

Understanding Drivers of COVID-19 Vaccine Hesitancy Among Blacks

Florence Momplaisir, MD MSHP^{1,2}; Norrissa Haynes, MD^{1,2}; Herve H. Nkwihoreze MPH¹;

Maria Nelson, MA³; Rachel M. Werner MD, PhD^{1,2}; John Jemmott, PhD^{4,5}

1. University of Pennsylvania, Perelman School of Medicine, Department of Medicine, Philadelphia, Pennsylvania
2. University of Pennsylvania, Leonard Davis Institute of Health Economics, Philadelphia, Pennsylvania
3. University of Pennsylvania, Perelman School of Medicine, Department of Family Medicine, Philadelphia, Pennsylvania
4. University of Pennsylvania, Perelman School of Medicine, Department of Psychiatry, Philadelphia, Pennsylvania
5. University of Pennsylvania, Annenberg School for Communication, Philadelphia, Pennsylvania

Corresponding author: Florence Momplaisir, 1201 Blockley Hall, 423 Guardian Drive,

Philadelphia, PA 19102. Email: Florence.Momplaisir@pennmedicine.upenn.edu; P:

(631)235-5911; F: (215)662-6932.

Summary: In focus group discussions, hesitancy of a COVID-19 vaccine was high among black participants due to health beliefs against vaccines in general compounded by skepticism of vaccine development during the pandemic and the political environment fostering racial injustice.

© The Author(s) 2021. Published by Oxford University Press for the Infectious Diseases Society of America.

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs licence (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial reproduction and distribution of the work, in any medium, provided the original work is not altered or transformed in any way, and that the work is properly cited. For commercial re-use, please contact journals.permissions@oup.com

ABSTRACT

Introduction: Coronavirus Disease 2019 (COVID-19) has disproportionately affected communities of color, with blacks experiencing the highest rates of disease severity and mortality. A vaccine against SARS-CoV-2 has the potential to reduce the race mortality gap from COVID-19; however, hesitancy of the vaccine in the black community threatens vaccine uptake.

Methods: We conducted focus groups with black barbershop and salon owners living in zip codes of elevated COVID-19 prevalence to assess their attitudes, beliefs, and norms around a COVID-19 vaccine. We used a modified grounded theory approach to analyze the transcripts.

Results: We completed four focus groups (n=24 participants) in July and August 2020. Participants were an average age of 46, 89% were black non-Hispanic. Hesitancy against the COVID-19 vaccine was high due to mistrust in the medical establishment, concerns with the accelerated timeline for vaccine development, limited data on short and long-term side effects, and the political environment promoting racial injustice. Some participants were willing to consider the vaccine once the safety profile is robust and reassuring. Receiving a recommendation to take the vaccine from a trusted health care provider served as a facilitator. Health beliefs identified were similar to concerns around other vaccines, and included the fear of getting the infection with vaccination, and preferring to improve one's baseline physical health through alternative therapies.

Conclusion: We found that hesitancy of the COVID-19 vaccine was high; however, provider recommendation and transparency around the safety profile might help reduce hesitancy of the COVID-19 vaccine.

Keywords: COVID-19 vaccine, vaccine hesitancy, mistrust, racial disparities

INTRODUCTION

COVID-19 (Coronavirus Disease 2019) has had a devastating impact on public health globally; however, the United States had the most significant burden of any country, with over fifteen million cases and over 400,000 deaths as of January 2020.[1] Disease prevalence and severity have disproportionately affected communities of color, with black, non-Hispanics being 3.7 times more likely to experience severe infection and twice as likely to experience mortality compared to whites.[2, 3]

An effective vaccine against SARS-CoV-2, the virus that causes COVID-19, is one of many tools to prevent infection; however, it includes the advantage of decreasing disease severity compared to other prevention strategies.[4] Hence, the wide-spread use of the vaccine, particularly among communities of color, could reduce racial disparities in COVID-19 related health outcomes by lowering disease severity in communities experiencing higher levels of impact. Two COVID-19 vaccines have received Emergency Use Authorization from the Food and Drug Administration (FDA) with additional vaccines in phase III trials.[5] However, published studies show that blacks are much less willing to take a vaccine once available. Large surveys demonstrate that vaccine acceptance among blacks varies between 39% and 55%, the lowest reported acceptance rates among racial/ethnic groups.[6, 7] Poor vaccine uptake might worsen existing health disparities and undermine efforts to allocate vaccines equitably.[8] Understanding attitudes, beliefs, and norms around a COVID-19 vaccine among blacks is the first step in understanding how to address vaccine hesitancy and develop interventions targeted at increasing vaccine uptake. Here, we present the results of focus groups conducted among a community of black barbershop and salon owners and their workers living in zip codes of elevated COVID-19 prevalence.

METHODS

Setting and Study Participants

The focus groups were conducted with a coalition of black barbershop and salon owners in West Philadelphia during July and August 2020. An academic-community partnership between black physicians and trainees from the University of Pennsylvania and the barbershop and salon owners was in place before the pandemic. During the pandemic, this partnership evolved to focus mainly on prevention efforts to mitigate the risk of SARS-CoV-2 infection among the shop owners and their clients, particularly when re-opening their businesses.[9] The University of Pennsylvania (Penn) Institutional Review Board approved the study.

Study procedures

The leaders of the coalition of black barbershops and salons were invited to participate in the focus groups by the study principal investigator (PI) and co-investigator (co-I), both black physicians known to them from on-going engagement efforts to help their small businesses reopen safely.[9] Additional barbershops and salons were recruited through snow-ball sampling and recruitment stopped after we reached saturation of themes around vaccine sentiments. The focus group instrument included questions on the overall impact of COVID-19 on the participants' health and open-ended questions about attitudes, health beliefs, and norms about a potential COVID-19 vaccine. A researcher from the Penn Mixed Method Research Lab (MMRL) with expertise in mixed-method research conducted the focus group. The study PI, co-I, or both were present for all the focus groups. After obtaining verbal informed consent, the focus groups were held virtually using the video-conferencing platform Zoom and lasted approximately 60 minutes. Following the discussion, participants completed a brief Redcap demographic questionnaire. Participants received a \$50 gift card for completing the focus group and the questionnaire.

Data analysis

After transcribing the audio recordings and removing identifiers, we uploaded the transcripts to NVivo 12 Plus.[10] We used a modified grounded theory approach to develop a coding structure that included major themes from a close reading of the transcripts.[11] The MMRL researcher who conducted the focus groups and another staff trained in qualitative coding and analysis performed the coding. The codebook was discussed by all study team members at coding meetings and refined using an iterative process. The resulting codebook was then applied to the transcripts with slight modifications made throughout the process based on the results of periodic inter-coder reliability queries (final $\kappa=.81$) to improve clarity and facilitate analysis.

RESULTS

Participant characteristics

We completed four focus groups that included an average of five participants each (total $n=24$). Out of the total number of participants, 19 (79%) completed the Redcap questionnaire. The average age was 46 (range 20-63), 74% were women, 89% were black non-Hispanic (Table 1). The 5 participants who did not complete the questionnaire were men. Community prevalence with COVID-19 was high: 79% said they knew someone infected with COVID-19, and many knew ≥ 3 individuals diagnosed with COVID-19. Nearly all (90%) reported wearing a mask in public consistently; however, only 42% said family members or people in their community wore masks consistently.

Below, we present the major themes that emerged in our analysis.

Vaccine hesitancy is strong

There was a spectrum of sentiments toward the vaccine with people who were strongly for or firmly against it. These individuals had firm convictions and said more information or time would not persuade them to change their minds. The rest fell in the middle and leaned strongly against taking the vaccine but would be willing to reconsider in the future if they learned more about it and if evidence showed the vaccine was safe and effective over time. Barriers to vaccine uptake included concerns about safety, efficacy, misinformation, the politicization of the scientific process, the accelerated timeline for vaccine development, and distrust of the scientific and medical communities because of long-standing racist practices.

Barriers to taking a COVID-19 vaccine

Perception that the vaccine development process has been rushed

Chief among participants' concerns about the safety of a potential COVID-19 vaccine was the belief that vaccine development was rushed and therefore unsafe. They also perceived the timeline for testing the vaccines as rushed compared to the traditional time used to test vaccines.

“No, I will not be taking a [COVID-19] vaccine ... One, they didn't have enough studies. It takes at least a year and a half, two years or three years for them to complete a study and they did it in four months.”

Concerns around safety and efficacy of the COVID-19 vaccine

Participants linked concerns around the vaccine's safety and efficacy to the safety of vaccines in general, offering the influenza vaccine as an example of a vaccine they perceived as ineffective and carrying the risk of actual infection. There were also specific safety concerns because it was a novel virus and that there was no established safety profile, both in the short- and long-term.

"It is too new. You don't really know, and I don't want to put anything in me even with a 10% chance that I might get it because I have underlying condition, so I don't know if that's going to make me sick, they don't know if you're going to get it, like you know how you could still get the flu even if you get a flu shot."

Hesitancy based on unethical historical practices in research toward the black community

Participants also expressed considerable and well-founded mistrust of the medical establishment, scientific research communities, and pharmaceutical companies, based on their knowledge of historic mistreatment and unethical research practices that adversely impacted black patients and participants. Participants reported that their overall mistrust of these entities made them less willing to consider taking a COVID-19 vaccine, no matter how safe it was proven to be.

"I'm already against it. I'm paranoid, I keep getting, when I hear that Tuskegee experiment. But I stay away from that. I wouldn't get a vaccine."

"And then the other thing is, I can see them—like look in the prisons. You have more people in prisons have gotten this [COVID-19]. People are trying to get help. But I see them trying to go to a place like that to try this stuff on which is what they used to do with vaccines, try it on prisoners and see how they respond."

Mistrust in government

Participants expressed concerns regarding conflicting guidance from the federal, state, and local government which gave them poor confidence in government-led initiatives. They were also concerned about political meddling in the scientific process and its relationship with vaccine approval. Moreover, the political environment fostering white supremacy and racial injustice increased hesitancy of the vaccine because of its association with President Trump. They strongly opposed any possible future vaccine mandate to return to work and stated that they would not be willing to take the vaccine even if mandatory.

“And with — what's his number, 45, 46 —what's his number? With that guy in office, I used to look at how he's been bouncing Doctor Fauci around. Everybody is on high alert, in the black community, everybody is on high alert, very distrusting, because we don't know what's going to be perpetrated against us. I mean just on another level, you see what's going on with police brutality and things, things have been caught on tape and it's not being addressed, so [it's not so] so weird in thinking that the vaccines that go to zip codes 19131, 19139, 19104 would be tainted or just — it's just that that paranoia, but there's substance to the paranoia.”

Potential facilitators toward getting a COVID-19 vaccine

Having a track record of safety over time

Those more receptive to receiving a COVID-19 vaccine did not want to be in the ‘first-round’ of those receiving it. Participants reported that protecting their families or small children, wishing to return to work safely, and believing the vaccine would not harm them were all reasons they were considering vaccination. Though most participants, irrespective of gender, were still opposed to taking a vaccine, women were more likely to express cautious optimism

or willingness to take a vaccine at some point compared to their male counterparts. Factors that would give participants more confidence in the safety and efficacy of a COVID-19 vaccine included limited reports of adverse side effects in those who initially take it, transparency with the vaccine development process, and a global collaborative vaccine development effort.

“Once we’ll see that a year go by and nobody has symptoms or whatever, I mean people will probably be more lenient to get the vaccine, but we would have to see ... there’s a lot of questions.”

Recommendation from trusted providers

For some, a recommendation to take the vaccine from a trusted medical provider was a key facilitator to taking a COVID-19 vaccine. These individuals felt that medical professionals they were familiar with and trusted could influence their decision to take a COVID-19 vaccine. The opposite also held true: a negative recommendation would influence them against the vaccine.

“I know enough people, healthcare professionals that I do trust, and I think we’ve all lost trust in our health system. But when you know people personally, I think it helps, like even having this communication with you also opens up a different mindset, and so a growth mindset. And so, it may allow different thoughts about being open, but I would definitely [take the vaccine] for myself, my children.”

“I have a cousin who’s a pediatrician and he pretty much stated the same thing, he would not be interested in the first couple of rounds. It really should be vetted fully before we would be interested in taking it.”

Health beliefs

Overall, prevalent health beliefs toward a COVID-19 vaccine were driven by skepticism around the way vaccines are manufactured and work, personal experiences with other vaccines, and the vaccine's ability to cause infection. Particularly, those with co-morbid conditions perceived their immune system at risk with a vaccine. There was also the sense that other existing medications with a longer track-record of safety, were more appropriate approaches and that these treatments should not be suppressed from widespread use:

“So is it fair to say that I can say the same about a vaccine, that's just being made up as we speak like with no data, no—no real testing, but yet hydroxychloroquine has been approved by FDA treated for malaria for—for 57 years or 67 years and we already know, the effects and what it does and what it, what it is good for.”

Others felt that the entire approach to COVID-19 prevention was focused on the wrong aspect of healthcare; these individuals argued that, rather trying to develop a vaccine or even encourage physical distancing and mask-wearing, the focus should be on improving baseline physical health. Building a robust immune system by using vitamins, specific diets, and other alternative health approaches was seen by some participants as the key to preventing infection.

“You have alkaline foods that you can put in your body that fight off the virus, you have immune support vitamins out here that can fight off virus and that's what I'd be with, without a vaccine, so ... I don't know why they keep trying and push their vaccine, because people didn't even want to take the flu shot.”

Social norms

Most participants reported there would be extremely low vaccine uptake among individuals in their social networks: “Everybody that I spoke with, every individual that I spoke with was against the vaccine,” remarked one participant. In some instances, participants who discussed family members or others who would be willing to take a vaccine insinuated that those individuals were foolish, less educated, or unable to make unbiased decisions because of their exposure to the news media.

Interviewee: “I have a few aunts that would take [a COVID-19 vaccine].”

Interviewer: “Okay. And what makes you think that they would take it?”

Interviewee: “They are not from the sharper side of the family. [Laughs] No, but that’s me being joking (...).”

Participants also reported that a recommendation to take the vaccine from famous individuals from the black community who served as role-models would not help persuade them to take a vaccine. One of the participants spontaneously brought up former President Barack Obama as an example and asked the group about their opinion and the consensus was that this would not help them change their minds:

Interviewee: “If Obama advocated for it, would you guys take it?”

Interviewee 3: “I don’t care who advocates for it, I mean at the end of the day, if they got to shoot the actual virus into your body to cure your body, that’s — that will make no sense...”

Interviewee: “I’m with that, I’m just not following the streams.”

Interviewee 4: “I was just speaking on Obama, like if he advocated for [a COVID-19 vaccine] I would still — I have to say no way, so I would think it will be still under that umbrella of evil.”

DISCUSSION

In these focus group discussions with black participants living in communities of elevated COVID-19 prevalence, we found high hesitancy of the COVID-19 vaccine. Skepticism was driven by a series of factors, mainly historical mistreatment against the black community, compounded with concerns regarding the accelerated timeline for vaccine discovery, limited data on short and long-term side effects, racial injustice, and the lack of coordinated response to the pandemic. However, key facilitators to vaccine acceptance were identified and included waiting for safety data to be more robust, knowing more about the vaccine, and receiving a recommendation to take the vaccine from a trusted health care provider. The health beliefs identified call for strategies to demystify myths about the vaccine causing infection and hydroxychloroquine’s benefit for treating or preventing COVID-19.

Our results are consistent with published literature finding that hesitancy of the COVID-19 vaccine is high among blacks.[6, 12, 13] In addition to factors identified in our focus groups, other reported barriers to vaccine use among blacks include concerns for cost/health insurance and being already infected with COVID-19.[12] These studies, although using large survey data, do not provide an in-depth understanding of barriers, facilitators, and normative beliefs associated with the vaccine, which are essential to inform interventions and which our study aimed to accomplish.

A systematic review focused on identifying strategies targeted at addressing vaccine hesitancy shows that using multiple strategies (such as increasing knowledge, increasing access to vaccines, using a vaccination mandate) is more effective at addressing vaccine hesitancy than using a single approach.[14] Influenza is another respiratory virus with elevated disease burden in the black community and poor vaccine acceptance.[15] While differences between the influenza and COVID-19 vaccines exist, understanding reasons for influenza vaccine hesitancy might inform strategies to increase COVID-19 vaccination. Studies show that concerns for side effects, social norms that do not support vaccination, and poor understanding of the influenza vaccine serve as barriers while recommendation from a trusted provider serves as a facilitator to vaccine uptake.[16] Other studies show that a provider's recommendation is one of the most decisive factors associated with willingness to get vaccinated.[6, 17] These findings point to the need to build trusted patient-provider relationships, educate, and recommend the COVID-19 to patients experiencing vaccine hesitancy. It is also crucial to identify other influential people who are relatable such as champions—people from the community who have been vaccinated and can advocate for receiving the vaccine, community health workers, faith leaders or others that might increase buy-in. As trusted members of the community, barbershops and salons owners are well-positioned to serve as champions but work is needed to address their hesitancy of the COVID-19 vaccine.

This study has several limitations. First, it involved only four focus groups and the attitudes toward the COVID-19 vaccine expressed here are not necessarily representative of the black community as a whole. Second, the groups were conducted remotely due to the pandemic. Though participants were encouraged to engage with the group with their video function enabled, some had connection or access problems causing them to participate only via audio. Third, because the focus groups took place between July and August, 2020, participants'

sentiments toward a COVID-19 vaccine may have changed with the announcement of effective vaccines and the change in presidential administrations.

In conclusion, while there is substantial skepticism against the COVID-19 vaccine, participants fell on a spectrum, leaving the opportunity for increased acceptance with targeted strategies that address their health beliefs, fears, and concerns about the vaccine. Using trusted messengers for vaccine education seems to be a promising approach to addressing COVID-19 vaccine hesitancy in the black community.

Accepted Manuscript

NOTES

ACKNOWLEDGMENT

We would like to acknowledge the barbershop and salon owners and their employees who participated in the focus groups. We would like to also acknowledge the staff at the University of Pennsylvania Mixed Methods Research Lab who helped with data analysis of the transcripts, particularly Rakeem Yakubu.

FUNDING

This work was supported by University of Pennsylvania Leonard Davis Institute of Health Economics and by K24-AG047908 from the National Institute on Aging (to Werner).

No authors have any potential conflicts to disclose.

Accepted Manuscript

REFERENCES

1. United States COVID-19 Cases and Deaths by State. Reported to the Centers for Disease Control and Prevention. Available at https://covid.cdc.gov/covid-data-tracker/#cases_casesper100klast7days. Last accessed January 22, 2021.
2. Gold JA, Rossen LM, Ahmad FB, et al. Race, ethnicity, and age trends in persons who died from COVID-19—United States, May–August 2020. *Morbidity and Mortality Weekly Report* **2020**; 69(42): 1517.
3. The Centers for Disease Control and Prevention. COVID-19 Hospitalization and Death by Race/Ethnicity. <https://www.cdc.gov/coronavirus/2019-ncov/covid-data/investigations-discovery/hospitalization-death-by-race-ethnicity.html>. Last accessed January 22, 2021.
4. Mahase E. Covid-19: Moderna vaccine is nearly 95% effective, trial involving high risk and elderly people shows. *BMJ: British Medical Journal (Online)* **2020**; 371.
5. Sharpe HR, Gilbride C, Allen E, et al. The early landscape of COVID-19 vaccine development in the UK and rest of the world. *Immunology* **2020**.
6. Reiter PL, Pennell ML, Katz ML. Acceptability of a COVID-19 vaccine among adults in the United States: How many people would get vaccinated? *Vaccine* **2020**; 38(42): 6500-7.
7. Fisher KA, Bloomstone SJ, Walder J, Crawford S, Fouayzi H, Mazor KM. Attitudes toward a potential SARS-CoV-2 vaccine: a survey of US adults. *Annals of internal medicine* **2020**.
8. McClung N, Chamberland M, Kinlaw K, et al. The Advisory Committee on Immunization Practices' ethical principles for allocating initial supplies of COVID-19 vaccine—United States, 2020. *Morbidity and Mortality Weekly Report* **2020**; 69(47): 1782.
9. Momplaisir. F. If these Black-owned businesses fail, the community's health will be harmed. *Philadelphia Inquirer Op Ed*. 6/17/2020.
10. Edlund B, McDougall A. *NVivo 12 essentials*: Lulu. com, **2019**.
11. Chun Tie Y, Birks M, Francis K. Grounded theory research: A design framework for novice researchers. *SAGE open medicine* **2019**; 7: 2050312118822927.
12. Callaghan T, Moghtaderi A, Lueck JA, et al. Correlates and disparities of COVID-19 vaccine hesitancy. Available at SSRN 3667971 **2020**.
13. Kreps S, Prasad S, Brownstein JS, et al. Factors associated with US adults' likelihood of accepting COVID-19 vaccination. *JAMA network open* **2020**; 3(10): e2025594-e.
14. Jarrett C, Wilson R, O'Leary M, Eckersberger E, Larson HJ. Strategies for addressing vaccine hesitancy—A systematic review. *Vaccine* **2015**; 33(34): 4180-90.
15. Flu Disparities Among Racial and Ethnic Minority Groups. [https://www.cdc.gov/flu/highrisk/disparities-racial-ethnic-minority-groups.html#:~:text=Among%20adults%20\(age%2018%20years,Indian%20or%20Alaska%20Native%20persons](https://www.cdc.gov/flu/highrisk/disparities-racial-ethnic-minority-groups.html#:~:text=Among%20adults%20(age%2018%20years,Indian%20or%20Alaska%20Native%20persons). Last accessed January 18, 2021.
16. Quinn SC. African American adults and seasonal influenza vaccination: Changing our approach can move the needle. *Human vaccines & immunotherapeutics* **2018**; 14(3): 719-23.
17. Head KJ, Kasting ML, Sturm LA, Hartsock JA, Zimet GD. A national survey assessing SARS-CoV-2 vaccination intentions: Implications for future public health communication efforts. *Science Communication* **2020**: 1075547020960463.

Table 1. Demographic characteristics of participants

Demographic Characteristics, total n=19	N	%
Age, average (min, max)	46.32	20, 63
Male	5	26.3
Female	14	73.7
Black, non-Hispanic	17	89.4
Black, Hispanic	1	5.3
Mixed race	1	5.3
COVID-19 related questions	N	%
Do you know anyone who has been diagnosed with COVID-19?		
Yes	15	78.9
No	4	21.1
Have you yourself been diagnosed with COVID-19?		
Yes	1	6.7
No	14	93.3
Missing	4	21.0
About how many people that you know have been diagnosed with COVID-19?		
Between 1-3	6	31.6
Between 3-5	3	15.8
Between 5-8	5	26.3
More than 8	1	5.2

Missing	4	21.1
Do you wear a mask in public?		
Yes, all the time	17	89.5
Yes, some of the time	2	10.5
No, never	0	0.0
In general, how do people in your family or community wear a mask in public?		
Everyone wears a mask in public	8	42.1
Most people wear a mask in public	7	36.8
About half of people wear one, half do not	4	21.1
Most people do not wear a mask in public	0	0.0
No one wears a mask in public	0	0.0

A total of 24 individuals participated in the interview; 19 filled the Redcap questionnaire and their demographic characteristics and responses to COVID-19 related questions are included in this table.

Accepted Manuscript