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## Exploring Latino *Promotores/a de Salud* (Community Health Workers) knowledge, attitudes, and perceptions of COVID-19 vaccines



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### ABSTRACT

Promotoras/promotores (i.e., community health workers) are uniquely positioned to provide much needed COVID-19 education and outreach in Latino communities, particularly in areas with disparities in vaccination rates. This study used qualitative methods to explore promotoras perspectives on COVID-19 vaccines, with a focus on understanding how vaccine knowledge and viewpoints among Latino communities can formulate recommendations to improve uptake of vaccination. Promotoras (N=22) were recruited to participate in semi-structured focus groups conducted virtually. Reflexive thematic analysis identified three overarching themes: (1) prevalence of misinformation (related to lack of trustworthy information, mistrust in the government, immigration status concerns, and conspiracy theories); (2) hesitancy (related to health concerns and eligibility confusion); and (3) recommendations for improving vaccine uptake. Delays in vaccination were not strictly due to doubts or fears but were also related to access barriers. The themes provide insight into the Latino communities' perceptions of COVID-19 vaccines and reasons why some remain unvaccinated. Promotoras' perspectives are integral to the development of strategies and approaches to address COVID-19 vaccine hesitancy, uptake, and implementation among underserved communities.

### 1. Introduction

Vaccination is an important method to protect against COVID-19 and provide public health control of the pandemic (Wiysonge et al., 2021). As of early November 2021, about 78% of U.S. adults have received at least one dose of a COVID-19 vaccine (CDC, 2021). Race/ethnicity data on the US Center for Disease Control (CDC) COVID-19 vaccination tracker available for 61% of people who have received at least one dose of the vaccine indicate that among this group, 60% were White, 17% Hispanic/Latino, 11% Black, 6% Asian (CDC, 2021). Although vaccination rates are improving, disparities among racial and ethnic minority populations persist, threatening further progress against the pandemic and potentially exacerbating existing health disparities (Bertsimas et al., 2021; Strully et al., 2021) experienced by Hispanic/Latin/a/o/x (thereafter referred to as Latino) communities.

Disparities in vaccination uptake have been largely attributed to vaccine hesitancy (Hansen, February 2021), defined by the World Health Organization (WHO) as a "delay in acceptance or refusal of vaccines despite availability of vaccination services" (World Health Organization, 2015, p. 7). Other definitions of hesitancy emphasize doubts, beliefs, and fears as drivers of delays or refusal (Wiysonge et al., 2021). There is growing recognition that vaccine hesitancy is a complex construct, driven by multilevel socio-structural and contextual factors and that the

colloquial use of vaccine hesitancy may not fully capture the spectrum of factors accounting for delays in vaccination, especially in the case of COVID-19 vaccines (Razai et al., 2021). Within-individual uptake of vaccines may also be highly variable such that people may promptly accept some vaccines, delay uptake of others, and/or refuse vaccines for themselves, while supporting vaccinations more broadly (MacDonald, 2015).

*Promotoras/promotores* (subsequently referred to as promotoras) are frontline public health workers who provide culturally appropriate health education and outreach services within their communities (Messias et al., 2013). Promotoras serve as bridges between community members and formal resources. They are embedded in their communities and seen as trustworthy sources of information, with shared values and experiences, thereby making them especially effective in engaging hard to reach segments of the population. In previous studies, promotoras have been successful in promoting changes in lifestyle behaviors (Brown et al., 2018; Kubicek et al., 2015; Ross et al., 2018), chronic disease management (Kim et al., 2016; Liao et al., 2016) and uptake of cancer-related preventive measures (Fischer et al., 2018; Warner et al., 2019; Wells, 2017).

Since the onset of the COVID-19 pandemic, promotoras have become more vital than ever in assisting contact tracing efforts (Ruff & Fishman, 2020), distributing masks, sanitizers and other protective gear to

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farmworkers, connecting community members to food pantries, and combating misinformation, sometimes via unconventional outlets such as WhatsApp, Instagram, and Facebook groups (Falicov et al., 2020). By providing informational, tangible, and emotional support to community members, promotoras serve as agents of change and model behaviors to be emulated (Messias et al., 2013). They are trusted pillars in their communities, uniquely poised to promote COVID-19 vaccine uptake in the area they serve. The knowledge and skills they possess are effective in encouraging fellow community members to embrace or adopt positive health-related practices (Messias et al., 2013).

The aim of this qualitative study was to explore knowledge, attitudes, and perceptions of COVID-19 vaccines through the lens of promotoras in Los Angeles, California. Latinos comprise 48.6% of the population in Los Angeles County (U.S. Census Bureau, 2021). We were especially interested in considerations and parameters that may inform the development of culturally sensitive strategies and approaches to promote COVID-19 vaccine uptake in urban Latino communities.

## 2. Materials and methods

### 2.1. Participants and recruitment

Participants were recruited from a database of promotoras who have previously participated in studies and events in partnerships with the Cedars-Sinai Cancer Research Center for Health Equity Community Outreach and Engagement (COE) group. Individuals were eligible for inclusion if they were age 18 years or older and currently self-identified as a promotora. We used convenience sampling whereby all promotoras in the database were invited to participate in the study by a staff member. Interested individuals were provided an IRB-approved study flyer and directed to contact the first author if interested in participating. The first author screened and scheduled participants for the focus groups. All participants provided verbal informed consent and completed a demographics survey in REDCap. All procedures were approved by the Cedars-Sinai Medical Center Institutional Review Board (IRB). A total of 22 promotoras agreed to participate and were organized into three focus groups. Participants were grouped into focus groups based on participant availability, and conducted virtually via Zoom, due to COVID-19 restrictions on in-person gatherings.

### 2.2. Procedure

Three focus groups were conducted, each lasting about 90 min. Focus groups, as opposed to other qualitative methods, such as interviews, were chosen to leverage interactions and exchanges among participants as they were building on each other's responses and sharing collective knowledge regarding their perspectives and experiences. All focus groups were conducted in Spanish and led by two bilingual (English and Spanish) moderators (N.C. and E.H.). The moderators utilized a semi-structured interview guide (described below). Participants were compensated \$20 for participating in the study. Focus groups were audio and video recorded for future transcription and coding. Audio recordings were translated and transcribed into English by a professional service and verified by the first and third author.

### 2.3. Context

When this study took place in February 2021, LA County was in the red tier, indicating substantial spread of the COVID-19 virus according to the California Reportable Disease Information Exchange (CalREDIE) database. Only the Pfizer and Moderna vaccines were approved. These vaccines were only available to essential workers, including promotores/a, and individuals over the age of 65.

### 2.4. Focus group interview qualitative guide

The authors developed a set of semi-structured open-ended questions and probes for use during the focus groups (see supplemental file). Questions were divided into sections: (1) Introduction/opening questions about their COVID experience (e.g. "Tell me about your experience since the beginning of the pandemic?"); (2) Community perspectives and their own perceptions of the COVID Vaccines (e.g. "How are the COVID-19 vaccines perceived in the communities you serve?"); (3) COVID vaccine guidelines (e.g. "What guidelines has your job/organization provided regarding vaccine outreach?"); (4) Closing section (e.g. "If you were in charge of vaccine rollout, what would you do to get people vaccinated?"). When appropriate, moderators asked follow-up questions (e.g., asking for examples, clarification).

### 2.5. Data analysis

The audio recordings were transcribed to English using a modified verbatim approach (whereby filler words and non-speech sounds were omitted) by a professional transcriptionist. To aid transcription, we provided the transcriptionist with the following information: number of participants in the group and the dialect region (e.g., in one group all of the participants were native Spanish speakers from Mexico, whereas in another, there was a mix of individuals from Mexico and South America). This was important to include because promotoras' lexicon or idiomatic subtleties may be affected by the practice of speaking both Spanish and English, their country of origin, and by the coexistence of their role as a member of the community and a provider of services. When there was no direct translation for a word or phrase, the transcriptionist made a note so that the team could review the translation. To ensure transcript accuracy, the first and second authors reviewed the English transcripts while listening to the Spanish audio file.

Focus group transcripts were entered into MAXQDA 2020 (VERBI Software, 2019) to facilitate data management. Our analysis was guided by the six principles of reflexive thematic analysis. First, the primary (N.C.) and tertiary author (E.H.) reviewed all the transcripts and recordings thoroughly to ensure accuracy of transcription. Then the primary author (NC) read the transcripts several times to become intimately familiar with the content, making notes on general ideas and patterns. Second, the primary author (N.C.) generated codes to identify meaningful units of data. Third, she met with the secondary author (C. H.S.) to examine the codes inductively and identify possible themes. As we worked through this step, we generated new codes and sometimes revised existing ones based on additional potential interpretations of the data and codes. Fourth, a meeting was held with all the co-authors, during which themes were discussed to promote further reflection and refinement. Lastly, the co-authors wrote the results, using pseudonyms for all participants. To support the quality of this research, the authors were guided by the universal guidelines developed for reflexive thematic analysis Braun and Clarke (2020). These guidelines consist of twenty critical questions to promote deliberate reflection and engagement with the research process, including data and analysis.

## 3. Philosophical assumptions

This study is based on the ontological assumptions of relativism and epistemological constructivism, which posit that reality is subjective and is based on people's perceptions. The purpose of this approach is to understand the subjective experience of individuals, their differing realities, and the multiple truths that may exist based on their unique values and experiences. In accordance with these assumptions, the present study sought representations of promotoras' experiences to gain an understanding of how COVID-19 vaccines are perceived by them and the communities they serve.

#### 4. Results & discussion

Sample characteristics are summarized in Table 1. The 22 participants had a mean age of 48 years, were predominately female, and of Mexican descent.

In broadly exploring promotoras' perspectives on COVID-19 vaccines, three overarching themes were identified: (1) prevalence of misinformation; (2) hesitancy and (3) recommendations to improve vaccination uptake. Underlying the understanding and interpretation of these themes, we note the following two important considerations. First, like many individuals worldwide, most participants reported they were feeling emotional distress due to the challenges brought on by the COVID-19 pandemic. Second, promotoras noted that many individuals in their communities (and those they serve) experienced specific barriers such as lack of transportation, low levels of education and technology inexperience, which precluded access to COVID-19 vaccinations and may have shaped their perceptions of the vaccines and uptake. Despite the many barriers discussed, promotoras felt hopeful about the future of their communities and affirmed their commitment to improve their health and well-being.

##### 4.1. Prevalence of misinformation

###### 4.1.1. Lack of information

Promotoras repeatedly discussed how misinformation and lack of trustworthy information contributed to negative perceptions about COVID-19 and related vaccines. Misinformation was spread by the media, public leaders, celebrities, and influencers on multiple platforms (TV, social media, radio). Participants reported being bombarded with misinformation on the utility of masks, and the effectiveness, safety and cost of the COVID-19 vaccines and untested remedies. The proliferation of information made it challenging to differentiate facts from falsehoods. Promotoras indicated that they evaluated content as being trustworthy if it originated from a website ending in ".edu," ".gov," ".org," or if the information was vehiculated by the public health authorities in press conferences. As noted by Mireya (48 years old, female), it was difficult for her to establish what information was correct. She stated "and you try to listen to the health authorities because you have a lot of doubts even though as a promotora you try to inform yourself through trustworthy sources, right? Through universities, hospitals, where we really see that the information is correct."

**Table 1**  
Participant Demographics (N = 22).

	N (%) or M (SD)
Sex	
Male	3 (13.6)
Female	19 (86.4)
Relationship Status	
Married	18 (85.7)
Divorced/Separated	2 (9.5)
Never Married	2 (9.5)
Education	
Less than H.S.	9 (40.90)
H.S.	7 (31.8)
Bachelor's/Graduate Degree	6 (27.3)
Country of birth	
Mexico	16 (76.2)
El Salvador	3 (14.3)
Colombia	1 (4.8)
United States	1 (4.8)
Guatemala	1 (4.8)
Native language	
Spanish	22 (100)
Age <sup>†</sup>	47.52 (9.18)
Years of US residence	25 (7.23)
Years working as a promotor(a)	6.81 (5.34)

<sup>†</sup>N = 21.

Despite being experienced promotoras, it was difficult for them to ascertain which information source was trustworthy. Notably, this difficulty occurred even when the information originated from health officials or a trustworthy source. Not being able to discern between credible and unreliable information could lead to negative consequences such as people pursuing unorthodox treatment or damaging health advice (Joshi et al., 2020) and mistrust. This is especially concerning for individuals with less education as they are more susceptible to misinformation and more likely to share it (Seo et al., 2020). In previous studies, education, analytical thinking, numeracy skills, and intuitive versus reflective thinking styles were found to play a role in processing misinformation (Roozenbeek et al., 2020).

Promotoras also discussed the lack of information regarding accessibility (location of vaccination sites) and health benefits of COVID-19 vaccinations. In the quote below, Marisol shares her opinion on what information should be provided to members of the community.

Give them the information of when the vaccinations are going to be done, what are the kind of vaccines that are going to be given in this area, so that people know what they are going to receive and what benefits they're going to have. –Marisol, female, 49 years old

As discussed by Marisol, promotoras felt there was not enough information provided to the community about where they could get vaccinated, which vaccine would be offered, and the advantages and/or protections conferred by the vaccinations. Marisol's perspective highlights some of the inequities in COVID-19 vaccination access among the Latino community. In a recent report by the Kaiser Family Foundation, 6 in 10 Hispanics said they did not have enough information about where to get the vaccine, compared to about half of White adults who say the same. Moreover, among those aged 65 and older, about 6 in 10 say they do not have enough information about when and where they will be able to get the vaccine (Hamel et al., 2021). Access among the Latino community continues to be a major barrier in vaccination uptake.

Further instances of lack of information were also identified. For example, promotoras noted that information circulated in media outlets and the public health department did not highlight basic info about the COVID-19 vaccines, such as legal immigration or documented status not being a requirement. As noted by Nayeli (43 years old, female), at one of the vaccination sites she volunteered at, upon arrival many people would ask "Is it free? Will it affect me if I'm getting legalized? Will it go to immigration?" People in the community were unsure if or how receiving a COVID-19 vaccine would impact their immigration status. Many undocumented Latino individuals fear accessing services such as COVID-19 testing, contact tracing, and vaccination because they are concerned with the potential negative immigration ramifications of using these services (Galletly et al., 2021).

###### 4.1.2. Mistrust in the government

Promotoras also shared that widespread misinformation in the community exacerbated mistrust in the government, public health officials, and the scientific community. Sonia (52 years old, female) mentioned former President Donald Trump's experience with COVID-19, stating "we had the ex-president who never used masks, and how is it possible that he got COVID and three days later, he didn't have anything anymore?" Mistrust among the Latino population is not unfounded as there is a long history of exploitative medical research and practices against communities of color, for example the mass sterilization of Puerto Rican women, and Mexican men and women in LA County (Bocquillon, 2018). More recently, reports of violation of COVID-19 guidelines, maltreatment at immigration detention centers (comprised mostly of Latinos), and forced hysterectomies deepen mistrust in the government, especially among undocumented or mixed-status families (Dyer, 2021; Khan, 2019). Isabel (50 years old, female) noted that in her community many people don't even believe the virus is real and happening. She shared "well, what I have heard is that it's a lie. It doesn't exist. COVID doesn't exist. They just

made it up for the vaccine to be able to eliminate us, as the other group member said, to kill us.”

As noted by Isabel, many members of the Latino community believe COVID-19 doesn't exist and that it's part of a government scheme with the ultimate purpose of eradicating them. Extreme examples of misinformation such as the one highlighted by Isabel intensify mistrust in the government and discredit COVID-19 vaccines. Years of anti-immigrant rhetoric and policy have eroded trust in the government and led to negative health consequences for undocumented individuals. In a recent investigation of changes in health care use among undocumented patients between 2014 and 2018, the authors found a significant decrease in the use of primary health care services among undocumented patients (Nwadiuko et al., 2021).

#### 4.1.3. Conspiracy theories

Fear of deportation and feelings of deprivation stimulate belief in conspiracy theories. The different conspiracy theories spreading in the community targeted immigrant or undocumented individuals and instilled fear of COVID-19 vaccinations. Carla (50 years old, female), indicated one of the prominent conspiracy theories circulated among the Latino community she serves was that “they're going to put a microchip in you when they give you the vaccine, so don't get it because they're going to be following you.” Given the concern around anti-immigrant sentiment and government control, these conspiracy theories are often believed and repeated within the community. Indeed, the conspiracy theory mentioned by Carla—that Bill Gates wanted to embed microchips through vaccinations in large portions of the global population, is one of the most widespread conspiracy theories surrounding the COVID-19 vaccine (Agle & Xiao, 2021). Conspiracy theories and other efforts to sow seeds of doubt are dangerous and a challenge for vaccination uptake in all communities. In a recent study, researchers found that beliefs in conspiracy theories about COVID-19 were associated with a disposition to reject information from expert authorities (Bertin et al., 2020). In another study by Roozenbeek et al. (2020), the authors found a negative association between increased susceptibility to misinformation and individual's self-reported compliance to health guidance and willingness to get vaccinated against COVID-19. These findings are concerning as they threaten health officials' credibility, CDC guidance, and efforts to reduce the transmission of COVID-19 and vaccination uptake.

## 4.2. Hesitancy

### 4.2.1. Health concerns

Promotoras discussed how members of the Latino community were hesitant to get vaccinated because of health safety concerns related to the expedited development of the vaccine.

Sonia (52 years old, female) shared her opinion on the expedited vaccine development, indicating safety concerns were justified, because “if for Polio it took them this many years and for Meningitis it took them this many years, how is it possible that now in a year and a half they already have a vaccine.” Sonia's concerns were also shared by those in her community who were worried about the expedited development of the COVID-19 vaccines, in comparison to other well-known successful vaccines such as the polio and meningococcal vaccines. Sonia's concerns highlight the growing sentiment among many who believe the rapid speed at which vaccines have been developed and given emergency approval compromise their efficacy and safety (Strully et al., 2021).

Sonia's statement about the rapid development of the vaccines and implied mistrust is an example of vaccine hesitancy influenced by issues of confidence and trust in its safety.

Another issue underlying vaccine hesitancy noted by the promotoras was the perception that the COVID-19 vaccines and related potential side effects were worse than contracting the virus.

So, when he was going to get the vaccine, he said, “No, I'm not going to get it because don't you hear that people are dying? Why would I go

to get killed? He even got COVID, and he didn't want to go to – they had to take him to the emergency room because of his dialysis.  
–Denia, female, age unknown

In Denia's anecdote, the gentleman has a pre-existing condition that requires dialysis and therefore elevates his risk of contracting COVID-19 and yet he refuses to get vaccinated believing that the vaccine will kill him. His perception that the COVID-19 vaccine is worse than contracting the virus is an extreme example of hesitancy due to complacency. The gentleman contracts COVID-19 and even then, he refuses to visit the doctor and instead must be taken to the emergency room. Denia's example is in line with the literature which indicates Hispanic persons receive ED care for COVID-19 at disproportionately higher rates compared to White persons (Smith, 2021).

### 4.2.2. Eligibility confusion

The promotoras discussed concerns regarding the cost of the COVID-19 vaccines among members of the community. Although the vaccines are free, the promotoras felt that this information was not widely disseminated in the community and that questions regarding health insurance at vaccination sites created confusion among community members. Miriam (female, 45 years old) stated that in her community, she's heard comments such as “they say, okay, if it's supposedly free, what does the insurance have to do with it? Because, that's always the first thing they ask.” Before a COVID-19 vaccine is administered, providers typically ask for insurance information for reimbursement purposes from the federal government or other local health programs (Health Resources & Services Administration, n.d.). Although recipients will not be billed for COVID-19 vaccines, asking for insurance information can deter individuals from getting vaccinated.

The promotoras noted that many people in their communities (including themselves) were confused about eligibility and the distribution of the COVID-19 vaccines because many received them without meeting the age criteria.

How do some people have access and others don't if they don't enter in the age range? And they are questions that go unanswered in the community a lot of times because they say, “It seems like there isn't order with who is getting the vaccine, not to whom or how. So, that creates a lot of questions in the community. –Leonardo, male, 77 years old

In LA County, COVID-19 vaccines were distributed in phases as recommended by the CDC, with health care workers and long-term care facility residents being prioritized in phase 1a, followed by frontline essential workers and persons aged 75 and older in phase 1 b (Dooling, 2021). As noted by Leonardo, some people were vaccinated even though they did not meet the eligibility criteria as required by the vaccination phase. Moreover, Leonardo suggested that this discrepancy created confusion for members of the community. A similar sentiment was shared by another promotor who shared that he knew two different people who were not eligible to receive the vaccine, but still got it.

I'm a bit—not upset, but a bit confused because supposedly they would give priority to those who are older, right? The elderly, or those over 60 years old. I can vouch for it because there are people who I know. I have a friend who is in his 40's, and he got the vaccine through his job. He works in maintenance. So, I don't know how they got it in his job. I imagine it's according to who you know, right? Then, another woman who is a maid, the owner of the house where she works, also gave her access to the vaccine, and she's not someone who is 60 years old either. –Victor, male, 47 years old

Victor's example highlights the confusion and frustration experienced by many, who heard of instances where people were getting vaccinated even though they didn't fit into one of the state's current eligibility categories. In his anecdote of a woman providing her domestic employee a vaccine, Victor is indicating inequity in distribution of the vaccines.

Victor's perceptions are echoed in a recent AARP article, which indicates that in many states vaccine distribution after Phase 1a deviated from CDC guidelines (Soergel, 2021). Vaccine plans were developed by individual governors and state health officials, often grouping together older adults, but dividing them by age brackets, which impacted what phase they would fit into. The lack of clear eligibility guidelines is concerning as it can prevent individuals from getting vaccinated.

#### 4.2.3. Immigration status concerns

Growing anti-immigrant sentiment, even amid a global pandemic, have led minorities to perceive the social and political system as rigid—deliberately targeting them and COVID-19 vaccinations. This sentiment was highlighted by Mercedes (38 years old, female), who noted many members of her community believe “all of this is a part of the government wanting to – they want to dominate us.” According to Mercedes, many people in the community felt that COVID-19 vaccines would be utilized by the government to track and control immigrants. Although the U.S. Immigration and Customs Enforcement (ICE) and the CDC have stated that vaccines are available to everyone, regardless of their immigration status, fear among the undocumented community remains (Artiga et al., 2021). This is due in part to recent anti-immigrant vaccine policies that have been proposed in states like Arizona, where U.S. Rep. Debbie Lesko (a republican) suggested American citizens or legal residents be prioritized for vaccination (Hansen, February 2021). In Florida, a state with a high number of undocumented Latinos, the COVID-19 vaccine is free and open to all adult residents, but requires stringent proof of residency, which has created a significant obstacle for undocumented people trying to get vaccinated (Florida Health Pasco County, January 21, 2021).

#### 4.3. Recommendations for improving COVID-19 vaccine uptake

In addition to the difficulties and barriers related to COVID-19 vaccine uptake in the Latino community, the promotoras also extensively discussed strategies and approaches they believed could help improve vaccination rates. Many of the promotoras suggested bringing the vaccine closer to the community's reach. Estela (33 years old, female) suggested “put vaccine centers as close as possible. There aren't a lot of vaccination centers, more than anything, for the elderly. I feel that it's very important to put it in the community's reach.” As noted by Estela, vaccination locations need to be accessible to everyone and the unique needs of different segments of the population, such as the elderly, need to be considered. Another popular recommendation among promotoras was utilizing schools and COVID-19 testing centers in the community as vaccination centers.

A very viable option as well would be in the schools, because there's a lot of schools close by in our community. People know their school; they trust their school and it's a bit easier to access these kinds of services. –Miriam, female, 45 years old

Miriam suggests that administering vaccines in schools would improve access and perhaps uptake, as people know and trust their local school. Utilizing school facilities as vaccination sites or centers is a proven strategy that has been successful in vaccination against seasonal influenza (Gargano et al., 2015). School facilities are the largest gathering space in many communities and thus frequently used for vaccination clinics and other emergency response activities such as evacuation centers for displaced fire victims. Another recommendation for improving access and uptake of vaccinations proposed by the promotoras was using a census-like strategy in coordination with community-based resources.

Starting with clinics and then community centers like churches, recreation centers, and schools and do like a census. When the census is done, everyone says, how many people live in this apartment, in this town, in this area. It should be done like that to ensure that everyone

who wants to receive the vaccine has access and can be vaccinated. –Lila, female, 45 years old

In Lila's example, public health and local government officials should work with churches, clinics, schools—places in the community, to gauge the number of vaccines needed and guarantee access to those that want to be vaccinated. Similar to Lila's suggestion, many states have utilized data-driven messaging strategies like those they deployed last year during the U.S. Census, to provide vaccine related information to residents (James et al., 2020). While the impact of data-driven messaging is yet to be known, utilizing this strategy might be beneficial to younger segments of the population who have access to a smart phone and are able to navigate text messaging.

The majority of promotoras suggested the idea of “lead by example” to combat misinformation, foster trust, and improve vaccine uptake among members of the Latino community.

For people to trust, we have to put ourselves first as an example and say to them, ‘Look, I was vaccinated, and I'm here. I'm good. Nothing happened to me.’ And I mean because – I think that if you're inviting people to be vaccinated and everything and you haven't been vaccinated, people aren't going to trust you. –Alejandra, female, 39 years old

The idea of lead by example was highlighted in Alejandra's quote, where she indicates that in order for people to trust the promotoras encouraging vaccination, they need to know that the promotora already got vaccinated and hear about their personal experience. First person accounts of the vaccination experience, from trusted or key members of the community is a great strategy to employ among Latino communities to improve vaccine uptake. Latinos may be more receptive to advice or health messaging from a community leader or someone well integrated in the community due to their tight-knit culture and beliefs, which weighs information from trusted peers above all (Center for Health Equity in Action, 2020).

## 5. Conclusion

This study has several limitations. First, qualitative data cannot be generalized to the wider population, although we present findings from our work with a group of diverse promotoras (some born in Mexico, Central and/or South America). Second, the views toward COVID-19 vaccines expressed here are not necessarily representative of the Latino community or promotoras working in other regions of the U.S. Third, the focus groups were conducted remotely due to the pandemic, which could have impacted participant engagement. Though participants were encouraged to engage with each other while in the virtual groups, this was not always possible due to connection issues (e.g., a participant got disconnected while responding to another participant) or the nuances of videoconferencing platforms (e.g., everyone speaking at the same time). The moderators tried to minimize such issues by asking everyone to check their internet connection before the session and reminding participants to use the “raise hand” function in Zoom. Lastly, participants' views and perceptions towards COVID-19 vaccines may have changed since the focus groups took place in February of 2021. Nevertheless, findings provide real-time insight into community experience, concerns, and barriers related to COVID-19 vaccines.

This study explored promotoras' perspectives on COVID-19 vaccines to help formulate recommendations and promote uptake of vaccination in Latino communities. The themes identified in the current study suggest misinformation (related to lack of trustworthy information, mistrust in the government, immigration status concerns, and conspiracy theories) and hesitancy (related to health concerns and eligibility confusion) are some of the key barriers to COVID-19 vaccination among Latino communities in Southern California. It's important to note that vaccine hesitancy in the context of the COVID-19 pandemic has been polarized, with the prevailing representation of pro-vaccine and anti-vaccine positions

when in fact vaccine attitudes lie on a continuum, from refusal to acceptance. Factors that influence vaccine hesitancy, conceptualized as the 3 C's model, include: (1) confidence, refers to a lack of trust in the safety and effectiveness of vaccines and the systems through which they are delivered; (2) complacency, refers to the perception that the risk of COVID-19 is low, or that the risk of vaccine side effects is higher than the risk of the disease, leading to the assumption that vaccines are not needed; and (3) convenience, refers to the degree of physical availability, affordability, geographical accessibility, and ability to understand (language and health literacy) (MacDonald, 2015). The term vaccine hesitancy may not accurately represent people's stance on vaccines as it underestimates access barriers experienced by some groups such as Latinos, the variability in stages of readiness (to get vaccinated), and the fluidity of people's point of views. A wide range of factors can persuade individuals to get vaccinated. For example, a recent report by the Kaiser Family Foundation indicated an uptake in vaccination among Hispanics adults due to the Delta variant and full FDA approval of the Pfizer vaccine (Hamel et al., 2021).

Our study deepens understanding of Latino communities' perceptions of COVID-19 vaccines and provides insight on how historical distrust in the U.S. federal government, educational barriers, and anti-immigrant policies have shaped their attitudes toward COVID-19 vaccines. Our findings provide a unique contribution to the literature by shedding light on the experiences of a diverse group of promotoras, who worked in different Latino communities during the COVID-19 pandemic. Given the large and heterogeneous Latino population of Southern California, it is imperative to have a better understanding of the societal conditions that lead to vaccination barriers.

As suggested by the promotoras, one way to improve access and engage the most vulnerable is to bring the COVID-19 vaccines to the community, to spaces that are familiar and accessible, such as schools, community clinics, and churches. Current and forthcoming COVID-19 vaccination efforts (e.g., booster shots, vaccinations for children) will need to build trust and confidence in Latino communities, especially among undocumented individuals. Strategies for vaccination uptake need to allay immigration concerns and prioritize community engagement in a manner that is culturally and linguistically sensitive to develop a sustainable infrastructure that will promote health equity and justice moving forward. Our research encourages working with trusted members of the community such as promotoras or others that are well-integrated into the community, to share their vaccination experience and dispel misinformation. Despite the many barriers discussed, promotoras felt very positive about the future and hopeful that vaccination uptake will increase, and their communities will go back to their new and healthy normal.

#### Author note

We have no known conflict of interest to disclose.

#### Funding source

The manuscript was partially supported by the National Cancer Institute of the National Institutes of Health (NCI; 1R01CA258222, Figueiredo/Salvy/Peterson; 1U54CA260591-01, Cheng/Figueiredo), and the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD; R01HD092483, de la Haye/Salvy). The funding agencies are not involved in the design, data collection, analysis, interpretation, or writing. The content is solely the responsibility of the authors and does not necessarily represent the official views of NCI or NICHD.

#### Ethics approval and consent to participate

The study protocol has been reviewed and approved by the Cedars-Sinai Medical Center Institutional Review Board.

#### Contributors' statements

Drs. Cáceres, Shirazipour and Salvy conceptualized and designed the study. Mr. Herrera and Dr. Cáceres led the focus groups and collected the data. Drs. Cáceres and Shirazipour analyzed the data. Dr. Cáceres drafted the initial manuscript with input from Dr. Shirazipour. All authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

#### Consent for publication

Not applicable.

#### Availability of data and material

The data that support the findings of this study are available on request from the corresponding author, (N.A.C.). The data are not publicly available due to privacy restrictions.

#### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

#### Acknowledgements

The authors wish to thank the promotoras who participated in the focus groups.

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