Social Network Analysis of Covid-19 Sentiments Using Machine Learning

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Abstract

Background: COVID-19 is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), a novel human pathogen that virologists believe emerged from bats and eventually jumped to humans via an intermediary host [1]. On March 11, 2020, the World Health Organization (WHO) declared COVID-19 a pandemic [2]. By June 23, the WHO reported 8,993,659 confirmed COVID-19 cases globally, and 469,587 deaths [3].

Objective: The aim of this study is to analyze discussions on Twitter related to COVID-19 and to investigate the sentiments toward COVID-19.

Methodology: This study to using applied python to analyze data collected from Twitter. Using tweets originating exclusively in the United States and written in English during the 1-month period from March 20 to April 19, 2020, the study examined COVID-19related discussions. Geographic analysis of the tweets was also conducted.

Result and Discussion: Out of 902,138 tweets analyzed, sentiment analysis classified 434,254 (48.2%) tweets as having a positive sentiment, 187,042 (20.7%) as neutral, and 280,842 (31.1%) as negative. Topic modeling identified 5 salient topics that dominated Twitter discussions of COVID-19 and each of the 5 topics was labeled with a theme: health care environment [4], emotional support, business economy, social change, and psychological stress.

Conclusion and Future: Work: This study identified 5 prevalent themes of COVID-19 discussion with sentiments ranging from positive to negative. These themes and sentiments can clarify the public's response to COVID-19 and help officials navigate the pandemic.

References

[1]   Zu, Zi Yue, et al. "Coronavirus disease 2019 (COVID-19): a perspective from China." Radiology 296.2 (2020): E15-E25.

[2]   WHO Director-General's opening remarks at the media briefing on COVID-19 - 11 March 2020. 2020. URL: https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020

[3]   Coronavirus   disease   (COVID-19)   situation   reports.   World   Health   Organization.   2019.URL: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports

[4]   Dhanuthai, Kittipong, et al. "Oral cancer: A multicenter study." Medicina oral, patologia oral y cirugia bucal 23.1 (2018): e23.