COVID-19 Vaccination Status and Concerns Among People Who Use Drugs in Oregon

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Objectives: The objective of this study was to examine COVID-19 vaccination acceptance and explore reasons for COVID-19 vaccine hesitancy among people who use drugs (PWUDs), a population with increased COVID-19 transmission and morbidity.

Methods: We conducted semi-structured in-depth interviews with PWUDs in 7 Oregon counties from May 11 to June 25, 2021. Participants (n = 34) were recruited in partnership with syringe service programs and local community organizations staff, participant-referrals, and flyer advertising. Research staff conducted interviews via telephone to assess participants’ acceptance of the COVID-19 vaccine, find knowledge gaps where new educational information about vaccination would be helpful, and identify who would be perceived as a trustworthy source of information. Interviews were transcribed and coded using thematic analysis with a deductive approach.

Results: Most participants had not received the COVID-19 vaccine and were not planning on or were unsure about receiving it. Participants were mistrustful of the rapid COVID-19 vaccine development process, the agencies involved in the development, and vaccines in general. Participants shared varied and contrasting responses about who they would trust to provide information about the COVID-19 vaccine, including peer recovery support specialists, doctors, or other health care professionals, and specified federal agencies or media outlets.

Conclusions: As addiction medicine and public health staff continue to respond to the evolving impacts of COVID-19, vaccination planning should be tailored to the unique needs of PWUD to increase COVID-19 vaccine acceptance in this high-risk population.

Key Words: COVID-19 vaccine, methamphetamine, opioid use disorder, peer recovery support specialists, people who use drugs

Data continue to emerge about the impacts of COVID-19 (SARS-CoV-2) on the lives of people who use drugs (PWUD), highlighting the need for policy and programmatic adaptation to create safe environments given the rapidly changing and disruptive nature of the pandemic.1-2 Some service adaptations, such as expanded telemedicine options for medications for opioid use disorder and more flexible take home provisions, have enhanced access to treatment services for PWUD.2 However, PWUD have also endured disruptions in health care, treatment, and harm reduction services, including closures and service delivery changes, that may have decreased their ability to address their physical health, mental health, substance use disorder, and overdose prevention needs.5,6,8 In addition, PWUD may have a high risk of contracting and experiencing severe cases of COVID-19 because of underlying health conditions and high rates of comorbidities.3,4 Shelter in place and other government implemented guidelines to prevent the spread of COVID-19 may leave PWUDs to experience increased isolation and increased rates of substance use, suicide, and overdose.7,8

Widespread vaccination is a critical strategy for limiting the spread of COVID-19 and decreasing associated hospitalizations, morbidity, and mortality. By February 2021, the United States Food and Drug Administration (FDA) approved the emergency use of 3 COVID-19 vaccines deemed safe and effective.9 Vaccine uptake remains low in many geographic areas and among specific populations despite the vaccines’ efficacy and widespread availability.10 Vaccine hesitancy in the United States is especially high among PWUD who are often at increased risk to adverse health outcomes due to experiences of stigma, lack of access to health-related resources, and higher rates of poverty and homelessness.11-14 In 1 study, only 45% of PWUD reported willingness to receive the COVID-19 vaccination.12 PWUD also have low vaccination rates for common preventative vaccines, such as the influenza vaccine. PWUD experience unique barriers to getting vaccinated, including fear of being stigmatized for their substance use; transportation and scheduling complications, especially with vaccines requiring 2 doses; and past mistreatment by the health care system.15,16

Despite these challenges, PWUD have not been prioritized for statewide COVID-19 vaccination efforts, tailored messaging, or special events hosted by trusted messengers.17,18
More information is needed to understand how to increase COVID-19 vaccination rates among PWUD in the United States for their own benefit and to decrease the risk of community transmission. Pathways for information dissemination to PWUD must be examined to build trust between PWUD and the health care system, and partnerships with peer recovery support specialists as trusted messengers should be explored because they have been identified as trusted messengers for delivering other health care information to PWUD. Vaccine rollouts to other populations demonstrate that tailored messaging from trusted messengers is critical. This paper aims to expand our understanding of vaccine hesitancy and attitudes among PWUD to reduce the burden of the COVID-19 pandemic for PWUD and prepare for the future.

METHODS

We conducted rapid assessment semi-structured qualitative interviews with PWUD from 7 Oregon counties (Clatsop, Deschutes, Josephine, Lane, Marion, Multnomah, and Umatilla). The primary goal of the interviews was to better understand the experiences and needs of PWUD in Oregon as fentanyl-involved overdose deaths increased rapidly. To that aim, we selected counties with high rates of overdoses and High-Intensity Drug Trafficking Area drug seizures involving fentanyl, counties with strong community connections to support recruitment, and counties geographically dispersed across urban and rural Oregon. We developed the interview guide through iterative discussions with the research team and community organization staff, including people with lived experience of drug use. Given the stage of the COVID-19 pandemic during the time of data collection (May and June 2021), we added interview questions to assess participants’ concerns about COVID-19 and acceptance of COVID-19 vaccines. To explore acceptance of COVID-19 vaccines and specifically participants’ willingness to receive a COVID-19 vaccine, we included questions about COVID-19 infection concerns, COVID-19 vaccine concerns, what information people were using to make their decision, and where they were receiving information (Table 1 lists all COVID-19 questions from the interview guide). Interviews were conducted via telephone with individuals aged ≥18 years who used drugs in the past 30 days. This paper focuses on responses to the COVID-19 questions. The study was approved by the OHSU Institutional Review Board and granted a Federal Certificate of Confidentiality.

Participants and Procedures

Participants (N = 34) were recruited from May 11 to June 25, 2021 and included people who had and had not received the COVID-19 vaccine. We recruited 3 to 6 participants from each county. To recruit, we partnered with syringe service programs and local programs that provide harm reduction and recovery peer support. Program staff distributed flyers and recruited via word of mouth, providing potential participants with the research staff phone number to complete the screening questions and interview. Participants received a $50 gift card for participation. Eligibility included: (1) use of methamphetamine, cocaine, benzodiazepines, heroin, illicit fentanyl, or other opioids in the past 30 days and (2) age 18 or greater. Research staff screened participants via phone, and, if participants were eligible, started the interview immediately after the screening questions. Interviews lasted about 60 minutes. Local syringe service programs and peer support programs provided access to telephones for potential participants lacking the means to participate. Research staff obtained verbal consent before data collection.

Four research staff (KL, JL, SS, JP) conducted all eligibility screenings and interviews. All staff had previous experience

### TABLE 1. COVID-19 Interview Questions

1. Tell me about your concerns about the risk of exposure to COVID-19.
   a. How, if at all, have your concerns about getting COVID changed since COVID-19 restrictions first started around March of last year? (about 1 year ago)
2. Tell me about your plan related to getting the COVID-19 vaccination.
   a. Have you already received the vaccine?
      b. [If already received the vaccination]:
         i. Can you tell me about your experience? Where did you get the vaccine?
         ii. What concerns did you have before getting the vaccine?
         iii. Why did you decide to get the vaccine?
         iv. Where have you received information about the vaccine?
         v. Who do you trust to provide accurate information about the vaccine?
         vi. Probe: Would you trust a peer specialist or peer mentor to provide accurate information about the vaccine? Why or why not?
   c. [If have not received the vaccination but plan on it]:
      i. What concerns, if any, do you have about getting the vaccine?
      ii. Why have you decided to get the vaccine?
      iii. Where have you received information about the vaccine?
      iv. What additional information, if any, would be helpful for you and people you know to have about the vaccine?
      v. Who do you trust to provide accurate information about the vaccine?
      vi. Probe: Would you trust a peer specialist or peer mentor to provide accurate information about the vaccine? Why or why not?
   d. [If have not received the vaccination and do not plan on it]:
      i. What concerns, if any, do you have about getting the vaccine?
      ii. Why have you decided not to get the vaccine?
      iii. Where have you received information about the vaccine?
      iv. What additional information, if any, would be helpful for you and people like you to know about the vaccine?
      v. Who do you trust to provide accurate information about the vaccine?
         (1) Probe: Would you trust a peer specialist or peer mentor to provide accurate information about the vaccine? Why or why not?
and training in qualitative data collection. Three staff had experience specifically interviewing PWUD. Interviewers were trained to follow a protocol if a participant reported suicidal ideation, including providing the Suicide Lifeline number, offering to connect the participant to an on call clinician for crisis counseling, and offering to connect the participant to a peer recovery support specialist for additional assistance. Study leadership reviewed interview audio recordings regularly to provide feedback and ensure interview quality and completeness. The interview team met weekly during data collection to discuss interview content. Audio recorded interviews were transcribed by a professional contracted transcriptionist and uploaded into NVivo software (version 12) for analysis.

Analysis

To analyze the interviews, we used a 2 stage analysis process that included a deductive coding structure and an inductive thematic process to identify specific themes.22,23 We used the interview guide to create the initial codes and used an iterative process to refine the codebook and achieve acceptable interrater reliability. Four team members (KL, SS, JP, ES) met weekly to review materials and reach shared understanding of codes and code definitions. Two team members (KL, SS) coded the same transcript using all codes and ran a coding comparison query. Overall, percentage agreements (M = 98.5%) across codes were high. Coders reviewed each code disagreement on the sample transcript until agreement was met. Coders added clarity to codebook definitions and coded the remaining transcripts independently, coding simultaneously and checking in regularly to discuss processes and any coding discrepancies. Coded data were then used to construct themes through an iterative inductive process by 4 team members (KL, SS, JP, ES). Specifically, data were separated across codes and the 4 team members created summary tables that included identified themes and supporting data. During weekly meetings, team members presented summary tables for each code and discussed until consensus was reached. Themes were further refined during investigator team discussions.

RESULTS

Of the 34 participants, most identified as female (47.1%) or male (47.1%), age ≥ 30 years (91.2%), and non-Hispanic White (73.5%). All 34 participants reported drug use in the past 30 days. Twenty-eight (82.4%) participants reported using both opioids (eg, heroin) and stimulants (eg, methamphetamine) in the past 30 days. Three (8.8%) participants reported using opioids only, and 3 (8.8%) participants reported using stimulants only. Thirty (88.2%) participants reported injection drug use in the past 30 days (Table 2).

Most participants (24 of 34; 70.6%) had not received the COVID-19 vaccine and were not planning to or were unsure about receiving it. Of the participants who received (17.6%) or planned to receive the COVID-19 vaccine (11.8%), most noted wanting to protect others and themselves and returning to pre-COVID-19 behavior (eg, not wearing a mask) as their main reasons. We have constructed themes related to why people were wanting to protect others and themselves and returning to pre-COVID-19 behavior (eg, not wearing a mask) as their main reasons. We have constructed themes related to why people were wanting to protect others and themselves and returning to pre-COVID-19 behavior (eg, not wearing a mask) as their main reasons.

Theme 1: Participants Expressed Mistrust About COVID-19 Vaccine Development

Participants described many reasons for not trusting the COVID-19 vaccine, including the rapid vaccine development process, a lack of trust in the agencies involved in the development (ie, government and health care), and general mistrust or rejection of vaccines.

Participants who reported the COVID-19 vaccine development process occurred too quickly described concerns about the safety of the COVID-19 vaccine, including known negative side effects of the vaccine and unknown long-term side effects of the vaccine. Some participants also shared concerns that the COVID-19 vaccine would kill them, change their DNA, or otherwise alter their body who uses IV drugs. I just feel like the drug was pushed onto the market way too fast, the vaccine, and so we don’t

| Characteristic | N = 34 |
|---------------|-------|
| Gender        |       |
| Male          | 16 (47.1%) |
| Female        | 16 (47.1%) |
| Other         | 2 (5.9%) |
| Age [years] (Mean, SD) | |
| <30           | 3 (8.8%) |
| 30–39         | 15 (44.1%) |
| 40–49         | 11 (32.4%) |
| 50+           | 5 (14.7%) |
| Ethnicity     |       |
| Hispanic      | 6 (17.6%) |
| Not Hispanic  | 28 (82.4%) |
| Race          |       |
| American      | 1 (2.9%) |
| American Indian/Alaska Native | 0 (0.0%) |
| Asian or Pacific Islander | 0 (0.0%) |
| White         | 29 (85.3%) |
| Multiracial   | 3 (8.8%)* |
| Other         | 1 (2.9%) |
| Heroin/Methamphetamine Use in Past 30 days | |
| Heroin/opioids and methamphetamine/stimulants | 28 (82.4%) |
| Heroin/opioids (no methamphetamine/stimulants) | 3 (8.8%) |
| Methamphetamine/stimulants (no heroin/opioids) | 3 (8.8%) |
| Injection Drug Use in Past 30 days | |
| Yes           | 30 (88.2%) |
| No            | 4 (11.8%) |
| COVID-19 Vaccine Status | |
| Received vaccine | 6 (17.6%) |
| Have not received vaccine but plan to | 4 (11.8%) |
| Have not received vaccine and do not plan to/unsure | 24 (70.6%) |

*All 3 were American Indian/Alaska Native and another race.
TABLE 3. Emergent Themes, Sub-themes, and Supporting Quotes

| Theme 1: Participants expressed mistrust about COVID-19 vaccine development | Theme 2: Participants felt they didn’t need the COVID-19 vaccine |
|---|---|
| **Vaccine development process occurred too quickly** | COVID-19 is not real |
| Lack of trust in the agencies involved in the vaccine development (ie, government and health care) | Socially isolate or do not engage in high-risk transmission behaviors |
| Lack of trust in any vaccines (eg, flu) | Other vaccines provide protection |
| Theme 3: Trustworthy sources of information about the COVID-19 vaccine varied | Peer recovery support specialists |
| Doctors or other health care professionals | I would [trust a peer specialist or mentor]. I would, more so than anybody else, because I know doctors and stuff can be bought. They’re going to push certain medicines. |
| No one | I guess doctors, if it’s been FDA approved or whatever. I used to get a flu shot every year, but I don’t want the corona [coronavirus] shot because there’s not been any studies on it. |
| I don’t want to be vaccinated against, just because I feel like that’s messing with your body’s normal function and how our body operates. | I know that’s strange coming from somebody who uses IV drugs. |
| I just feel like the drug was pushed onto the market way too fast, the vaccine, and so we don’t know what the effects are going to be in the long-term or down the road or anything like that. |
| I don’t trust my government, period. That’s the medical industry. If I go in there and I have an infection going on, I should be treated just like everybody else, and they should just treat the infection. Instead, because I’ve used drugs, it just goes down the line. It’s wrong. These people are so smart; they’ve got doctors and shit. Yet, they’re idiots. You know what I mean? They don’t see that they’re killing people and they’re hurting people. I would just rather not trust a doctor who, 1 day, is treating me like an asshole because I have a disease. I’m not going to trust him the next day when they say, “Oh, come get this shot.” I can’t do it. |
| I don’t like getting flu shots or anything like that because they’re putting the flu in you. I’ve never been prone to put stuff in my body like that. | I don’t see that they’re killing people or anything. I believe that the COVID-19 is a conspiracy just to get people to get injected with the vaccine and get injected with a microchip, so they can monitor you. |

Participants reported not trusting the agencies involved in vaccine development or delivery (ie, government and health care). Participants often associated these beliefs with negative past experiences with these agencies because of their drug use and feeling these agencies are not helpful or want to hurt them. For example, 1 participant shared:

I don’t trust my government, period. That’s the medical industry. If I go in there and I have an infection going on, I should be treated just like everybody else, and they should just treat the infection. Instead, because I’ve used drugs, it just goes down the line. It’s wrong. These people are so smart; they’ve got doctors and shit. Yet, they’re idiots. You know what I mean? They don’t see that they’re killing people and they’re hurting people. I would just rather not trust a doctor who, 1 day, is treating me like an asshole because I have a disease. I’m not going to trust him the next day when they say, “Oh, come get this shot.” I can’t do it.

Some participants described not planning to receive the COVID-19 vaccine because they do not trust or receive any vaccines (eg, flu vaccines), they do not want to put viruses in their body or get sick from the vaccines, their families have never supported vaccines, or they have other strategies to build immunity (eg, eating healthy). As 1 participant described:

I don’t like getting flu shots or anything like that because they’re putting the flu in you. I’ve never been prone to put stuff in my body like that. I wasn’t raised that way.

Despite the mistrust, a few participants who were vaccine skeptics noted they would consider receiving the vaccine if it was mandated by an employer or limited their access to other resources, such as buying groceries. One participant shared, “I would, probably. Well, if it came down to it, if I couldn’t buy groceries, I’m going to get the vaccine.”

**Theme 2: Participants Felt They Did Not Need the COVID-19 Vaccine**

Participants described reasons why they did not need to receive the COVID-19 vaccine, including perceptions that COVID-19 is not a real or serious disease and feeling that they are not engaging in high-risk transmission behaviors. Participants that described COVID-19 as not being a real or serious disease discussed COVID-19 as a conspiracy theory, a way to control or monitor people, or not being deadly enough to necessitate receiving the vaccine:

Maybe just some conspiracy-theory stuff. Like I said, I haven’t seen enough effect of COVID-19 for it to warrant getting vaccinations, I think, so I think it’s kind of bogus.

I just feel like the statistics show that it’s not really that deadly of a virus. I’m not the one who believes in conspiracy theories, but I think that it’s probably just a control, a way to control people. The best way to control people is to use fear.

I believe that the COVID-19 is a conspiracy just to get people to get injected with the vaccine and get injected with a microchip, so they can monitor you.
One participant described feeling they did not need the vaccine because they did not engage in high-risk behavior and isolated at home:

No. I don’t think I’m going to get it. I don’t want it just because I stay home. . . No. I just don’t think I need it.

Theme 3: Trustworthy Sources of Information About the COVID-19 Vaccine Varied

Participants shared varied and contrasting responses about who they would trust to provide information about the COVID-19 vaccine, including peer recovery support specialists, doctors, or other health care professionals. When asked specifically about trusting peer recovery support specialists, many participants believed peer recovery support specialists to be honest and well-intentioned. As 1 participant described:

I would [trust a peer specialist or mentor]. I would, more so than anybody else, because I know doctors and stuff can be bought. They’re going to push certain medicines.

Some participants shared they would be more likely to trust COVID-19 vaccine information from peer recovery support specialists if the peer recovery support specialist partnered with someone in health care or “if they’re a specialist in the medical field or they’re part of the medical field.” Some participants noted they would listen to a peer recovery support specialist, but “it doesn’t mean I am going to believe it.”

A few participants noted they would trust information about the COVID-19 vaccine from doctors or other health care professionals. Participants noted they would be more likely to trust doctors or other health care professionals after more studies have been completed and the COVID-19 vaccine was approved by the FDA. One participant explained:

I guess doctors, if it’s been FDA approved or whatever. I used to get a flu shot every year, but I don’t want the corona [coronavirus] shot because there’s not been any studies on it.

Some participants noted they would not trust anyone, or they would only trust someone if they knew them well. As 1 participant described:

It’s a personal thing to me. Trust is something that takes time. Authority figures have already proven to me that they would rather see me dead than help me out.

Several participants reported that more information about the COVID-19 vaccine would be helpful. Most notably, participants were interested in additional information about side effects, specifically long-term side effects including “fatality rate of the vaccine” and “the success rate of it... how good it works.” Some participants noted that there was no information at this time that would shift their thinking, but more time and information in the future may change their decision. One participant shared:

I just don’t think there’s any information available that would be helpful right now. What I’m interested in are long-term studies, and it just hasn’t been long enough to do that.

DISCUSSION

Our findings explore the hesitancy PWUD experience when considering receiving the COVID-19 vaccine. People with substance use disorders have been identified as a population with one of the lowest rates of vaccine acceptance, despite their increased risk of COVID-19 morbidity.13 PWUD in our study who had received or were planning to receive a COVID-19 vaccine wanted to protect themselves, protect others, and return to pre-COVID-19 behaviors (eg, not wearing a mask).24,25 PWUD who were not planning to receive or were unsure about receiving the COVID-19 vaccine expressed strong mistrust about the vaccine’s rapid development and recalled past negative experiences with government and health care agencies and staff. Some PWUD did not perceive any need for vaccine protection from COVID-19 despite their elevated risk of adverse outcomes due to COVID-19 infection.3,26 Overall, participants were interested in more information about the COVID-19 vaccine’s effectiveness and side effects. Although participants trusted different sources of information, peer recovery support specialists and health care professionals were suggested most frequently. Importantly, some PWUD felt they could not trust anyone to provide them with accurate information. These interview findings suggest long-term and short-term strategies are needed to successfully encourage PWUD to receive the COVID-19 vaccine.

PWUD have a long history of reporting negative experiences, mistreatment, and stigma from health care providers, which has resulted in deeply held mistrust of the government and health care system.27,28 Addressing these complex relationships could potentially promote better health care interactions and improve health outcomes for PWUD. Long-term solutions may include increasing education and training within the health care workforce about PWUD and their unique needs, and identifying and addressing policies and practices that may contribute to negative interactions with PWUD.29 Taking steps toward long-term solutions to address mistrust between PWUD and health care staff is imperative, but shorter term strategies can be implemented now to decrease the harm of COVID-19 among PWUD.

More than 90% of the participants in this study reported using methamphetamine, which can cause psychosis and paranoia. Experiences of paranoia can be subtle and may exacerbate any underlying suspicion or mistrust of the health care system and government agencies.30 Awareness of possible paranoia and psychosis can help clinicians tailor their approaches with PWUDs, recognizing that a deeper therapeutic alliance is often necessary before the introduction of interventions. Pharmacologic interventions may have a place in certain circumstances, but more research is needed in this area.31,32

In the shorter term, messaging about the COVID-19 vaccine should include tailored messages developed and tested with PWUD. Our data suggest that messages should address effectiveness and safety of the vaccine. Messaging to PWUD should also include reasons PWUD may be susceptible to more severe symptoms of COVID-19 and how the vaccine can protect them and others. Given the history of experienced stigma, denial of care, and mistrust of health care services and government among PWUD, health care professionals and public health staff should focus first on building connections with PWUD to
engender trust, and then engage in conversation around the COVID-19 vaccine. In addition, health care professionals and public health staff should partner with messengers and organizations who apply a trauma-informed approach and are already trusted by PWUD. These include peer recovery support specialists and other staff from harm reduction agencies, peer services organizations, treatment and recovery agencies, food banks, and homeless shelters. \cite{11,18,20} PWUD may also be more open to receiving the COVID-19 vaccine if a tailored vaccine strategy includes community outreach with the use of mobile vaccination vans that support access to needed community specific services and resources (eg, accommodations, food, foot and wound first aid and care)\cite{16,17} instead of attention-grabbing promotions (eg, offering guns, alcohol, or marijuana) that fail to address felt needs.\cite{33}

Limitations of our study should be noted. We recruited participants through harm reduction agencies and peer services programs so our findings may not be generalizable to PWUD who infrequently access these services. Future research should more intentionally explore people with experimental or early substance use, including people under 18 years old. The study sample was limited to individuals who had access to a telephone, which may have excluded an important subset of this population. Interviews were conducted during a rapidly changing COVID-19 environment in Oregon and before the Delta and Omicron variants became dominant, which may have shifted opinions about receiving the COVID-19 vaccine. Our sample, although reflective of the Oregon population, was composed overwhelmingly of non-Hispanic white people, and we could not explore how social identities known to influence vaccine uptake (eg, gender, race, class, housing status) impact COVID-19 vaccination of PWUD.\cite{3,11}

**CONCLUSIONS**

COVID-19 continues to impact the lives of people across the United States despite widespread access to safe and effective vaccines. In this study, PWUD reported low acceptance of the COVID-19 vaccine. Our findings demonstrate a need for vaccination planning that accounts for PWUDs’ baseline mistrust of the health care system, disseminates information via trusted channels, and mobilizes resources and vaccines to improve access opportunities.

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