

To convince the vaccine hesitant, understand their underlying motivations

April 14 2021, by Ben Mattison



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A few months into the COVID-19 vaccination campaign, the percentage of Americans expressing reluctance to be vaccinated has fallen, but is still substantial—in a [March poll conducted by U.S. Census Bureau](#), 17%

said either that they probably wouldn't or definitely wouldn't get the vaccine. What message is most likely to convince those who are hesitant to be vaccinated?

There's no single answer, according to Vineet Kumar, associate professor of marketing at Yale SOM. The kind of message that is needed, and the likelihood of success in changing minds, depends on the source of reluctance.

A study co-authored by Kumar offers a model for identifying those sources and creating communications to help overcome them. In December 2020, early in the vaccination campaign, Kumar, with Dr. Brita Roy and Dr. Arjun Venkatesh of the Yale School of Medicine, surveyed Yale healthcare workers about their intentions and took a consumer-marketing approach to understanding their concerns and assembling recommendations for addressing them.

Understanding what is motivating people isn't always as simple as asking them, Kumar says, especially when it comes to something as fraught as vaccination. "Discussing healthcare can be an emotional issue, not just a rational costs-versus-benefits evaluation."

"The value of adopting a consumer marketing mindset is that we typically go deeper into the motivations and underlying factors that drive people's decisions," he adds. "In many cases, consumers might be hesitant to tell us their views directly, especially if they believe their responses will be seen by supervisors." (To alleviate that concern, the authors conducted their survey anonymously.)

In the survey, 15% of healthcare workers were at least somewhat reluctant to be vaccinated, responding that they were "neither likely or unlikely," "somewhat unlikely," or "extremely unlikely" to get the vaccine when it was available—lower than the percentage in the general

population. To understand the motivations of hesitant [healthcare workers](#), the researchers asked them to answer the question, "What would make you comfortable getting the vaccine?" in a free-response box.

The researchers started by analyzing the broad themes in the responses. Of the 15% who were hesitant, the largest group, about 30%, said they wanted to see long-term follow-up on the vaccine, of more than a year, before they would be comfortable being vaccinated. About 12% wanted medium-term follow-up, and 10% said nothing would make them comfortable getting the vaccine. Smaller minorities offered a variety of reasons, including pregnancy, allergies, a [health condition](#) that was not studied in trials, religious objections, or simply wanting to see others get the vaccine first.

The team then used software to assemble the responses into word clouds by theme, allowing them to get a more nuanced understanding of the reasons for hesitancy within each of these themes. For example, the responses made it clear there were differences among those who wanted to see others receive the vaccine first.

"One person said, "It should be given first to others who have greater health risks," Kumar noted, "whereas a second said "I would be more comfortable to see how everyone else handles it first." The underlying reason is very different"—and requires a very different message to have an impact.

The researchers used sentiment analysis, a machine-learning tool commonly used in marketing, to determine an overall sentiment within each theme depending on the positivity or negativity of words and phrases used by the respondents. Quantifying the intensity, Kumar says, can help determine how likely someone is to change their mind.

"There is a lot of information in words and context, in how people

choose to express themselves," Kumar says. "For example, if someone says they would 'never, ever vote' for a particular candidate, then it's quite unlikely that an ad or messaging will change their view. However, if they say they 'would not bother to go check the box,' this seems negative, but they may be persuadable."

In the vaccine survey, those who were concerned about allergies or had religious objections, for example, used more negative words, indicating that they are less likely to be convinced; those who were concerned about data transparency or a rushed process of approval, on the other hand, were more likely to use positive words, suggesting that they are more open to having their minds changed by new information.

Finally, the researchers offered recommended interventions for a variety of concerns. To convince those who want to wait until others receive the vaccine, they suggest "communicat[ing] and celebrat[ing] the experiences of other employees who have received the vaccine." For those seeking follow-up on the vaccine, they suggest ongoing communication about test results and vaccine safety over time.

Other concerns are harder to address. For those who are concerned about a health condition, hearing from colleagues with similar health conditions who have received the vaccine might be helpful—but, they acknowledge, identifying such colleagues might be challenging.

The authors note some limitations to their approach—those who are most reluctant to be vaccinated may be less likely to respond, skewing the results, for instance. But it has the advantage of speed: it took them only a week to design and implement the survey. They have made their code available to other organizations who want to understand vaccine concerns among their own staff or customers, and it has been adopted by researchers in other countries.

Their method could be a useful tool at a critical moment in the pandemic, Kumar says. "Dr. Fauci has indicated that we could need close to 85% of the population vaccinated to achieve herd immunity. So it becomes really important to get into the minds of people regarding [vaccine](#) hesitancy."

The next step is to extend the approach beyond text responses. "I'm also working with colleagues and students on machine learning methods to identify user emotion in both text and other media, like audio and video, which can then be used to understand their state of mind," Kumar says. "These new approaches offer a lot of promise in allowing us to ask and answer important questions."

More information: Health Care Workers' Reluctance to Take the Covid-19 Vaccine: A Consumer-Marketing Approach to Identifying and Overcoming Hesitancy. *NEJM Catalyst*. [DOI: 10.1056/CAT.20.0676](https://doi.org/10.1056/CAT.20.0676)

Provided by Yale University

Citation: To convince the vaccine hesitant, understand their underlying motivations (2021, April 14) retrieved 23 May 2024 from <https://medicalxpress.com/news/2021-04-convince-vaccine-hesitant-underlying.html>

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