Integrating Hyperlocal and Community-Engaged Approaches to Qualitative Research for COVID-19 Syndemic Response: GEORGIA CEAL Early Findings

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ABSTRACT

Background
GEORGIA CEAL* implemented Community-Engaged Research (CEnR) to address health promotion and communication needs among urban/suburban Black/African American and Latina/o/Hispanic communities in Georgia during the COVID-19 syndemic.

Objectives
To illustrate methodological insights gained, we describe qualitative and CEnR methods used to identify and understand health needs for rapid syndemic response; report formative research qualitative findings; and share lessons learned on hyperlocalized impacts of the COVID-19 syndemic among priority populations.

Methods
Qualitative CEnR featuring early and meaningful inclusion of a Community Coalition Board. Data were collected through group and individual interviews. Data analysis used thematic, framework, and convergence/divergence analytical methods.

Lessons Learned
The CEnR approach and syndemic framework facilitated identifying and understanding COVID-19 interactions with endemic inequities and socio-political-economic factors among priority groups. Findings emphasize the key role of meaningful community engagement in research methods and the importance of identifying hyperlocal population characteristics.

Conclusion
Preparedness planning for future pandemic/epidemic response should incorporate CEnR expertise and hyperlocal approaches in research design and interventions. These approaches amplify community voices, leading to effective, context-responsive public health outreach.

* Garnering Effective Outreach and Research in Georgia for Impact Alliance (GEORGIA) Community Engagement Alliance (CEAL) Against COVID-19 Disparities Network.

Introduction /Background

Hyperlocalized approaches (integrated localized health strategies and interventions in specific communities, prioritizing population needs, and leveraging existing community assets[1]) and community engagement can be powerful tools in understanding and responding to future health emergencies in communities facing systemic and synergizing health disparities. The disproportionate burden of COVID-19 morbidity and mortality among historically marginalized groups in the U.S.[2–7] mirrors patterns observed for asthma, diabetes mellitus, cardiovascular disease, HIV and other infectious diseases, hypertension, and obesity[8,9]. The connection between these diseases and structural/systemic inequalities[10,11] can be characterized as synergistic epidemics or syndemics, a concept focusing on what drives diseases to cluster and interact[12–14]. COVID-19 mortality rates revealed *localized syndemics* driven by endemic inequalities related to chronic disease burden and socio-political-economic factors impacting specific population groups, both in the U.S. and globally[15–19].

Early high rates of COVID-19 morbidity and mortality in the U.S. prompted a significant federal response focused on community health outreach, rapid vaccine development, and widespread vaccination (Operation Warp Speed[20]). Beginning Fall 2020, the National Institutes of Health sponsored the Community Engagement Alliance (CEAL) Against COVID-19 Disparities Network in Georgia and ten other states[21] to address COVID-19 hotspots. The Garnering Effective Outreach and Research in Georgia for Impact Alliance (GEORGIA) CEAL project launched as COVID-19 vaccine trials were still in process in the U.S. Initial GEORGIA CEAL efforts centered on conducting formative qualitative research during the acute phase of the pandemic (December 2020 – March 2021) to rapidly identify effective public health

communication and outreach strategies focusing on Black/African American (Black/AA) and Latina/o/Hispanic (Latina/o) Georgia residents.

GEORGIA CEAL operates through an implementation team of local public health leaders and researchers, encompassing academic institutions (Morehouse School of Medicine [Morehouse] and Emory University), a public health department (DeKalb County Board of Health), and a federally qualified health center (Southside Medical Center). A statewide, volunteer, community-majority Community Coalition Board (CCB)[22,23] governs GEORGIA CEAL, ensuring research design, findings, and outreach processes are co-created by, translated with, and relevant to Georgia communities. GEORGIA CEAL's CCB was formed in 2020, leveraging and capitalizing on established partnerships and community-engaged translational research governance, especially those developed using the "Morehouse Model,"[24] which aims to dismantle systems that position clinicians and researchers as holders of power[25]. CCB general meetings include the project's implementation leadership/team, promoting close collaboration between the two groups.

Although COVID-19 disparities among historically underserved communities eventually lessened, there is much to learn from the early pandemic public health response. This paper illustrates how integrating qualitative methods with hyperlocal and community-engaged approaches can enhance syndemic response by identifying nuanced health promotion and communication needs. We report GEORGIA CEAL's qualitative findings and share lessons learned regarding the hyperlocalized[26] impact of the COVID-19 syndemic among urban and

suburban racialized minorities in Georgia. GEORGIA CEAL's quantitative formative findings are available elsewhere[22].

Methodology

Qualitative and Community-Engaged Research[27] (CEnR) were identified as necessary methodologies to achieve a deeper, more nuanced understanding of the initial impact of COVID-19 on vulnerable populations and explore their perspectives, attitudes, and needs regarding COVID-19 preventive measures (with a focus on vaccination), effective public health communication, and participation in COVID-19 vaccine clinical trials. The analysis of qualitative research findings was broadly framed by a Critical Medical Anthropology paradigm[28] interested in how local cultural/socioeconomic/political factors shape health status and influence access to health resources and disease susceptibility.

Community Partnership: GEORGIA CEAL's Community-Engaged Approach

The CEnR framework and principles of community engagement[29] guided qualitative research, seeking the participation and collaboration of CCB members during the formative research through co-hosting of community webinars/listening sessions, recruiting participants for focus group discussions (FGD), participating in key informant interviews (KII), interpreting findings (manuscript co-authors), and co-writing of dissemination materials. Some CCB members provided valuable feedback through these activities, including insights about the communities' context, culturally congruent language, missing questions, interview guide length, and community priorities related to the pandemic. Seven CCB-dedicated members co-authored this manuscript.

Study Design:

We used a cross-sectional design to explore themes related to perceptions, understandings, and attitudes regarding the COVID-19 pandemic, early public health communications, and preventive measures (development and uptake of vaccines and participation in vaccine clinical trials) among two priority populations in Georgia.

Study Setting and Population:

The research was conducted virtually (due to COVID-19 safety) from Atlanta, among Georgia residents who self-identified as Black/AAs and Latinas/os (FGD and KII) and those who worked with/knew closely these communities (KII). FGD participants were from counties with high COVID-19 cases and large concentrations of these populations (Fulton, DeKalb, Henry, Cobb, and Gwinnett). The two communities were identified as disproportionately impacted by COVID-19's burden of morbidity and mortality.

Data Collection Methods and Sampling Strategies:

GEORGIA CEAL's formative research took place from fall 2020 to fall 2021, collecting qualitative data from December 2020 to March 2021 through KII, focus group discussions (FGD), and webinars/listening sessions. Unstructured KII with a few CCB members and leaders from organizations serving local Black/AA and Latina/o communities were followed by FGD with community members recruited through CCB networks. KII and FGD were recorded using the Zoom platform. Webinars/listening sessions were open to different relevant, interested, and impacted parties, including GEORGIA CEAL's CCB community-based organizations members,

CEAL teams, and, on some occasions, the public. All data collection (KII, FGD) was conducted virtually via Zoom due to health safety concerns during the early pandemic.

KII: We sought to conduct five to ten KII to gain a generalized understanding of the landscape in each of the two communities regarding perceptions of COVID-19, related needs, effective outreach strategies, and vaccine attitudes; and to identify a sampling strategy and key topics for FGD. KII participants were recruited using convenience sampling among adult, English or Spanish-speaking leaders from the priority populations or people with deep knowledge of these populations. Virtual KII were facilitated by two experienced qualitative researchers using an unstructured interview guide designed for 60-minute sessions and recorded through the Zoom platform. A notetaker also recorded detailed notes during interviews.

FGD: The FGD guide was developed using data from KII, notes from community webinars/listening sessions, and feedback from CCB members (refinement of the guide's key exploratory dimensions, relevant/appropriate language, and length). Using sample size saturation guidelines[30], we planned twelve to sixteen FGD with self-identified Black/AAs and Latinas/os age 18+ in metropolitan Atlanta and with English or Spanish as their primary language. FGD were segmented by age (18-29, 30-59, 60+), race/ethnicity, and language for Latina/o participants, lasting 60-90 minutes. Trained facilitators (matched, when possible, by race/ethnicity to participants) conducted discussions on Zoom that included designated note-takers. Due to limited COVID-19 vaccine availability in early 2021, FGD asked about

perceptions of influenza vaccines as this virus has similarities with SARS-Cov2 (e.g., seasonality, respiratory, existing suboptimal vaccine uptake/hesitance)[i].

Webinars/Listening Sessions: Organized by the GEORGIA CEAL team and CCB's CBOs, NHI CEAL, and the COVID-19 Prevention Trials Network in partnership with Morehouse School of Medicine's COVID-19 Vaccine Trials, to communicate key information (COVID-19 prevention, clinical trials, and upcoming vaccines) and gather input from priority groups and other parties (e.g., government officials, healthcare workers) regarding their COVID-19 views, needs, and concerns. Observational notes from the webinars were used to supplement the information from KII in the process of developing the FGD guide.

Data Management and Processing:

Detailed notes from KIIs were summarized by team members. All FGD recordings were transcribed verbatim and de-identified. Two FGD conducted in Spanish were simultaneously translated and transcribed into English. Initially, FGD data were entered into a matrix for rapid analysis and later into the MaxQDA program to facilitate a thematic analysis.

Data Analysis Methods:

Due to early research needs for rapid emergency response, we did not conduct a formal analysis of the KII. We reviewed and summarized KII notes to obtain a generalized understanding of the COVID-related context for the two priority populations, providing guidance in the design of FGD sampling and question development.

[i] Of note, we now know there are important differences between influenza and SARS-CoV-2.

Analysis of FGD data sought to identify key factors for public health outreach of Black/AA and Latina/o communities and to explore connections between these factors and hyperlocal and age characteristics among the groups. The analysis combined three methods: *Matrix Analysis*[31] (priority populations' engagement and needs); *Thematic Analysis*[32] (barriers and facilitators to COVID-19 vaccine acceptance); and *Triangulation* (of analytical methods) *Convergence/Divergence Analysis*[33,34] for complementary and confirmatory purposes, strengthening the trustworthiness of recommendations, and satisfying Standards for Reporting Qualitative Research (SRQR)[35]. The analysis linked and contrasted i.) a refined version of the original matrix analysis of FGD, focusing on code prevalence (including a close reading of FGD transcripts to provide context for high prevalence codes); ii.) a refined version of the original thematic analysis (consolidation and re-labelling of a few themes and subthemes and exclusion of three themes, see Annex 1, Supplemental Table 2), only including themes relevant to the syndemic approach; and iii.) a new convergence/divergence analysis of FGD themes by population group and, where possible, by age group. A matrix display of convergent and divergent data between the two priority populations simplifies the synthesis of key findings[31].

Ethics:

The study was approved by Morehouse's institutional review board (Study #1664429) and generally followed the SRQR. All research (KII and FGD) participants were informed in advance of study procedures, risks, and benefits, and provided verbal consent for participation and recording before interviews. Participants received $30 for KII and $50 for FGD. Informed consent was not obtained from webinar/listening session participants due to the open forum

nature of these sessions and since researchers only used their notes from these sessions to supplement KII information for FGD guide development.

Results

KII Results

KII data were grounded in the lived experiences and expertise of research participants. We conducted seven KII with leaders from the priority populations or people with deep community knowledge between December 2020 and January 2021. Participants included four female and three male adults who shared key insights on age and sociocultural factors affecting perceptions during the early COVID-19 phase, highlighting the need for ethnic/ancestry and age segmentation in FGD sampling. KII data also provided important information for designing the FGD guide, notably, awareness of the issue of mutually unintelligible dialects among Spanish speakers from Latin America, interview guide length, community priorities related to the pandemic, and diversity of needs by socio-economic and/or migratory statuses among members of the Black/AA and Latina/o groups.

FGD Results

A total of 10 FGD (n=46 participants) were conducted between February 19 and March 13, 2021. Participants ranged from 19-81 years of age (46% middle-aged, 33% young adults, 22% older adults) and were Georgia residents who self-identified as Black/AA (six FGD) or Latina/o (four FGD). Most FGD included males and females. Female participants (n=36) were overrepresented. Eight FGD were conducted in English and two in Spanish (2/4 Latina/o FGD). Of the 17 participants in the Latina/o FGD, 15 were foreign-born (Mexico [n=8], Peru [n=4],

Colombia [n=2], and Brazil [n=1]). Given FGD recruitment and scheduling issues, three FGD didn't have ≥ 75% of same-age group participants for the planned age group (Table 1).

[INSERT HERE: Table 1. Demographic characteristics FGD]

- *Results from Matrix Analysis of FGD Data:*

A Conceptual Framework Domains matrix developed by CEAL's National Needs Assessment & Evaluation Working Group was used to identify themes and subthemes within FGD data. Our matrix had four national-level domains and six GEORGIA CEAL's unique themes/sub-themes. This analysis revealed themes varied in relevance for Black/AA and Latina/o participants and highlighted a unique subgroup within the Latina/o population characterized by COVID-19 information and vaccine hesitance/confidence influenced by country of origin.

Key factors common to both priority populations included a **lack of trust in health systems and authorities** and the need for **trusted public health information messengers** (trust was not guaranteed by having authority). **Concerns stemming from historical experiences** with medicine and research included fear of sterilization via the COVID-19 vaccine (connected to history of unconsented sterilization), the speed of COVID-19 vaccine development (lack of easily accessible/understandable information about the COVID-19 vaccine development process, technologies, safety logistics, and effectiveness.), and the lack of information and/or misinformation concerning vaccine risks and side effects. Additionally, both groups faced **digital divide challenges** regarding lack of/limited Internet service and digital literacy (especially among older adults), impacting scheduling vaccination appointments.

Key unique characteristics in data from Black/AA FGD included **generalized distrust** of medical treatments, research, and health systems and highlighting the **need for time and process to build trust in these** (Table 2, #1,2). **Key unique characteristics from Latina/o FGD data** were largely found among immigrants with strong ties to their origin countries. This 'Unique State Population' sub-group (over-represented in the Latina/o sample) expressed **fear** of COVID-19 stigma, vaccine mistrust**,** and **concerns** about vaccine side effects **originating from mis-, dis- and/or irrelevant information coming from countries of origin** (e.g., use of hydroxychloroquine; efficacy/safety of vaccines developed in Russia and China) through relatives, friends, and foreign websites (Table 2, #7,8). Middle-aged and older members of this sub-group relied heavily on Spanish-language news media and government websites from their home country as trusted sources of COVID-19 information. Finally, **undocumented immigration status and related limitations** were also key characteristics among this subgroup regarding COVID-19 vaccine access challenges.

[INSERT HERE: Table 2. Selected FGD quotes supporting divergent findings]

- *Results Convergence/Divergence Analysis of Themes*

Revising the original thematic analysis of FGD resulted in theme and subtheme consolidation, providing additional specificity and nuance (Table 3). The original thematic analysis can be found elsewhere[36].

[INSERT HERE: Table 3. Themes FGD Data]

Divergence and Convergence Findings by Population Group:

Of the five consolidated themes, three (Vaccines' Attitudes, Trusted Public Health Information, and Effective Communication) had subthemes/codes unique to one of the population groups. A total of eight unique key subthemes/codes (three for Black/AAs, four for Latinas/os) were identified (Table 4). Cutting across the two population groups and their age groups, five subthemes showed consistency/convergence (present in eight or more FGD) regarding COVID-19 perceptions and attitudes (Table 4). See Table 4 and Supplemental Table 1 in Annex 1 for quotes illustrating divergent findings.

[INSERT HERE: Table 4. Matrix Convergence/Divergence Findings]

Discussion

The syndemic created by structural racism/discrimination and COVID-19 is manifested in the disproportionate burden on morbidity and mortality rates for Black/AA and Latinas/os. Although initial disparities in COVID-19 vaccination rates by race/ethnicity narrowed over time in Georgia[37], 2020-2022 higher age-adjusted rates of infection and mortality among Black/AA and Latinas/os[38,39] likely reflect underlying historical, sustained structural inequities in health and healthcare (disproportionately higher hospitalization, illness and death associated with pandemic iterations and future health threats[38]). Using a convergence/divergence analysis allowed for a nuanced and targeted understanding of the COVID-19 syndemic in metro Atlanta and how it impacted similarly and differently the study's populations.

The convergence analysis revealed some important commonalities that suggest some generalizable analytical and explanatory categories. Black/AAs and Latinas/os reported significant **concerns about financial fallout** (e.g., job, housing loss) and **mental health stressors** (e.g., death risk; increased racism, isolation), reflecting nationwide trends in early COVID-19 perceptions, behaviors, and impacts. They also highlighted the **pandemic's positive effect on relationships**, noting that increased solidarity and stronger connections with family and loved ones helped them cope with psychological challenges such as depression and loneliness. Participants also reported very similar **information sources**, with 90% FGD noting frequent use of national and local TV news and CDC/public health websites. Older participants (60+) favored television news, while younger individuals preferred public health websites.

Finally, FGD participants emphasized the necessity of **inclusive representation of people of color in COVID-19 materials**. GEORGIA CEAL's participatory approach to communications design facilitated identifying concerns about trust in the health system and ties between racism and health equity. Participants' views highlighted critical gaps regarding linguistically-congruent (Spanish/country-unique dialects) and culturally-relevant health communication during the early COVID-19 pandemic[40].

Although **mistrust/distrust of public health and government** was expressed by both groups, linking it to **past and present racialized social injustices** was **salient among Black/AA participants**. FGD participants expressed a justified generalized distrust of the medical community and government involvement in medical/vaccine research, tracing injustices from transatlantic slavery to recent history (e.g., Untreated Syphilis Study at Tuskegee, medical

mistreatment of prisoners of color, forced/unconsented sterilizations). Our results and those of a similar early COVID-19 study in Atlanta[41] suggest an important connection between mis/distrust of medical and research systems, mis/dis-information/conspiracy theories narratives, and nuanced shared experiences with historical medical racism and racial/ethnic discrimination that should be considered for public health interventions in the region.

Data from Black/AA participants demonstrated the **unique key role of faith communities** regarding COVID-19 prevention and health education efforts, with faith leaders seen as trusted messengers and sources of information (especially among middle-aged/older adults) and supporting findings from related and concurrent research[42–45]. The history of Black churches and their social role in the U.S. South[46–48], as well as the impact of medical research abuses and marginalization experiences among Black/AA communities[49–51] in this region, substantiate the importance of identifying local characteristics relevant to the design of public health intervention strategies and approaches. Early findings regarding faith partnerships and trust-building had key public health implications and influenced GEORGIA CEAL's strategies for public health intervention (e.g., GEORGIA CEAL Phase II, Lay Health Ministries Program[52]) and efforts elsewhere in the US[53].

Most Latina/o FGD participants seemed to represent low-income and immigrant sociodemographic categories[ii], resulting in identifying a **key subgroup of Latinas/os who emigrated as young adults or older** and for whom the **intersection of generalized COVID-19**

[ii] Neither the screening nor the FGD questionnaire asked participants about their income or migratory status. Thus, we make this statement based on their answers.

mis/disinformation and country of origin seemed to exacerbate mistrust of the health system and scientific information (similar findings elsewhere in the US[54]). Many of these individuals may not speak English fluently, leading them to seek Spanish-based news/information from their country of origin. This was especially problematic during the early pandemic given the distinct socio-political-economic, epidemiological, and health system contexts of Latin American countries compared to the US. Latin American governments implemented public health measures that were in some aspects starkly different from those in the US (e.g., stringency index scores and variation over time) and administered vaccines not used in the US (e.g., China's Sinovac Biotech and BBIBP-CorV, Russia's Gam-COVID-Vac, and Cuba's FINLAY-FR-2 and CIGB-66)[55–57]. This situation was compounded by **lack of reliable COVID-19 vaccine information and materials in Spanish**[58,59].

Finally, the **intersection of unauthorized migratory status and COVID-19 impact on personal income** was also a unique vulnerability factor found for Latino/a community members[60,61]. Although both Black/AA and Latina/o communities were financially impacted by the early pandemic, Georgia Latinas/os faced significant financial challenges largely due to a substantial number of its members being unauthorized immigrants without access to unemployment benefits[62] from the 2020 COVID-19 relief acts. In 2022, Latinas/os in Georgia made up 10% of the population[63], with 267,000 (~24%) being unauthorized immigrants[64]. Migratory issues are compounded by income status, with 49% of this community living below the poverty line (21%) or in low-income conditions (28%)[65] in 2022. Their experiences highlight the intersectionality of hyperlocal demographic characteristics and unauthorized migratory status.

Qualitative findings support the importance of understanding and incorporating group-defined hyperlocalized health needs of communities[26,66,67] into the design of public health interventions to effectively respond to sociocultural, political, regional/local, and historical nuances unique to each group. Combining hyperlocalization with partnered approaches[68] allows for tailored responses to multiple community subgroups and their networks (e.g., faith communities, immigrants, age groups) and relevant, culturally appropriate communication strategies (e.g., population group-specific effective and trusted messengers; materials in other languages; targeted message development addressing culturally-specific barriers to change and/or action and group-specific motivators).

Limitations

The demographic composition of FGD participants did not fully reflect the class/socioeconomic status and cultural diversity among the priority populations. Latina/o participants were overrepresented in low-income and immigrant categories, limiting generalizability due to their unique experiences. Other limitations included not meeting expected minimum number of FGDs for Latino/a participants, likely due to older Latinas/os (60+) lacking digital access; difficulties matching facilitators' ethnicity with participants'; and challenges in scheduling FGD by age segmentation. While the sampling strategy assessed data by race/ethnicity, it remains incomplete and did not capture the full diversity of people and experiences across the state.

Conclusion

Using a CEnR approach provided key methodological insights (e.g., age segmentation), improving GEORGIA CEAL's research design for inquiry among members of urban Black/AA and Latina/o communities in Georgia. Our data collection design was deliberately aware of and responsive to the unique cultural characteristics of the two communities. Morehouse's history of community engagement was crucial in rapidly leveraging community support and early creation of a CCB.

In a context complicated by COVID-19 politics conflating and conflicting with science-based messaging, GEORGIA CEAL built relationships and pursued a sustained reputation of respect and trustworthiness. Furthermore, the syndemics framework facilitated understanding and interrogating bi-directionality between biological and social processes, while the convergence/divergence analysis helped to identify regional and hyperlocal social determinants of health for priority populations. Expanding hyperlocal strategies beyond epidemiological surveillance by integrating them into participatory research is an effective way to identify key nuances for communication during emergency responses such as the COVID-19 pandemic.

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Table 1. Demographic characteristics FGD

FGD #, n Participants, Language Used	**FGD Ethnicity/ Ancestry**	**Participants' Country of Origin** (for Latina/o FGD)	**Planned Age Group / Actual Age Range FDG Participants**
FGD 1, (n=3) English	Black/AA FGD	N/A	**Middle-aged Group** (30 – 59 yo)/ Age range participants: 30 – 59 yo (All male participants)
***FGD 2** (n=5) English	Black/AA FGD	N/A	**Young Adults Group** (18 – 29 yo)/ Age range participants: 19 – 55 yo (3 participants 19-29 yo; 2 outlier participants: 39 & 55 yo)
***FGD 3,** (n=5) English	Black/AA FGD	N/A	**Middle-aged Group** (30 – 59 yo)/ Age range participants: 19 – 52 yo (3 participants 41-52 yo; 2 outlier participants: 19 & 24 yo)
****FGD 4**, (n=7) English	Black/AA FGD	N/A	**Older Adults Group** (60+ yo)/ Age range participants: 45 – 75 yo (6 participants 60+; 1 outlier participant: 45)(All female participants)
FGD 5, (n=4) English	Black/AA FGD	N/A	**Older Adults Group** (60+ yo)/ Age range participants: 64 – 81 yo
****FGD 6**, (n=5) English	Black/AA FGD	N/A	**Middle-aged Group** (30 – 59 yo)/ Age range participants: 28 – 55 yo (4 participants 43-55 yo; 1 outlier participant: 28 yo)
FGD 7, (n=4) ***Spanish***	Latina/o FGD	Mexico (n=3) Peru (n=1)	**Middle-aged Group** (30 – 59 yo)/ Age range participants: 35 – 46 yo
****FGD 8**, (n=4) English	Latina/o FGD	Mexico (n=2) Colombia (n=2)	**Young Adults Group** (18 – 29 yo)/ Age range participants: 23 – 32 yo (3 participants 18-29 yo; 1 outlier participant: 32 yo)
***FGD 9**, (n=5) *Spanish*	Latina/o FGD	Mexico (n=3); Peru (n=2)	**Middle-aged Group** (30 – 59 yo)/ Age range participants: 19 – 59 yo (3 participants 30-59 yo; 2 outlier participants: 19 & 24 yo)
FGD 10, (n=4) English	Latina/o FGD	Peru (n=1); Brazil (n=1); USA (n=2)	**Young Adults Group** (18 – 29 yo)/ Age range participants: 19 – 22 yo
Total Participants: 46	**10 FGDs**	Mexico n=8, Peru n=4, Colombia n=2, Brazil n=1 USA n=2	- 4 FGDs matched 100% intended age grouping (1 Young Adults; 2 Middle-aged; 1 Older age) - 3 FGDs matched ≥ 75% intended age grouping - 3 FGDs matched ≤ 75% intended age grouping

*This FGD didn't meet ≥ 75% same age group participants threshold for inclusion in the age sub-analysis
**This FGD met ≥ 75% same age group participants threshold for inclusion in the age sub-analysis

Table 2. Selected FGD quotes supporting divergent findings

Divergent (Unique) Finding	Quote	FGD #, group, and participant's demographic information
BLACK/AFRICAN AMERICAN GROUP		
Historical experiences' connection to trust and mis/dis-information: Black/AA communities' feelings of justified generalized distrust of the medical community and the involvement of the US government in medical and vaccine research due to long history of injustices (particularly in the context of Southeastern United States)	1. *"I'm going to bring up the big elephant in the room. And that is, people of color are afraid of [SARS-COV2] because of past history. And we just have to talk about that. We have to be honest about it. We all talk about Tuskegee. There is another study that was done in North Carolina … with some young girls who were given a vaccine when they were very young... And when they got grown, they realized that they have been sterilized…You think about slavery and how we were used for experimentation. And those are real situations. I know it's the past. I've taken the shot. But when people bring up that argument, I do understand… We've been used for experimentation and the reluctance is real. And it's justified.."*	FGD 4, Black/AA, female, 71 yo*
	2. "*[If] we sweep [the history of mistreatment] …under the rug when we're talking to people, these layers [of mistrust] will never be peeled back… Those layers have to be pulled back gently like you would the scab on a sore. If you snatch it off, it's going to erupt and it's going to bleed. You have to do it slowly."*	FGD 5, Black/AA, female, 76 yo
Divergent (Unique) Finding	**Quote**	**FGD #, group, and participant's demographic information**
BLACK/AFRICAN AMERICAN GROUP		
Community of faith and pastors as trusted health resources: The Black/AA faith community seen as a trusted source of support for COVID-19 information and health resources (particularly in the context of Black churches tradition as social safety net in the United States South)	3. *"But I will say that I've noticed that in my community back home—and I can see why, but—a lot of patients will trust what like— a lot of people of faith will trust whatever their clergy says. I know that at my church the adults would trust whatever our senior pastor would say.* *Yeah, when you added the detail of it all being trustworthy that changed my answer a lot…when I'm thinking about my parents' community…, I think it would be helpful to have posters at church or things on what's trusted, right, trusted information on what's out, because that's kind of what they frequent"*	FGD 2, Black/AA, female, 19 yo
	4. *"…my church just did a seminar, a forum, on Monday. Facebook live, YouTube, and we were able to just—because we were talking about why as African Americans. Because my congregation is*	FGD 3, Black/AA, female, 50yo

	predominantly African American and we have members at the church who are doctors. And so they brought in people from the NAACP. And so they brought in all these different people that could help us talk and walk through this. And they're doing that regularly. And so it is a trusted physician and I trust my church just to be able to get that information. *I would say one place with me is my church because we're very—we're in the community, we're always learning, we're always asking... So I think you go to where you know that you trust and my trust is in my church as well. So that's number one. And also, number two, for that particular group."*	
Divergent (Unique) Finding	**Quote**	**FGD #, group, and participant's demographic information**
BLACK/AFRICAN AMERICAN GROUP		
Perception of "real-time" efficacy of vaccines and related concerns: evaluating speed of development and effectiveness of COVID-19 vaccines based on experience with other vaccines; adverse effects concerns (Barriers to COVID Vaccines)	5. *"…That's a real concern. We don't know what the long-term effects are. Because, number one, it was made quickly, a lot faster than most vaccines which usually take eight to ten years. It was made in a year…what will be the long-term effect? We don't know. So that's something we have to have a discussion about. We really do."*	FGD 4, Black/AA, female, 71yo
	6. *"…I did ask one of my friends who works in the immunization part of CDC about this vaccine getting approved so quickly. [Her explanation] made me a little bit more at ease, knowing that it wasn't necessarily a rushed process. As, I think [another participant] mentioned, it's a variation of SARS so they kind of already knew some of what to put in it and then just had to figure out the rest."*	FGD 4, Black/AA, female, 45yo
Divergent (Unique) Finding	**Quote**	**FGD #, group, and participant's demographic information**
LATINA/O GROUP		
Country of origin Mis/Disinformation: inaccurate and/or out of context information coming from country of origin exacerbates mistrust among Latina/o community members with strong ties to their countries of birth (immigrants). ALL Latina/o FGD identified this as a	7. *"We are Hispanics, so we are still somewhat rooted in our country [of origin], and I think that in our countries, …they are not doing very well [regarding COVID-19]; and we always have that communication [with people in our countries], whether it is with the mother, the grandfather, the uncle, the brother,… [and they tell us] things about [what happens] there, and one believes that [the same] thing happens here. So, don't go to the hospital [because] in Mexico they are killing people in the hospital, when the situation is*	FGD 9, Latina/o, male, 24 yo

barrier to the uptake of COVID-19 vaccine (Vaccines Attitudes)	*different [there]. There aren't resources, there is no doctor, there is no respirator, and that is why people die [in Mexico]."*	
	8. *"I feel that [the news from] our countries has a lot of impact [on us here in the US]. …People there [in Peru] are telling us about the situation in our country, that people are outside the hospitals, lying on the floor, waiting to be treated, and the doctors don't come out to treat them because there are so many people that they can't help everyone, give care to everyone, there is a lack of oxygen…because it is too expensive."*	FGD 9, Latina/o, female, middle-aged participant
Divergent (Unique) Finding	**Quote**	**FGD #, group, and participant's demographic information**
LATINA/O GROUP		
Access to COVID-19 government support: The Latina/o immigrant population sub-group of seemed to experience greater impact, possibly due to lack of access to COVID-19 government support (temporary financial relief grants) for undocumented Latinas/os. (Concerns/Fears of Impacts of COVID-19)	9. *"The loss of job is also another one. [Undocumented people] don't get unemployment benefits, right, and so the thought of losing the job that we were able to seek for a lot of [people] is very scary because, you know, there's not a lot of places where we can seek assistance, monetary-wise, or it's hard to look for those resources without them asking about, you know, your residency status, your citizenship, all of that."*	FGD 8, Latina/o, female, 23 yo
	10. *"…the financial part of if one of us gets sick, obviously everyone else will get sick since it's very contagious. So, it's like he has to go to the doctor, she has to go to the doctor, and all that stuff. So, like medical bills, and we don't have health insurance for that either, so it's all out of pocket. So, worrying about the financial aspect and the burden it can bring."*	FGD 10, Latina/o, female, 20 yo
Divergent (Unique) Finding	**Quote**	**FGD #, group, and participant's demographic information**
LATINA/O GROUP		
Lack of COVID-19 information materials in spoken language/dialects (Spanish): Unavailability of understandable and reliable COVID-19 vaccine information was a barrier to vaccination. Role of Latina/o communities not being monolithic regarding culture and language (Spanish dialects) (Effective Communication Theme)	11. *"There is a lot of misinformation…[One reason] could be the language, because if we notice,… information, whether about COVID tests or vaccines, is often in English. We must remember that most Hispanics who come here do not have the opportunity to study and few people learn [the kind of level of] English to be able to understand or analyze the information that the media is giving, and the only information they have is from their countries of origin, and that is why misinformation [plays] an unfortunate role here."*	FGD 9, Latina/o, male, 24 yo

	12. *"The way people in Central America speak is very different from the way people in South America speak, …or even in Spain… We all speak Spanish, but we don't all understand each other in Spanish, because everyone uses their own words in some way, that is, each place has words [to which] they give their own meaning."*	FGD 9, Latina/o, male, middle-aged participant
Divergent (Unique) Finding	**Quote**	**FGD #, group, and participant's demographic information**
LATINA/O GROUP		
Travel as vaccination incentive: Strong desire to visit relatives who live outside of the US as an incentive for vaccination (Vaccines' Attitudes Theme)	13. *"For me, I guess I have multiple reasons that I got [the COVID-19 vaccine] … I think also the travel opportunities; 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."* *"I get people all the time that come to my job telling me, like, "I'm going to travel. Is there any way I can get the vaccine?"*	FGD 8, Latina/o, female, 23 yo
	14. *"I am definitely in for the vaccine…[One reason to get the vaccine is] being able to travel confidently to Mexico and see my parents or the other way around."*	FGD 8, Latina/o, female, 32yo
	15. *"Definitely the people around me are just, most of them are like, 'Oh, I can't wait to get this vaccine so I can go to Las Vegas or go to this place.' Like basically to travel…"*	FGD 10 female, 20yo
	16. *"Since this pandemic started…we haven't had many things… For example, in my case, I haven't been able to go see my parents in my country, …I am worried that they are okay, that nothing happens to them, and above all, sometimes you feel tied down, because God forbid something happens to them and you can't go see them… [I have] my entire [extended] family there."*	FGD7 female, 42yo

*yo: years old

Table 2. Selected FGD quotes supporting divergent findings

Divergent (Unique) Finding	Quote	FGD #, group, and participant's demographic information
BLACK/AFRICAN AMERICAN GROUP		
Historical experiences' connection to trust and mis/dis-information: Black/AA communities' feelings of justified generalized distrust of the medical community and the involvement of the US government in medical and vaccine research due to long history of injustices (particularly in the context of Southeastern United States)	17. *"I'm going to bring up the big elephant in the room. And that is, people of color are afraid of [SARS-COV2] because of past history. And we just have to talk about that. We have to be honest about it. We all talk about Tuskegee. There is another study that was done in North Carolina … with some young girls who were given a vaccine when they were very young... And when they got grown, they realized that they have been sterilized…You think about slavery and how we were used for experimentation. And those are real situations. I know it's the past. I've taken the shot. But when people bring up that argument, I do understand… We've been used for experimentation and the reluctance is real. And it's justified.."*	FGD 4, Black/AA, female, 71 yo*
	18. "*[If] we sweep [the history of mistreatment] …under the rug when we're talking to people, these layers [of mistrust] will never be peeled back… Those layers have to be pulled back gently like you would the scab on a sore. If you snatch it off, it's going to erupt and it's going to bleed. You have to do it slowly."*	FGD 5, Black/AA, female, 76 yo
Divergent (Unique) Finding	**Quote**	**FGD #, group, and participant's demographic information**
BLACK/AFRICAN AMERICAN GROUP		
Community of faith and pastors as trusted health resources: The Black/AA faith community seen as a trusted source of support for COVID-19 information and health resources (particularly in the context of Black churches tradition as social safety net in the United States South)	19. *"But I will say that I've noticed that in my community back home—and I can see why, but—a lot of patients will trust what like— a lot of people of faith will trust whatever their clergy says. I know that at my church the adults would trust whatever our senior pastor would say.* *Yeah, when you added the detail of it all being trustworthy that changed my answer a lot…when I'm thinking about my parents' community…, I think it would be helpful to have posters at church or things on what's trusted, right, trusted information on what's out, because that's kind of what they frequent"*	FGD 2, Black/AA, female, 19 yo
	20. *"…my church just did a seminar, a forum, on Monday. Facebook live, YouTube, and we were able to just—because we were talking about why as African Americans. Because my congregation is*	FGD 3, Black/AA, female, 50yo

	predominantly African American and we have members at the church who are doctors. And so they brought in people from the NAACP. And so they brought in all these different people that could help us talk and walk through this. And they're doing that regularly. And so it is a trusted physician and I trust my church just to be able to get that information. *I would say one place with me is my church because we're very—we're in the community, we're always learning, we're always asking... So I think you go to where you know that you trust and my trust is in my church as well. So that's number one. And also, number two, for that particular group."*	
Divergent (Unique) Finding	**Quote**	**FGD #, group, and participant's demographic information**
BLACK/AFRICAN AMERICAN GROUP		
Perception of "real-time" efficacy of vaccines and related concerns: evaluating speed of development and effectiveness of COVID-19 vaccines based on experience with other vaccines; adverse effects concerns (Barriers to COVID Vaccines)	21. *"…That's a real concern. We don't know what the long-term effects are. Because, number one, it was made quickly, a lot faster than most vaccines which usually take eight to ten years. It was made in a year…what will be the long-term effect? We don't know. So that's something we have to have a discussion about. We really do."*	FGD 4, Black/AA, female, 71yo
	22. *"…I did ask one of my friends who works in the immunization part of CDC about this vaccine getting approved so quickly. [Her explanation] made me a little bit more at ease, knowing that it wasn't necessarily a rushed process. As, I think [another participant] mentioned, it's a variation of SARS so they kind of already knew some of what to put in it and then just had to figure out the rest."*	FGD 4, Black/AA, female, 45yo
Divergent (Unique) Finding	**Quote**	**FGD #, group, and participant's demographic information**
LATINA/O GROUP		
Country of origin Mis/Disinformation: inaccurate and/or out of context information coming from country of origin exacerbates mistrust among Latina/o community members with strong ties to their countries of birth (immigrants). ALL Latina/o FGD identified this as a	23. *"We are Hispanics, so we are still somewhat rooted in our country [of origin], and I think that in our countries, …they are not doing very well [regarding COVID-19]; and we always have that communication [with people in our countries], whether it is with the mother, the grandfather, the uncle, the brother,… [and they tell us] things about [what happens] there, and one believes that [the same] thing happens here. So, don't go to the hospital [because] in Mexico they are killing people in the hospital, when the situation is*	FGD 9, Latina/o, male, 24 yo

barrier to the uptake of COVID-19 vaccine (Vaccines Attitudes)	*different [there]. There aren't resources, there is no doctor, there is no respirator, and that is why people die [in Mexico]."*	
	24. *"I feel that [the news from] our countries has a lot of impact [on us here in the US]. …People there [in Peru] are telling us about the situation in our country, that people are outside the hospitals, lying on the floor, waiting to be treated, and the doctors don't come out to treat them because there are so many people that they can't help everyone, give care to everyone, there is a lack of oxygen…because it is too expensive."*	FGD 9, Latina/o, female, middle-aged participant
Divergent (Unique) Finding	**Quote**	**FGD #, group, and participant's demographic information**
LATINA/O GROUP		
Access to COVID-19 government support: The Latina/o immigrant population sub-group of seemed to experience greater impact, possibly due to lack of access to COVID-19 government support (temporary financial relief grants) for undocumented Latinas/os. (Concerns/Fears of Impacts of COVID-19)	25. *"The loss of job is also another one. [Undocumented people] don't get unemployment benefits, right, and so the thought of losing the job that we were able to seek for a lot of [people] is very scary because, you know, there's not a lot of places where we can seek assistance, monetary-wise, or it's hard to look for those resources without them asking about, you know, your residency status, your citizenship, all of that."*	FGD 8, Latina/o, female, 23 yo
	26. *"…the financial part of if one of us gets sick, obviously everyone else will get sick since it's very contagious. So, it's like he has to go to the doctor, she has to go to the doctor, and all that stuff. So, like medical bills, and we don't have health insurance for that either, so it's all out of pocket. So, worrying about the financial aspect and the burden it can bring."*	FGD 10, Latina/o, female, 20 yo
Divergent (Unique) Finding	**Quote**	**FGD #, group, and participant's demographic information**
LATINA/O GROUP		
Lack of COVID-19 information materials in spoken language/dialects (Spanish): Unavailability of understandable and reliable COVID-19 vaccine information was a barrier to vaccination. Role of Latina/o communities not being monolithic regarding culture and language (Spanish dialects) (Effective Communication Theme)	27. *"There is a lot of misinformation…[One reason] could be the language, because if we notice,… information, whether about COVID tests or vaccines, is often in English. We must remember that most Hispanics who come here do not have the opportunity to study and few people learn [the kind of level of] English to be able to understand or analyze the information that the media is giving, and the only information they have is from their countries of origin, and that is why misinformation [plays] an unfortunate role here."*	FGD 9, Latina/o, male, 24 yo

	28. *"The way people in Central America speak is very different from the way people in South America speak, …or even in Spain… We all speak Spanish, but we don't all understand each other in Spanish, because everyone uses their own words in some way, that is, each place has words [to which] they give their own meaning."*	FGD 9, Latina/o, male, middle-aged participant
Divergent (Unique) Finding	**Quote**	**FGD #, group, and participant's demographic information**
LATINA/O GROUP		
Travel as vaccination incentive: Strong desire to visit relatives who live outside of the US as an incentive for vaccination (Vaccines' Attitudes Theme)	29. *"For me, I guess I have multiple reasons that I got [the COVID-19 vaccine] … I think also the travel opportunities; 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."* *"I get people all the time that come to my job telling me, like, "I'm going to travel. Is there any way I can get the vaccine?"*	FGD 8, Latina/o, female, 23 yo
	30. *"I am definitely in for the vaccine…[One reason to get the vaccine is] being able to travel confidently to Mexico and see my parents or the other way around."*	FGD 8, Latina/o, female, 32yo
	31. *"Definitely the people around me are just, most of them are like, 'Oh, I can't wait to get this vaccine so I can go to Las Vegas or go to this place.' Like basically to travel…"*	FGD 10 female, 20yo
	32. *"Since this pandemic started…we haven't had many things… For example, in my case, I haven't been able to go see my parents in my country, …I am worried that they are okay, that nothing happens to them, and above all, sometimes you feel tied down, because God forbid something happens to them and you can't go see them… [I have] my entire [extended] family there."*	FGD7 female, 42yo

*yo: years old

Table 3. Themes and Subthemes FGD Data

THEMES	SUBTHEMES
Concerns/Fears of Impacts of COVID-19	**a)** Health Related Concerns **b)** Impact on Personal Income
Perceived Pandemic Effects on Relationships and Self	**a)** Positive Relational Effects **b)** Negative Relational Effects **c)** Mental Health Impact (stressors)
Vaccines' Attitudes (Influenza as surrogate and future COVID-19 Vaccines)	**a)** Influenza Vaccine Facilitators and Motivators **b)** Barriers to Influenza Vaccine **c)** COVID-19 Vaccines Facilitators and Motivators **d)** Barriers to COVID-19 Vaccines
Trusted Public Health Information	**a)** Trusted/Used Sources of Information **b)** Trusted Messengers
Effective Communication	**a)** Inclusive Representation of People of Color in COVID-19 Materials **b)** Communications Style and Preferences

	BLACK/AA PARTICIPANTS	LATINA/O PARTICIPANTS (mainly immigrants with strong ties to their country of origin)
DIVERGENT FINDINGS *	**- Perception of "real-time" efficacy of vaccines and related concerns** (Barriers to COVID-19 Vaccines Theme)**.** Expressed in 5/6 Black/AA FGD, showing a comparing and contrasting approach to evaluating development and effectiveness of vaccines based on experience with other vaccines. Concern expressed in ***all three age groups*** across this population group. **- "People of faith" and pastors as trusted sources of information** (Trusted Public Health Information Theme). The ***Black/AA faith community*** was identified by many participants as a trusted source of support and COVID-19 information. **– Historical experiences' connection to trust and mis/dis-information** (Trusted Public Health information and Vaccines' Attitudes Themes). COVID-19 mis/dis-information and conspiracy theories were mentioned in connection to vaccine intent, issues of trust and population harm concerns grounded in historical and comtemporary experiences with raicism and marginalization (especially regarding involvement of the US government in medical/vaccine research)	**- Travel as vaccination incentive** (Vaccines' Attitudes Theme). Strong desire to visit relatives who live outside of the US. This code was ***relevant to young-adult and middle age groups.*** **- Lack of COVID-19 information materials in spoken language (Spanish)** (Effective Communication Theme)**.** Unavailability of understandable and reliable COVID-19 vaccine information was a barrier to vaccination. **- Access to COVID-19 government support** (Concerns/Fears of Impacts of COVID-19). Although both priority population groups were financially impacted, the Latina/o ***immigrant population sub-group*** seemed to experience greater impact, possibly due to lack of access to COVID-19 government support for low-income individuals and families (temporary financial relief grants) among undocumented Latinas/os. **- Country of origin Mis/Disinformation** (Vaccines' Attitudes Theme)**.** Impact of inaccurate and/or out of context information coming from country of origin. This seemed to exacerbate mistrust among Latina/o community members with strong ties to their countries of birth (new immigrants). *ALL Latina/o FGD identified this as a barrier to the uptake of COVID-19 vaccine.*
CONVERGENT FINDINGS (BLACK/AA & LATINA/O PARTICIPANTS)	• The felt ***impact on personal income:*** worries about consequences of the financial fallout caused by COVID-19 (e.g., losing jobs and housing) • ***Mental health stressors*** (e.g., COVID-19 related concerns about death risk and increased racism; social isolation) • The benefit of ***stronger and closer relationships with family and loved ones, increased solidarity:*** strategy used to cope with psychological issues (e.g., depression, loneliness, fear) generated or accentuated by the pandemic. • ***News media and public health websites as trusted/used sources of public health information:*** news media (Cable/national, and local television news channels) and CDC and State and County public health websites (e.g., department of health) • Need of ***inclusive/diverse ethnic/cultural representation in COVID-19 materials:*** participants' feedback on the effectiveness of messaging in examples for COVID-19 vaccination; highlighted critical gaps regarding linguistically-congruent and culturally-relevant health communication	

Table 4. Matrix Convergence/Divergence Findings

***** Information about age groups was added wherever a clear inference could be made based on the established ≥ 75% same-age group FGD participants threshold for inclusion in the age sub-analysis.