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**Original Research Article**

# A descriptive study on coverage of hepatitis B vaccination among final year MBBS students in a private medical college, Bengaluru urban of India

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## ABSTRACT

**Background:** Hepatitis B is one of the most common infections seen in all age and all around the world with high mortality and morbidity. Healthcare workers (HCW) are at risk of contracting the hepatitis B virus (HBV) from infected patients. Hence his study was conducted with an objective to study the coverage and factors affecting hepatitis B vaccination among medical students.
**Methods:** The descriptive study was carried out among final year MBBS students of B. R. Ambedkar medical college, Bengaluru by adopting convenient sampling technique. A total of 72 students had given consent for the study.
**Results:** Majority of the students 86% seem to have a good knowledge regarding hepatitis B and 97.2% have responded that it is necessary to get vaccinated. But on the other side only 33.3% students have been vaccinated with a minimum of single dose against hepatitis B. Top 3 reasons for not being vaccinated are lack of motivation, no need felt and never thought of vaccination.
**Conclusions:** This study reveals that only 33.3% have been vaccinated with a minimum of single dose and 66.6% students are not vaccinated against hepatitis B. After the completion of analyses, the students were briefly educated on the necessity of vaccination, completion of course and the complications that could be avoided in future by volunteering to get vaccinated. Following this event, we saw the 91.7% of students who are motivated or have changed their perception towards vaccination. This shows the importance of health education and counselling.

**Keywords:** Hepatitis B vaccination, MBBS students, Medical college, Bengaluru

## INTRODUCTION

Hepatitis B is one of the most common infections seen in all age and all around the world with high mortality and morbidity. According to global statistics over two billion cases are infected with hepatitis B of whom 350 million are chronic carriers.[1] HCW are at risk of contracting the HBV from infected patients. HBV is a highly contagious virus transmitted by body fluids. HCW usually obtain the virus during medical interventions, for example during needle stick injuries.[2]

Therefore, it is important for HCW to be protected actively against HBV through vaccination. The introduction of hepatitis B vaccine has increased the annual budget for immunization services by approximately 56% according to WHO.[3] The clinical symptoms of HBV infection vary from asymptomatic to fulminant liver failure, 30% of the cases may present as mild disease with fever and jaundice. HBV causes disease in about 10% of the cases disproportionately affecting young children and newborns. In fact, chronic hepatitis leads to liver cirrhosis, liver failure, hepatocellular carcinoma in approximately 25% of the cases.[2] According to latest WHO estimates, the proportion of children under five years of age chronically infected with HBV dropped to just under 1% in 2019 down from around 5% in the pre-vaccine era ranging from the 1980s to the early 2000s.[4] Among the health care

personnels', HBV is transmitted by skin prick with infected, contaminated needles and syringes or through accidental inoculation of minute quantities of blood during surgical and dental procedures. Knowledge regarding the HBV and safety precautions is needed to minimize the health care settings acquired infections among health personnel. Therefore, this study was planned in a private medical college with an objective to study the coverage and factors affecting hepatitis B vaccination among final year MBBS students.

## METHODS

The descriptive study was carried out among final year MBBS students of B. R. Ambedkar medical college, Bengaluru by adopting convenient sampling technique. Inclusion criteria were students currently in final year MBBS and exclusion criteria was immuno-compromised status and students previously infected with hepatitis B. A total of 93 students were recruited for the study, out of which 72 students had given consent. Study period was 2 weeks (12$^{th}$ to 26$^{th}$ March 2024). Socio-demographic details of study participants are shown in Table 1-3. A semi structured questionnaire was framed through google forms based on awareness, knowledge and factors which influences vaccination among the students. Data collected was transferred into excel sheet. Descriptive statistics were employed to summarize the quantitative data and results were expressed in terms of percentages, charts and graphs.

## RESULTS

The categories of the questionnaire and their responses are mentioned here. Awareness of the disease (Hepatitis B): Thanks to the medical curriculum, we have a 100% positive result about the awareness of the disease. Knowledge of its aetiology, transmission and fatality: Majority of the students, which is about 86.1% (62 students) seem to have a good knowledge regarding hepatitis B. while the other 13.9% have some awareness of the same but do not know its importance. Knowledge of necessity of being vaccinated before starting MBBS course: About 97.2% have responded to know that it is necessary to get vaccinated while the other 2.8% are still in a doubtful state of mind. Knowledge about availability of vaccination in the college where the study is conducted: Quite a lot of them seem to be unaware of the vaccination provided in the college hospitals, the percentage climbs to about 29.2%. Individual Vaccination Status: 66.6% study group are not vaccinated yet and only 33.3% have been vaccinated with a minimum of single dose (Figure 1). Among 24 vaccinated students only 10 students have completed the full schedule with booster dose (Figure 2). This is one of the alarming things that highlights the urgency of protection through vaccination.

### *Adverse reactions*

Local pain and fever were common among 13.8% of the individuals which could be another factor that instils fear in the students to get vaccinated. Education and treating these reactions can help reduce the adverse effects but it is of almost negligible value when compared to those who are not willing to get vaccinated due to other criteria.

### *Interest in getting vaccinated before internship*

The 77.8% of the students are willing to get vaccinated before internship, driven by the thought and responsibility of their own profession. This shows a positive outcome which allows us to expect all the interns of upcoming batch to be immunized against hepatitis B.

### *Reason for not getting vaccinated*

The top 3 reasons for not being vaccinated are: No need felt, lack of motivation and never thought of vaccination. Other reasons are lack of belief in vaccination, lack of awareness about its availability, influence to evade vaccination and at last assuming the cost of vaccination is high (Figure 3).

### *History of recent needle stick injuries or blood transfusion*

Owing to limited exposure as undergraduates, there is no response from any students that suggests a history of needle stick injuries or blood transfusion.

### *Knowledge about preventability of the disease*

Initially the knowledge of the students was assessed through the google form and then they were approached individually to assess their attitude and practice regarding the same. To the end of the assessment, all the students responded positively and were further interested in knowing the necessary information regarding the vaccination. We helped them with their queries and further motivate them to get vaccinated.

### *Personal preference for a particular health facility or brand of vaccination*

The results state that 44.4% do not have any preference and about 55.6% prefer a specific brand or private health care to get vaccinated.

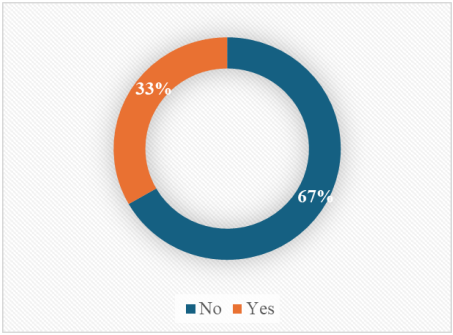


**Figure 1: Vaccination status.**

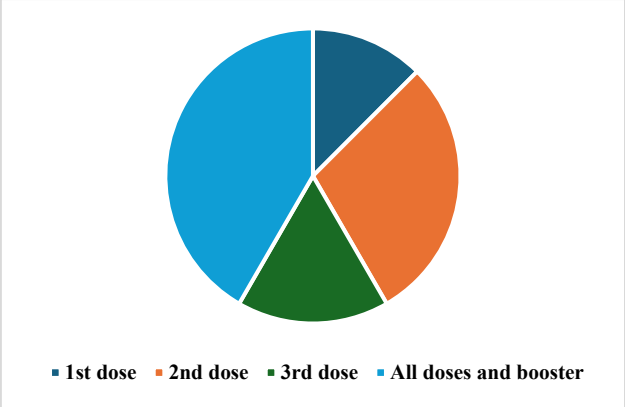


**Figure 2: Completion of the course.**

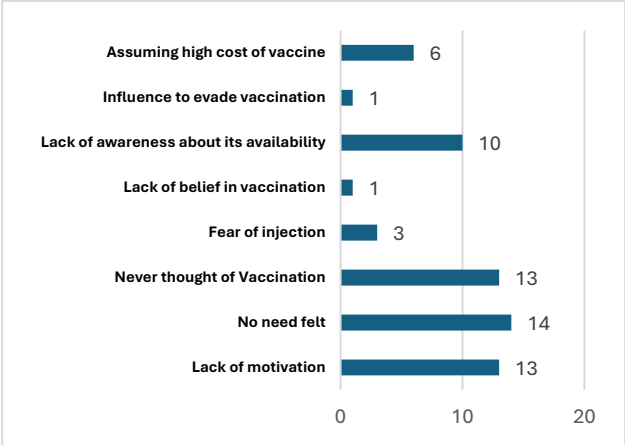


**Figure 3: Reasons for not getting vaccinated.**

**Table 1: Age wise distribution of study participants.**

| Age (in years) | N | Percent (%) | Mean (in years) | SD |
|---|---|---|---|---|
| **21** | 2 | 2.8 | | |
| **22** | 32 | 44.4 | | |
| **23** | 34 | 47.2 | 22.56 | 0.648 |
| **24** | 4 | 5.6 | | |
| **Total** | 72 | 100.0 | | |

**Table 2: Gender wise distribution of study participants.**

| Gender | N | Percentage (%) |
|---|---|---|
| **Male** | 38 | 52.8 |
| **Female** | 34 | 47.2 |
| **Total** | 72 | 100.0 |

**Table 3: Cross table showing gender wise vaccination status.**

| Gender | Vaccination status | |
|---|---|---|
| | **Yes (%)** | **No (%)** |
| **Male** | 14 (36.8) | 24 (63.2) |
| **Female** | 10 (29.4) | 24 (70.6) |
| **Total** | 24 (33.3) | 48 (66.7) |

## DISCUSSION

Majority of the students around 86% seem to have a good knowledge regarding hepatitis B and 97.2% have responded that it is necessary to get vaccinated. But on the other side only 33.3% students have been vaccinated with a minimum of single dose against hepatitis B. The top 3 reasons for not being vaccinated are lack of motivation, no need felt and never thought of vaccination. Internationally the vaccination coverage among medical students was 11% in South Florida and 29% in Yemen. The rate among faculty of medicine and health sciences students was 32.3%, whereas only 21.3% among the students of high institute of health sciences.[5] A study from Lahore reported that 49% HCW and 42% medical students were vaccinated against hepatitis B.[6]

In India the prevalence of HBsAg among the general population ranges from 2 to 8%, which puts India in intermediate position of endemic zone.[7] Hepatitis B infections are common due to lapse in the sterilization technique of instruments or due to the improper hospital waste management as 10 to 20% health care waste is regarded hazardous and it may create variety of health risk.[8] It is most commonly seen in accidental skin pricks in HCW and in unmonitored blood transfusion. The Government of India has been taking many initiatives to prevent hepatitis B. It covers mandatory Hepatitis B vaccination for under-five children under universal immunization programme including timely dose at birth, use of auto disposable syringes for vaccination, safety of blood and blood products, and proper disposal of biomedical waste. In June 2018, government of India further mandated compulsory vaccination for all HCW under national viral hepatitis control program (NVHCP) in coordination with UIP, who have not received a complete primary series previously.[9] It was reported in study on medical students that 30% of reported needle stick injuries occurred in the operation room.[10]

World health organization has recommended that HBV vaccine should be made part of mass immunisation programs as tool for prevention.[11]

In our study most of the respondents had a fair knowledge and attitude regarding hepatitis B vaccination and necessary practices to prevent the disease. This finding go adjacent with the study done by Bhattarai et al which revealed 95.6% of participants had good knowledge about hepatitis B vaccination among clinical medical students of Nepal.[12] Another cross-sectional study in Duhok province of Iraq, half of the students were found to be unvaccinated, mainly due to the absence of vaccination programs.[13] Therefore, it is recommended to implement a vaccination program similar to ECDC (European centre for disease prevention and control) and encourage vaccination.

After the completion of analyses, the students were briefly educated on the necessity of vaccination, completion of course and the complications that could be avoided in

future by volunteering to get vaccinated. Following this event, we saw the 91.7% of students who are motivated or have changed their perception towards vaccination but still 8.3% of students remain in a clouded state. These students will further be encouraged to achieve full vaccination coverage along medical students.

***Limitations***

The validation of questionnaire was not done and the data was collected by self-reporting google forms which may be a source of bias. Study was conducted in a single private medical college with small sample size and lack of verification of vaccination certificates which limits the generalizability.

## CONCLUSION

Based on this study only 33.3% have been vaccinated with a minimum of single dose and many have not completed the entire schedule on time (as per immunisation schedule for hepatitis B), in such cases it is always recommended to restart the entire course of vaccination. The main reasons for not getting vaccinated are “no need felt”, “lack of motivation”, “never thought of vaccination” needs to be rectified by conducting regular health education among the medical students.

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