

# 'Foreign disinformation' social media campaigns linked to falling vaccination rates

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'Foreign disinformation' social media campaigns are linked to falling vaccination rates, reveals an international time trends analysis, published in the online journal *BMJ Global Health*.

Every 1 point increase in effort is tied to an average 2% drop in annual coverage around the globe, and a 15% increase in the number of negative tweets about vaccination, shows the study, which forms part of a [BMJ Collection on Democracy and Health](#) published for the World Health Summit this weekend.

Last year, the World Health Organization (WHO) listed [vaccine hesitancy](#)—reluctance or refusal to be vaccinated because of safety concerns—as one of the top 10 threats to world health.

While [vaccine](#) hesitancy isn't new, the proliferation of 'anti-vaxx' messaging on social media is of particular public health concern, given that vaccination is seen as a key route out of the current coronavirus pandemic, say the researchers.

Deliberate 'disinformation' campaigns by foreign agencies on social media also have their part to play, they add.

To gauge the impact of social media use and foreign disinformation campaigns on vaccine hesitancy around the world, the researchers analysed two different dimensions of social media activity for up to 190 countries.

These were: the public use of Twitter to organise action/resistance; and the amount of tweets expressing negative sentiments about vaccines.

They also drew on national survey data about public attitudes to vaccination safety and annual [vaccination rates](#) for the 10 most commonly reported vaccine doses between 2008 and 2018.

They used recognised analytical tools to measure sentiment (Polyglot Python Library); public use of social media to organise (Digital Society Project or DSP); foreign sources of disinformation (Varieties of

Democracy Institute expert network + DSP); public attitudes to vaccine safety (2019 Wellcome Global Monitor).

They also logged measures of GDP ([gross domestic product](#)) per head of the population for each country and levels of internet usage.

Analysis of all the data revealed that the prevalence of foreign disinformation activity was "highly statistically and substantively significant" in predicting a drop in average vaccination rates.

A one-point shift upwards in the five-point disinformation scale was associated with an average fall in the annual vaccination rate of 2 percentage points, and a cumulative drop of 12 percentage points across the decade.

A belief that vaccines are inherently unsafe was associated with organisation of action/resistance on social media: and the more organisation on social media, the greater was the level of belief that vaccines are unsafe.

Foreign disinformation was also associated with negative social media activity about vaccination, boosting the number of negative vaccine tweets by 15%, on average.

While the study is unique, it wasn't able to specify the particulars of foreign disinformation campaigns or the prevalence of anti-vaccination propaganda, the researchers acknowledge.

What's more, Twitter isn't used in every country, and the survey data were only available at one point in time.

Nevertheless, write the researchers: "Foreign disinformation campaigns are robustly associated with declines in [average] vaccination rates. The

use of social media to organise offline action is highly associated with an increase in public belief in vaccines being unsafe.

"Both of these findings suggest that combating disinformation and misinformation regarding vaccines online is critical to reversing the growth in vaccine hesitancy around the world."

They add: "These findings are especially salient in the context of the COVID-19 pandemic, given that the vaccines under development will require deployment globally to billions of people in the next year."

Public outreach and education campaigns will, of course, be needed, but they won't be enough by themselves to counter the tide of mistrust, they emphasise.

"First, governments must mandate that social media companies are responsible for taking down anti-vaccination content (whether originating from genuine domestic actors or foreign propaganda operations)," they advise.

"Second, foreign [disinformation](#) campaigns should be addressed at their source. A preponderance of such campaigns amplifying anti-vaccination content originate from within Russia or via pseudo-state actors informally associated with Russia," they warn.

None of this will be easy, they acknowledge, because it means reconciling the principles of free speech with the policing of social [media](#) for "damaging falsehoods," and persuading Russia to adopt a ceasefire on internet information warfare in the interests of the health of its own people.

But they conclude: "We urge policy makers to take the time before a COVID-19 vaccine is available for mass distribution as an opportunity

for action against [social media](#) factors contributing to vaccine hesitancy."

**More information:** Social media and vaccine hesitancy, *BMJ Global Health*, [DOI: 10.1136/bmjgh-2020-004206](https://doi.org/10.1136/bmjgh-2020-004206)

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