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Knowledge, Attitude and Practice of Medical Students of Maharashtra towards Hepatitis B Infection and Vaccination.

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Abstract

Background: Hepatitis B is a significant global public health problem. Although India lies in the intermediate endemicity zone, Hepatitis B is still a major occupational hazard among HCWs, especially young medical students.
Aim: This study was aimed at assessing the knowledge, attitude and vaccination practice regarding hepatitis B among medical students of Maharashtra region, exploring the reasons for not getting vaccinated and increasing general awareness.
Materials and Methods: This is a descriptive cross sectional study. Participants were recruited from medical colleges of Maharashtra by convenience sampling technique. Data was collected using an online self-administered questionnaire.
Results: The study reveals that majority of the students have sufficiently good knowledge about the disease as well as its consequences. 87.2% considered themselves to be at risk for acquiring infection, however, 78% reported needle stick injuries if they occurred and only 59% were fully vaccinated. Lack of motivation and hesitancy regarding vaccine seemed to be the major barriers.
Conclusion: All medical students should be encouraged to be compliant with preventive practices and screened for antibody titres. We suggest setting up Hepatitis B awareness campaigns, targeted free vaccination drives, and following up with antibody tests.

1. Introduction

Hepatitis B virus is the most contagious blood-borne pathogen that can cause both acute and chronic liver diseases. WHO estimates that 296 million people were living with chronic hepatitis B infection in 2019 and it resulted in an estimated 820,000 deaths in the year, mostly from cirrhosis and primary liver cancer. [1] The seroprevalence of HBV in South-east Asian region was 3.1% (2.7 to 3.4) in 2019. [2]

Hepatitis B infection is transmitted by blood and body fluids. Most common routes of infection for HBV are vertical (from mother to child) and sexual transmission. Unsterilised needles (hospitals /acupuncture/ tattooing), contaminated blood products and intravenous drug use are also major modes of transmission. [3-8]

HCWs and medical students are more prone to HBV infection in the workplace due to occupational exposure to percutaneous injuries.[9] Serologic evidence of infection is three to five times greater in HCWs than the general population.[10]

The disease can be prevented by adopting various sterile techniques but vaccination provides more than 90% protection and remains the most effective way. [9] Three doses of vaccine at 0, 1, and 6–12 months are recommended by WHO.[3]

Proper knowledge and awareness is essential among medical students to prevent disease as well as to raise awareness among peers, patients and general public.[11]

OBJECTIVES:

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Primary: To assess the knowledge, attitude and vaccination practice regarding hepatitis B among medical students of Maharashtra region

Secondary:

1. To explore the reasons for non vaccination
2. To increase awareness about the topic among medical students.

2. Materials and Methods:

This is a descriptive cross-sectional study conducted between September to November 2022. Convenience sampling was used. A predesigned self-administered questionnaire was distributed online among 109 undergraduate and postgraduate medical students as well as interns from medical colleges of Maharashtra after obtaining written informed consent. Data was collected about the socio-demographic characteristics of study participants, their knowledge towards transmission and prevention of HBV infection, their attitude and practice towards the disease and their vaccination status. Quantitative results were expressed in numbers and percentages after statistical analysis.

INCLUSION CRITERIA:

1. Medical undergraduates, postgraduates and interns in medical colleges of Maharashtra.
2. People who were willing to participate in the study.

EXCLUSION CRITERIA

1. Senior Consultants who are usually aware of the disease and fully vaccinated.
2. People who were not willing to participate in the study.

QUESTIONNAIRE

3. Results and Analysis:

A total of 109 students voluntarily participated in the study. Their demographic characteristics are presented in Table 1 and 2. Out of 109, 43 were females (48.6%) and 55 were males (50.5%). Majority of the respondents were in the age group 20-30 years. (92.7%).

Table 1

Sex	Number	Percentage
Female	43	48.6%
Male	55	50.5%
Non binary	1	0.9%
Age		
18-20 years	3	2.8%
20-30 years	101	92.7%
More than 30 years	5	4.6%

Sex and Age distribution of participants

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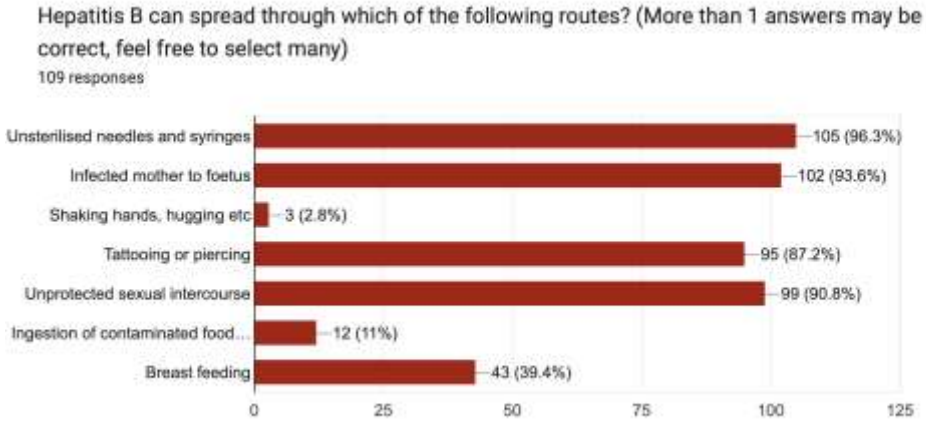
KNOWLEDGE:

Out of 109 respondents, 102 (93.6%, 95% CI

87.2 -97.4%) people had knowledge about vertical transmission of disease and 99 (90.8%, 95% CI 83.8 - 95.5%) were aware of the sexual mode of transmission. 105 (96.3%) knew that the disease can spread via unsterilised needles and syringes. However, 43 people (39.4%, 95% CI 30.2 -49.3%) believed that breastfeeding can spread the disease. Breastfeeding poses negligible risk of transmission and can be continued safely, especially if child has been vaccinated. (Figure 1)

According to Figure 2, 101 (92.7%, 95% CI 86.0 - 96.8%) were aware that HBV can lead to chronic hepatitis. 82 (75.2%, 95% CI 66.0 -83.0%) knew that it could also lead to primary liver carcinoma. However, not many students knew about the extra hepatic manifestations. Only 69(63.3%, 95% CI 53.5 -72.3%) knew that there is a small risk of the disease taking a fulminant course.

Figure 1



Knowledge about moces of transmission of hepatitis B

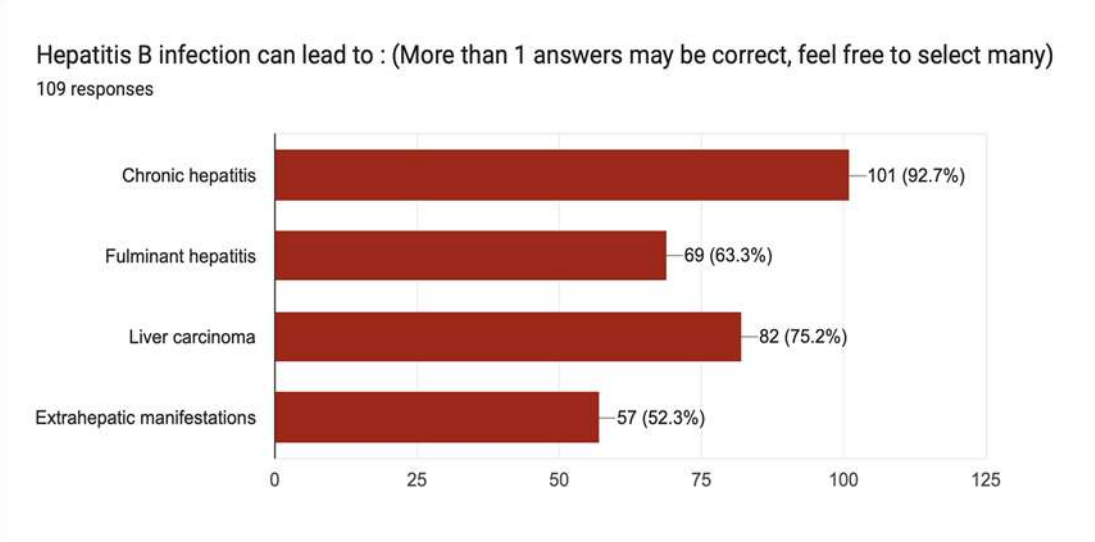


Table 2 shows that 105 (96.3%, 95% CI 90.9 -99.0%) knew that the disease is vaccine preventable and 85 (78%, 95% CI 69.0 -85.3%) were aware of the correct schedule (Figure 3). The study revealed that only 60

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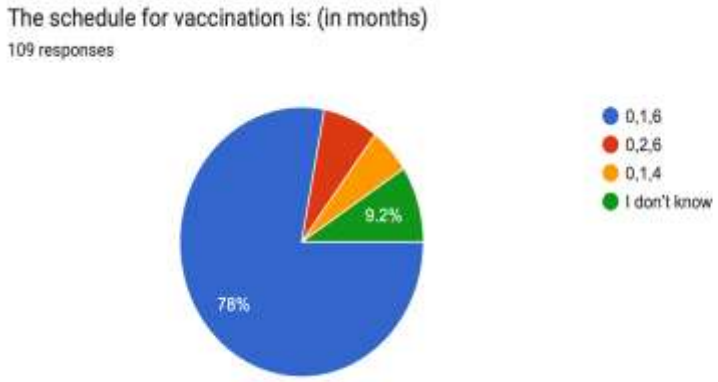
people (55.0%, 95% CI 45.2 -64.6%) were aware that the vaccine can be used as Post Exposure Prophylaxis.

Table 2

Statement	Yes	No	I don't know
Hepatitis B can be prevented by vaccination	105 (96.3%)	3 (2.8%)	1 (0.9%)
India's National Immunisation Schedule for children includes the hepatitis B vaccine	92 (84.4%)	8 (7.3%)	9 (8.3%)
Hepatitis B vaccine can be used for Post exposure prophylaxis	60 (55%)	29 (26.6%)	20 (18.3%)

Knowledge about vaccine and its use



ATTITUDE:

Attitude towards disease prevention was tested using question statements given in Table 3. 95 (87.2%, 95% CI 79.4 -92.8%) medical students considered themselves to be at risk for acquiring infection and 101(92.7%, 95% CI 86.0 -96.8%) believed that the vaccine was safe. 69 (63.3%, 95% CI 53.5 -72.3%) students said that booster doses are recommended for continued protection but WHO does not recommend this practice.

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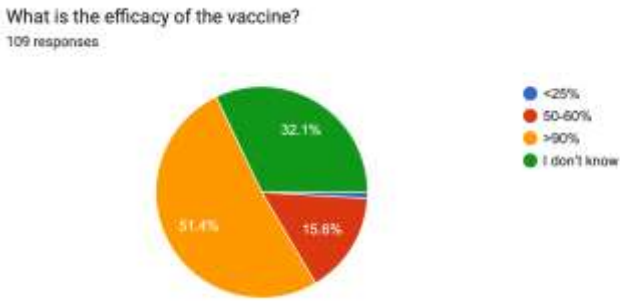
Table 3

Question	Yes	No	I don't know
Do you believe yourself to be at risk for acquiring the infection?	95 (87.2%)	7 (6.4%)	7 (6.4%)
Do you think hepatitis B vaccine is safe?	101 (92.7%)	4 (3.7%)	4 (3.7%)
Do you believe that completing the course is essential for immunity?	105 (96.3%)	0 (0%)	4 (3.7%)
Are booster doses recommended for continued protection?	69 (63.3%)	21 (19.3%)	19 (17.4%)

Attitude regarding hepatitis B

According to Figure 4, only 56 (51.4%, 95% CI 41.5 - 61.1%) knew that the vaccine is more than 90% efficient at preventing hepatitis B , 99% to be precise. A vast majority of students (32.1%, 95% CI 23.5 - 41.7%) were completely unaware about the efficacy.

Figure 4



Attitude regarding efficacy of vaccine against disease.

PRACTICE:

105 (96.3%, 95% CI 90.9 -99.0%) respondents used new blades and syringes for every patient. Fewer students were prompt at reporting needle stick injuries when they occurred (85 :78%, 95% CI 69.0 -85.4%). As many as 10 (9.2%, 95% CI 4.5 -16.2%) students said they never reported such injuries, which is concerning.

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Table 4

Question	Yes	No	Sometimes
Do you use new blades/ syringes for every patient?	105 (96.3%)	5 (4.6%)	5 (4.6%)
Do you handle infected patients with universal precautions?	98 (89.9%)	3 (2.8%)	8 (7.3%)
Do you routinely check blood for hepatitis B before transfusion?	99 (90.8%)	5 (4.6%)	5 (4.6%)
Do you always report needle stick injury?	85(78%)	10 (9.2%)	14 (12.8%)

Practices to prevent hepatitis B infection.

Total of 64 out of 109 were vaccinated. Thus, overall Hepatitis B vaccination rate among the respondent students was only 58.7% (95% CI 48.9% -68.1%). Some of them (22/109, 20.0%, 95% CI 13.1 -28.9%) were incompletely vaccinated, and 18/109 (16.5.%, 95% CI 10.1 -24.8%) were never vaccinated. A few (5/109, 4.6%, 95% CI 1.5 -10.4%) were even unaware of their vaccination status.

Out of the 64 vaccinated respondents, only 7 (10.9%, 95% CI 4.5 -21.2%) had checked anti HBs antibody titres after vaccination. A few i.e. 6 (9.4%, 95% CI 3.5 -19.3%) said that they don't remember and remaining 51 (79.68%) respondents had never checked their status.

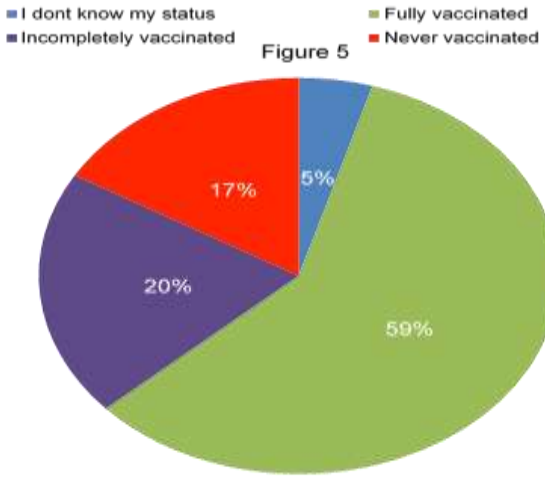

Figure 5

Vaccination status of participants

Out of 22 incompletely vaccinated, (11 i.e. 50%) were still waiting for their next dose, 8 (36.4%) forgot to take their next dose, and 2 (9.1%) couldn't complete the course because of unavailability of the vaccine. However, high cost of vaccination was never an issue for incomplete vaccination.

Reasons for not getting vaccinated at all are presented in Figure 6. 8(42%) said they did not have the motivation and 3(16%) said they did not need it. Only 1(5.%) respondent said that unavailability was an issue and another 1 (5.%) was afraid of needles. High cost of vaccine was not an issue.

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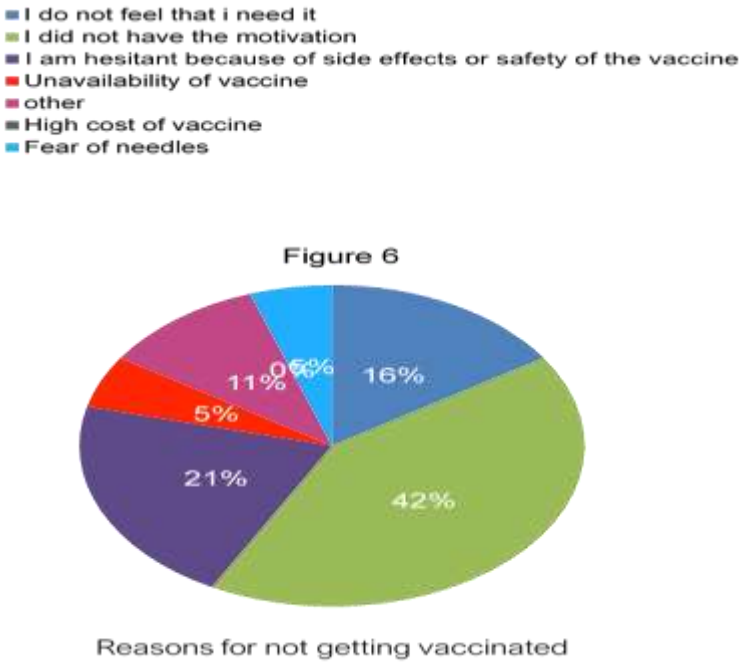
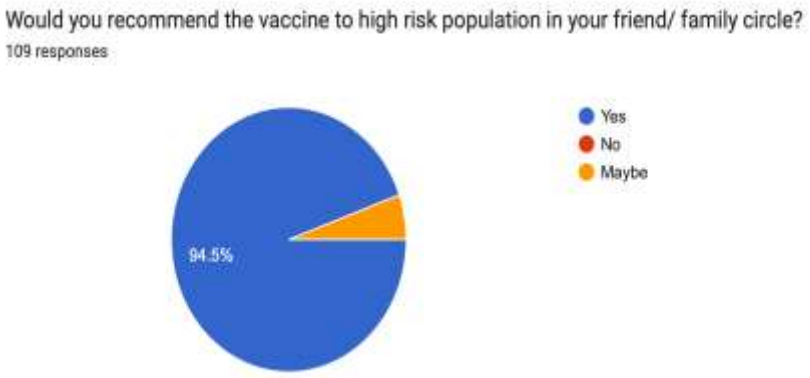


Figure 6

When asked if they would recommend the vaccine to family members and friends, 94.5% responded positively. (Figure 7)



4. Discussion

Knowledge, attitude, and practice (KAP) surveys reveal the problem areas and aim to provide solutions to implement new policies and strategies. Literature review showed lack of data regarding this topic in Maharashtra region so this study aims to fill that gap.

Most medical students had overall good knowledge about modes of transmission, 93.6% knew about vertical transmission, 90.8% were aware of the sexual mode and 96.3% knew about needle stick injuries. 87.2% knew about the less common modes like tattooing or piercing.These findings are similar to the study done by Dhan Bahadur Shrestha *et al* in Nepal.[12] This study revealed better knowledge as compared to a similar study done by Mohan B. Sannathimmappa et al.[13]. Majority of the respondents knew that hepatitis B doesn't spread through casual contact but 11% believed that feco-oral transmission is possible. This could be explained by the confusion with Hepatitis A which spreads through the feco-oral route.[14]

Knowledge about consequences was found to be better as compared the study done by Mohan B.

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Sannathimmappa et al. [13] However, only 52.3% knew about the extra hepatic manifestations of the disease such as glomerulonephritis, serum-sickness like syndrome, polyarteritis nodosa and various dermatological manifestations.[15]

Students had a positive attitude, with 87.2% students considering themselves to be at risk for acquiring infection and knowing that the disease was vaccine preventable. 92.7% believed that the vaccine was safe, parallel to study done by Rathi A et al. [16]

However, 69 (63.3%) students said that booster doses are recommended after completion of full course but WHO does not recommend this practice.[1]

Full-dose HBV vaccination coverage among medical students obtained in our study was 59%, similar to the study done in Pakistan (60%)[17] and China[18] (60%). This is low as compared to the standard 80% coverage recommended by WHO. [1]. However, its better than similar studies reported from Uganda (44.3%)[19] , India (8%) [16] and (5.8%) Ethiopia [20] . In contrast, a study from Nepal showed a higher percentage (83.7%) of students completing full doses.[21] The variation in these rates might be due to differences in socioeconomic status, immunisation programmes, cost and availability of vaccine, sample size etc.

Among reasons for not getting vaccinated, lack of motivation and hesitancy regarding efficacy and safety of the vaccine were the major ones (42%, 21% respectively). This shows that even though knowledge about the disease is ample, motivation for taking the vaccine is still lacking. These findings contrast a study from Ethiopia [22] where unavailability and high cost were frequent reasons. Other studies have shown lack of vaccination programmes and lack of opportunity as the major issues. [12,23]

This study was limited by the fact that we did not measure the anti-HBS antibody titres of the participants. There might be some recall bias in the self reported vaccination status. Moreover, the effects of gender or age on vaccination and knowledge were not assessed differentially.

5. CONCLUSION:

Our findings showed that students are at a risk of contracting HBV infection because although the knowledge was sufficient and general preventive practices were being followed, it was not being translated into vaccination status. Students were ignorant about reporting needle stick injuries, a major mode of disease transmission among HCWs. We recommend all medical students be screened for antibody titres and vaccinated. There is a need for awareness campaigns as well as addressing the barriers in this regard. We also suggest setting up targeted vaccination drives, providing free vaccines, and following up with antibody tests.

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