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COVID-19 Vaccine Hesitance in Black and Latinx Communities in Georgia: Garnering Effective Outreach and Research in Georgia for Impact Alliance (GEORGIA) Community Engagement Alliance Against (CEAL) COVID-19

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An abstract of
A thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University
in partial fulfillment of the requirements for the degree of
Master of Public Health
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Abstract

COVID-19 Vaccine Hesitance in Black and Latinx Communities in Georgia: Garnering Effective Outreach and Research in Georgia for Impact Alliance (GEORGIA) Community Engagement Alliance Against (CEAL) COVID-19

By: Marisa Boily

The COVID-19 pandemic has disproportionately impacted communities of color across the US, particularly those which are majority Black and Latinx (Centers for Disease Control and Prevention, 2022b). Garnering Effective Outreach and Research in Georgia for Impact Alliance (GEORGIA) Community Engagement Alliance (CEAL) Against COVID-19 Disparities is a collaborative initiative between Morehouse School of Medicine, Emory University, Dekalb County Board of Health, and Southside Medical Center. GEORGIA CEAL conducts community-engaged research to understand factors that contribute to the disproportionate effects of COVID-19 in African American and Latinx communities in Georgia to positively impact issues of vaccine hesitancy and mistrust toward acceptance and confidence (Morehouse School of Medicine, 2021). As part of the GEORGIA CEAL workflow, 10 focus group discussions were conducted during January and February of 2021. Groups were segmented to garner unique perspectives from Black participants under 60 years of age (4 groups), Black participants over 60 years of age (2 groups), and Latinx participants under 60 years of age (4 groups; 2 in English, 2 in Spanish). Three main factors were discussed regarding participants propensity towards being vaccinated against COVID-19: their perceptions of the vaccines' safety, emotional responses to the pandemic, and the degree to which they were informed about the COVID-19 vaccine. Facilitators of COVID-19 vaccination included knowing others who received a vaccine and, among Latinx focus groups, being motivated by prospects to travel to visit family outside of the US again. Fears of both short- and long-term side effects and distrust in the safety of COVID-19 clinical trial results were barriers to COVID-19 vaccination mentioned in focus groups. Perceptions of medical malfeasance may be mitigated by involving groups that reflect the respective race, ethnicity, and culture of target populations in developing, testing, and creating guidelines for COVID-19 vaccine use. Strengthening collaborations with Black and Latinx groups in Georgia is critical to building trust between these communities and the medical and public health establishment that has historically perpetuated racial health inequities.

COVID-19 Vaccine Hesitance in Black and Latinx Communities in Georgia: Garnering Effective Outreach and Research in Georgia for Impact Alliance (GEORGIA) Community Engagement Alliance Against (CEAL) COVID-19

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To my friends and family, I cannot thank you enough for supporting me through getting a Master's degree in public health entirely during a viral respiratory pandemic, and for encouraging me from near and far through such a bizarre time. I especially want to thank my mom Beth and my Aunt Abby for the limitless love and support you both seem to have for me. Thank you to my colleagues at Rollins who have fostered such a strong support system over the last two years. Finally, thank you to my dogs Shawny and Juno for reminding me to smile and go for a walk when things get hard.

This thesis is dedicated to Corey Ayala-Fagundez and to my grandpa Robert Shapiro – I wish you could have seen it through to the end.

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Acronym List

CCB: Community Coalition Board

COVID-19: Coronavirus Disease 2019

CDC: Centers for Disease Control and Prevention

DPH: Department of Health

EUA: Emergency Use Authorization

FDA: U.S. Food and Drug Administration

GEORGIA CEAL: Garnering Effective Outreach and Research in Georgia for Impact Alliance Community Engagement Alliance Against COVID-19

ICE: U.S Immigration and Customs Enforcement

MSM: Morehouse School of Medicine

NIH: National Institutes of Health

NYC: New York City, New York

PHS: Public Health Service

SARS: severe acute respiratory syndrome

SARS-CoV-2: SARS coronavirus 2

US: United States of America

Chapter 1: Introduction

The Coronavirus Disease 2019 (COVID-19) pandemic has disproportionately impacted communities of color across the United States (US), particularly those which are majority Black and Latinx (Centers for Disease Control and Prevention, 2022b). Between March 2020 and January 2022, Black and Latinx individuals in the US were, respectively, 2.5 and 2.4 times more likely to be hospitalized for COVID-19 compared to their White counterparts (Centers for Disease Control and Prevention, 2022b). Black and Latinx people who present to emergency departments also have increased risk of in-hospital mortality, RR = 1.28 and RR = 1.18, respectively, compared to non-Hispanic Whites (Wiley et al., 2022). Despite their increased risk of severe illness, communities of color seem to be more hesitant toward COVID-19 vaccination than predominantly White communities (F. M. Momplaisir et al., 2021).

Given these disproportionate realities that are seen in Georgia and across the US, it is important to consider their contexts and understand why these health inequities exist. There is a deeply rooted history of racism in medicine, especially in the southeastern parts of the US where legacies of slavery and Jim Crow-era policies continue to persist. Systemic racism hurts communities of color in many ways, including lack of economic mobilization, obstacles to higher education, and insecure access to healthcare (Nuriddin, Mooney, & White, 2020). These barriers contribute to the poorer health outcomes within communities of color and feed into themselves in a positive feedback loop. For example, chronic illnesses such as diabetes mellitus, hypertension, and heart disease are more prevalent among people of color; these have also all been shown to increase risk for severe COVID-19 outcomes (Tai, Shah, Doubeni, Sia, & Wieland, 2021). It is important to understand the context of racial disparities and their role in affecting health outcomes and vaccination rates because it will ultimately be very important in terms of addressing these issues as well as identifying and leveraging outreach and messaging strategies to promote COVID-19 immunization.

Problem Statement

It has been shown that Black and Latinx communities express more hesitance toward COVID-19 vaccination than White communities, however there is a need to understand *why* communities of color are hesitant towards COVID-19 vaccines. Garnering Effective Outreach and Research in Georgia for Impact Alliance (GEORGIA) Community Engagement Alliance (CEAL) Against COVID-19 (hereafter, GEORGIA CEAL), is a collaborative project between Morehouse School of Medicine (MSM), Emory University, the Dekalb County Board of Health, and Southside Medical Center located in Atlanta, Georgia. The overarching goals of GEORGIA CEAL are to conduct community-engaged research to understand what factors are contributing to disproportionate effects of COVID-19 in underserved communities in Georgia, and to shift these populations from feelings of vaccine hesitancy and mistrust to acceptance and confidence (Morehouse School of Medicine, 2021). A key part of this research was to conduct a series of focus group discussions with Black and Latinx individuals in January and February of 2021 to gain initial insights into perspectives on COVID-19, vaccination, and related issues.

Purpose Statement

The purpose of this thesis is to examine what factors were influencing COVID-19 vaccine uptake in Black and Latinx communities in Georgia in early 2021, drawing on data provided by participants during semi-structured focus group discussions. The secondary aim of this thesis is to identify historical, cultural, and social rationales for vaccine hesitancy more broadly, focusing within minority communities in the US southeast.

Research question: What factors are influencing the perceptions of Black and Latinx communities in Georgia toward (or away from) COVID-19 vaccination?

Significance Statement

The information obtained from this analysis will be used to inform communication strategies for improving COVID-19 vaccination rates (and vaccine confidence) in key non-White demographics. Increasing the vaccination rates in these demographics is important in bridging disproportionate COVID-19 health outcomes in marginalized communities in Georgia. The findings from this study may also be used to support efforts to improve Black and Latinx representation in clinical trials, which is crucial in building the trust of these communities in medicine.

Chapter 2: Literature Review

Overview of the COVID-19 and the pandemic

In November of 2019, a cluster of unrecognizable pneumonia cases, later determined to be caused by a novel coronavirus, emerged in southeast China (Zhu et al., 2020). It was theorized by Chinese health officials that the virus likely originated in an animal, such as a bat, pig, or bird, and infected a human through close contacts between humans and animals at a market in Wuhan, Hubei Province (Shereen, Khan, Kazmi, Bashir, & Siddique, 2020). The first instance of a confirmed death due to COVID-19 confirmed as the cause of death was on January 11, 2020, in China. The US's first confirmed case of COVID-19 occurred just nine days later, on January 20th, in Washington State with a man who was returning from a trip to Wuhan (Holshue et al., 2020). Upon the arrival of the first three confirmed COVID-19 cases in France, researchers at the Pasteur Institute in Paris successfully sequenced the novel coronavirus's genetic material (Institut Pasteur, 2020, January 31). The sequencing results revealed that the novel coronavirus shared a striking resemblance, both phylogenetically and in terms of pathogenesis, to the severe acute respiratory syndrome (SARS) coronavirus that caused an outbreak in 2003, which is why the virus was ultimately given its official name of SARS-CoV-2 (Wang et al., 2020). Sequencing the entirety of the pathogen's genetic material was also a crucial step in developing COVID-19 vaccines.

As of April 10, 2022, there have been 498,154,313 confirmed COVID-19 cases with 6,176,420 confirmed deaths globally; in Georgia, there have been 1,941,256 confirmed COVID-19 cases with 31,311 confirmed deaths (Georgia Department of Public Health, 2022b; Johns Hopkins University, 2022). Evidence has since emerged that following COVID-19 infection, some individuals may have multi-organ system symptoms that persist for weeks to months. This condition has since been deemed “long COVID” (Crook, Raza, Nowell, Young, & Edison, 2021), but little has been established regarding long COVID since its designation.

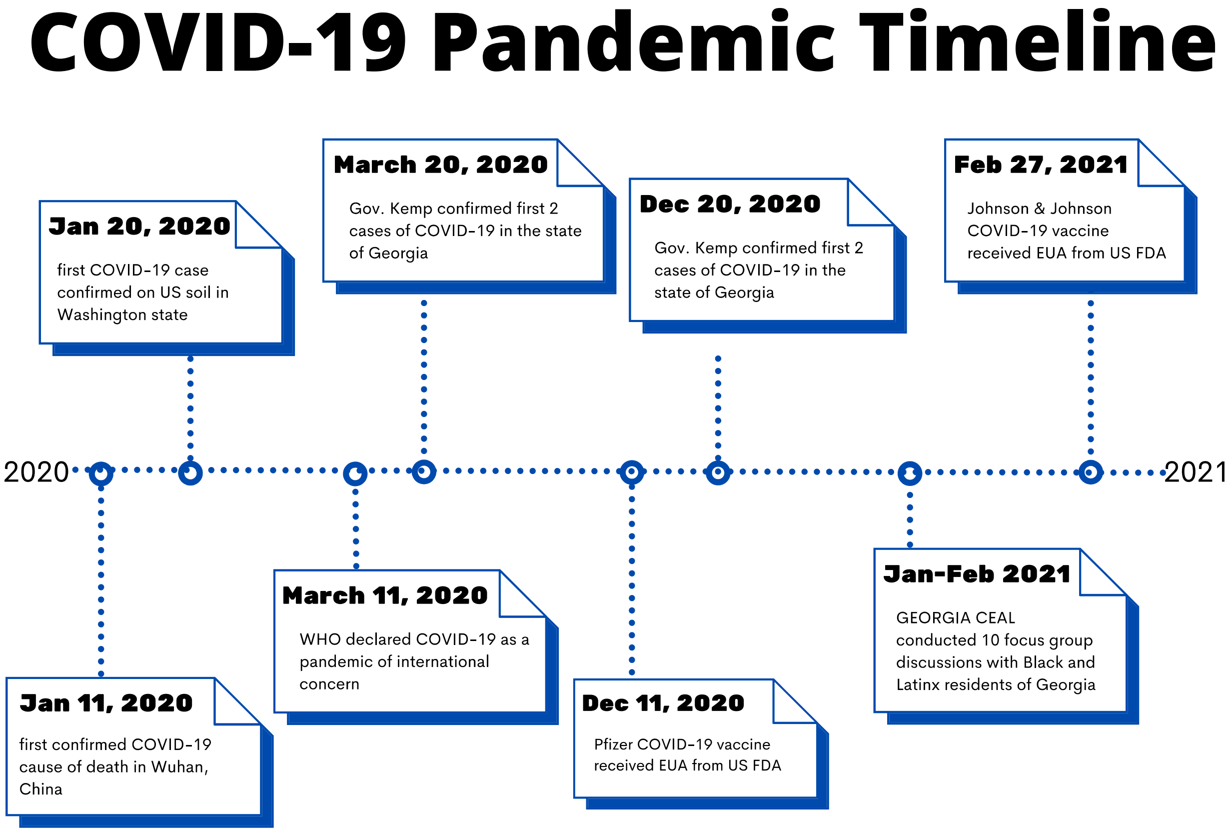

Figure 1. COVID-19 pandemic timeline.

To date, there is no official treatment or cure for COVID-19. However, several antivirals developed for other pathogens have been authorized by the U.S. Food and Drug Administration (FDA) for emergency use in some contexts. Drugs currently authorized by the FDA for the clinical management of non-severe cases to prevent them from progressing include redemsivir, and molnupiravir (U.S. Food & Drug Administration, 2020c). Paxlovid, developed by Pfizer and approved for emergency use on December 22, 2021, was the first oral antiviral treatment developed specifically for the treatment of patients 12 years and older who are at high risk for severe COVID-19 or hospitalization (Mahase, 2021). For patients with increasing needs for oxygen, it is recommended doctors administer the corticosteroid dexamethasone to reduce inflammation (COVID-19 Treatment Guidelines Panel). Convalescent plasma and anti-SARS-CoV-2 Spike protein monoclonal antibodies have also been authorized by the FDA for emergency use in treatment of severe COVID-19 (U.S. Food & Drug Administration, 2020c), though these guidelines have not been updated since December 2020.

Though vaccination efforts in the U.S. and abroad have slowed the spread of COVID-19, surges of COVID-19 infections continue to occur. The first two COVID-19 cases in the state of Georgia were confirmed in Fulton county on March 20, 2020 (Kemp, 2020). Since then, as of March 2022, Georgia has reported more than 1.9 million cases of COVID-19, over 100,000 hospitalizations, and more than 30,000 deaths (Georgia Department of Public Health, 2022b). Georgia's Department of Health (DPH) is also surveilling the number of COVID-19 vaccines by county, which can be viewed on an interactive map with user-adjusted parameters (Georgia Department of Public Health, 2022a). As of March 2022, over 14 million COVID-19 vaccines have been administered in Georgia, which represents 55% of the state being fully vaccinated and 63% of people having received at least one dose (Georgia Department of Public Health, 2022a). DPH's vaccine data interface also allows the user to stratify by race or ethnicity. These data suggest that as of March 2022, there are only small differences in vaccination rates between Black and White, and Hispanic and non-Hispanic people, respectively (Georgia Department of Public Health, 2022a).

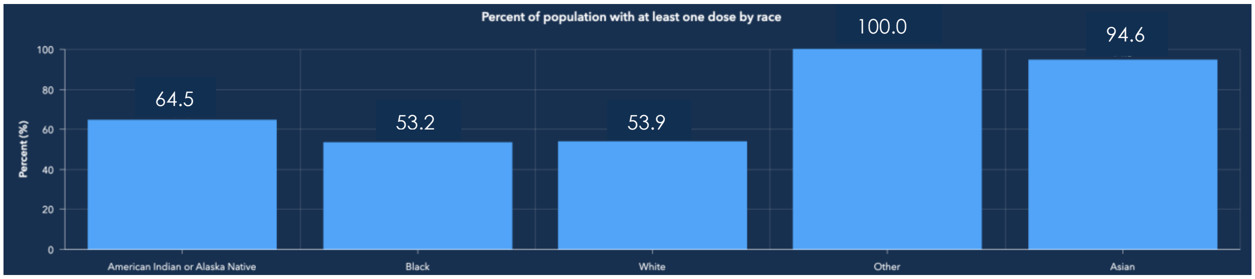

Figure 2. Percent of Georgia, USA's population with who received at least one COVID-19 vaccine dose, stratified by race. Updated April 16, 2022. Figure adapted from *Georgia Department of Public Health*.

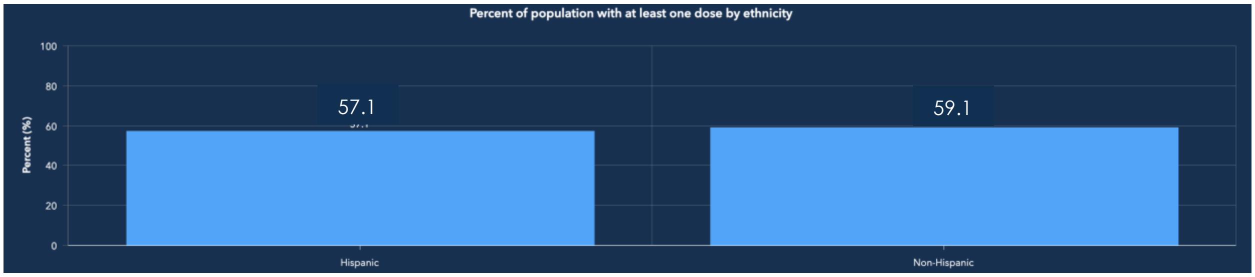

Figure 3. Percent of Georgia, USA's population who received at least one COVID-19 vaccine dose, stratified by ethnicity. Updated April 16, 2022. Figure adapted from *Georgia Department of Public Health*.

COVID-19 vaccine clinical trials

There are currently three vaccines authorized for the prevention of COVID-19 in the US. In November 2020, pharmaceutical companies Pfizer-BioNTech and Moderna completed Phase 3 of their clinical trials, reporting 95% and 94.5% vaccine efficacy in preventing COVID-19 illness, respectively, of their two-dose mRNA-based vaccines (Baden et al., 2021; Polack et al., 2020). The first available vaccine against COVID-19 was Pfizer-BioNTech's COVID-19 vaccine, which received authorization for emergency use in individuals 16 years and older on December 11, 2020 (Pfizer-BioNTech, 2020). A week later, on December 18, 2021, Moderna's COVID-19 vaccine also received emergency use authorization (EUA) for individuals aged 18 and older (Moderna, 2020). The last vaccine to receive EUA by the FDA was Johnson & Johnson's Janssen COVID-19 vaccine, a single-dose adenovirus vector vaccine, which occurred on February 27, 2021 (Johnson & Johnson, 2021). Pfizer's vaccine was also the first to receive full FDA approval for individuals 16 and older in August 2021 under the name Comirnaty®, followed by Moderna, whose vaccine, known as Spikevax®, received full FDA approval for individuals 18 and older in January 2022 (U.S. Food & Drug Administration, 2021b, 2022). Johnson & Johnson's vaccine remains under EUA. The FDA has also widened the age eligibility criteria for the Pfizer-BioNTech COVID-19 vaccine. Children ages 12-18 years can now receive Comirnaty® as formulated, while those ages 5-11 can receive a diluted version of the same product (Centers for Disease Control and Prevention, 2022a). As a reaction to the continuous COVID-19 outbreaks across the country, the emergence of SARS-CoV-2 variants, and emerging data that demonstrated the efficacy of booster doses to bolster immune system, the FDA has also authorized booster doses for eligible adults who have already received their full primary series of COVID-19 vaccines, going as far as to allow heterologous boosters ("mix and match") to alleviate the stress of finding availability for a manufacturer-specific vaccine (U.S. Food & Drug Administration, 2021a).

The racial and ethnic composition of the late-stage clinical trials for the Pfizer-BioNTech and Moderna Spikevax COVID-19 vaccines can be found in Table 1 (Kaiser Family Foundation, 2022). Both Pfizer-BioNTech and Moderna have reasonably proportional representation of each racial/ethnic identity compared to the US population at large (U.S. Food & Drug Administration, 2020a, 2020b). Janssen classified race and ethnicity data in a slightly different way than Pfizer-BioNTech and Moderna. Latinx populations were vastly overrepresented in Janssen's Phase 3 trial compared to the US population, as they reported their participants to be 45.1% Hispanic or Latino and 52.4% non-Hispanic (U.S. Food & Drug Administration, 2021c).

Table 1. Race/Ethnicity of Participants in Pfizer-BioNTech and Moderna COVID-19 Vaccine Clinical Trials

	Total US Population Age 16+	Pfizer-BioNTech*	Moderna	Janssen
Total	258 million	40,227	27,817	44,325
Race				
White	73.6%	81.9%	79.4%	61.2%
Black	12.3%	9.8%	9.7%	17.2%
Asian	5.9%	4.4%	4.7%	3.5%
American Indian/Alaska Native	0.8%	0.6%	0.8%	8.3%
Native Hawaiian or Other Pacific Islander	0.2%	0.2%	0.2%	0.3%
Multiracial	–	–	–	5.4%
Ethnicity				
Hispanic	17.6%	26.2%	20.0%	45.1%
Non-Hispanic	82.4%	73.2%	79.1%	52.4%

*Pfizer-BioNTech data are for all participants globally; of which 76.7% were in the US. Pfizer results provided for Phase 2/3 trial, Moderna results for Phase 3 trial. Figure adapted from *Kaiser Family Foundation (2021)*.

History of Racism in Medicine

Racism is extremely pervasive in the US, reaching across social, political, and economic systems. Legacies of the days of colonialism, the slave trade, and Jim Crow era politics continue to systemically uphold White supremacy, even in medicine. Despite beliefs that the US is in a ‘post-racial’ era and that the effects of racism dissipated after the emancipation of slaves or the Civil Rights era, White supremacy has continued to prevail, just in new ways. The current realities of racism within the fields of medicine and public health can be tied to historical instances of forcibly using slaves as cadavers and deliberately misleading/lying to Black and Latinx clinical trial participants (Bailey et al., 2017; Byrd & Clayton, 2001).

The use of enslaved Black individuals as medical test subjects was well-documented in the antebellum South. Physicians actively participated in the exploitation of Black bodies, sometimes even flaunting it in their personal medical notes or publishing in peer-reviewed journals (Washington, 2006). Widespread poverty and the use of slavery as an economic system contributed to the host of nutritional-deficiencies and infections observed not only among enslaved Black persons, but also across all of the varying social and economic classes of Whites (Washington, 2006). What formal medical care did exist in the South during this time was not available to Black people. Physicians conducted medical experimentation in slave quarters or slave ‘hospitals’ well before experimentation required ethical approval (Washington, 2006).

Perhaps most infamous for his medical malpractices during the antebellum era was Dr. J Marion Sims, who conducted numerous experimental surgeries on Black women in 1840s Alabama (Washington, 2006). Sims experimented freely on these women because there were no such things as ethical protections for slaves, nor consent, nor anesthesia. However, Sims is still lauded as the ‘founder of modern gynecological surgery’ for developing the first surgery to repair vesicovaginal fistulas (Wall, 2006). A statue of Sims still stood in New York City’s Central Park until 2018 when it was removed due to persistent protests of his malfeasant practices (Wall, 2020).

Black bodies, especially those of former slaves, were seen as disposable in the eyes of White doctors. Medical schools boasted their abundant access to Black bodies to be used as clinical subjects by prospective students. In 1989, the building in Augusta, Georgia that formerly housed the Medical College of Georgia underwent renovation (Washington, 2006). Underneath the concrete of the building, construction workers on-site found “a chaos of desiccated body parts and nearly *ten thousand* human bones and skulls, many bearing the marks of nineteenth-century anatomy tools or numbered with India ink” (Monkhouse, 1998; Washington, 2006). It was later identified that the majority of these bodies were stolen from Cedar Grove Cemetery, an African American burial ground in Augusta (Washington, 2006).

Rumors spread throughout the South about the deliberate misuse of Black bodies, but they were often dismissed as “old wives’ tales” or superstition, despite their validity. The post-mortem display of Black bodies– not just for entertainment but also to reinforce ideals of the medical inferiority of Black people— further alienated Black Americans well into the 20th century– not just for entertainment but also to reinforce ideals of the medical inferiority of Black people (Washington, 2006). Even once enslaved people escaped to the North or were freed, they were still mistreated by White physicians. Hundreds of thousands of Black people were recruited into the Union Army during the Civil War, all of whom White physicians were tasked with treating in case of injury or illness. Conditions in medical camps for freemen were grim: “the high disease and death rate, primitive medical conditions, and callous attitudes of some camp physicians further fed African American distrust of medicine” (Washington, 2006).

The Reconstruction and Jim Crow eras followed the Civil War, during which medical malpractice toward non-White people continued to flourish in the US in plain sight. The longest-running nontherapeutic experiment on humans, began in 1932 in Alabama (Thomas & Quinn, 1991). Researchers from the US Public Health Service (PHS) leading the “Tuskegee study of untreated syphilis in the Negro male”, or the “Tuskegee Syphilis Study” as it is known colloquially, recruited poor sharecroppers in Macon County by promising them free healthcare in exchange for participation (Washington, 2006). The reality was that the study was designed to investigate the progression of untreated syphilis in Black men, despite the fact that syphilis had become treatable following the discovery of penicillin in 1928 (Ligon, 2004). Some of the men may not have even had syphilis at the start of the study– the diagnostic tests used to test for syphilis were known to lack specificity among people who also had the disease yaws, which was prevalent particularly among Black people in the South due to poor living conditions (Marks, Lebari, Solomon, & Higgins, 2015). Nonetheless, the study went on for 25 years until a government-appointed ad hoc panel was convened to investigate its ethics and terminate the study;, however, the PHS officials who were responsible for the study were neither charged nor punished (Washington, 2006).

Unfortunately, there are countless examples of medical studies in the US that have targeted marginalized communities since the conclusion of the Tuskegee Syphilis Study. In 1978, Emory University was publicly reprimanded by the FDA for their Depo-Provera study for having endangered the lives of 4,700 women with both menstrual and non-menstrual side effects, all of whom were Black (Rosser, Stone, Graves, & Hatcher, 1998; Washington, 2006). From 1992-1997, the New York State Psychiatric Institute and Columbia University conducted a series of studies using the drug fenfluramine, attempting to link genetics and violence in young boys– all of whom those recruited for the study were Black. This study misleadingly reported its demographics as 44% Black and 56% Hispanic, as one of the boys' lawyers later stated that the boys they were claiming to be Hispanic were from Black Dominican families living in Washington Heights (Washington, 2006). A systematic review conducted in 2003 found that when compared to the research participation of children in general, Black and Hispanic children were overrepresented in potentially stigmatizing research (Walsh & Ross, 2003). Outside of the context of formal medical studies, just last year in 2021 whistleblowers raised concerns about the "high rates of hysterectomies performed on detained patients and describes reports by numerous women who did not understand why they had received a hysterectomy" at an US Immigration and Custom's Enforcement (ICE) detention center in Irwin County, GA (Ghandakly & Fabi, 2021). These examples, and a plethora of others, have repeatedly upheld White supremacist systems and discouraged Black and Latinx from trusting and participating in medical studies to this day.

Social determinants of health

Social determinants of health are defined as the “conditions in the social environment in which people are born, live, learn, work, and play that affect a wide range of health, functioning, and quality-of-life outcomes and risks” (Singh et al., 2017). These factors affect the health of individuals as well as that of the population as a whole. Examples of social determinants are race, ethnicity, socioeconomic status, gender, employment status, access to health foods, and language use. Social determinants of health that affect populations (as opposed to individuals) are generally considered to be more fundamental, upstream issues and are thus addressed by public policy (Wilkinson & Marmot, 2003).

COVID-19 health disparities

As with almost any disease, an individual’s or community’s risk for COVID-19 runs along a vast spectrum with several contributing variables, including social determinants of health. The ways in which COVID-19 has affected many communities, particularly those with a high proportion of people of color, have changed over time as the pandemic has spread and continuously created new barriers to meeting basic needs. Each COVID-19 resurgence poses new, unique challenges for communities to overcome, and, in turn, every community has been affected differently. Graphs depicting COVID-19 hospitalizations by race/ethnicity in four US regions (Northeast, Midwest, South, and West) in 2020 can be found in figure Figure 4. In the Northeast, from March through May 2020, non-White people were at much higher risk for hospitalization than their non-White counterparts, but thereafter these two groups had relatively similar risks to each other. Comparatively in the South, which includes Georgia, Black and Hispanic people were at noticeably higher risk for hospitalization if they were infected with COVID-19 compared to other demographics, reaching peak incongruity in July 2020. Hispanic people in the West also had a marked increase in hospitalizations in July 2020 (Romano et al., 2021). The US Centers for Disease Control and Prevention (CDC) later reported that during this same period, despite being generally at lower risk for severe COVID-19, non-Hispanic White patients were the most likely to receive monoclonal antibodies, an experimental treatment being used at the time (Wiltz et al., 2022).

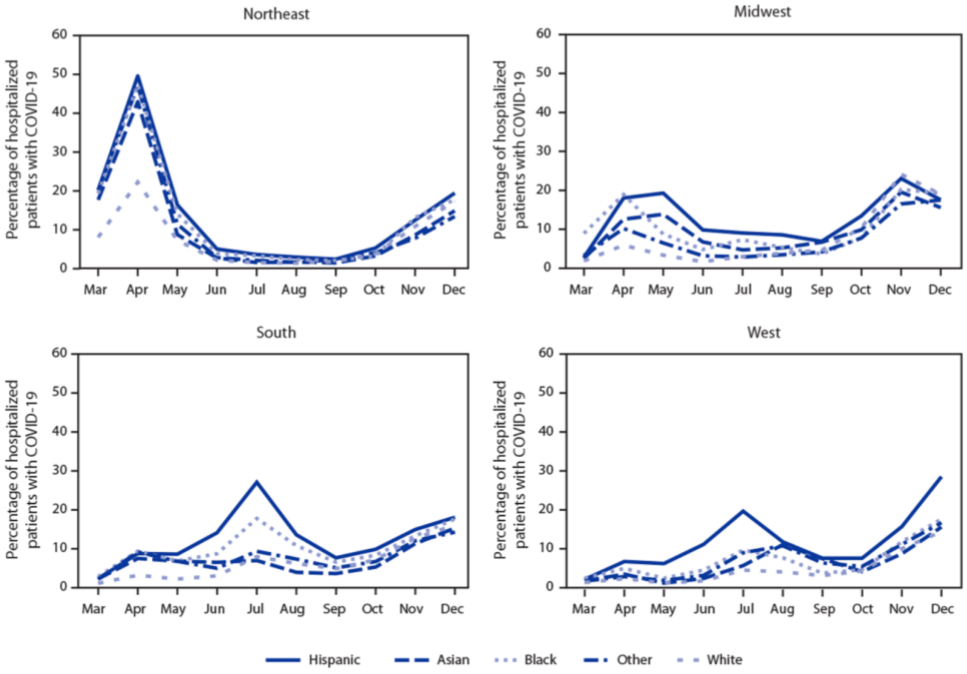

Figure 4. Monthly percentage of hospitalized patients with COVID-19, by race/ethnicity region — United States, March–December 2020. Hispanic persons could be of any race; Asian, Black, White, and Other race persons were non-Hispanic. Other group includes persons who were a race other than Asian, Black, or White, including American Indian/Alaska Native, Native Hawaiian/Pacific Islander, and multiple races. Figure legend continues to next page.

Northeast: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont; *Midwest*: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin; *South*: Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia; *West*: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming. Figure adapted from *Romano et al. 2021*.

A major epicenter of the US's COVID-19 outbreak in the early half of 2020 was New York City (NYC). According to CDC's analysis of this outbreak, "age-adjusted rates of hospitalization and death were highest among Black (699 and 248 per 100,000, respectively) and Hispanic/Latino (Hispanic) persons (658 and 260 per 100,000, respectively)", and all rates increased with increasing levels of poverty (Thompson et al., 2020). This same report also stated that testing in some neighborhoods, namely Southeast Queens (Jamaica), East Brooklyn (Bushwick and Bedford-Stuyvesant), the West Bronx, and Northern Manhattan (Harlem and Washington Heights), had low to medium testing rates and high positivity rates, indicating that these metrics are likely underestimates of the true outbreak during that time. Though NYC's population is majority White, the aforementioned neighborhoods have a majority of Black and/or Hispanic residents. Maps summarizing the number of tests administered and cases per population as well as test positivity rate by zip code can be found in figure Figure 5. However, it was not just Black and Latinx NYC residents enduring the brunt of this outbreak. As a consequence of uncontrolled misinformation and xenophobic rumors, Asian residents in and around NYC were the target of numerous hate crimes during this outbreak in the early half of 2020 (Gover, Harper, & Langton, 2020). As one of the US's first epicenters of the COVID-19 pandemic, NYC served as a case study for COVID-19 public health responses in diverse, urban settings and highlighted how disproportionate COVID-19 outcomes were across social and economic risk factors (race, ethnicity, and household income).

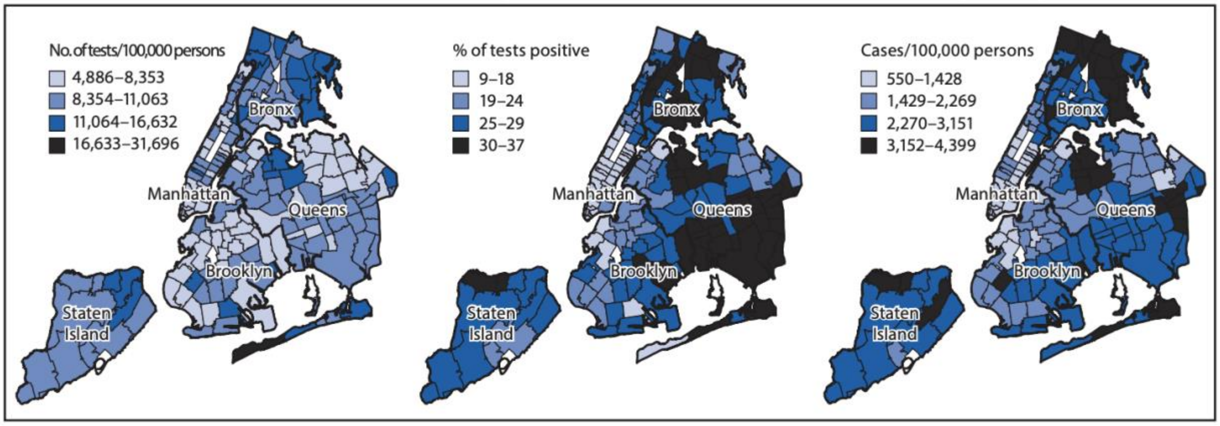

Figure 5. Cumulative crude rates of COVID-19 testing per 100,000 population, percentage of tests positive for SARS-CoV-2, and cumulative crude rates of COVID-19 cases per 100,000 population by modified ZIP code tabulation areas – NYC, February 29 - June 1, 2020. Figure adapted from *Thompson et al.*

COVID-19 vaccine hesitance and confidence

Vaccine confidence involves the trust of the vaccine (the product), the person administrating the vaccine (health practitioner), and the people who make decisions about vaccine allotment (policy-makers) (Larson, Schulz, Tucker, & Smith, 2015). Vaccine hesitance, on the contrary, is more loosely defined along a continuum between vaccine acceptance and resistance (Dubé et al., 2013). Vaccine hesitance may be due to several factors including culture, religion, personal experiences with medicine, or anecdotal evidence. A conceptual model depicting vaccine hesitance can be found in figure Figure 6.

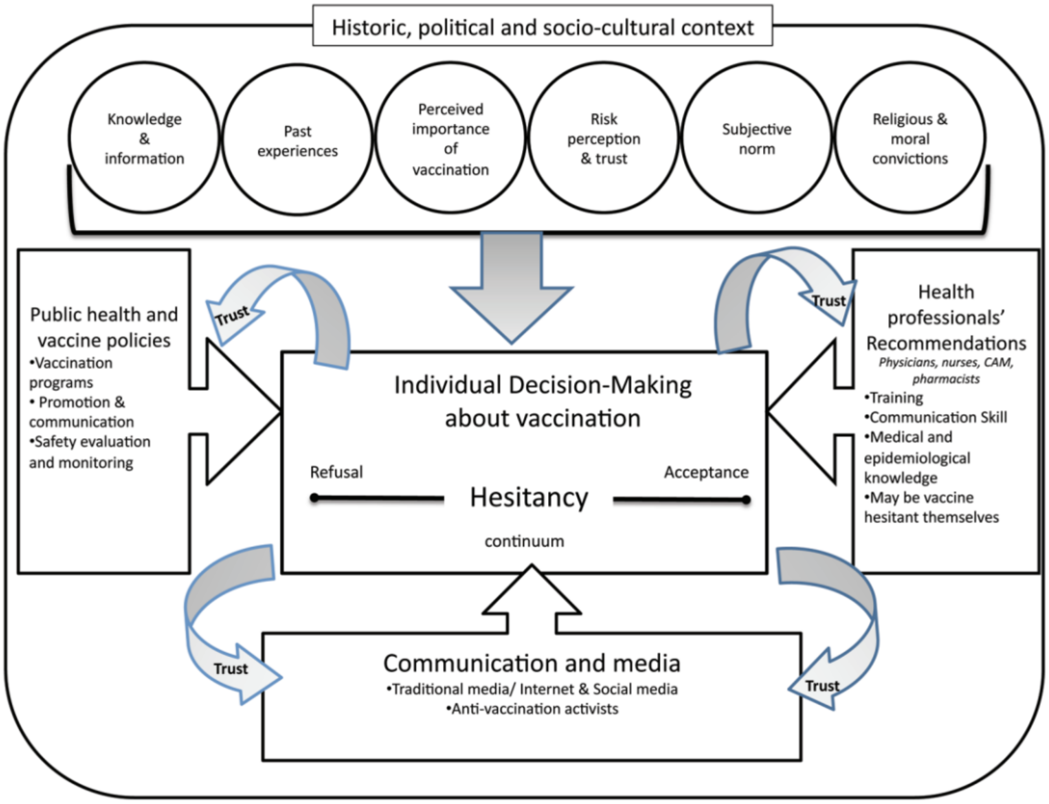

Figure 6. Conceptual model of vaccine hesitancy. Figure adapted from *Dubé et al. (2013)*

Context to focus group data

The following thesis utilizes focus group data that was collected in January and February of 2021. At this time, the US was experiencing a wave of COVID-19 outbreaks following the holidays at the end of 2020 (Ferguson et al., 2022). Like the rest of the US, Georgia followed a phased scheme to distribute COVID-19 vaccines. The first people in Georgia to be eligible for COVID-19 vaccination as part of phase Phase 1a in December 2020 were healthcare personnel likely to treat patients with COVID-19, first responders, people with at high risk for COVID-19 (including persons over 65 years old), and the staff and residents of long-term care facilities. Phase 1b followed, which made COVID-19 vaccination available to adults with developmental disabilities and their caregivers, educators and school staff (pre-school, K-12), and the caregivers of children with complex medical conditions (Georgia Department of Public Health, 2021). It was not until Phase 3 was announced in March 2021 that most Georgia residents were eligible to receive vaccination against COVID-19– this phase essentially made anyone who was medically eligible (over 16 years for Moderna, over 18 years old for Pfizer-BioNTech and Janssen), eligible to make an appointment (Kemp, 2021). Eligibility for COVID-19 vaccination, however, did not necessarily reflect accessibility of vaccine doses at that time. Supply chain shortages and limited appointment availability constrained the number of vaccines that could be administered (Alam et al., 2021).

Chapter 3: Methods

Population of interest and recruitment

The population of interest for this study was self-identifying Black and/or Latinx people who live in Georgia.

Inclusion criteria: All counties in Georgia were included, but the focus was on three in particular: DeKalb, Fulton, and Henry counties.

1. Persons who self-identify as Black and are ≥18 years of age
2. Persons who self-identify as 'Hispanic' or 'Latinx' ethnicity and are ≥18 years of age
3. Able to provide consent and participate in a focus group discussion

Exclusion criteria

1. Inability to read, write, or understand English or Spanish
2. Inability or unwillingness to access Zoom

The GEORGIA CEAL team established a Community Coalition Board (CCB) of almost 40 organizations from the metro Atlanta area to facilitate recruitment for focus group discussions, coordinating with and informing community partners of the purpose and target population of the project. Promotional materials with study information (e.g., recruitment flyers to be posted in-person or on virtual platforms) were provided by GEORGIA CEAL to CCB members to assist with recruitment efforts. Recruitment materials provided basic information about the purpose of the study, what participant involvement entailed, potential benefits to study participants, and contact information for study team members. All promotional materials used for the project were available in both English and Spanish. Focus groups were conducted in Spanish to accommodate for limited English abilities as necessary. An initial phone screening process was employed to confirm participant eligibility and get their consent for participation. Once confirmed to be eligible, participants were contacted by study members to invite them to a virtual focus group discussion at a set date and time. In all, 44 participants were included in the focus groups.

Focus group discussions and codebook development

The focus groups utilized in this thesis were conducted in January and February of 2020 using a focus group discussion guide to ensure consistency of facilitation across moderators. Each focus group discussion lasted between 60 and 90 minutes. Two of the Latinx focus groups with Latinx participants were conducted in Spanish. Overall, a total of 10 focus group discussions were conducted: 4 with Black participants under 60 years old, 2 with Black participants over 60 years old, and 4 with Latinx participants under 60 years old. Due to timings and feasibility constraints, GEORGIA CEAL was unable to recruit for and hold focus groups with Latinx participants over 60 years. All focus group discussions were transcribed (and translated to English for focus groups conducted in Spanish) and de-identified by a professional third party. The working codebook was developed by GA CEAL collaborators. The codes used in this thesis were generated deductively based on the focus group guide developed by the GEORGIA CEAL team. Codes and their definitions can be found in Table 2.

Table 2. Codebook

Code	Subcode	Definition
Worries of COVID/virus	N/A	Specifically about fears/ worries relating to COVID disease and virus, physical health impacts, lifestyle impacts. EXCLUDES community-level impacts and concerns about community-level impacts of COVID/ pandemic.
COVID restrictions	N/A	Includes comments about any type of prevention-related restrictions and strategies, mask-wearing and mandates, social distancing. Attitudes and perceptions related to COVID-19 risk reduction practices.
COVID community impacts	N/A	Includes personal/ community-level negative impacts as a result of COVID, incl. domestic violence, unemployment, social isolation, mental health… EXCLUDES perceptions of potential impacts such as worries about the virus itself (e.g. virulence, health impacts).
Sources of information	Trusted messengers/ sources/info	References to specific people, types of people, groups, organizations etc. that can encourage COVID or flu vaccines AND/OR PREVENTIVE MEASURES and would be trusted by community members (include reference to which communities comments refer to in segments). INCLUDES sources of information already used by participants to find information about COVID. INCLUDE rationale for trust. INCLUDES actual information that is said to be trusted.
	Untrusted messengers/ sources/info	References to specific people, types of people, groups, organizations etc that ARE NOT TRUSTED to encourage COVID or flu vaccines and would NOT be trusted by community members (include reference to which communities comments refer to in segments). INCLUDES sources of information already used by participants to find information about COVID that they no longer trust or rejected sources of information. INCLUDE rationale for mistrust. INCLUDES actual information that is said to NOT be trusted/ believed.
COVID vaccine concerns + questions	N/A	Participant concerns (or community concerns) about COVID vaccines in general or a covid vaccine specifically; about vaccine development etc; barriers to vaccination. INCLUDES references to misinformation or rumors even if debunked during FGD, INCLUDES reasons for NOT wanting to get COVID vaccine and hypothetical reasons even if participants indicate they would get vaccinated
Facilitators and motivators to COVID vaccination	N/A	Participant comments about COVID vaccine access, distribution and other logistical hurdles to getting vaccinated
Barriers to COVID vaccination– logistical access	N/A	Participant comments about COVID vaccine access, distribution and other logistical hurdles to getting vaccinated
Clinical trials	N/A	Participant commentary on participation in clinical trials, or about clinical trials in general
Communication style and preference	N/A	Participant suggestions and recommendations for tone, style, approach, tips to be used in messaging. May be general (e.g. "positive tone") or specific ("e.g. hire Black designers").

Analytic approach

As guided by the principles of Grounded Theory, a multi-stage, iterative process was employed in the thematic analysis of the 10 focus group discussions to inductively generate key themes that emerged from the data (Strauss & Corbin, 1990). Each focus group discussion was coded independently by one person and reviewed by 1-3 other team members. Once the data were coded in their entirety, the data were memoed to begin to develop themes. In my thesis I will focus on the following codes: worries about COVID/virus, COVID restrictions, COVID community impacts, sources of information (subcodes: trusted messengers/sources/info and untrusted messengers/sources/info), COVID vaccine concerns + questions, facilitators and motivators to COVID vaccination, barriers to COVID vaccination, clinical trials and communication style and preference. Themes and codes were integrated in the processes of conceptualizing the data.

Ethical considerations

This study was approved by the Institutional Review Boards of both Emory University (SITEMOD006-STUDY00002080) and Morehouse School of Medicine (IRB 1664429-4).

Chapter 4: Results

A total of 10 focus groups were conducted (N = 44 participants). Participants ranged from 19-81 years of age, averaging around 42 years. There were 29 female and 9 male participants, in addition to 6 participants who did not disclose their sex/gender identity.

Concerns regarding COVID-19 infection

Many sentiments regarding worries or fears about contracting COVID-19 were shared across all focus groups. These feelings can be organized into three broader themes: fears relating to contracting COVID-19 have changed over time, implications of contracting COVID-19 for people with preexisting conditions, and worries about the economic/financial consequences that can result from contracting COVID-19.

Fears of contracting COVID-19 having changed over *time* was a common feeling throughout focus groups. Participants in five of the eight "Under 60" focus groups mentioned that initially they were fearful of the total number of COVID-19 infections, but as the pandemic has progressed, they were more scared of the mortality rates associated with COVID-19.

> "*I definitely agree that the deaths are the scariest part of the pandemic.*" – Female participant, focus group with Black respondents under 60 years of age

Other fears consistently mentioned by the focus groups with younger participants were related to COVID-19 symptoms, possible long-term effects, transmission (both symptomatic and asymptomatic), and death. Regardless of age, almost all focus groups gave mention to fears of the long-term effects of COVID-19 infections. One of the two focus groups with older Black participants mentioned Mikele Colasurdo, a football player from Georgia State University who suffered long-term cardiovascular issues following his bout with COVID-19 in 2020 (Scarborough, 2020). Three of the four focus groups with Black participants under 60 years also discussed fears developing over time about how fast COVID-19 spreads, even when taking precautions like social distancing and masking. Participants also expressed concerns about building natural immunity while quarantining since they were not regularly challenging their immune system in public settings as often as they used to.

Concern for people with comorbidities and preexisting conditions was near universal across focus groups, as their propensity of developing severe disease and/or death from COVID-19 infection is much stronger than their healthy counterparts. Whereas Black participants expressed concerns for people they were related to or knew with sickle cell anemia, multiple sclerosis, lupus, and asthma, Latinx participants voiced their fears for family members with high blood pressure and/or diabetes. Participants in focus groups comprised of Black respondents over 60 years old also mentioned their concerns for their grandchildren, and the lack of COVID-19 testing for children in general.

> "*I'm also concerned about the fact that there can really be no testing on children, and there's been a lot of information out there that children are not as vulnerable, which in my own family has not been the case. I even had a one-year-old grandnephew whose whole family was exposed to COVID and contracted the virus, as did the child, who then got one of the side effects that children get, which is Kawasaki disease, and he was in intensive care for over a week up in Michigan*." – Participant in a focus group of Black respondents 60 years of age and older

Economic and financial consequences of contracting COVID-19 were a common topic throughout focus groups, however, the specific fears were very different depending on participants' respective identities. Participants in all four Latinx focus groups with Latinx participants expressed worries not just about being infected with COVID-19, but also about how they would pay for treatment given the uncertainty of their employment status and frequent lack of health insurance. These participants were not just fearing for themselves as Latinx-identifying people in the US, but also for their family members who live in other countries with inadequate healthcare systems and receive very little to no support from their governments (e.g. Mexico). The impacts of the pandemic on undocumented immigrants were also a common concern among Latinx participants. Specifically, they expressed their fears of their immigration status being outed at a healthcare facility or losing employment because of COVID-19 infection and being, due their immigration status, are ineligible for unemployment benefits. Relating to documentation status, Latinx focus group participants also expressed their hesitance toward utilizing Georgia DPH testing and vaccination sites for fear of being required to provide a social security number, and the resultant consequences, such as being detained or deported. Both Black and Latinx participants, particularly those who were nurses or essential workers, expressed concern about contracting COVID-19 through their employment.

<u>COVID restrictions</u>

Across focus groups, the personal precautions being taken to avoid contracting COVID-19 were largely consistent, including: masking, social distancing, avoiding mass gatherings, hand-washing and -sanitizing, and sanitizing high-contact surfaces. Despite taking these precautions, participants still felt vulnerable to getting sick because of how lax the people around them seemed to be about these same behaviors.

> "*Yes, I think the younger community are the ones that don't want to wear the mask, but for the most part, I very seldom go out. For the most part in my community, in my immediate area, I live right near Panola and I-20, and the younger people tend to wear the mask in this particular area. But when I step outside of that area, I see younger people without the masks*." – Female participant, focus group with Black respondents aged 60 and older

Participants in four different groups admitted that they had not been consistent with their regularly scheduled check-ups, or that they had been avoiding addressing new, non-COVID-19 health concerns that had come up during the pandemic for fear of being exposed to COVID-19 at their doctors' offices. Those who have children in their families universally expressed that their children are missing interactions with their peers in both social as well as academic contexts. Black and Latinx parents consistently expressed their struggle to strike a balance for their children to get the benefits of a full educational (and social) experience of school while also keeping their families safe.

Remote and online school presented a slew of new complications for the education system that affected teachers, students and parents alike. To accommodate for condensed semesters and to discourage travel for leisure, participants stated that some schools eliminated their mid-term holiday breaks which left teachers and students without the time to relax or visit family, leaving them feeling burnt out. Parents also expressed feelings of pandemic fatigue, especially those who had to guide their children through Zoom school while also working full-time from home. In almost all focus groups, independent of race/ethnicity and age, parents who did not get the opportunity to switch to working from home voiced their struggles to transition to online school with their children if they could not afford childcare or could not find family members who were willing to help with childcare.

Georgia has few COVID-19 restrictions at the state level, which prevents publicly funded institutions like Georgia State University from creating mandates, such as to enforce mask-wearing and social distancing. Georgia's lack of COVID-19 restrictions was an enticing prospect for people who were choosing to not abide by CDC's guidelines, particularly for young people who wanted to go out in unrestricted urban centers like Atlanta. Participants who worked or attended school at a place that did not enforce these COVID-19 health measures reported feeling much less comfortable being in these settings compared to their peers whose employers or schools strictly enforced masking and/or social distancing. Some participants stated that even though their employers were requiring all their employees to follow COVID-19 procedures, they were not necessarily enforcing them the same way for customers, oftentimes placing customer-facing employees at risk for contracting COVID-19. One participant noted that in predominantly Latinx neighborhoods, stores of national brands such as Walmart will enforce mask wearing, but that locally-owned Hispanic stores are much less likely to enforce COVID-19 restrictions.

COVID community impacts

All participants seemed to agree with the sentiment that COVID-19 changed nearly every aspect of their lives, especially at the onset of lockdown:

> "*Well, for me I think it's brought a sense of awareness to a lot of people in the sense of showing them how vulnerable they really are. I mean, a lot of times we get just very complacent in our day-to-day activities that we don't really see how things could just change like that, in a minute. And at the same time helped us to kind of understand how we need to be able to adapt and evolve because our culture is constantly changing within our communities. And you see people who fail to adapt or who can't really evolve, they kind of get left behind.*" – Female participant from a focus group of Black respondents aged 60 and older

While some people were adapting positively to their new realities, others were dealing with much harder situations in the face of the pandemic, including loss of their jobs and livelihoods. Participants said that their jobs were lost in-part due to the strains of lockdown on the economy, but in some cases participants claimed their jobs were automated to reduce labor costs. Children were also feeling the effects of these drastic changes as they are were losing valuable academic and social experiences while doing school online.

When asked about the ways in which their communities have been impacted by COVID-19, participants consistently spoke to changes in their relationships. Several participants, most of whom were in the focus groups with individuals over age 60 groups, said that all this time at home brought them closer with their loved ones and made their relationships stronger. Many people were relying on their friends and relatives who worked in healthcare to relay relevant information to them since there was so little information being communicated to the average person regarding COVID-19. Others felt that the stresses of the pandemic more so fractured their relationships, by being physically isolated and mentally distressed from current events. Some

Latinx participants, on the other hand, felt that their families were struggling to maintain closeness and communication through the pandemic, especially with those who live in other countries such as Mexico or Peru.

Struggles with mental health were another common theme repeatedly discussed across focus group discussions. Without opportunities to go to places like school or work because of stay-at-home orders, people were feeling very depressed and isolated. Participants who were in the younger focus groups felt uncomfortable discussing these struggles with family members as stigma remains to be a barrier to mental health care in Black and Latinx communities. The impact of the pandemic on individuals with disabilities was discussed in a focus group with Black participants under 60 years old: Speaking on behalf of the disabled community, one participant from a focus group of Black people under 60 years old noted:

> *"...speaking on behalf of the disability community, that community is affected because of isolation. The disability community rely on interacting with other people. Their jobs, the day centers that they attend, the social events that they attend. It's very important for people with autism or developmental disability. So a lot of them are isolated… it has caused mental breakdowns, depression, because they no longer can associate and be a part of a community. And so they're isolated at this time… So COVID has affected that community tremendously."* – Female participant from focus group of Black respondents aged younger than 60 years

Even when people did have the chance to be around others, they felt less inclined to congregate, either due to fear of contracting COVID-19 or guilt of not abiding by these restrictions. However, feeling isolated encouraged people to find new ways to communicate with each other and to engage with their communities:

> *"As a community advocate, I've seen more collaboration with community-based organizations. We work together, going out, making sure that our community is an informed as they can be. Making sure that food is available, helping people secure housing. So, I've seen a lot of organizations that used to work in silos begin to work collectively. And that's very, very powerful."* – Female participant from focus group of Black respondents aged 60 and older

Sources of information

Mainstream media, through a variety of platforms, was most cited by participants as to where they found their COVID-19 information. Participants who mainly got information via newscasts on television from watching CNN or MSNBC were on the older end of the spectrum and spoke English as their first language. Older Latinx people who live in the US, according to some of the younger Latinx participants, tend to get their news from watching Univision, Telemundo, or El Mundo Hispánico. In terms of written media, participants cited the publications the New York Times and the Washington Post. One Black female participant said that she seeks out information from institutions that are specifically geared towards Black people, such as Essence or The Black Women's Public Health Network. A Latinx participant said that her family members who live in Georgia and cannot understand English listen to La Bonita 610 AM, a radio show that is broadcast in Spanish locally.

Participants agreed that they tend to seek information from people or organizations that they already knew and trusted before the pandemic. While the older participants may depend on their church to disseminate COVID-19 information, participants in the younger focus groups were more likely to seek information from their school or place of employment. Though some participants said they only trusted reputable information from experts, the majority participants across focus groups truly valued learning of the personal experiences of their friends and family who fell ill with COVID-19 or received a vaccination against it. Participants felt most eager to hear from other people of color they knew, particularly those who were healthcare workers or in some other priority group for vaccination, about their individual experiences. In general, participants felt more trusting of doctors than politicians when seeking COVID-19 information. Several participants said that they regularly sought COVID-19 information from their primary care physician, who often reflects their patient's racial and/or ethnic identity.

Social media as a source for COVID-19 information was a contentious topic among participants. Facebook was cited as a source of misinformation for many participants' family members, but several participants also cited positive experiences they have had using Facebook during the COVID-19 pandemic. For example, three younger Black participants in separate focus groups said that they had followed healthcare workers who were sharing their COVID-19 vaccination experiences through posting or broadcasting themselves live through the Facebook mobile application. Though Instagram is owned by Facebook, information on the given platforms was perceived differently by participants. One young Latinx participant said she was more likely to trust information on Instagram than on Facebook because Instagram posts containing key words such as "COVID-19" or "CDC" automatically provide a link that will bring the user directly to the CDC’s website. One younger Black participant stated that they like to use the COVID-19 updates feature on Twitter to find trending news.

The vast majority of participants preferred to have COVID-19 information distilled and presented to them, however there were a select few who claimed that they prefer to make their own judgements rather than accepting what others are saying. These judgements could be based on raw data, peer-reviewed literature, or simply critical thinking. One participant said that especially during the early parts of the pandemic, she was depending on the Johns Hopkins live COVID-19 map interactive website to grasp the magnitude of the pandemic.

Some participants cited the public figures whom they trust to give them COVID-19 information, including: Dr. Anthony Fauci, Vice President Kamala Harris, Dr. David Agus, Dr. Jerome Adams, Dr. David Satcher, Brenda Liz Muñoz, and (in one case) Andreas Kalckler.

COVID vaccine questions and concerns

Participants across all focus groups expressed concerns about COVID-19 vaccines. These concerns can be grouped into three main categories: unavailability of understandable and reliable information about COVID-19 vaccines, fears of adverse reactions, and general mistrust of research institutions.

Lack of availability and accessibility of reliable information regarding COVID-19 vaccination were the most commonly cited issue across the focus groups. Misinformation, largely in relation to the type being spread through social media platforms like WhatsApp and Facebook, was a common theme throughout the discussions. Both Black and Latinx participants gave mention to relatives who lived in other countries as being more active in the spread of misinformation than their American-born or -residing relatives. Latinx participants in particular said they had a difficult time combating misinformation from relatives because the vast majority of the resources the participants trusted were not available in Spanish. Therefore, despite there being a wealth of useful information about vaccination, it was inaccessible to those who did not know English. Feeling overwhelmed by the amount of information being shared, some participants said that they themselves would instead wait for people they knew to relay their personal experiences getting vaccinated than sift through the information themselves. On the contrary, others felt that there was not enough information yet for them to make a decision to get vaccinated. Overall, perceptions of not knowing where to look for information and not knowing what to believe were consistent across groups.

Fear of adverse physical reactions, both immediate and long-term, discouraged several participants from receiving a COVID-19 vaccination. In the shorter term, most participants feared what would happen to them in the days following vaccination because of what they had heard or read when vaccines were first being administered, ranging in severity from fever, fatigue and joint pain to seizures and vaccine-induced autoimmune disorders. In the long term, many felt scared of what the permanent effects of the vaccine could be. Two of the focus groups composed of senior Black participants specifically mentioned worries that the COVID-19 vaccine might cause infertility in their daughters who were of child-bearing age. Many participants felt it was still too soon to know if these vaccines would still be considered safe in 5-10 years given how fast they were developed and tested, but that they did not know if they had any other option if they wanted to stay safe. It was mentioned that we also do not know what the long-term effects of actually having COVID-19 are, either. Some participants took note that there are many people who are not reporting any vaccine side effects at all.

Mistrust of broader institutions such as the government (American or otherwise), the American pharmaceutical industry, and Western medicine as a whole was constant throughout all of the focus groups. All but two of the Black focus groups made specific mention of the Tuskegee Syphilis Study and/or Johnson & Johnson talcum powder lawsuit as examples of the ways in which Black people have been taken advantage of in the medical field, and why they ultimately did not trust the COVID-19 vaccine. Two of the four Latinx focus groups also gave mention to the Tuskegee Syphilis Study for the same reason. Two groups mentioned that they felt safer receiving a vaccination following the transfer to the Biden Administration but would not have considered it when the Trump Administration was still in office.

Facilitators, motivators, and barriers to COVID vaccination

Participants' intentions to receive a vaccination against COVID-19 was largely driven by two factors: logistics and emotions. Both logistics and emotions seemed to be able to sway participants towards or away from vaccination, depending on the person and context.

Most participants were open to the idea of receiving a COVID-19 vaccination at the time of the focus group discussions, if they had not already, because they would rather get vaccinated and have protection than risk contracting COVID-19. Participants on the older end of the spectrum felt that the pandemic made them become more acutely aware of their own health vulnerabilities, which served as a motivator to get vaccinated. Across focus groups, many participants also felt obligated not just to themselves, but also to the people around them, to get vaccinated when the opportunity arises:

> "*If I weigh it and even if I get the virus maybe I won't get real sick. But I also feel like we*

> *have an obligation to do what we can, each of us as individuals, to try to diminish mitigate the incidence of catching the virus and dying from it. So, there are things that can all do and this was just one. We can participate, we can do all the—be advised by everything that we hear from the CDC and abide by those, but this was just one more thing. Just think if everybody took the vaccine.*" – Female participant from focus group of Black respondents aged 60 and older

Participants in this focus group and others shared similar sentiments that the average person does not know what is in the medicines they take or how they work, so taking the COVID-19 vaccine should not be any different for them. For some participants, vaccination and subsequent theoretical herd immunity seemed like the most promising path to returning to a sense of normalcy in the world. Latinx participants mentioned part of their motivation to get vaccinated was that they wanted to be able to travel again to visit their families who live outside of the US, such as in Mexico. Some participants were eager to get vaccinated against COVID-19 to improve their job search, since employers were beginning to require proof of vaccination for work.

> "*At least for the community I'm involved with, the Latinx people that are around me, a lot of them do want to take it. Not necessarily for I want to say the right reasons of being healthy and stopping COVID. I think it's more of an aspect of okay, if I get the vaccine, I'll be able to continue working without the worry of being able to get COVID or continue—like things getting back to normal in a sense, being active, getting my financial*

> *needs met, because I'll be safe*." – Participant from a focus group of Latinx respondents under 60 years of age

> "*I know that when I got my second shot, they told me to keep the CDC vaccination card because it's very likely that in the future airports are going to ask for proof of that before you travel. So, it's going to become important documentation. And also, just for selfish reasons, I want this to be over with, you know? I want to go back to the world that we had or at least being able to be social with people, being able to go to concerts, just living my twenties, which a lot of us are getting robbed of right now*." – Female participant from a focus group of Latinx individuals aged younger than 60 years

Knowing people who have received their COVID-19 vaccine served as a strong motivator for many participants. Participants were eager to learn from vaccinated people that they could identify with, such as from friends, family, colleagues, or even celebrities. More abstractly, being able to see key indicators such as case counts or case-fatality rates decrease as people in priority groups continued to get vaccinated made people feel more comfortable when their time to get vaccinated came. Many of the older participants wanted to be positive influences on their friends and families by getting vaccinated early and coaching others through the process. A Black woman who participated described how her mother, the 92-year-old matriarch, got vaccinated and encouraged the rest of their family to follow suit.

Participants also gave a variety of justifications for why they were choosing not to get vaccinated against COVID-19. Most commonly, they felt that the process of testing the efficacy and safety of respective vaccines was conducted too fast to draw any conclusions about any potential long-term effects. Other participants refuted this notion by saying that we do not have the luxury of time to wait for long-term studies. On the timing of COVID-19 vaccine development, one participant shared:

> " *I will say I did ask one of my friends who works in the immunization part of CDC about this vaccine getting approved so quickly. And she said the issue, people are concerned, like "How did they just get this/created this and got it approved and everything when we don't have a vaccine for 'this, that and the other'?" and she said that because the funding was made available and everyone agreed it's a public health crisis worldwide so we need to handle this, so get it done and you don't have any hurdles or hoops to jump through for the funding, it's available. Whereas in other cases that may not be the case if someone is trying to create a vaccine for whatever else. So that made me a little bit more at ease, knowing that it wasn't necessarily a rushed process.*" – Female participants in a focus group of Black respondents aged 60 years and younger

Another commonly cited reason against getting vaccinated among participants across focus groups was that they were concerned about developing side effects from whichever vaccine they received. Specific side-effects that were listed were fever and achy bones. Several Black participants in one focus group discussed why they were uncomfortable getting vaccinated at mobile clinics. Members of this focus group agreed with each other that Black Americans have a complicated relationship with medical care as it is, so they wanted to feel confident that if in the case that they did react to the vaccine, they would be monitored and cared for by professionals. It is for this reason that some older Black participants said that they felt more comfortable getting vaccinated around predominantly White people, because they felt they were all receiving the same care and attention as their White counterparts at the same vaccine clinic.

Those who were electing to get vaccinated shared their experiences in struggling to do so. As focus groups were being conducted in January and February of 2021, only those who were healthcare workers or over 65 years of age were eligible for COVID-19 vaccination in Georgia. Even with such a small subset of the state's population and high rates of vaccine refusal for COVID-19 in Georgia, eligible people still found it difficult to find an appointment anywhere. Places that participants mentioned they attempted to make an appointment but were unable to were CVS, Publix, Kroger, and GA DPH. On GA DPH's appointment system specifically, one participant stated:

> "*I was on a call yesterday… and we were talking about the virus and vaccination and what [REDACTED] is going to do, and they've got a link that they're going to have on their page that can direct people, and it ties directly into Department of Public Health for the State of Georgia. The problem is, they give you a phone number. If you call the phone number right now, it may keep you on hold for a while, you'll go through everything, and then at the very end, it'll tell you go online and take care of it, and a lot of people just can't do that. So a final resort is online. People need to talk to people to make sure that they can get their appointments*." – Participant from a focus group comprised of Black individuals aged 60 years and older

Accessing the internet was especially a barrier for seniors, many of whom live in communities without computer facilities for residents. One participant, a Black female aged 67, said that she was eligible and eager to get vaccinated but was only willing to do so if she could make an appointment for a Moderna vaccine as there were more African Americans who participated in their clinical trials, and thus she felt more trusting of it.

Community engagement seems to be an important part of facilitating vaccination for many of our participants. Several participants who lived in senior communities described how their facility coordinated appointments and transportation for any interested residents. Younger participants described similar experiences, but instead with their employer or school who established vaccination clinics or acquired appointment access for them.

Clinical trials

In each focus group, participants were prompted to give their thoughts regarding clinical trials both in general and in the context of COVID-19. The most common theme among focus groups was that there is not enough diversity in clinical trials— there is a need for more people of color to be involved in all aspects of safety testing. Without the inclusion of a more diverse study population, there are limited generalizations that can be made for the American population at large. Though many participants expressed no interest in participating in clinical trials, those who were interested in them were not aware of how to do so. These participants suggested doing more outreach within Black and Latinx communities to find eligible people. Latinx participants emphasized the need for more outreach to be conducted in Spanish in Latinx neighborhoods. This relates to another theme of the discussions on clinical trials, which is that there is a lack of literacy among the public about science, specifically about clinical trials, which dissuades many people from participating in them. Participants said that if they were more informed on the studies' background information and what safeguards are there to protect clinical trial participants, they would be more willing to participate in them.

Much of the hesitance to clinical trials among participants stemmed from knowledge of how, historically in the US, people of color have been used as subjects in unethical studies that largely only went on to serve White people. The Tuskegee Syphilis Study and Johnson & Johnson talcum powder lawsuit were specifically mentioned by participants as examples of medical malpractice toward Black people. Inclusion in these studies thus evokes a fear of being taken advantage of and being put directly into danger by the researchers.

Communication style/ preference

Throughout the focus groups, participants shared their preferences and suggestions for public health messaging. Each person had a unique perspective when it came to their ideas about COVID-19 communications: who delivers information, the kind of information is being disseminated, how the information is being delivered, and the modes and frequency of disseminating this information.

In general, participants preferred to receive COVID-19 information from people or institutions that reflect their own identity. A participant of a focus group comprised of Black individuals under 60 years old suggested, "*Hire Black artists, hire Black graphic designers. Hire Black people to do all of this, like, you know, graphic design work. I think that is so important, the people behind these health communication activities*." Two participants in separate Latinx focus groups named community organizations that they thought should be involved in COVID-19 communications with the local Latinx communities. These organizations listed were Los Vecinos de Buford Highway (Neighbors of Buford Highway) and the Latino Community Fund.

Locals from within communities or “hometown heroes” were mentioned in more than one focus group as being valuable collaborators for public health messaging. An example provided by a Black, female participant was Pinky Cole, the CEO and founder of Atlanta-born vegan fast-food restaurant “The Slutty Vegan”. Black participants generally felt that using a rapper or pastor to speak to the community is “tacky and outdated.” However, older Black and Latinx people were likely to turn to their church, pastor, or clergy for guidance on COVID-19. Some participants in Black focus groups admitted that they only truly trusted Black doctors and scientists to guide them, while others felt that this was a tactic for predominantly white institutions to pander to minority communities. Participants in several of the Black focus groups expressed interest in hearing about the experiences of the Black people who participated in various COVID-19 vaccine trials.

Each focus group provided different ideas as to what they thought COVID-19 public health messaging should be, however, a common feeling among focus groups was that there is too much scientific jargon used in communicating to laypeople.

> “*Personally, I feel like kind of silly saying this, but I think those sources can be a little too jargon-y or almost academically out of reach for a lot of people, again. The only time that I sought out, like, medical research or, like, looking specifically at a committee meeting on I think the Moderna vaccine and the approval of the Moderna vaccine, that was probably the only time that I sought out that information because of the nature of the vaccine and how it was developed. An, you know, a lot of contested information on the vaccine, its effectiveness, who it works for, it’s possible side effects, that’s probably the*

> *only time that I sought out medical research-type of information*." – Female participant from a focus group of Black respondents aged 60 years and younger

On a similar note, participants across focus groups also generally felt that messaging should utilize more pictures and diagram and fewer words. This was not only expressed by senior participants who have trouble seeing and reading, but also by Black and Latinx participants who have family members that do not understand English. Multilingual messaging, not just in English and Spanish, was suggested in two Black groups. When discussing preferences in communications style, the words "transparency" and "apolitical" were common across focus groups.

Latinx participants had unique concerns for communication styles in each of their focus groups. Along with the request for more public health outreach in Spanish in general, participants in Latinx groups specifically requested that more information is disseminated on how to combat COVID-19 misinformation in Spanish. Latinx participants expressed that they had family members in other countries, namely Mexico, Venezuela, and Peru, who spread shared COVID-19 falsehood misinformation via WhatsApp or Facebook, but they did not know where to direct them to because they did not know where to find relevant and reputable information in Spanish.

> "*Like, I know that a lot of people think or there's a myth/rumor going around that the vaccine causes infertility. And so, I think there's more power in acknowledging these things than in not, you know? Because it's going to show people, like, yeah, this has no logical basis; we're going to address it with the facts. And at that point, if they choose to*

> *believe it, they choose to continue believing in the myth and the rumor, but at least the expert or the medical organization or whoever addressed it and is aware that it's out there*." – Female participant from a focus group of Latinx individuals aged younger than 60 years

Regarding language, one participant said that messaging in Spanish needs to account for the country of origin for its target population as they all have dialects that can be interpreted differently. They argued that without considering nuances in dialect, people might be offended by or misunderstand what is being conveyed. All four focus groups conducted with Latinx participants seemed to come to a consensus that messaging for testing sites and vaccine clinics needs to be more consistent about what information or documents are required.

> "*So, it's like it's very convoluted language and that could still keep people away. So, it should just be very clear and direct with, like, am I going to be asked? Is that a yes or a no? Because with this population, like, speaking as someone who is undocumented, we're not going to test the ground and risk, right? Our losses are way too big. So even the mere possibility that we could still be asked or that this could still happen is not something that a lot of us are going to risk disclosing our information about.*" – Female participant from a focus group of Latinx individuals aged younger than 60 years

Focus groups provided an array of suggestions for COVID-19 messaging based on their experiences up to that point in time (January-February 2021). Overall, there seemed to be a severe lack of information accessible to the average person in the US. One participant proposed having real-time updates from departments of health, while another recommended regular town-halls or updates from CDC. There were several modes of communication that were suggested by participants based on their own habits, including: town halls, question and answer sessions with experts, and advertisements on TV. One younger Latinx participant suggested highway signs that could direct people to vaccination and testing sites, such as by listing the exit number to take. Another younger Latinx participant recommended sending alerts through iPhones. Sending texts en masse from GA DPH to constituents was suggested by a Black participant who previously lived in New York City, where NYC Department of Health sends information to New Yorkers via text.

Chapter 5: Discussion and Conclusion

This study aimed to examine major themes related to vaccine hesitancy and confidence in among Black and Latinx residents of Georgia in a COVID-19 setting. There were three main categories issues that groups mentioned as influencing whether they would get vaccinated against COVID-19: their perceptions of the safety of COVID-19 vaccines, how informed they are on vaccines and infection, and their emotional responses to the pandemic. A graphic depiction of these influences can be found in figure Figure 7.

Safety was characterized not only by how focus groups felt about their personal safety regarding COVID-19 vaccination, but also what they considered to be ‘safe’ and why they felt that way. While some felt clinical trials were conducted too fast and only served the health of White people, others felt that they had no alternative to trusting in their safety. These results are consistent with the findings of a literature review on COVID-19 vaccine hesitance conducted in November 2020 (Troiano & Nardi, 2021). An example of how concerns for safety could appear emotionally driven was a common concern among older Black groups who felt that the vaccine could have long-term effects on the fertility of their children, which might prevent them from getting grandchildren in the future. While this may be a valid concern, current studies do not report any links between COVID-19 vaccination and infertility in neither men nor women. In fact, among pregnant women, the potential benefits of transferring placental antibodies post-vaccination likely far outweigh the risks of vaccination (Chen et al., 2021). However, COVID-19 infection in pregnant women has been shown to increase odds of adverse birth outcomes including preeclampsia, preterm birth, and stillbirth (Wei, Bilodeau-Bertrand, Liu, & Auger, 2021). Thus, misinformation may also be contributing to people’s COVID-19 vaccine fears.

Knowledge-related influences pertained to how people were getting informed on COVID-19 vaccines. Misinformation was a common theme across groups- in every discussion focus group discussion there was at least one mention of seeing coming across inaccurate information about COVID-19 or vaccinations. Where and from whom groups got their COVID-19 information also affected how safe they felt about getting vaccinated. For instance, a few of the younger Latinx groups alluded to relatives who were vehemently against vaccinations because of anti-immunization posts that were being shared on social media applications like WhatsApp. Based on what participants alluded to during the focus groups, it is likely that these posts were in Spanish and being shared by people who only understand Spanish. Therefore, having reputable, jargon-free resources about COVID-19 in Spanish (as well as other relevant languages) can be one way to combat this kind of misinformation (Gomez-Aguinaga, Oaxaca, Barreto, & Sanchez, 2021).

Emotion also seemed to play an important role in participants' fears about vaccination, getting infected with COVID-19, and about the pandemic at large. Many participants admitted to not being completely confident in the protection that vaccines could provide, but that they were much more fearful of falling ill with COVID-19. Groups also discussed the variety of ways the COVID-19 pandemic affected their communities. A common sentiment was the hope that we could achieve herd immunity and return to a sense of normalcy. Logistical facilitators and barriers to getting vaccinated against COVID-19 were mostly guided by how informed people were and how emotionally driven their perceptions of vaccines were. Some desperately wanted to get vaccinated so that they could see their families, but just could not find an appointment. Others were in priority groups and could easily make an appointment but opted not to due to their fear of potential short- and long-term effects of vaccination.

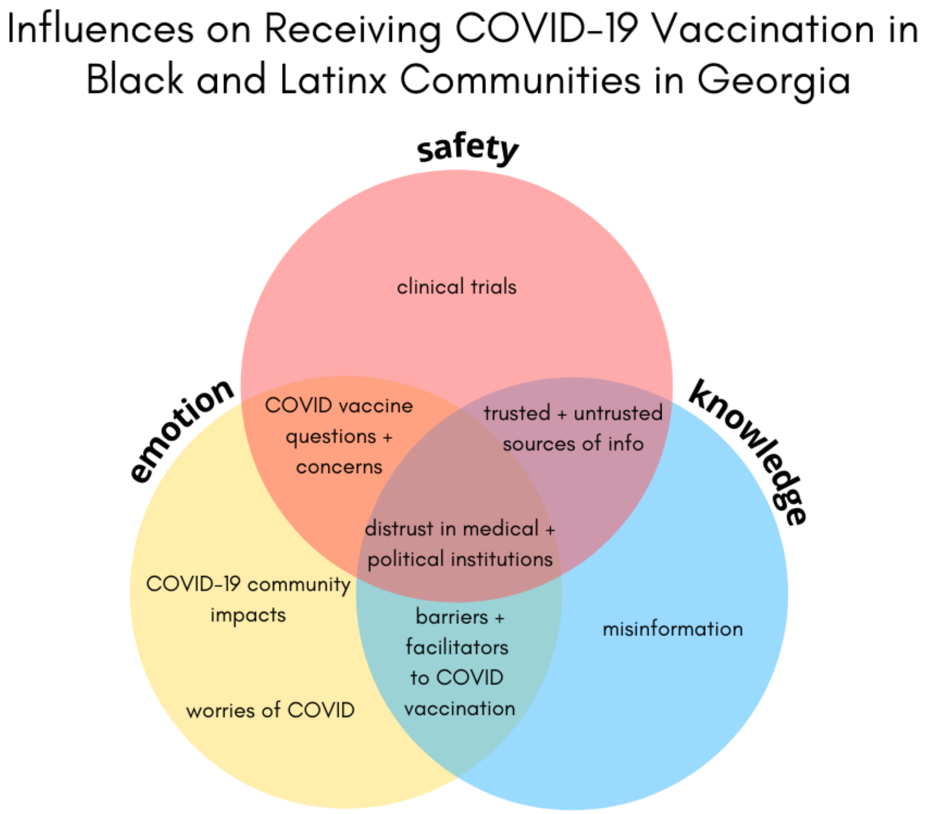

Figure 7. Venn Diagram of COVID-19 Vaccination Influence Among Black and Latinx Communities in GA, USA.

At the core of these issues was the distrust of the government and in medicine. Lack of trust in these systems to serve and provide protection for them was associated with negative feelings toward COVID-19 vaccination. Both Black and Latinx groups referenced ways in which these institutions had misled and actively endangered the health of minorities historically as reasons why they would avoid vaccination. Scharff *et al.* conducted similar focus groups with Black participants in 2010, they reported in their findings, “from an emotional perspective, participants described how the impact of historical and current events effect other decisions they make... The emotional toll that history plays on many African Americans was evident in many of the focus group discussions. Participants discussed the Tuskegee syphilis study with passion and provided examples illustrating how it (and other historical events) plays a role in who they are today," illustrating that these traumas still deeply affect people generations later (Scharff et al., 2010). Regardless of the vastly different contexts of living in 2010 versus 2021, these feelings of mistrust seem to have changed very little. In hindsight, it is likely that trust in the COVID-19 vaccine was built as they were beginning to be administered in late December 2020 to January 2021, which was when the transfer of power occurred (Shao & Hao, 2021).

A group at the Perlman School of Medicine at the University of Pennsylvania conducted focus groups with Black barbershop and salon owners in West Philadelphia. They reported strikingly similar findings to those reported here, even though their focus groups occurred more than 6 months after GEORGIA CEAL's: "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" (F. Momplaisir et al., 2021). The closeness the findings of Momplaisir *et al.* to ours suggests that geographic region may not be a factor that contributes greatly to vaccine hesitance, but that other factors (i.e. race/ethnicity, living or working in an urban area, socioeconomic status) may be more relevant.

Communications strategies to increase COVID-19 vaccine confidence as they currently stand are not sufficient as they currently stand to make lasting change on hesitant communities. For example, around the time the GEORGIA CEAL focus groups were conducted, Tyler Perry and Black Entertainment Television (BET) produced a program entitled "COVID-19 And The Black Community: A Tyler Perry Special," which was intended to address vaccine hesitance in Black communities and to inform them about COVID-19. For the production, Perry collaborated with Grady Health System in Atlanta and spoke to two local medical experts, Dr. Carlos Del Rio from Emory University and Grady Health System and Dr. Kimberly Dyan Manning from Grady

Health System (TylerPerryStudios, 2021). Having Latinx and Black doctors, respectively, who have established reputations from living and working in the Atlanta metro area was crucial in making the special both understandable and relatable to the viewer. Though Perry is generally lauded as a Georgia local, it seems as though he is too far out of touch with the average Georgia resident to serve as a representative for them. As noted by the participants in these focus groups: many people do not want to hear about COVID-19 from an actor, a rapper, or a pastor. It might even be the case that Perry's public involvement in this initiative swayed people away from engaging with it. While local celebrities can be utilized to produce and promote public health content, the average person may not trust them to provide receiving medical advice from them, which could actually reduce the effectiveness of this type of content.

Outreach through faith communities and their leaders may be another crucial next step in connecting with older Black and Latinx people in Georgia. Local churches, mosques, and other religious centers hold an importance within many communities, and thus partnering with them can have profound impacts on the health of their patrons. These religious centers can be vital in conducting community-needs assessments, working with religious community-based organizations, establishing church-based health programs, and providing social services to locals (Lahijani, King, Gullatte, Hennink, & Bednarczyk, 2021; Modell & Kardia, 2020). Having the access to these services through faith centers may provide the tangible aid and hope that people need to get through the pandemic. However, congregating large numbers of people in the name of faith can also be the cause of a COVID-19 outbreak. One example from Arkansas, US in March 2020 showed that an COVID-19 infected couple who attended a Bible study and church services the following weekend resulted in 35/92 of confirmed cases (3 of whom died) in addition to 26 secondary confirmed cases (1 of whom died) (James et al., 2020). Therefore, while congregating faith communities can be important in providing emotional, financial, or other kinds of support, precautions must be taken to keep people safe amongst a respiratory viral pandemic to limit close contacts and transmission. A Community Coalition Board (CCB) of almost 40 community organizations from the Metro Atlanta Area was established to facilitate study involvement in key populations and to ensure culturally appropriate research practices and questions. GEORGIA CEAL has been partnering with its CCB to recruit for and hold focus groups with Black and Latinx faith leaders in Georgia to learn more about their experiences in leading their respective congregations through the COVID-19 pandemic and understand how to effectively build public health partnerships with them.

A fundamental misunderstanding of how scientific evidence is generated and how it can change seems to underscore distrust of medical and public health institutions in the US (Fleary & Ettienne, 2019). Rather than reflecting the emergence of new data, changing recommendations without being both transparent and accessible to the average person just seems like indecisiveness on behalf of public health authorities (Stableford & Mettger, 2007). In addition, the average person does not understand how clinical trials are recruited for, how they are conducted, and what protections exist for clinical trial participants (Livaudais-Toman, Burke, Napoles, & Kaplan, 2014). Outreach to underrepresented demographics on behalf of medical and public health practitioners who reflect those demographics may be able to mitigate concerns and rumors related to clinical trial participation. Advancing Inclusive Research (AIR) is a panel of experts established in 2018 to improve the standards for diversity of clinical trials across the US. AIR published a framework of “recommendations for the future of clinical trials”, which includes actionable steps to address issues at the system, patient, and study levels. Examples of such interventions at the patient-centered level are to “facilitate outreach & awareness programs in underrepresented communities (including health literacy and health equity programs)" and "return to participating communities at trial conclusion & provide trial results on how their efforts contributed to scientific advancement" (Garrick et al., 2022). AIR is setting a positive example for others in the clinical research sphere to reconsider how they recruit, include, and reward trial participants.

Limitations

Pandemic-related logistical considerations and limitations impacted the number of focus groups that could be held, how many people could be recruited, and how each focus group was going to be stratified. Recruitment efforts were hindered by stay-at-home orders in the early months of 2020. Recruiting older people seemed to be especially challenging as only two were conducted with Black participants over 60 years, and there were none with older Latinx individuals. Since less participants were able to be recruited overall, focus groups were only able to be stratified by age and race/ethnicity. These strains limited the conclusions that were able to be drawn about the study's population of interest.

Part of the lived experience of a viral respiratory pandemic is that new information is constantly coming out, recommendations and policies are dynamically changing, and case counts are always fluctuating. It is for these reasons that these focus group discussions, and the results that came from them, can only be indicative of how people were feeling about COVID-19 vaccines in that moment in time. Had identical focus groups been conducted even a few months in either direction timewise, these conversations could have gone in entirely different directions. However, sentiments expressed by participants in these focus groups are nonetheless important in understanding the root causes of vaccine hesitance in Black and Latinx communities in

Georgia. Addressing vaccine hesitance in these communities is not only important for the remainder of the COVID-19 pandemic, but it is also crucial in pandemic preparedness for the future.

Conclusion

In early 2021, GEORGIA CEAL held 10 focus groups with Black and Latinx residents of Georgia with the goal of learning how members of marginalized communities were adjusting to the COVID-19 pandemic, and what their perceptions were toward COVID-19 vaccines. We found that many feelings expressed regarding hesitance to receiving a COVID-19 vaccine were deeply rooted in historical instances of medical racism. Key themes that emerged from these focus groups can be utilized to tailor public health messaging to communities with historically lower vaccination rates.

Chapter 6: Public Health Implications and Recommendations

The findings obtained from these focus groups demonstrate the gaps in current strategies for public health communications targeted to Black and Latinx communities in Georgia, particularly in the counties surrounding Atlanta.

Community engagement is critical in shaping the future of public health messaging. Almost a year after these focus groups were conducted, GEORGIA CEAL has pivoted to conducting focus groups with local faith leaders and lay members of faith. There have been delays in scheduling these focus groups as people no longer see COVID-19 as an impedance to their lives, and there is generally a sense of apathy regarding the pandemic in the state of Georgia as of April 2022. Follow-up within these communities to learn how their perceptions related to COVID-19 have changed over the past year can also help in evaluating why some COVID-19 programs/initiatives have worked and why others have failed. There is also opportunity to utilize AIR’s recommendations in how GEORGIA CEAL is involving its CCB members in finding new ways to connect with Black and Latinx communities in Georgia. The pandemic is unfortunately not over at the time of writing, but that means there is still time to improve upon existing programs.

A demographic that I believe campaigns have failed to reach is the under 35 population, especially adolescents. The participants of these focus groups who were under 35 made clear the shortcomings of COVID-19 communications strategies to effectively reaching younger generations. Much of the hesitance that exists toward COVID-19 vaccines stems from not being entirely informed on how to understand and evaluate science. Many people do not know even the basics of how vaccines work in our bodies or how clinical trials are conducted, which contributes to susceptibility to misinformation. These knowledge gaps in younger generations pose an opportunity for public health practitioners and educators to tap into. Improving health literacy in the US by introducing basic health topics to children at a young age may help to dispel generationally passed misconceptions. Despite its propensity to circulate misinformation, social media can a powerful tool and it is often under-utilized in the field of public health. More online platforms should follow suit in directly linking users to reliable information sources about their health and wellbeing.

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