

Guide to COVID-19

vaccine communications

**A practitioner's guide to the principles
of COVID-19 vaccine communications**



**CENTER FOR
PUBLIC INTEREST
COMMUNICATIONS**
UNIVERSITY OF FLORIDA



Contents

	Page
How this guide was developed	4
Principles for building trust	6
It all starts with trust	8
The principles	
→ Worldviews	10
→ Timing	16
→ Messengers	20
→ Narratives	24
→ Relationships	30
→ Social Norms	34
→ Emotions	38
→ Motivations	44
References	48

How this guide was developed

This guide was prepared by the Center for Public Interest Communications at the University of Florida College of Journalism and Communications in partnership with Purpose and the United Nations Verified initiative.

Our research began with an information-gathering scan of peer-reviewed research from the US and the UK in vaccine hesitancy, through which we identified a group of scholars with expertise in identity, trust, science communication, etc. Over a period of five days from August 21-25, 2020, we held a series of conversations with these scholars around specific topics related to vaccine hesitancy.

These included:

- What makes people resilient against misinformation?
- What drives vaccine hesitancy?
- Which frames will be most effective?
- What kinds of message strategies have been effective with specific communities?
- And finally, what are some of the best ways to make taking the vaccine a norm within particular communities?

These conversations were transcribed and coded, and we identified the principals shared here.

We applied these principles to generate a survey which was conducted in four countries – France, Germany, the United States, and the United Kingdom – from October 4-18, 2020.

The survey had more than 1,600 total respondents, with more than 400 respondents per country, and was representative of gender, race, income, geography, and age. It offers preliminary data on testable claims made in this guide. The survey was conducted with online participants who were willing to take part. The survey was conducted by the survey firm Qualtrics which adhered to research guidelines and provided informed consent to survey takers about the survey and their rights.

Across the survey 301 people (18%) reported they were vaccine hesitant, which is in line with national surveys as of October 2020. While statistically significant, this survey was used to test the reception of certain messages and can not be generalized across all populations.

Principles for building trust

The factors that lead people to make choices to take vaccines are nuanced and affected by how they see the world, their perceptions of the choices people like them will make, who they trust, their perceptions of risk, consistency of message and convenience of actually getting the vaccine.

In a perfect, limitlessly resourced world, we'd have the opportunity to craft highly specific campaigns for each community and identity in the world. The vaccine would be simultaneously available to all, and our personal doctors would administer it and assure us of its efficacy.

That world doesn't exist.

However, there are a set of principles for sharing vaccine information that can help increase trust, acceptance and demand for vaccination. In this guide, we'll help you understand this complexity and nuance and offer principles and insights drawn from leading experts in vaccine communications that can guide your efforts.

The principles include:

Worldviews

Work within worldviews, identities, and moral values—each of us has a unique set of identities, worldviews and moral values. These influence our choices and behaviors, and even what we believe to be true. Rather than investing time into messages to try to convince people otherwise, it's worthwhile to understand what others see as right and wrong and to connect with what's most important to them. Find the common ground between what we hope to achieve and what matters to them.

Timing

Use timing to your advantage. It's far easier to build trust when you're the first to articulate a message. People are most likely to trust—and stick to—the version of information they hear first.

Messengers

Use the right messengers for your audience. People act when they trust the messenger, the message and their motivations. Trusted messengers vary greatly from community to community, but there are some broad lessons we can apply.

Narratives

Make your content concrete, supply a narrative and provide value. If messages aren't concrete and don't include stories, our powerful sense-making brains will fill the abstraction with stories and ideas that make sense to us.

Relationships

Recognize that communities have different relationships with vaccination. In some societies, people may be fearful of vaccines, but have a strong trust in authority. In others, mandatory vaccinations have created distrust of government authorities. In others, decades of mistreatment and exploitation have resulted in a profound lack of trust in new medical treatments.

Social Norms

Change social norms to help gain acceptance. We are deeply affected by the behavior and choices of people in our networks—even people we may not have met. Examining vaccine hesitancy through the lens of social norms offers two opportunities to make a difference. The first is activating social networks and people's perceptions of what others are doing. The second is in changing the communications norms among those communicating on behalf of the vaccine.

Emotions

Evoke the right emotions. It's tempting to activate emotions like fear or shame to get people to take a vaccine, but fear immobilizes us, and shame is likely to achieve the opposite reaction we're hoping for. Look to more constructive emotions like love, hope and the desire to protect to get people to act.

Motivations

Be explicit and transparent about your motivations. Our perceptions of the motivations of the messenger matters. Our motivations in seeking information are equally important. We're less likely to trust a vaccine if we question the motives of the people advocating for us to take it.

It all starts with trust

Our willingness to put a foreign substance into our bodies is highly dependent on trust.

Do we trust the vaccine? Do we trust those urging or requiring us to get the vaccine? Do we trust those developing it, and their methods and testing? Do we trust that the vaccine will keep us safe and not make us sick? Do we trust those administering the vaccine, and the environments in which it is offered?

There is no perfect turn of phrase or collection of terms that can lead people to choose to take a vaccine or reduce their hesitancy to do so. It is tempting to think that if we simply share consistent information about the availability and efficacy of the vaccine, people will trust that information and behave accordingly. However, this information deficit model of communication is not enough.

The human brain struggles to process uncertainty and complexity. It's not surprising that hesitancy regarding a COVID-19 vaccine is so rampant, and that it's easy and understandable to put trust in those around us who are expressing hesitancy and our own gut instincts, rather than trusting institutions.

The factors driving a lack of trust

Some of the factors driving the lack of trust within certain communities include:

Inconsistency. Sharing health advice as our understanding of the science evolves may be perceived as inconsistency. If we look at the health messaging during the pandemic: many were told masks didn't work. Then that they did. Or that focus of infection was on surfaces, then we learned that the real threat was aerosolization. For those who are already skeptical, all of this can sound like inconsistency, which erodes trust.

False balance happens when a story or news account gives equal weight to two perspectives, or "both sides." We perceive them as being equally weighted and valid, leaving us to decide for ourselves which is true. This happened in media coverage linking the MMR vaccine to autism, when in fact just one poorly conducted (and ultimately retracted) study showed a link between the two. We saw a similar trend in early reporting on climate change: the scientific community almost unanimously agrees on the effects of global warming, but many news outlets included commentary from a few dozen climate-skeptics scientists, creating the perception among some that there is a chasm in the scientific consensus.

The **wrong messages**, sometimes shared as personal stories, can be hard to overcome—especially those that seem politically motivated and don't show compassion or a link to science. Stories of individuals being harmed by vaccines, whether they are true or not, can undermine larger campaigns. It's easier to empathize with the experience of just one person than it is to empathize with the experience of the millions of humans whose health has already been protected by vaccines.

Abstraction is harmful, because when messages aren't concrete, our minds fill the empty space of abstraction with our own sense of meaning and bias. If you aren't providing concrete details, people who hear your message are filling that "empty space" with what is known or familiar to them. This may be the case with communicating about the process of developing a vaccine,

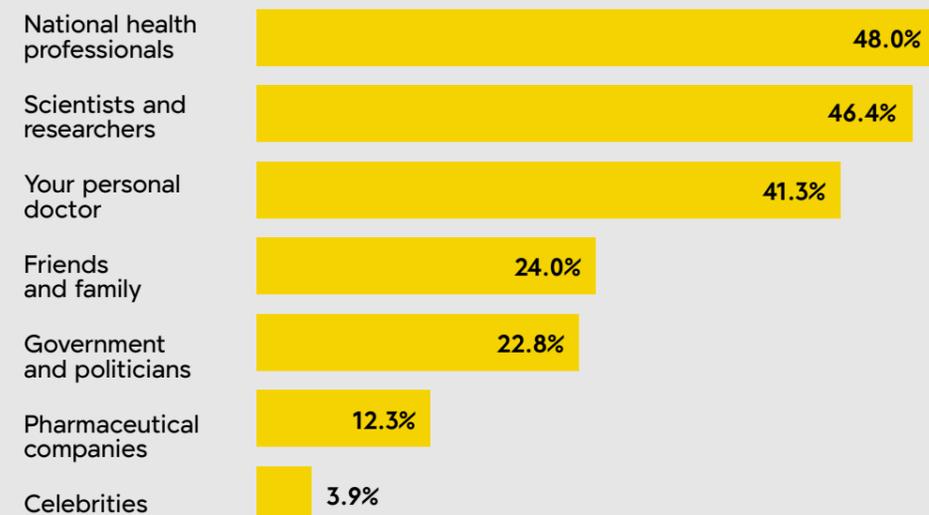
without concrete information on the process we fill the void with our own assumptions about safety and efficacy.

If a **messenger** appears to be motivated by factors that conflict with the recipient's moral values or is part of an "out-group" the recipients of the messages won't trust the messenger: Research suggests that when one encounters messengers with perspectives different than theirs, they'll ascribe the most extreme beliefs to them if the message counters their own perspective.

Timing matters. And as tumultuous recent events have shown, factors like elections, diagnoses and announcements about the status of vaccine trials have rapidly shifted the landscape and people's perceptions of their efficacy. It's important to be thoughtful about these contextual factors as you release information, hold events, or launch campaigns.

During the COVID-19 pandemic who do you get reliable health advice from?

Scientists and health professionals are the most trusted sources of advice during the pandemic.



Principle

Work within worldviews, identity and moral values

Understanding what others see as right and wrong can help us to connect with what's most important to them and find the common ground between what we hope to achieve and what matters to them.

Our beliefs are intertwined with our **identities, moral values and worldviews**. Beliefs affect which information we're willing to accept as true and how we should respond to it. We are influenced by people within our networks who share our identity, worldviews and moral values. These factors influence how we hear messages, and motivate us to accept or reject information.

Research by social psychologists Daniel Kahneman and Amos Tversky suggests that people use mental shortcuts (or intuitive thinking) to navigate their social world. The cues we take from messages and messengers help us quickly assess how we should feel about a particular issue. This is in contrast to slower, analytical thinking that requires more cognitive effort.

Worldviews are the collection of beliefs we hold about the world around us. People have different worldviews that guide how they think the world works, and how they act in response to social and environmental issues. Worldviews exist along a continuum, with people falling on different points. Identifying the worldview of a community is important for a campaign to be able to identify messages and solutions that will resonate, and to avoid those that will lead to information avoidance or perceived threat.

Identities are the various groups we see ourselves as belonging to. These identities are often more helpful for segmenting communities than demographics, because they are self-selected and based on the interests of the individual. People within a social group tend to have similar values and beliefs and engage in the same normative behavior. Research suggests that we are unlikely to engage in behavior that separates us from the groups with which we identify.

// What's going to be compelling for some audiences is what resonates with their personal values. So for those who are rugged individuals, it could be about the freedom to go back to work as quickly as possible, and the freedom to go back and congregate at your place of worship as soon as possible. And the freedom to move about on your own in your community on your own time. So it's all about that sense of individual agency, but for others, it may be about responsibility to community and family and being a good parent, or being a good daughter or son to protect an elderly immunocompromised parent //

– Monica Schoch-Spana, Ph.D., Senior Scholar at the Johns Hopkins Center for Health Security

Moral values

Research on moral values and decision-making suggests that people support issues that resonate with their existing values as compared to those that threaten or challenge these values. Moral Foundations Theory identifies five moral values that inform this sort of processing: Loyalty, Fairness, Care, Authority and Sanctity/Purity and people's proclivity to these correlate with their political ideology.

Moral psychologist Jonathan Haidt suggests that people rely on affectation—whether something feels good or bad—to form these quick judgements. If something makes us feel bad, we will find a reason to justify why it is wrong.

If something makes us feel good, we will find a reason to justify why it is right. People rely on information cues that help them quickly assess how they should feel about an issue.

People who are more conservative tend to value respect for authority, in-group loyalty, and preserving the sacred or pure, while people who are more liberal tend to value fairness and protection from harm. Below is a breakdown of the motivations for each value based on work by Haidt, Graham and Nosek (2009):

These values play out differently across different countries.

Conservative Value	Motivation
In-group loyalty	Emphasis on loyalty or betrayal to his or her group. Emphasis on protecting the group, even above their own interests.
Respect for authority	Emphasis on respect for tradition and hierarchy and responsibility to fulfill duties of his or her role within society.
Purity/Sanctity	Identifying something as unnatural or disgusting, or violating standards of purity and decency. Emphasis on acting in a virtuous way.

Liberal Value	Motivation
Protection from harm	Emphasis on protecting someone from harm, suffering, emotional distress, violence. Care for the weak and vulnerable.
Fairness	Emphasis on equality and justice, i.e., people treated differently than others or someone denied his or her rights.

// ...attitudes towards vaccines are about the way people think the world operates. I guess the association we see between populist or anti establishment voters and vaccine hesitancy relates to something about people's views towards elites and experts. This relates to people's understanding of the States and capitalism, pharmaceutical companies and things like this. So I think we have to really understand that there's some deep structural determinants of vaccine hesitancy that go way beyond information and awareness //

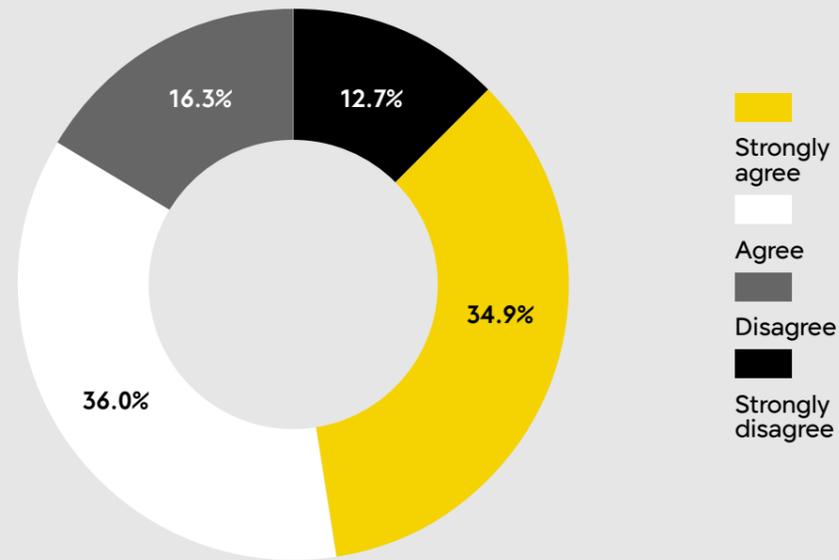
– Jonathan Kennedy, Ph.D., Senior Lecturer in Global Public Health at the Queen Mary University of London

Recommendations

- ⚡ Examine the worldviews, identities and moral values of your target communities and discuss vaccines in the context of what you know is most important to them.
- ⚡ As you apply the other principles in this guide, start with an understanding of the worldviews, identities and moral values of those whose behavior you're working to shift.
- ⚡ Use your resources effectively by focusing your message on those that are most resistant to vaccine uptake. Focusing your messages on those less likely to act is likely to be a more effective use of resources.
- ⚡ Build clear calls to action that resonate with the moral values, worldviews and identities of those whose mindsets you hope to shift.

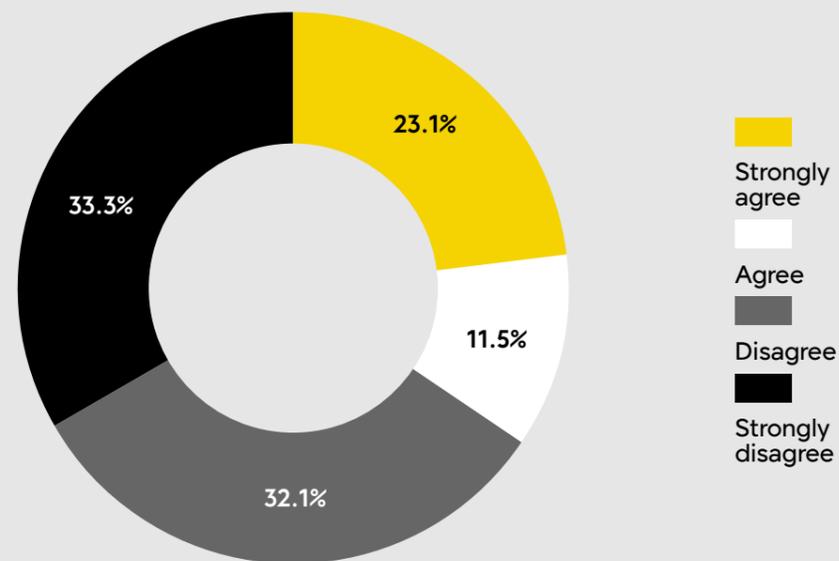
The more loyal people are to their “in group,” the more likely they are to think the vaccine should be mandatory

Of the people who are highly loyal to their in-group, 71% of them agree or strongly agree the vaccine should be mandatory.



The less loyal people are to their “in group,” the less likely they are to think the vaccine should be mandatory

Almost 65% of the people who do not value in-group loyalty disagree or strongly disagree the vaccine should be mandatory.



Principle

Use timing to your advantage

It's far easier to build trust when you're the first to articulate a message. People are most likely to trust—and stick to—the version of information they hear first. It's also critical to know what else is happening as important news breaks.

Timing is critical

We're in a quickly shifting landscape where people's beliefs and actions will change rapidly. What may be effective in one context may shift within a week or two as other contexts change. People evaluate what they trust against their existing knowledge, and there is a window of opportunity to get people information and build trust. Sharing accurate information quickly is critical to gaining their trust. You only get to be first once, and we trust what's first most.

Speed is important, but so is consistency. Communicators face the dual challenge of getting to people quickly with the right

information and in the window of opportunity that allows them to build trust.

An important aspect of timing is repetition. Heidi Larson, Ph.D., Professor of Anthropology, Risk and Decision Science and Director of the Vaccine Confidence Project at the London School of Hygiene & Tropical Medicine, has observed that in the case of COVID-19, new information may be less trusted, especially in a context as volatile as the one in which we find ourselves. This makes it important that people hear similar messages from a range of messengers.

// By the time the (H1N1) vaccine was available, concern was lower, and so a lot of people chose not to get it //

– Emily Brunson, MPH, Ph.D., Associate Professor of Anthropology at Texas State University

Inoculation theory offers a way of thinking about this. It works just as vaccines do. By exposing people to a message that counters your argument and then refuting it, you can help people become more resilient to harmful or inaccurate messaging they may hear later. And just as vaccines only work when they're administered before someone is exposed to the disease, inoculation theory works when your message is heard first.

Myiah Hutchens, Ph.D., Assistant Professor at the College of Journalism and Communications at the University of Florida points out "inoculation theory is perfect for the issue

at hand [COVID-19 vaccine]. The idea being that having the correct information initially is better than when you're being exposed to misinformation, because we know that information sticks, especially if it's something we want to believe."

Gordon Pennycook, Ph.D., Assistant Professor of Behavioural Science at University of Regina's Hill/Levene Schools of Business, agrees adding a crucial point about critical thinking: "if you do an experiment that involves information, some people have better intuitions about what's true versus what's false. The benefits of critical thinking is not just that people think

more critically about what they are presented with at the moment, but that they have thought about things over time. This allows them to contextualize the stuff they see better.”

Given that there is little knowledge of the vaccine approval process, and curiosity about the availability of a vaccine is high, there’s an opportunity to build trust by helping people to understand this process.

Factors like the overlap of the national elections in the United States and cold and flu season create additional complexities, but may offer additional opportunities to encourage people to take vaccines.

// What will be the situation with the virus at the time that the vaccine becomes available? Is it going to still be raging? Hopefully not like it is right now. In the US, it’s not under control, so things are getting worse. But we may not have this vaccine till some months from now, and maybe, hopefully, the situation will be calmer. If we behave ourselves, then the incidence will be low. If the incidence is low, then people will not feel a need for it [the vaccine] as much as they do now. So we know that the willingness to take a risk with vaccination will increase if you feel vulnerable and if you feel the need. But when everything looks okay, like it’s under control, why subject yourself or your child to this unknown substance if everything looks calm? One has to kind of figure out how the messaging will interact with the situation on the ground at the time that this is being considered //

– Paul Slovic, Ph.D., Professor of Psychology at the University of Oregon and founder and president of Decision Research

Recommendations

- ⚡ Identify content areas where you have an opportunity to “get there first” and inoculate people with effective messages that resonate with their worldview.
- ⚡ Consider what else is happening at the same time and how that might affect how much people trust your message.
- ⚡ Repeat. While being first with a message is important, it’s also important that people continue to hear the same message from a variety of sources.

Principle

Use the right messengers

People act when they trust the messenger, the message and their motivations.

People within different contexts and societies trust different messengers. We want our messengers to have specific expertise and knowledge and we consider their motivation sometimes—but not always—in our trust of them.

Without question, the most effective messengers are experts and trusted leaders in our own communities—both our geographic ones and our digital ones.

It's important to examine who people trust, and demonstrate, where possible, that sources who are trusted within communities also trust expert institutions like the FDA or UN.

The construct of "in-group" and "out-group" can be helpful in identifying trusted messengers. David Fetherstonhaugh, Applied Behavioral Economist, points out that "I couldn't stress enough the importance of a message coming from within an in-group — someone that's automatically on the inside. It's almost like such

messages even bypass deliberate cognition because they are coming from a trusted source: 'They're my family, or it's my pastor, or it's my party leader.' So the source of messages, in-group vs. out-group, is extraordinarily important for how a message is received."

Myiah Hutchens points out that our personal experience and observations are critical. "For the most part, we're going to trust our in-groups until we're forced otherwise. Right? So it's going to be a hard issue of making sure that people's realities are then matching up with what their in-groups are saying."

Jay Van Bavel, Ph.D, Associate Professor of Psychology, New York University, said that's actually what some epidemiological guidelines for public communication advise: "These messages shouldn't actually be politicized or shared by political figures... it would be better if you have a scientist out there sharing it."

// So you can imagine a world where you're able to understand who the most trusted source for a particular community is based on understanding that community really, really well and then figuring out all the network connections that lead to a central individual. So we can make a guess about who the trusted source for liberals who live on the coasts are, but that could be really wrong, and the cost of having that be wrong is really, really high. As much as we're talking about trust in testing the actual messages, figuring out who the source is possibly just as much important //

– David Markowitz, Ph.D., Assistant Professor
at the School of Journalism and Communication at the University of Oregon

Even actions that may be apolitical—like a national agency sharing a plan for distributing the vaccine when it’s available—can be seen as political. In these contexts, where messages are all seen as inherently political, identifying and underscoring a credible original source of the information can be especially important. Sources of credible facts are going to be viewed differently within different political contexts and among people of different worldviews.

The vaccine-hesitant community is particularly adept at applying this. Heidi Larson, who has done extensive research on vaccine hesitancy, says, “These anti-vaccine groups are getting traction because they are listening. They’re listening to the public. They’re hearing people express their anxieties and concerns and they leap right in there and they say, we hear you.

They are sometimes much more responsive to those anxieties and fears than health officials who sometimes dismiss the concerns, just focusing on the value of vaccines, and not ‘hearing’ or feeling the deep anxiety that some parents are really going through.”

Jay Van Bavel, pointed out that working with people inside communities who are respected and trusted to either design or communicate the messages was likely effective in reducing the initial spread of the disease. He said, “A campaign might benefit from a social influencer, social network model of communication, in addition to a mass media model.”

“ For Black Americans, for instance, barbershops turn out to be a really good place to get health information and having doctors train the barbers to talk about it turns out to be quite effective... It’s important to have the information there, but having this trusted source who the experts trained to talk about it also helps broader dissemination. And so I think thinking about whatever messaging we end up coming up with from these multiple levels will be really helpful “

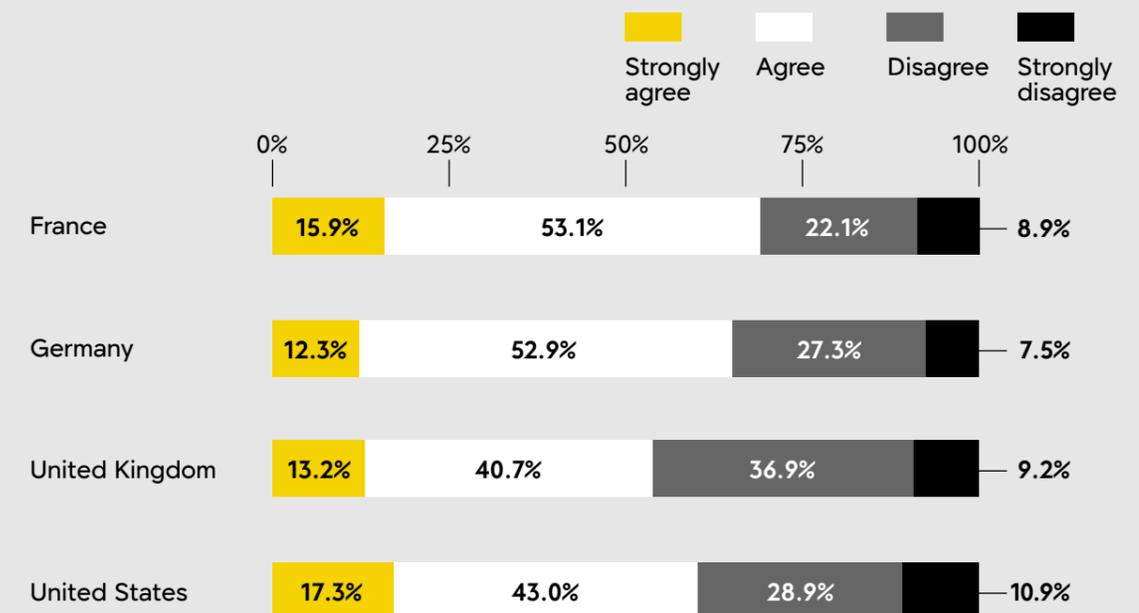
– Neil Lewis, Jr., Ph.D., Assistant Professor at the Department of Communication at Cornell University

Recommendations

- ✓ Understand which sources of information trusted messengers are citing within the communities you are trying to reach.
- ✓ Recognize that there are trusted messengers in both offline and digital communities. It’s important to listen to both to identify trusted individuals who can help you create and share messages that will be trusted by a community.

Most people want to receive information on a COVID-19 vaccine from people in their community

Across the four countries, the majority of respondents agreed or strongly agreed that they would prefer to get information on a vaccine from people in their community rather than distant experts. French and German respondents were even more likely to want information from their communities.



Principle

Make your content concrete, supply a narrative and provide value

If messages aren't concrete and don't include stories, our powerful sense-making brains will fill the abstraction with stories and ideas that make sense to us.

Experts can presume that what's in their minds is known to all. This is the "curse of knowledge," and can lead them to communicate abstractly, use specialized language and use messages that are specific to their own goals—not what's important to others.

Use messages that are concrete, consistent, built around narrative, and provide value. Make information feel immediate, proximate, possible, and likely to directly affect people or those they care about.

Experts may use terms that are abstractions to others. For example, if you're talking about the status of a vaccine trial, instead of saying a vaccine is in phase 3, say, "the vaccine has been tested on X thousand people." If you don't translate abstract or complex terms, or acronyms, people will fill that abstraction with their assumptions. Avoid that risk by using definitions in place of terms that require expertise to understand.

Gordon Pennycook and his colleagues ran an experiment in which they informed 1,200 people about the process of getting vaccines approved to go to market through a simple public service announcement. It showed an impact with both Democrats and Republicans.

// I imagine that you might be able to get corporations or governments or NGOs to get on board with vaccines. Say to them, 'This is how your government reopens, or this is how your company reopens, once everybody's vaccinated.' If you could get them on board to give employees an afternoon off, or a day off, to go get vaccinated, that deals with accessibility issues for some people who just don't have childcare or can't go as easily. But also signals an endorsement from the agency you work with, the company, the institution, the government... And so that's kind of on the feasibility side of things, but it's also messaging because if your manager, or manager's manager, or CEO, or company leader is saying they did it and they want you to go do it, then that would be a pretty strong vote of confidence and economic support for people to do it //

– Jay Van Bavel, Ph.D., Associate Professor of Psychology & Neural Science at New York University

Build a narrative. Our brains are powerful sensemaking machines that default to finding narrative when one isn't offered. If you don't present your information in the form of a narrative, your readers or listeners will create one as a way of interpreting what they're learning.

Provide value by listening to what people are asking. Engage in listening on social

platforms where people are sharing concerns about vaccines. Understanding the reasons behind people's skepticism will help you design messages that overcome them. As Heidi Larson points out, rumours and misinformation flourish when there's broad, shared curiosity and an information vacuum. Listen to questions and fears and provide detailed and meaningful answers.

// I think we need to avoid the trap of thinking that information or knowledge is enough, because for a lot of the people, and when you look at hesitancy and parental vaccine hesitancy in the US, the group who is most likely to purposefully choose to not vaccinate are highly educated. In speaking with them, these are people who have read the primary literature themselves, and they're correctly interpreting it, so it's not a misunderstanding. They have other concerns that go beyond the traditional public health message of, 'This is what you should be doing' //

– Emily Brunson, MPH, Ph.D., Associate Professor of Anthropology at Texas State University

Three messages that have been used effectively by vaccine-hesitant communities are **choice**, **regret** and **control**. Scholars suggest these might be flipped to reduce vaccine hesitancy.

Paul Slovic, Ph.D., Professor of Psychology at the University of Oregon and founder and president of Decision Research, suggested the potential effectiveness of regret: "Wouldn't you **regret** if you did not get the vaccine and you or your loved ones got ill and you had decided not to get it?" Kurt Gray, Ph.D., Associate Professor in Psychology and Neuroscience at the University of North Carolina, said it's important to offer this in a positive sense and focus on the benefits of the vaccine with concrete stories. People in the vaccine hesitant community often point to their regret in having their children vaccinated, attributing specific side effects to that choice.

Heidi Larson pointed out how the regret angle is really important to leverage, because it's something that parents really struggle with. "There is a very proactive influential anti-HPV vaccine group in Ireland called "R.E.G.R.E.T.. It's about Gardasil. It's **Reactions and Effects of Gardasil Resulting in Extreme Trauma**. Regret can be leveraged in different ways, On the one hand you can say, 'You don't want to regret not vaccinating if your child gets encephalitis or other serious condition from measles disease.' But many parents are also anticipating the possible regret if they do vaccinate and there is a problem, 'Yeah, but what happens if he gets autism from the vaccine?' Regret is an important dimension in conversations with parents, but the important thing is to shift the anticipated regret towards how they might feel if their child is not vaccinated and becomes seriously ill or even dies from a vaccine preventable disease rather

than being more focused on the potential side effects of the vaccine."

Paul Slovic pointed out that "one of the things that makes COVID scary is that it's difficult to **control**." It's invisible, people can carry and transmit the disease without showing symptoms, and there are limited treatment options. People have profound discomfort with uncertainty, and so offering the vaccine in the context of regaining control could be quite powerful.

Choice factors in, in three ways. People may worry they will be forced to get a vaccine. They may worry that they won't have access to the vaccine, and therefore rationalize its likely effectiveness. The third is that people may feel

overwhelmed if they have to choose among several vaccine options.

Emphasize choice and freedom—opportunities to make choices around particular vaccines or timing, that no one will be forced to get the vaccine, and the benefits of getting the vaccine. It's important to share these not simply in the form of data, but to tell stories of people who have gotten vaccines, stayed healthy and reclaimed the freedom to pursue their favorite activities.

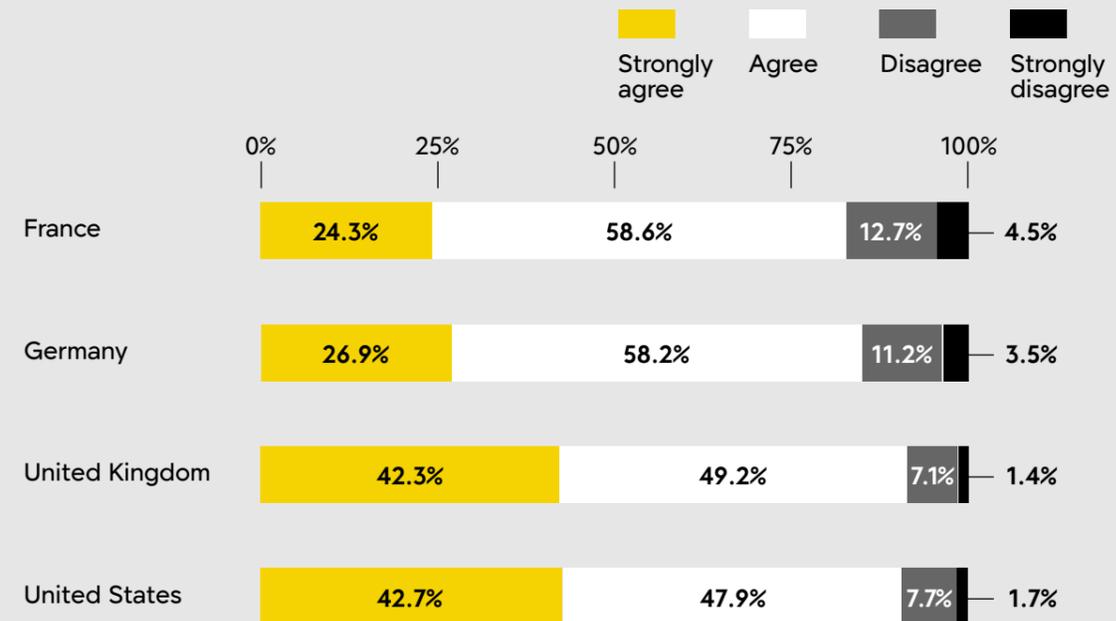
Another way to approach choice is through behavioral economics. Offer a default option that's determined by experts, with an opt-out possibility. This retains people's sense of freedom, but default architecture will guide them into the experts' recommendations.

Recommendations

- Ⓜ Overcome abstraction with messages that situate the importance in terms of local threat, likelihood, timeliness, and possible harm to people like you.
- Ⓜ Use definitions and details rather than acronyms and jargon.
- Ⓜ Identify messages that are consistent even as knowledge evolves—like the process for creating a vaccine.
- Ⓜ Build a narrative. Situate facts within stories of individuals reclaiming control of their lives to make them believable and relatable.
- Ⓜ Try flipping the themes of choice, regret and control and frame them in a positive way to increase vaccine uptake.

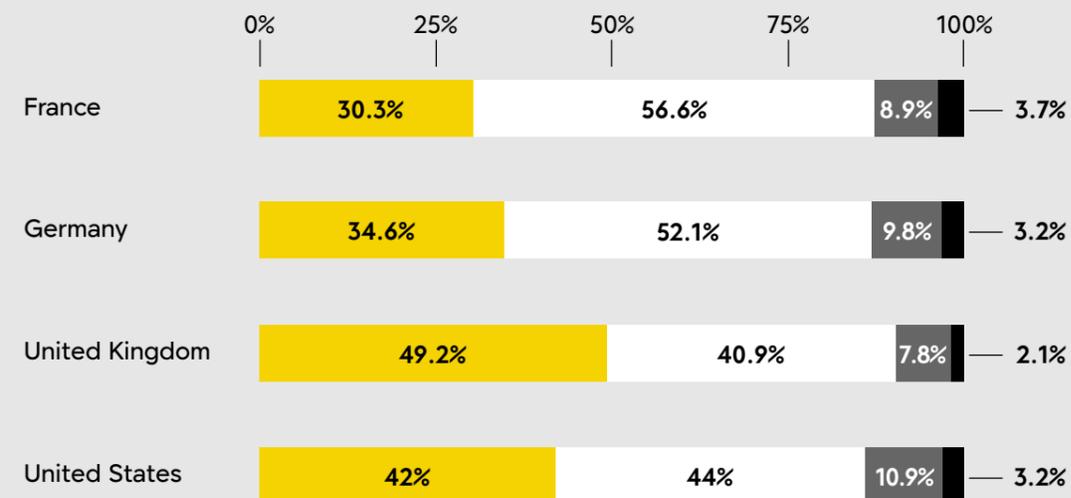
When a COVID-19 vaccine is released a strong majority think there should be data available showing how many people in their country are taking it

87% of respondents agreed or strongly agreed that data should be made available on how many people are taking a COVID-19 vaccine in their country.



Do you agree that since vaccines have saved many human lives around the world, taking a COVID-19 vaccine would also save lives?

87% of respondents agreed or strongly agreed that since vaccines are effective in saving lives a COVID-19 vaccine will also save lives. This was one of the strongest messages tested in this survey.



Principle

Recognize that communities have different relationships with vaccination

In some societies, people may be fearful of vaccines, but have a strong trust in authority. In others, mandatory vaccinations have created distrust of government authorities. In others, decades of mistreatment and exploitation have resulted in a profound lack of trust in new medical treatments.

Specific messages will resonate differently in different types of societies. One of the ways we can anticipate how messages will resonate is to assess whether we are communicating in a “tight” or “loose” society.

Language, metaphor, messages, even imagery look different and have different salience within different societies. Tight and loose societies

have different regional norms, relationships with leaders and cultural relationships with government. This construct of “tight” and “loose” refers to the extent a society tolerates deviance and norms. A “tight” society will have low tolerance for deviance and strong social norms, while a “loose” one will have a higher tolerance for deviance and weaker social norms.

// Historically in the African American community concerns about experimentation are founded and symbolized by the Tuskegee Syphilis Study //

– Sandra Quinn, Ph.D., Professor and Chair of the Department of Family Science at the University of Maryland

For example, Kurt Gray points to liberal “hippies” as an example of a culturally “loose” group which have lower levels of vaccine uptake, and says: “Even people who are super loose, kind of the hippies, are a great example because they defy the norms of even a relatively loose society. [To reach them] go to communities, and [target] the people they trust. They’re not immune to social influence [and messaging them with] ‘You’re freely choosing to do whatever you want, and this is why [a vaccine is] a reasonable choice,’ [rather than] ‘You should do this.’”

Societies have different relationships with authority. Paul Slovic and his colleagues did a study of trust in authorities comparing the United States and France in the context of trying to understand why nuclear power was so successful in France, but was rejected in the United States. There was no difference in perceived risk between the two countries, but in France, people trusted the experts and authorities, whereas in the US they had much lower levels of trust.

In a society like France that is skeptical of a vaccine, but has high trust in authority, relying on government spokespeople and advocacy will be more likely to be effective.

// Wellcome Trust released a report and the headline was that vaccine hesitancy was highest in high-income countries. I know that the people that developed that study argued that it was precisely because the chance of your child dying of measles was so much lower in the US or the UK that you could more or less take the chance of not vaccinating a child and be pretty sure that they wouldn't contract measles //

– Jonathan Kennedy, Ph.D., Senior Lecturer in Global Public Health at the Queen Mary University of London

Researchers have observed that in countries—like the UK—where vaccines are not legally mandated, there's less politicization of vaccination, and greater trust than in the US, France and Germany.

These kinds of cultural differences are one of the reasons that strategies that are highly customized to individual groups can be so effective. Emily Brunson, MPH, Ph.D., Associate Professor of Anthropology at Texas State University, pointed out that during H1N1, there were several Somali communities across the United States where there were concerns about forcing in the vaccine and whether it was halaal, or permissible according to Islamic law. In Seattle-King County in Washington State, local outreach was able to address that issue and increase vaccination rates for H1N1, and then move forward with other vaccines as well. Success like this requires having strategic public health outreach and having good connections with communities.

Recommendations

- ④ Understand whether the community in which you are communicating is “tight” or “loose.”
- ④ Take into account the relationship people in your community have with authority and frame the message accordingly.
- ④ Where possible, get deeply immersed in both online and geographic communities to understand their specific fears and concerns.
- ④ Recognize that particular communities have significant and valid reasons to be fearful of new medical interventions and address these transparently.

Principle

Change social norms to help gain acceptance

As humans—particularly those who live within collectivist societies—we are strongly influenced by our perceptions of what others will do, the informal and formal norms.

Taking a social norms approach to change focuses less on changing beliefs and more on changing perceptions of what other people like us are doing. Increasing vaccine uptake requires two kinds of norms-change strategies. The first would focus on reducing vaccine hesitancy. The second would focus on changing norms of communication styles among public health experts.

To apply social norms theory to driving change, it's useful, according to Lisa Fazio, Ph.D., Assistant Professor of Psychology at Vanderbilt University, to find the influencers and get them to change their mind, which can have big downstream effects.

So, for example, if you were working in schools, you would target the kids who have the most connections with other kids and have them be the one implementing change. Identifying those influencers is going to have a bigger effect than just random people.

And, according to Emily Brunson, applying social norms theory can work at a national level, too, if you can identify the influencers and get them on board. As an example, she points to a live conversation between basketball star Steph Curry and infectious disease expert Anthony Fauci held on Curry's personal Instagram account.

// The majority of what I found is that parents are making decisions based on what they hear from other people, it's not even looking at things online or reading social media, it's actually what they're hearing from people that they know and trust. And then you have some people, a much smaller group, who are doing actual research, but for those people that are making decisions based on what other people are doing and telling them, that's, I think, where the trust is. And instead of looking to try and build trust in, especially federal institutions right now in the United States, that's problematic for various reasons, it's really coming down to working more at a community level and working with communities and finding spokespersons within those communities who are trusted, who can then share that message. And so that's the way to end up having that trust built in. It's not necessarily going through the FDA, at this point it's going to be going to the mom in that Somali community, it's going to be going to that reverend or priest in that Southern Baptist community. So it's going to be looking at more of a community level for who can be a trusted messenger //

– Emily Brunson, MPH, Ph.D., Associate Professor of Anthropology at Texas State University

There is a common belief among communicators within the public health and scientific communities that people make choices based on information. This approach is called the information deficit model, and for many this form of communication is a norm. But, as this guide shows, our choices and behaviors are influenced as much by our emotions, worldviews, moral values, identities and perceptions of what people like us are doing. So an important part of changing how people think about vaccines is changing how public health officials communicate about them.

Emily Brunson stated, "Most parents when they make decisions they're going to go to their mom, they're going to go to their friends who have kids and say, 'Well, what did you do?' And that's really how many people make these decisions. Most people are, for lack of a better word, lazy decision-makers in terms of just, 'I just want someone else to tell me what to do, someone that I trust.' And so the social network component is a huge factor."

// I'm going to quote Dennis Mileti, who's a sociologist of disaster who has worked a lot on public warnings. And basically in these crisis periods, everyone is swimming around in—I think he calls it a soup. It's a soup of information. While there may be preferred messengers, people are getting a lot of incoming. And the more that there is a repetition of a key message the more it sinks in. So while someone may really place a lot of faith in what their practitioner or their healthcare provider says to them, if it is reinforced from other sources as sources and messengers, that's a good thing //

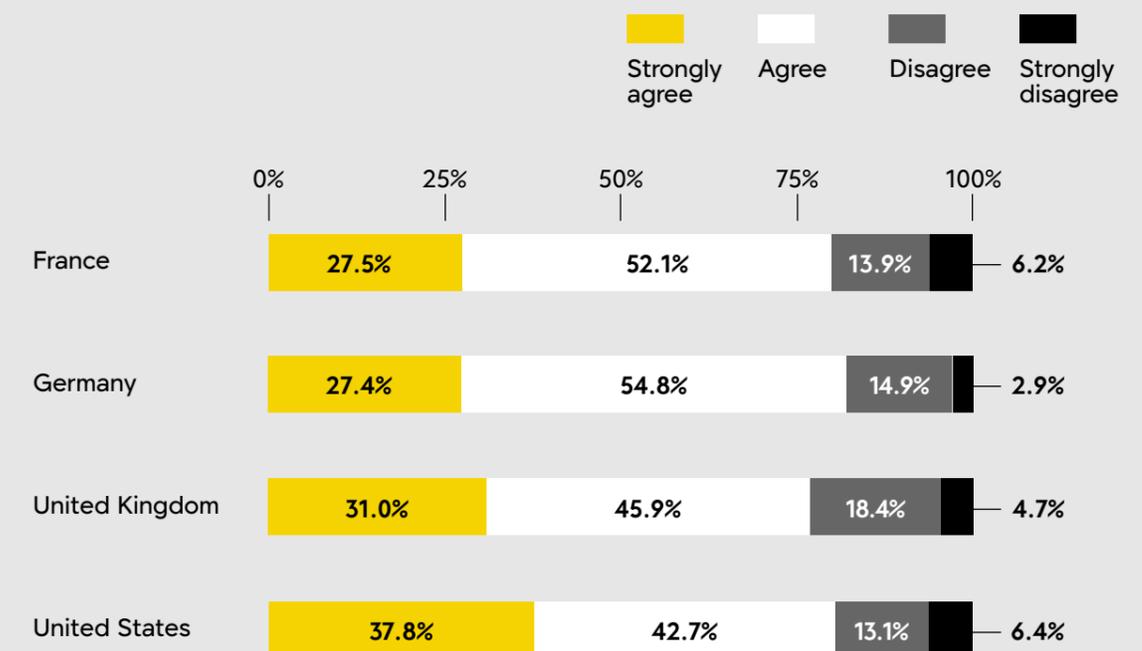
– Monica Schoch-Spana, Ph.D., Senior Scholar at the Johns Hopkins Center for Health Security

Recommendations

- 🔄 Shift perceived norms with your identified community with messages that highlight others within their social network who are getting the vaccine, not those who aren't.
- 🔄 Work with influencers to shift these perceptions.
- 🔄 If you're using experts to communicate on the topic, move away from the information deficit model to science-informed frameworks like this one.

Most survey respondents agreed that a COVID-19 vaccine should not be mandatory

Reflecting strong social norms about personal choice, majorities across all four countries agreed or strongly agreed that people should have a personal choice as to whether to take a COVID-19 vaccine.



Principle

Evoked the right emotions

It's tempting to activate emotions like fear or shame to get people to take a vaccine. But fear immobilizes us, and shame is likely to achieve the opposite reaction we're hoping for. Look to more constructive emotions like pride, hope and parental love to get people to act.

People form judgements and make decisions based on emotion, but when it comes to conveying scientific information, there's a tendency to eschew emotion. Particular emotions can motivate people to action or immobilize them. Using emotions intentionally can close the chasm between intention and action.

// We don't want to feel the shame, but changing the behavior is not necessarily the easiest thing to do. . . This is something that's been on my mind a lot with university responses to students about shaming them around various behaviors. What you're asking them to do is lie to you on these daily checks, etc. It's not actually getting them to stop doing those behaviors. So that's something I want to be cautious about, is shame and stigma. Those appeals do not work in the way people think they do. It gets people to lie to you, and so we shouldn't do that //

– Neil Lewis, Jr., Ph.D., Assistant Professor
at the Department of Communication at Cornell University

Emotions to avoid

Sadness. Sadness can be helpful in gaining short-term engagement, but isn't helpful over the long term. We are motivated to maintain a positive sense of ourselves, and tend to ignore information that makes us feel bad about our choices or doesn't affirm our worldview.

Shame. It's tempting to shame people for not choosing to get the vaccine. But as we've seen with mask wearing, shame activates people's moral reasoning and they'll find reasons why their choice is the right one to avoid feeling bad about themselves.

Fear. Using fear appeals can be effective when there's a clear call to action, but in this case, it's more likely that fear appeals will

immobilize people. Fear motivates people to assess information systematically, so we may pay more attention to information when we are afraid. Public health scholars have found a relationship between fear and perceptions of personal or group risk. If the risk doesn't seem relevant to an individual's life, they won't experience fear and are more likely to disengage from or discount the message. If people are seeing messages that suggest that the risks of COVID-19 are minimal, they're unlikely to engage. People can experience fear when the consequences of risk are uncertain and they feel like they do not have control over the outcome. So using a fear-based message could damage more constructive efforts to demonstrate how taking the vaccine offers control.

// Fear with self-efficacy messages also can be effective. One thing to keep in mind is that when you try to elicit a single emotion, sometimes you will elicit mixed emotions and particularly as we get older. Among older adults, if you try to elicit a single emotion, a mixed emotional reaction may result instead. So there's some very interesting things that happen with that across the lifespan. But in general, it's actually kind of hard to elicit a single emotion and have it stick as a single emotion. When we get fearful, we can end up experiencing lots of other thoughts and feelings that come along with the fear. I wonder if some of them were cognitive emotions, things like pride, things like parental love, these things that we not only feel, but we also think about and we elaborate on . . . I wonder if those might actually be more effective because of the whole elaboration process, but I don't actually know of any data that's looked at that specifically. Fear can be very immediate, but it can also be counter argued. Parental love, who's going to counter argue it? //

– Ellen Peters, Ph.D., Philip H. Knight Chair and Director of the Center for Science Communication Research at the School of Journalism and Communication at the University of Oregon

Emotions that drive action

Pride can be effective in motivating people to engage in altruistic behavior, because it motivates us in ways that improve our image in the eyes of others and that makes us feel good about ourselves.

Parental love can be experienced by anyone, whether they've had a child or not. The emotion inspires us to protect those who are perceived as vulnerable. Research suggests that featuring children and baby animals is a way to activate parental love and increase compassion.

Lisa Fazio suggested a call to action beyond "getting" the vaccine for yourself, but using emotions via an aspirational approach. "The call to action is something that is elevated and aspirational and focused on the benefits and that sense of normalcy. The call to action is not getting a vaccine that is available to you.

The call to action is, 'Protect your family, protect your loved ones. Help the world get past this crisis.'

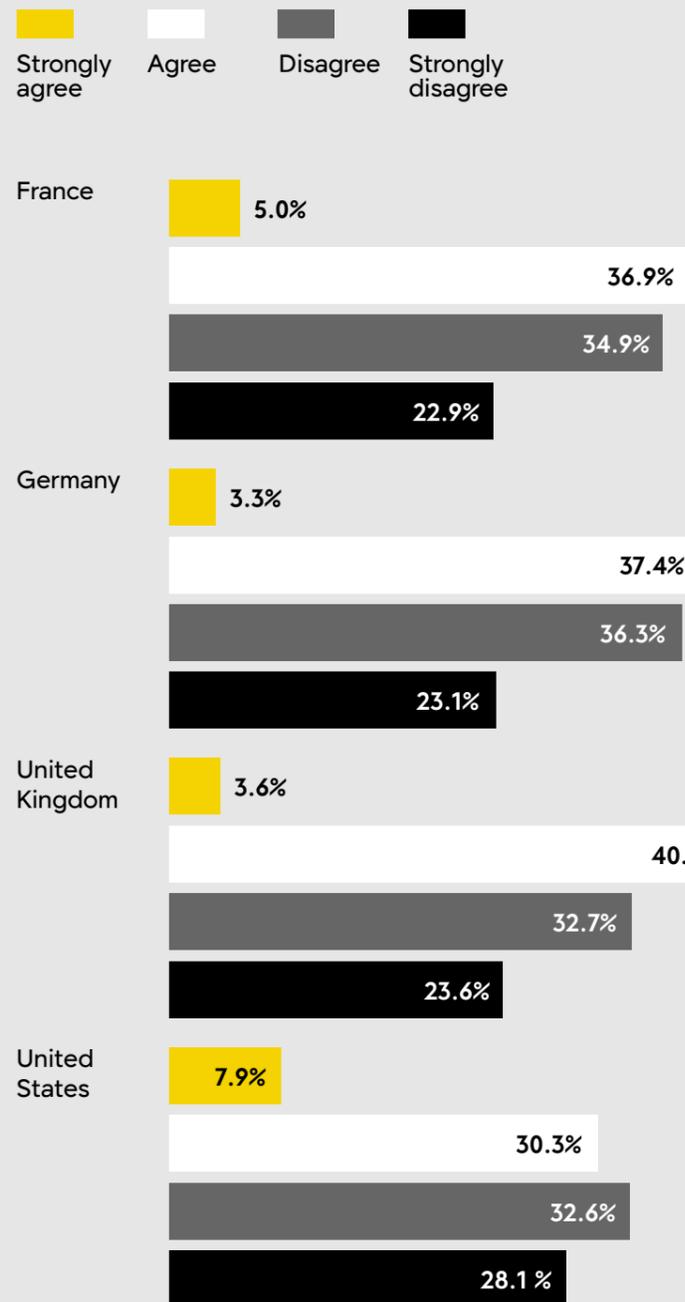
Hope is a powerful emotion that increases feelings of efficacy and can motivate behavior change. Hope focuses attention on future rewards and possibilities, which can motivate people to take action to attain those outcomes. For people to feel hope they must see a future outcome as important, personally relevant, possible and in line with their existing goals and motives. Heidi Larson pointed out that hope is an emotion we under-leverage. Her work with mothers of Zika-affected microcephaly children showed that hope was deeply motivating to parents' engagement.

Recommendations

-  Avoid using shame, fear or sadness in calls to action. We are likely to tune out messages that use sadness or shame to retain our positive sense of self, and fear messages can be immobilizing.
-  Tap into hope, pride and parental love to motivate people to act and affirm their positive sense of self.

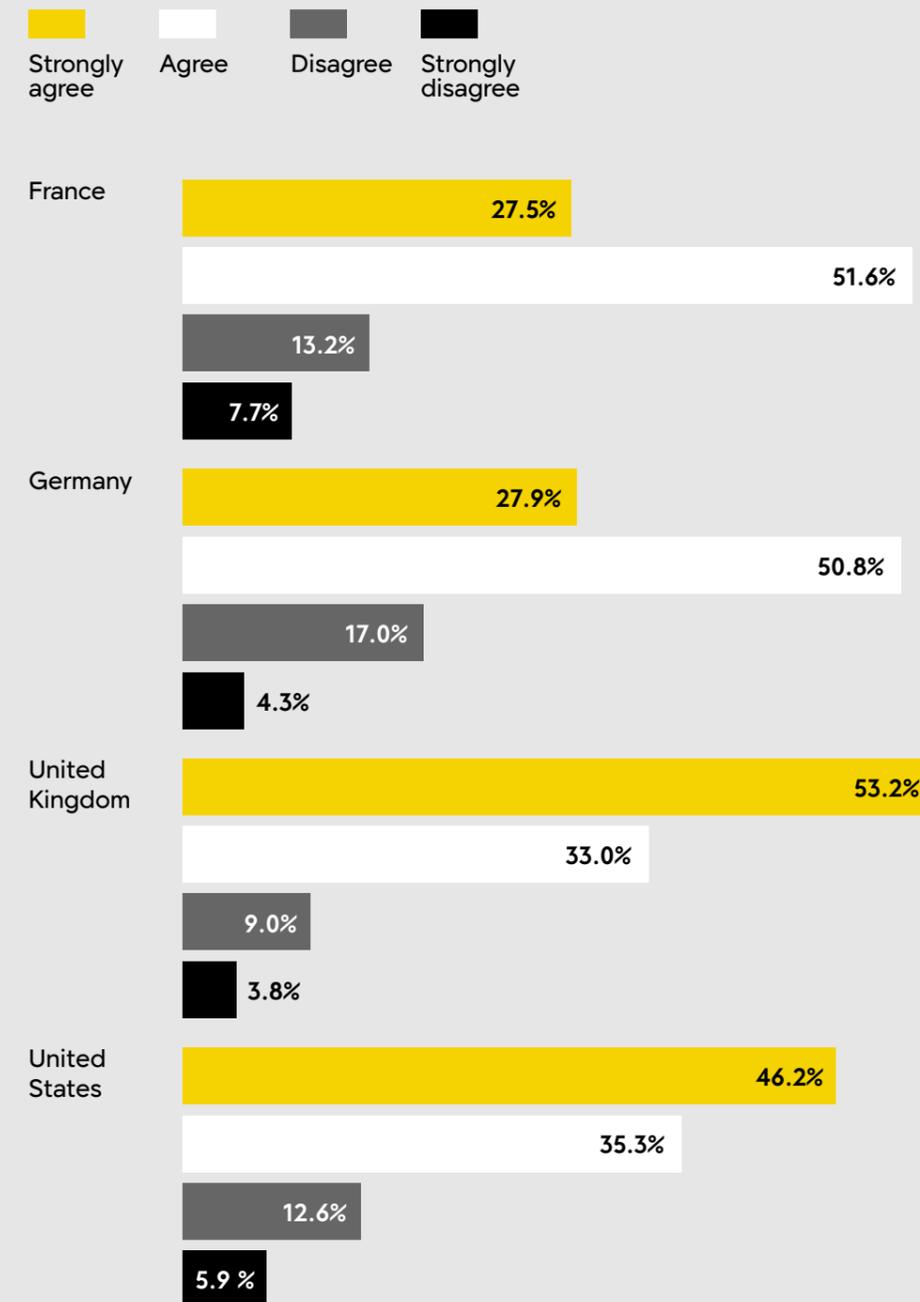
A significant number of vaccine hesitant respondents responded positively to a hopeful message

41% of vaccine hesitant individuals agreed or strongly agreed a COVID-19 vaccine was the "best chance" we have of ending the pandemic.



Respondents would feel regret if their child got COVID-19 and they chose not to vaccinate

A large majority of respondents agreed or strongly agreed that they would feel regret if they chose not to give their child a COVID-19 vaccine and then their child became ill.



Principle

Our perceptions of the motivations of the messenger matter, as do our own motivations

Our perceptions of the motivations of the messenger matters. Our motivations in seeking information are equally important. We're less likely to trust a vaccine if we question the motives of the people advocating for us to take it.

Motivations are relevant to this discussion in three contexts. The first is in the motivation of those urging others to get the vaccine. Messengers can build trust by being clear about their motivations by being clear about why they're asking people to take a particular action.

The second is people's desire to get the vaccine because they're motivated to return to what's important to them or the people they care about.

// If I'm, for example, an immigrant, and I feel like ICE is going to be at that site, or the police will be at the vaccination site, or it's going to be at a courthouse, I may not feel comfortable going there. Even if I feel very at risk for COVID and I very much want the vaccine, I might be hesitant to be vaccinated just because of how I'm going to have to access it. And so that's something that we really need to think about, that it's not just about intent, but that the practicalities of access will matter as well //

– Emily Brunson, MPH, Ph.D., Associate Professor of Anthropology at Texas State University

This kind of appetite can have positive consequences. When search algorithms take people toward incorrect, harmful information, it's damaging. But intentional connections between the kind of topics people are highly motivated to search on and accurate information can be constructive. While public health authorities can be hesitant to enter the social media space, it's becoming clear that if you're not there, listening to questions and being there with a response, you're missing an opportunity to connect parents with good information.

For example, Neil Lewis, Jr., Ph.D., Assistant Professor at the Department of Communication at Cornell University and Sandra Quinn, Sandra Quinn, Ph.D. Professor and Chair, Department of Family Science and Senior Associate Director of Maryland Center for Health Equity, School

The third is that people who are seeking information for their child are highly motivated. Heidi Larson has pointed out that one of the fertile grounds of rumors is people with a shared curiosity about a topic. She's explained that people are more vulnerable to a rumor if they're eager to find an answer. This is particularly relevant to why the "vaccines cause autism" argument has gotten so much traction in parent circles. It's a big question and concern of parents that's shared across multiple countries.

of Public Health, University of Maryland, noted that due to centuries of policies that created and entrenched racial inequality, including in healthcare, African Americans sometimes question the motives of government, especially in regard to health. For instance, Sandra Quinn states: "One of the things we found in our qualitative work is that whites were more likely to question competence in government, but our African American participants, given the racial context of the US, were more likely to question the motives of government... in today's context questioning the motives of government is going to be one of the factors here [for a COVID-19 vaccine]. So let's say we approve a vaccine early . . . what the motives are behind it is going to be in question, whether the government has everyone's best interest at heart."

Paul Slovic noted that individual motivations differ for different groups and are tied to what is important to them. "There's some people who are individualistic and they don't want to be told to do anything versus people who are more sensitive to the needs of the community. And one of the motivations for taking the vaccine is not only to protect the people you care about and yourself, but to protect the community. So people differ there, and I think the strategies for communication and motivation have to be tailored to the individual and the idiosyncratic factors that drive them including who the communicators are."

Recommendations

- ✓ Learn about the motivations of your community and their information seeking behavior.
- ✓ Be transparent about the motivations of the messenger.

Relevant theories

Theories mentioned in the living literature review and from the published literature on vaccine hesitancy.

Confirmation Bias: A theory that suggests people seek out, favor and recall information that confirms their existing beliefs. This is particularly true for issues that are politically and emotionally charged and that are connected to deeply held beliefs.

Construal Level Theory: Describes the relation between psychological distance and the extent to which people's thinking (e.g., about objects and events) is abstract or concrete. The general idea is that the more distant an object is from the individual, the more abstract it will be thought of, while the closer the object is, the more concretely it will be thought of. In CLT, psychological distance is defined on several dimensions—temporal, spatial, social and hypothetical distance being considered most important, though there is some debate among social psychologists about further dimensions like informational, experiential or affective distance.

Cultural "tightness and looseness": Refers to the extent a culture has tolerance for deviance and norms. For instance, a "tight" culture will have low tolerance for deviance and strong norms, while a "loose" culture will have a higher tolerance for deviance and weaker norms. Examples of tight cultures include anthropological studies of Israel Kibbutz to looser cultures of the Kung Bushman, Cubeo, and the Skolt Lapps (Pelto, 1968). Examples of modern cultures and developed countries of tight societies, like those of Japan, Singapore, and Pakistan provide strong norms and monitoring systems to detect deviations, which are severely punished. As such, these societies value order, formality, discipline, and conformity (Gelfand et al., 2006, 2011; Pelto, 1968). In contrast, norms in loose societies like those of Brazil, Israel, or the United States are more ambiguous, deviations from norms are tolerated, and punishments for deviations are less severe (Gelfand et al., 2013, p.499).

Cultural tightness–looseness has its theoretical roots in multiple disciplines, including anthropology (Pelto, 1968), sociology (Boldt, 1978a, 1978b), and psychology (Berry, 1966, 1967), and contrasts cultures that have strong norms and little tolerance for deviance with those that have weak norms and high tolerance for deviance (Gelfand et al., 2006; Gelfand et al., 2011; Harrington & Gelfand, 2014; Roos, Gelfand, Nau, & Lun, 2015; Triandis, 1989). Research has shown that nations vary widely in tightness–looseness and that the construct is distinct from cultural values (Carpenter, 2000; Gelfand et al., 2011)" (Aktas et al., 2015, p.2).

Source: Mert Aktas, Michele Gelfand, and Paul Hanges. (2015). Cultural Tightness–Looseness and Perceptions of Effective Leadership. *Journal of Cross-Cultural Psychology* 1–16. Available from: https://www.researchgate.net/publication/282324344_Cultural_Tightness-Looseness_and_Perceptions_of_Effective_Leadership [accessed Sep 03 2020].

Source comparing modern countries on tightness and looseness: Gelfand, M. J., LaFree, G., Fahey, S., & Feinberg, E. (2013). Culture and extremism.

Journal of Social Issues, 69, 495-517.

Curse of Knowledge: The curse of knowledge is a cognitive bias that occurs when an individual, communicating with other individuals, unknowingly assumes that the others have the background to understand.

Source: Birch SAJ, Bloom P. The Curse of Knowledge in Reasoning About False Beliefs. *Psychological Science*. 2007;18(5):382-386.

False Equivalency: is a logical fallacy where an equivalence is drawn between two subjects based on flawed or false reasoning. A false equivalent argument often simultaneously condemns and excuses both sides in a dispute by claiming that both sides are (equally) guilty of inappropriate behavior or bad reasoning. The argument can appear to be treating both sides equally, but it is generally used to condemn an opponent or to excuse one's own position (partly paraphrased from source: Palomar College) <https://www2.palomar.edu/users/bthompson/False%20Equivalency.html>

Thomas Patterson wrote about the danger of false equivalencies in news coverage of 2016: [F]alse equivalencies are developing on a grand scale as a result of relentlessly negative news. If everything and everyone is portrayed negatively, there's a leveling effect that opens the door to charlatans. The press historically has helped citizens recognize the difference between the earnest politician and the pretender. Today's news coverage blurs the distinction"

Source: Thomas E. Patterson (December 7, 2016). "News Coverage of the 2016 General Election: How the Press Failed the Voters"

Information Aversion: People are averse to information that makes them feel bad, obligates them to do something they do not want to do, or threatens their deeply held values, worldviews and/or identity. Also known as the ostrich effect and information avoidance.

Inoculation Theory: is a psychological framework derived in the 1960s that aims to induce pre-emptive resistance against unwanted persuasion attempts. Papageorgis & McGuire (1961) explain: “A previous study...showed that strong initial beliefs are more effectively immunized against persuasion by pre exposing them to counterarguments...The present study tested the hypothesis that preexposure to refutations of some counterarguments against the belief would have a generalized immunization effect, making the beliefs more resistant to strong doses not only of the specific counter arguments...but also of alternative arguments against the given belief...As expected, the beliefs proved highly vulnerable to the strong counterarguments when there was no prior immunization. Immunization had a direct strengthening effect on the beliefs and also substantially reduced the effect of the subsequent strong counterarguments.”

Source: Papageorgis, D., & McGuire, W. J. (1961). The generality of immunity to persuasion produced by pre-exposure to weakened counterarguments.

The Journal of Abnormal and Social Psychology, 62(3), 475–481.
<https://doi.org/10.1037/h0048430>

Moral foundations theory: With roots in sociology and social psychology, going back to Emile Durkheim, scholars in the 1990s-2000s coined “Moral Foundations Theory” which proposes that several innate and universally available psychological systems are the foundations of “intuitive ethics.” Each culture then constructs virtues, narratives, and institutions on top of these foundations, thereby creating the unique moralities we see around the world, and conflicting within nations too. The five foundations for which they think there currently is evidence for are: 1) Care/harm; 2) Fairness/cheating; 3) Loyalty/betrayal; 4) Authority/subversion; 5) Sanctity/degradation; 6) Liberty/oppression. There might be more that research will delve into.

This finding is important for framing arguments as Feinberg and Willer (2015) tested—claiming that where frames that were targeted at someone’s morality there were more likely to have success in changing minds.

Sources: Feinberg, Matthew and Robb Willer. (2015). From Gulf to Bridge: When Do Moral Arguments Facilitate Political Influence? Personality and Social Psychology Bulletin. Volume: 41 issue: 12, page(s): 1665-1681. <https://journals.sagepub.com/doi/full/10.1177/0146167215607842>

Haidt, Jonathan. (2012). The Righteous Mind: Why Good People Are Divided by Politics and Religion. Vintage; 1st Edition (March 13, 2012)

Nudge Theory: Although it is debated whether this is a new concept in behavioral economics or not it has recently been brought to the forefront of intellectual endeavors and also political policy by Richard Thaler and Cass Sunstein’s book “Nudge: Improving Decisions About Health, Wealth, and Happiness” (2008). Nudge theory is a concept in behavioral economics, political theory, and the broader behavioral sciences purporting positive reinforcement, defaults, indirect suggestions, all while still allowing freedom of choice, are ways that can influence behavior and decision making, especially aimed at issues of compliance.

Thaler and Sunstein define their concept: A nudge, as we will use the term, is any aspect of the choice architecture that alters people’s behavior in a predictable way without forbidding any options or significantly changing their economic incentives. To count as a mere nudge, the intervention must be easy and cheap to avoid. Nudges are not mandates. Putting fruit at eye level counts as a nudge. Banning junk food does not” (2008).

Sources: Richard Thaler and Cass Sunstein. (2008). Nudge: Improving Decisions About Health, Wealth, and Happiness. Penguin.

Pre-bunking (not debunking): Because once doubt settles in it is hard to dislodge, pre-bunking “shoots first.” This new theory (2000s) argues that providing people with correct information before they are exposed to false information can reduce their incidence of believing false information.

Recent work on pre-bunking that is gaining traction and widely cited is by [Sander Van Der Linden & Jon Roozenbeek](#). In a recent study, they surveyed 2,000 people first, asking them how big the scientific consensus on climate change is – without looking at any documents (one document was true about scientific consensus, another was a false petition saying climate change was not a consensus and that 31,000 American scientists disagreed with climate change, and a third was a brief refuting the petition).

The results were intriguing and displayed the potential power of pre-bunking. When participants first were asked about the scientific consensus on climate change, the researchers calculated it to be around 72% on average. But they then changed their estimates based on what they read.

When the researchers provided a group with the ‘truth brief’, the average rose to 90%. For those who only read the petition, the average sank to 63%. When a third group read them both – first the ‘truth brief’ and then the petition – the average remained unchanged from participants’ original instincts: 72%. Thus, there is evidence that pre-bunking may be an effective method against false reports/news.

Source: BBC <https://www.bbc.com/future/article/20181114-could-this-game-be-a-vaccine-against-fake-news>

Sander Van Der Linden & Jon Roozenbeek. (2019). The new science of prebunking: how to inoculate against the spread of misinformation. On Society.

<http://blogs.biomedcentral.com/on-society/2019/10/07/the-new-science-of-prebunking-how-to-inoculate-against-the-spread-of-misinformation/>

Prospect Theory: Prospect theory, comes out of behavioral economics, and is credited to Daniel Kahneman and Amos Tversky and their 1979 paper "Prospect Theory: An Analysis of Decision under Risk" in which they argue individuals assess gains and losses in asymmetric ways--in other words there is more aversion to loss than towards gains. This tendency, they argue, contributes to risk aversion in choices involving sure gains and to risk seeking in choices involving sure losses.

This has real world effects in that the overweighting of low probabilities may contribute to the attractiveness of insurance and gambling.

This theory stands in contrast to expected utility theory which expects people to act the same in terms of loss and gains and to always try to maximize utility, yet prospect theory holds up under rigorous studies in the real world, as opposed to expected utility theory.

Sources: Kahneman, Daniel; Tversky, Amos (1979). "Prospect Theory: An Analysis of Decision under Risk". *Econometrica*. 47 (2): 263–291.

Post, Thierry; van den Assem, Martijn J; Baltussen, Guido; Thaler, Richard H (2008). "Deal or No Deal? Decision Making under Risk in a Large-Payoff Game Show". *American Economic Review*. 98 (1): 38–71

Pseudo Inefficacy/Psychic Numbing: People are less likely to take action when they feel like their actions will not make a difference. Feelings of efficacy- power, agency, ability and effectiveness are important for increasing action. When a problem feels too big (or the devastation is hard to comprehend) we engage in psychic numbing (disengagement) as a cognitive defense.

Self Efficacy: Albert Bandura is one of the leading psychologists advocating self-efficacy and its power to influence behavior (see Bandura, 1997; Bandura, 1999; Bandura and Locke, 2003). Claiming: "Among the mechanisms of human agency, none is more central or pervasive than beliefs of personal efficacy. Whatever other factors serve as guides and motivators, they are rooted in the core belief that one has the power to produce desired effects; otherwise one has little incentive to act or to persevere in the face of difficulties. Self-efficacy beliefs regulate human functioning through cognitive, motivational, affective, and decisional processes (Bandura, 1997)" (Bandura and Locke, 2003, p.87).

Sources: Bandura, A., & Locke, E. A. (2003). Negative self-efficacy and goal effects revisited. *The Journal of Applied Psychology*, 88(1), 87–99.

Bandura, A. (1999). Social Cognitive Theory: An Agentic Perspective. *Asian Journal of Social Psychology*, 2(1). <https://doi.org/10.1111/1467-839X.00024>

Social Identity Theory: People derive their sense of self from membership in a group (s). How someone defines themselves can tell us what they pay attention to, who they trust, who their influencers are and the norms of the group. We act differently toward people in and out of our membership groups based on group status and affiliations. We use cues and cultural symbols to assess who is in and who is out of the group.

Social Norms Theory: Social norms are informal and formal rules that govern how we act and what we see as normal and taboo. A social norms approach to change focuses less on changing beliefs and more on changing perceptions of what other people like us do. Our behavior is influenced by those around us. If we think something is a social norm (or becoming one), we will update our own actions to fit in.

Worldviews: People have different worldviews that guide how they think the world works and therefore the messages and solutions they support. Some people are more egalitarian and others are more individualistic. Worldviews fall on a continuum and what we believe can change by issue. It is important to identify where a community is to build messages that will resonate.

How this guide was developed

This guide was prepared by the Center for Public Interest Communications at the University of Florida College of Journalism and Communications in partnership with Purpose and the United Nations Verified initiative.

Our research began with an information-gathering scan of peer-reviewed research from the US and the UK in vaccine hesitancy, through which we identified a group of scholars with expertise in identity, trust, science communication, etc. Over a period of five days from August 21-25, 2020, we held a series of conversations with these scholars around specific topics related to vaccine hesitancy. These included: What makes people resilient against misinformation? What drives vaccine hesitancy? Which frames will be most effective? What kinds of message strategies have been effective with specific communities? And finally, what are some of the best ways to make taking the vaccine a norm within particular communities? These conversations were transcribed and coded, and we identified the principals shared here.

We applied these principles to generate a survey which was conducted in four countries – France, Germany, the United States, and the United Kingdom – from October 4-18, 2020. The survey had more than 1,600 total respondents, with more than 400 respondents per country, and was representative of gender, race, income, geography, and age. It offers preliminary data on testable claims made in this guide. The survey was conducted with online participants who were willing to take part. The survey was conducted by the survey firm Qualtrics which adhered to research guidelines and provided informed consent to survey takers about the survey and their rights. Across the survey 301 people (18%) reported they were vaccine hesitant, which is in line with national surveys as of October 2020. While statistically significant, this survey was used to test the reception of certain messages and can not be generalized across all populations.

Participating scholars

Emily K. Brunson, MPH, Ph.D., is an associate professor of Anthropology at Texas State University. She is a medical anthropologist with training in cultural and biological anthropology as well as public health. Her research focuses on health care access and decision-making, and particularly how policies, social structures (including class and racial inequalities), social relationships and personal experience combine to produce health outcomes for individuals. Her research on vaccination has been published in Pediatrics, Vaccine and Health Security. She recently co-lead a working group, with Monica Schoch-Spana, on readying populations for COVID-19 vaccines.

Lisa Fazio, Ph.D., is an Assistant Professor of Psychology and Human Development at Vanderbilt University. Her research focuses on how people learn true and false information from the world around them and how to correct errors in people's knowledge. Her research informs basic theories about learning and memory, while also having clear applications for practitioners, such as journalists and teachers. Her research area is in cognition and cognitive neuroscience as well as developmental science. She's written on how to recognize misleading COVID-19 information on social media as well as how to avoid knowledge neglect and spreading misinformation.

David Fetherstonhaugh, Ph.D., is an applied behavioral economist in private industry practice. He holds a Master's in Statistics and a Ph.D. in Psychology from Stanford University. His work looks to bring behavioral economics to human-centered design to drive measurable results that transform product offerings, user experiences and business outcomes. His organization helps others discover the behavioral barriers and hooks to unlock engagement & behavior potential, design for choice sets to shape people's decisions and activate desired behaviors and develop organizational pathways to turn new behaviors into organizational habits that spread through social & business networks.

Kurt Gray, Ph.D. is an Associate Professor in Psychology and Neuroscience at the University of North Carolina at Chapel Hill. He directs the Deepest Beliefs Lab and the Center for the Science of Moral Understanding. The lab investigates people's most important beliefs, including morality and religion, and how they impact society. Lab research has clear applications to the real world, revealing how people respond to bias in algorithms, the roots of intersectional discrimination, how ethical policies in organizations can backfire, and how best to foster political tolerance. His recent research looked at a scale to measure realistic threat (health/livelihood) and symbolic threats (social identity) of COVID-19.

Jay Hmielowski, Ph.D., is an Assistant Professor at the College of Journalism and Communications at the University of Florida. His research interests include environmental, science, and political communication. He is interested in understanding why different messages are effective or ineffective at changing people's attitudes and beliefs associated with various environmental, science, and political issues. He is also interested in how people's attitudes and beliefs affect their information seeking behaviors. He has written on partisan echo chambers, environmental risk information seeking and was part of a COVID-19 health behaviors research team for the University.

Myiah Hutchens, Ph.D., is an Assistant Professor at the College of Journalism and Communications at the University of Florida. She is a political communication scholar whose research generally centers on how communication functions in democratic processes. Her research focuses on what leads people to seek out diverse perspectives - particularly views they disagree with - and how individuals then process that disagreement. She has written on political communications and its impact on trust in the media, breaking partisan echo chambers and was part of a COVID-19 health behaviors research team for the University.

Jonathan Kennedy, Ph.D., is a Senior Lecturer (Associate Professor) in Global Public Health at Barts and the London School of Medicine and Dentistry, Queen Mary University of London. His research has two main strands: the first focuses on armed conflict and health, the second on vaccine hesitancy. His work has been published in journals such as *Lancet*, *Social Science and Medicine*, *European Journal of Public Health*, *European Journal of Sociology*, and *Comparative Studies in Society and History*. He writes on topics related to politics and health for a non-academic audience, including *The Guardian*, *The London Review of Books*, *Al Jazeera*, *El Pais*, *Les Echos*, *Politico*, and *Project Syndicate*.

Heidi J. Larson, Ph.D., is Professor of Anthropology, Risk and Decision Science and Director of the Vaccine Confidence Project at the London School of Hygiene & Tropical Medicine and Clinical Professor of Health Metrics Sciences at the Institute of Health Metrics and Evaluation (IHME) at the University of Washington, Seattle, USA. The Vaccine Confidence Project has developed multiple metrics to measure population confidence in vaccines, from a Vaccine Confidence Index™ to temporal analysis of media and social media, and qualitative research to understand the drivers of vaccine reluctance and refusal.

Neil Lewis, Jr., Ph.D., is an Assistant Professor of Communication and Social Behavior in the Department of Communication at Cornell University and the Division of General Internal Medicine at Weill Cornell Medicine. He is a behavioral, intervention, and meta-scientist who studies how people's social contexts and identities influence their motivation to pursue their goals, and success in their goal pursuit efforts. He studies these processes most often in the domains of education, health, and environmental sustainability, in hopes that the knowledge generated from this research can provide useful insights for developing interventions to help people achieve their education, health, and sustainability-related goals.

David Markowitz, Ph.D., is an Assistant Professor in the School of Journalism and Communication at the University of Oregon. He uses language data from natural repositories to make inferences about people, such as what they are thinking, feeling, and experiencing psychologically. He researches what our digital traces reveal about us, using computational approaches to analyze how social and psychological phenomena—such as deception, persuasion, and status—are reflected in language. His work has appeared in the *Proceedings of the National Academy of Sciences*, *Journal of Communication*, *Communication Research*, and the *Journal of Language and Social Psychology*, and covered by outlets including *Vice*, *Business Insider*, *Forbes*, and *NPR*.

Gordon Pennycook, Ph.D., is an Assistant Professor of Behavioural Science at University of Regina's Hill/Levene Schools of Business and is an award-winning expert on the psychology of reasoning and decision-making. He investigates the distinction between intuition ("gut feelings") and analytic thinking, with a particular focus on two broad questions: 1) What features of our cognitive architecture initiate deliberative thought in the mind?, and 2) When does reasoning hurt us and when does it help us? Research topics include: Conflict detection, base-rate neglect, religious belief, morality, creativity, science beliefs, political ideology, and misinformation. He has published research focused on interventions against COVID-19 misinformation as well as work that focuses on the psychological underpinnings of misperceptions about COVID-19.

Ellen Peters, Ph.D., is the Philip H. Knight Chair and Director of the Center for Science Communication Research in the School of Journalism and Communication at the University of Oregon. Her primary research interests concern how people judge and decide, and how evidence-based communication can boost comprehension and improve decisions in health, financial, and environmental context. She studies the basic building blocks of human judgment and decision making and their links with effective communication techniques, numeracy, affect and emotion. Her book, *Innumeracy in the Wild*, looks at misunderstanding and misusing numbers.

Sandra Quinn, Ph.D., is Professor and Chair of the Department of Family Science and Senior Associate Director of the Maryland Center for Health Equity, School of Public Health at the University of Maryland. She is currently Principal Investigator (w. D. Broniatowski) on a National Institute of General Medical Sciences/NIH grant, *Supplementing Survey-Based Analyses of Group Vaccination Narratives and Behaviors Using Social Media*. As the Principal Investigator of a CDC funded study, *Public Attitudes Toward H1N1 Influenza*, she was the first to examine public attitudes toward emergency use authorizations for drugs and vaccines and to test an empirical model of disparities in exposure, susceptibility and access to care during a pandemic.

Monica Schoch-Spana, Ph.D., is a medical anthropologist and a Senior Scholar with the Johns Hopkins Center for Health Security. Her areas of expertise include community resilience to disaster, public engagement in policy making, crisis and risk communication, and public health emergency preparedness. Her principal goal is to work to influence policy and practice in ways that reduce human suffering and social disruption in the case of epidemics and disaster. During the COVID-19 response, she has collaborated in producing guidance to top executives on phased reopening principles, mental health challenges of the pandemic, research needed to support school reopening decisions, and ethical principles for the allocation of the limited future doses of SARS-CoV-2 vaccines.

Paul Slovic, Ph.D., is a professor of psychology at the University of Oregon and a founder and President of Decision Research. Decision Research is a collection of scientists from all over the nation and in other countries that study decision-making in times when risks are involved. He studies human judgment, decision making, and the psychology of risk. His most recent research examines “psychic numbing” and the failure to respond to the threat of mass human tragedies such as genocide and nuclear war. He is considered a leading theorist and researcher in the risk perception field (the psychometric paradigm, the affect heuristic, and “risk as feeling”).

Jay Van Bavel, Ph.D., is an Associate Professor of Psychology & Neural Science at New York University, an affiliate at the Stern School of Business in Management and Organizations, and Director of the Social Identity & Morality Lab. From neurons to social networks, Jay’s research examines how collective concerns—group identities, moral values, and political beliefs—shape the mind, brain, and behavior. This work addresses issues of group identity, social motivation, cooperation, implicit bias, moral judgment and decision-making, and group regulation from a social neuroscience perspective. Early in the pandemic, he gathered 40+ scholars and drafted a summary of research findings on fake news and conspiracy theories, leadership, threat perception and other issues that are all at play into the COVID-19 response.
