

SHORT ARTICLE

Knowledge and awareness on Hepatitis B and C Infection among antenatal women attending a government hospital in Delhi: A Cross-sectional study

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CITATION

Singh S, Kumar R, Sherin RTP. Knowledge and awareness on Hepatitis B and C Infection among antenatal women attending a government hospital in Delhi: A Cross-sectional study. Indian J Comm Health. 2025;37(2):321-324. <https://doi.org/10.47203/IJCH.2025.v37i02.023>

ARTICLE CYCLE

Received: 20/11/2024; Accepted: 08/04/2025; Published: 30/04/2025

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ABSTRACT

Background: Pregnant women with chronic Hepatitis B and positive Hepatitis B virus E antigen (HBeAg) have a 90% likelihood of transmitting the hepatitis B virus to their newborns. Vertical transmission is the leading cause of HCV infection in children. Hepatitis B and C lead to chronic disease and are the most common cause of liver cirrhosis, liver cancer, and viral hepatitis-related deaths. A major challenge to eliminating viral Hepatitis can be a lack of awareness regarding infection. **Aims & Objective:** To study the level of knowledge and awareness on Hepatitis B and C infection among antenatal women attending a government hospital in Delhi. **Methodology:** A cross-sectional, descriptive study was conducted in Delhi amongst 422 antenatal women. Participants were interviewed using a semi-structured interview schedule. To assess knowledge a composite variable of knowledge score was generated, and the cut-off score of 7/14 was kept. **Results:** Among the interviewed pregnant women, only 47(11.1%) were aware of either Hepatitis B or both Hepatitis B and C, and among these, only 19.1% had adequate knowledge. **Conclusion:** Pregnant women showed a low level of awareness, indicating a pressing need for education and awareness campaigns.

KEYWORDS

Hepatitis B; Hepatitis C; Awareness; Knowledge; Antenatal women

INTRODUCTION

Hepatitis is an inflammation of the liver caused by various infectious viruses and non-infectious agents.(1)The most frequent cause of hepatitis is due to a viral infection.(2) Hepatitis B and C lead to chronic disease and, are the most common cause of liver cirrhosis, liver cancer, and viral hepatitis-related deaths.(1)

Perinatal transmission accounts for more than 50% of cases of Hepatitis B worldwide and it is also the leading cause of HCV infection in Children. (3) In India, 40 million people are chronically infected with Hepatitis B, and 6 to 12 million people are chronically infected with Hepatitis C. India harbours

10% to 15% of the global pool of HBV. Of the 26 million infants born each year, 1 million run a lifetime risk for HBV infection.(4) Based on NFHS-4, the national seroprevalence was 0.95% for Hepatitis B and 0.32% for Hepatitis C.(5)

An effective vaccination program is vital for preventing HBV infection. Mother-to-child transmission can be prevented by routine screening of mothers and administering post-exposure prophylaxis to all infants born to infected mothers.(6) Unlike hepatitis B, there is currently no effective vaccine against hepatitis C.(7) A major challenge in eliminating viral hepatitis can be lack of awareness regarding the infection.

Hence this study was undertaken with aim to assess the knowledge and awareness regarding Hepatitis B and C infection among antenatal women.

MATERIAL & METHODS

Study type, study design and study setting: It was a descriptive cross-sectional study conducted in a district hospital in South Delhi.

Study Population: Every consecutive pregnant woman attending the obstetrics and gynaecology OPD for the first time were considered eligible for participation.

Study Duration: 3 months.

Sample size calculation: Assuming a prevalence of 50%, which gives the maximum sample for all statistical calculations. With the confidence of 95%, 5% level of significance, and 5% absolute allowable error, using the formula $n = z^2 pq / d^2$ and calculated sample size as 384 patients. Considering 10% non-responses, we considered a total of 422 patients as our sample.

Exclusion Criteria: unwell and not willing to participate pregnant women

Strategy for data collection: A semi-structured interview schedule was used to collect data. To assess awareness for Hepatitis B and C, participants were first asked whether they had heard the term 'Hepatitis'. Those women who answered 'yes' were further asked about the types of Hepatitis they are aware of, and those women who were aware of Hepatitis B or C or both were further interviewed for knowledge assessment.

Participants were assessed based on 14 questions, which included the causative agent of hepatitis B and C, the organ affected, the question related to symptoms, the mechanism of transmission, complication, prevention, and testing. Questions on symptoms and transmission mechanism, had more than one possible correct response. For every correct response, a score of one was given. A composite variable of knowledge score was generated, and the cut-off score of 7/14 was kept, which was comparable to the study done by Pandey *et al.*(8) The cut-off score of at least 7/14 correct response was defined as adequate knowledge, and a score below this was inadequate knowledge.

Ethical issues and informed consent: Approval from the Institutional Ethics Committee was obtained before conducting the study. Written informed consent was taken from all the pregnant women after providing a participant information sheet and explaining the purpose of the study.

Statistical analysis: The data was analysed using IBM SPSS Version 26. The chi-square test was applied to find out the association between independent and dependent variables as per the objectives of the study.

RESULTS

Sociodemographic profile and Obstetric History of antenatal women

Out of 422 participants, the majority of pregnant women (79.4%) were within the age group of 20-30 years. In terms of education about 20% were graduate and above. Regarding occupation, only 2.1% of participants were employed. Most of the women belonged to the general caste (63.7%), followed by OBC (24.6%) and SC/ST (11.6%). More than half of the participants (60.4%) were in the 1st trimester and about 45.5% were primigravida, while 54.5% were multigravida. (Table 1).

Table 1: Sociodemographic profile and Obstetric history of antenatal women (n=422)

Characteristics	Number	Percent
Age group		
<19	29	6.9
20-30	335	79.4
>31	58	13.7
Education status		
No Formal education	87	20.6
Primary	82	19.4
Secondary	85	20.1
Senior Secondary	84	19.9
Graduate	71	16.8
Postgraduate	13	3.1
Occupation		
Employed	9	2.1
Unemployed	413	97.9
Caste		
General	269	63.7
OBC	104	24.6
SC/ST	49	11.6
Religion		
Hindu	291	69
Muslim	122	28.9
Sikh	4	0.9
Christian	5	1.2
Gestational Age		
1st Trimester	255	60.4
2nd Trimester	136	32.2
3rd Trimester	31	7.3
Gravida		
Primigravida	192	45.5
Multigravida	230	54.5

Awareness and Knowledge for Hepatitis B and Hepatitis C infection in Pregnant Women.

Among the interviewed pregnant women, only 17.8% were aware of the term Hepatitis. Varying levels of awareness was seen regarding different types of Hepatitis among the participants, 33.33% were aware of Hepatitis B, 26.67% were aware of both Hepatitis B and C, 2.67% knew about Hepatitis

A and B, while 37.33% were solely aware of the general term Hepatitis. Regarding awareness for Hepatitis B and C infections, 11.1% women knew about either Hepatitis B or both B and C, while about 89%, were unaware of them. Among these participants, 8.5% knew that Hepatitis B and C infections are caused by viruses. Additionally, 36.2% were aware that these infections affect the liver. The most widely recognized symptoms were jaundice and fever, identified by 14.9% of participants each. Loss of appetite was acknowledged by 12.8%, while fatigue was recognized by 10.6%. Less commonly identified symptoms were nausea and vomiting (8.5%), abdominal pain, dark urine, and clay-colored stools, each recognized by only 2.1% of participants (Table 2).

Table 2: Knowledge assessment regarding various aspects of Hepatitis B and C infection in antenatal women (n=47)

Characteristics	Number	%
Basic Knowledge regarding Hepatitis B and C infection		
Hepatitis B and C infection is caused by a virus	4	8.5
It affects Liver	17	36.2
Knowledge about symptoms *		
Jaundice	7	14.9
fever/Fatigue	13	25.5
Loss of appetite/ Nausea and vomiting/ Abdominal Pain	12	23.4
Dark urine	1	2.1
clay-colored stools	1	2.1
Knowledge about modes of transmission*		
Blood transfusion	9	19.1
Sexual contact	9	19.1
Infected syringes and needles	8	17.0
Mother-to-child transmission(vertical)	10	21.3
Knowledge about complication		
Liver Cirrhosis/Liver Cancer	4	8.5
Don't know	43	91.5
Knowledge about Prevention		
Hepatitis B can be prevented by Vaccination/preventive measures	18	38.3
Do not know	29	61.7
Knowledge about testing during pregnancy		
Testing is done during pregnancy	16	34.0
Do not know	31	66.0

*Total percentage may not be 100 due to multiple responses

Regarding Modes of transmission, 21.3% recognized mother-to-child transmission (vertical) as a mode of transmission, while both blood

transfusion and sexual contact were identified by 19.1% of participants each. Infected syringes and needles were acknowledged by 17.0% of respondents. Only 8.5% of respondents were aware that Hepatitis B and C could lead to complications such as liver cirrhosis or liver cancer. A total of 38.3% of participants recognized that Hepatitis B can be prevented, either through vaccination or other preventive measures. Regarding testing, only 34% of participants were aware of testing during pregnancy. The most prevalent source of information was friends, relatives, and colleagues, accounting for 34% of participants. The result indicated that a significant majority, constituting 80.9% of the participants, possessed inadequate knowledge about Hepatitis B and C, while only 19.1% exhibited adequate knowledge.

The results showed significant associations between age and awareness ($p=0.010$), with individuals below the age of 19 showing no awareness compared to those in the 20-30 and over 31 age groups.

Education status ($p=0.000$) and occupation ($p=0.000$) both demonstrated a strong association with awareness, with higher education levels and employment corresponding to increased awareness.

DISCUSSION

The awareness regarding Hepatitis B and C infection was very low in the study participants. Among the participants, only 11.1% were aware of either Hepatitis B or both Hepatitis B and C infection. The results were comparable to the study done by Pandey et al. (8) in Bihar, which showed that out of 275 pregnant women, only 15% had heard about Hepatitis B. Another comparative study conducted by Dinesh et al.(9) in urban slums and business communities of Delhi showed that both groups varied significantly in terms of awareness regarding Hepatitis B. In the business community, 95.31% of study participants were aware of jaundice, of which only 65.63% had heard about Hepatitis B, while in urban slums, only 63.3% knew about Jaundice and 8.25% about Hepatitis B. This difference was linked to higher education levels, which similarly showed a strong association with awareness in our study ($p=0.000$).

Out of 47 participants who were aware of Hepatitis B or both Hepatitis B and C, only 19.1% had adequate knowledge, which was similar to study conducted by Frambo et al. (10) in Cameroon, Africa, where the knowledge score was adequate in 16% of pregnant women. In our study, 36.2% of participants knew that the liver is affected by Hepatitis B and C infection. However, in a study by

Pandey *et al.* (6) only 20% knew that hepatitis affects the liver.

Regarding Modes of transmission, sexual contact and blood transfusion were identified by 19.1% of participants each. A substantial 21.3% recognized mother-to-child transmission (vertical) as a mode of transmission in our study. Similar results as of our study were seen in a study conducted by Jha *et al.* (11), in three slums of Mumbai where 22% of women of childbearing age were aware of mother-to-child transmission and transmission by sexual route. The study also showed that 43% of participants were aware of yellowing of skin being one of the symptoms, while only 14.9% of participants acknowledged it in our study.

In a study by Dinesh *et al.* (9) 65.63% of mothers in the business community and only 8.26% of mothers in slums were aware that it could be prevented, while in our study, 38.3% of participants believed that it could be prevented.

CONCLUSION

The study highlighted significant gaps in awareness regarding Hepatitis B and C infections among the antenatal women surveyed. Among 422 participants, only 47(11.1%) were aware of either Hepatitis B or both Hepatitis B and C infection. Furthermore, those who were aware exhibited varying levels of knowledge. Majority, constituting 80.9% of the participants, had inadequate knowledge about Hepatitis B and C, while only 19.1% exhibited adequate knowledge.

RECOMMENDATION

Improve awareness regarding modes of transmission, risk factors, and disease progression through group counselling sessions during antenatal visits and IEC dissemination through multimedia.

LIMITATION OF THE STUDY

Since the study was conducted exclusively among pregnant women in Delhi, the results may not be generalizable to pregnant women across India. Also due to limited time and resources, a separate knowledge assessment regarding Hepatitis B and C was not feasible.

RELEVANCE OF THE STUDY

Pregnant women represent a key population for preventive interventions due to risk of vertical transmission. This study adds to the existing knowledge by highlighting the current levels of knowledge and awareness regarding hepatitis B and C infection among antenatal women.

AUTHORS CONTRIBUTION

All authors have contributed equally.

FINANCIAL SUPPORT AND SPONSORSHIP

Nil

CONFLICT OF INTEREST

There are no conflicts of interest.

ACKNOWLEDGEMENT

We would like to express our sincere gratitude to the Medical Superintendent of the Hospital for granting permission to conduct this study. We are also deeply thankful to the hospital staff for their invaluable support and assistance throughout the research process. Lastly, we extend our heartfelt appreciation to all the participants, without whom this study would not have been possible.

DECLARATION OF GENERATIVE AI AND AI ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

The authors haven't used any generative AI/AI assisted technologies in the writing process.

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