Social media as good a barometer of public health attitudes as traditional phone polling

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Social media data can be used as an additional source of information to gauge public opinion about health issues alongside traditional data sources like phone-based polling, says new research co-written by U. of I. psychology professor Dolores Albarracin. Credit: L. Brian Stauffer

A record number of Americans are able to access the internet from their

home or their smartphone, and nearly 70 percent of U.S. adults have a social media account, according to the Pew Research Center.

If the share of Americans using social media is the highest it's ever been, what insights can be gleaned from their online interactions? According to a new paper co-written by University of Illinois experts in social psychology and marketing, social media data can be used as a complementary source of information alongside traditional data sources like phone-based polling to gauge public opinion about health issues.

An analysis of online communications on Twitter about the public health challenges of the Zika virus correlated highly with a Zika-related analysis of traditional survey data from landline and cellular phones, said Dolores Albarracin, a professor of psychology at Illinois and a co-author of the study.

"Our results demonstrate that it's possible to uncover and analyze information from Twitter communications that are associated with public health crises," Albarracin said. "The common perception is that what people read on social media might not be representative of mainstream sentiment but rather a biased or extreme representation. It turns out that, in this domain, social media - specifically, Twitter, in our research - represents exactly the average of the real-life population of the U.S."

The researchers teamed with the Annenberg Public Policy Center of the University of Pennsylvania, which conducted a nationally representative survey of the U.S. adult population over 33 weeks in 2016 on Zika-related attitudes, knowledge and behaviors. Around 1,000 participants per week answered the survey.

The researchers also analyzed Twitter data about the Zika virus outbreak by searching for Zika-related keywords ("zika," "dengue," "yellow

fever," for example) using the site's application programming interface.

"We created a Twitter-based index of three measures that are classically important in disease control: attitudes, knowledge and behaviors," Albarracin said. "That's the triad that's studied in public health and social marketing to see what people's attitudes and practices are at a given time or in a given context."

The researchers winnowed the resulting dataset of 3.8 million tweets to an aggregated set that matched the time period of the more traditional phone-based survey data.

"The idea was to be able to see if we could use social media to gauge public opinion in the same way you would use a phone survey," Albarracin said.

The results demonstrated a high ability to identify community attitudes, knowledge and behaviors in a timely manner and at low cost on social media, Albarracin said.

"The survey data of the phone responses correlated moderately to highly with what was going on in real time on Twitter," she said.

The study was "a proof of concept that we can make these inferences based on social media conversations and establish surveillance systems that rely on social media postings," Albarracin said.

The study also has implications for public health, Albarracin said.

"If there's a public health crisis, or if you wish to see how people are responding to a public health crisis in real time, Twitter would certainly be a valid portal to look at," she said. "It's cheap, it's fast and it's ubiquitous, whereas traditional phone polling is slow and expensive - it

can take weeks and can cost tens of thousands of dollars per week, if not more, to gather data.

"And just about everyone has a smartphone, and everyone of a certain demographic is on one social media channel or another, making the results just as valid as the more expensive traditional polling method."

Social media could potentially also be an effective tool to launch public health campaigns, Albarracin said.

"Clearly, people will talk about their health online, and they seem to have no qualms about obtaining information about public health issues from social media," she said. "People aren't afraid to go public and crowd-source their health concerns."

The methodology could be applied to collections of tweets from other domains of interest, from business to politics.

"If you're trying to do market research, instead of calling people, you could obtain these measures of consumer attitudes through social media ," said Albarracin, also a professor of business administration with the Gies College of Business.

The paper will be published in the journal *JMIR Public Health and Surveillance*.

More information: Mohsen Farhadloo et al, Associations of Topics of Discussion on Twitter With Survey Measures of Attitudes, Knowledge, and Behaviors Related to Zika: Probabilistic Study in the United States, *JMIR Public Health and Surveillance* (2018). DOI: 10.2196/publichealth.8186