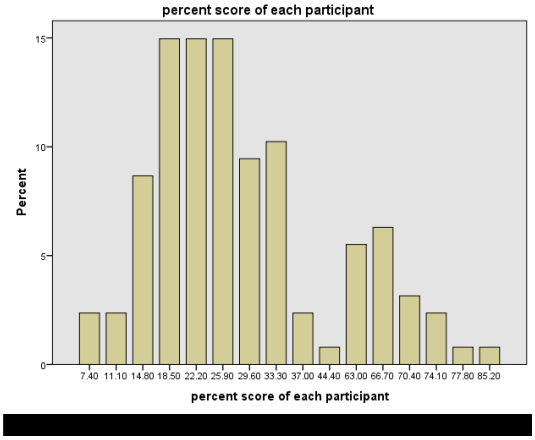

Figure1: Percent score of each participant

Discussion

The study revealed a low overall level of knowledge about Hepatitis B among paramedical staff in Ob-Gyn Wards of Lady Willingdon Hospital, with only 19.7% of participants showing adequate basic knowledge. Misconceptions were prevalent, particularly regarding transmission routes and prevention methods.

The demographic characteristics of the respondents in our study were diverse. Notably, nurses had higher knowledge scores, and demonstrated better prevention skills. These findings correspond with other international studies and suggest the need for targeted educational interventions. [13,14]

Regarding vaccination status, while most paramedical staff reported being vaccinated, a small proportion among ward attendants were still uncertain about benefits vaccination status, emphasizing the importance of ensuring healthcare workers are up-to-date with vaccinations. it may be explained by free vaccine available at hospital dispensary. This situation is in clear contrast with situation at Somalia where only 56% of HCWs had received HBV vaccine. Srivastava et al. found comparable results, indicating a common challenge faced by healthcare workers.[17] However, Contrary to these findings, Cailhol and Khan reported better knowledge levels in their study[18]; factors contributing to better information about hepatitis B in other countries compared to Pakistan include more comprehensive education and training programs, greater access to resources and technology, and stronger healthcare infrastructure. These factors enable healthcare workers in other countries to receive more up-to-date and accurate information about hepatitis B, leading to better prevention and control measures.

Fundamental knowledge about Hepatitis B, including its transmission, symptoms, and prevention, is essential for providing safe obstetric care. According to literature, immunoglobulin injection within 12 hours of delivery and hepatitis B vaccination can protect the newborn against the antigen transmitted during labor process and breast feeding and also omits need of operative delivery of the mother for this reason.[19, 20] Caesarean section although protective against hepatitis B transmission in38% cases should be kept reserved for women with high viral loads.[21]Secondly although Hepatitis B antigen can be transmitted through vaginal secretions and semen, a hepatitis B positive carrier can enjoy a married life without risk of transmission of disease only by taking precaution that the partner has already received 3 doses of vaccination at 1,2 and six months.[22] For nosocomial spread, taking measures to avoid needle stick injuries, disposing off all linen and infected waste of Hepatitis positive patients after soaking in 1% bleach (sodium hypochlorite solution for 2- 5 minutes) can protect the staff and patients.[23] Nurses generally displayed positive attitudes towards individuals with HBV. In this study, areas necessitating further education were identified, such as misconceptions about transmission routes and prevention methods, emphasizing the need for continuous education and training programs.

Despite limitations like the sample size, our research offers valuable insights into nurses' knowledge, attitudes, and practices concerning hepatitis B. This information can guide future interventions and policies aimed at reducing the disease burden in healthcare settings.

CONCLUSION

The findings highlight the need for targeted educational programs among paramedical staff in Ob-Gyn Wards of Lady Willingdon Hospital to safeguard themselves and patients from hepatitis B. Nurses generally exhibited positive attitudes towards individuals with HBV, indicating a good understanding of infection control practices. However, among other paramedical staff, areas requiring further education identified, such as misconceptions about transmission routes and prevention methods, underscoring the need for ongoing education and training programs. Addressing knowledge gaps can enhance infection control practices and improve patient outcomes in healthcare settings.

Authors contribution

• S Saaqib is the study's corresponding and primary author. She conceptualized and developed the project, as well as assisted with data collection and statistical computations. In addition, she drafted the manuscript and created the study's tables and figures.
• Professor Amna Zia supervised the study, helped in drafting the manuscript and proofread the whole manuscript.
Dr Yasaan Saaqib performed statistical calculations under supervision of study statistician Dr Muhammad Khalid, helped in drafting the manuscript and proofread the whole manuscript.

Consent for participation

Before conducting the survey, we sought informed consent from the participants. All data acquired from participants was kept strictly confidential, and participants were made aware of this. The data was provided to the statistician by replacing the names with the serial number allotted to each respondent.

Consent for publication

All participants gave their full consent for the publication of data and study.

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Supplementary Material

Performa for Assessing Knowledge, perception and attitude about Hepatitis B

Welcome to the Hepatitis B Knowledge Survey. This survey aims to assess your knowledge and awareness about hepatitis B. Your participation is voluntary, and your responses will be kept confidential. Please answer the questions to the best of your knowledge. Thank you for your participation

Participant Information: **Date:** ——/——/————

1. Age: _____
2. Gender: Male / Female / Other
3. Education Level: _____
4. Experience in years: _____
5. Designation: _____
6. Ward posting: _____
7. Location: City (Urban / Rural)
8. Address:_____

Part II: Assess of Knowledge, perception and behavior

Please answer the following questions to the best of your knowledge:

1. Can Hepatitis B spread by sharing syringes, contaminated needle pricks?
- Yes
- No
- Not Sure

2. Can Hepatitis B spread by reuse of contaminated surgical instruments and linen?
- Yes
- No
- Not Sure

3. Can Hepatitis B spread by contaminated IV fluids and blood?
- Yes
- No
- Not Sure

4. Can Hepatitis B spread by contact of secretions like saliva, semen, vaginal fluids with torn skin, or mucous membranes?
- Yes
- No
- Not Sure

5. Can Hepatitis B spread by unprotected sexual contact?
- Yes
- No
- Not Sure

6. Can Hepatitis B spread by unsanitary dietary habits?
- Yes
- No
- Not Sure

7. Can Hepatitis B spread by mosquito bites?
- Yes
- No
- Not Sure

8. Can Hepatitis B spread by sharing plates or eating utensils?
- Yes
- No
- Not Sure

9. Is hepatitis B a serious disease?
- Yes
- No
- Not Sure

10. Is hepatitis B a curable disease?
- Yes
- No
- Not Sure

11. Can hepatitis B be controlled by treatment?
- Yes
- No
- Not Sure

12. What are the complications of chronic hepatitis?
- Yes
- No
- Not Sure

13. What is the precaution for getting married to hepatitis carriers?
- Yes
- No
- Not Sure

14. Can hepatitis carriers become pregnant?
- Yes
- No
- Not Sure

15. Can carriers of hepatitis B breastfeed their babies?
- Yes

- No
- Not Sure

16. Can mothers be treated for hepatitis B during pregnancy?
- Yes
- No
- Not Sure

17. Can mothers be vaccinated against hepatitis B during pregnancy?
- Yes
- No
- Not Sure

18. Can mothers transmit the virus to newborns during delivery?
- Yes
- No
- Not Sure

19. Can a cesarean section prevent the transmission of hepatitis B to the fetus?
- Yes
- No
- Not Sure

20. How is vertical transmission of Hepatitis prevented?
- Yes
- No
- Not Sure

21. Are you vaccinated against hepatitis B?
- Yes
- No
- Not Sure

22. Do you think the immunization program is effective in preventing hepatitis B infection?
- Yes
- No
- Not Sure

23. Do you know any asymptomatic carriers of the hepatitis B virus?
- Yes
- No
- Not Sure

24. Can Hepatitis B spread by hand shaking?
- Yes
- No
- Not Sure

25. Can Hepatitis B spread by close contact with family members?
- Yes
- No
- Not Sure

Thank you for participating in this survey. Your contribution is valuable in improving public health awareness and education.