

Google Search Interests and New Cases of COVID-19 in Bangladesh: A Vector Autoregression Analysis for Disease Surveillance

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Abstract

Background: The use of Google search engine has been widely used in public health-related concerns. Previous studies found that Google search trends (GST) can predict influenza, mortality, Zika epidemics, Ebola, etc. This study examines the relationship between the timing of Coronavirus-related Google search trends, lockdown, and new cases of COVID-19 in Bangladesh. Methods: We use national-level Google search trend data to examine whether the timing of Google search terms, i.e., their lag effects are associated with actual COVID-19 new cases from March 2, 2020, to December 7, 2020. We examine the effects of search terms (facemasks, handwash, n95) on the actual COVID-19 new cases using the vector autoregression (VAR) model. Results: Our general recursive vector autoregression model shows that search on facemasks and hand-wash can potentially decrease the risk communication of COVID-19 new cases. We find that the search on facemasks can substantially reduce that risk in the sense that search can increase the use of facemasks. We also examine the lag effect of lockdown and find that the effects are not sizeable on the risk communication because their lag-effects are different. The results of the impulse-response functions show that among the protective measures, lag effects of facemasks can substantially decrease the future risk communication of COVID-19 new cases. Conclusion: Because wearing facemasks can substantially reduce the risk of COVID-19 new cases, the government can utilize the Google search trends related to COVID-19 to disseminate the preventive information on COVID-19 and thus minimize the new cases and deaths.

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