

Assessing liver health literacy and screening behaviours in an immigrant community in Canada

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Abstract: Bangladeshi immigrants in Canada face elevated chronic liver disease risk, yet awareness and hepatitis screening remain low. In a bilingual survey of 966 Bangladeshi adults in Calgary, only 23% reported prior testing, and overall liver health knowledge was low. Lack of physician recommendation was the primary barrier. Higher liver health knowledge was strongly associated with screening uptake. Findings suggest screening remains largely provider-initiated and highlight the need for culturally responsive liver health literacy interventions.

Background and Aims

Immigrants originating from hepatitis-endemic regions carry a substantially higher burden of viral hepatitis, with hepatitis B prevalence up to six times higher and hepatitis C prevalence up to four times higher than in the general Canadian population.¹ As a predominantly immigrant community originating from a hepatitis B–endemic country, Bangladeshi Canadians face an elevated risk of chronic liver disease, including viral hepatitis.² Bangladeshi Canadians thus represent an important population to examine liver health literacy, screening behaviors, perceived barriers and motivators, and associated factors that may inform targeted prevention strategies.

Methods

As part of our community-engaged program of research,^{3,4} we conducted a bilingual (English/Bangla) cross-sectional survey among Bangladeshi Canadian adults (n = 966) in Calgary, Alberta, employing community ecosystem mapping.⁵ The survey was administered both online and paper format using non-probability convenience sampling. The survey captured sociodemographic characteristics, general liver health knowledge, hepatitis screening history and barriers, preferred screening locations, and

information sources. Liver-health literacy was assessed using a nine-item exploratory scale (score range: 0–9) co-designed with community members and content experts. Adjusted negative binomial regression models were used to examine the association between knowledge scores and sociodemographic characteristics. Associations between knowledge categories and hepatitis screening uptake were examined using Pearson’s chi-square tests.

Results

Overall, only 27% of participants reported having received a prior recommendation for hepatitis testing, and only 23% had ever been tested for hepatitis B or C. Among those never tested, the most commonly reported barrier was lack of a doctor’s recommendation (75%), followed by low awareness of screening (22%) and low perceived risk (21%). Participants’ preferred sources of liver health information were healthcare providers (75%), family members (30%), and friends (28%), indicating strong trust in clinical guidance. The nine-item liver knowledge scale demonstrated acceptable internal consistency (Cronbach’s alpha = 0.76), with a low mean score of 3.8 ± 2.4 out of 9. Correct response rates varied widely across items, with higher awareness of general liver function and substantially lower knowledge regarding treatment and

vaccine availability. Higher liver-health knowledge was strongly associated with screening uptake (Pearson's $\chi^2(2) = 57.09$, $p < 0.001$). Individuals who received a provider recommendation had 25-times higher odds of ever being tested. Women had 15% higher expected liver-knowledge scores than men ($p = 0.004$). Compared with participants with high school education or less, those with a diploma or bachelor's degree and those with a graduate degree had 23% ($p = 0.020$) and 34% ($p = 0.001$) higher expected scores, respectively. Temporary residents had 30% higher expected scores than citizens or permanent residents ($p = 0.002$).

Conclusion

In this large community-based sample of Bangladeshi immigrants, liver health knowledge and hepatitis screening uptake were low, despite high trust in healthcare providers. Screening was largely provider-initiated, and higher knowledge was strongly associated with screening uptake. These findings highlight a critical opportunity, improving liver-health literacy while strengthening provider engagement and accessible screening pathways could substantially increase early detection of viral hepatitis and help prevent advanced liver disease and liver cancer.

References

1. Campeau L, Elliott J, Williams A, Périnet S, Yang Q, Cox J, et al. Estimated prevalence of hepatitis B and C among immigrants in Canada. *Can Commun Dis Rep*. 2025 Aug 7;51(6/7):214–22. doi:10.14745/ccdr.v51i67a01
2. Sheena BS, Hiebert L, Han H, Ippolito H, Abbasi-Kangevari M, Abbasi-Kangevari Z, et al. Global, regional, and national burden of hepatitis B, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019. *Lancet Gastroenterol Hepatol*. 2022 Sep;7(9):796–829. doi:10.1016/S2468-1253(22)00124-8
3. Turin TC, Kazi M, Rumana N, Lasker MAA, Chowdhury N. Employing diffusion of innovation theory for ‘not missing the mass’ in community-engaged research. *BMJ Open*. 2023 Aug;13(8):e069680. doi:10.1136/bmjopen-2022-069680
4. Turin TC, Chowdhury N, Newaz T, Raihan MMH, Rahman N, Rumana N. Nurturing Acceptance for Research in the Community: Conceptualising Engagement Towards Research Through Normalisation Process Theory. *Health Expect*. 2025;28(4):e70356. doi:10.1111/hex.70356
5. Hyder I, Chowdhury N, Raihan M, Turin TC. Understanding Community Strategically for Health Promotion and Disease Prevention: Employing “Community Ecosystem Mapping.” *J Natl Heart Found Bangladesh*. 2024;13(3):76–9. doi:10.61819/jnhfb.v13i3