

Can Online Search Trends Reflect Hepatitis B Burden? Evidence from Maternal Screening Data in Indonesia (2024)

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Background

Hepatitis B remains a major public health concern in Indonesia, where vertical transmission during the perinatal period is common and up to 95% of infected infants may develop chronic infection. In 2024, the Hepatitis B Early Detection (DDHB) program, as part of the EMTCT initiative for pregnant women, achieved 69.76% coverage (3,396,010 of 4,867,979 targeted individuals), with 1.45% testing positive for HBsAg. In the digital era, internet search behaviour may reflect public awareness and potentially disease patterns. However, whether online search trends can meaningfully reflect real-world Hepatitis B burden remains uncertain. This study examined the correlation between Hepatitis B Relative Search Volume (RSV) and (1) the percentage of HBsAg-positive pregnant women and (2) DDHB screening coverage in Indonesia in 2024 to assess the potential of digital search data as a complementary surveillance tool.

Methods

This ecological study used provincial-level data from 38 provinces in Indonesia in 2024. Hepatitis B RSV data were obtained from Google Trends and compared with RSV for “hepatitis” as well as hepatitis A, C, and E. Spearman’s rank correlation analysis was conducted due to non-normal data distribution.

Results

Eastern Indonesian provinces, particularly Papua, Maluku, and East Nusa Tenggara, showed the highest HBsAg positivity and RSV. Hepatitis B RSV was positively correlated with HBsAg positivity ($r = 0.355$; $p = 0.029$) but not with DDHB coverage ($r = 0.199$; $p = 0.230$). Hepatitis B was the most frequently searched specific hepatitis type, although the general term “hepatitis” remained highest overall.

Conclusion

Online search trends may partially reflect geographic variations in Hepatitis B burden and serve as a supplementary indicator for public health surveillance, supporting data-driven prevention and control strategies in Indonesia.

Keywords:

Hepatitis B; Digital Epidemiology; Google Trends; Maternal Screening; Public Health Surveillance

Disclosure of Interest Statement

The authors declare no conflicts of interest and received no external funding or sponsorship for this study. The analysis was conducted exclusively using publicly available secondary data sources, including Google Trends and official data from the Ministry of Health of the Republic of Indonesia (Indonesia Health Profile). No external institutional collaboration was involved in the design, analysis, or preparation of this work.