Celebrity tweets likely shaped US negative public opinion of COVID-19 pandemic, finds study

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Tweets by people in the public eye likely increasingly shaped negative public opinion of the COVID-19 pandemic as it progressed in the US, suggests an analysis of sentiments expressed in social media posts, published in the open access journal *BMJ Health & Care Informatics.*

In particular, posts shared by politicians and news anchors seemed to exert the greatest influence, the findings indicate.

Better analysis of social media activity might help officials and policy makers to better combat mis/disinformation on these platforms and bolster prevention and control efforts, not only for COVID-19 but also future disease outbreaks, conclude the researchers.

People have increasingly turned to social media networks to share their thoughts and feelings on the impacts of the COVID-19 pandemic, note the researchers. And several studies have highlighted the persuasive nature of celebrity behavior and messaging on public health issues.

The researchers therefore wanted to find out if there might be a link between messaging shared by athletes, politicians, news anchors and entertainers about COVID-19 and public sentiment and discourse on COVID-19 vaccines and vaccination.

They harvested around 13 million tweets posted between January 1, 2020 and March 1, 2022. The sentiment expressed was calculated for each tweet using a fine-tuned natural language processing (DistilRoBERTa) model.

This was then compared with tweets about COVID-19 that also mentioned certain US COVID-19 vaccine skeptics in the public eye, in sport, the media, and politics.

These were Joe Rogan (commentator and podcaster); Tucker Carlson

(TV host); Nicki Minaj (rapper); Aaron Rodgers (footballer); Novak Djokovic (tennis player); Eric Clapton (singer-songwriter); Rand Paul (Republican senator); the late Phil Valentine (broadcaster); Donald Trump; Ted Cruz (Republican senator); Candace Owens (political commentator); and Ron DeSantis (Republican governor of Florida).

The final analysis was based on 45,255 tweets from 34,407 unique authors. The tweets contained a total of 16.32 million likes, up to a maximum of 70,228 for each one.

The findings suggest that although there were minor differences between the various groups of vaccine skeptics in the public eye, a broadly polarized negative tone emerged.

And the consistent emotional content these celebrities shared about COVID-19 vaccines and vaccination during the first 2 years of the pandemic influenced public opinion and largely stimulated online public discourse, say the researchers.

Politicians were among the most influential people in the public eye.

"The spread, reaction and engagement by the public to posts made by politicians online was indicative of a strong level of influence, suggesting politicians play key roles in ensuring population health and should be committed to promoting health-protective behaviors rather than sensational falsehoods," write the researchers.

Although sentiment about COVID-19 vaccines and vaccination in relation to news anchors varied during this period, overall, it was more negative than positive. And tweets referencing these media personalities tended to be associated with anti-vaccine controversy or death rather than news about vaccine development.

The news anchors' posts clocked up a total of 14,017 likes between them, prompting the researchers to suggest that: "The high number of likes displayed within these tweets shows that a much higher number of users are involved in reading tweets and are therefore potentially influenced by the content."

The researchers suggest that their findings could help to bolster currently available surveillance tools for targeted health promotion, management of the ongoing pandemic, and preparing for the next crisis.

"As we have demonstrated, messaging shared by influential members of society can have considerable effects on the directionality of public emotion and shared health decision making," they write.

"Both negative and positive online social endorsement of prevention strategies such as vaccination are key in determining population-wide compliance and uptake success.

"However, threats of the spread of misinformation and disinformation by those with influence stand to undermine programs supporting protective measures such as vaccination."

Public health bodies have a role to play in countering this, including working with those in the public eye to share more positive messaging about vaccination, they suggest.

The researchers acknowledge certain limitations to their findings, including the well known difficulties of correctly interpreting the tone of written language and the relatively small number of celebrities included in the analysis.

But they conclude, "As the pandemic progressed, public sentiment shared on social networks was shaped by risk perceptions, political

ideologies and health-protective behaviors shared by [people in the public eye].

"The risk of severe negative health outcomes increases with failure to comply with health-protective behavior recommendations set forth by public health officials, such as vaccination, and our findings suggest that polarized messages from societal elites may downplay these risks, unduly contributing to an increase in the spread of COVID-19."

More information: Exploring celebrity influence on public attitude towards the COVID-19 pandemic: social media shared sentiment analysis, *BMJ Health & Care Informatics* (2023). DOI: 10.1136/bmjhci-2022-100665

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