



AWARENESS AND ATTITUDE REGARDING HEPATITIS B AND C AMONG RURAL COMMUNITY MEMBERS IN PUNJAB: A CROSS-SECTIONAL STUDY

Sukhmeet Kaur

Registered Nurse, Balwant Singh Ji Memorial Charitable Hospital, Hoshiarpur, Punjab, India

Sukhpreet Singh

B.Pharmacy 5th Semester, ISF Collage of Pharmacy, Moga, Punjab, India

ABSTRACT

Hepatitis B (HBV) and Hepatitis C (HCV) remain major public health threats in rural Punjab, India, where limited health literacy and constrained healthcare access perpetuate transmission. This cross-sectional study assessed awareness and attitudes among 300 adult rural community members using a structured, validated questionnaire. Only 46.0% of participants demonstrated adequate knowledge, with critical gaps in understanding mother-to-child transmission and vaccine availability. While 54.0% expressed positive overall attitudes, 62.0% held stigmatising beliefs favouring isolation of infected individuals. Education level, age, and media exposure were significant predictors of knowledge ($p < 0.05$). These findings highlight an urgent need for targeted community health education and anti-stigma campaigns in rural Punjab.

KEYWORDS :

1. INTRODUCTION

Viral hepatitis represents one of the foremost infectious disease challenges in India, with Punjab bearing a notable share of the national burden — driven in part by the state's well-documented intravenous drug use crisis, alongside unsafe injection practices, inadequately sterilised barbering instruments, and limited community awareness [1,17,19]. Hepatitis B Virus (HBV) and Hepatitis C Virus (HCV) together affect tens of millions of Indians, with chronic HBV carriage estimated at 2–4% of the population and HCV seroprevalence higher in specific high-burden states such as Punjab [4,7,9].

Rural populations are especially vulnerable: healthcare infrastructure is thinly stretched at the Primary Health Centre (PHC) and Sub-Centre level, and health messaging rarely penetrates remote villages with the same intensity as urban centres. Despite this vulnerability, most existing Knowledge, Attitude, and Practice (KAP) research in India has focused on urban populations or specific high-risk subgroups such as people who inject drugs, leaving general rural communities under-studied [21,22].

This study was therefore designed to assess the level of awareness and the prevailing attitudes regarding Hepatitis B and C among adult rural community members in Punjab, India, and to identify the sociodemographic determinants of adequate knowledge — evidence that can directly inform community-level intervention design under India's National Viral Hepatitis Control Programme (NVHCP) [3].

2. METHODOLOGY

A descriptive cross-sectional design was employed in a rural block of Punjab, India, over an eight-week period. A multistage random sampling strategy was used: five villages were randomly selected, 60 households were systematically sampled per village, and one adult respondent per household was chosen using the Kish Grid method to ensure age and gender balance.

A structured, interviewer-administered questionnaire — translated into Punjabi/Hindi and validated through expert review (Content Validity Index = 0.87) and pilot testing (Cronbach's $\alpha = 0.78$ – 0.81) — was used to collect data across four domains: sociodemographic characteristics, knowledge (15 items), attitude (10-item Likert scale), and information sources. Knowledge scores $\geq 9/15$ were classified as "adequate," and attitude scores $\geq 30/50$ as "positive." Chi-square tests examined associations between sociodemographic variables and knowledge level, with $p < 0.05$ considered significant. Ethical approval was obtained from

the Institutional Ethics Committee of the community area, and written informed consent was secured from all 300 participants (response rate: 92.6%), in line with ICMR ethical guidance for biomedical research [12].

3. Transmission Pathways in the Rural Context

Understanding how HBV and HCV spread in rural communities is essential to interpreting the knowledge gaps identified in this study. Figure 1 summarises the principal transmission routes relevant to the rural Punjab setting, each converging on a common theme of blood-borne exposure.

Common Transmission Routes of Hepatitis B & C in Rural Punjab

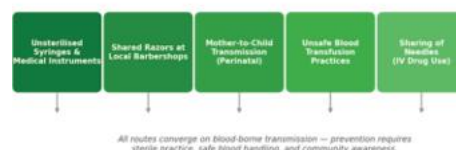


Figure 1. Common Transmission Routes of Hepatitis B and C Identified as Relevant to Rural Punjab Communities.

Notably, several of these routes — particularly shared barbering instruments and informal injection practices by unqualified practitioners ("quacks") — are distinctive features of the rural healthcare landscape and are rarely emphasised in urban-oriented health campaigns [16,17].

4. RESULTS

The mean participant age was 37.8 (± 12.4) years; 54.3% were male. The mean knowledge score was 7.94 (± 2.31) out of 15, with only 46.0% of participants classified as having adequate knowledge. Figure 2 presents the item-wise breakdown of knowledge responses.

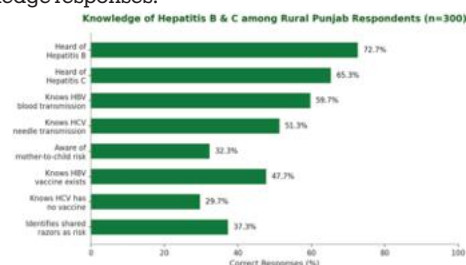


Figure 2. Item-wise Knowledge of Hepatitis B and C Among Rural Punjab Respondents (n=300).

Awareness of HBV (72.7%) exceeded that of HCV (65.3%),

plausibly reflecting the longstanding inclusion of HBV vaccination in India's Universal Immunization Programme (UIP) since 2002–03 [23]. Knowledge of mother-to-child transmission (32.3%) and HCV's lack of an approved vaccine (29.7%) were the weakest knowledge domains identified [24].

4.1 Attitudes and Stigma

The mean attitude score was 30.6 (± 4.8) out of 50, with 54.0% of participants classified as holding an overall positive attitude (Figure 3). Despite this, stigmatising beliefs remained widespread: 62.0% favoured isolating individuals with hepatitis, and 42.7% believed traditional remedies could cure the disease — a misconception that risks delaying evidence-based treatment.

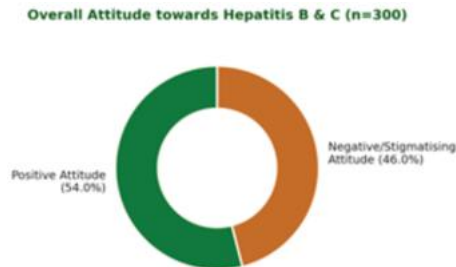


Figure 3. Overall Attitude Classification Among Rural Punjab Respondents (n=300).

4.2 Predictors of Adequate Knowledge

Education level emerged as the strongest predictor of adequate knowledge ($\chi^2=38.72$; $p<0.001$): only 16.2% of illiterate respondents demonstrated adequate knowledge compared with 85.5% of those with higher education (Figure 4). Media exposure ($\chi^2=14.23$; $p<0.001$) and younger age ($p=0.024$) were also significantly associated with higher knowledge, while gender showed no statistically significant association ($p=0.091$).

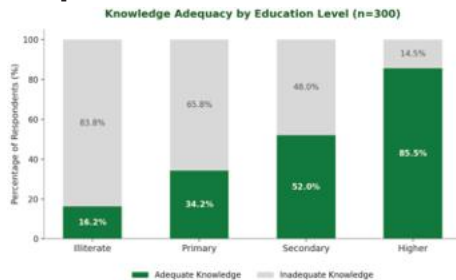


Figure 4. Knowledge Adequacy Stratified by Education Level (n=300).

5. DISCUSSION

These findings situate rural Punjab within a broader, well-documented pattern across India and comparable low- and middle-income settings: knowledge gaps cluster around transmission nuances rather than basic disease recognition, and stigma persists even where general awareness exists [21,22,26]. The strong, consistent association between education and knowledge underscores that health literacy interventions cannot be separated from broader investments in rural education — particularly for women, who continue to face restricted access to schooling in parts of rural Punjab.

The high prevalence of stigmatising attitudes, despite reasonably positive overall scores, suggests that knowledge alone is insufficient to shift deeply rooted social beliefs about hepatitis transmission through casual contact [2,27]. Community-based, contact-driven anti-stigma interventions — involving religious and community leaders, ASHA (Accredited Social Health Activist) workers, and recovered patients — have shown promise in comparable settings and merit local adaptation [20].

6. A Framework for Rural Hepatitis Prevention

Translating these findings into action requires a layered approach spanning education, outreach, vaccination, screening, and stigma reduction [25,30]. Figure 5 presents a prevention pyramid synthesising the recommendations emerging from this study, structured from broad community-level interventions at the base — anchored in India's ASHA worker network — to individual clinical care at the apex.

Prevention Pyramid: A Framework for Rural Hepatitis Control



Figure 5. Proposed Prevention Pyramid for Rural Hepatitis Control in Punjab, Integrating Education, Outreach, Vaccination, Screening, and Care.

7. CONCLUSION

Awareness regarding Hepatitis B and C among rural community members in Punjab, India, remains critically inadequate, and stigmatising attitudes continue to constrain prevention and care-seeking behaviour. Education, media exposure, and younger age were identified as significant positive predictors of knowledge. Achieving India's hepatitis elimination targets under the National Viral Hepatitis Control Programme (NVHCP) and the WHO 2030 framework requires sustained, rural-specific investment in community health education, strengthened ASHA-led outreach, expanded adult HBV vaccination, and culturally embedded anti-stigma campaigns [2,3,30].

Disclosure of Interest: No pharmaceutical grants were received in the development of this study. The authors declare no conflicts of interest.

REFERENCES

References are formatted according to the Vancouver citation style.

- World Health Organization. Global hepatitis report 2024. Geneva: WHO; 2024.
- World Health Organization. Global health sector strategy on viral hepatitis 2016–2021. Geneva: WHO; 2016.
- Ministry of Health and Family Welfare, Government of India. National Viral Hepatitis Control Program: operational guidelines. New Delhi: MoHFW; 2018.
- Acharya SK, Madan K, Dattagupta S, Panda SK. Viral hepatitis in India. *Natl Med J India*. 2006;19(4):203–17.
- Chowdhury A, Santra A, Chaudhuri S, Ghosh A, Banerjee P, Mazumder DN, et al. Community-based epidemiology of hepatitis B virus infection in West Bengal, India: prevalence in a rural population. *J Gastroenterol Hepatol*. 2005;20(11):1712–20.
- Das K, Chowdhury A. Hepatitis B and India: the way forward. *J Indian Med Assoc*. 2007;105(4):198–203.
- Batham A, Narula D, Toteja T, Sreenivas V, Puliyel JM. Systematic review and meta-analysis of prevalence of hepatitis B in India. *Indian Pediatr*. 2007;44(9):663–74.
- Puri P. Tackling the hepatitis C burden in India. *J Clin Exp Hepatol*. 2014;4(4):312–7.
- Sood A, Midha V, Bansal M, Sood N, Puri S, Thara A. Prevalence of hepatitis C virus in a selected geographical area of northern India: a population-based survey. *Indian J Gastroenterol*. 2012;31(2):232–6.
- Sood A, Sood N. Need for an Indian consensus on the management of hepatitis C virus in special situations. *Indian J Gastroenterol*. 2016;35(5):397–404.
- Chandra M, Khaja MN, Hussain MM, Poduri CD, Farees N, Habibullah CM, et al. Prevalence of hepatitis B and hepatitis C viral infections in Indian patients with chronic renal failure. *Intervirology*. 2004;47(6):374–6.
- Indian Council of Medical Research. Operational guidelines for hepatitis B and C testing and treatment in India. New Delhi: ICMR; 2019.
- Tandon BN, Acharya SK, Tandon A. Epidemiology of hepatitis B virus infection in India. *Gut*. 1996;38 Suppl 2:S56–9.
- Murhekar MV, Zodpey SP, Ringe VV, Hutin Y. Epidemiology of hepatitis B virus

- infection in India: findings from the National Family Health Survey. *Indian J Public Health*. 2017;61(2):131–7.
15. Kumar S, Lal BB, Sood V, Khanna R, Alam S. Hepatitis B and C virus infections in India: a review of national epidemiology and policy. *Indian J Med Microbiol*. 2020;38(1):1–9.
 16. Singh J, Bhatia R, Khare S, Patnaik SK, Biswas S, Lal S, et al. Community-based hepatitis A and E outbreaks in northern India: investigation of risk factors. *Bull World Health Organ*. 1997;75(6):533–40.
 17. Garg N, Sood A, Midha V, Goyal O, Soni RK, Kishore D, et al. Prevalence and risk factors of hepatitis C virus infection among people who inject drugs in Punjab, India. *Indian J Gastroenterol*. 2019;38(6):531–7.
 18. Ambekar A, Rao R, Mishra AK, Agrawal A. Allocation of essential medicines for substance use disorders in Punjab: lessons from the opioid epidemic. *Indian J Psychiatry*. 2019;61(1):S1–7.
 19. Singh M, Singh J, Pandav CS. Burden of hepatitis C virus infection among people who inject drugs in Punjab, India: an emerging public health crisis. *J Family Med Prim Care*. 2020;9(7):3406–11.
 20. National AIDS Control Organisation, Ministry of Health and Family Welfare. Integrated bio-behavioural surveillance among people who inject drugs in India, 2021. New Delhi: NACO; 2021.
 21. Mukhopadhyay S, Sarkar A, Lal S, Bhattacharya SK. Knowledge, attitude and practice regarding hepatitis B among rural community members in eastern India: a cross-sectional study. *Indian J Community Med*. 2018;43(2):105–9.
 22. Pal D, Biswas A, Sinha S, Mukherjee S. Awareness and attitude towards hepatitis B and C among rural population of West Bengal, India. *J Family Med Prim Care*. 2021;10(3):1234–9.
 23. Verma R, Khanna P, Chawla S. Hepatitis B vaccination in India: a review of coverage and challenges under the Universal Immunization Programme. *Hum Vaccin Immunother*. 2015;11(4):1101–6.
 24. Goel A, Aggarwal R. Hepatitis C virus infection in India: an overview. *Trop Gastroenterol*. 2014;35(3):141–49.
 25. World Health Organization, South-East Asia Regional Office. Regional action plan for viral hepatitis in South-East Asia, 2022–2030. New Delhi: WHO SEARO; 2022.
 26. Lemoine M, Eholie S, Lacombe K. Reducing the neglected burden of viral hepatitis in Africa: strategies for a global approach. *J Hepatol*. 2015;62(2):469–76.
 27. Cooke GS, Andrieux-Meyer I, Applegate TL, Atun R, Burry JR, Cheinquer H, et al. Accelerating the elimination of viral hepatitis: a Lancet Gastroenterology & Hepatology Commission. *Lancet Gastroenterol Hepatol*. 2019;4(2):135–84.
 28. Centers for Disease Control and Prevention. Hepatitis B FAQs for health professionals. Atlanta: CDC; 2023.
 29. Centers for Disease Control and Prevention. Viral hepatitis surveillance report 2022. Atlanta: CDC; 2023.
 30. Government of Punjab, Department of Health and Family Welfare. Punjab State Action Plan for Viral Hepatitis Elimination 2022–2030. Chandigarh: Government of Punjab; 2022.