



Empowering communities during the COVID-19 pandemic: insights from trusted messengers about their work addressing COVID-19 vaccine hesitancy[☆]

Emily Stiehl^{a,*}, Miguel Negrete^b, Gisselle Flores^c, Lillian Federmeier^d, Sage Kim^a

^a Division of Health Policy and Administration, School of Public Health, University of Illinois Chicago, United States of America

^b Department of Kinesiology and Nutrition, University of Illinois, Chicago, United States of America

^c School of Public Health, University of Illinois Chicago and Metropolitan Family Services, United States of America

^d University of Illinois Chicago, United States of America

ARTICLE INFO

Keywords:

Trusted messengers
COVID-19 vaccine
Tactics
Trust

ABSTRACT

Community-based trusted messengers were vital actors, bridging the gap between public health recommendations and community member decisions about the COVID-19 vaccine, particularly in areas hardest hit by the pandemic. However, less is known about the tactics they use to do their work. This study reports results from five focus groups of outreach workers to understand: (1) their perceptions of vaccine confidence and hesitancy; (2) their specific tactics for rebuilding trust and delivering clear, consistent messages about the COVID-19 vaccine; and (3) the external environmental factors shaping their community's perceptions of the pandemic. Three key themes emerged around trusted messengers' perceptions of factors influencing vaccine uptake, their tactics in the community, and other environmental factors influencing vaccine decisions. We report these factors and practical suggestions for training and supporting trusted messengers.

1. Introduction

Research across various disciplines recognizes the critical influence of trust on health-related behaviors and intentions [1–3] and the role of community-based trusted messengers for enhancing public health outcomes [4,5]. In fact, many communities engaged trusted messengers in their COVID-19 outreach efforts to build trust, provide outreach and education, and facilitate access to vaccine services [6] and studies have documented that trusted messengers effectively counteracted misinformation and built vaccine confidence, particularly in communities with low trust in medical institutions [6–8]. However, the concept of “trusted messengers” is less well defined.

The COVID-19 pandemic disproportionately affected racial/ethnic minority groups across the United States, leading to elevated rates of unemployment, infection, hospitalization, and mortality in minority communities [9,10]. At the same time, vaccine uptake was significantly lower among Black and Hispanic individuals compared with White

individuals in 2021 [11], in part due to misinformation, distrust in institutions developing or delivering the vaccine [12], and concerns about vaccine safety [13,14]. The Chicago Department of Public Health (CDPH) partnered with community-based organizations (CBOs) to recruit, train, and support a COVID-19 Response Corps of community-based trusted messengers to address racial/ethnic disparities in vaccine uptake. These trusted messengers were selected from the communities they served.

Their work was not merely delivering information, rather, it involved addressing a complex landscape of vaccine hesitancy rooted in historical, cultural, and social factors and developing nuanced strategies to overcome specific barriers and concerns within Chicago communities [6,15]. During the COVID-19 pandemic, there were several attempts to articulate which practices or communication styles were most effective at increasing health knowledge and driving vaccine uptake. However, they encompass several occupational and social categories, including healthcare workers, public health professionals, pastors, barbers, and

[☆] This article is part of a supplement entitled ‘Building COVID-19 Vaccine Confidence and Demand Through Community-Engaged Approaches: Successes, Innovations, and Lessons Learned from CDC’s Prevention Research Centers (PRC) Vaccine Confidence Network’ supported by Centers for Disease Control and Prevention.

* Corresponding author.

E-mail address: estiehl@uic.edu (E. Stiehl).

<https://doi.org/10.1016/j.vaccine.2026.128559>

Received 1 October 2024; Received in revised form 10 January 2026; Accepted 1 April 2026

Available online 9 April 2026

0264-410X/© 2026 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

peer leader, and vary significantly in their roles and activities [16]. In general, trusted messengers may have influence because they are already perceived to be acting in their community's best interests [6], but it is not necessarily apparent what actually makes them trusted in their communities. Social capital represents the value, resources, and benefits that are available through social connections and is considered the “social fabric” of a community. It shapes how people interact, trust, and collaborate with others [17,18]. Strong social capital ties between community members are a source of trust [19]. One obvious source of trust may arise from trusted messengers' investments in social capital through interpersonal bonding activities, based on shared social ties and understanding, since trusted messengers come from the communities in which they serve [20,21]. Beyond individual-level bonding, however, trusted messengers play a crucial role in linking individuals, particularly those with few resources, to community organizations and government entities who can provide resources and accurate information [20]. Trusted messengers, thus, build the social capital of their communities [22,23]. Community social capital implies collective capacity to deal with issues affecting their communities [24]. Trusted messengers indeed activate community social capital at multiple levels, including individual bonding with others, linking between individuals and organizations, and further, bridging across different organizations [25], such as local health departments, universities, and CBOs.

This study documents the role of trusted messengers in COVID-19 vaccine outreach for building community social capital by bonding and linking community members and organizations to improve access to information and resources. More specifically, this study examines how trusted messengers dealt with vaccine hesitancy and employed specific tactics to build trust and deliver clear, consistent messages about the COVID-19 vaccine.

2. Methods

2.1. Participant recruitment

Our research team engaged in a vaccine outreach project in collaboration with 5 community-based organizations (CBOs) in Chicago: three served predominantly Hispanic communities, one served a predominantly Black community, and one served a predominantly Orthodox Jewish community. Four of the CBOs had been part of Chicago's COVID-19 Community Response Corps (Corps), meaning that they had each hired and trained 15 full-time equivalent members of their communities to carry out Chicago's city-wide vaccine outreach initiative. Outreach work was conducted in multiple languages. These outreach workers served as trusted messengers for the COVID-19 vaccine update initiative.

As part of this project, 1–2 outreach workers from each CBO received additional training to join the research team as citizen scientists. The citizen scientists participated in regular project meetings to inform research questions, recruitment tactics, and data collection tools. Some of the citizen scientists helped to co-lead focus groups and analyze the results.

Our study team implemented five focus group interviews, and 32 trusted messengers participated across five focus groups. Inclusion criteria included: being adults over 18 years of age who worked as members of the Corps. All focus group participants received \$40 as compensation for their time. This study protocol was approved by the University of Illinois Chicago Institutional Review Board (IRB#: 2021-0737).

2.2. Focus group procedure

Focus groups took place between March and November 2022 and each lasted about 1 h. Focus groups were conducted in English, either in-person or virtually and facilitated by a member of the research team, ensuring that discussions were accessible and cultural nuances were appropriately addressed. Focus group sessions were recorded and

transcribed via Zoom. A standardized moderator's guide, developed by the research team, was employed to direct the discussions and comprehensive exploration of various factors influencing attitudes toward vaccination within the five (3 Hispanic, 1 Black, and 1 Orthodox Jewish) communities. The moderator's guide underwent extensive review by the researchers and citizen scientists for clarity, appropriateness, and understandability before being used in the focus groups.

The focus group questions were designed to elicit detailed narratives about the trusted messengers' experiences, perceptions of community member hesitancy or confidence, and their views on the effectiveness of their outreach efforts. Questions asked why participants thought that community members received or were hesitant to receive a COVID-19 vaccine, challenges they had faced communicating about vaccines in their communities, their role as a trusted messenger, and stories about their outreach activities.

2.3. Data analysis

The research team, comprised of 3 academic researchers and 3 citizen scientists, analyzed the results of the outreach worker focus groups. Transcripts were imported into NVivo 12 software for systematic analysis. Following the principles of reflexive thematic analysis, following the six phases by Braun and Clark, we applied an inductive focus on participants' accounts. Codes and themes were constructed by the research team rather than assumed to fully “emerge” from the data. First, two investigators independently coded transcripts line-by-line and then met to discuss overarching ideas, to become familiar with the data. They then independently conducted line-by-line coding in NVivo for all transcripts, generating data-driven codes that captured both descriptive content and early interpretations.

After the initial coding of each transcript, the investigators met with the citizen scientists for structured debrief meetings. During each session, investigators shared code reports and illustrative quotations. The group then discussed how well the codes captured the trusted messengers' experiences, and what might be missing or over-represented. Citizen scientists suggested new codes, recommended collapsing or splitting existing codes, and added contextual details about their communities. Their input shaped the language and boundaries of codes and highlighted issues that might otherwise have been overlooked, increasing the validity of the findings. Following the coding and discussions, the research team developed an initial set of candidate themes by highlighting patterns and clustering related codes across the focus groups. These themes were reviewed and refined in consensus coding sessions, which were held virtually with two investigators and three citizen scientists. Through this iterative process, disagreements were discussed and resolved through group interpretation, rather than statistical agreement, and the team defined and named the final themes. To support the trustworthiness of the findings, we verified transcripts against the audio recording, kept an evolving codebook and analytic memo trail, and regularly compared coding summaries across focus groups.

3. Results

3.1. Theme 1: lived experience influenced how trusted messengers' perceived vaccine hesitancy and confidence in their community

Theme 1 describes trusted messengers' perceptions of vaccine hesitancy and confidence in their communities (Table 1). Since trusted messengers bridged between public health messaging and community perceptions, they described being attuned to multifaceted motivators and concerns (e.g., misinformation, lingering hesitancy, inconsistent messaging, and coercion) around vaccine uptake. Given their own lived experiences, they sometimes shared their community's sentiments.

Motivators. Community members (including the trusted messengers themselves) were motivated to get vaccinated by the significance of the COVID-19 pandemic, defining it as an historic public health event. The

Table 1

Theme 1: lived experience influenced how trusted messengers perceived vaccine hesitancy and confidence in their community.

Subthemes	Indicative quotes
Motivators to get Vaccinated: Positive drivers behind individuals' decisions to receive the COVID-19 vaccine.	<i>People used to feel like they were really participating in history, saving their families, protecting anyone who had a... vulnerability.</i>
Misinformation and Skepticism: Concerns arising from misinformation in online sources, stories lacking context, and skepticism about the government's motivation	<i>"He took the vaccine and went to sleep and he died!" "What he do before he went to sleep?" "He took a bunch of drugs." Maybe that had something to do with it?</i>
Side Effects: Concerns about potential short-term and long-term side effects of the COVID-19 vaccines	<i>I know somebody who was vaccinated who got really sick. So you know it's a new thing. I don't need to put it on my body if it makes me sick.</i>
Lingering Hesitancy: Lingering concerns that persist even after receiving an initial COVID-19 vaccine dose, resulting in unwillingness to get subsequent doses.	<i>I had bad side effects from from the first shot, like i'm not going to get another shot.</i>
Mistrust from Inconsistent Government Messaging: Mistrust in government and how it shaped public perceptions in the vaccines.	<i>We go from one extreme of 'You need these special masks' to four weeks later, we're telling people it takes two weeks incubation period so it's like there's no time for studying these trends when you're lifting and changing mandates and mask mandates repeatedly</i>
Coercion: Feelings of being pressured or mandated to vaccinate	<i>They feel like they're being coerced, especially the people who are set on not getting the vaccine and who do their own research.</i>

trusted messengers talked about how community members seemed motivated by a desire to protect others and return to normal. The trusted messengers themselves cited this desire as a reason for joining the Corps in the first place.

People used to feel like they were really participating in history, saving their families, protecting anyone who had a...vulnerability.

Trusted messengers sometimes talked about how community members (and they themselves) had been motivated to get the vaccine by family members who had been sick with COVID-19. The vaccine offered protection from the disease and was also seen as necessary for getting life back to normal. "...If you wanted to take a plane, or if you wanted to go somewhere, you had to have proof of vaccination."

Misinformation. As with other studies on vaccine hesitancy, trusted messengers indicated that community members were concerned about the safety of the vaccine, side effects, and the vaccine's long-term impacts. Misinformation, skepticism, and conspiracy theories that spread through online videos and among community members increased vaccine hesitancy. Trusted messengers' efforts were often derailed by alarming stories shared out of context, which failed to include extenuating circumstances or alternative explanations for negative outcomes. For example:

'[I know someone...]He took the vaccine and went to sleep and he died!' 'What he do before he went to sleep?' 'He took a bunch of drugs.' Maybe that had something to do with it?

The misinformation conversation was extremely challenging. It was like, you got one myth out of the way and then a new one popped up...so, the fertility one was a big one. That was one that I think we're not done pounding away at.

Side Effects. Trusted messengers themselves were not immune from doubts about the vaccine. They experienced similar concerns, which informed (or complicated) their outreach work. One trusted messenger candidly shared their personal apprehension about the vaccine.

I did not know exactly what was going to transpire... so I went on ahead and got [the vaccine], and I tell you I went home and I'm kissing my kids at night. Gave him a hug and, 'You be smooth.' 'Hey, check on me and three-hour wake-up because if I ain't up...', so I know the paranoia, and when it was really just paranoia, I was checking for fever every 10 min. Hey, I feel sick...no. I figured out. Nothing happened to me.

Others noted that they (or someone they knew) had unpleasant side effects, which increased vaccine hesitancy:

I know somebody who was vaccinated who got really sick. So you know it's a new thing. I don't need to put it on my body if it makes me sick. I don't want to take time off work. It's inconvenient, you know.

Lingering hesitancy. A few trusted messengers witnessed (and experienced) lingering concerns about the vaccine, even after receiving an initial dose. They described how misinformation or unexpected side effects prevented people from receiving subsequent doses.

They might get the first two, and then they might have a conspiracy about having a booster now.

Mistrust from inconsistent messaging. Inconsistent or unclear government messaging increased confusion and mistrust in communities, especially in light of misinformation. It also made it hard for trusted messengers to do their work. "The consistent changing is something that causes confusion." There was sometimes so much information from so many sources, that trusted messengers struggled with how to share current recommendations.

I think CDC continues to fail to recognize immunity from having had COVID-19—natural immunity. It's not really a factor in their recommendations about what, when, and how often to vaccinate.

In the digital age, community members could see how messages changed over time, enhancing feelings of distrust.

...You see people [say] two doses and you're 100% protected. And then they'll bring up more recent interviews..."well okay it's not 100%, the third dose will give you 100%." Living in the digital age, this stuff can't just be forgotten...that brings some distrust

The trusted messengers suggested that community members were so bombarded by information that later in the pandemic, they became burnt out and stopped talking about COVID-19 much at all.

Coercion. Finally, trusted messengers noted that community concerns about being coerced or pressured to vaccinate significantly impacted their vaccination decisions:

They feel like they're being coerced, especially the people who are set on not getting the vaccine and who do their own research.

Work-related vaccine mandates left even trusted messengers feeling like they had no choice about whether to take the vaccine:

You can't come in here if you're not vaccinated. You can't work here anymore if you're not vaccinated

3.2. Theme 2: trusted messengers linked community members with accurate information

Theme 2 highlights several tactics the trusted messengers described to help community members make informed decisions about the COVID-19 vaccine (see Table 2). These included building trust, enhancing community engagement, and addressing misinformation.

Building Trust. Trusted messengers built trust by empathizing with community concerns, addressing their needs, and creating non-judgmental, supportive environments for discussing vaccine decisions: "I would try to relate to some of their fears, if I could." Trusted messengers themselves were not always completely convinced about the benefit of the vaccine, but they could use their experiences to address others'

Table 2

Theme: trusted messengers linked community members with accurate information.

Subthemes	Indicative quotes
Building Trust: empathizing with community concerns, addressing their needs, and developing non-judgmental support	<i>I would try to relate some of their fears, if I could.</i> <i>Nothing happened to me, though, so when I tell that story it loosens a lot of people up and makes them more acclimated to it [We need] to be able to put our own perspective into them too, because these people do have these instincts for [no] reason, so they make these decisions for a reason, but it's good that we're able to embrace those reasons. We're able to allow them to have those reasons as well.</i>
Accepting Different View: balancing different views related to the vaccine.	<i>People are seeing these resources in the community and they're starting to say "Hey, this is good for us" or "Hey, this is something that we could be using more of [in] our community."</i>
Community Engagement: Providing community events/activities to improve vaccine accessibility.	<i>What's the impact of the vaccine on fertility. Some of the misconceptions that were arising people have asked me to point them in directions of reputable sources</i>
Reframing and Recalibrating Accurate Information: Tactics trusted messengers used to address misinformation related to the vaccine.	

concerns.

Nothing happened to me, though, so when I tell that story it loosens a lot of people up and makes them more [accepting of the vaccine]

Their own experiences and concerns increased their empathy with community members who were vaccine hesitant:

Community service requires more than just being able to tell somebody what's good for them. It's actually assessing and being able to figure out what they need in the first place...it's that initial conversation or that initial connection to somebody that spreads information, that spreads the positivity.

So you kind of just step back and be like "Okay, that's your opinion and I respect it."

The delicate balance of respecting personal opinions through non-judgmental interactions while advocating for public health measures was a recurring theme. Challenging community members' beliefs too strongly might preclude trusted messengers from providing access to accurate information in the future, but trusted messengers still wanted to be able to present their perspective:

[We need] to be able to put our own perspective into them too, because these people do have these instincts for a reason, so they make these decisions for a reason, but it's good that we're able to embrace those reasons.

Trusted messengers tried to empathize with others around their emotional concerns and to provide accurate information and resources to address community members' needs.

Community Engagement. Trusted messengers fostered community engagement by increasing their visibility in the community and providing culturally competent recommendations for the vaccines.

We would go up and down the community. We would talk with people that I know in the community and that I know had questions about COVID-19 and just kind of answer their questions.

I seen it happen like when we first went out there, there was like no one was opening their doors, but once they knew us with the vest and then we were a little bit more going back again, I think that kind of helped us out a lot

They produced videos, seminars, and events with community leaders

and accurate information.

We had this idea about doing the webinar on understanding vaccine hesitancy...I think what actually worked most was...a very long video... Tons of community leaders... talking about the importance of wearing a mask, and it seemed to have a big impact.

They would also work to connect community members with resources to address their needs beyond COVID-19.

People are seeing these resources in the community and they're starting to say "Hey, this is good for us."

Trusted messengers noted that while their role was to engage all community members, they felt that their role was especially necessary for vulnerable groups, such as senior citizens with limited internet access.

Reframing and recalibrating accurate information. Trusted messengers worked hard to stay informed about COVID-19 by reviewing accurate sources of information. Two tactics they used to address misinformation included reframing specific concerns and recalibrating accurate information. Reframing involved transforming the meaning people associated with perceived or observed phenomena [26]. For instance, one participant reframed the concern that the vaccine had been developed too rapidly to instead emphasize the potential economic returns to vaccine developers:

To me, I thought about it like this. This is a global pandemic...You have every scientist in the world trying to get famous ...Every major company with billions of dollars trying to figure this out at the same time. It's a race ...I know one thing. People take money, companies take smart people, care more about money than they care about human life. Therefore, if saving human lives is gonna make them some money, they gonna do it.

This participant also reframed concerns that government officials were using the vaccine to harm neighborhood residents, emphasizing the high vaccine demand among individuals from other parts of the city.

They don't come out [to our neighborhood], they don't shop here, they don't come out here to see nothin', there's nothing to see here for them, but they were wrapped around the hospital to get that vaccine

Recalibrating involved emphasizing accurate information that was most important to specific communities. For instance, trusted messengers in a community that values large families provided information to directly address concerns and misconceptions about fertility. Trusted messengers also recalibrated expectations about the COVID-19 vaccine's role in preventing severe outcomes.

...The vaccine was never to stop people from catching it. It was to stop people from dying, and that's how I changed it. For I was like, see, that's why you're hesitant, because you're at it for the wrong reason. The purpose of this is to stop you from dying if you do catch COVID.

3.3. Theme 3: trusted messengers identified environmental factors that impacted community members

Theme 3 included environmental factors, such as economic considerations, social networks, and embedded structures, that influenced people's ability and willingness to get vaccinated (Table 3). Although trusted messengers were employed, they understood (and often experienced) the environmental challenges facing their communities during the pandemic. Economic instability was a serious consideration for essential workers who feared losing income due to side effects:

Concern about losing hours from just having a side effect of the vaccine is like a huge one that I feel like can affect some of our folks who have unstable living situations or living circumstances.

If you're lower income, where you can't really access [healthcare] if there's something that interferes with your comorbidity, then you don't

Table 3
Theme 3: trusted messengers identified environmental factors that impacted community members.

Subthemes	Indicative quotes
Economic Factors: Economic conditions, such as employment status, income levels, and economic instability, influenced the experiences and decisions of community members during the pandemic.	<i>Concern about losing hours from just having a side effect of the vaccine is like huge—one that I feel like can affect some of our folks who are essential workers and have unstable living situations or living circumstances</i>
Food Insecurity: Food insecurity can divert attention and resources away from health priorities like vaccination	<i>the prices are so stupid high you still almost can't afford the food [that] is bad</i>
Incentives: The tickets or monetary compensation people received to take the vaccines	<i>The incentives and I think, you know, that helped a lot.</i>
Social Relationships: The influence of social circles, such as family, friends, and community leaders	<i>Communally, it's that when you have a large amount of children and you have this level of interconnectedness, you really are fundamentally reliant on other people to help you get through your day</i>
Embedded Structures: The impact of structural racism and historical mistrust in government or healthcare.	<i>I mean there's long-standing distrust between the health community and people of color or low-income communities, because of disproportionate healthcare, access to health care and all types of misinformation that's been used throughout</i>

really know if you can afford that service, so you just rather avoid it altogether

Food insecurity also emerged as a critical issue, diverting attention and resources away from vaccination as immediate survival needs took precedence. “Once we were into the virus, there was a lot of food insecurity.” “The prices are so stupid high you still almost can't afford the food [that] is bad.” These statements reflect the economic pressures that hindered individuals from prioritizing health.

In contrast, more resources made it easier for people to recover from the vaccine.

I have access to a comfortable living situation where I can have a space to go to be sick after getting the vaccine.

Some trusted messengers noted that vaccine incentives drew people in, in part due to financial concerns. However, in one focus group, trusted messengers suggested that people might have taken additional doses to get multiple incentives.

I don't understand how they were doing it, they were double taking the shots. You know, when we offer the \$50 incentive, they were getting the shots like multiple times

Social Relationships. In addition to economic concerns, social relationships played a crucial role in shaping vaccine decisions, with the influence of family, friends, and community leaders either encouraging or discouraging vaccine uptake.

Everybody's moving with more caution; everybody's kids move around differently, it has changed the way of life for every community in a different way.

When people had passed and everything they're like “Oh, we need to get the vaccine now, because we understand the consequences.”

Sometimes, going against the community (either by receiving or not receiving the vaccine) could isolate members from social resources, including childcare or social support.

Communally, it's that when you have a large amount of children and you have this level of interconnectedness, you really are fundamentally reliant on other people to help you get through your day

In other cases, trusted messengers reported that the shared pandemic experience had a beneficial effect on social networks:

COVID impacted my community...now, people are, instead of being self [ish], they like, “Oh, let me go check-in on this neighbor next door, let me do this” so it's more of a bittersweet because now more people have more compassion.

Embedded structures. Finally, as reported in previous literature, some trusted messengers noted the impact of structural racism and historical injustices that impacted community members.

I mean there's long-standing distrust between the health community and people of color or low-income communities, because of disproportionate healthcare, access to health care and all types of misinformation that's been used throughout...so I mean of course there's going to be distrust and that carries over through generations

There was also general distrust in governmental entities, leading some trusted messengers to provide accurate information, without citing government sources.

A lot of the misconception work that I was doing was focusing heavily on the same guidance CDC was giving, but...we were working very hard not to mention CDC...we don't say that anywhere, because we feel like we would lose credibility with the audience.

4. Discussion

Understanding the experiences of community-based trusted messengers provides critical insights into the dynamics of vaccine outreach. Our research contributes to the growing literature about how trusted messengers conceptualized and performed their work in multiple US cities. Our results are very similar to those reported in [27], noting that trusted messengers employed similar “best approaches” and encountered similar challenges. At the same time, we find that much of the work that trusted messengers performed involved building community social capital. The trusted messengers described capabilities around: bonding by recognizing and anticipating community members' needs; linking by connecting employees with information and resources to build trust, foster community engagement and address misinformation; and bridging by identifying and addressing systemic economic, social, and structural concerns [16].

4.1. Bonding

Trusted messengers sometimes experienced dissonance between their roles as public health messengers and as community members. They kept up-to-date with accurate information about the COVID-19 vaccine, but sympathized with community concerns about the safety of the vaccine, inconsistent messaging, or coercive tactics for gaining compliance. They provided space for doubt and validated people who were unsure exactly what to do, noting that vaccine decisions were complex and based in-part on historical injustices, systemic racism, and general distrust. They were also aware that some community concerns persisted, even after members received an initial dose of the COVID-19 vaccine (lingering hesitancy). This allowed them to empathize with hesitant community members to effectively counteract misinformation and communicate complex scientific information in a relatable manner [6]. As Shen and colleagues (2023) found, trusted messengers built trust by promoting autonomy and dialogue and addressing specific concerns in non-judgmental ways.

4.2. Linking

In addition to building social capital through strong interpersonal relationships, trusted messengers fostered community engagement by increasing their visibility and linking community members with

accurate information and accessible resources. They conducted door-to-door outreach about the vaccine and advised CDPH on trusted locations to place vaccination sites, including local school parking lots where community members could get vaccinated as they waited for their children to get out of school.

Trusted messengers utilized techniques to reframe or recalibrate accurate information, to link it directly to community concerns. They studied evolving public health guidelines to provide timely and accurate responses to community inquiries. When it was unclear what information to trust, trusted messengers highlighted the self-serving motives of known entities, reframing concerns about the speed of vaccine production to focus on corporate greed, and concerns about safety to highlight the visible demand for the vaccine. Trusted messengers also recalibrated expectations about the vaccine around its primary role to mitigate severe COVID-19 outcomes rather than to prevent infection entirely. Their ability to adapt and tailor their messages in response to community members' concerns (e.g., about COVID-19 specifically and the dynamic and iterative nature of scientific understanding more generally) was crucial.

4.3. Bridging

Trusted messengers had to navigate additional layers of system-level complexity to improve vaccine uptake. Economic and social factors played significant roles in shaping vaccine-related decisions [28]. Previous research highlighted how these factors were present before COVID-19, but persisted or were exacerbated by it [6]. Trusted messengers helped to bridge community-based organizations, including public health agencies and social service providers to connect community members with resources to address underlying socio-economic conditions (e.g., food, shelter, safety, childcare), so that they could prioritize the vaccine.

Trusted messengers also engaged community leaders and influencers as secondary channels of credible information, thereby amplifying the reach and acceptance of health messages [6]. In bridging community resources to address environmental factors, trusted messengers not only promoted vaccine uptake but also contributed to building resilient communities equipped to handle current and future public health challenges. Future initiatives would benefit from integrating trusted messengers into larger conversations to fix system-level problems, sharing decision-making power [29].

4.4. Practical implications

This study not only contributes to the academic literature on public health communication and community engagement but also offers practical recommendations for policymakers and practitioners developing vaccine outreach strategies for diverse communities. Trusted messengers are vital partners in public health outreach. They understand the needs of their communities and can empathize with their concerns. They are also good at advocating for community-level solutions for concerns beyond COVID-19. Selecting trusted messengers who share a common background, culture, or language with the communities they serve could significantly enhance the effectiveness of outreach, by increasing social capital bonding. These messengers are equipped to understand specific cultural, historical, and socio-economic factors that shape health behaviors in underserved communities. Their shared experiences foster deeper trust and allow for more targeted, empathetic, and effective communication. This culturally aligned approach is essential in ensuring that public health outreach is both inclusive and adaptable to diverse populations.

However, cuts to community-based public health infrastructure threaten the scaffolds for training and support to foster trusted messengers' engagement in bonding, linking, or bridging activities. Without appropriate funding, it may be necessary to consider creative models for embedding these supports in coordinating entities with the resources to

sustain them. Peer support structures (e.g., communities of practice or shared online platforms) can foster bridging by allowing trusted messengers across CBOs to ask each other questions and share resources and best practices. As public health agencies face budget cuts, community-based organizations may need to work with trusted messengers to collect their own data and tailor accurate information toward specific community concerns. Finally, most of the trusted messengers in our study were connected with other resources (e.g., social service agencies, job development organizations) for addressing the non-vaccine needs of their communities. As public health loses funding, other organizations, including healthcare systems or employers, may need to foster a supportive safety net infrastructure to address their constituents' concerns (e.g., physiological, economic, social) that would otherwise take priority to impede vaccine uptake.

4.5. Limitations

While our study provides some interesting results, it has some limitations. We recruited outreach workers from CBOs that had agreed to partner with us in this research. While the focus groups represented a variety of perspectives, it may not be representative of all trusted messengers, including those who are not necessarily employed in the community. At the same time, the outreach workers provided valuable insight about their experience in the Corps, especially as it transitioned from vaccine uptake to chronic disease education.

5. Conclusion

In conclusion, our findings highlight the novel role of community-based trusted messengers in actively fostering trust by building social capital in their communities. Trusted messengers are not just amplifiers of public health messages, but invest effort in building a sense of community, providing tailored, nuanced information, and helping community members with needs that extend beyond their initial purview. By understanding and addressing the multi-layered factors influencing vaccine hesitancy, including deep-rooted economic and social challenges, trusted messengers can promote health behaviors and facilitate community resilience. Future research should work to disentangle how trusted messengers build trust. Interventions should focus on empowering and supporting these key individuals with updated information and resources to navigate the complex landscape of public health communication.

CRedit authorship contribution statement

Emily Stiehl: Writing – review & editing, Writing – original draft, Validation, Investigation, Funding acquisition, Data curation, Conceptualization. **Miguel Negrete:** Writing – review & editing, Writing – original draft, Validation, Methodology, Investigation, Formal analysis. **Gisselle Flores:** Writing – review & editing, Validation, Investigation, Formal analysis, Data curation. **Lillian Federmeier:** Writing – review & editing, Validation, Formal analysis. **Sage Kim:** Writing – review & editing, Supervision, Funding acquisition, Conceptualization.

Funding statement

This publication reflects PRC work supported by the Centers for Disease Control and Prevention of the US Department of Health and Human Services (HHS) (U48DP006392) as part of a financial assistance award totaling \$500,000 with 100% percent funded by CDC/HHS. The contents are those of the author(s) and do not necessarily represent the official views of, nor an endorsement by, CDC/HHS, or the US Government.

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 would like to thank the contribution of CDC partners in the Vaccine Confidence Network and the citizen scientists and trusted messengers who collaborated with us on this project. They would also like to thank the communities, health care and community-based organizations, and local health departments who partnered with them on these projects.

Data availability

Data will be made available on request.

References

- [1] Chen N-TN. Developing and testing a heuristic-systematic model of health decision making: The role of affect, trust, confidence and media influence. University of Southern California; 2013.
- [2] Gilfoyle M. Defining, measuring and influencing trust in participatory health research partnerships. University of Limerick; 2023.
- [3] Goncalves Garcia Galhardo Burnett T. Trust in public health within black African and Caribbean communities: grounded theory as applied to the COVID-19 vaccine uptake. University of East London; 2023.
- [4] Rångård M, et al. 'No one size fits all'—community trust-building as a strategy to reduce COVID-19-related health disparities. *BMC Public Health* 2023;23(1):18.
- [5] Wallerstein N, Duran B. Community-based participatory research contributions to intervention research: the intersection of science and practice to improve health equity. *Am J Public Health* 2010;100(S1):S40–6.
- [6] Shen AK, et al. Trusted messengers and trusted messages: the role for community-based organizations in promoting COVID-19 and routine immunizations. *Vaccine* 2023;41(12):1994–2002.
- [7] Larson HJ, et al. Addressing the vaccine confidence gap. *The Lancet* 2011;378(9790):526–35.
- [8] Mbaeyi S, Cohn A, Messonnier N. A call to action: strengthening vaccine confidence in the United States. *Pediatrics* 2020;145(6).
- [9] Acosta AM, et al. Racial and ethnic disparities in rates of COVID-19-associated hospitalization, intensive care unit admission, and in-hospital death in the United States from March 2020 to February 2021. *JAMA Netw Open* 2021;4(10):e2130479.
- [10] Tai DBG, et al. Disproportionate impact of covid-19 on racial and ethnic minority groups in the United States: a 2021 update. *J Racial Ethn Health Disparities* 2022;9(6):2334–9.
- [11] Abba-Aji M, et al. Ethnic/racial minorities' and migrants' access to COVID-19 vaccines: a systematic review of barriers and facilitators. *J Migr Health* 2022;5:100086.
- [12] Lazarus JV, et al. Influence of COVID-19 on trust in routine immunization, health information sources and pandemic preparedness in 23 countries in 2023. *Nat Med* 2024;30(6):1559–63.
- [13] Biswas MR, et al. A scoping review to find out worldwide COVID-19 vaccine hesitancy and its underlying determinants. *Vaccines* 2021;9(11):1243.
- [14] Turhan Z, Dilcen HY, Dolu İ. The mediating role of health literacy on the relationship between health care system distrust and vaccine hesitancy during COVID-19 pandemic. *Curr Psychol* 2022;41(11):8147–56.
- [15] Martin MA, et al. Delivering COVID-19 vaccine via trusted social services: program evaluation results from the Chicagoland CEAL program. *J Community Health* 2024;49(1):61–9.
- [16] Stiehl E, et al. A multilevel model of care flow:Examining the generation and spread of care in organizations. *Organ Psychol Rev* 2018;8(1):31–69.
- [17] Coleman JS. Social capital in the creation of human capital. *Am J Sociol* 1988;94:S95–120.
- [18] Putnam R. The prosperous community: social capital and public life. *Front Issues Econ Thought* 1997;3:211–2.
- [19] Granovetter M. Economic action and social structure: the problem of embeddedness. *Am J Sociol* 1985;91(3):481–510.
- [20] Oronce CI, Tsugawa Y. Bonding and linking social capital are key determinants for successful pandemic policy. *Soc Sci Med* 2021;287:114376.
- [21] Tunçgenç B, van Mulukom V, Newson M. Social bonds are related to health behaviors and positive well-being globally. *Sci Adv* 2023;9(2):eadd3715.
- [22] Lin N. Social capital: a theory of social structure and action. 2001.
- [23] Putnam RD. Bowling alone: America's declining social capital. In: Crothers L, Lockhart C, editors. *Culture and politics: A reader*. New York: Palgrave Macmillan US; 2000. p. 223–34.
- [24] Chilenski SM, et al. Understanding community- and system-capacity change over time: a close look at changing social capital in Evidence 2 Success communities. *J Community Psychol* 2023;51(7):2989–3011.
- [25] Poortinga W. Community resilience and health: the role of bonding, bridging, and linking aspects of social capital. *Health Place* 2012;18(2):286–95.
- [26] Ashforth BE, Kreiner GE. "How Can You Do It?": dirty work and the challenge of constructing a positive identity. *Acad Manage Rev* 1999;24(3):413–34.
- [27] Badlis S, et al. Engaging trusted messengers to increase COVID-19 pediatric vaccine uptake in Philadelphia: lessons from the VaxUpPhillyFamilies program. *Vaccine* 2024;42(22):126040.
- [28] Sangster AV, Barratt JM. Towards ending immunization inequity. *Vaccines (Basel)* 2021;9(12).
- [29] Smithwick J, et al. "Community health workers bring value and deserve to be valued too:" key considerations in improving CHW career advancement opportunities. *Front Public Health* 2023;11:1036481.