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Research Article

Hepatitis B: It's Knowledge, Awareness, and Vaccination Compliance in Medical, Paramedical & Nursing Students.

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ABSTRACT

Background: Hepatitis B virus (HBV) infection remains a major public health concern and poses significant occupational risk to healthcare students. Adequate knowledge, awareness, and vaccination coverage are essential for effective prevention.

Objectives: To assess and compare knowledge, awareness, and vaccination compliance regarding Hepatitis B among medical, paramedical, and nursing students in Ahmedabad, India, and to identify reasons for non-compliance.

Methods: A cross-sectional online survey was conducted in March 2025 among 572 students from MBBS, BHMS, BAMS, Physiotherapy, and B.Sc. Nursing programs. A self-administered structured questionnaire assessed knowledge of HBV, awareness of vaccination, and compliance status. Data were analysed using descriptive statistics and chi-squared tests.

Results: Of 572 participants (180 males, 392 females), 41% demonstrated good knowledge, 43% average, and 16% poor knowledge of HBV and vaccination. Nearly half of the students (49%) were non-vaccinated, 35% partially vaccinated, and only 16% fully vaccinated. Major reasons for non-compliance included lack of awareness (38%), forgetfulness (25%), and absence of reminders (20%). Knowledge levels were highest among final-year MBBS students (74.3%) and lowest among physiotherapy students (60%). Compliance was inconsistent across groups; third-year students reported higher compliance despite lower knowledge levels. The association between awareness and compliance was not statistically significant ($p = 0.053$).

Conclusions: Although most students had moderate to good knowledge of HBV, vaccination compliance remained low. These findings emphasize the need for mandatory vaccination policies, improved awareness programs, and institutional support to increase HBV vaccine uptake among healthcare students.

Keywords*: Hepatitis B; Awareness; Knowledge; Vaccination Compliance; Medical Students; Paramedical Students; Nursing Students; Occupational Health*

INTRODUCTION

- **Introduction:** Hepatitis B is an infectious disease caused by the Hepatitis B virus (HBV), a major global health burden leading to acute and chronic hepatitis, cirrhosis, and hepatocellular carcinoma.(1,2) Healthcare students, including those in medical, paramedical, and nursing programs, are particularly at risk of contracting or transmitting HBV during clinical training.(3) Therefore, it is essential that they have adequate knowledge of HBV and complete the full vaccination schedule.(4)

OBJECTIVES

1. To assess and compare knowledge, awareness, and vaccination compliance regarding HBV among medical, paramedical, and nursing students.
2. To identify reasons for non-compliance with the HBV vaccination.

METHODS

An online cross-sectional study was conducted in March 2025 among students of MBBS, BHMS, BAMS, Physiotherapy, and B.Sc. Nursing at a medical and nursing college in Ahmedabad, India. A total of **572 students**, from first year through internship, participated in the survey.

Study Tool

A structured, self-administered questionnaire was distributed via Google Forms. It consisted of two sections:

- **Section I (10 questions):** Assessed knowledge of HBV, including the type of pathogen, natural history, routes of transmission, preventive measures, complications, and awareness of vaccination (number of doses, type of vaccine, route of administration).
- **Section II (5 questions):** Focused on vaccination status, compliance with the HBV vaccination program, and documentation (e.g., vaccination certificate).

Scoring

Responses were scored, and participants were categorized into three levels of knowledge/awareness based on a pilot study:

- **Poor:** <5 points
- **Average:** 5–7 points
- **Good:** ≥8 points

Data Collection and Analysis

Completed responses (n = 572) were compiled in Microsoft Excel. Data were analysed using SPSS version 25. Descriptive statistics were used to summarize frequencies and proportions. Chi-squared tests were applied to assess associations between knowledge/awareness and vaccination compliance.

RESULTS

A total of **572 students** participated in the study, comprising 180 males (31.5%) and 392 females (68.5%).

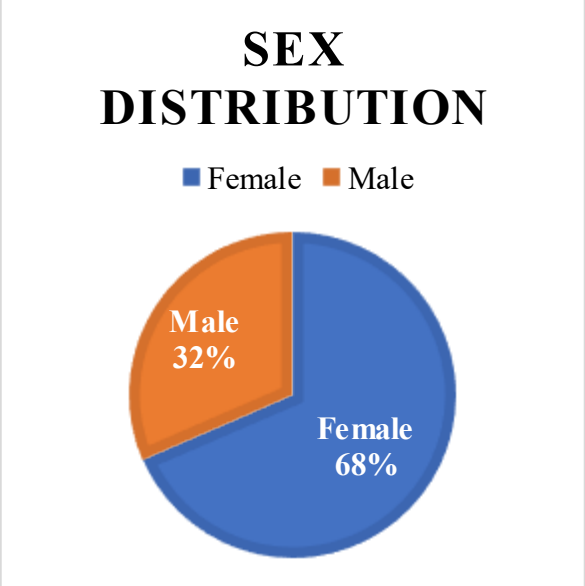

Figure 1 Sex distribution of study participants (n = 572), showing that 32% were male and 68% were female.

Knowledge and Awareness

- Overall, **41%** of participants demonstrated good knowledge of Hepatitis B, **43%** had average knowledge, and **16%**had poor knowledge.
- Knowledge levels were highest among final-year MBBS students (interns) at **74.3%**, while the lowest levels were observed in third-year students (**61.3%**).
- Across courses, MBBS students showed the highest awareness (**76%**), whereas physiotherapy students reported the lowest (**60%**).
- Male and female students had nearly identical levels of knowledge (**68% vs 67%**, respectively).

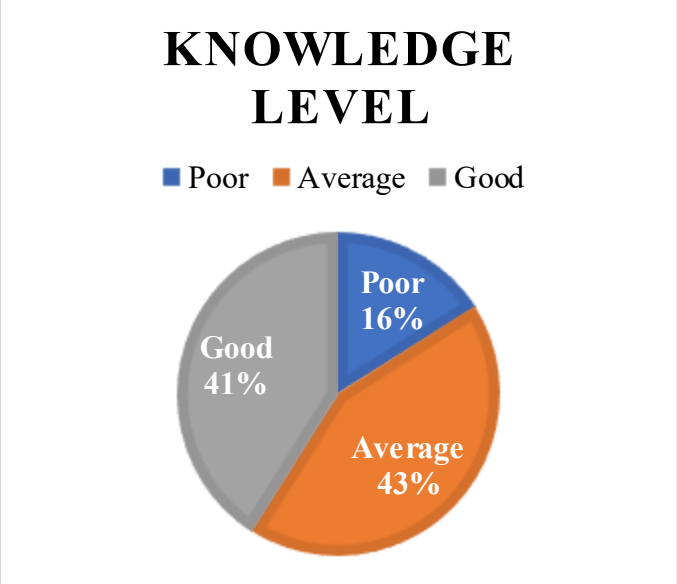

Figure 2 Distribution of knowledge levels regarding Hepatitis B among study participants (n = 572), showing that 41% had good knowledge, 43% had average knowledge, and 16% had poor knowledge.

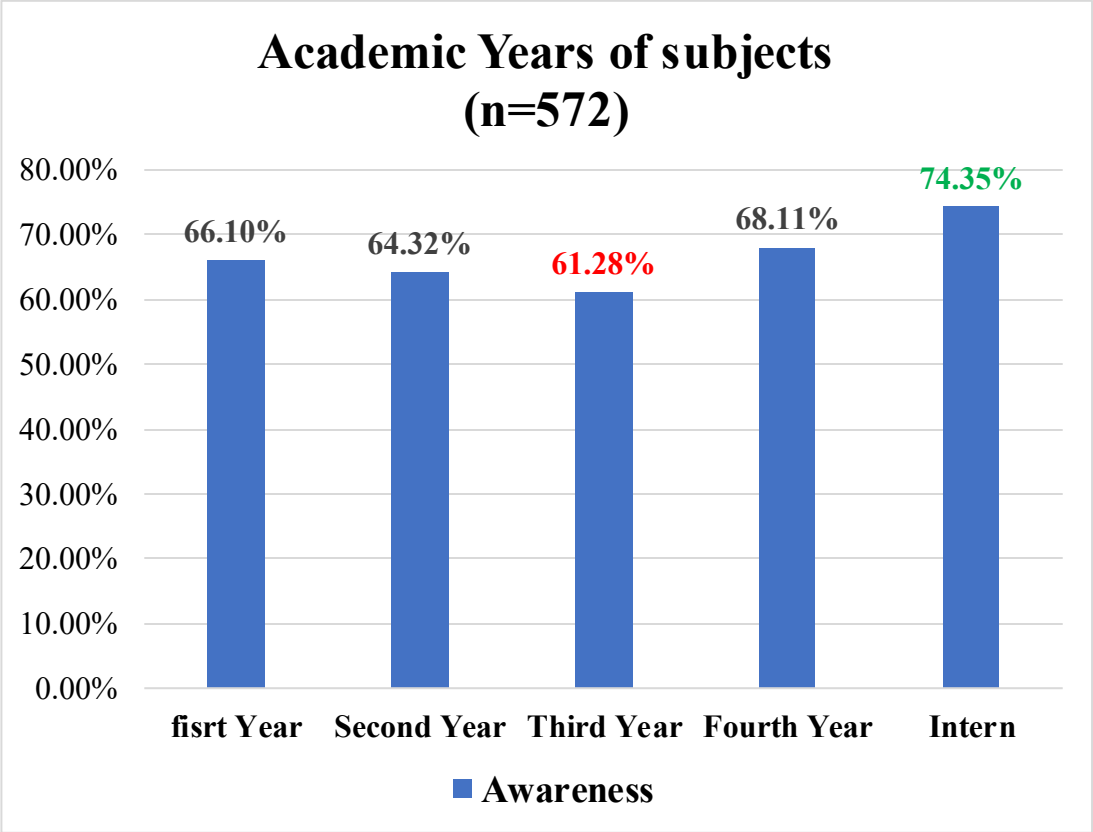

Figure 3 Awareness levels of Hepatitis B among students according to academic year (n = 572). Awareness was highest among interns (74.35%) and lowest among third-year students (61.28%).

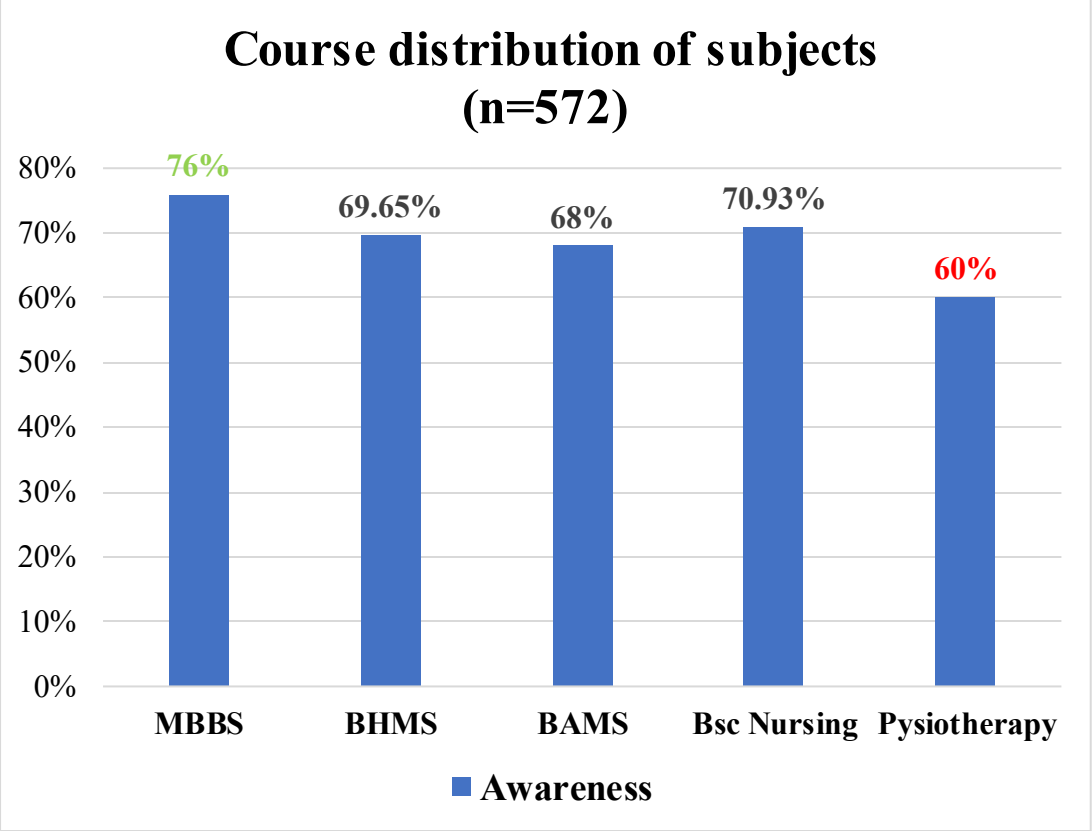

Figure 4 Awareness levels of Hepatitis B among students according to course of study (n = 572). Awareness was highest among MBBS students (76%) and lowest among physiotherapy students (60%).

Vaccination Compliance

- Nearly half of the participants (**49%**) were unvaccinated, **35%** were partially vaccinated, and only **16%** had completed the full HBV vaccination schedule.
- Among the vaccinated group:
  - **31%** had received all three doses,
  - **39%** had received two doses, and
  - **30%** had received only one dose.
- Compliance varied by course: MBBS students reported the highest compliance, while BAMS students reported the lowest.
- Compliance also differed by year of study: third-year students reported the highest compliance (**76%**) despite lower knowledge scores, whereas second-year students had the lowest compliance (**37.8%**).
- Male and female students showed similar vaccination compliance (**48.0% vs 48.1%**).

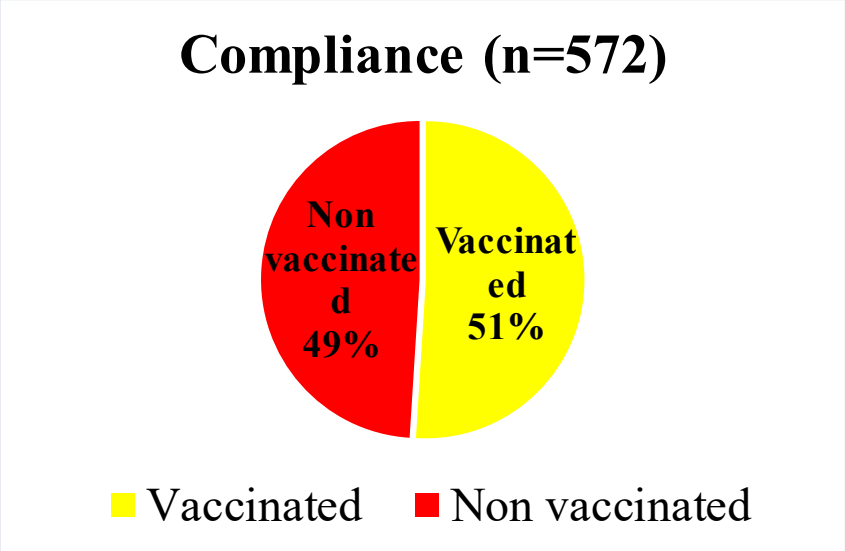

Figure 5 Compliance with vaccination among study participants (n=572): 51% were vaccinated while 49% remained non-vaccinated.

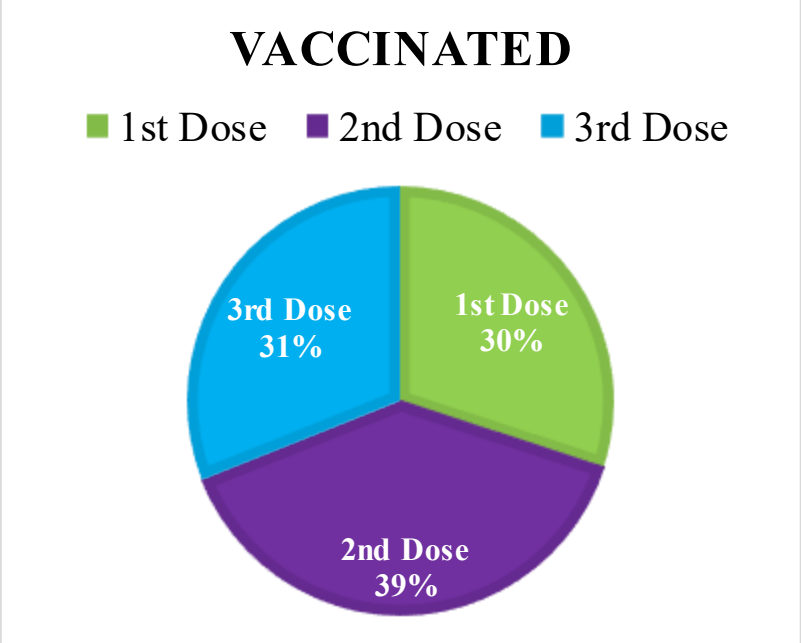

Figure 6 Distribution of vaccinated participants by dose status: 30% received only the 1st dose, 39% received the 2nd dose, and 31% completed the 3rd dose.

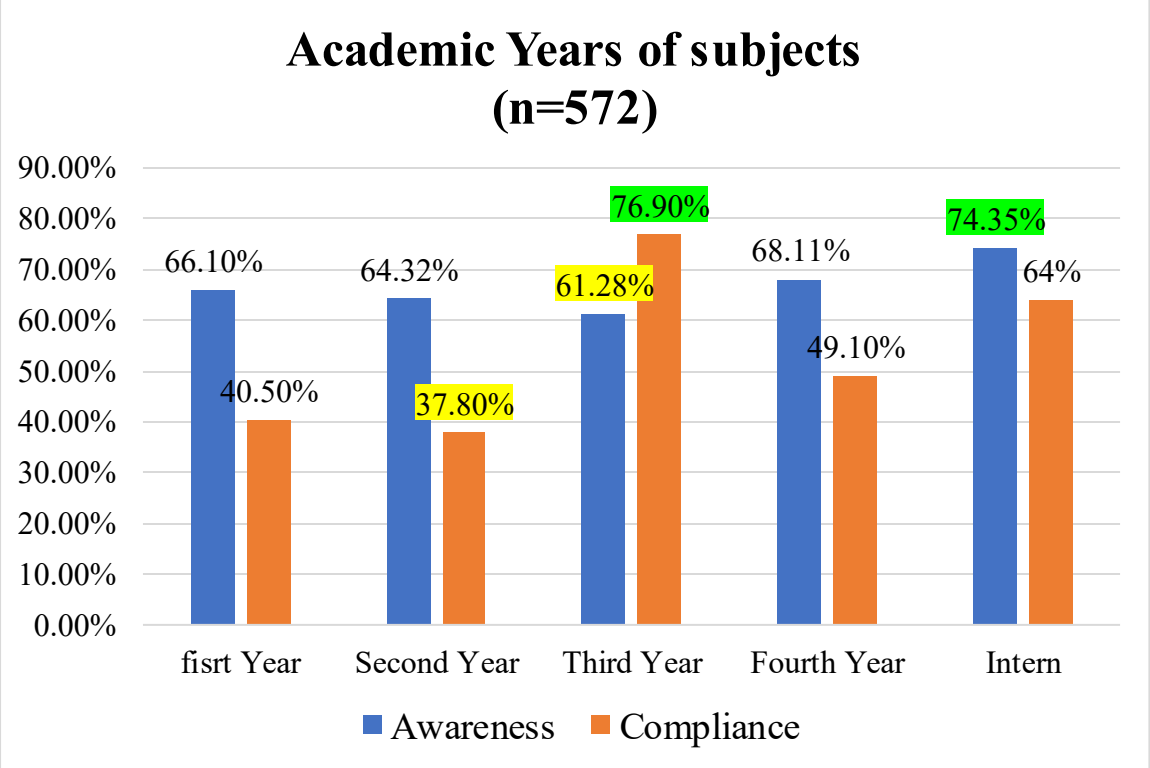

Figure 7 Awareness and compliance with vaccination across different academic years (n=572): Awareness was highest among interns (74.35%) and lowest among second-year students (64.32%), while compliance was highest among third-year students (76.9%)

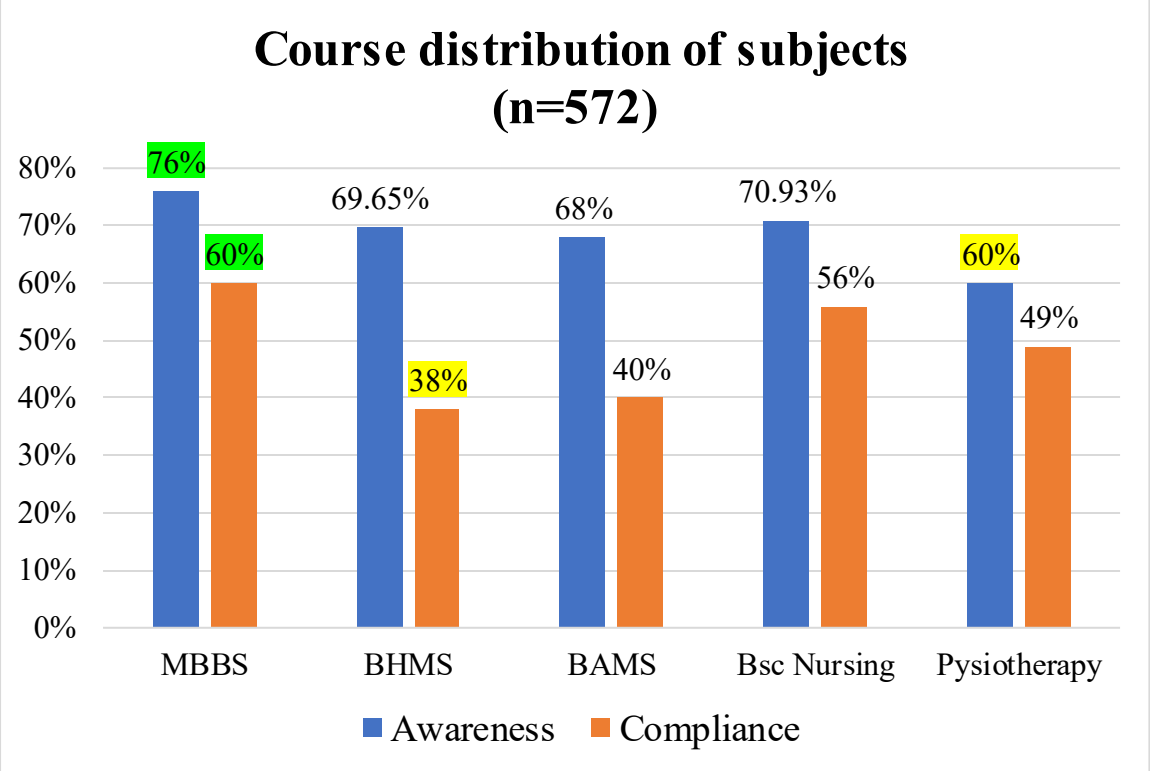

Figure 8 Course-wise distribution of awareness and compliance among study subjects (n=572). Awareness was highest among MBBS students (76%), while compliance was highest in MBBS and Physiotherapy students (60%). Lowest compliance was observed in BHMS students (38%).

Documentation and Immunity

- Only **33%** of vaccinated participants reported possessing a vaccination certificate.
- **28.8%** stated they did not have or had not received a certificate, **25.6%** were unsure, and **12.6%** did not respond.
- Regarding immunity testing, **5%** of participants had undergone serological testing:
    - Of these, **91.6%** knew their results,
    - **96.4%** were immune, and
    - **3.6%** were not immune.

Reasons for Non-Compliance

Among non-compliant participants, the major reasons reported were:

- Lack of awareness (**38%**),
- Forgetfulness (**25%**),
- Absence of reminders (**20%**). Other reasons were reported less frequently.

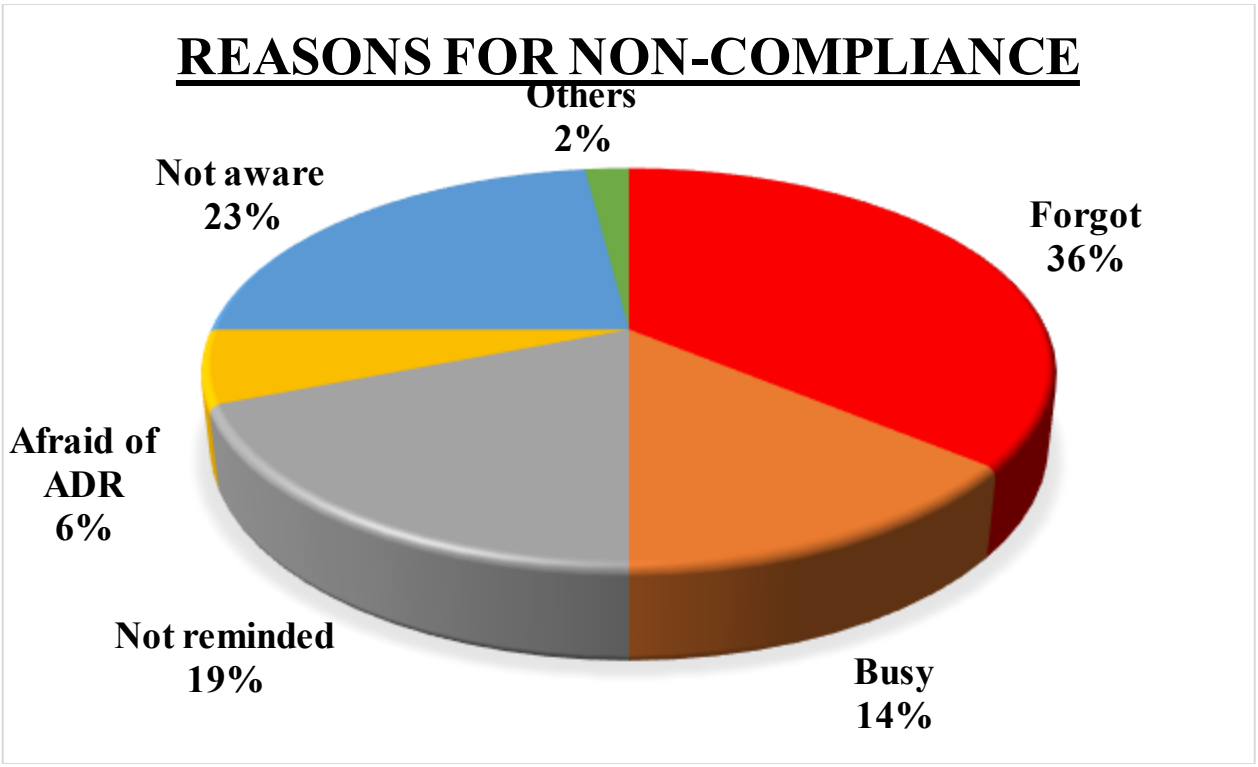

Figure 9 Reasons for non-compliance with vaccination: The most common reasons reported were lack of awareness (23%), not being reminded (19%), being busy (14%), forgetting (12%), and fear of adverse drug reactions (6%), while 2% cited other reasons

Statistical Association

The association between participants' knowledge/awareness and their vaccination compliance was **not statistically significant** ($p = 0.053$).

Discussion

In this cross-sectional study of 572 medical, paramedical, and nursing students in Ahmedabad, India, we found that although most participants had moderate to good knowledge of Hepatitis B, vaccination compliance remained low, with nearly half unvaccinated and only 16% fully vaccinated. The main barriers reported were lack of awareness, forgetfulness, and absence of reminders. These findings highlight a persistent gap between knowledge and preventive practices, a problem reported in similar studies across different regions.

A study from Makerere University in Uganda found that while awareness of Hepatitis B was generally high, vaccination coverage among medical students remained inadequate, echoing the gap observed in our cohort (2). In Riyadh, Saudi Arabia, Al-Tamimi et al. reported that although knowledge levels were good, compliance with vaccination was poor, reinforcing the notion that awareness alone is insufficient to ensure protection (4). In central India, Thote et al. similarly observed that many medical students, despite demonstrating adequate awareness, had not completed the full vaccination schedule (unpublished, comparable to findings in our study). A systematic review and meta-analysis from South Asia estimated a pooled vaccination rate of 56% among healthcare students, considerably higher than the 16% full vaccination coverage observed in our cohort, suggesting local gaps in vaccine uptake (additional reference).

In our study, knowledge was highest among final-year MBBS students, consistent with their greater exposure to clinical training, while physiotherapy students reported the lowest awareness. Interestingly, third-year students demonstrated higher compliance despite lower knowledge scores, which may reflect institutional influences or peer effects. Similar year-wise and course-wise variations have been reported in Saudi Arabia, where senior students generally showed higher awareness and better compliance (4). Gender did not appear to influence knowledge or vaccination status in our study, aligning with findings from studies in Syria and Saudi Arabia (5,6).

Another concerning finding was the low rate of documentation and serological confirmation of immunity. Only one third of vaccinated participants reported having a vaccination certificate, and just 5% underwent antibody testing, though most of those tested were immune. Poor post-vaccination serological testing has also been reported in similar cohorts, leaving many students uncertain about their protection status (4,6). This represents a missed opportunity for ensuring adequate long-term immunity in future healthcare providers.

The implications of these findings are significant. Hepatitis B is a vaccine-preventable occupational hazard, yet incomplete vaccination and poor documentation are common among students about to begin high-risk clinical duties.

Institutional measures such as mandatory vaccination policies, integrating vaccine certificates into student records, and periodic vaccination drives may substantially improve compliance. Reminder systems and structured educational interventions are equally important, particularly for early-year students who may not perceive themselves at immediate risk. Screening for immunity could also help identify non-responders who may require booster doses, thus ensuring comprehensive protection.

Our study had several strengths, including a large sample size across multiple courses and systematic evaluation of knowledge, compliance, and barriers. However, limitations must be acknowledged. Self-reported data may have introduced recall bias, particularly regarding vaccination certificates or number of doses. The cross-sectional design restricts causal interpretation, and the single-institution setting may limit generalizability.

In conclusion, despite moderate to good levels of knowledge, Hepatitis B vaccination compliance among healthcare students in Ahmedabad, India was suboptimal, with nearly half unvaccinated. These findings underscore the urgent need for institutional and policy-level interventions to improve HBV vaccination uptake, ensure documentation, and confirm immunity. Bridging the gap between knowledge and practice is critical to safeguarding both future healthcare professionals and their patients.

CONCLUSIONS

This study revealed that although medical, paramedical, and nursing students in Ahmedabad, India demonstrated moderate to good knowledge of Hepatitis B, vaccination compliance was alarmingly low, with nearly half of the participants unvaccinated and only a minority completing the full vaccination schedule. The most common reasons for non-compliance were lack of awareness, forgetfulness, and absence of reminders. Documentation of vaccination and post-vaccination serological testing were also poor, leaving many students uncertain about their immunity status.

These findings emphasize the urgent need for targeted institutional interventions, including mandatory vaccination policies, structured educational programs, and systematic reminder systems to improve vaccine uptake and compliance. Integration of vaccination records into academic requirements and provision of periodic serological testing may further strengthen protection. Bridging the gap between knowledge and practice is crucial to safeguard both future healthcare professionals and the patients they serve.

REFERENCE

1. Centres for Disease Control and Prevention (CDC). Recommended Vaccines for Health Care Workers. Available online: http://www.cdc.gov/vaccines/adults/rec-vac/hcw.html
2. Pido B, Kagimu M. Prevalence of hepatitis B virus (HBV) infection among Makerere University medical students. Afr Health Sci. 2005 Jun;5(2):93-8. PMID: 16006214; PMCID: PMC1831914.
3. Firas A. Ghomraoui, Faisal A. Alfaqeeh, Abdulrahman S. Algadheeb, Abdullah S. Al-alsheikh, Waleed K. Al-Hamoudi, Khalid A. Alswat, Medical students' awareness of and compliance with the hepatitis B vaccine in a tertiary care academic hospital: An epidemiological study, Journal of Infection and Public Health, Volume 9, Issue 1, 2016, Pages 60-65, ISSN 1876-0341, (https://www.sciencedirect.com/science/article/pii/S1876034115001331).
4. Altamimi AR, Alqahtani TM, Ahmed JA, Aldosari LH, Alzahrani MM, Alotaibi GS, Moukaddem AK. Knowledge, awareness, and vaccination compliance of hepatitis B among medical students in Riyadh's governmental universities. J Family Med Prim Care. 2021 Jan;10(1):485-490. doi: 10.4103/jfmpc.jfmpc_1419_20. Epub 2021 Jan 30. PMID: 34017775; PMCID: PMC8132782.
5. Ibrahim N, Idris A. Hepatitis B awareness among medical students and their vaccination status at Syrian Private Uni- versity. Hepat Res Treat 2014;2014:131920.
6. Al-Hazmi AH. Knowledge, attitudes and practice of primary health care physicians towards hepatitis B virus in Al-Jouf province, Saudi Arabia. BMC Res Notes 2014;7:288.