

Vaccination Coverage and Awareness Level for Hepatitis B Among the Nursing Students of Government Nursing College, Bhavnagar - A Cross Sectional Study

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Abstract:

Introduction:

Vaccination against HBV infection among healthcare workers is important because of their daily exposure to patient's body fluids and the possible risk of transmission to others. Reports from Health Ministry of India indicate that only 16-60% of healthcare workers have received complete HBV immunization. Paramedics have a higher risk of HBV transmission and receive HBV vaccination less often than doctors. So, we conducted this study among the nursing students of Govt. Nursing College of Bhavnagar to estimate their vaccination status and awareness regarding Hepatitis B infection and vaccine.

Objectives: Among the Nursing students of Government Nursing College Bhavnagar,

1. To estimate the status of hepatitis B vaccination
2. To estimate the level of awareness regarding Hepatitis B infection
3. To identify the reasons for being completely unvaccinated or partially vaccinated with Hepatitis B vaccine

Methodology: A cross sectional study was conducted among the 213 nursing students of Govt. Nursing College of Bhavnagar. The details about study were given to them in classroom, Informed consent and data of study was collected in structured questionnaire. Analysis was done in MS excel 2021.

Result & Conclusion: Among the participants most of students (90.6%) were female. There were almost equal participants from each academic year and most of the participants were Hostelites (83.6%). In knowledge assessment 88.7% students knew that hepatitis B is viral infection, 91.1% students were aware that post exposure prophylaxis includes Hep B vaccination. Awareness regarding transmission of disease by blood transfusion, sexual intercourse and needle stick injury was 67.1%, 49.8% and 61% respectively. Knowledge regarding virus causing cirrhosis, HCC and death was 62.9%, 12.2% and 27.7% respectively among students. Only 56.3% of the students were vaccinated with Hep B vaccine. Among those vaccinated students only 42.5% had received all 3 doses of vaccine. Among unvaccinated students (43.7%) most of them had no particular reason for not taking vaccine followed by unawareness and forgetfulness.

Keywords: Hepatitis B infection, Vaccination, Nursing students

Introduction

Hepatitis B is an infectious necro-inflammatory liver disease caused by the Hepatitis B virus (HBV). HBV infection can cause a wide spectrum of liver diseases ranging from acute to chronic hepatitis, which can progress to hepatocellular carcinoma or liver cirrhosis. ^[1]

HBV infection can be transmitted through blood transfusion and other body fluids such as semen, saliva, urine etc. Other modes of transmission include mother to child transmission, sexual transmission, sharing contaminated needles and syringes, tattooing etc. ^[2]

HBV infection is a well-recognized occupational risk for health-care workers (including trainees), and others (e.g. housekeeping staff, emergency workers) exposed to infected blood and body fluids or blood-contaminated environments. Because of their contact with patients or infective material, health-care workers are at considerably greater risk of HBV infection than the general population. Health-care workers are often unaware of all exposures to potentially infectious blood and body fluids, or contaminated environments. Even when exposures are recognized, health-care workers often do not seek post-exposure prophylactic management. Hepatitis B vaccination safeguards health workers when administered early, ideally before occupational exposure, and provides greater protection for patients from infection through exposure to contaminated environments or infected workers.

Reports from Health Ministry of India indicate that only 16-60% of healthcare workers receives complete HBV immunization. Paramedics have a higher risk of HBV transmission and receive HBV vaccination less often than doctors. ^[3]

Effective hepatitis B infection prevention is a product of high knowledge, good attitude and good practice of hepatitis B infection prevention. Knowledge of hepatitis B infection prevention in this context is the awareness and understanding of the aetiology of hepatitis B infection, its transmission, clinical manifestation, treatment, complications, vaccination and existence of post exposure prophylaxis for the management of accidentally exposed persons. ^[6]

Although healthcare workers are known to be four times at risk of hepatitis B infection compared to the general population, their trainees including nursing students have been acknowledged to carry a greater risk of infection by HBV, due to inexperience, inadequate training and sheer carelessness. ^[4]

This study was conducted among the nursing students of Government Nursing College of Bhavnagar to estimate their vaccination coverage and awareness regarding Hepatitis B infection. And to identify reasons for being completely or partially unvaccinated with Hep B vaccine.

Methodology

A Cross Sectional Study was conducted among nursing students of government nursing college Bhavnagar, Gujarat during September 2023. There were four batches of B.Sc. nursing course in college, and there were 60 students in each academic batch. Thus total 240 students pursuing B.Sc. nursing were included in this study. Out of 240 students total **213** nursing students were available during data collection. Data was collected in pre-tested structured questionnaire by team of 5 trained 3rd year MBBS students in their classroom after taking informed consent and giving detailed information about study. Structured questionnaire for data collection included demographic data of students, their vaccination status for Hep B vaccine, number of doses, reasons for not taking vaccine, knowledge and awareness regarding type of infection, post exposure prophylaxis, routes of transmission and complications of Hep B virus infection. The students who had received all 3 doses (0,1 and 6 months) of Hepatitis B vaccine were considered as the fully vaccinated.

Data entry and analysis was done in MS Excel 2021.

Ethical consideration: Prior permission was taken from Community Medicine department of Govt. Medical College Bhavnagar and Principal of Govt. Nursing College Bhavnagar. Informed consent was taken and data of participants was kept confidential.

Results

Table 1 shows the demographic data of nursing students, among the students 90.6% were females and 9.4% were males with age group of 17-22 years. There were almost equal participants from each academic year and most of them were living in hostel (83.6%).

Table 1: Demographic data of students (N=213)

Demographic data	No of Participants	%
Gender		
Male	20	9.4%
Female	193	90.6%
Academic year		
1 st year	58	27.6%
2 nd year	59	27.2%
3 rd year	45	21.2%
4 th year	51	23.9%
Residence		
Hostel	178	83.6%
Home	35	17.4%

Table 2 shows the vaccination status of nursing students. Out of 213 students, 43.7% (93) students were unvaccinated with Hep B vaccine and 56.3% (120) students received vaccine. Out of those who had received vaccine (120) for hepatitis B only 42.5% students had received all 3 doses of vaccine, while 17.5% and 40% students had received one dose and two doses respectively.

Table 2: Hep B vaccination status of nursing students (N=213)

Vaccine Received	No of Students	%
Yes	120	56.3%
Received 1 dose	21	17.5%
Received 2 doses	48	40%
Received 3 doses	51	42.5%
No	93	43.7%

Chart 1 depicts the reasons for not taking any dose of Hep B vaccine. 42% students could not give a particular reason for not

taking vaccine followed by unawareness (27%), poor administrative management* (16%), forgetfulness (7%), no time to take vaccine (4%) and others (4%) were the reasons for not taking any dose of Hep B vaccine.

(*Poor administrative management included non-availability of vaccine or vaccinating staff)

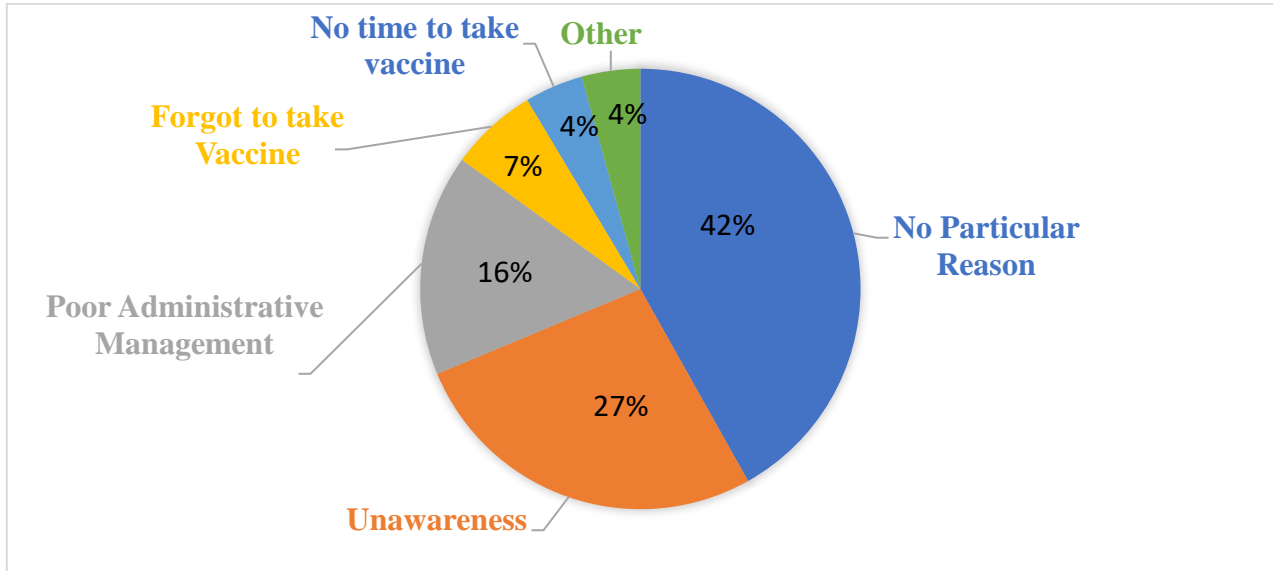


Chart 1: Reasons for not taking any dose of Hep B Vaccine (N=93)

Chart 2 depicts the reasons for not taking 2nd or 3rd dose of vaccine. 48% nursing students could not give a particular reason followed by forgetfulness (35%), no time for vaccination (7%), poor administrative management (3%) and others (7%) were the reasons for not taking 2nd and 3rd dose of Hep B vaccine.

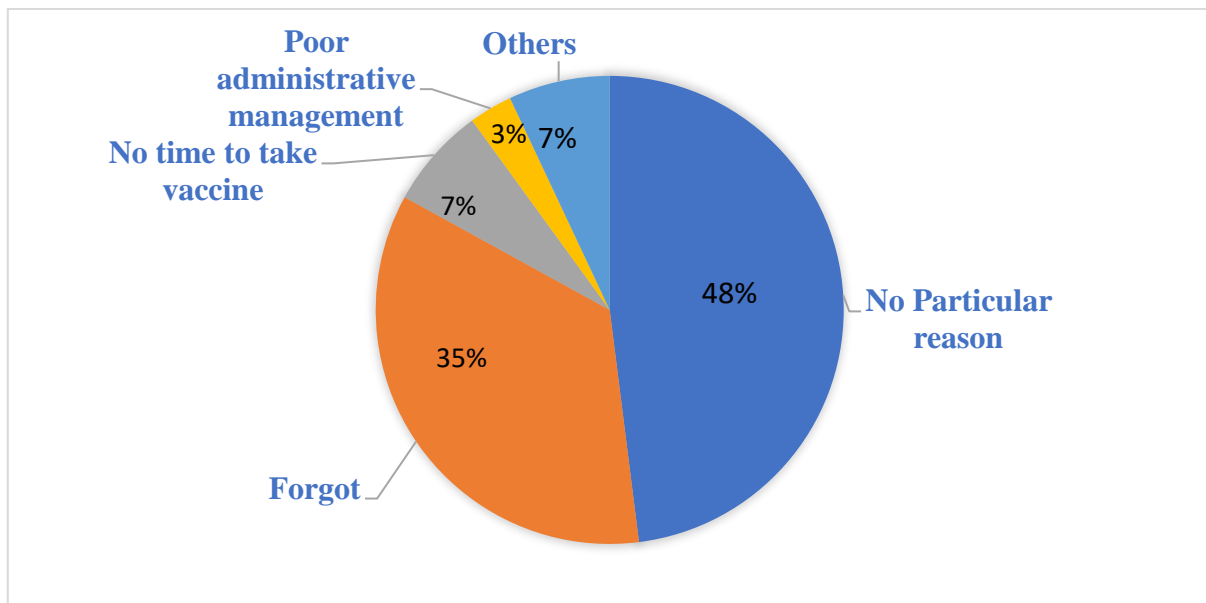


Chart 2: Reasons for not taking 2nd & 3rd doses of Hep B Vaccine (N=69)

Table 3: Awareness regarding routes of transmission of Hep B infection (N=213)

Infection can be transmitted by:	No of Students aware	%
Blood transfusion	143	67.1%
Needle stick injury	130	61%
Mother to child transmission	114	53.5%
Sexual transmission	106	49.8%
All kind of contacts with patient	99	46.5%

In the knowledge assessment 88.7% (189) students knew that Hep B is viral infection, and 91.1% (194) students were aware that post exposure prophylaxis of Hep B includes vaccine and immunoglobulins. Table 3 shows that awareness regarding routes of transmission of Hep B virus was highest for blood transfusion (67.1%) among the nursing students, followed by needle stick injury (61%), mother to child transmission (53.5%) and sexual transmission (49.8%). Table 4 shows that awareness regarding complication of Hep B virus infection was 65.7%, 62.9%, 54.5%, 27.7% and 12.2% for chronic hepatitis, liver cirrhosis, acute hepatitis, death and HCC respectively.

Table 4: Awareness regarding Complications Hep B infection (N=213)

Virus can cause:	No of Students aware	%
Chronic Hepatitis	140	65.7%
Liver Cirrhosis	134	62.9%
Acute Hepatitis	116	54.5%
Death	59	27.7%
Hepatocellular Carcinoma	26	12.2%

Discussion

A study on Hep B vaccination status was conducted among 150 medical students of B J Medical college Ahmedabad by Singh A and Jain S showed that 68% student of 2nd year, 60% student of 3rd Part I and 58% student of 3rd part II MBBS had received full vaccination of Hep B vaccine. [6] The similar study was conducted among nursing students of Ghana by Aniaku and Amedonu [4] which showed that the majority of participants were between the ages of 20-26 year. About 78.2% knew the disease is caused by a virus. Also, 69.8% reported transmission through needle stick injuries, and 49.4% have taken the full three doses of vaccines.

While in our study it was found that only 56.3% nursing students of Government nursing college Bhavnagar had received Hep B vaccine and 43.7% students were totally unvaccinated. 88.7% (189) students knew that Hep B is viral infection

Other KAP study was conducted in upper west region of Ghana [5] among nursing students showed that students had moderate median scores for knowledge (12.00; IQR = 10-13) and attitude (6.00; IQR = 5.00-7.00) but a poor median score (5.00; IQR = 4.00-6.00) for the practice of Hep B infection prevention.

A study was conducted among students of medicine and health sciences in Northwest Ethiopia [7], in which majority of the study participants (>80 %) had an adequate knowledge on risk factors for HBV, its mode of transmissions, and preventions. However, only 5 (2 %) students had completed the three doses schedule of HBV vaccination.

While among the nursing students of Govt. nursing college Bhavnagar, 88.7% (189) students knew that Hep B is viral infection, 67.1% students reported transmission by Blood transfusion and 61% reported by needle stick injury. Awareness regarding Hep B virus causing chronic hepatitis was highest (65.7%) and lowest (12.2%) for Hepatocellular carcinoma.

In present study most of students (42%) could not give a particular reason for not taking vaccine and other reasons were unawareness (27%), poor administrative management (16%), forgetfulness (7%), no time to take vaccine (4%). These reasons were similar to those found in study conducted by Paul N, Peterside O [8] among the medical students, that none of the respondents thought it unimportant to receive the vaccine, however, other reasons for lack of uptake ranged from; no time (30.4%), I'll take it latter (21.8%), no reason (17.4%) to fear of side effects (17.4%).

Conclusion

Among the nursing students of Govt. Nursing College Bhavnagar, 93(43.7%) students had not received any dose of Hep B vaccine. Among those who were vaccinated; only 51(42.5%) students had received all three doses of Hep B vaccine.

Most of the nursing students could not give a particular reason for not taking vaccine, followed by unawareness and forgetfulness were the major reasons for not taking vaccine.

Among the nursing students of Govt. Nursing College Bhavnagar, awareness regarding routes of transmission of Hepatitis B virus was highest (67.1%) for Blood transfusion and lowest for sexual transmission (49.8%). While awareness regarding complication of Hep B infection was highest (65.7%) for chronic hepatitis, while lowest for Hepatocellular Carcinoma (12.2%).

Recommendation

Sensitizing nursing students of Govt Nursing College Bhavnagar about the risks of Hep B infection and organizing a vaccination drive, may help in improving their vaccination status.

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Conflicts of interest: There are no conflicts of interest.

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