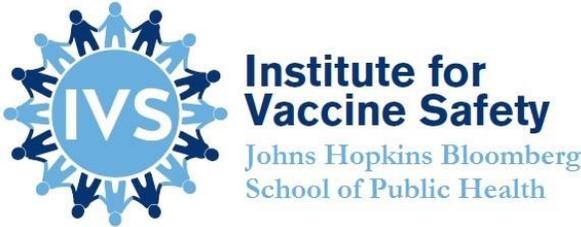
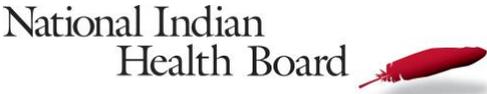


Understanding Diverse Communities and Supporting Equitable and Informed COVID-19 Vaccination Decision-Making



This document contains preliminary findings for work completed through December 21, 2020. We will continue to analyze the data collected but want to share this initial work with you before the holidays.

Implementation Partners

NACCHO

Amy Frandsen, Kimberly Sharpe-Scott, Lilly Kan, Michelle Cantu

NIHB

Robert Foley, Stacy Bohlen, and Carolyn Angus-Hornbuckle

AIM

Claire Hannan, Jasmine Berry, and Katelyn Wells

ASTHO

Ericka McGowan, Jim Blumenstock, Kate Heyer, Lisa Petersen, and Meredith Allen

Senior Survey and Engagement Teams

Matt Dudley, Jen Gerber, Haley Budigan, Tina Proveaux, Mary Davis Hamlin, Robin Roberts, Mike Hughes, Nadine Tafoya, and Lucy Moore

Local Partners

Xavier University in New Orleans, JHU in MD, Harris County TX, Glenwood Springs/Garfield County in CO, Blackfeet Tribe in MT, Spirit Lake Tribe in ND, and Fairfax County in VA

Local Facilitators of and from the community

Brian Turner (LA), Terris King (MD), Maria Montes (TX), Liz Velasco (CO), Billie Jo Kipp (MT), Shantel Dubois (ND), and Rene Najera (VA)

Senior Leadership

Dan Salmon, Lilly Kan, Ben Schwartz, Roger Bernier, and Janesse Brewer

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Executive Summary

Project Overview: This project, supported by the Robert Wood Johnson Foundation, is focused on how public health and other stakeholders can best understand and support decision-making as individuals consider if and under what conditions COVID-19 vaccination is right for them. It is amid intense concern about the myriad of pandemic impacts, distrust of government, changing policies, and evolving knowledge of the disease and the vaccines that individuals must evaluate and weigh the benefits and risks of vaccination for themselves, their loved ones, and their community. There is increased complexity and uncertainty that comes with the fact the vaccine has been authorized for emergency use in all adults. There also are impacts of the vaccine that not fully understood, such as whether the vaccine prevents transmission and the length of immunity.

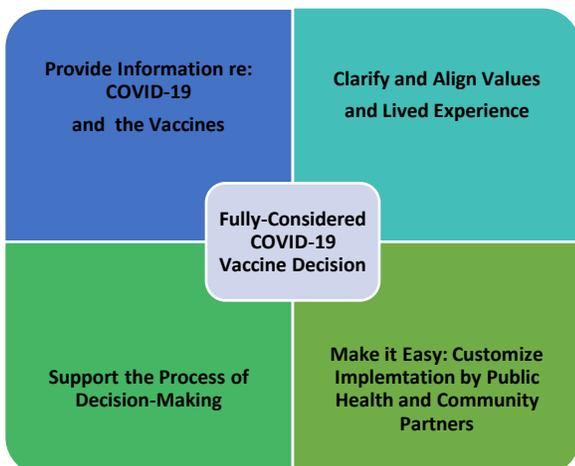
This project recognizes that it is critical to support decision-making among those who remain undecided about obtaining a COVID-19 vaccine at this time and is designed in three Waves between December 2020-April 2021. Furthermore, in order to foster equitable vaccine uptake, it is essential to ensure that the perspectives of communities of color, which are disproportionately impacted by COVID-19, are heard, listened to, and understood. In Wave One (November 1-December 21), we conducted a 2,525 person panel survey and hosted 25 online community conversations with nearly 400 adults. Participants in these conversations were African Americans, Latinx, and Native Americans recruited from local communities or panel survey respondents who had indicated that they were undecided about their intent to vaccinate now or in the future.

Project Perspective: This project is centered on what underpins decision-making in an effort to inform strategies that serve communities based on their experiences, perspectives, and needs. The opportunities below extend beyond messaging focused on promoting vaccination to include engagement and supporting decision-making.

About the Key Findings and Opportunities: The following findings represent a point in time in a rapidly changing environment. The opportunities identified are considerations for implementation, with full recognition that communities have different challenges and there is no one-size-fits-all approach. Public health authorities are community health strategists and the opportunities outlined are intended to support or stimulate additional thinking about how to customize approaches for a given community.

A Framework for Supporting a Fully-Considered Decision about COVID-19 Vaccination

The following components in this framework emerged in Wave One:



Provide Information About COVID-19 and Vaccines.

Given the evolving nature of the pandemic, and emerging information about vaccines, timely and correct information is paramount.

Clarify and Align Values and Lived Experience. The lens through which one evaluates options and has significant implications for a person's decision.

Support the Process of Decision-Making. There's an appreciation for authentic dialogue that supports deliberation where individuals can openly weigh available options, risks, and benefits – at both a personal and a community level, along with how their lived experience factors into these decisions. Many are

interested in the expertise that public health and community leaders bring to this discussion. In the absence of public health and community leaders stepping into this role, individuals will likely find other ways of talking and thinking through their decisions.

Make it Easy: Customize Implementation by Public Health in Collaboration with Community Partners.

Making vaccines easily accessible under pandemic conditions is a massive undertaking that will require a collaborative effort between public health and community partners. For some participants, logistical hurdles to getting the vaccine were important considerations in deciding whether and when to vaccinate. Wherever possible, public health and its community partners should work to remove barriers and make access to vaccination as easy as possible, first for the roughly half the population who intend to get the vaccine as soon as it available; then for others still considering a vaccine. Barriers will vary by community, but some include: language; when and where vaccination is offered; what type of personal information will be collected; how workplaces might support time for vaccination or recovery from expected side effects; transportation; seasonal weather; and ancillary costs related to vaccination.

FINDING 1. The pandemic has created different conditions for considering vaccination. Unlike other vaccines, a large segment of the public has yet to fully form its views on COVID-19 vaccination and are choosing to “Wait and Learn.”

- When asked about their intent to get vaccinated, 51% of the survey respondents said they would definitely or probably get vaccinated as soon as vaccine was available for them, and 10% said they would definitely not get vaccinated. The remaining 39% of respondents indicated they probably would get vaccinated but wanted to wait or they probably would not get vaccinated. This group would refuse vaccination if offered today but is undecided about whether they would accept vaccine at some point.
- We designate this group, “Wait and Learn.” Their decision at the time vaccine is available for them will be made based in part on what they learn between now and then, and the perceived risks and benefits of vaccination.
- Those in the Wait and Learn group are a large proportion of every population, even among adults 65 years old and older where 33% are in this category. Among non-Hispanic African Americans, they are the majority of the population (52%).
- Herd (community) immunity will only occur if a substantial portion of those in the Wait and Learn group, in each racial and ethnic community, choose to be vaccinated. People in this group should be a critical focus for public health efforts.

OPPORTUNITY 1 – For those in the “Wait and Learn” group, there is a time-sensitive window for public health to step into the role of objective partner in the context of decision-making. Done well, this approach will likely have positive impacts beyond the pandemic as it establishes new or strengthens existing communication pathways and helps to build trust.

- Before the vaccine is available for most individuals, co-convene and partner with other trusted community members and organizations to create platforms for communities to talk about factors important to their decision-making, specifically to (1) convey about what is known, what remains unknown or uncertain, and what is being done to fill these gaps; (2) talk about risks, benefits and trade-offs; and (3) share more about lived experience and values that are important to assessing options.

FINDING 2. People have specific information needs.

- 56% of all survey participants would be more comfortable getting the vaccine once it has proven safe in millions of people.
- Concerns about safety were also the leading issue that emerged from the community conversations
 - Those in the Wait and Learn group are much more likely to report knowing someone who had a previous serious vaccine reaction compared with those who indicated that they intended to be vaccinated as soon as vaccine was available.
 - Vaccine safety concerns generally were focused on long-term, serious, and unknown side effects. More needs to be learned about perspectives on local and systemic reactions occurring shortly after vaccination.
- Other questions and concerns commonly cited in the community conversations included the following:
 - Short timeframe of COVID-19 vaccine development
 - Vaccine ingredients
 - Impact of vaccination on decreasing infection and transmission
 - Duration of immunity from the vaccine
 - Whether there will be any costs of vaccination
 - Whether vaccination would be mandated
 - Unclear rationale for getting the vaccine if someone has already had COVID-19 and presumably antibodies
 - How might the vaccine react with a person's current health conditions and medications?
 - Specific to African American, Latinx, and Native American participants – to what extent were people like them were included in the clinical trials and what was their experience?

OPPORTUNITY 2 – Public health should enhance its role as a trusted partner by providing timely information in an effort to fill these information gaps.

- Develop materials that address key questions among individuals that include what we know and what we still don't know but anticipate learning in the next few months. Find different ways to share this information, such as through online forums, YouTube videos, social media, and printed documents.
- Co-develop and disseminate information and materials with trusted community partners including healthcare providers, community organizations, and other local leaders.
- Share timely information about the number of people vaccinated at the local and state levels, coupled with messaging on what is being done to assess vaccine safety among these persons and any findings from those assessments.
- Distinguish between short-term local and systemic reactions that are expected side effects as opposed to long-term, unexpected, and severe adverse events. Given that reactions are common with the authorized COVID-19 vaccines, this distinction is important.

FINDING 3. Values and lived experience is the lens through which communities will make decisions about the COVID-19 vaccine.

- 39% of all survey respondents indicated that they were concerned with sharing information with the government. Distrust of government and concerns with sharing personal information, particularly for those who are undocumented, also were raised in the community conversations.
- Nearly half of survey respondents (47%) report they are concerned that government and drug companies experiment on people like them and this was significantly more likely among those in the Wait and Learn group.

- Those in the Wait and Learn group compared to those who intend to be vaccinated were significantly less likely to:
 - Support government over individual decision-making
 - Trust local and state health departments and CDC
 - Have received influenza vaccine last year
 - Be confident in vaccine safety
- Some members from communities of color mentioned different historical experiences with government or healthcare as reasons contributing to a lack of trust, such as Tuskegee and Guatemala syphilis studies, forced sterilization of Native Americans, and others.
- Native Americans shared their deep concern that the profound loss of elders from COVID-19 was not only the loss of a treasured individual, but in many cases, it was also the loss of cultural practice and language.
- Latinx participants in community conversations indicated a deep commitment to their community and belief they had a responsibility to vaccinate to protect their community.

OPPORTUNITY 3 – Acknowledge values and lived experience as the backdrop for decision-making and work to better understand which factors are important in assessing whether, and if so, when to vaccinate.

- Find ways to acknowledge, understand, empathize, and find common values around COVID-19 vaccination.
- Recognize the lack of trust in government among many people and build trust through the approaches identified above. Also, partner with leaders and organizations from the communities and with healthcare providers, who commonly were identified as the most trusted sources of information.
- Meet people where they are and share information that is important to them. For example, for a young adult who is more concerned about gainful employment and less concerned about the disease and its consequences, address concerns about the job market and how ending the pandemic will positively impact the economy and availability of jobs.

FINDING 4. Conditions of the pandemic create challenges for those who want to get vaccinated and impact decision-making for those still considering whether they want a vaccine.

- For the 51% of the survey respondents who indicated they intended to get vaccinated as soon as vaccine is available to them and for others who choose to get vaccinated but are more hesitant, it is important to focus on removing any barriers to access or addressing logistical challenges they may face in obtaining a vaccine.
- Barriers mentioned included:
 - Timing of vaccine clinics, lack of transportation, and what information needs to be shared.
 - Consideration of the risk of gathering with other people to get vaccinated, particularly for those most vulnerable to disease.
 - Considerations about missing work (and therefore pay) due to expected side effects of the vaccine.
 - Latinx participants highlighted the importance of having information and communications in Spanish
 - People who do not have a doctor were concerned about whether their access will be similar to those who do.
 - Concerns about costs were mentioned. This included the cost of the vaccine, doctor’s visit, and transportation to get vaccinated.

OPPORTUNITY 4 – Public health should plan and implement vaccination programs, understanding and addressing the barriers that individuals in their communities identify.

- Consider holding vaccination clinics on weekends and in the evening and locate clinics in locations where travel issues are minimized for those seeking vaccination.
- Clearly communicate that there will be no out-of-pocket costs for vaccine or its administration.
- Explain in advance of vaccination what information is being collected, why it is needed, and how it is being safeguarded; consider enabling vaccination for individuals who do not wish to share their personal information, for example by providing them a vaccination card and informing them that they are responsible for obtaining the second dose of the same vaccine.
- Consider conducting door-to-door vaccination or a drive-through clinic for members of the community at greatest risk for severe illness, which would reduce their risk of exposure when getting vaccinated and remain consistent with existing recommendations for these individuals to limit exposure.

Next Steps

This project includes one additional survey that will be fielded in March and two additional waves of community conversations that will occur late January and March to obtain a longitudinal view and understand how COVID-19 vaccination decision-making may evolve over time. Findings will be shared once available.



JOHNS HOPKINS

BLOOMBERG SCHOOL
of PUBLIC HEALTH

Department of International Health
615 N. Wolfe Street, Room W5041
Baltimore MD 21205-2179
410-955-6964 / FAX 410-502-6733

Global Disease Epidemiology and Control

To: **Project Implementation & Amplification Partners -- NACCHO, ASTHO, NIHB, and AIM**
From: **Project Team**
Date: **December 15, 2020**
Subject: **Preliminary Findings after Wave 1: Understanding Diverse Communities and Supporting Equitable and Informed COVID-19 Vaccination Decision-Making**

This Robert Wood Johnson Foundation supported effort is focused on providing timely and actionable information to public health leaders to inform how they might best serve their localities, and particularly vulnerable communities, as vaccination to prevent COVID-19 becomes available.

The Context For this Project

A safe and effective vaccine against COVID-19 that is equitably allocated and administered provides the best opportunity to control the pandemic. **However, having a safe and efficacious vaccine that is equitably available in communities is only half the equation; people must also want to take it.** This project is focused on understanding the factors individuals are considering as they decide whether they are interested in getting vaccinated at the time it becomes available to them and what local, state, territorial and tribal health departments can do to facilitate informed decision-making. This effort is designed with the following presumptions in mind:

1. **The context in which people are making decisions is rapidly evolving and public health will need to be nimble as community views evolve in response to emerging conditions and information.** Attitudes and intentions surrounding vaccination will change with factors such as changes in the prevalence of disease in a given community, personal experience with COVID-19, increased information about the effectiveness of vaccines and their side effects. This project takes a longitudinal approach to capture these changes, implementing several waves of

community conversations and national panel surveys, sharing findings and considering implications for public health as they develop over time. This approach offers the opportunity to meet people where they are and address their needs, contributing to this ongoing evolution.

2. **Anchor values are important backdrops to decision-making for individuals and communities and may be helpful as public health customizes approaches for their communities.** Values such as individualism vs greater community concern affects people’s choices of action. While the anchor values remain, however, they may be prioritized differently depending on the circumstances of the pandemic and in one’s own life. Understanding values that individuals hold and how they are weighted in different communities is important in effectively addressing concerns and supporting decision-making regarding vaccination.
3. **Pandemic conditions make things different.** A vaccine developed and rolled-out during a pandemic is different than one developed under more typical circumstances. Unlike other vaccines, SARS-CoV-2 vaccines are not considered a “standard of care” at this time and while enough is known to confidently authorize the vaccine for emergency use, there remains much to be learned in post-authorization surveillance. While this is the case for any new vaccine, during the pandemic, efforts to rapidly vaccinate a large population with less than complete information and where individuals and communities are assessing their options and risk is unique. Thus, it is important to recognize what is being asked of individuals and the importance of addressing their needs so they can evaluate risks and benefits based on what’s happening in their communities and how they are impacted.
4. **It is currently estimated that community or herd immunity thresholds for COVID-19 are 60-70%.** However, these estimates assume homogeneous vaccine coverage across the population, as well as that immunization will protect against infection and not simply illness. Experience with measles and pertussis have demonstrated that social and geographic clusters of unvaccinated persons can lead to outbreaks and interrupt community immunity. The United States almost lost its measles elimination status in 2019 because of these clusters of unvaccinated persons. We can anticipate that such geographical and social clustering of vaccine hesitancy and refusal will also be problematic for SARS-CoV-2 vaccines. Moreover, as children are not currently recommended for vaccination, this means the large majority of adults must choose to be vaccinated overall and within various communities.

Methods At-A-Glance

We seek to assist public health authorities by understanding people’s views about vaccination and how those views change over time as more is learned about COVID-19 and the vaccines. We’ve designed two surveys among independent panels and three waves of engagement with the same group of community members over several months.

National surveys

A national panel survey was conducted in English and Spanish between November 25th and December 7th, before FDA Emergency Use Authorization (EUA) of any SARS-CoV-2 vaccine to understand decision-making related to COVID-19 vaccination. We used Ipsos KnowledgePanel®s, a probability-based web panel, sampled from all U.S. households, with panel members having a known probability of participation. To increase the sample’s representativeness of the U.S. population, households without internet access are given tablet computers and internet access. Latinx individuals are supplementally recruited through random digit dialing of area codes with concentrated Latinx populations. Enrollment quotas ensured the sample's sociodemographic distribution approximates that of the U.S., with 50% oversampling of African American and Latinx respondents. Analytic methods allowed weighting to calibrate the data to account for respondents' unequal probability of selection, allowing us to make inferences about the U.S. population.

Wave 1 November 25 - December 7, 2020: By the numbers

Goal: national surveys to better understand interests, preferences, and factors that influence vaccine decision-making across the nation.

- Panel is among the strongest available methodologically, allowing internal comparisons between groups and generalizability to US adult population
- Overall, there were 2,525 survey respondents, including 610 Black, Non-Hispanic and 801 Hispanic.
- Survey measured:
 - Intent to receive COVID-19 Vaccines
 - Personal impact of COVID-19
 - Confidence in ability to avoid COVID-19
 - Confidence in vaccine safety
 - Support for government decision-making (vs. individual)
 - Support for government equality (vs. discrimination)
 - Trust in local and state public health authorities
 - Trust in the Centers for Disease Control and Prevention (CDC)

- Other attitudes about the COVID-19 such as severity, mask wearing, value of drugs to treat
- Other attitudes about COVID-19 vaccines such as importance to control outbreak, requirements for personal information to get the vaccine, effectiveness and safety
- Demographics including gender, race, age, education, region, metropolitan statistical area, income, and political affiliation

Community Conversations

This project is engaging seven local communities of populations disproportionately affected by COVID-19 -- two Native American, two African American, and three Latinx. Additionally, conversations were held with eight regional groups of participants identified among survey respondents to get a better sense of what underpins views expressed in the survey, with a particular focus on persons who are uncertain about their vaccination decision. Between December 2 and December 14, participants engaged in a facilitator-led conversation to better understand decision-making factors as they consider a vaccine. In addition to qualitative data, each meeting included polling of participants who answered 10 questions related to the topics of conversation with results displayed to the group and captured.

Wave 1 December 2-14, 2020: By the numbers

Goal: Conversations about COVID-19 and Perspective on Vaccine with a focus on **why** people see things as they do and what factors are important to their decision-making

- 25 online community conversations with nearly 400 adults
- 90-180 minutes each
- 1 meeting approach with the potential for customization by community
- 4 senior facilitators teamed with 7 local facilitators of and from their vulnerable communities: African American, Latinx, Asian American and Native American
- 8 regional meetings with a high proportion of persons reporting uncertain vaccine intent
- 2 languages: English and Spanish
- 6 core questions:
 - *How interested will you/people in our community be to get vaccinated and why?*
 - *What information would be most helpful as you and our community consider wanting to take the vaccine?*
 - *What are some practical barriers that you/others in our community might face if wanting to get vaccinated?*
 - *What advice would you give our local health department about what they can do to make it easier for you or people in our community to get vaccinated?*
 - *There is likely to be confusing and conflicting information as vaccination rolls-out, similar to the various opinions about wearing a mask; do you think COVID vaccination will have the same range of opinions and how do you make decisions about vaccination in this context?*

- *There are a lot of reasons people may choose to get vaccinated, including: to protect yourself, to protect your loved ones, and/or to protect your community at large. We want to especially talk about the last part.*
- Every person verbally shared views, engaged in dialogue, and participated in real-time polling to inform discussions

** Note: Three additional vulnerable community conversations were added thanks to support from the Horizon Foundation. The first wave occurred December 19-21, 2020; one each from Asian American, African American, and Latinx communities.*

ABOUT THIS MEMORANDUM REPORT

This document will draw on the data generated in Wave 1 from the national survey and local and regional conversations. The project group considered the survey results, the themes that emerged in the community conversations, and the “semi-quantitative” results from polling participants to develop key findings, emerging themes, and considerations for implementation. Additional data are presented in Appendices to this report and may suggest other findings to readers that may be relevant in their communities or populations. **All findings are preliminary** as analysis is still ongoing of a survey only completed on December 7 and community conversations completed on December 14.

Key Findings

There is broad support for COVID-19 vaccines among a substantial proportion of the population. However, there is an almost equal size proportion of the population that is uncertain or not intending to get a COVID-19 vaccine.

We identified three groups with respect to their intent to be vaccinated:

“Intenders” - This group reports intent to definitely or probably getting vaccinated as soon as they are able and represents half of the population. However, only 32% of Black, Non-Hispanics intend to definitely or probably get vaccinated as soon as they are able. Those over 60 years of age were most likely to be intenders (61%) as were those with a bachelor's degree or more education (63%). Intenders were also more likely to be Democrats (63% intend) versus Republicans (46% intend) and Independents (48% intend). Intenders (compared to the rest of the population) are more likely to be in metropolitan than non-metro statistical areas (odds ratio (OR): 1.43), high income compared to low income (OR: 1.60), have been diagnosed with a high risk condition for COVID-19 (OR: 1.48), have received a flu shot in the past 12 months (OR: 3.87), likely to discuss COVID-19 with their healthcare provider (OR: 6.07),

perceive COVID-19 as severe (OR: 2.08), consider a COVID-19 vaccine important to stop the spread of infection (OR: 44.37), and usually or almost always report wearing a mask (OR: 3.20). Intenders were at least twice as likely to support government decision-making (vs. individual), support equality (vs. discrimination), and trust the Centers for Disease Control and Prevention (CDC) and local/state health department compared to the rest of the population. Intenders were about 10 times more likely to be confident in vaccine safety than the rest of the population.

Overview for Intenders: Public health must make vaccination accessible and provide information about when and where to get vaccinated. This segment of the population generally sees the value in vaccinating (for COVID as they do for influenza vaccine), has favorable attitudes towards vaccines, relies on their healthcare provider for guidance, and trusts local, state and federal health authorities. Messages that reinforce the value of COVID-19 vaccines coupled with clear guidance on when they should get vaccinated and easy access to the vaccine should support their decision-making regarding vaccination.

“Wait and Learn” - This group includes those who indicate they probably will get vaccinated but not right away and those who probably will not get vaccinated and represent 40% of the population. However, 52% of Black, Non-Hispanics fall into this Wait and Learn group. A substantial proportion of the elderly (33%) fall into the Wait and Learn group. Compared to the Intenders, the Wait and Learn group are more than twice as likely to be Black, Non-Hispanic (OR: 2.51), to be in good (OR: 1.72) or fair (1.64) health compared to excellent health, to have known someone with a previous serious vaccine reaction (OR: 2.74), be worried about the government requiring personal information to get a COVID-19 vaccine (OR: 1.86) and be concerned the government and drug companies experiment on people like me (OR: 3.74). The Wait and Learn group, compared to the Intenders, are less likely to live in a metropolitan than non-metro statistical area (OR: 0.71), report high vs. low income (OR: 0.68), be Democrat versus Republican (OR: 0.58), have been diagnosed with a high risk condition for COVID-19 (OR: 0.68), less likely to receive an influenza vaccine in the past 12 months (OR: 0.32), less likely to discuss COVID-19 vaccine with their healthcare provider (OR: 0.23), consider COVID-19 severe (OR: 0.54) and a COVID-19 vaccine important to stop the spread of infection (OR: 0.04), and wear a mask usually or almost always (OR: 0.39). Wait and Learn were about half as likely to support government decision-making (vs. individual) and equity (vs. discrimination), and have trust in local, state and federal health

authorities compared with Intenders. Wait and Learn persons were much less likely (OR: 0.12) to be confident in vaccine safety.

Overview for the Wait and Learn group: This group is an extremely important group for public health to support in decision-making. Based upon the demographic characteristics of this group, they are very likely to cluster geographically and socially and thus may undermine public health goals to control COVID-19 through vaccination which requires homogenous immunity of 60-70%. This population is less likely to be confident in vaccine safety and less likely to have been recently vaccinated against influenza. They are also less likely to rely on their healthcare provider for COVID-19 vaccine information, further highlighting the need for local public health authorities to impact their vaccine decision-making. Lack of trust in local, state, and federal health authorities makes this group even more challenging to be reached by local health authorities. Consequently, the Wait and Learn group are a major focus of this report. **Wait and Learns** require more information to make a fully considered decision.

“Unlikelys” - This group includes those who indicate they definitely will not get vaccinated and represents 10% of the population. The Unlikelys include 14% of persons with a high school education or less, and 15% of Black, Non-Hispanics. The Unlikelys are less likely than Intenders to be elderly (OR: 0.38), have a bachelor’s degree or more compared to less than high school education (OR: 0.24), to have a high versus low income (OR: 0.46), and to be a Democrat compared with a Republican (OR: 0.33). The Unlikelys are less likely to think they will be infected with COVID-19 (OR: 0.59), discuss COVID-19 vaccine with their healthcare providers (OR: 0.04), perceive COVID-19 as severe (OR: 0.29), consider COVID-19 vaccine important for stopping the spread of infection (OR<0.01), have received influenza vaccine in the past 12 months (OR: 0.10), and less likely to usually or almost always report wearing a mask (OR: 0.16) compared with Intenders. The Unlikelys are also far less likely to support government decision-making (vs. individual - OR: 0.12) and equality (vs. discrimination - OR: 0.37), trust local/state (OR: 0.20) and federal (OR: 0.22) health authorities and be confident in vaccine safety (OR: 0.02) compared with Intenders.

Overview for Unlikelys: While some Unlikelys may eventually choose to get vaccinated or respond to mandates, they are unlikely to change their mind and do not need additional support in decision-making as they have (like intenders) already largely made up their mind. Public health efforts are best focused on supporting the needs of the Wait and Learn group than focused on Unlikelys and Intenders who have

made decisions, barring substantial new information that may make either group reconsider. It is possible that some individuals will change their attitudes and beliefs as more information about the vaccines becomes available, though medical and public health may have a very difficult time effectively communicating with them without laying the groundwork over time.

Our community meetings were particularly insightful in understanding the Wait and Learn & Unlikely groups from the regional community conversations (the vast majority were selected to include these groups) and populations at higher risk of COVID-19 morbidity and mortality (African American, Native American and Latinx). Public engagement findings among African American, Native American and Latinx participants in community conversations identified several key issues; many of which were common to all in the Wait and Learn category or Unlikelies, regardless of race or ethnicity and are highlighted below. More prominent than in other groups, however, were lack of trust in government and pharma, and the need for information that is presented in culturally appropriate ways by trusted sources. Additionally, because these vulnerable communities have been disproportionately impacted by disease, there are more COVID-19 survivors who may have some level of protection for a period of time and would choose to wait and learn more about the vaccines. Logistical issues around vaccine delivery may also be different for these populations. Key issues that arose from our community meetings, supplemented with survey data as available, are highlighted below:

- 1. The vast majority of participants are still forming their views and desire more information.** While we intentionally recruited a large number of people who were not among the Intenders to vaccinate or came from Black, Non-Hispanic communities less likely to vaccinate, our community conversation members had largely not yet made up their mind regarding getting a COVID-19 vaccine. Given vaccines will not be available or prioritized for these populations for months, this represents an incredibly important opportunity to understand and support decision-making for these communities. Behavioral research broadly and vaccine behavioral research specifically clearly demonstrate that it is much easier to assist people through evidence-based information from sources they trust to inform their views as they are being formed (leading to informed decision-making) than change their mind once made up. The time is ripe to assist these populations.
- 2. While concern about vulnerable family members was often identified as a reason for vaccination, in some minority groups, protecting the community generally also appeared to be a strong motivator.** In both Latinx and Native American groups, participants strongly endorsed the importance of community protection, with Native Americans emphasizing the importance of

vulnerable elders in their communities. In response to a polling question during the community conversations, between 80-100% of Latinx and Native American participants indicated that they felt a responsibility to get vaccinated to protect others in their community.

- 3. Concerns about vaccine safety.** Participants highlighted the lack of information on vaccine safety. Among those who report having a Wait and Learn attitude, the leading concerns were that vaccine development was too fast and that there is insufficient information on vaccine safety. Participants in our discussions frequently mentioned that vaccines against COVID-19 were developed in an unusually rapid fashion that has not been seen for other vaccines. People’s impression is that the short timeline implies that key steps in evaluating the vaccines may have been skipped as companies raced to be first. These concerns are exacerbated by confusing and conflicting messages around COVID-19. People commented on this being a new technology, there’s not enough known yet, and that long-term data are needed. Many identified negative experiences with influenza vaccine as influencing their concerns. Some participants specifically mentioned long-term, unknown, and severe or fatal side effects. Given the reactogenicity of the Pfizer COVID-19 vaccine, being able to separate “expected” local and systemic reactions from long-term and unknown safety issues may be particularly important. Many people are looking toward the experience of the groups targeted for early vaccination before making up their minds.
- 4. Numbers matter.** Participants in community conversations and the survey (56%) indicated that they would feel more comfortable getting the vaccine once it was given to millions of people safely.
- 5. Lack of trust in government and pharma.** Nearly half (47%) report concern that the government and drug companies experiment on people like me, which was more than three times as likely among the Wait and Learn population. The Wait and Learn population also had about half the likelihood of having high trust in local, state and federal health authorities. Several trust issues emerged from the community conversations. Companies were criticized for racing to finish first and the profit motive leading to a perception that they cut corners or hid information. Critiques of government included politicization of the process and histories of experimenting on some groups, particularly African Americans and Native Americans. There was also broad concern among the population (39%) that the government would require personal information (name, address, phone number, insurance card) in order to get a COVID-19 vaccine, and this concern was almost twice as likely among the Wait and Learn group.
- 6. Trusted sources for information about vaccines.** People’s healthcare provider was commonly mentioned as the most trusted source of information about vaccines. Some Community

Conversation participants also mentioned trusting their local health departments. Among national sources, Dr. Fauci was identified as a trusted source but CDC was only mentioned occasionally. Participants also recognize that healthcare workers will get vaccinated first and will be watching to see what the level of vaccine uptake is in this population and their experience and opinions with getting vaccinated.

- 7. Changing or conflicting information.** A lack of trust and a wait and learn attitude both are influenced by changing or conflicting information to which people are exposed. Participants decried the changing information and recommendations made by scientists, politicians and medical professionals during the pandemic. This applied both to recommendations about health interventions and changing public policies on control measures such as masks and lockdowns. This conflicting information contributes to uncertainty and a wait and learn approach towards COVID-19 vaccines.
- 8. Perceived COVID-19 risk.** A minority of the population (37%) thought they would be likely to be infected with COVID-19 in the next year and this was less common among Wait and Learn populations (OR: 0.59). Interestingly, Black, Non-Hispanic were less likely than White (28% vs. 38%, respectively) to report they would be likely to be infected with COVID-19 in the next year despite COVID-19 disproportionately impacting Black communities. Similarly, 35% of the population reported that if they became infected with COVID-19 it would be somewhat or very severe, and this was less common among the Wait and Learn populations (OR: 0.29). Several participants in the community conversations mentioned their low risk of disease, ability to keep themselves healthy, and the use of mitigation measures as reasons why vaccination was less important.
- 9. Individualism versus “communitarianism.”** About 39% of survey respondents had high scores on a scale of communitarianism compared with individualism which was at the other end of the scale. This community focus was more likely among the Intenders (OR: 2.74) compared to the rest of the population and less likely among the Wait and Learn (OR: 0.45) compared with the Intenders. Comments in the regional community conversations, which included a racially and ethnically diverse population, were split between those who indicated interest in getting vaccinated to protect others in their community and those who rejected that rationale and indicated that their decision would be based on their own risk and benefit. By contrast, among Latinx and Native American populations, protecting others in the community, in addition to vulnerable family members appeared to be a greater motivation.

- 10. Getting “back to normal.”** Pandemic fatigue is real, and the issue of wanting to get things “back to normal” was supported in the survey. Keeping schools open, keeping businesses open, and visiting family and friends were equally important and more important than attending mass gatherings among respondents. Getting back to normal was also raised in the community conversations to varying degrees. Younger respondents were more likely than older respondents to consider visiting family and friends and attending mass gatherings as important.
- 11. Cost of vaccination is perceived as a barrier.** The cost associated with vaccination is an important concern for participants from vulnerable populations. Despite vaccine being free and administration having no out-of-pocket costs, people expressed concern that there will be other fees, such as for a doctor’s office visit if vaccination is done by one’s provider and make vaccination prohibitively expensive. This was a greater concern as some considered the costs that may occur when an entire family must be vaccinated.
- 12. Concerns that COVID-19 vaccine would be mandatory.** Many community members raised concerns, unprompted, that COVID-19 vaccines would be mandatory.
- 13. Safe community forums to listen and deliberate.** In all 24 community conversations, participants voiced appreciation for the opportunity to be listened to and appeared to become more open to considering different points of view as a result of the dialogue at the meetings. Welcoming, constructive, and safe conversations may be important to the Wait and Learn group as well as others.

Implementation Considerations

Below are potential actions that local, state, territorial and tribal public health authorities and immunization programs can take to support informed decision-making, especially for those who are uncertain whether they will get vaccinated.

- 1. Demonstrate trustworthiness by being a transparent and candid partner in decision-making**
 - A. Recognize that Wait and Learn is a reasonable approach** to take in light of current uncertainties and that the vaccine is currently approved through an EUA, versus a Biologics License Application (BLA). Connecting with people who are hesitant by validating their legitimate concerns will help to build trust. Public health authorities should position themselves as trusted partners, providing information transparently that will inform decision-making.
 - B. Provide information that addresses questions and concerns.** Among other concerns, there was widespread perception that COVID-19 vaccines would have out-of-pocket costs or be

mandatory. State clearly in messaging that the vaccine is offered voluntarily and without any out-of-pocket costs. Indirect costs, such as taking time from work to travel to a vaccination site can be reduced through offering convenient locations, transportation, and hours of operation. Below are additional perspectives participants expressed that would benefit from additional messaging and other planning.

- 1) **Short timeframe of COVID-19 vaccine development** - Communicate how the short timeframe for vaccine development was possible due to years of investigation into mRNA vaccines before the pandemic enabling that technology to be applied to this virus, and due to the large government investments, which enabled key processes to occur more efficiently.
- 2) **Inclusion of people like themselves in clinical trials** - Many vulnerable populations were concerned if COVID-19 vaccines were studied in people like them. Provide information about inclusion of vulnerable populations (African American, Native American, Latinx) in the trials (who, what number) and what their experience was (efficacy and side effects) in ways that are easy for the public to understand.
- 3) **Numbers of people getting vaccinated** - Publicly share information about the number of people vaccinated. Participants gave the example of creating a public “ticker” in Times Square and providing state and local health department dashboards to report the number of people getting vaccinated - both every day and cumulatively, at the local, national, and global level.
- 4) **Vaccine safety monitoring** - Describe approaches to ongoing vaccine safety monitoring and how information is obtained, analyzed, and shared as people receive vaccine. Describe also how this information is reviewed by government scientists and external experts and is shared transparently. This messaging should be linked to the number of people vaccinated so that people in the Wait and Learn group can be assured that millions of people have been vaccinated, and carefully studied for vaccine safety.
- 5) **Vaccine reactions versus side effects** - Openly share information on the known and expected vaccine reactions. Distinguish these from concerns about potential unknown, severe or long-term adverse events so that the occurrence of local and short-term systemic reactions is not interpreted as a reason to delay or avoid vaccination. Validate people’s concerns about side effects while separating expected reactions from those concerns.

- 6) **Impact of vaccination on community (herd) immunity** - Communicate what is known about community (herd) immunity and its potential impact on transmission of COVID-19, including what is not yet known - whether vaccination prevents infection and transmission and longevity of vaccine induced immunity - and when we might know more.

2. **Seek to understand context and values and how they contribute to vaccination decisions**

- A. **Recognize that many people consider COVID-19 vaccination in the context of their lived experience and it is important to hear how these lived experiences impact the decisions they make.** When asked if the government experiment on people like them, a high proportion of respondents answered affirmatively and particularly those in groups that have histories of this occurring including syphilis studies among black men in the U.S. and among in people living in Guatemala, along with forced sterilization and other programs for Native Americans. Many also turned to their experience with the influenza vaccine when thinking about safety, effectiveness and vaccination decisions regarding COVID-19 vaccine. Conversations about COVID-19 vaccines must be cognizant of these contexts and find ways to understand, empathize, and find common values around COVID-19 vaccine decision-making.
- B. **Acknowledge values of community.** Link the desire among people to return to normal with the potential of enabling people to interact socially and communities to return to normal business through achieving community (herd) immunity. Recognize the strong sense of community among many and particularly among some vulnerable populations (e.g., Latinx and Native American) as an important rationale for decisions that people make.
- C. **Also acknowledge values of freedom and independence.** Consider providing people who received two vaccine doses documentation they can provide that would enable them to interact more freely including social events, patronizing businesses, and travel if or when data exists supporting that vaccine prevents infection and transmission. Also emphasize that individual and business restrictions could be relaxed in a community when vaccination coverage in that community reached levels consistent with community immunity.
- D. **Meet people where they are and share information that is important to them.** For example, for a young adult population among whom the experience of disease and its consequences are less, share information about how vaccination at a level that achieves community immunity assists in ending the pandemic which positively impacts the economy and availability of jobs. In

one community conversation, young adults who participated indicated that being able to join or return to the workforce was a motivator for them to get vaccinated.

- E. **Emphasize the potential for vaccination to restore a sense of self-efficacy.** Among community conversations with Latinx participants, people expressed a sense of resignation due to their lack of control during the pandemic. Many participants expressed feeling that they lacked control to keep themselves and their families safe while also needing to work and provide an income. Vaccination affords the opportunity for individuals to exert more control over their risk for COVID-19 complications and mortality.

3. Support opportunities for the public to learn from the experiences of community-based healthcare providers and leaders

- A. **Build on the public's trust in local healthcare providers and trusted community leaders.**

Recognizing that while there is trust in CDC and health departments, the level of trust varies. Given this, it is essential for health departments to understand where trust and reliance exists within their communities, whether with other local institutions (e.g. faith-based centers, businesses), community-based organizations, and individual leaders. Proactively engage and partner with these entities to ensure they are supported and equipped to share information and support people in the decision-making process as they consider vaccination. However, as some communities of color have expressed, simply connecting with them with individuals who look like them is not sufficient. People also want to hear information about the vaccine from trusted sources, which can vary tremendously within populations, who have aligned values and interests.

4. Decrease barriers wherever possible so that decision-making about vaccination is not encumbered by logistical hurdles

- A. **Recognize the concern of many people in sharing information with the government** (39% overall and significantly more common (44%) in Wait and Learn group) and explain clearly in advance of vaccination, what information is being collected, why it is needed, and how it is being safeguarded. Consider options such as providing an individual a vaccination card and informing them that they are responsible for obtaining the second dose of the same vaccine when people want to get vaccinated but not share their personal information so that vaccination can still occur.

B. As a decision to get vaccinated is based on a combination of factors, including access, wherever possible, **recognize and reduce logistical barriers** faced, particularly in vulnerable communities, such as time, transportation and concern about potential associated costs. For example, consider **conducting a door-to-door vaccination or a drive-through for very vulnerable members of the community**, which would reduce their risk of exposure when getting vaccinated and remain consistent with existing recommendations for vulnerable populations limit exposure. As health departments have provided wrap-around services to support people needing to isolate, quarantine, or obtain COVID-19 testing, consider how those services may also impact and individual's decision and ability to get vaccinated.

5. Prioritize engagement with your community to support informed decision-making

- A. For local community conversations, **ensuring that the facilitators are local and representatives of the communities they engage**, is critical to fostering an environment for open and honest conversations, particularly among people who live with a deep history of medical mistrust from past experimentation and racist policies impacting their communities.
- B. **Learning and acknowledging which aspects of the COVID-19 pandemic have most impacted the perspectives of people** within a community provides important value for understanding how to meaningfully engage people in conversations around vaccination. For other people who face other severe hardships due to loss of jobs or services, it is important to offer both an opportunity to convey the circumstances they face and identify community support where available.

Participants in the community meetings were very actively engaged and many expressed an appreciation to participate in such discussions. Given their perspectives and those obtained from the survey, there is an important opportunity now to support the notable number of people who still forming their opinions and decisions about being vaccinated against COVID-10. Fostering directly or working with trusted local partners and leaders to foster community conversations is an opportunity to hear from local communities, tailor local COVID-19 vaccination efforts to meet community needs, and continue the important, ongoing work of building trust in communities. Health departments should be cognizant of other programs and efforts, both within and beyond their agencies, that have meaningfully engaged and established trusted relationships with people in the community – and consider how to leverage and build on those efforts for COVID-19 vaccine. Outreaching directly and working through

partners in the community is a critical strategy to affect behaviors that complement the communication, messaging, distribution, and administration approaches health departments will take to foster equitable update of COVID-19 vaccination.

Table 1. Sociodemographic Characteristics of the Study Population: Unweighted and Weighted

The number of survey participants are listed split by sociodemographic characteristics. Survey weights were used so that the survey data were representative of US adults; in particular, African American and Hispanic respondents were weighted to adjust for the oversampling that was done to allow for stratified analyses with sufficient power. Unweighted and weighted percentages are presented for comparison.

Sociodemographic Characteristics	Unweighted N=2,525 (%)	Weighted^a %	Sociodemographic Characteristics	Unweighted N=1,925 (%)	Weighted^a %
Gender			Household Annual Income		
Male	1,216 (48.2)	48.5	< \$50K	778 (30.8)	30.2
Female	1309 (51.8)	51.5	\$50–85K	631 (25.0)	24.9
Race/Ethnicity^b			\$85–150K	615 (24.4)	25.0
Non-Hispanic White	1,003 (39.7)	62.8	\$150K+	501 (19.8)	19.9
Non-Hispanic Black	610 (24.2)	11.9	Current Employment Status		
Hispanic	801 (31.7)	16.7	Working - as a paid employee	1,374 (54.4)	55.2
Non-Hispanic Other	111 (4.4)	8.6	Working - self-employed	222 (8.8)	7.8
Age (years)			Not working - looking for work	132 (5.2)	5.6
18-29	385 (15.2)	20.7	Not working - other	797 (31.6)	31.3
30-44	602 (23.8)	25.2	Household Size^d		
45-59	673 (26.7)	24.1	1	513 (20.3)	19.3
≥60	865 (34.3)	30.0	2	878 (34.8)	36.5
Region			3	420 (16.6)	16.7
Northeast	422 (16.7)	17.3	≥4	714 (28.3)	27.6
Midwest	439 (17.4)	20.7	Political Affiliation		
South	1,037 (41.1)	38.0	Republican	524 (20.8)	26.7
West	627 (24.8)	23.9	Democrat	1,130 (44.9)	37.1
Metropolitan Statistical Area Status			Independent	645 (25.6)	27.5
Non-Metro	252 (10.0)	13.4	Something else	218 (8.7)	8.8
Metro	2,273 (90.0)	86.6	Physical Health		
Education			Excellent	285 (11.3)	11.9
Less than high school	244 (9.7)	9.8	Very good	910 (36.2)	36.8
High school	698 (27.6)	27.8	Good	939 (37.3)	36.6
Some college	696 (27.6)	27.6	Fair	329 (13.1)	12.5
Bachelor's degree or higher	887 (35.1)	34.8	Poor	54 (2.1)	2.2
Influenza Vaccination Status^c					
No	1,147 (45)	44.5			

Yes	1,367 (55)	55.5
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^a Weights produced using iterative proportional fitting so that respondents were weighted to represent US adults; African American and Hispanic respondents were weighted to adjust for the oversampling that was done to allow for stratified analyses with sufficient power

^b Race/Ethnicity: "Non-Hispanic other" includes n=45 "Non-Hispanic 2 or more races"

^c Respondents reported having received influenza vaccination within the past 12 months or not; this data was collected between June and December 2020, so does not necessarily reflect data on the current influenza season

^d Household size: range 1-12, median=2 (IQR 2-4)

Table 2. Composition and Properties of Six Construct Scales

In the first column, the name of each scale is bolded and the survey items contributing to each scale are listed below it. Numbers in the "Weighted (%)" columns indicate the percentage of the total sample providing the response in that column header to the survey item in each row. The median and inter-quartile range (IQR) describe the distribution of the scale scores, and the Cronbach Alpha describes the reliability of the scale (values greater than 0.80 are generally considered to have good reliability, and the closer to 1.0 the better).

Scale Items ^a	Weighted (%)				Median (IQR) ^b	Cronbach Alpha (Covariance) ^c
	Strongly Agree	Agree	Disagree	Strongly Disagree		
Confidence in COVID-19 Prevention					31.25 (25.00, 43.75)	0.76 (0.19)
I am confident that I can wear a mask each time I leave my home.	74	18	5	3		
I am confident that I can maintain a distance of 6 feet from others whenever I am outside my home.	43	40	15	3		
I am confident I can remember to wash my hands with soap and water for at least 20 seconds each time I come home from outside.	60	32	6	1		
When I need to sneeze, I am confident I can do so into my elbow or sleeve.	69	28	2	1		
					58.00 (50.00, 70.83)	0.84 (0.38)
Support for Government Decision-Making (vs. Individual)						
The government interferes far too much in our everyday lives. ^a	24	31	38	8		
Sometimes government needs to make laws that keep people from hurting themselves.	28	49	16	8		
It's not the government's business to try to protect people from themselves. ^a	15	30	43	12		
The government should stop telling people how to live their lives. ^a	21	32	38	9		
The government should do more to advance society's goals, even if that means limiting the freedom and choices of individuals.	13	33	33	21		
Government should put limits on the choices individuals can make so they don't get in the way of what's good for society.	12	36	32	20		
					50.00 (37.50, 62.50)	0.87 (0.50)
Support for Equality (vs. Discrimination)						
We have gone too far in pushing equal rights in this country. ^a	14	23	36	27		
Our society would be better off if the distribution of wealth was more equal.	26	38	21	15		

We need to dramatically reduce inequalities between the rich and the poor, whites and people of color, and men and women.	34	36	18	12		
Discrimination against minorities is still a very serious problem in our society.	43	33	18	7		
It seems like blacks, women, homosexuals and other groups don't want equal rights, they want special rights just for them. ^a	20	26	27	27		
Society as a whole has become too soft and feminine. ^a	17	26	35	22		
					60.00	
					(50.00,	0.83 (0.32)
					70.83)	
Confidence in Vaccines						
I am confident in the safety of vaccines.	21	48	23	8		
I do not trust a vaccine unless it has already been safely given to millions of other people. ^a	15	41	36	8		
I am concerned about some of the ingredients in vaccines. ^a	17	39	34	10		
Vaccine recommendations from the Centers for Disease Control and Prevention (CDC) are a good fit for me.	18	55	20	7		
I am concerned that the government and drug companies experiment on people like me. ^a	15	32	41	12		
The benefits of vaccines are much bigger than their risks.	32	48	17	4		
					55.36	
					(51.79,	0.91 (0.22)
					60.71)	
Trust in the Centers for Disease Control and Prevention (CDC)						
They do everything they should to protect the health of the population. Agree=high trust	15	56	24	5		
They are partly responsible for the illegal drug problems in this country.	8	24	51	17		
They recommend things for the public that aren't helpful. ^a	7	27	55	11		
They use resources well.	12	59	24	5		
They waste money on health problems. ^a	7	20	56	17		
They keep trying the same things to help the public, even when they don't work very well. ^a	8	38	49	5		
They come up with new ideas to solve health problems.	15	65	18	3		
They base recommendation on the best available science.	25	58	14	3		
They accurately inform the public of both health risks and benefits of medicines.	17	56	23	5		
They believe in what they recommend for the public.	20	62	15	3		
They quickly help the public with health problems.	12	54	29	4		

They are concerned about all people, without caring about who has more or less money.	23	53	19	5		
They are more concerned about some racial and ethnic groups than other groups. ^a	7	19	58	15		
They ensure the public is protected against diseases.	17	60	20	3		
					57.14	
					(53.57,	0.91 (0.22)
					62.50)	
Trust in Local and State Health Departments						
They do everything they should to protect the health of the population.	12	55	29	4		
They are partly responsible for the illegal drug problems in this country.	6	25	52	16		
They recommend things for the public that aren't helpful.	6	32	54	8		
They use resources well.	9	56	31	5		
They waste money on health problems. ^a	6	26	57	11		
They keep trying the same things to help the public, even when they don't work very well.	7	42	45	6		
They come up with new ideas to solve health problems.	8	56	32	4		
They base recommendation on the best available science.	16	61	19	4		
They accurately inform the public of both health risks and benefits of medicines.	12	55	28	4		
They believe in what they recommend for the public.	15	65	17	3		
They quickly help the public with health problems.	9	55	31	4		
They are concerned about all people, without caring about who has more or less money.	17	54	24	5		
They are more concerned about some racial and ethnic groups than other groups. ^a	7	26	54	13		
They ensure the public is protected against diseases.	11	61	25	4		

^a Responses to 4-point Likert scale items used as the basis for composite scales centralized around the middle options of “agree” and disagree” compared to “strongly agree” and “strongly disagree.” Response options were scored and summed to create linear scores and dichotomized at the median for further analyses: strongly agree=1, agree=2, disagree=3, strongly disagree=4. Selected items (^a) were reversed: strongly agree=4, agree=3, disagree=2, strongly disagree=1.

^b IQR: Inter Quartile Range. On a scale of 0 to 100, the median values and IQRs were: Confidence in COVID-19 Prevention 31.25 (IQR 25.00, 43.75), Support for Government Decision-Making (vs. Individual) 58.00 (IQR 50.00, 70.83), Support for Equality (vs. Discrimination) 50.00 (IQR 37.50, 62.50), Confidence in Vaccines 60.00 (IQR 50.00, 70.83), Trust in CDC 55.36 (IQR 51.79, 60.71), and Trust in Local and State Health Departments 57.14 (IQR 53.57, 62.50).

^c Cronbach's alpha is a measure of internal consistency. Scales with Cronbach alpha values greater than 0.80 are generally considered to have good reliability; however, there is disagreement in the field about what cut off value should be used for good reliability (some social scientists use 0.70 as the threshold), though values closer to 1.0 are universally preferred. Cronbach's alpha coefficients ranged from 0.76 (covariance: 0.19) for Confidence in COVID-19 Prevention to 0.91 (covariance: 0.22) for Trust in CDC and Local and State Health Departments. The data indicate that the 14-item trust scale has equal internal consistency for

measuring Trust in CDC and Local and State Health Departments given that the Cronbach alphas and covariance metrics were equivalent for these two groups. To assess if the items in our scales represent unidimensional constructs, factor analysis should be performed. We could do this for a subsequent paper.

Table 3. Frequency of Intention to Get COVID-19 Vaccine (5 groups) by Sociodemographic Characteristics and Survey Responses

Numbers in the "Total Sample" column indicate the percentage of the total sample providing the survey response in each row. Numbers in the "COVID-19 Vaccine Intention" columns indicate the percentage of those providing the survey response in each row whose COVID-19 vaccination intentions match that of the column header. The numbers in the final column indicate the p-value of this association, boldface indicating statistical significance ($p < 0.05$).

Survey Questions/Responses	Total Sample, % ^a	COVID-19 Vaccine Intentions, % ^b					P ^c
		Definitely Get It ASAP	Probably Get It ASAP	Probably Get It But Not ASAP	Probably Not Get It	Definitely Not Get It	
All	100	36	16	29	10	10	
Intention Categories							
Likely Intend to Vaccinate ASAP	50	69	31	0	0	0	
Likely Intend to Vaccinate Eventually	80	45	20	36	0	0	
Uncertain	40	0	0	75	25	0	
Unlikely to Vaccinate	10	0	0	0	0	100	
Sociodemographic Characteristics							
Gender							0.02
Female	52	32	16	30	10	11	
Male	48	40	16	27	9	8	
Age							<0.01
18–29	21	34	16	31	8	12	
30–44	25	31	17	29	12	11	
45–59	24	32	14	28	14	12	
≥60	30	45	16	27	6	6	
Education							<0.01
< High School	10	31	17	27	11	14	
High School	28	31	11	33	11	14	
Some College	28	32	18	29	11	10	
Bachelor or Higher	35	45	18	25	8	4	

Race/Ethnicity								<0.01
White, Non-Hispanic	63	39	16	25	10	10		
Black, Non-Hispanic	12	20	12	39	13	15		
Hispanic	17	36	16	30	9	9		
Other, Non-Hispanic	9	33	20	36	7	4		
Region								0.01
Northeast	17	34	16	31	7	12		
Midwest	21	41	12	29	10	8		
South	38	32	18	27	12	11		
West	24	40	16	29	8	7		
Metropolitan Statistical Area Status								0.11
Non-Metro	13	31	13	30	14	12		
Metro	87	37	16	28	9	9		
Household Income								0.23
< \$50K	30	34	15	28	11	12		
\$50–85K	25	33	17	28	10	11		
\$85–150K	25	36	13	31	11	8		
\$150K+	20	42	18	26	6	7		
Current Employment Status								<0.01
Working - as a paid employee	55	33	16	30	11	9		
Working - self-employed	8	44	15	20	9	12		
Not working - looking for work	6	30	15	24	16	14		
Not working - other	31	40	16	28	6	9		
Household Size								<0.01
1	19	35	19	29	8	9		
2	36	44	15	25	9	8		
3	17	32	15	34	11	8		
≥4	28	29	16	30	12	13		
Political Affiliation								<0.01
Republican	27	31	15	26	14	13		

Democrat	37	45	18	26	6	6	
Independent	28	33	15	31	10	11	
Something else	9	25	15	35	12	13	
Physical Health							<0.01
Excellent	12	46	11	18	10	14	
Very Good	37	38	16	28	10	8	
Good	37	32	17	32	10	9	
Fair	13	32	16	32	9	11	
Poor	2	49	22	15	4	10	
Constructs							
<i>High Construct Score^d</i>							
Confidence in Ability to Avoid COVID-19 Infection	34	41	15	27	8	8	<0.01
Support for Government Decision-Making (vs. Individual)	39	50	17	26	5	3	<0.01
Support for Equality (vs. Discrimination)	39	45	17	27	4	6	<0.01
Confidence in Vaccines	54	56	20	21	2	1	<0.01
Trust in the Centers for Disease Control and Prevention (CDC)	42	50	16	24	5	5	<0.01
Trust in Local and State Health Departments	47	46	18	26	5	4	<0.01
Affirmative Responses to Survey Questions							
<i>Responding "Yes"^e</i>							
Have you been diagnosed with COVID-19?	4	33	17	29	17	5	0.16
Do you have any immediate family members (spouse, sibling, parent or child) who were diagnosed with COVID-19?	16	34	14	31	10	11	0.72
Do you have any other relatives (not immediate family) who were diagnosed with COVID-19?	33	37	17	31	7	8	0.03
Do you have any friends, acquaintances or co-workers who have been diagnosed with COVID-19?	61	35	16	30	10	9	0.07
Do you personally know anybody who has been hospitalized or died from COVID-19?	34	37	15	31	9	8	0.25

Have you been diagnosed with any of the following health conditions? ^f	25	43	17	25	7	8	<0.01
Have you or anyone you know ever had a serious reaction to a vaccine?	9	22	7	29	21	22	<0.01
During the past 12 months, have you had a flu shot?	55	49	17	26	5	3	<0.01
<i>Responding "Somewhat Likely", "Likely" or "Very Likely"</i>							
How likely do you think it is that you will be infected with COVID-19 over the next year?	37	37	17	30	8	7	0.03
How likely are you to discuss COVID-19 vaccine with your healthcare provider?	76	44	18	30	5	3	<0.01
<i>Responding "Somewhat Severe" or "Very Severe"</i>							
If you become infected with COVID-19, how severe do you think the infection will be?	35	45	18	27	5	5	<0.01
<i>Responding "Important" or "Very Important"</i>							
How important do you think a COVID-19 vaccine is to stop the spread of infection in the US?	88	40	18	30	7	4	<0.01
<i>Responding "Somewhat Good" or "Very Good"</i>							
How good do you think current drugs are in treating COVID-19?	70	38	16	28	9	8	<0.01
<i>Responding "Usually" or "Almost Always"</i>							
How often do you wear a mask when you are not at home and may come in contact with other people?	90	38	16	29	9	8	<0.01
<i>Responding "Agree" or "Strongly Agree" ^g</i>							
I worry about the government requiring personal information (name, address, phone number, insurance card) in order to get a COVID-19 vaccine.	39	25	16	30	14	15	<0.01
I am confident in the safety of vaccines. ^h	68	49	20	25	4	2	<0.01
I do not trust a vaccine unless it has already been safely given to millions of other people. ^h	56	20	15	39	14	12	<0.01

I am concerned about some of the ingredients in vaccines. ^h	57	22	14	35	15	15	<0.01
Vaccine recommendations from the Centers for Disease Control and Prevention (CDC) are a good fit for me. ^h	73	47	19	28	4	2	<0.01
I am concerned that the government and drug companies experiment on people like me. ^h	47	20	13	34	15	17	<0.01
The benefits of vaccines are much bigger than their risks. ^h	80	43	18	27	6	4	<0.01
The CDC accurately informs the public of both health risks and benefits of medicines. ⁱ	73	43	18	27	7	5	<0.01
Local and state health departments accurately inform the public of both health risks and benefits of medicines. ^j	68	44	18	27	7	5	<0.01

Importance in decision whether to take a COVID-19 vaccine ^k

Responding "Somewhat Important" or "Very Important"

Rates of COVID-19 infection in my community.	76	36	18	31	8	6	<0.01
How serious COVID-19 is for people like me.	82	39	17	30	9	6	<0.01
Effectiveness of drugs to treat COVID-19.	87	36	17	30	10	7	<0.01
Effectiveness of the COVID-19 vaccine.	92	38	17	30	9	6	<0.01
Number of doses of COVID-19 vaccine needed.	71	35	16	32	10	7	<0.01
COVID-19 vaccines are very safe.	94	38	17	30	9	7	<0.01

^a Column percentages (of total sample), weighted according to survey weights to achieve national representativeness

^b Row percentages (of selected characteristic), weighted according to survey weights to achieve national representativeness

^c P-value for the Pearson chi-squared proportion test at significance level of (α) 5%; boldface indicates statistical significance ($p < 0.05$)

^d Summary scores created for each construct by quantifying and adding together the responses to the survey questions assessing each construct; most of these individual survey questions are not described in this table, and those that are were chosen based on specific interest and denoted as such with footnotes; scales assessing constructs dichotomized above ("high") and below ("low") the median scale score

^e Those who responded "Don't know" or "Don't care to answer" coded as missing, dichotomous variable created comparing "Yes" to "No"

^f Cancer, chronic kidney disease, chronic lung disease, a heart conditions (such as heart failure, coronary artery disease, or cardiomyopathy), a weakened immune system (such as from an organ transplant, HIV, or from medicine you take), diabetes, obesity, sickle cell disease

^g Likert scale response options (strongly agree, agree, disagree, strongly disagree) dichotomized to agree/disagree, results for agreement show

^h Included in the construct summary score "Confidence in Vaccines"

ⁱ Included in the construct summary score "Trust in the Centers for Disease Control and Prevention (CDC)"

^j Included in the construct summary score "Trust in Local and State Health Departments"

^k Importance scale response options (very important, important, not very important, not at all important) dichotomized to important/not important), results for importance shown

Table 4. Frequency of Intention to Get COVID-19 Vaccine (3 groups) by Sociodemographic Characteristics and Survey Responses

Numbers in the "Total Sample" column indicate the percentage of the total sample providing the survey response in each row. Numbers in the "COVID-19 Vaccine Intention" columns indicate the percentage of those providing the survey response in each row whose COVID-19 vaccination intentions match that of the column header. The numbers in the final column indicate the p-value of this association, boldface indicating statistical significance ($p < 0.05$).

Survey Questions/Responses	Total Sample, % ^a	COVID-19 Vaccine Intentions, % ^b			P ^c
		Likely Intend to Vaccinate ASAP	Uncertain	Unlikely to Vaccinate	
All	100	50	40	10	
Sociodemographic Characteristics					
Gender					<0.01
Female	52	48	40	11	
Male	48	56	36	8	
Age					<0.01
18–29	21	50	39	12	
30–44	25	48	41	11	
45–59	24	46	42	12	
≥60	30	61	33	6	
Education					<0.01
< High School	10	48	38	14	
High School	28	42	44	14	
Some College	28	50	40	10	
Bachelor or Higher	35	63	33	4	
Race/Ethnicity					<0.01
White, Non-Hispanic	63	55	35	10	
Black, Non-Hispanic	12	32	52	15	
Hispanic	17	52	39	9	
Other, Non-Hispanic	9	53	43	4	
Region					0.21

Northeast	17	50	38	12	
Midwest	21	53	39	8	
South	38	50	39	11	
West	24	56	37	7	
Metropolitan Statistical Area Status					0.05
Non-Metro	13	44	44	12	
Metro	87	53	37	9	
Household Income					<0.01
< \$50K	30	49	39	12	
\$50–85K	25	50	38	11	
\$85–150K	25	49	42	8	
\$150K+	20	60	32	7	
Current Employment Status					0.01
Working - as a paid employee	55	49	41	9	
Working - self-employed	8	59	29	12	
Not working - looking for work	6	45	40	14	
Not working - other	31	56	34	9	
Household Size					<0.01
1	19	54	37	9	
2	36	59	34	8	
3	17	47	45	8	
≥4	28	45	42	13	
Political Affiliation					<0.01
Republican	27	46	40	13	
Democrat	37	63	32	6	
Independent	28	48	41	11	
Something else	9	40	47	13	
Physical Health					<0.01
Excellent	12	57	28	14	
Very Good	37	54	38	8	

Good	37	49	42	9
Fair	13	48	41	11
Poor	2	71	19	10

Constructs

High Construct Score^d

Confidence in Ability to Avoid COVID-19 Infection	34	56	35	8	<0.01
Support for Government Decision-Making (vs. Individual)	39	67	31	3	<0.01
Support for Equality (vs. Discrimination)	39	62	31	6	<0.01
Confidence in Vaccines	54	76	23	1	<0.01
Trust in the Centers for Disease Control and Prevention (CDC)	42	66	29	5	<0.01
Trust in Local and State Health Departments	47	64	31	4	<0.01

Affirmative Responses to Survey Questions

Responding "Yes"^e

Have you been diagnosed with COVID-19?	4	50	46	5	0.17
Do you have any immediate family members (spouse, sibling, parent or child) who were diagnosed with COVID-19?	16	48	41	11	0.39
Do you have any other relatives (not immediate family) who were diagnosed with COVID-19?	33	54	38	8	0.29
Do you have any friends, acquaintances or co-workers who have been diagnosed with COVID-19?	61	51	40	9	0.07
Do you personally know anybody who has been hospitalized or died from COVID-19?	34	52	40	8	0.18
Have you been diagnosed with any of the following health conditions? ^f	25	60	32	8	<0.01
Have you or anyone you know ever had a serious reaction to a vaccine?	9	29	50	22	<0.01
During the past 12 months, have you had a flu shot?	55	66	31	3	<0.01

Responding "Somewhat Likely", "Likely" or "Very Likely"

How likely do you think it is that you will be infected with COVID-19 over the next year?	37	54	38	7	0.02
How likely are you to discuss COVID-19 vaccine with your healthcare provider?	76	62	35	3	<0.01

Responding "Somewhat Severe" or "Very Severe"

If you become infected with COVID-19, how severe do you think the infection will be?	35	63	32	5	<0.01
<i>Responding "Important" or "Very Important"</i>					
How important do you think a COVID-19 vaccine is to stop the spread of infection in the US?	88	58	37	4	<0.01
<i>Responding "Somewhat Good" or "Very Good"</i>					
How good do you think current drugs are in treating COVID-19?	70	54	37	8	<0.01
<i>Responding "Usually" or "Almost Always"</i>					
How often do you wear a mask when you are not at home and may come in contact with other people?	90	54	38	8	<0.01
<i>Responding "Agree" or "Strongly Agree" ^g</i>					
I worry about the government requiring personal information (name, address, phone number, insurance card) in order to get a COVID-19 vaccine.	39	41	44	15	<0.01
I am confident in the safety of vaccines. ^h	68	69	29	2	
I do not trust a vaccine unless it has already been safely given to millions of other people. ^h	56	35	53	12	<0.01
I am concerned about some of the ingredients in vaccines. ^h	57	36	50	15	<0.01
Vaccine recommendations from the Centers for Disease Control and Prevention (CDC) are a good fit for me. ^h	73	66	32	2	<0.01
I am concerned that the government and drug companies experiment on people like me. ^h	47	33	49	17	<0.01
The benefits of vaccines are much bigger than their risks. ^h	80	61	33	4	<0.01
The CDC accurately informs the public of both health risks and benefits of medicines. ⁱ	73	61	34	5	<0.01
Local and state health departments accurately inform the public of both health risks and benefits of medicines. ^j	68	62	34	5	<0.01
Importance in decision whether to take a COVID-19 vaccine ^k					
<i>Responding "Somewhat Important" or "Very Important"</i>					
Rates of COVID-19 infection in my community.	76	54	39	6	<0.01
How serious COVID-19 is for people like me.	82	56	39	6	<0.01
Effectiveness of drugs to treat COVID-19.	87	53	40	7	<0.01

Effectiveness of the COVID-19 vaccine.	92	55	39	6	<0.01
Number of doses of COVID-19 vaccine needed.	71	51	42	7	<0.01
COVID-19 vaccines are very safe.	94	55	39	7	<0.01

^a Column percentages (of total sample), weighted according to survey weights to achieve national representativeness

^b Row percentages (of selected characteristic), weighted according to survey weights to achieve national representativeness

^c P-value for the Pearson chi-squared proportion test at significance level of (α 5%; boldface indicates statistical significance ($p < 0.05$))

^d Summary scores created for each construct by quantifying and adding together the responses to the survey questions assessing each construct; most of these individual survey questions are not described in this table, and those that are were chosen based on specific interest and denoted as such with footnotes; scales assessing constructs dichotomized above ("high") and below ("low") the median scale score

^e Those who responded "Don't know" or "Don't care to answer" coded as missing, dichotomous variable created comparing "Yes" to "No"

^f Cancer, chronic kidney disease, chronic lung disease, a heart conditions (such as heart failure, coronary artery disease, or cardiomyopathy), a weakened immune system (such as from an organ transplant, HIV, or from medicine you take), diabetes, obesity, sickle cell disease

^g Likert scale response options (strongly agree, agree, disagree, strongly disagree) dichotomized to agree/disagree, results for agreement show

^h Included in the construct summary score "Confidence in Vaccines"

ⁱ Included in the construct summary score "Trust in the Centers for Disease Control and Prevention (CDC)"

^j Included in the construct summary score "Trust in Local and State Health Departments"

^k Importance scale response options (very important, important, not very important, not at all important) dichotomized to important/not important, results for importance shown

Table 5. Unadjusted Odds Ratios for Intentions to Vaccinate Against COVID-19

Numbers in "Comparisons between COVID-19 Vaccine Intentions" columns indicate the association – in this case the Odds Ratio (and 95% Confidence Interval) – between providing the survey response in each row and having the first vaccine intention versus (compared to) the second vaccine intention in each column header. Sociodemographic characteristics with multiple response options compared each response option to the first option presented (the reference option). Global Wald Test p-values were added to the line with the variable name, indicating whether the variable as a whole is associated with vaccine intentions. Odds Ratios below 1 indicate a negative association, and Odds Ratios above 1 indicate a positive association. Boldface indicates statistical significance ($p < 0.05$ / 95%CI not overlapping 1).

Survey Questions/Responses	Comparisons between COVID-19 Vaccine Intentions, OR (95% CI) ^a			
	Likely to Vaccinate ASAP vs. not	Likely to Vaccinate Eventually vs. not	Unlikely to Vaccinate vs. Likely to Vaccinate ASAP	Uncertain vs. Likely to Vaccinate ASAP
Sociodemographic Characteristics ^b				
Gender				
Female	ref ^b	ref ^b	ref ^b	ref ^b
Male	1.35 (1.11-1.63) ^c	1.28 (1.01-1.62)	0.66 (0.48-0.92)	0.76 (0.62-0.93)
Age				
18–29	0.69 ref ^b	0.23 ref ^b	0.95 ref ^b	0.64 ref ^b
30–44	0.94 (0.70-1.28)	0.81 (0.57-1.17)	0.97 (0.60-1.55)	1.09 (0.78-1.51)
45–59	0.88 (0.65-1.18)	0.73 (0.51-1.04)	1.04 (0.65-1.66)	1.16 (0.85-1.60)
≥60	1.60 (1.20-2.12)	1.85 (1.27-2.70)	0.38 (0.23-0.63)	0.70 (0.52-0.95)
Education				
< High School	0.04 ref ^b	0.38 ref ^b	0.05 ref ^b	0.12 ref ^b
High School	0.77 (0.54-1.09)	0.97 (0.64-1.47)	1.20 (0.69-2.07)	1.34 (0.92-1.95)
Some College	1.05 (0.74-1.49)	1.19 (0.78-1.82)	0.72 (0.41-1.26)	1.04 (0.71-1.51)
Bachelor or Higher	1.81 (1.29-2.53)	2.37 (1.54-3.64)	0.24 (0.13-0.44)	0.67 (0.46-0.96)
Race/Ethnicity				
White, Non-Hispanic	< 0.01 ref ^b	< 0.01 ref ^b	< 0.01 ref ^b	< 0.01 ref ^b
Black, Non-Hispanic	0.39 (0.31-0.49)	0.61 (0.47-0.79)	2.73 (1.90-3.93)	2.51 (1.98-3.18)
Hispanic	0.90 (0.74-1.10)	1.11 (0.86-1.44)	1.04 (0.73-1.48)	1.13 (0.92-1.40)
Other, Non-Hispanic	0.94 (0.60-1.46)	1.96 (1.04-3.71)	0.41 (0.16-1.06)	1.25 (0.79-1.97)
Region				

Northeast	0.64	0.10	0.22	0.91
Midwest	ref ^b	ref ^b	ref ^b	ref ^b
South	1.12 (0.82-1.53)	1.05 (0.71-1.55)	0.65 (0.38-1.10)	0.97 (0.69-1.35)
West	0.99 (0.76-1.30)	0.77 (0.55-1.06)	0.94 (0.61-1.45)	1.03 (0.77-1.38)
	1.25 (0.93-1.68)	1.30 (0.89-1.91)	0.56 (0.34-0.92)	0.88 (0.64-1.21)
Metropolitan Statistical Area Status				
Non-Metro	ref ^b	ref ^b	ref ^b	ref ^b
Metro	1.43 (1.07-1.93)	1.50 (1.06-2.11)	0.65 (0.40-1.04)	0.71 (0.52-0.98)
Household Income				
< \$50K	0.93	0.51	0.25	0.62
	ref ^b	ref ^b	ref ^b	ref ^b
\$50–85K	1.04 (0.80-1.34)	1.07 (0.78-1.46)	0.96 (0.63-1.45)	0.97 (0.73-1.27)
\$85–150K	0.99 (0.76-1.28)	1.20 (0.88-1.64)	0.70 (0.44-1.09)	1.11 (0.84-1.46)
\$150K+	1.60 (1.22-2.10)	2.04 (1.41-2.94)	0.46 (0.28-0.74)	0.68 (0.50-0.90)
Current Employment Status				
Working - as a paid employee	0.05	0.10	0.31	0.02
	ref ^b	ref ^b	ref ^b	ref ^b
Working - self-employed	1.49 (1.06-2.11)	0.97 (0.63-1.48)	1.08 (0.62-1.88)	0.58 (0.40-0.84)
Not working - looking for work	0.86 (0.56-1.32)	0.59 (0.36-0.96)	1.69 (0.86-3.31)	1.05 (0.66-1.65)
Not working - other	1.32 (1.07-1.64)	1.40 (1.06-1.85)	0.87 (0.60-1.27)	0.73 (0.58-0.91)
Increase in Household Size ^d	0.87 (0.82-0.93)	0.87 (0.81-0.94)	1.20 (1.08-1.34)	1.13 (1.06-1.21)
Political Affiliation				
Republican	<0.01	<0.01	<0.01	<0.01
	ref ^b	ref ^b	ref ^b	ref ^b
Democrat	1.93 (1.52-2.46)	2.89 (2.16-3.87)	0.33 (0.22-0.49)	0.58 (0.45-0.75)
Independent	1.07 (0.82-1.40)	1.44 (1.06-1.97)	0.79 (0.51-1.21)	0.98 (0.74-1.30)
Something else	0.79 (0.54-1.16)	1.16 (0.75-1.79)	1.09 (0.59-1.99)	1.32 (0.88-1.99)
Physical Health				
Excellent	0.02	0.33	0.19	<0.01
	ref ^b	ref ^b	ref ^b	ref ^b
Very Good	0.89 (0.65-1.23)	1.46 (1.00-2.13)	0.58 (0.36-0.95)	1.39 (0.97-1.99)
Good	0.72 (0.52-0.99)	1.39 (0.96-2.03)	0.75 (0.47-1.22)	1.72 (1.20-2.46)
Fair	0.71 (0.48-1.05)	1.33 (0.83-2.13)	0.93 (0.51-1.68)	1.64 (1.07-2.52)
Poor	1.81 (0.86-3.78)	1.97 (0.76-5.10)	0.57 (0.17-1.96)	0.54 (0.24-1.21)

Constructs

High (scales dichotomized above the median scale score) ^e

Confidence in Ability to Avoid COVID-19 Infection	1.35 (1.11-1.64)	1.45 (1.13-1.86)	0.61 (0.43-0.85)	0.78 (0.63-0.96)
Support for Government Decision-Making (vs. Individual)	2.74 (2.25-3.35)	4.81 (3.56-6.50)	0.12 (0.08-0.18)	0.45 (0.36-0.55)
Support for Equality (vs. Discrimination)	2.03 (1.68-2.46)	2.82 (2.20-3.62)	0.37 (0.27-0.52)	0.52 (0.43-0.64)
Confidence in Vaccines	10.27 (8.26-12.77)	19.80 (13.08-29.99)	0.02 (0.01-0.04)	0.12 (0.10-0.16)
Trust in the Centers for Disease Control and Prevention (CDC)	2.72 (2.24-3.32)	3.40 (2.57-4.50)	0.22 (0.15-0.33)	0.41 (0.33-0.50)
Trust in Local and State Health Departments	2.50 (2.06-3.03)	3.59 (2.76-4.66)	0.20 (0.14-0.29)	0.47 (0.38-0.57)

Affirmative Responses to Survey Questions

Responding "Yes" ^f

Have you been diagnosed with COVID-19?	0.91 (0.58-1.43)	0.89 (0.52-1.54)	0.48 (0.17-1.39)	1.26 (0.79-2.01)
Do you have any immediate family members (spouse, sibling, parent or child) who were diagnosed with COVID-19?	0.84 (0.66-1.08)	0.90 (0.66-1.24)	1.26 (0.82-1.94)	1.17 (0.90-1.52)
Do you have any other relatives (not immediate family) who were diagnosed with COVID-19?	1.08 (0.88-1.32)	1.53 (1.17-2.00)	0.75 (0.52-1.08)	0.98 (0.79-1.22)
Do you have any friends, acquaintances or co-workers who have been diagnosed with COVID-19?	0.99 (0.81-1.22)	1.32 (1.03-1.68)	0.73 (0.52-1.01)	1.10 (0.88-1.36)
Do you personally know anybody who has been hospitalized or died from COVID-19?	1.02 (0.84-1.24)	1.27 (0.99-1.62)	0.75 (0.53-1.06)	1.05 (0.85-1.29)
Have you been diagnosed with any of the following health conditions? ^g	1.48 (1.19-1.84)	1.46 (1.09-1.96)	0.67 (0.44-1.02)	0.68 (0.54-0.85)
Have you or anyone you know ever had a serious reaction to a vaccine?	0.31 (0.21-0.46)	0.26 (0.18-0.38)	5.16 (3.10-8.59)	2.74 (1.83-4.10)
During the past 12 months, have you had a flu shot?	3.87 (3.17-4.73)	5.97 (4.52-7.88)	0.10 (0.06-0.14)	0.32 (0.26-0.39)

Responding "Somewhat Likely", "Likely" or "Very Likely"

How likely do you think it is that you will be infected with COVID-19 over the next year?	1.15 (0.94-1.41)	1.50 (1.15-1.95)	0.59 (0.41-0.85)	0.95 (0.77-1.18)
How likely are you to discuss COVID-19 vaccine with your healthcare provider?	6.07 (4.61-7.99)	12.47 (9.37-16.61)	0.04 (0.02-0.06)	0.23 (0.17-0.31)

Responding "Somewhat Severe" or "Very Severe"

If you become infected with COVID-19, how severe do you think the infection will be?	2.08 (1.70-2.53)	3.04 (2.28-4.06)	0.29 (0.19-0.43)	0.54 (0.44-0.67)
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Responding "Important" or "Very Important"

How important do you think a COVID-19 vaccine is to stop the spread of infection in the US?

44.37 (18.07-108.97) 34.69 (22.93-52.48) 0.00 (0.00-0.01) 0.04 (0.02-0.11)

Responding "Somewhat Good" or "Very Good"

How good do you think current drugs are in treating COVID-19?

1.30 (1.06-1.61) 1.53 (1.19-1.96) 0.53 (0.38-0.75) 0.85 (0.68-1.06)

Responding "Usually" or "Almost Always"

How often do you wear a mask when you are not at home and may come in contact with other people?

3.20 (2.23-4.59) 4.18 (2.98-5.87) 0.16 (0.10-0.25) 0.39 (0.27-0.58)

Responding "Agree" or "Strongly Agree"^h

I worry about the government requiring personal information (name, address, phone number, insurance card) in order to get a COVID-19 vaccine.

0.47 (0.38-0.57) 0.36 (0.28-0.45) 3.76 (2.68-5.26) 1.86 (1.52-2.29)

I am confident in the safety of vaccines.ⁱ

13.20 (10.10-17.26) 13.83 (10.35-18.47) 0.02 (0.01-0.03) 0.10 (0.08-0.13)

I do not trust a vaccine unless it has already been safely given to millions of other people.ⁱ

0.20 (0.16-0.25) 0.36 (0.27-0.47) 3.95 (2.76-5.65) 5.29 (4.21-6.65)

I am concerned about some of the ingredients in vaccines.ⁱ

0.20 (0.16-0.25) 0.16 (0.12-0.22) 11.10 (6.73-18.29) 4.28 (3.44-5.33)

Vaccine recommendations from the Centers for Disease Control and Prevention (CDC) are a good fit for me.ⁱ

13.35 (9.97-17.88) 20.51 (15.25-27.57) 0.01 (0.01-0.02) 0.11 (0.08-0.14)

I am concerned that the government and drug companies experiment on people like me.ⁱ

0.22 (0.18-0.27) 0.18 (0.13-0.24) 12.69 (8.08-19.91) 3.74 (3.03-4.63)

The benefits of vaccines are much bigger than their risks.ⁱ

9.51 (6.98-12.96) 9.81 (7.49-12.86) 0.03 (0.02-0.05) 0.14 (0.10-0.20)

The CDC accurately informs the public of both health risks and benefits of medicines.^j

3.97 (3.14-5.01) 4.69 (3.65-6.03) 0.11 (0.08-0.16) 0.31 (0.25-0.40)

Local and state health departments accurately inform the public of both health risks and benefits of medicines.^k

3.20 (2.58-3.98) 3.96 (3.09-5.07) 0.15 (0.10-0.21) 0.38 (0.30-0.48)

Importance in decision whether to take a COVID-19 vaccine^l

Responding "Somewhat Important" or "Very Important"

Rates of COVID-19 infection in my community.

1.47 (1.18-1.85) 3.28 (2.54-4.23) 0.23 (0.16-0.33) 0.96 (0.74-1.23)

How serious COVID-19 is for people like me.

2.37 (1.80-3.12) 4.21 (3.19-5.57) 0.14 (0.10-0.20) 0.62 (0.46-0.84)

Effectiveness of drugs to treat COVID-19.

1.36 (1.00-1.85) 2.92 (2.11-4.03) 0.23 (0.15-0.34) 1.23 (0.85-1.79)

Effectiveness of the COVID-19 vaccine.

10.41 (5.81-18.65) 22.83 (14.26-36.55) 0.02 (0.01-0.04) 0.23 (0.12-0.44)

Number of doses of COVID-19 vaccine needed.

0.88 (0.71-1.09) 1.78 (1.38-2.29) 0.48 (0.34-0.67) 1.48 (1.16-1.88)

COVID-19 vaccines are very safe.

9.08 (4.78-17.24)

14.74 (8.90-24.40)

0.03 (0.01-0.05)

0.25 (0.12-0.51)

^aOR = Odds Ratio; 95%CI = 95% Confidence Interval; response options for survey question assessing intention to receive vaccine against COVID-19 dichotomized as follows from: Definitely Get It ASAP, Probably Get It ASAP, Probably Get It But Not ASAP, Probably Not Get It, and Definitely Not Get It; "Likely to Vaccinate ASAP vs not" indicates responses of either Definitely Get It ASAP or Probably Get It ASAP compared to all other responses; "Likely to Vaccinate Eventually vs not" indicates responses of either Definitely Get It ASAP, Probably Get It ASAP, or Probably Get It But Not ASAP compared to all other responses; "Unlikely to Vaccinate vs Likely to Vaccinate ASAP" indicates responses of Definitely Not Get It compared to Definitely Get It ASAP or Probably Get It ASAP; "Uncertain vs Likely to Vaccinate ASAP" indicates responses of Probably Get It But Not ASAP or Probably Not Get It compared to Definitely Get It ASAP or Probably Get It ASAP; these dichotomous intention categories used as dependent variables in simple logistic regression analyses; boldface indicates statistical significance (p<0.05); weighted according to survey weights to achieve national representativeness

^b Most sociodemographic characteristics coded as dummy variables with the initial response option as the reference variable for other options to compare to; Global Wald Test p-values were added to the line with the variable name, indicating whether the variable as a whole is associated

^c Example interpretation of OR: Males have 35% greater odds of intending to vaccinate than females

^d Average OR for an increase in household size of one

^e Summary scores created for each construct by quantifying and adding together the responses to the survey questions assessing each construct; most of these individual survey questions are not described in this table, and those that are were chosen based on specific interest and denoted as such with footnotes; scales assessing constructs dichotomized above ("high") and below ("low") the median scale score

^f Those who responded "Don't know" or "Don't care to answer" coded as missing, dichotomous variable created comparing "Yes" to "No"

^g Cancer, chronic kidney disease, chronic lung disease, a heart conditions (such as heart failure, coronary artery disease, or cardiomyopathy), a weakened immune system (such as from an organ transplant, HIV, or from medicine you take), diabetes, obesity, sickle cell disease

^h Likert scale response options (strongly agree, agree, disagree, strongly disagree) dichotomized to agree/disagree, results for agreement show

ⁱ Included in the construct summary score "Confidence in Vaccines"

^j Included in the construct summary score "Trust in the Centers for Disease Control and Prevention (CDC)"

^k Included in the construct summary score "Trust in Local and State Health Departments"

^l Importance scale response options (very important, important, not very important, not at all important) dichotomized to important/not important, results for importance shown

Table 6. Distribution of Race/Ethnicity by Other Sociodemographic Characteristics and Survey Responses Among Those Uncertain in Their Vaccine Intentions (Wait and Learn)

Numbers in the "Total Sample" column indicate the percentage of the total sample providing the survey response in each row. Numbers in the "COVID-19 Vaccine Intention" columns indicate the percentage of those of the race/ethnicity in the column header providing the survey response in each row. The numbers in the final column indicate the p-value of this association, boldface indicating statistical significance ($p < 0.05$).

Survey Questions/Responses	Total Sample, % ^a	Race/Ethnicity, % ^b				P ^c
		White (Non-Hispanic)	Black (Non-Hispanic)	Hispanic	Other (Non-Hispanic)	
All	--	34	32	5	30	
Sociodemographic Characteristics						
Gender						0.67
Female	55	53	56	57	59	
Male	45	47	44	43	41	
Age						<0.01
18–29	21	18	19	34	19	
30–44	27	23	28	31	37	
45–59	27	27	30	21	26	
≥60	26	32	22	14	18	
Education						<0.01
< High School	10	8	11	19	0	
High School	32	33	32	33	19	
Some College	29	28	29	29	38	
Bachelor or Higher	30	31	28	19	43	
Region						<0.01
Northeast	17	18	17	12	23	
Midwest	21	27	16	10	10	
South	39	38	61	38	9	
West	23	17	6	40	57	
Metropolitan Statistical Area Status						<0.01

Non-Metro	15	22	9	7	4	
Metro	85	78	91	93	96	
Household Income						<0.01
< \$50K	30	30	38	34	13	
\$50–85K	25	24	27	28	20	
\$85–150K	28	29	23	26	33	
\$150K+	17	16	12	12	33	
Current Employment Status						0.12
Working - as a paid employee	60	57	65	60	66	
Working - self-employed	6	5	5	10	3	
Not working - looking for work	6	6	8	7	3	
Not working - other	28	32	22	23	28	
Household Size						<0.01
1	19	18	24	15	15	
2	32	34	28	20	47	
3	19	21	19	17	16	
≥4	30	27	28	47	21	
Political Affiliation						<0.01
Republican	28	40	4	13	23	
Democrat	31	17	64	48	26	
Independent	30	32	19	27	36	
Something else	11	10	13	11	15	
Physical Health						<0.01
Excellent	9	8	9	10	10	
Very Good	36	36	35	38	42	
Good	40	42	41	37	33	
Fair	13	13	11	14	15	
Poor	1	1	3	2	0	

Constructs

High Construct Score ^d

Confidence in Ability to Avoid COVID-19 Infection	32	24	47	42	33	<0.01
Support for Government Decision-Making (vs. Individual)	31	25	40	36	41	<0.01
Support for Equality (vs. Discrimination)	31	21	66	37	23	<0.01
Confidence in Vaccines	33	38	19	30	31	<0.01
Trust in the Centers for Disease Control and Prevention (CDC)	32	33	32	36	17	0.05
Trust in Local and State Health Departments	39	37	43	44	32	0.26

Affirmative Responses to Survey Questions

Responding "Yes" ^e

Have you been diagnosed with COVID-19?	5	6	3	7	2	0.12
Do you have any immediate family members (spouse, sibling, parent or child) who were diagnosed with COVID-19?	17	16	16	22	13	0.31
Do you have any other relatives (not immediate family) who were diagnosed with COVID-19?	33	29	40	45	22	<0.01
Do you have any friends, acquaintances or co-workers who have been diagnosed with COVID-19?	63	64	60	72	50	0.05
Do you personally know anybody who has been hospitalized or died from COVID-19?	35	30	46	42	37	0.01
Have you been diagnosed with any of the following health conditions? f	21	23	24	15	15	0.13
Have you or anyone you know ever had a serious reaction to a vaccine?	12	12	8	10	17	0.33
During the past 12 months, have you had a flu shot?	44	44	43	36	57	0.06

Responding "Somewhat Likely", "Likely" or "Very Likely"

How likely do you think it is that you will be infected with COVID-19 over the next year?	38	40	31	46	22	<0.01
How likely are you to discuss COVID-19 vaccine with your healthcare provider?	68	65	74	76	63	0.08

Responding "Somewhat Severe" or "Very Severe"

If you become infected with COVID-19, how severe do you think the infection will be?	29	29	29	30	30	0.59
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Responding "Important" or "Very Important"

How important do you think a COVID-19 vaccine is to stop the spread of infection in the US?	86	83	92	89	88	0.11
<i>Responding "Somewhat Good" or "Very Good"</i>						
How good do you think current drugs are in treating COVID-19?	69	71	67	68	61	0.35
<i>Responding "Usually" or "Almost Always"</i>						
How often do you wear a mask when you are not at home and may come in contact with other people?	87	84	93	92	90	0.06
<i>Responding "Agree" or "Strongly Agree" ^g</i>						
I worry about the government requiring personal information (name, address, phone number, insurance card) in order to get a COVID-19 vaccine.	45	45	42	52	33	0.13
I am confident in the safety of vaccines. ^h	51	55	39	52	45	0.03
I do not trust a vaccine unless it has already been safely given to millions of other people. ^h	76	71	85	84	80	<0.01
I am concerned about some of the ingredients in vaccines. ^h	73	71	75	76	74	0.72
Vaccine recommendations from the Centers for Disease Control and Prevention (CDC) are a good fit for me. ^h	60	59	56	64	62	0.62
I am concerned that the government and drug companies experiment on people like me. ^h	61	54	75	69	67	<0.01
The benefits of vaccines are much bigger than their risks. ^h	70	72	65	70	69	0.462
The CDC accurately informs the public of both health risks and benefits of medicines. ⁱ	64	63	69	71	54	0.12
Local and state health departments accurately inform the public of both health risks and benefits of medicines. ^j	59	57	66	69	47	0.02
Importance in decision whether to take a COVID-19 vaccine ^k						
<i>Responding "Somewhat Important" or "Very Important"</i>						
Rates of COVID-19 infection in my community.	79	76	85	84	74	0.07
How serious COVID-19 is for people like me.	82	78	89	90	82	0.02
Effectiveness of drugs to treat COVID-19.	91	88	96	94	92	0.09
Effectiveness of the COVID-19 vaccine.	94	92	96	94	96	0.49
Number of doses of COVID-19 vaccine needed.	77	73	87	85	74	<0.01
COVID-19 vaccines are very safe.	95	94	97	96	96	0.67

^a Column percentages (of those uncertain in their vaccine intentions), weighted according to survey weights to achieve national representativeness

^b Column percentages (of race/ethnicity), weighted according to survey weights to achieve national representativeness

^c P-value for the Pearson chi-squared proportion test at significance level of (α) 5%; boldface indicates statistical significance ($p < 0.05$)

^d Summary scores created for each construct by quantifying and adding together the responses to the survey questions assessing each construct; most of these individual survey questions are not described in this table, and those that are were chosen based on specific interest and denoted as such with footnotes; scales assessing constructs dichotomized above ("high") and below ("low") the median scale score

^e Those who responded "Don't know" or "Don't care to answer" coded as missing, dichotomous variable created comparing "Yes" to "No"

^f Cancer, chronic kidney disease, chronic lung disease, a heart conditions (such as heart failure, coronary artery disease, or cardiomyopathy), a weakened immune system (such as from an organ transplant, HIV, or from medicine you take), diabetes, obesity, sickle cell disease

^g Likert scale response options (strongly agree, agree, disagree, strongly disagree) dichotomized to agree/disagree, results for agreement show

^h Included in the construct summary score "Confidence in Vaccines"

ⁱ Included in the construct summary score "Trust in the Centers for Disease Control and Prevention (CDC)"

^j Included in the construct summary score "Trust in Local and State Health Departments"

^k Importance scale response options (very important, important, not very important, not at all important) dichotomized to important/not important, results for importance shown

Table 7. Unadjusted Odds Ratios for High Construct Scores

Numbers in the "High Construct Scores" columns indicate the association – in this case the Odds Ratio (and 95% Confidence Interval) – between providing the survey response in each row and having a "high" (above the median) score for the construct in each column header. Sociodemographic characteristics with multiple response options compared each response option to the first option presented (the reference option). Global Wald Test p-values were added to the line with the variable name, indicating whether the variable as a whole is associated with a high construct score. Odds Ratios below 1 indicate a negative association, and Odds Ratios above 1 indicate a positive association. Boldface indicates statistical significance ($p < 0.05$ / 95% CI not overlapping 1).

Survey Questions/Responses	High Construct Scores (above the median), OR (95% CI) ^a					
	Confidence in Ability to Avoid COVID-19 Infection	Support for Government Decision-Making (vs. Individual)	Support for Equality (vs. Discrimination)	Confidence in Vaccines	Trust in the Centers for Disease Control and Prevention (CDC)	Trust in Local and State Health Departments
Sociodemographic Characteristics^b						
Gender						
Female	ref ^b	ref ^b	ref ^b	ref ^b	ref ^b	ref ^b
Male	0.73 (0.60-0.89)	1.01 (0.83-1.23)	0.84 (0.69-1.01)	1.38 (1.14-1.67)^c	1.06 (0.88-1.28)	0.84 (0.70-1.02)
Age	0.93	<0.01	<0.01	0.33	<0.01	0.01
18–29	ref ^b	ref ^b	ref ^b	ref ^b	ref ^b	ref ^b
30–44	1.06 (0.78-1.45)	0.87 (0.64-1.18)	0.89 (0.66-1.20)	0.80 (0.59-1.08)	0.57 (0.42-0.77)	0.63 (0.46-0.85)
45–59	1.05 (0.77-1.43)	0.56 (0.42-0.76)	0.49 (0.36-0.66)	0.83 (0.62-1.12)	0.61 (0.45-0.82)	0.79 (0.59-1.06)
≥60	1.16 (0.86-1.55)	0.72 (0.54-0.96)	0.59 (0.44-0.78)	1.37 (1.03-1.81)	0.67 (0.51-0.89)	0.88 (0.67-1.17)
Education	0.24	0.07	0.01	<0.01	0.10	0.14
< High School	ref ^b	ref ^b	ref ^b	ref ^b	ref ^b	ref ^b
High School	0.82 (0.58-1.15)	0.86 (0.60-1.23)	1.16 (0.80-1.68)	1.49 (1.04-2.13)	0.69 (0.48-0.98)	0.81 (0.57-1.15)
Some College	0.74 (0.52-1.05)	1.17 (0.82-1.68)	1.61 (1.12-2.33)	2.20 (1.53-3.15)	0.72 (0.50-1.02)	0.71 (0.50-1.00)
Bachelor or Higher	0.47 (0.33-0.66)	2.20 (1.55-3.11)	3.10 (2.17-4.43)	5.31 (3.71-7.59)	1.07 (0.76-1.50)	0.85 (0.60-1.19)
Race/Ethnicity	<0.01	<0.01	<0.01	<0.01	0.56	0.22
White, Non-Hispanic	ref ^b	ref ^b	ref ^b	ref ^b	ref ^b	ref ^b
Black, Non-Hispanic	2.85 (2.27-3.56)	1.15 (0.92-1.43)	3.86 (3.06-4.86)	0.23 (0.18-0.29)	0.93 (0.75-1.15)	1.21 (0.98-1.50)
Hispanic	2.81 (2.28-3.46)	1.29 (1.06-1.58)	1.20 (0.98-1.48)	0.44 (0.36-0.54)	1.04 (0.85-1.27)	1.41 (1.16-1.72)
Other, Non-Hispanic	1.31 (0.82-2.09)	2.10 (1.35-3.26)	1.34 (0.86-2.10)	0.76 (0.49-1.18)	0.80 (0.51-1.26)	1.02 (0.65-1.58)

Region	0.01	0.04	0.72	<0.01	0.12	0.53
Northeast	ref ^b	ref ^b	ref ^b	ref ^b	ref ^b	ref ^b
Midwest	0.93 (0.67-1.30)	0.88 (0.64-1.21)	0.89 (0.64-1.22)	1.21 (0.89-1.66)	1.24 (0.91-1.69)	1.02 (0.75-1.40)
South	1.35 (1.02-1.78)	0.71 (0.54-0.94)	0.91 (0.69-1.19)	0.75 (0.57-0.98)	0.94 (0.72-1.23)	0.89 (0.68-1.17)
West	1.24 (0.92-1.68)	1.13 (0.84-1.53)	1.17 (0.87-1.57)	1.06 (0.79-1.43)	0.95 (0.71-1.28)	1.12 (0.84-1.51)
Metropolitan Statistical Area Status						
Non-Metro	ref ^b	ref ^b	ref ^b	ref ^b	ref ^b	ref ^b
Metro	1.37 (0.99-1.89)	1.72 (1.25-2.38)	2.14 (1.54-2.98)	1.47 (1.09-1.97)	1.25 (0.92-1.70)	1.17 (0.87-1.57)
Household Income						
< \$50K	<0.01	0.17	0.19	<0.01	0.38	0.61
	ref ^b	ref ^b	ref ^b	ref ^b	ref ^b	ref ^b
\$50–85K	0.66 (0.51-0.86)	1.26 (0.97-1.65)	1.27 (0.98-1.65)	1.72 (1.33-2.22)	1.13 (0.87-1.47)	0.89 (0.69-1.15)
\$85–150K	0.54 (0.41-0.71)	1.23 (0.94-1.60)	1.16 (0.89-1.51)	1.66 (1.28-2.16)	0.94 (0.72-1.22)	0.90 (0.69-1.16)
\$150K+	0.54 (0.41-0.72)	1.82 (1.39-2.40)	1.43 (1.09-1.88)	3.02 (2.28-4.01)	1.26 (0.96-1.65)	1.05 (0.81-1.37)
Current Employment Status						
Working - as a paid employee	0.36	0.33	0.26	0.03	0.42	0.35
	ref ^b	ref ^b	ref ^b	ref ^b	ref ^b	ref ^b
Working - self-employed	1.08 (0.77-1.51)	1.30 (0.92-1.83)	1.32 (0.93-1.85)	1.19 (0.85-1.67)	1.13 (0.80-1.60)	0.77 (0.55-1.09)
Not working - looking for work	0.74 (0.47-1.16)	1.00 (0.65-1.54)	0.94 (0.62-1.44)	0.60 (0.39-0.92)	0.79 (0.51-1.23)	0.96 (0.63-1.47)
Not working - other	1.17 (0.94-1.45)	0.84 (0.67-1.04)	0.76 (0.61-0.94)	1.11 (0.90-1.38)	0.87 (0.71-1.08)	1.11 (0.90-1.37)
Increase in Household Size ^d	1.06 (1.00, 1.13)	0.93 (0.87, 0.99)	0.94 (0.89, 1.00)	0.85 (0.79, 0.90)	0.92 (0.87, 0.98)	0.97 (0.91, 1.03)
Political Affiliation						
Republican	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
	ref ^b	ref ^b	ref ^b	ref ^b	ref ^b	ref ^b
Democrat	2.29 (1.77-2.97)	9.64 (7.05-13.20)	30.86 (20.51-46.44)	1.76 (1.39-2.24)	2.85 (2.21-3.68)	2.07 (1.63-2.65)
Independent	1.12 (0.84-1.51)	3.41 (2.43-4.78)	7.16 (4.68-10.95)	1.21 (0.93-1.58)	1.38 (1.04-1.83)	1.03 (0.79-1.35)
Something else	1.28 (0.86-1.92)	3.63 (2.34-5.64)	9.26 (5.58-15.35)	0.74 (0.51-1.09)	1.42 (0.96-2.11)	0.92 (0.63-1.36)
Physical Health						
Excellent	ref ^b	0.88	0.51	<0.01	<0.01	0.01
		ref ^b	ref ^b	ref ^b	ref ^b	ref ^b
Very Good	0.67 (0.49-0.93)	0.98 (0.71-1.36)	1.09 (0.79-1.51)	1.15 (0.83-1.58)	0.74 (0.54-1.02)	0.89 (0.65-1.23)
Good	0.57 (0.41-0.79)	0.89 (0.64-1.24)	1.03 (0.74-1.43)	0.86 (0.63-1.18)	0.55 (0.40-0.75)	0.65 (0.47-0.89)
Fair	0.63 (0.42-0.93)	0.93 (0.63-1.38)	1.24 (0.83-1.83)	0.67 (0.45-0.99)	0.63 (0.43-0.93)	0.67 (0.45-0.98)
Poor	0.79 (0.39-1.61)	0.78 (0.38-1.60)	0.67 (0.32-1.43)	0.44 (0.22-0.91)	0.61 (0.30-1.26)	0.59 (0.29-1.20)

Physical Health (linear)

Affirmative Responses to Survey Questions

Responding "Yes" ^e

Have you been diagnosed with COVID-19?	1.15 (0.73-1.82)	0.69 (0.43-1.11)	0.92 (0.57-1.47)	0.77 (0.49-1.22)	1.10 (0.70-1.74)	1.04 (0.66-1.63)
Do you have any immediate family members (spouse, sibling, parent or child) who were diagnosed with COVID-19?	0.95 (0.74-1.22)	0.75 (0.58-0.97)	0.75 (0.58-0.97)	0.81 (0.63-1.04)	0.86 (0.67-1.10)	0.86 (0.67-1.11)
Do you have any other relatives (not immediate family) who were diagnosed with COVID-19?	1.11 (0.90-1.36)	1.31 (1.06-1.61)	1.36 (1.11-1.67)	1.24 (1.01-1.52)	1.11 (0.90-1.37)	1.16 (0.94-1.42)
Do you have any friends, acquaintances or co-workers who have been diagnosed with COVID-19?	0.81 (0.66-1.00)	1.37 (1.11-1.68)	1.66 (1.35-2.04)	1.18 (0.97-1.45)	1.11 (0.91-1.36)	1.04 (0.85-1.28)
Do you personally know anybody who has been hospitalized or died from COVID-19?	1.35 (1.10-1.64)	1.35 (1.11-1.65)	1.44 (1.18-1.76)	0.93 (0.77-1.13)	1.08 (0.89-1.32)	1.15 (0.95-1.40)
Have you been diagnosed with any of the following health conditions? ^f	1.03 (0.83-1.28)	1.07 (0.86-1.33)	1.04 (0.83-1.29)	1.14 (0.92-1.42)	0.97 (0.78-1.20)	0.95 (0.77-1.18)
Have you or anyone you know ever had a serious reaction to a vaccine?	1.16 (0.81-1.67)	0.49 (0.33-0.73)	0.65 (0.45-0.94)	0.24 (0.16-0.37)	0.55 (0.38-0.80)	0.47 (0.32-0.68)
During the past 12 months, have you had a flu shot?	1.23 (1.01-1.49)	1.56 (1.29-1.90)	1.35 (1.12-1.64)	3.82 (3.13-4.67)	1.97 (1.62-2.39)	1.86 (1.54-2.25)

Responding "Somewhat Likely", "Likely" or "Very Likely"

How likely do you think it is that you will be infected with COVID-19 over the next year?	0.80 (0.65-0.98)	1.42 (1.16-1.74)	1.04 (0.85-1.27)	1.04 (0.85-1.27)	1.06 (0.86-1.30)	1.23 (1.00-1.50)
How likely are you to discuss COVID-19 vaccine with your healthcare provider?	2.25 (1.74-2.91)	2.46 (1.88-3.20)	2.33 (1.81-3.00)	3.15 (2.46-4.02)	2.37 (1.83-3.05)	2.35 (1.84-3.00)

Responding "Somewhat Severe" or "Very Severe"

If you become infected with COVID-19, how severe do you think the infection will be?	1.42 (1.16-1.73)	1.69 (1.38-2.06)	1.57 (1.29-1.91)	1.27 (1.05-1.55)	1.31 (1.08-1.60)	1.44 (1.19-1.75)
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Responding "Important" or "Very Important"

How important do you think a COVID-19 vaccine is to stop the spread of infection in the US?	2.58 (1.81-3.70)	7.98 (4.96-12.84)	3.55 (2.51-5.03)	8.20 (5.25-12.82)	4.71 (3.07-7.22)	4.84 (3.30-7.10)
<i>Responding "Somewhat Good" or "Very Good"</i>						
How good do you think current drugs are in treating COVID-19?	1.29 (1.04-1.60)	0.70 (0.56-0.86)	0.61 (0.49-0.75)	1.31 (1.06-1.61)	1.26 (1.02-1.56)	1.48 (1.20-1.83)
<i>Responding "Usually" or "Almost Always"</i>						
How often do you wear a mask when you are not at home and may come in contact with other people?	9.74 (5.42-17.52)	5.35 (3.33-8.59)	6.12 (3.85-9.73)	1.92 (1.37-2.68)	2.24 (1.56-3.21)	3.31 (2.30-4.77)
<i>Responding "Agree" or "Strongly Agree" ^g</i>						
I worry about the government requiring personal information (name, address, phone number, insurance card) in order to get a COVID-19 vaccine.	1.14 (0.93-1.38)	0.33 (0.27-0.41)	0.40 (0.33-0.49)	0.23 (0.19-0.29)	0.55 (0.45-0.67)	0.56 (0.46-0.68)
I am confident in the safety of vaccines. ^h	1.12 (0.91-1.38)	2.55 (2.05-3.19)	1.69 (1.38-2.08)	57.48 (38.84-85.05)	3.85 (3.07-4.84)	3.18 (2.57-3.95)
I do not trust a vaccine unless it has already been safely given to millions of other people. ^h	1.42 (1.16-1.73)	0.63 (0.51-0.76)	0.65 (0.54-0.79)	0.07 (0.06-0.09)	0.60 (0.50-0.73)	0.75 (0.62-0.91)
I am concerned about some of the ingredients in vaccines. ^h	1.52 (1.25-1.86)	0.47 (0.38-0.57)	0.53 (0.43-0.64)	0.04 (0.03-0.05)	0.49 (0.40-0.59)	0.71 (0.59-0.86)
Vaccine recommendations from the Centers for Disease Control and Prevention (CDC) are a good fit for me. ^h	1.37 (1.10-1.70)	3.59 (2.79-4.62)	2.67 (2.14-3.34)	25.13 (17.92-35.25)	5.82 (4.44-7.63)	4.10 (3.23-5.20)
I am concerned that the government and drug companies experiment on people like me. ^h	1.56 (1.29-1.90)	0.43 (0.36-0.53)	0.56 (0.46-0.68)	0.04 (0.03-0.05)	0.48 (0.39-0.58)	0.55 (0.45-0.66)
The benefits of vaccines are much bigger than their risks. ^h	1.21 (0.95-1.54)	3.02 (2.30-3.96)	1.84 (1.45-2.34)	22.22 (14.89-33.15)	4.03 (3.03-5.35)	3.68 (2.84-4.77)
The CDC accurately informs the public of both health risks and benefits of medicines. ⁱ	1.61 (1.27-2.02)	3.27 (2.53-4.23)	2.45 (1.95-3.09)	4.93 (3.89-6.24)	14.65 (10.04-21.36)	8.44 (6.39-11.16)
Local and state health departments accurately inform the public of both health risks and benefits of medicines. ^j	2.04 (1.63-2.56)	3.24 (2.55-4.11)	2.07 (1.67-2.58)	3.46 (2.79-4.30)	5.83 (4.49-7.57)	29.10 (20.15-42.03)

Importance in decision whether to take a COVID-19 vaccine^k

Responding "Somewhat Important" or "Very Important"

Rates of COVID-19 infection in my community.	2.74 (2.11-3.56)	1.44 (1.13-1.83)	1.39 (1.10-1.76)	0.95 (0.76-1.19)	1.63 (1.28-2.06)	1.97 (1.56-2.48)
How serious COVID-19 is for people like me.	3.23 (2.32-4.48)	1.99 (1.48-2.68)	1.69 (1.28-2.24)	1.36 (1.05-1.76)	1.87 (1.40-2.49)	2.14 (1.62-2.82)
Effectiveness of drugs to treat COVID-19.	2.41 (1.68-3.45)	1.00 (0.73-1.37)	0.89 (0.65-1.21)	0.93 (0.69-1.26)	1.04 (0.76-1.42)	1.39 (1.02-1.90)
Effectiveness of the COVID-19 vaccine.	2.53 (1.69-3.80)	4.34 (2.53-7.44)	2.61 (1.71-4.00)	5.50 (3.41-8.87)	3.93 (2.40-6.44)	4.06 (2.59-6.36)
Number of doses of COVID-19 vaccine needed.	1.98 (1.56-2.51)	0.70 (0.56-0.87)	0.62 (0.50-0.77)	0.47 (0.37-0.58)	0.94 (0.76-1.17)	1.11 (0.90-1.37)
COVID-19 vaccines are very safe.	2.28 (1.42-3.67)	8.03 (4.09-15.76)	3.41 (2.02-5.77)	4.76 (2.81-8.05)	3.35 (2.00-5.62)	4.44 (2.69-7.32)

^a OR = Odds Ratio; 95%CI = 95% Confidence Interval; summary scores created for each construct by quantifying and adding together the responses to the survey questions assessing each construct; most of these individual survey questions are not described in this table, and those that are were chosen based on specific interest and denoted as such with footnotes; scales assessing constructs dichotomized above ("high") and below ("low") the median scale score; high construct scores as dependent variables in simple logistic regression analyses; boldface indicates statistical significance (p<0.05); weighted according to survey weights to achieve national representativeness

^b Most sociodemographic characteristics coded as dummy variables with the initial response option as the reference variable for other options to compare to; Global Wald Test p-values were added to the line with the variable name, indicating whether the variable as a whole is associated

^c Example interpretation of OR: Males have about 38% greater odds of having high confidence in vaccines than females

^d Average OR for an increase in household size of one

^e Those who responded "Don't know" or "Don't care to answer" coded as missing, dichotomous variable created comparing "Yes" to "No"

^f Cancer, chronic kidney disease, chronic lung disease, a heart conditions (such as heart failure, coronary artery disease, or cardiomyopathy), a weakened immune system (such as from an organ transplant, HIV, or from medicine you take), diabetes, obesity, sickle cell disease

^g Likert scale response options (strongly agree, agree, disagree, strongly disagree) dichotomized to agree/disagree, results for agreement show

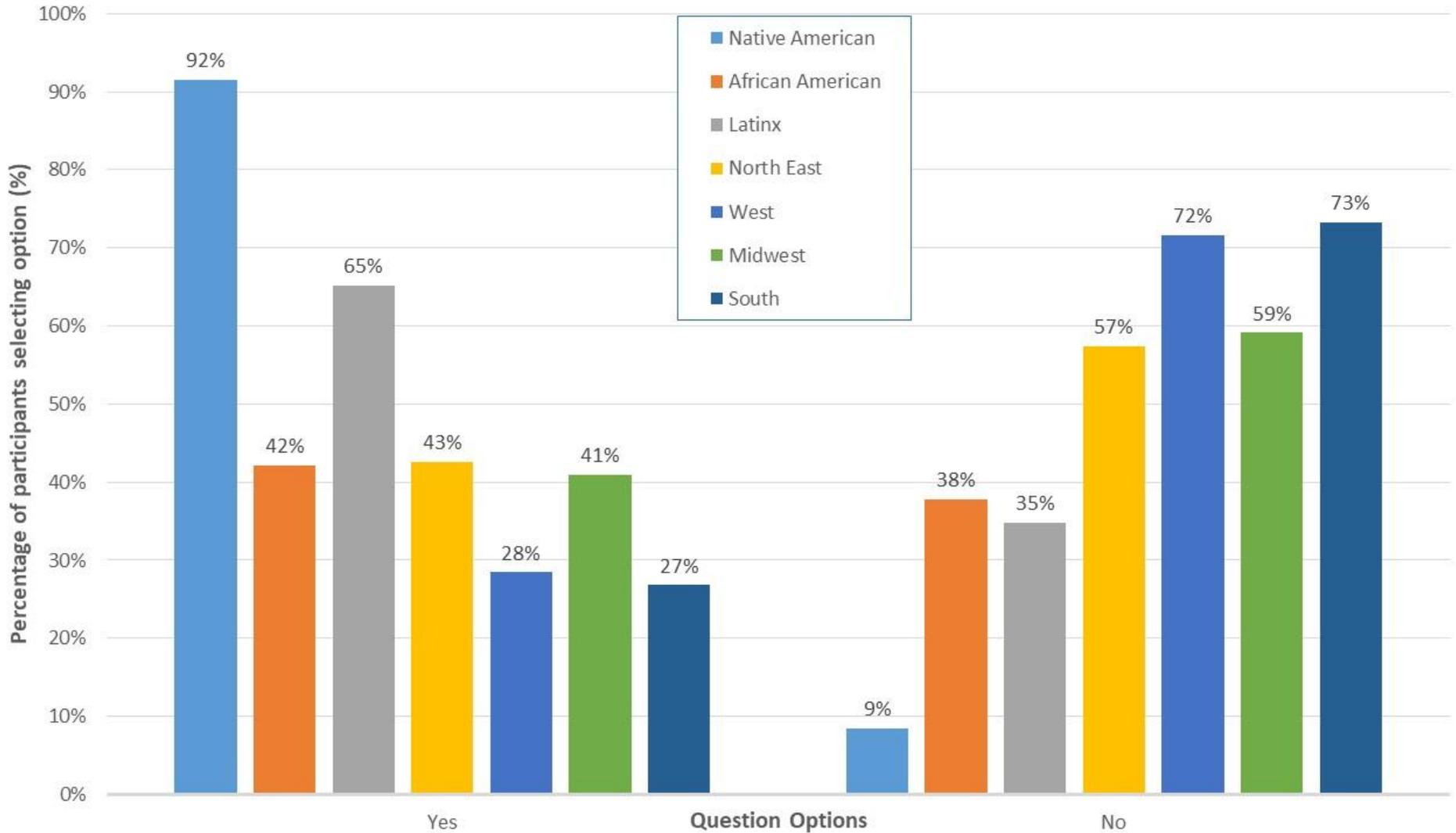
^h Included in the construct summary score "Confidence in Vaccines"

ⁱ Included in the construct summary score "Trust in the Centers for Disease Control and Prevention (CDC)"

^j Included in the construct summary score "Trust in Local and State Health Departments"

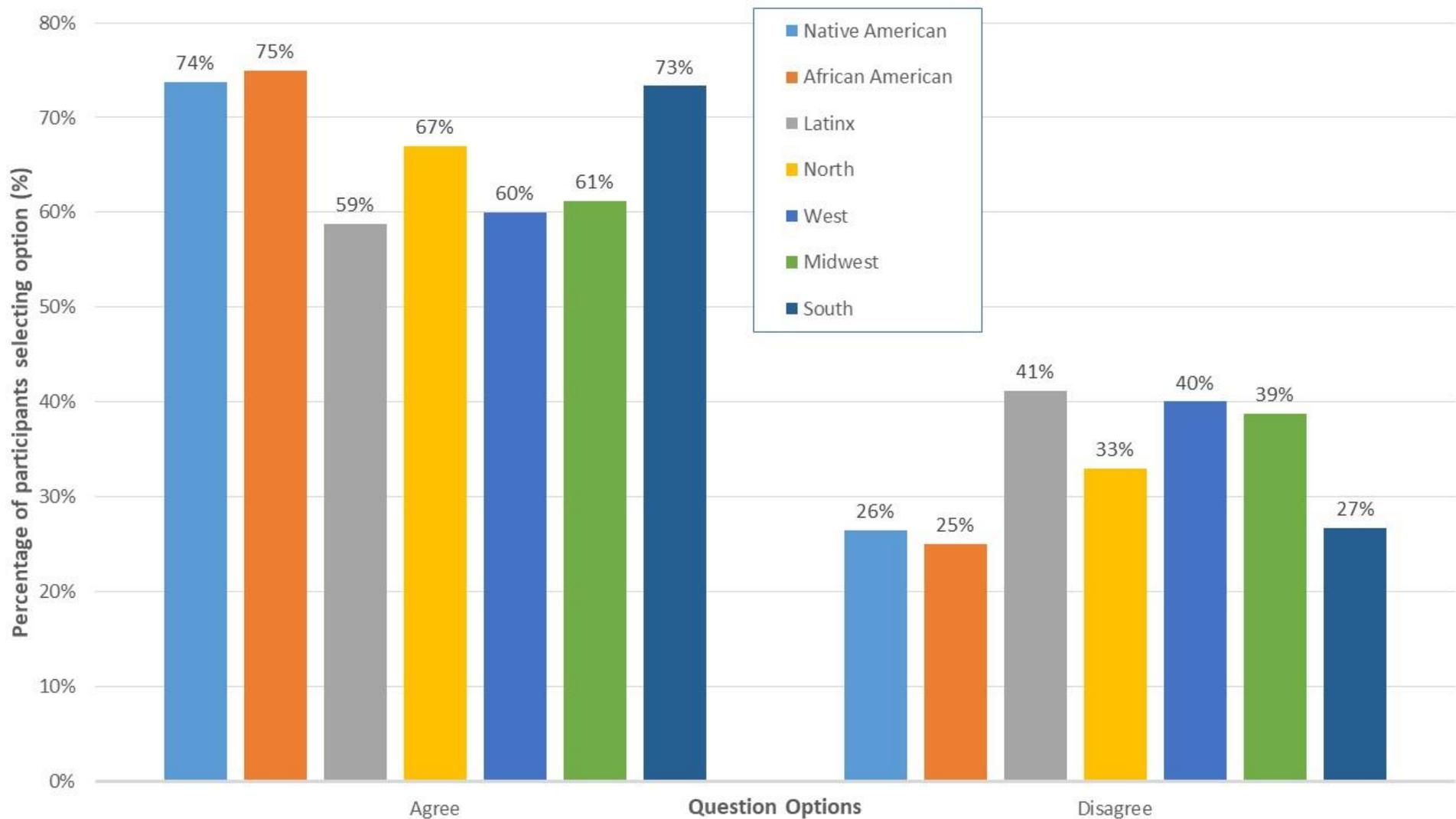
^k Importance scale response options (very important, important, not very important, not at all important) dichotomized to important/not important, results for importance shown

Poll Question 1: Have you or have any of your family members or relatives been diagnosed with COVID-19?



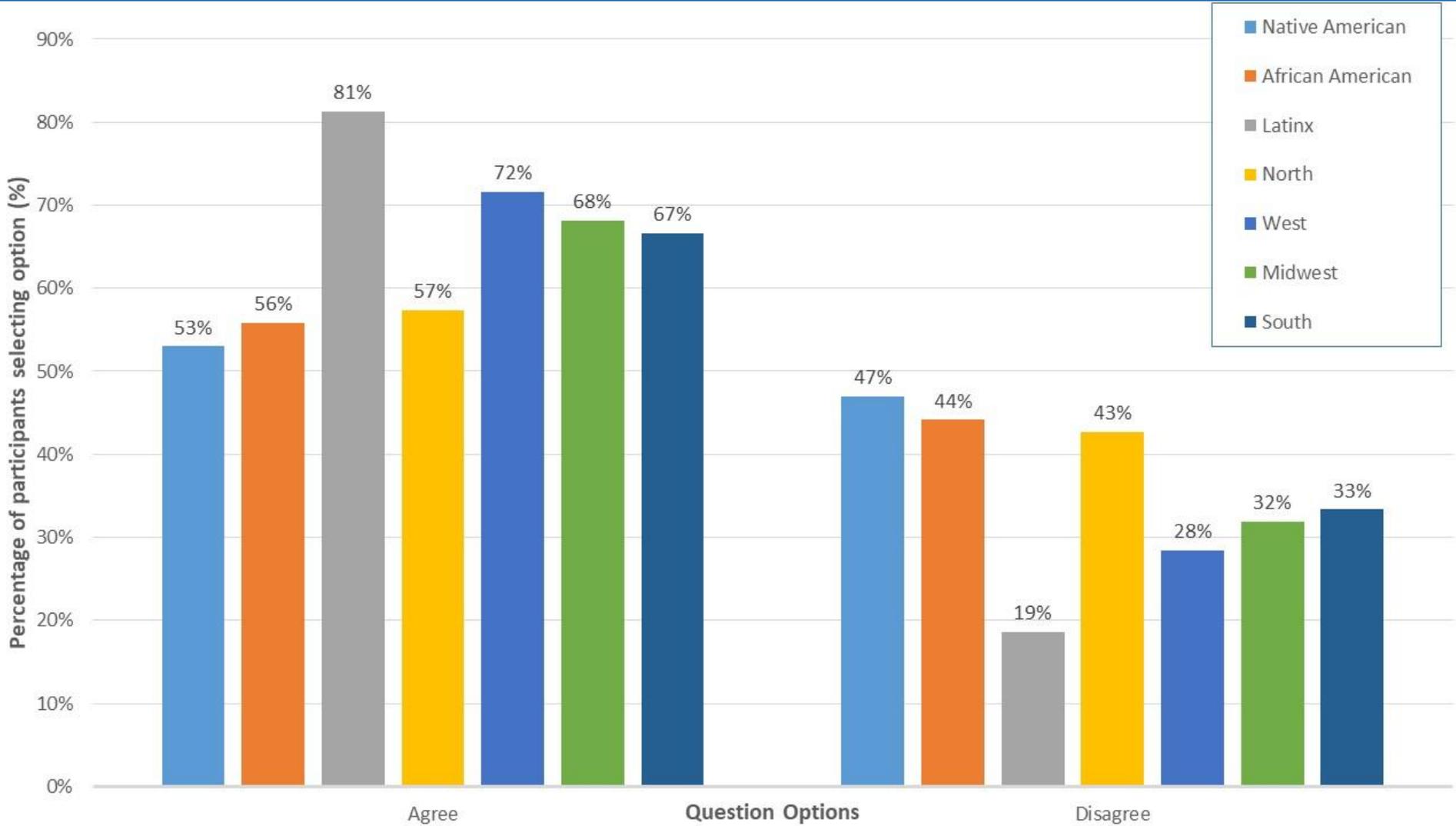
Polling in meetings was meant to stimulate discussion in the community conversations, not to be broadly representative. A small number of participants had technical issues in accessing the in-meeting poll and in two cases the team has yet to process polls that occurred on December 20-21, 2020. We will continue to add and refine these results.

Poll Question 2: I am concerned that the government and drug companies experiment on people like me



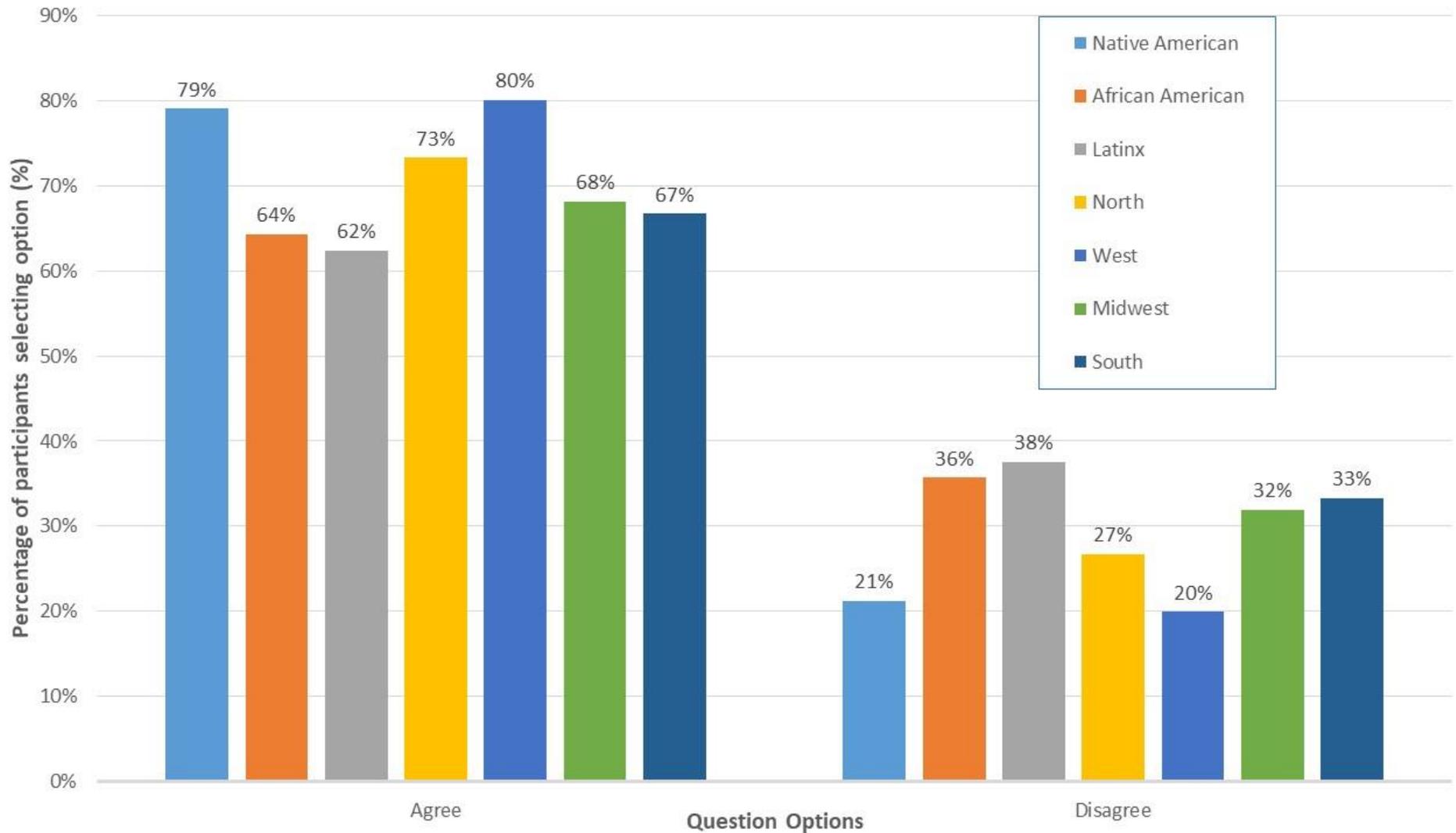
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Poll Question 3: I am confident in the safety of vaccines that are currently given to adults, such as the flu vaccine.



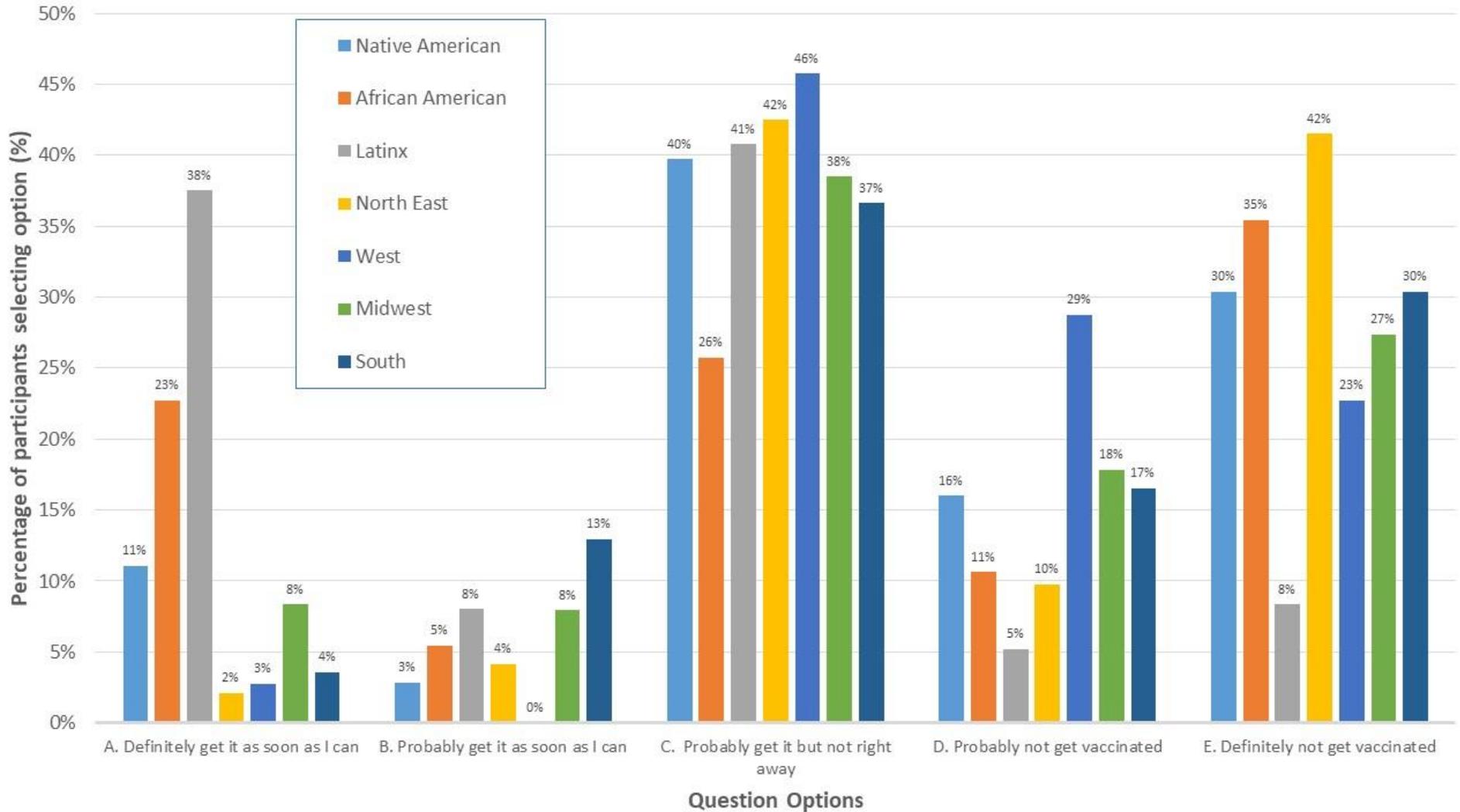
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Poll Question 4: I do not trust a vaccine unless it has already been safely given to millions of other people.



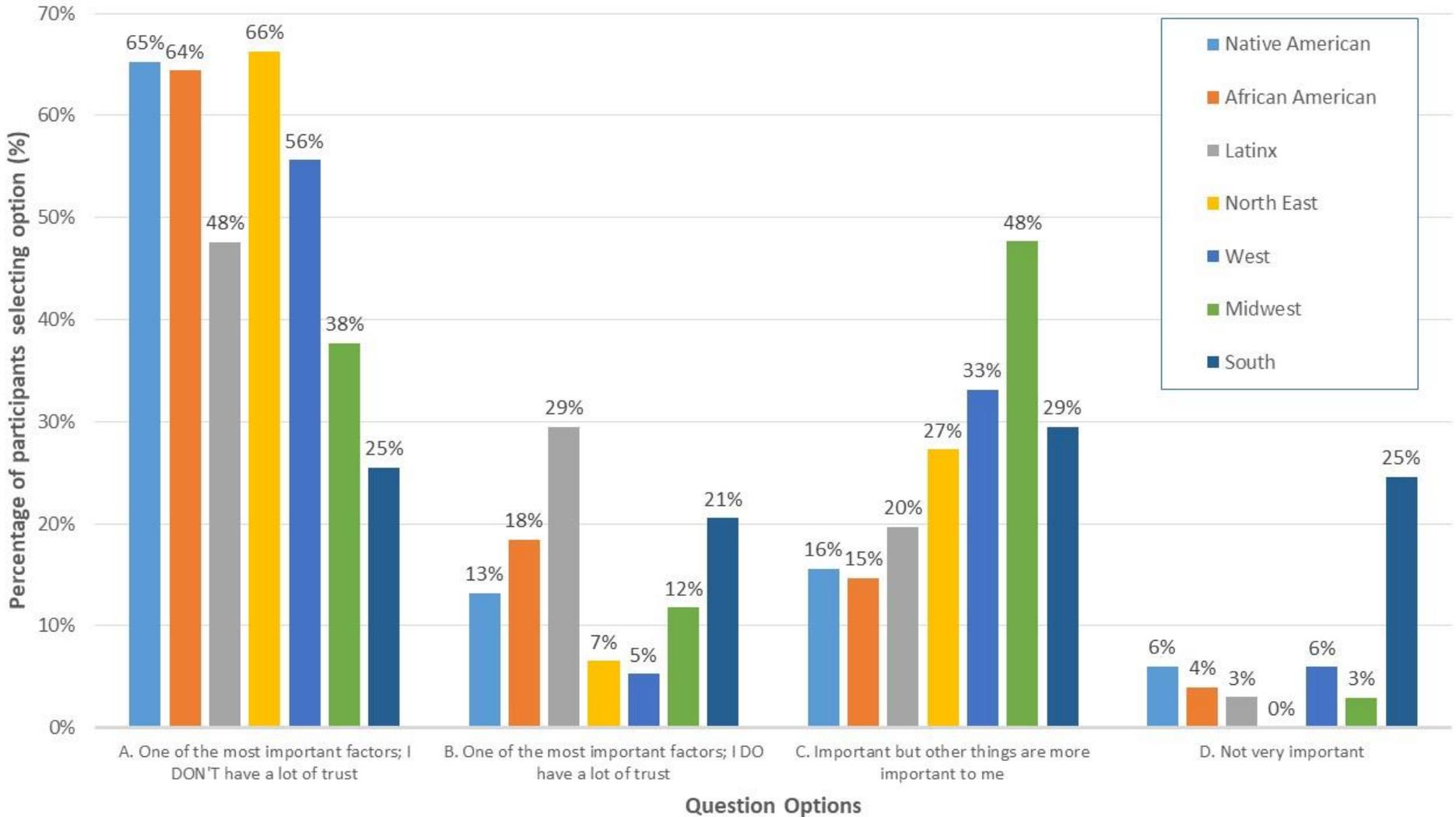
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Poll Question 5: If a COVID-19 vaccine was available to you this week at no cost, how likely is it that you would get vaccinated?



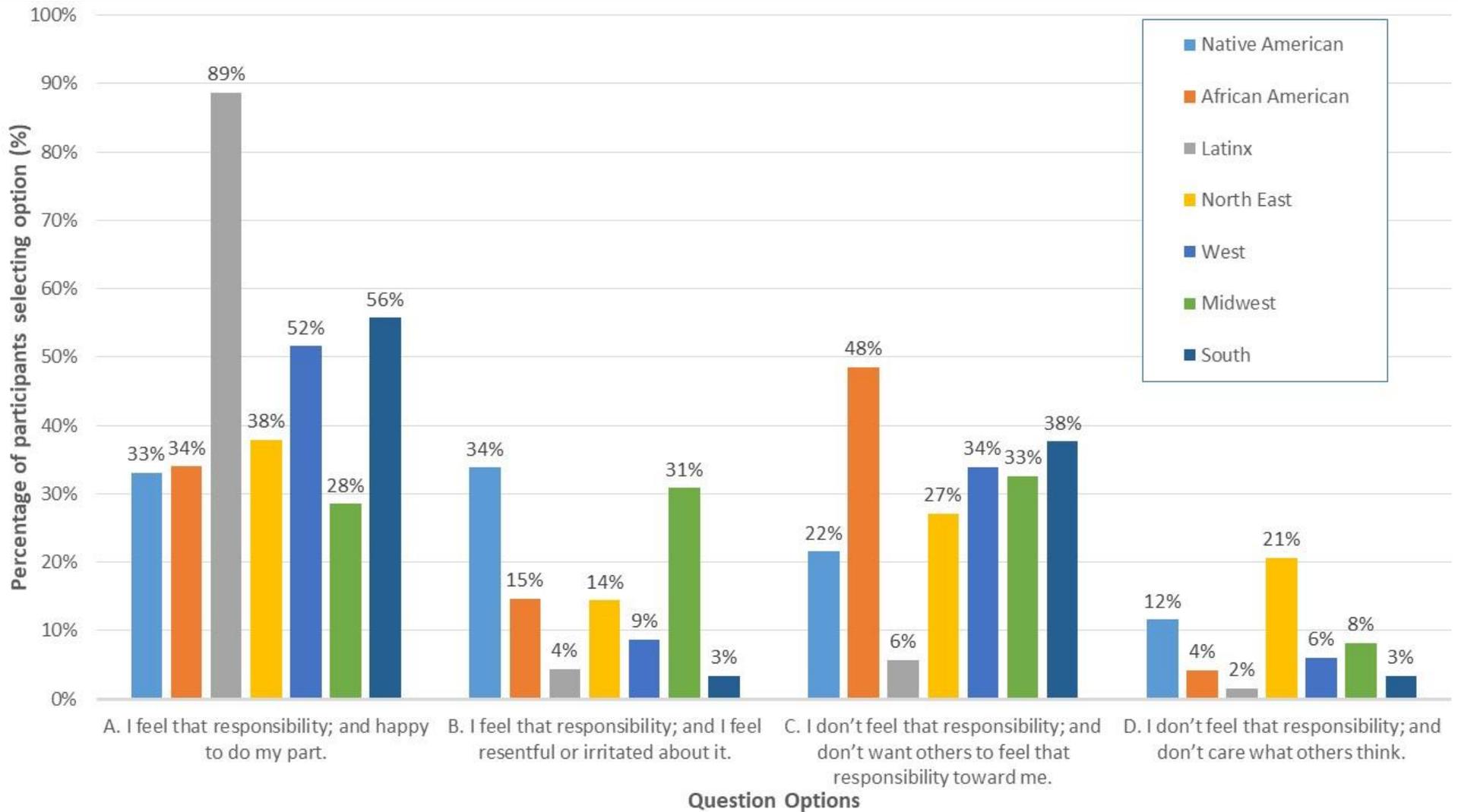
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Poll Question 6: If vaccine was available to you this week at no cost, how much would your trust in government or drug companies be a factor in your decision to get vaccinated or not to get vaccinated?



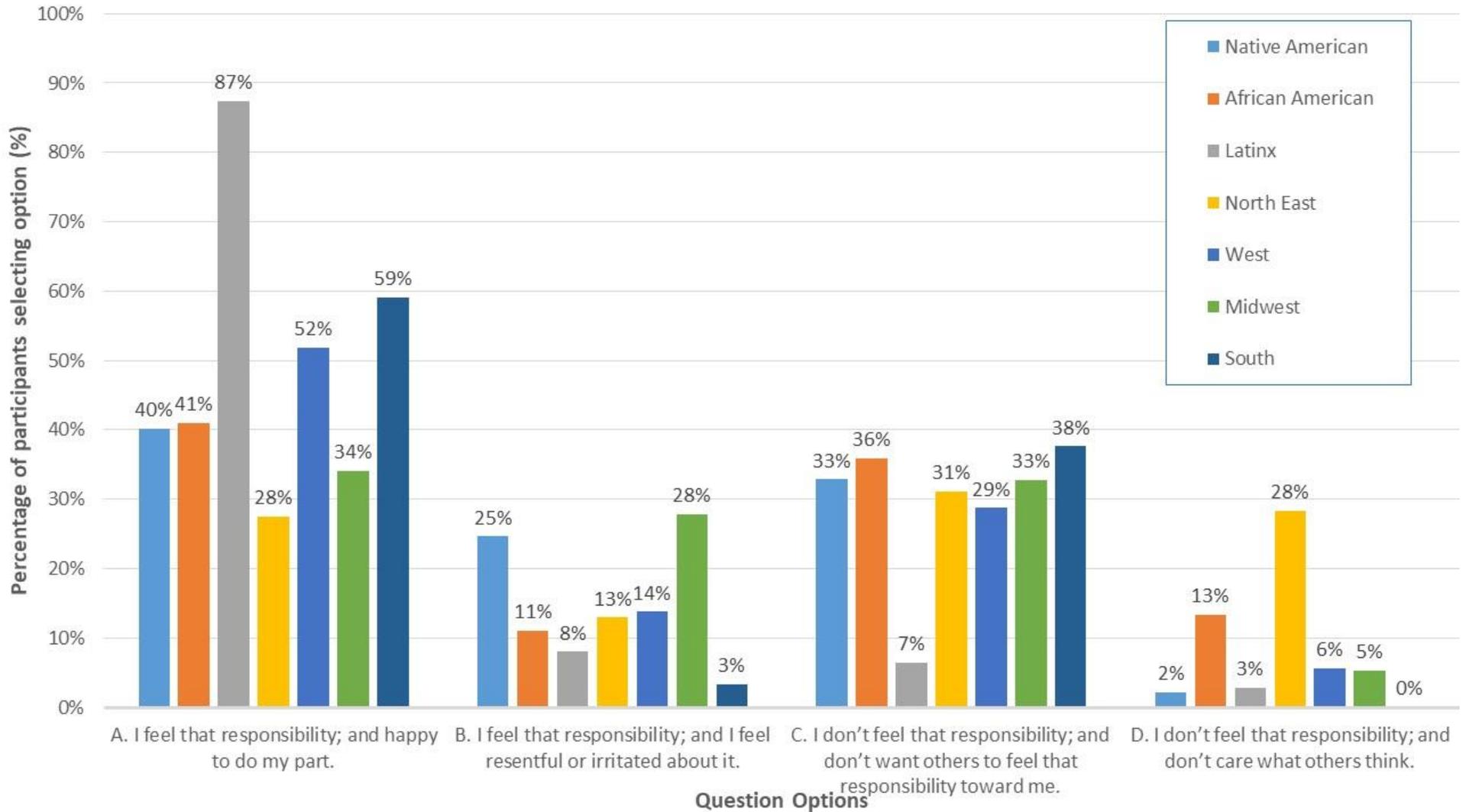
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Poll Question 7: To what extent do you feel a responsibility to get the vaccine to get everything “back to normal”?



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Poll Question 8: To what extent do you feel a responsibility to get the vaccine to protect others in your community?



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