Analyzing Public Google Search Interest on Measles in Canada: Identifying Key Moments for Targeted Risk Communication

Mohammad Jokar, Diego Nobrega

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Abstract

We analyzed Google Trends data on measles-related searches in Canada from January 1 to March 26, 2025. Web, news, and YouTube search trends increased significantly across provinces, aligning with rising case numbers. Our findings emphasize the importance of timely, platform-specific risk communication to enhance public awareness and response during this outbreak.

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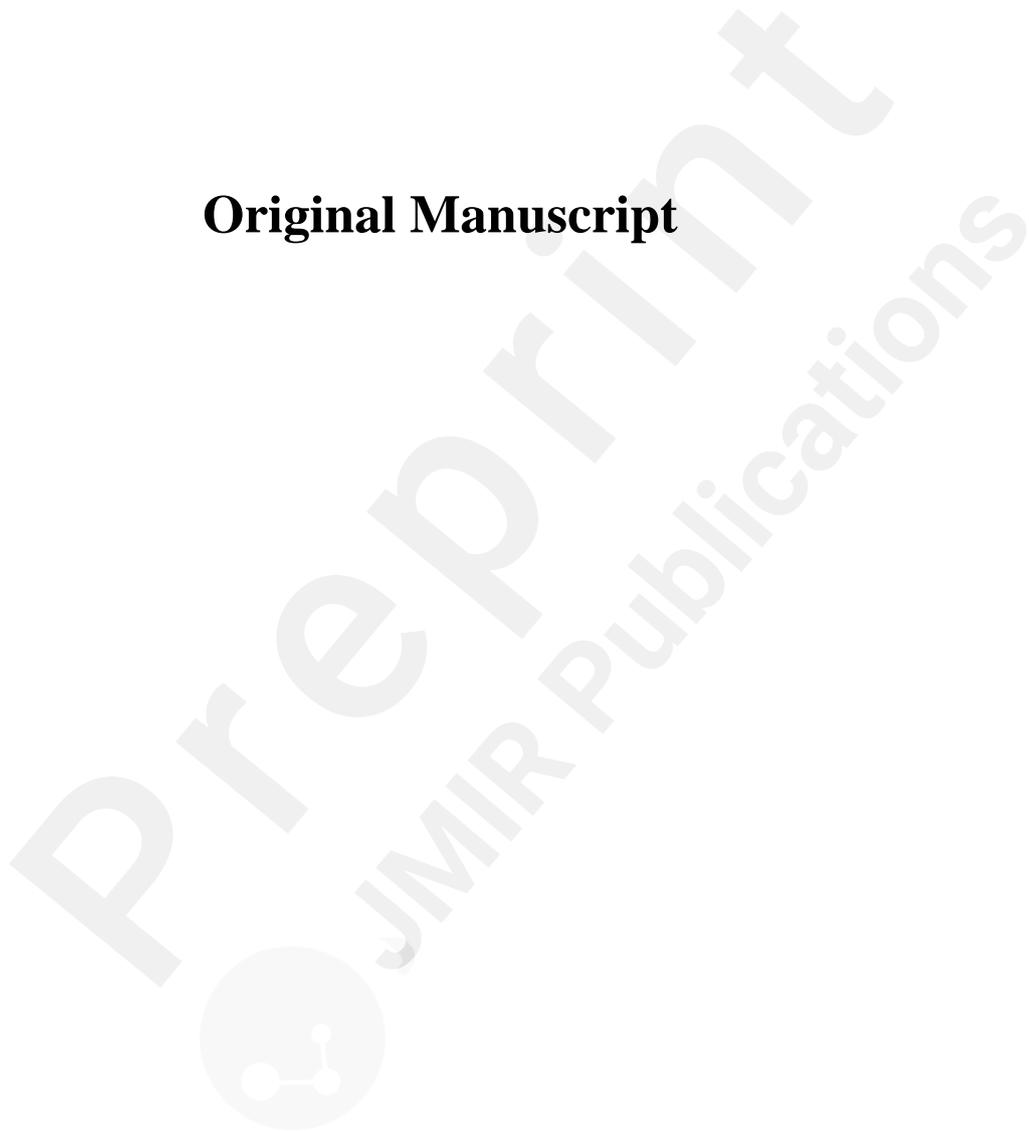
Analyzing Public Google Search Interest on Measles in Canada: Identifying Key Moments for Targeted Risk Communication

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Abstract

We analyzed Google Trends data on measles-related searches in Canada from January 1 to March 26, 2025. Web, news, and YouTube search trends increased significantly across provinces, aligning with rising case numbers. Our findings emphasize the importance of timely, platform-specific risk communication to enhance public awareness and response during this outbreak.

Keywords: Measles; Google Search; Risk Communication; Canada; Public Interest

Measles is a contagious airborne viral infection that can lead to serious complications, particularly among infants, older adults, and immunocompromised individuals [1]. Canada saw a sharp rise in cases, from 12 in 2023 to 172 by March 2025, mostly linked to international travel [2]. Despite a highly effective vaccine, immunization rates remain below the 95% herd immunity threshold, with regional disparities [1,3]. Infodemiology helps track public health information trends, identify misinformation, and guide risk communication [4,5]. As measles cases rise, monitoring public search interest across digital platforms is crucial for improving awareness and ensuring the effective dissemination of trustworthy health information.

To assess public search interest, we used Google Trends (GT), which utilizes Relative Search Volume (RSV) to measure the frequency of search queries over time, with higher RSV values indicating increased public interest in a specific topic or keyword [6]. The topic-based search in Google Trends (GT) consolidates RSV data from related search terms across languages [6–8]; so the 'Measles' topic was selected. Data was not restricted to a category, using "All Categories," and analyzed across "Web Search," "News Search," and "YouTube Search" from January 1 to March 26, 2025. To benchmark trends and assess public health implications, we gathered confirmed case data from Canada's Measles Monitoring Program [2]. A Mann-Kendall trend test evaluated significant RSV changes over time. Statistical analysis and visualizations were performed in R (version 4.4.3) with a significance level of 0.05.

During the study period, there was a mild increase in web search interest on January 13 (RSV = 21), when 9 confirmed cases were reported. This might be the ideal time to enhance targeted risk communication. The findings demonstrate that, web searches were the most important search type people used to seek measles information before a significant increase in cases was detected. Then, the trend of web searches significantly rose on February 27, coinciding with 19 confirmed cases. People showed a sharp increase in YouTube search interest on February 27 (RSV = 100), coinciding with 22 confirmed cases, making it an ideal time to enhance risk communication through YouTube content. Similarly, there was a sharp increase in YouTube searches (RSV = 96) on March 12. At the same time, people in Canada also showed a sharp increase in news search interest (RSV = 91); this can be considered another optimal time to enhance risk communication by focusing on both

YouTube and news content. The Mann-Kendall trend test revealed significant positive trends ($p < 0.05$) for web, news, and YouTube searches (Figure 1). People in Ontario and Quebec exhibited high research interest in Google web and news searches, as well as YouTube searches, aligning with the highest number of confirmed measles cases reported in these provinces (n = 140 and 26, respectively). In Manitoba, only web search interest was high, corresponding to 5 confirmed cases. People in British Columbia showed moderate web and YouTube search interest, corresponding to 2 confirmed cases. Although no confirmed cases were reported in Alberta, people demonstrated high web and YouTube search interest, indicating heightened public interest about measles in the province (Figure 2).

The digital era has improved public health responses but also introduced risks from misinformation, with tracking public search interest aiding effective communication strategies. Here we identified three time points where public interest increased using different search types, allowing health authorities to strategically target these moments to deliver their messaging effectively, engage media channels, and ensure that accurate, credible information reaches the public. This approach helps mitigate misinformation, prevent panic, and enhance public trust in health interventions [4,6,9]. Our analysis shows that in Ontario and Quebec, where the highest number of cases were reported, search volume across web and news sources peaked, reflecting heightened public concern and demand for information. This aligns with findings from previous studies, where there is a correlation between high search interest related to mpox and COVID-19 and their incidence rates in specific geographical regions [4,10]. Moreover, this study shows that search type is also important, as in British Columbia, with 2 cases, and in Alberta, people are searching for content on YouTube after outbreak dissemination, suggesting an opportunity for focusing on this online platform for creating health-related content. In conclusion, our analysis shows a connection between rising measles cases in Canada and increased public interest in search trends, highlighting the importance of timely, region-specific risk communication. Using real-time search data in the future can improve public health messaging and ensure communities receive accurate, timely information during outbreaks.

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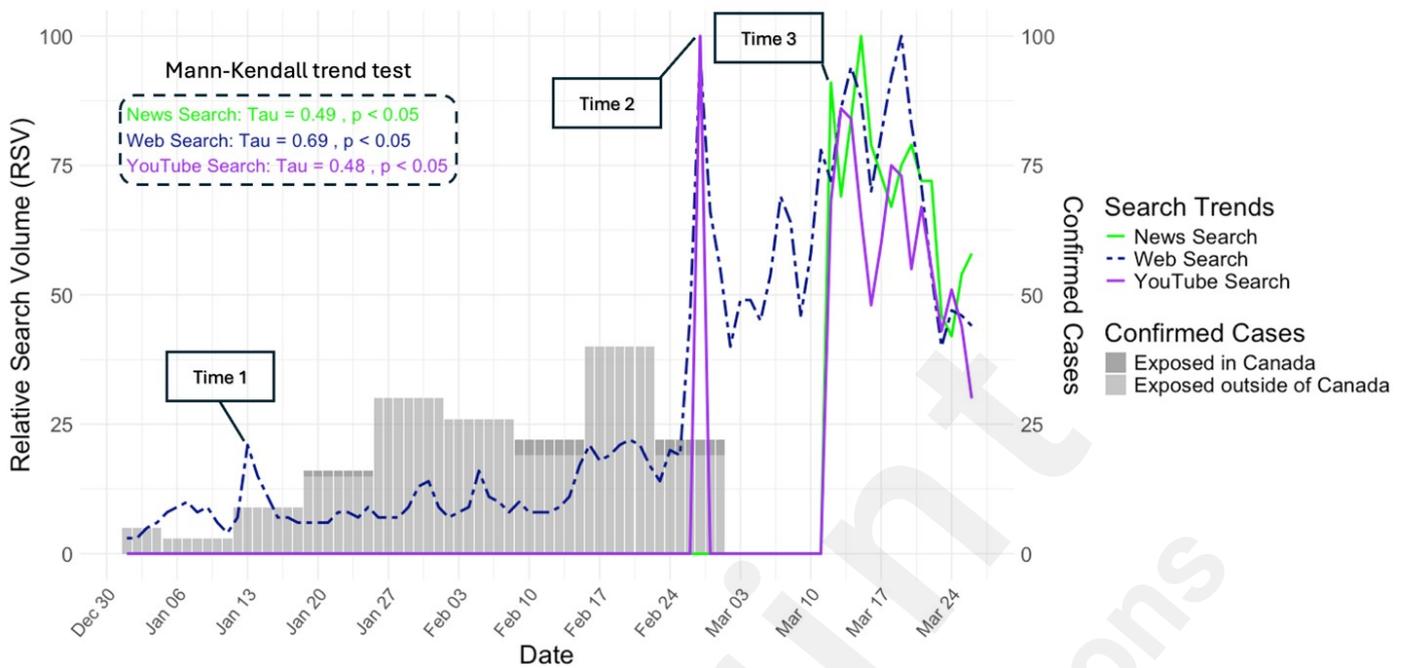
Figure 1: Google search trend for 'Measles' in Canada from January 1 to March 26, 2025, highlighting key time points for targeted risk communication (January 13, February 27, March 12), along with the Mann-Kendall trend test results.
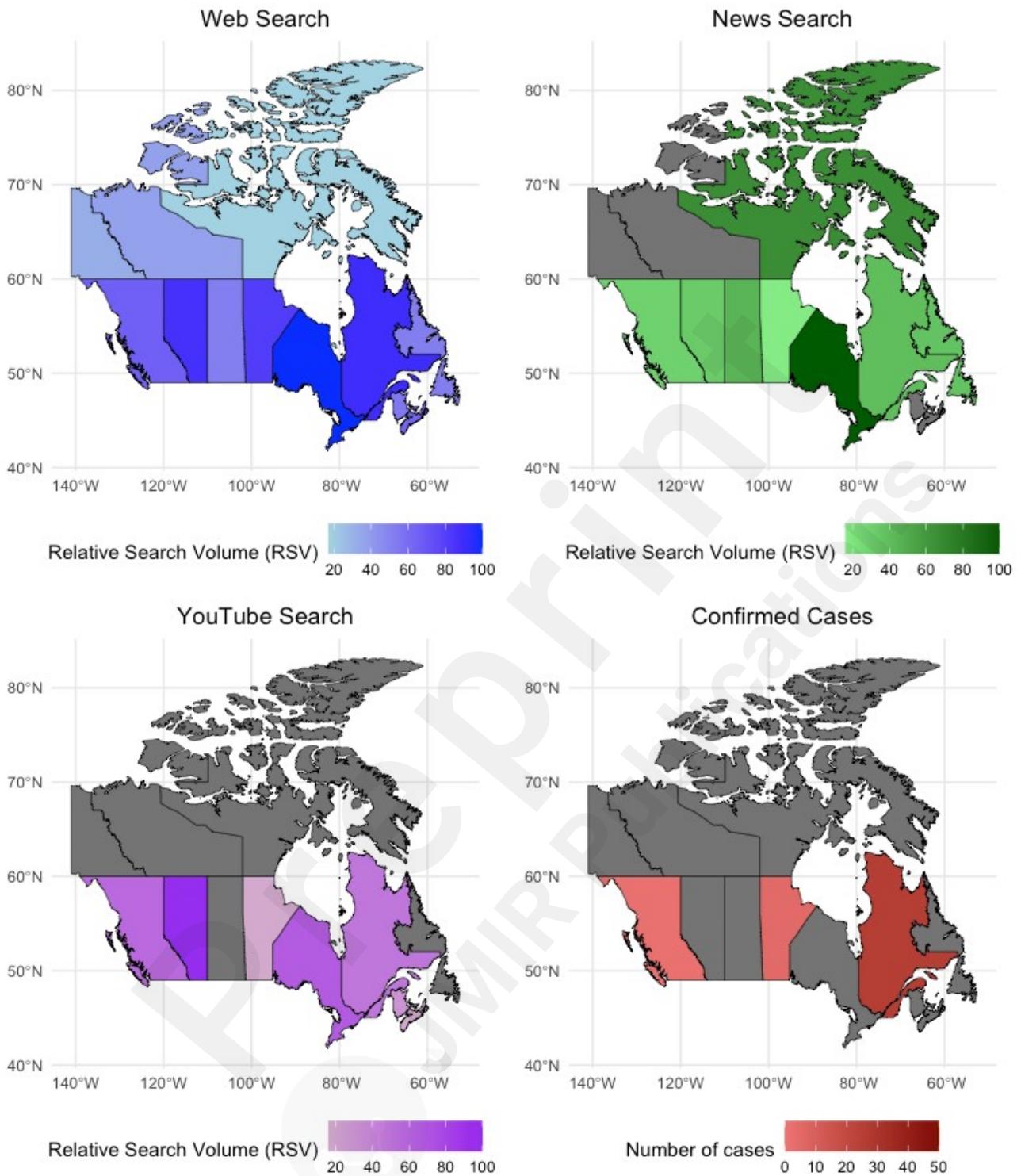
Figure 2: Relative Search Volume (RSV) for the topic 'Measles' across different search types on Google in various provinces of Canada (January 1 to March 26, 2025), along with a choropleth map of confirmed cases in Canada in 2025.