International Journal of Community Medicine and Public Health
Tomson R et al. Int J Community Med Public Health. 2025 Jan;12(1):304-309
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20244036

Original Research Article

Hepatitis B vaccination coverage among cleaning staffs in a government tertiary care centre in mid-Kerala

Richard Tomson, Rithu N.*, Jaya K. V., Sandra A. P., Rifna Sherin Vallil, Roshan Latif, Sameera V. S., Sandra K. Velayudhan, Shamkrishna H. Kurup, Shahin Ahamed C. P., Rinsha Amina, Sona V., Salva sharin K. T., Sahnidha K. P., Sneha C. G., Sandra Sanu, Sneha P., Shahanas P.

Department of Community Medicine, Government Medical College, Thrissur, Kerala, India

Received: 21 October 2024
Accepted: 16 December 2024

***Correspondence:**
Dr. Rithu N.,
E-mail: rithupranav17@gmail.com

ABSTRACT

Background: Hepatitis B virus (HBV) could be responsible for acute and/or chronic pathology in liver. Since, contact with body fluids of infected or needle prick from syringe used on an infected is the principal mode of transmission of hepatitis B infection, health care workers (HCWs) constitute the high-risk group. In this study, we wanted to estimate hepatitis B vaccination coverage among cleaning staffs of government tertiary care centre in mid-Kerala. For effective intervention, it is essential to know the factors responsible for accepting the vaccination as well as for refusal and incomplete immunization. The objective was to find out hepatitis B vaccination status and the reason for not taking hepatitis B vaccine among cleaning staff in Government Medical College Thrissur.
Methods: Cross sectional study was conducted among 184 cleaning staff and attenders which include grade 2 staff, dhobis, Kudumbashree workers and part time cleaners of government tertiary care centre in mid-Kerala through telephonic interview using semi structured questionnaire.
Results: Among the 184 study subjects, 57.61% were vaccinated against hepatitis B. Out of the 83 cleaning staffs who were vaccinated only 53.01% is completely vaccinated with 3 doses of vaccine (fully vaccinated). 46.99% of vaccinated staffs took either one or two doses, that is partially vaccinated. Out of the non-vaccinated study subjects, most common reason (39.62%) for not taking the vaccine was lack of awareness about the vaccine.
Conclusions: From this study it was found that majority of the cleaning staff were not aware about hepatitis B infection and vaccination available for it.

Keywords: Cleaning staffs, Hepatitis B vaccination, Mid-Kerala

INTRODUCTION

Hepatitis B virus (HBV) is a DNA virus of the family Hepadnaviridae which could be responsible for acute and/or chronic pathology in liver. According to WHO estimates, 1.5 million individuals contract hepatitis B annually, leaving 296 million people living with chronic illness.[1] Over 40 million people in India are HBV carriers, and the prevalence of hepatitis B surface antigen (HBsAg) is 3.0% to 4.2%. Over 115,000 Indians die from hepatitis B-related complications each year.[2] Since, contact with body fluids of infected or needle prick from syringe used on an infected is the principal mode of transmission of causative virus of hepatitis B infection, health care workers (HCWs) constitute the high-risk group. In India, between 40 and 65 percent of HBV infections in healthcare personnel are caused by percutaneous workplace exposures.[3] An average of two

needle pricks per year have been observed in 70% of HCWs in endemic countries.[4] In one study conducted in 1992 and another conducted in 1998, the prevalence of hepatitis B in HCWs in India was estimated to be 10% and 2.21 percent, respectively.[5] Only 1% of healthcare professionals were HBsAg positive most recently, according to a report from a tertiary care hospital in Delhi.[5] As advised by the Occupational Safety and Health Administration (OSHA) , employers are responsible for HCW protection from HBV.[6] HBV infection can be prevented by following a simple and available vaccination schedule. Vaccine is safe and reliable that provides 98% to 100% protection against hepatitis B.[1] But in India there are no national policies and guidelines advocating and supporting mandatory HBV immunization among HCWs, the group at highest risk of getting infection.

Cleaning staffs are more at danger because they handle biomedical waste that has been improperly handled. Because of their low socioeconomic situation and level of education, they have a low immunization coverage also. Vaccine acceptance depends on numerous factors such as knowledge, attitude, side effects and benefits.

The easiest approach to evaluate vaccine status and reason for not taking vaccine is through a structured questionnaire, which also aids in giving appropriate instructions to them. There are no recent evidence and study data on vaccination status or coverage among cleaning staffs.

In this study, we wanted to estimate hepatitis B vaccination coverage among HCWs-grade 2 workers, part time cleaners, dhobis, kudumbashree workers of Government tertiary care centre in mid-Kerala. For effective intervention, it is essential to know the factors responsible for accepting the vaccination as well as for refusal and incomplete immunization.

Thus, this study was planned to evaluate the coverage of hepatitis B vaccine and to study factors in its acceptance among HCWs in Government tertiary health care sector.

METHODS

We did a cross-sectional study among cleaning staff and attenders which include grade 2 staff, dhobis, Kudumbashree workers and part time cleaners of Govt. tertiary care centre during the month of May, 2022. Data was collected from 184 cleaning staffs in the hospital. We excluded those who did not give consent.

The list of all cleaning staffs and their details including phone number was obtained from Nursing superintendent. Data was collected through telephonic interview using pre-tested and validated semi structured questionnaire. During interview, at first interviewer explained about the study. It was also explained that the information collected will be kept confidential. Then interviewer asked willingness to take part in the study. Further interview proceeded in only those who gave consent to take part in study. Also, permission for recording the interview was obtained. Questions included awareness about Hepatitis B infection, Hepatitis B vaccine, details of vaccination status and reason for incomplete or partial vaccination.

A list of 230 cleaning staffs was made by team .184 staffs could be contacted, 46 could not be contacted even after repeated attempt. So, these 46 staffs were excluded from study.

The data collected were coded and entered in Microsoft excel and analysis was done in SPSS software. Quantitative data was expressed in terms of mean and standard deviation. Qualitative data like hepatitis B vaccination status among cleaning staff in GMC hospital Thrissur were expressed in terms of proportion.

RESULTS

Among the 184 study subjects, majority 155 (84.2%) were females and 29(15.8%) were males. Mean age of study subjects was 47.68±6.945 years. Age of study subjects ranged from 25 to 62 years. Majority of participants 156 (84.78%) were Hindus, followed by Christians 18 (9.78%) and Muslims 10 (5.43%).154 study participants (83.7 %) were from rural area. 112 (60.87%) belonged to APL category. About half of participants 95 (51.6%) had education from eighth to tenth. About half of them 89 (48.37%) study participants belonged to grade 2 category (Table 1).

Hepatitis B vaccination status

Out of the 184 study subjects,80 (43.5%) don't know about the hepatitis B infection. Among the study subjects who has knowledge about hepatitis B infection, 59.62% are unaware of the mode of transmission of hepatitis B infection. 111 (60.33%) study subjects among 184 knew about hepatitis B vaccine. Among the 184 study subjects, 78 (42.4%) were vaccinated against hepatitis B. Out of the 83 cleaning staffs who were vaccinated only 44 (53.01%) is completely vaccinated with 3 doses of vaccine (fully vaccinated) and remaining 39 are partially vaccinated. 25(30.12%) of partially vaccinated study subjects had taken 2 doses of vaccine and 14 (16.87%) had taken 1 dose (Table 2).

Most common reason for incomplete vaccination was that, the subjects were not aware of 3 doses of vaccine. Out of the 106 non vaccinated study subjects, most common reason (39.62%) for not taking the vaccine was lack of awareness about the vaccine (Figure 1).

Most common reason for not at all taking hepatitis B vaccine was lack of awareness (Figure 2).

Table 1: Sociodemographic characteristics of study participants.

Sociodemographic characteristics	Frequency	Percentage (%)
Gender		
Male	29	15.8
Female	155	84.2
Religion		
Hindu	156	84.78
Christian	181	9.78
Muslim	0	5.43
Place of residence		
Rural	154	83.7
Urban	30	16.4
Education		
First to fourth	0	0
Fifth to seventh	15	8.2
Eighth to tenth	95	51.6
12^{th}	54	29.3
Degree	20	10.9
Designation		
Grade 1	13	7.1
Grade 2	89	48.4
Part time cleaner	5	2.7
Kudumbashree worker	72	39.1
Dhobi	5	2.7
Socioeconomic status		
APL	112	60.87
BPL	72	39.13

Table 2: Hepatitis B vaccination status of study participants.

Questions	Response	Frequency (%)
Knowledge of subjects about Hepatitis B infection	Yes	104 (56.5)
	No	80 (43.5)
Knowledge about mode of transmission of Hepatitis B infection	Needle prick	10 (9.6)
	Contact with body fluids	9 (8.7)
	All of the above	19 (18.3)
	Don't know	62 (59.6)
	Others	4 (3.8)
Knowledge about Hepatitis B vaccine	Yes	111 (63.3)
	No	73 (36.7)
Source of knowledge about Hepatitis B vaccine (n=111)	Doctor or nurse	53 (47.75)
	Co-worker	44 (39.64)
	Media or journal	2 (1.8)
	Others	12 (10.81)
Have you ever taken Hep B vaccine	Yes	83 (42.4)
	No	101 (57.6)
Number of doses of Hep B vaccine taken (n=83)	1	14 (16.87)
	2	25 (30.12)
	3	44 (53.01)

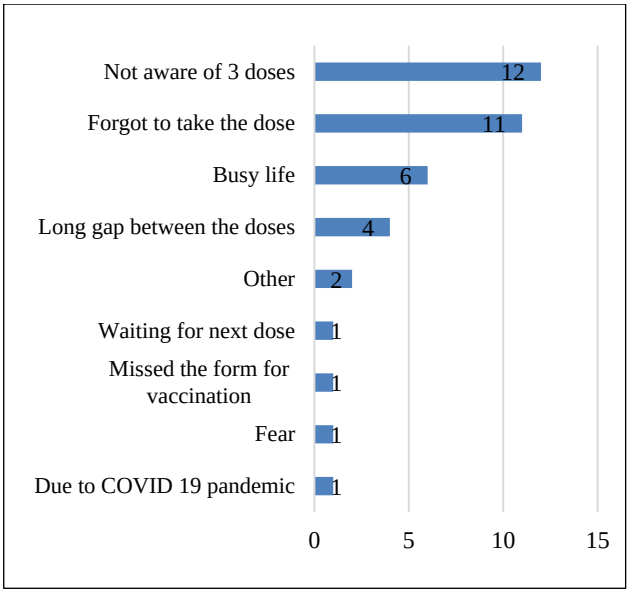

Figure 1: Reason for partial vaccination of Hepatitis B among study subjects.

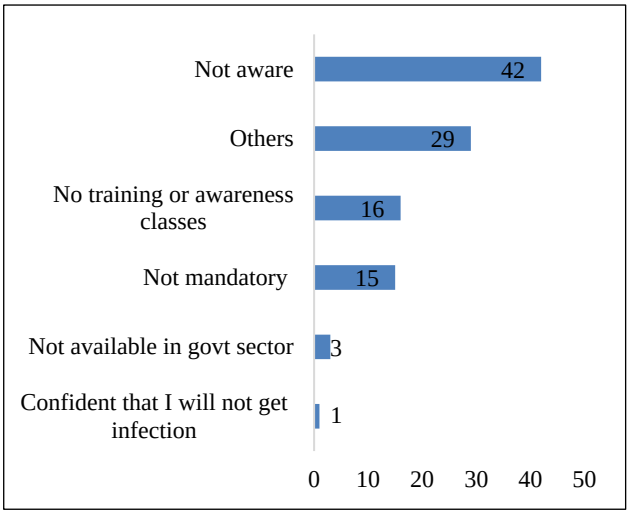

Figure 2: Reason for not at all taking Hepatitis B vaccine.

Needle stick injury and post exposure prophylaxis

Among the 184 study subjects 36 (19.57%) had history of needle stick injury during work. Out of this 36 (19.57%) subjects only 18 (50%) subjects has taken post exposure prophylaxis for Hepatitis B.

Factors influenzing Hepatitis B vaccination

Gender, religion and education were found to have no statistically significant association with Hepatitis B vaccination. APL/BPL status, current designation and years of experience have significant association with Hepatitis B vaccination (Table 3).

Table 3: Factors influenzing Hepatitis B vaccination.

Factors	At least one dose Hepatitis B taken N (%)	Not taken at least one dose of Hepatitis B N (%)	Chi-square	P value
Gender				
Male	12 (41)	17 (59)	0.193	0.690
Female	71 (46)	84 (54)		
Religion				
Hindu	68 (44)	88 (56)	1.035	0.596
Christian	10 (56)	8 (44)		
Muslim	5 (50)	5 (50)		
Education				
Middle class and below	8 (57)	6 (43)	1.679	0.642
Secondary	43 (45)	53 (55)		
Higher secondary	25 (46)	29 (54)		
Graduate	7 (35)	13 (65)		
APL/BPL				
BPL	25 (35)	47 (65)	5.154	0.023
APL	58 (52)	54 (48)		
Designation				
Temporary	29 (35)	53 (65)	5.671	0.017
Permanent	54 (53)	48 (47)		
Years of experience as cleaning staff				
≤ 5 years	42 (32)	89 (68)	31.269	<0.001
More than 5 years	41 (77)	12 (23)		

DISCUSSION

This study was conducted in Govt. Medical College, Thrissur, a tertiary care hospital and we found that out of 184 cleaning staff, 44 (23.9%) workers were fully vaccinated against Hepatitis B, 39 (21.2%) were partially vaccinated and 101 (54.9%) workers were unvaccinated.

In a similar study conducted in AIIMS, New Delhi, only 25% of the workers were either fully or partially vaccinated while 75% of the workers were unvaccinated.[5] The percentage of vaccinated workers in our study is significantly higher, which maybe attributed to the higher literacy rate in Kerala. Also, the number of cleaning staff included in the aforementioned study was very less compared to our study. Comparing the results to a similar sudy conducted in P. K. Das Institute of Medical Scuebces, Palakkad, Kerala, 64.6% of the workers were found to be either fully or partially vaccinated and 35.4% were found to be unvaccinated.[7] The increased percentage of vaccinated in the aforementioned study maybe in relation to the fact that the institution used for the study is under the private sector. In a study conducted by Reshmi Gopalakrishnan et al in a clinical laboratary in Calicut, it was found out that 34.62% of participants were completely vaccinated with 3 doses of vaccines.[8] Sukriti et al conducted similar study and found out that 27.7% HCW had never been vaccinated.[9] As per WHO estimates, HBV vaccination coverage among HCWs ranges from 18% (Africa) to 77% (Australia and New Zealand).[10]

Nema et al found out in a study in Central India that housekeeping staff members (6.1%) had the least amount of awareness and knowledge about HBV.[11] On studying the knowledge of the study subjects on Hepatitis B vaccine, 111 (60.33%) of 184 workers knew about the vaccine while 73 (39.67%) did not. It is to be noted that more workers are aware of the vaccine than the infection. This maybe due to information about the vaccine being provided more efficiently through awareness classes, media etc., in comparison to information about the infection. In a study conducted by Arumugam et al in South India, knowledge on HBV disease, transmission, prevention and post exposure prophylaxis of housekeeping staffs were 22%, 45%, 36% and 26% respectively.[12] Compared to this in our study, knowledge of these aspects are better.

47.75% of the subjects who knew about the vaccine gained information from ‘doctors or nurses’ in our study. Another means by which 39.64% of the group gained knowledge on the vaccine is via ‘co-workers’. Only 1.8% came to know about the vaccine through media or journals, which maybe due to media not providing enough information about the Hepatitis B vaccine and its importance, as required. In study conducted by Fazili et al the source of information among those who know about hepatitis B was; books/professional knowledge in 37.9%,

newspaper in 20.4%, television/radio in 13.3% and internet in 9.9%.[13]

As previously mentioned, only 83 workers out of 184 have received atleast one dose of the vaccine while remaining 101 are completely unvaccinated.

After studying, the reasons for not at all taking the vaccine are: Majority of people where not aware of the disease as well as about the vaccine, there where no adequate training or awareness classes at appropriate time, and the vaccine is not made madatory during joining the hospital.

In the study conducted by Pathak et al the most important reason for not taking vaccines was negligence and lack of knowledge about the dosage schedules.[14] In a similar study conducted by Chaudhary et al, 31.1% HCW were unable to complete primary vaccination because of non-accessibility of vaccine.[15] In another study in China by Yuan et al, Forgetting to take follow-up doses was the primary self-reported reason for incomplete hepatitis B immunization among 43% of responders.[16]

We couldn't meet participants in person due to work related tight schedule in hospital. Also we could not contact all the cleaning staff in the institution as it was telephonic interview. Limited time period for study and technical issues during interaction via telephone were other limitations.

CONCLUSION

From this study it was found that majority of the cleaning staff were not aware about hepatitis B infection and vaccination available for it. It was also found in the study that hepatitis B was not made mandatory and no awareness classes were given regarding importance of hepatitis B vaccination for health workers by the hospital authorities inspite hepatitis B infection being a serious health issue.

Recommendations

We should give an awareness class for the HCWs on HBV vaccination and post exposure prophylaxis at the time of joining institution. This awareness class should be conducted frequently so as to cover the newly joined ones. HBV vaccination of HCWs during admission procedure should be made mandatory in hospital joining policy. There should be proper follow up and assessment of the vaccination status of HCWs as a reminder SMS so that they don't miss remaining doses of vaccine.

ACKNOWLEDGEMENTS

We would like to thank all study participants.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. World Health Organization. Hepatitis B. Available at: https://www.who.int/news-room/fact-sheets/detail/hepatitis-b. Accessed 02 December 2022.
2. World Hepatitis Day, 2016. Available at: http://www.searo.who.int/india/topics/hepatitis/factsheet_b__hepatitisday2016.pdf. Accessed 02 December 2022.
3. K E, Shenoy S, Nair S. Health care workers and Hepatitis B prevention: Perceptions and practices in a tertiary care hospital in coastal Karnataka. Clin Epidemiol Glob Heal. 2022;16(March):101082.
4. Batra V, Goswami A, Dadhich S, Kothari D, Bhargava N. Hepatitis B immunization in healthcare workers. Ann Gastroenterol. 2015;28(2):276-80.
5. Singhal V, Bora D, Singh S. Prevalence of Hepatitis B Virus infection in Healthcare Workers of a Tertiary care centre in India and their vaccination status. J Vaccines Vaccin. 2011;2(2).
6. OSHA. Hepatitis B Vaccination Protection, 2019. Available at: https://www.osha.gov/sites/default/files/publications/bbfact05.pdf. Accessed 02 December 2022.
7. Srinivas V, Shajan T, Karippankunnath SM, Reshmi TP, Victor V, P. SR. Hepatitis B vaccination coverage among health care workers in rural Kerala. Int J Community Med Public Heal. 2021;8(7):3489-96.
8. Gopalakrishnan R, Ramamurthy S. Seroprevalence of hepatitis B infection among health care workers and the importance of anti HBs testing among the health care workers. Int J Curr Microbiol Appl Sci. 2017;6(10):2280-5.
9. Sukriti, Pati NT, Sethi A, Agrawal K, Agrawal K, Kumar GT, Kumar M, Kaanan AT SS. Low levels of awareness, vaccine coverage, and the need for boosters among health care workers in tertiary care hospitals in India. J Gastroenterol Hepatol. 2022;23(11):1710-5.
10. Prashant P, Nitin A, Suryasanta D KD. Status of protection against Hepatitis B infection among healthcare workers (HCW) in a tertiary healthcare center in India: results can't be ignored! J Hematol Clin Res. 2018;2(1):001-5.
11. Nema S, Saraf A, Ayer S, Singh A K BD. Awareness and vaccination status of Hepatitis B among health care workers in a tertiary care teaching hospital of Central India. Indian J Microbiol Res. 2021;8(2):152-6.
12. Arumugam A, Deepashree R, Bhat P, Akshatha R, Dhodapkar R, Sastry A. Educational intervention to increase case series Hepatitis B vaccination among housekeeping staff. J Clin Diagnostic Res. 2019;1-6.

13. Anjum FB, Qazi IM, Rohul SJ, Abdul GM. Study on hepatitis B vaccination coverage among workforce of a tertiary care hospital in North India. Int J Med Res Heal Sci. 2016;5:115-20.
14. Pathak R, Chaudhary C, Pathania D, Mishra P, Kahlon A, Ahluwalia S. Hepatitis B vaccine: Coverage and factors relating to its acceptance among health care workers of a tertiary care center in North India. Int J Med Public Heal. 2013;3(1):55.
15. Chaudhari CN, Bhagat MR, Ashturkar A, Misra RN. Hepatitis B immunisation in health care workers. Med J Armed Forces India. 2009;65(1):13-7.
16. Yuan Q, Wang F, Zheng H, Zhang G, Miao N, Sun X, et al. Hepatitis B vaccination coverage among health care workers in China. PLoS One. 2019;14(5):1-12.

Cite this article as: Tomson R, Rithu N, Jaya KV, Sandra AP, Vallil RS, Latif R, et al. Hepatitis B vaccination coverage among cleaning staffs in a government tertiary care centre in mid-Kerala. Int J Community Med Public Health 2025;12:304-9.