ABSTRACT

Context: Understanding COVID-19 vaccine acceptability among people experiencing homelessness is critical to improve vaccine coverage during the COVID-19 pandemic. Little is known about COVID-19 vaccine acceptability people experiencing unsheltered homelessness (PEUH).

Objective: To identify and describe motivators for receiving a COVID-19 vaccine and reasons for hesitancy, information sources utilized and trusted for vaccine decision making, logistical barriers to receiving vaccination, and what might increase comfortability to receive a COVID-19 vaccination among PEUH.

Design: Cross-sectional survey design, implemented from March to June 2021.

Setting: Two US cities: Las Vegas and Nevada (urban), and Orlando, Florida (suburban).

Participants: People experiencing predominantly unsheltered homelessness accessing handwashing stations and other wrap-around social services at program sites managed by Clean the World Foundation.

Main Outcome Measures: The main outcome measures assessed included survey responses about current vaccine receipt (if participants have already received one or more doses of a COVID-19 vaccine), intention to receive a COVID-19 vaccine if not already received, motivators for receiving or wanting to receive a vaccine, reasons for hesitancy or uncertainty about receiving a vaccine, sources of information regarding COVID-19 vaccines, and actual or anticipated logistical barriers or challenges to receiving COVID-19 vaccines.

Results: Among 864 participants, 465 (53.8%) were classified as “vaccine accepting,” and 399 were classified “vaccine hesitant or undecided.” The primary motivator to be vaccinated was to protect their health (212, 45.6%). Hesitant or undecided participants reported that vaccines were too new (269, 67.4%) or they needed more information (223, 55.9%) and were more likely to receive information from social media than accepting participants (80.0% vs 58.3%, \( P < .001 \)). Logistical barriers to vaccination included distance to vaccination locations (85, 21.3%), lack of transportation (79, 19.8%), and limited time (64, 16%).

Conclusions: Vaccination efforts to reach PEUH should consider how information and logistical needs may be addressed.

KEY WORDS: COVID-19 vaccines, health equity, homeless persons, vaccination hesitancy
In the United States, 39% of the 580,466 people experiencing homelessness (PEH) on any given night in 2020 were unsheltered, meaning they slept outdoors, in a car, or other place not meant for human habitation.1,2 The risks for COVID-19 in congregate homeless shelters have been well documented, but less is known about the risks for COVID-19 faced by people experiencing unsheltered homelessness (PEUH).3,4 One study found that PEUH had lower point prevalence of SARS-CoV-2 infection compared with people experiencing sheltered homelessness.5 However, PEUH may still access temporary services at shelters or other congregate service sites, making protection against COVID-19 critical for all PEH.6,7

Vaccines provide effective protection from severe disease and death due to COVID-19.8 There is limited information about COVID-19 vaccine acceptability among PEH in the United States. Surveys on COVID-19 vaccine acceptability and intention among PEH in homeless shelters in Detroit, Michigan, in February 2021 suggested that PEH were willing to get COVID-19 vaccines if they can have their questions answered and concerns about side effects and long-term effects addressed.9 However, vaccine acceptability and intent among PEUH are not known, and vaccine coverage among PEH is estimated to be significantly lower than in the general population.10

This article aims to identify and describe motivators for receiving a COVID-19 vaccine and reasons for hesitancy, information sources utilized and trusted for vaccine decision making, logistical barriers to receiving vaccination, and what might increase comfortability to receive a COVID-19 vaccination among people primarily experiencing unsheltered homelessness in Central Florida and Southern Nevada.

Methods

Setting

In 2020, the US Housing and Urban Development’s (HUD) Point in Time (PIT) Count determined that on any given night, there were 2007 PEH (sheltered and unsheltered) in largely suburban Central Florida and 5283 PEH in urban Southern Nevada.1 In both locations, the populations were predominantly male (71% in Central Florida and 62% in Southern Nevada), aged 25 years and older (73% in Central Florida and 87% in Southern Nevada), and identified as non-Hispanic ethnicity (83% in Central Florida and 86% in Southern Nevada). In Central Florida, 41% of PEH were White and 52% were Black or African American, while in Southern Nevada, 59% of PEH were White and 32% were Black or African American.1

From October 2020 through June 2021 Clean the World Foundation set up handwashing stations and porta-potties (portable toilets) for PEUH in Central Florida and Southern Nevada. The project was funded by the Truist Charitable Fund via a grant to the National Foundation for the Centers for Disease Control and Prevention (CDC Foundation) and was supported with technical assistance from CDC. Stations were strategically placed near other social service providers, such as shelters, syringe service programs, and free or low-cost health clinics, as well as near large, known encampments of unsheltered PEH. Clean the World Foundation shared that the primary population using these stations was PEUH (Clean the World Foundation, CDC Foundation, and CDC, oral communication, 2021). Pop-up events, temporary events with opportunities to receive vaccination, were held on-site at the handwashing stations and by other social service agencies and organizations in both communities periodically throughout the duration of the project.

Data collection

From March to June 2021 Clean the World Foundation, staff conducted a survey to capture information about COVID-19 vaccine acceptability and intention to receive a vaccination (see Supplemental Digital Content, available at http://links.lww.com/JPHMP/B40). A convenience sample of PEH 18 years of age and older utilizing handwashing stations and porta-potties was invited to participate in verbal surveys. Staff first completed a standard survey on utilization of the handwashing stations and porta-potties, after which the staff asked whether the participant would be willing to answer additional questions about COVID-19 vaccines. The questionnaire was adapted from a survey tool used in Detroit, Michigan.9 Verbal consent was obtained after interviewers read a script outlining the purpose and use of the data. Although respondent demographics were captured in the station utilization survey, they were not linked to individual vaccine survey responses.

Data analysis

Participants who had either received at least 1 dose or had not yet received but planned to receive a COVID-19 vaccine were categorized as “vaccine accepting.” Those who had not received a COVID-19 vaccine and did not plan on receiving, or were unsure about receiving one, were categorized as “vaccine hesitant or undecided.”

Independent variables included self-reported health-related characteristics of participants, such
as the presence of chronic health conditions, previous diagnosis of COVID-19 and level of care received, and perceived risk of contracting the disease. Other independent variables were factors that motivated or would motivate a respondent to get vaccinated (such as protecting one’s health or the health of family and friends), concerns about COVID-19 vaccines, sources of COVID-19 vaccine information, perceived or actual logistical barriers to vaccination for all participants, and type of setting where COVID-19 vaccinations were received among those vaccinated.

Descriptive statistics, including frequencies and percentages, were used to analyze the health-related characteristics and vaccine-related perceptions of participants. For this exploratory analysis, comparisons of categorical variables between the accepting and the hesitant and undecided groups were performed using Fisher exact test because of expected cell sizes below 5 (after confirming assumptions were met). All statistical analyses were carried out using R (Version 4.1.2, R Core Team, 2021), and statistical significance was assessed at $\alpha = .05$.

Ethical considerations

This activity was reviewed by CDC and was conducted consistent with applicable CDC policy.$^*$

Results

A total of 893 unique responses from PEH were recorded for this survey: 481 were from Central Florida and 412 from Southern Nevada. Twenty-nine participants with missing data for vaccination status and intent were excluded, resulting in an analytic sample of 864 PEH. No statistically significant differences in the outcomes or number of participants were identified between the 2 locations or over the 4 months of the survey administration using $\chi^2$ tests and after assessing for heterogeneity, determined that responses from both locations for all months could be combined into 1 data set. Of the 864 total participants, 240 (27.8%) had received at least 1 dose of a COVID-19 vaccine. Of the remaining 624 participants, 605 (70.0%) had not received a vaccine, 18 (2.9%) were not sure whether they received a vaccine, 1 person (0.1%) refused to answer his or her vaccination status. Two hundred twenty-five of the 624 participants (36.1%) were planning on receiving a vaccine, 220 (35.3%) were not planning on receiving the vaccine, and 179 (28.7%) were unsure (Table 1). As a result, 465 (53.8%) were characterized as vaccine accepting ($\geq$ already received at least 1 dose, or planned to receive a vaccine), and 399 (not planning on receiving a vaccine or were unsure) (46.2%) were characterized as vaccine hesitant or undecided.

Just more than half (246; 52.9%) of vaccine-accepting participants reported an underlying medical condition, whereas less than half (169; 42.4%, $P < .001$) of vaccine-hesitant or undecided participants reported an underlying condition. When asked

| TABLE 1 | Receipt and Intent to Receive a COVID-19 Vaccine Among People Experiencing Homelessness in Central Florida and Southern Nevada, March 2021 to June 2021 |
|---------|---------------------------------------------------------------------------------------------------------------------------|
| All Participants, n (%) | Have you received a COVID-19 vaccine? (n = 864)                                                                                     |
| | Yes, I have received a COVID-19 vaccine | 240 (27.8) |
| | No, I have not received a COVID-19 vaccine | 605 (70.0) |
| | Not sure whether I have received a COVID-19 vaccine | 18 (2.1) |
| | Refused to answer$^b$ | 1 (0.1) |
| If Yes, did you or will you receive all doses? (n = 240)$^c$ | Yes, received all required doses | 92 (38.3) |
| | Yes, plan to receive all required doses | 120 (50.0) |
| | No, don’t plan to receive all required doses | 15 (6.3) |
| | Not applicable, received single-dose series | 13 (5.4) |
| If No, if a COVID-19 vaccine were available to you, would you get it? (n = 624)$^d$ | Yes, would get it as soon as possible | 94 (15.1) |
| | Yes, but plan to wait to get it | 131 (21.0) |
| | Not sure | 179 (28.7) |
| | No | 220 (35.3) |
| If Yes, where did you receive your most recent dose of the COVID vaccine?$^e$ | Vaccination event/pop-up site | 82 (34.2) |
| | Mobile clinic | 60 (25.0) |
| | Pharmacy | 47 (19.8) |
| | Health clinic | 35 (14.6) |
| | Shelter/service provider | 10 (4.2) |
| | Other | 6 (2.5) |

$^a$Percentages may not add up to 100 due to rounding.

$^b$Participants unsure whether they have received a vaccine, and the participants who refused to answer were both included in the “No” group for branching logic of the survey, since there was a possibility that these individuals had not yet received any doses of a COVID-19 vaccine.

$^c$Denominator is those who had received any dose of a COVID-19 vaccine (n = 240).

$^d$Denominator is those who had not yet received any dose of a COVID-19 vaccine, were unsure whether they received any doses, or whether they refused to answer about vaccine receipt (n = 624).

$^e$Denominator is those that had received at least 1 dose of a vaccine (n = 240).

$^*$See, for example, 45 CFR part 46; 21 CFR part 56; 42 USC §241(d), 5 USC §552a, 44 USC §3501 et seq.
about the level of concern about COVID-19, those who were hesitant or undecided were more likely to respond as “not at all concerned about COVID-19” than vaccine-accepting participants ($P < .001$). The vaccine-hesitant or undecided group was also more likely to report not having had a previous COVID-19 illness or being unsure whether they had COVID-19 illness, compared with vaccine-accepting participants (68.4% vs 58.7%; $P < .001$) (Table 2).

The most common motivator for being vaccinated among the vaccine-accepting group was to protect their own health (212; 45.6%), followed by protecting the health of family or friends (97; 20.9%). When asked what might motivate vaccine-hesitant or undecided participants to receive a vaccine, 100 participants (25.1%) would be motivated to protect their own health, followed by the desire to resume social activities or travel (82; 20.6%). Among vaccine hesitant or undecided participants, there were concerns about the vaccines being new (269; 67.4%), needing more information (223; 55.9%), the vaccines not working (170; 42.6%), and concerns about the long-term health effects of COVID-19 vaccines (161; 40.4%). Nearly half (176; 44.1%) of vaccine-hesitant or undecided participants reported that they felt that they did not need a COVID-19 vaccine. When vaccine-hesitant or undecided participants were asked what might help them feel more comfortable receiving a COVID-19 vaccine, the participants reported that they would feel more comfortable if their family

### Table 2

| Chronic health conditions* | Hesitant or Undecidedb | Acceptingc | $P^d$ |
|---------------------------|------------------------|------------|-------|
| Yes                       | 169 (42.4)             | 246 (52.9) | <.001 |
| No                        | 155 (38.8)             | 219 (47.1) |       |
| Unsure                    | 45 (11.3)              | 0 (0)      |       |
| Missing                   | 30 (7.5)               | 0 (0)      |       |

| Concern about becoming sick with COVID-19 illness | Hesitant or Undecidedb | Acceptingc | $P^d$ |
|--------------------------------------------------|------------------------|------------|-------|
| Not at all concerned                              | 200 (50.1)             | 213 (45.8) | <.001 |
| A little concerned                                | 97 (24.3)              | 118 (25.4) |       |
| Moderately concerned                              | 36 (9.0)               | 120 (25.8) |       |
| Very concerned                                    | 58 (14.5)              | 0 (0)      |       |
| Missing                                           | 9 (2.2)                | 14 (3.0)   |       |

| Previous COVID-19 illness* | Hesitant or Undecidedb | Acceptingc | $P^d$ |
|----------------------------|------------------------|------------|-------|
| Yes                        | 120 (30.1)             | 179 (38.5) | <.001 |
| No                         | 137 (34.3)             | 153 (32.9) |       |
| Unsure                     | 138 (34.1)             | 120 (25.8) |       |
| Missing                    | 6 (1.5)                | 13 (2.8)   |       |

| Level of care for COVID-19 illness | Hesitant or Undecidedb | Acceptingc | $P^d$ |
|-----------------------------------|------------------------|------------|-------|
| Did not seek medical care         | 39 (32.5)              | 94 (52.5)  | <.001 |
| Received medical care but not hospitalized | 56 (46.7) | 72 (40.2) |       |
| Hospitalized                      | 25 (20.8)              | 15 (8.4)   |       |

*Percentages might not add up to 100% due to rounding.

*Vaccine-hesitant or undecided participants include those who have not yet received a COVID-19 vaccine and do not plan to receive a COVID-19 vaccine or who are still unsure whether they will receive a COVID-19 vaccine.

*Vaccine-accepting participants included those who have already received at least 1 dose of a COVID-19 vaccine, or who have not yet received a dose but plan to receive a COVID-19 vaccine at some point.

$P$ value refers to Fisher Exact Test.

*Participants were allowed to decline answers to any specific question(s), resulting in missing data for some variables.

*Participants were asked whether they had any conditions from a list of health conditions. Those who shared that they had 1 or more of the conditions were recoded as “yes” and those who did not have any were coded as “no.” Health conditions included cancer; chronic kidney disease; chronic obstructive pulmonary disease; heart conditions such as heart failure, coronary artery disease, or cardiomyopathies; obesity or severe obesity; sickle cell disease; type 2 diabetes mellitus; immunocompromised due to solid organ transplant; currently pregnant; and if they were a current smoker.
or friends received it (117; 34.8%), there was someone to answer their questions about the vaccines (88; 26.2%), they received a free meal or another incentive with vaccination (83; 24.7%), or whether they had a place to stay if they developed side effects (72; 21.4%) (Table 3).

Logistical challenges, or things that would or did make it difficult to receive a COVID-19 vaccine, were also assessed among all participants. The most common logistical challenge among hesitant or undecided participants was that vaccination sites were too far away (85; 21.3%, P = .04) and they did not have transportation (79; 19.8%, P = .07). Among accepting participants, they felt that they were too busy to get vaccinated (140; 30.1%, P < .001) and the vaccination sites were too far away (113; 24.3%, P = .04). A higher proportion of vaccine-hesitant or undecided participants reported logistical barriers to getting the vaccine, including inconvenient hours of operation (14.5% vs 7.7%; P = .001), too long of a waiting time (16% vs 1.3%; P < .001), and too difficult to find or make an appointment (15.5% vs 8.4%; P = .001) compared with the vaccine-accepting group (Table 3). For PEH who had received a COVID-19 vaccine, 82 (34.2%) received their most recent dose at a vaccine pop-up event and 60 (25%) received their most recent dose at a mobile clinic.

Finally, a higher proportion of vaccine-accepting participants received information about COVID-19 vaccines through multimedia news sources (59.1% vs 46.4%; P < .001), hospitals/health centers or medical staff (51.2% vs 20.8%; P < .001), and religious leaders (33.1% vs 16.3%; P < .001) compared with vaccine-hesitant or undecided participants (Figure). In contrast, a significantly greater proportion of vaccine-hesitant or undecided participants received COVID-19 vaccine information through social media (80.0% vs 58.3%; P < .001).

Discussion

To our knowledge, this is the first assessment of vaccine acceptability among people experiencing predominantly unsheltered homelessness and the first study of PEH that assessed logistical barriers to vaccine access. This study explored COVID-19 vaccine acceptability and intention among PEH in 2 US locations during March–June 2021. More than half of those surveyed had already received a COVID-19 vaccine or planned to receive a vaccine. The remaining participants were split between not planning to receive the vaccine and undecided. Key motivators to vaccine acceptance across all vaccine acceptance groups included protecting one’s own health, followed by protecting the health of family and friends.

Concerns about COVID-19 vaccines included the vaccines being new and needing more information about them. The results presented here are similar to surveys conducted among PEH in shelters earlier in 2021, although the sample populations are different. More than half of the participants in both studies were considered “vaccine accepting” and were or would be primarily motivated to receive a COVID-19 vaccine to protect their own health. On the other hand, the participants in this sample were less concerned about side effects from the vaccine than other PEH surveyed elsewhere. This may be due to the timing of the surveys; elsewhere, the participants were surveyed in the first 2 months of COVID-19 vaccine rollout. As vaccines became more widely available and people shared their experiences regarding side effects, it may have become less of a concern for those surveyed in this study.

This study adds to existing literature by describing the differences between vaccine-accepting and vaccine-hesitant or undecided participants. Many of the factors assessed here were statistically different between the 2 groups, demonstrating the breadth of differences. These findings present opportunities for further study, specifically to understand causal factors and most important differences between vaccine-accepting and vaccine-hesitant or undecided groups, and which sources of information are trustworthy and which modes of communication are accessible, understandable, and relatable to PEH.

This study also sheds light on opportunities to improve access to scientific information about COVID-19 vaccines. Although there seems to be acceptance of COVID-19 vaccines and the concerns expressed about vaccines are not remarkably different from the general population, COVID-19 vaccine coverage is still significantly lower among PEH than the general population. Improving vaccine confidence and reducing barriers to vaccination are especially important for people who may be receiving services in congregate settings, even if they spend most of their time outdoors. Thus, there is a need for tailored approaches to improve access to information and to vaccination among this population. Participants who were vaccine hesitant or undecided were more likely to receive information about COVID-19 vaccines from social media than vaccine-accepting participants. A comprehensive review of the literature shows that even brief exposures (5-10 minutes) to misinformation on social media can impact vaccine perceptions, and 1 randomized controlled trial with social media users in the United Kingdom and the United States in 2021 showed that recent misinformation led to a 6.2% decline in vaccine intent. Thus, there are opportunities to leverage social media...
### Table 3: Motivators, Concerns, Logistical Challenges, and Sources of Information Regarding COVID-19 Vaccines by Vaccine Acceptability Group Among People Experiencing Homelessness in Central Florida and Southern Nevada, March 2021 to June 2021

| Hesitant or Undecided (n = 399) | Accepting (n = 465) | P<sup>b</sup> |
|---------------------------------|---------------------|--------------|
| **Which of the following motivated you or would motivate you the most to get vaccinated?**<sup>a</sup> (Participants could select only 1) | | |
| Protect my health | 100 (25.1) | 212 (45.6) | <.001 |
| Protect health of family/friends | 57 (14.3) | 97 (20.9) | |
| Protect health of coworkers or broader community | 35 (8.8) | 12 (2.6) | |
| To get back to work/school | 0 (0) | 38 (8.2) | |
| To resume social activities or travel | 82 (20.6) | 57 (12.3) | |
| If I was encouraged by others or someone I trust | 36 (9.0) | 21 (4.5) | |
| Other or not sure | 34 (8.5) | 11 (2.4) | |
| **What were or are your concerns about COVID-19 vaccines?**<sup>b</sup> (Participants could select all that apply) | | | |
| Nervous that these are new vaccines | 269 (67.4) | 237 (50.97) | <.001 |
| Concern about human experimentation | 92 (23.1) | 156 (33.5) | .001 |
| Don’t think the vaccines will work | 170 (42.6) | 73 (15.7) | <.001 |
| Don’t trust medical field | 105 (26.3) | 141 (30.3) | .03 |
| Fear of needles | 34 (8.5) | 47 (10.1) | .07 |
| Concern about immediate pain or discomfort | 36 (9.0) | 25 (5.2) | .01 |
| Worried about systemic side effects | 44 (11.0) | 98 (21.1) | <.001 |
| Worried about long-term health effects | 161 (40.4) | 149 (32.0) | .002 |
| Need more information about vaccines | 223 (55.9) | 150 (32.3) | <.001 |
| Other | 30 (7.5) | ... | |
| Fear of death | 58 (14.5) | ... | |
| Waiting for a specific manufacturer | 28 (7.0) | ... | |
| I don’t need the vaccine | 176 (44.1) | ... | |
| Logistics are too difficult | 82 (20.6) | ... | |
| **What would make/made it difficult for you to get a COVID-19 vaccine?** (logistical challenges) (Participants could select all that apply) | | | |
| I can’t go on my own (I have a physical limitation) | 44 (11.0) | 44 (9.5) | .07 |
| It’s too far away | 85 (21.3) | 113 (24.3) | .04 |
| I don’t know where to go to get vaccinated | 44 (11.0) | 47 (10.1) | .08 |
| I’m not in a group prioritized to receive the vaccine right now | 35 (8.8) | 61 (13.1) | .01 |
| I have a medical reason that makes me ineligible | 47 (11.8) | 43 (9.2) | .04 |
| I don’t have transportation | 79 (19.8) | 93 (20.0) | .07 |
| The hours of operation are inconvenient | 58 (14.5) | 36 (7.7) | .001 |
| The waiting time is too long | 64 (16.0) | 6 (1.3) | <.001 |
| It is difficult to find or make an appointment | 62 (15.5) | 39 (8.4) | .001 |
| I am too busy to get vaccinated | 23 (5.8) | 140 (30.1) | <.001 |
| It is difficult to arrange for childcare | 30 (7.5) | 34 (7.3) | .10 |
| I don’t have time off work | 57 (14.3) | 80 (17.2) | .04 |
| Other | 41 (10.3) | 2 (0.4) | <.001 |
| **Is there anything that would make you feel comfortable getting the vaccine?** (Hesitant or undecided that participants could select all that apply) | | | |
| Yes<sup>a</sup> | 336 (84.2) | | |
| If my friends or family get it | 117 (34.8) | | |
| If someone can answer my questions about it | 88 (26.2) | | |

(continues)
to promote vaccination and health and ensure that COVID-19 information is available to PEH.

For those surveyed in this study, distance to vaccination sites, lack of transportation, and limited time were the most common barriers to receiving a vaccination. Considering these barriers, it is worth noting that 34% of those who had received a vaccination received their most recent dose at a COVID-19 vaccine pop-up event and 25% received their most recent dose at a mobile clinic. This suggests that pop-up vaccine events were important access points for COVID-19 vaccination. Holding vaccine events in places where PEH frequent would help reduce logistical barriers and potentially improve vaccine coverage. Although similar logistical barriers may be common among PEH in other jurisdictions, it is possible that these logistical barriers are specific to the availability of resources in the communities included in this sample. In situations with too few resources to hold pop-up events, street outreach teams could also support COVID-19 vaccination of PEH by bringing vaccines directly to where PEH are located. Partnering with local health care clinics to provide hepatitis A and B vaccines, influenza vaccines, and other services, such as wound care and medication refills at outreach events, may improve participation and serve as entry points to discuss COVID-19 vaccines with PEH. Understanding reasons for hesitancy and motivators for being vaccinated for COVID-19 may also translate to other vaccine-preventable diseases.

Ultimately, people with current or previous lived experiences of homelessness in the community should be included in planning and implementing public health efforts to ensure equitable services for all.

This study has some limitations. First, participants were a convenience sample of those using handwashing stations and thus may not be representative of PEH or PEUH more broadly. Second, the survey in this study was administered directly after process evaluation surveys on service utilization, which may have caused survey fatigue among participants. Fatigued participants may have become disengaged from the surveys even before they started to complete them, leading to a deterioration in the quality of responses. Third, this was a cross-sectional study design, which does not capture change in intent or perception over time. Finally, without the ability to link the vaccine survey data with demographic data, we were unable to examine links between specific characteristics of participants (eg, sex, age, race) and vaccine acceptability.

The strengths of this study include an analytic sample of 864 participants, which is quite large compared with other primary data collection and literature review projects with unsheltered PEH. In addition, having local staff implement the surveys was likely beneficial, as they had familiarity with participants accessing the handwashing stations. Since local staff maintained the stations daily, they likely had stronger relationships with and were familiar

### TABLE 3

Motivators, Concerns, Logistical Challenges, and Sources of Information Regarding COVID-19 Vaccines by Vaccine Acceptability Group Among People Experiencing Homelessness in Central Florida and Southern Nevada, March 2021 to June 2021

| Motivation/Concern/Logistical Challenge | Hesitant or Undecided (n = 399)* n (%) | Accepting (n = 465), n (%)* | P* |
|----------------------------------------|----------------------------------------|-----------------------------|----|
| If I get a free meal with it (or other incentive) | 83 (24.7) | | |
| If I have a place to stay if I get side effects | 72 (21.4) | | |
| If a doctor or nurse recommends it | 59 (17.6) | | |
| If my clergy member/faith leader is getting it | 45 (13.4) | | |
| If shelter staff are getting it | 43 (12.8) | | |
| Otherd | 23 (6.8) | | |
| If my clergy member/faith leader recommends it | 11 (3.3) | | |
| No | 63 (15.8) | | |

*Percentages may not add up to 100 due to rounding, and because of missingness if participants opted to skip a question.

P* value refers to Fisher exact test.

For those already received or planning on receiving, the answer option was: “Because others encouraged me to get vaccinated.” For those unsure or not planning on receiving, the answer option was: “If someone I trust encourages me to get vaccinated.”

Specified other motivators, concerns, factors that would increase confidence, or other logistical barriers to receiving a COVID-19 vaccination were not available.

Denominator is, among vaccine hesitant participants, those who indicated that additional factors could improve comfortability (n = 336).
FIGURE 1 Sources of Information Regarding COVID-19 Vaccines by Vaccine Acceptability Group Among People Experiencing Homelessness in Central Florida and Southern Nevada, March 2021 to June 2021

aPercentages may not add up to 100 due to rounding and because of missingness if participants opted to skip a question.

bP < .001; P value refers to Fisher exact test.

cP < .05.

to those accessing the stations, which would reduce social desirability bias.

In summary, this study provides opportunities for tangible action that can improve COVID-19 vaccination coverage and uptake. First, framing vaccination messaging as protecting one’s own health and allowing a person to resume social activities may be successful for motivating PEH to receive a COVID-19 vaccine. In addition, offering more education on side effects and risks from COVID-19 vaccines and allowing PEH to ask questions about the vaccines may increase comfortability, acceptability, and confidence in COVID-19 vaccines. These data also show that bringing vaccines to where PEH are, or can easily access, is an important practice to ensure that PEH can receive vaccinations if they choose. Ultimately, improving COVID-19 vaccine confidence and uptake is essential to slow transmission and prevent severe illness of COVID-19 among PEH.

Implications for Policy & Practice

- PEH and PEUH are at an increased risk for COVID-19 transmission and severe illness compared with the general population. These results show that almost half of PEH surveyed had already received at least 1 dose, or were planning to receive a vaccination.
- Opportunities exist for practice to improve access and uptake of COVID-19 vaccines.
- Our results indicate that answering questions from PEH and assuaging their fears through outreach by public health and clinical health care staff, as well as possibly peer ambassadors, could improve confidence in COVID-19 vaccines.
- Bringing COVID-19 vaccines to locations where PEH and PEUH frequent—through pop-up vaccination events or street outreach—will alleviate logistical barriers to receiving a vaccination.
References

1. US Department of Housing and Urban Development (HUD). 2020 AHAR: part 1—PIT estimates of homelessness in the U.S. https://www.huduser.gov/portal/datasets/ahar/2020-ahar-part-1-pit-estimates-of-homelessness-in-the-us.html. Published March 2021. Accessed September 7, 2021.

2. National Alliance to End Homelessness (NAEH). Changes in the HUD definition of “homeless.” https://endhomelessness.org/resource/changes-in-the-hud-definition-of-homeless/. Published January 18, 2012. Accessed September 7, 2021.

3. Baggett TP, Keyes H, Sporn N, Gaeta JM. Prevalence of SARS-CoV-2 infection in residents of a large homeless shelter in Boston. JAMA. 2020;323(21):2191-2192.

4. Rogers JH, Link AC, McCulloch D, et al. Characteristics of COVID-19 in homeless shelters: a community-based surveillance study. Ann Intern Med. 2020;174(1):42-49.

5. Yoon JC, Montgomery MP, Buff AM, et al. COVID-19 prevalence among people experiencing homelessness and homelessness service staff during early community transmission in Atlanta, Georgia, April-May 2020 [published online ahead of print]. Clin Infect Dis. 2021;73(8):e2978-e2984.

6. Batko S, Oneto AD, Shroyer A. Unsheltered homelessness: trends, characteristics, and homeless histories. Metropolitan housing and communities policy center at the urban institute. www.urban.org/sites/default/files/publication/103301/unsheltered-homelessness.pdf. Published December, 2020. Accessed December 22, 2021.

7. US Department of Housing and Urban Development (HUD). A guide to counting unsheltered homeless people. HUD’s Office of Community Planning and Development. https://www.hudexchange.info/sites/onecpd/assets/File/Guide-for-Counting-Unsheltered-Homeless-Persons.pdf. Published October, 2004. Accessed December 22, 2021.

8. Centers for Disease Control and Prevention (CDC). Key things to know about COVID-19 vaccines. https://www.cdc.gov/coronavirus/2019-ncov/vaccines/keythingstoknow.html. Published November 30, 2021. Accessed September 8, 2021.

9. Meehan AA, Yeh M, Gardner A, et al. COVID-19 vaccine acceptability among clients and staff of homeless shelters in Detroit, Michigan, February 2021. Health Promot Pract. 2021;23(1):35-41.

10. Montgomery MP, Meehan AA, Cooper A, et al. Notes from the field: COVID-19 vaccination coverage among persons experiencing homelessness—six U.S. jurisdictions, December 2020–August 2021. MMWR Morb Mortal Wkly Rep. 2021;70(48):1676-1678.

11. Puri N, Coomes EA, Haghbayan H, Gunaratne K. Social media and vaccine hesitancy: new updates for the era of COVID-19 and globalized infectious diseases. Hum Vaccin Immunother. 2020;16(11):2586-2593.

12. Loomba S, de Figueiredo A, Piatek SJ, de Graaf K. Measuring the impact of COVID-19 vaccine misinformation on vaccination intent in the UK and USA. Nat Hum Behav. 2021;5:337-348.