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Vaccine Sentiment and Opinions on Social Media: A Large-Scale Textual Analysis of Online Discourse

Streszczenie w języku angielskim

Social media platforms have become a breeding ground for unverified and false information on health topics, including the dissemination of misinformation by anti-vaccinationists. The decentralized nature of social networks and the sheer volume of information shared there make it exceedingly challenging to track anti-vaccinationists' activities and societal impact without leveraging big data and machine learning analytics. Using such methods enables the acquisition of valuable insights, facilitating effective public health outreach and swift response to the proliferation of deceptive messages disseminated by vaccine opponents.

This dissertation aimed to examine social media users' attitudes toward immunization and develop a methodology for analyzing the temporal variations in these attitudes. The initial research characterized the information disseminated by opponents of vaccination on social media and ascertained the factors contributing to its rapid dissemination. Additionally, an analysis was conducted on media articles about measles published in Europe and shared on social media, identifying the elements that render certain journalistic materials more popular among social media users. Furthermore, this dissertation concludes with the findings of studies conducted during the COVID-19 pandemic, which examined the attitudes of Polish social media users towards the newly developed SARS-CoV-2 vaccines and delineated the variations in these attitudes based on the specific social media platforms employed.

The study results demonstrate the prevalence and significance of misinformation regarding vaccination circulating on social media. Concurrently, they establish that natural language processing (NLP) statistical methods make it feasible to analyze extensive sets of textual data derived from social media. This analytical approach enables the identification of current attitudes and beliefs held by social media users and the ability to predict future behaviors based on historical data. Adopting the research methods developed in this dissertation by public health institutions can facilitate the monitoring of public attitudes toward vaccination and facilitate the design of accurate and impactful educational campaigns to counter the dissemination of misinformation.