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Vaccine hesitancy as an opportunity for engagement: A rapid qualitative study of patients and employees in the U.S. Veterans Affairs healthcare system



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ABSTRACT

Although COVID-19 vaccines have been available to many U.S. Veterans Affairs (VA) healthcare system employees and Veteran patients since early 2021, vaccine receipt data indicates some groups are not receiving them. Our objective was to conduct a rapid qualitative assessment of Veterans' and VA employees' views on COVID-19 vaccination to inform clinical leaders' ongoing efforts to increase vaccine uptake across the VA. We employed semi-structured interviews and a focus group involving employees and Veterans as part of a quality improvement project between January and June 2021 at three VA medical centers. Thirty-one employees and 27 Veterans participated in semi-structured interviews; 5 Veterans from a national stakeholder organization participated in a focus group. Data were analyzed using directed content analysis, involving an *a priori* coding framework comprised of four domains with subcodes under each: contextual influences, barriers and facilitators, vaccine-specific issues, and VA/military experiences. We then classified initial codes into five categories of hesitancy: vaccine deliberation, dissent, distrust, indifference and skepticism. A subset of Veterans ($n = 14$) and employees ($n = 8$) identified as vaccine hesitant. Vaccine hesitancy categories were represented by subcodes of religion, culture, gender or socio-economic factors, perceptions of politics and policies, role of healthcare providers, and historical influences; (contextual influences); knowledge or awareness of vaccines, perceived susceptibility to COVID-19, and beliefs and attitudes about health and illness (barriers and facilitators); vaccine development process (vaccine-specific issues) and military experiences (VA/military factors). Facilitators involved talking with trusted others, ease of vaccine access, and perceptions of family and societal benefits of vaccines. Vaccine hesitancy is multi-faceted and likely requires multiple strategies for engaging in conversations to address Veteran and VA employee concerns. Messages should involve patient-centered communication strategies delivered by trusted healthcare providers and peers and should focus on addressing expected benefits for family, friends, and society.

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Introduction

Although COVID-19 was one of the leading causes of death in the United States in 2020 [1,2], there are still many who are unsure of whether receiving one of the three Emergency Use Authorization (EUA) COVID-19 vaccines available is the right choice for them [3]. The World Health Organization has defined vaccine hesitancy as the “delay in acceptance or refusal of vaccines despite availability of vaccine services. Vaccine hesitancy is complex and context specific, varying across time, place and vaccines. It is influenced by factors such as complacency, convenience and confidence” [4]. Brewer and colleagues describe how thoughts and feelings about vaccines can influence decisions about vaccine uptake [5]. For example, those who have high risk beliefs about an infectious disease are those who are also likely to get vaccinated, whereas those with low confidence in vaccine effectiveness and possess concerns about vaccine safety are less likely to get vaccinated. A recent publication described vaccine hesitancy as consisting of a range of categories, indicating that there is no one way to classify vaccine hesitancy [6].

There are many U.S. healthcare workers and patients for whom COVID-19 vaccine hesitancy exists. A survey of 5,287 healthcare personnel in a large university healthcare system fielded between November and December 2020 indicated that a third of registered nurses and allied professionals were unsure about receiving a COVID-19 vaccine [7]. Vaccine safety, potential adverse events, efficacy, and speed of vaccine development were among the top concerns of those listed by survey participants. Another survey of health system personnel (N = 16,292) prior to their COVID-19 vaccine rollout indicated that 16.3% would not get a COVID-19 vaccine and 28.4% were undecided [8]. More than half of the respondents cited concerns about known adverse effects from the vaccines, such as headache and fatigue. Research on COVID-19 vaccine hesitancy among U.S. citizens reports that vaccine hesitancy is higher among specific demographic groups, including females, individuals living in rural areas, African American and Hispanic individuals, and those with lower income and less education [9]. Indeed, focus groups with Black Americans have indicated that COVID-19 vaccine hesitancy is high due to mistrust in the medical establishment, concerns with the accelerated timeline for vaccine development, limited data on short- and long-term side effects, and the political environment promoting racial injustice [10].

Thus, a significant challenge in COVID-19 vaccine implementation across the United States has been determining how to encourage healthcare workers and patients to receive a vaccine [11,12]. Clinical leaders in the U.S. Department of Veterans Affairs (VA), which houses the largest integrated healthcare system [13], began meeting in the fall of 2020 to consider the different challenges to vaccine uptake among both employees and Veteran patients. As an embedded quality improvement team within the VA healthcare system [14], our task was to rapidly yet rigorously evaluate the implementation of COVID-19 vaccines. “Rapid Response Teams” have grown out of a desire by VA leaders to have the Quality Enhancement Research Initiative (QUERI) arm of VA research—focusing on implementation and improvement sciences—quickly respond to rapidly-changing VA healthcare priorities. [15] QUERI funds more than 40 centers across the U.S. committed to addressing VA challenges and improving the quality of care provided to Veterans. These centers leverage evaluation methods to optimize the rollout of VA programs and policies affecting Veterans, and dissemination and sustainment strategies to promote the application of implementation and improvement sciences across VA. In this paper, we report on our Rapid Response Team project undertaken with VA employees and Veterans at three VA Medical Centers from January through June 2021, who initially had access to the Pfizer or

Moderna vaccines, and who then also had access to the Janssen vaccine from March 2021.

Methods

Our qualitative project followed the Standards for QUality Improvement Reporting Excellence (SQUIRE 2.0) [16], designed to answer specific questions: What are Veteran and VA employee attitudes toward COVID-19 vaccinations, and what factors are associated with vaccine hesitancy? We selected three VA medical centers for our quality improvement (QI) project, located in the Eastern (two medical centers) and Western (one medical center) regions of the U.S. where 1) vaccines were available to VA employees and Veterans enrolled in VA healthcare who met their medical center’s age and/or chronic condition requirements, 2) the QI team has relationships with the Medical Center Directors and Chiefs of Staff, and 3) different types of vaccines were being distributed. We received a quality improvement exemption from the [blinded] Institutional Review Board, as part of our overall QUERI Program of which this project was affiliated [17]. Bridge QUERI Program, Veterans Health Administration, Health Services Research and Development Service, Quality Enhancement Research Initiative. https://www.queri.research.va.gov/centers/access_equity.cfm Accessed September 23, 2021.

Procedure for Veteran and employee interviews, and Veteran focus group

Our team created facility-specific informational flyers to distribute to clinical colleagues (primary care providers, long-term facility leaders, nurse care managers) at each of the three medical centers, who could in turn share this information with any patients or staff members they thought might be interested in participating in a QI interview. The flyer contained a broad overview of the project, provided each site’s point of contact email and phone number, and for Veterans only, a \$20 gift card would be received as compensation for their time and effort in participating in an interview. Employees were recruited from community living centers (long-term care facilities), mental health, peer support services, pharmacy, primary care, rehabilitation and social work services. Veterans (N = 27) and employees (N = 31) who expressed interest in the project contacted the QI team directly and were scheduled for a 30–45 min interview with our team. Employees were interviewed before or after their work hours, although one employee received permission from a supervisor to participate in an interview during the work day. Interviews were conducted using a virtual conference platform, which allows for recording and automatic transcription of the interview within the secure VA network. Participants provided verbal consent to be recorded, and completed an audiorecording consent form. We also conducted a focus group with five Veterans who were members of the National Center on Homelessness among Veterans stakeholder council. This focus group followed the same procedures as above and used the same guide as that of the interviews.

Interview guide

One experienced interviewer conducted each interview or focus group while a second person took notes and monitored the virtual platform. Questions covered participant beliefs about and experiences with COVID-19 disease and vaccinations; pandemic-era living context and associated changes in routine behavior; sources of information considered important to participants, including conversations participants had with trusted others about the vaccines; whether any changes had occurred over time regarding their

beliefs and experiences; participants' beliefs and experiences with other vaccines; information about their military service and whether this played a role in their vaccine decision-making. The employee and Veteran interview guides are available as online supplementary material.

Analysis of qualitative data

Data from interviews and the focus group were integrated during the analysis phase, as is conventional practice [18]. Transcripts were analyzed using a rapid, deductive directed content analysis approach [19] involving an *a priori* coding framework developed from existing vaccine hesitancy literature [20,21]. The coding framework consisted of four domains: *context influences, barriers and facilitators, vaccine-specific issues, and VA/military factors*. Between 8 and 10 subcodes under included under each of these domains (please see Table 1 for more information on these subcodes). *Contextual influences* represent historic, socio-cultural, environmental, health system/institutional, economic, or political factors that may impact vaccination decisions. *Barriers or facilitators* are those factors arising from personal perception of the vaccine or influences of the social/peer environment. *Vaccine-specific issues* represent those factors directly related to vaccines or vaccination. The *VA/military domain* identified factors related to either experiences of receiving care in the VA, Veterans' military service experiences, employees' experiences with vaccination in the VA, and suggestions for improvement for VA vaccine distribution. Six analysts coded each transcript individually, analysts then met to

Table 1
Coding framework based on vaccine hesitancy literature.

1.0	Contextual influences
1.1	Media environment
1.2	Social networks
1.3	Healthcare Providers
1.4	Historical influences
1.5	Religion, culture, gender or socio-economic
1.6	Politics, policies
1.7	Geographic or transportation barriers
1.8	Perception of pharmaceutical industry
1.9	Influential leaders, immunization program gatekeepers and anti-or pro-vaccination lobbies
2.0	Barriers and Facilitators
2.1	Individual-level barriers/facilitators
2.1a	Knowledge/awareness
2.1b	Beliefs/attitudes about health and prevention
2.1c	Personality traits/characteristics
2.1d	Medical and vaccine history
2.1e	COVID susceptibility/exposure (perceived, heuristic)
2.2	Interpersonal-level barriers/facilitators
2.2a	Impact on family/friends/patients
2.3	Community/society-level risk/benefit
3.0	Vaccine, vaccination-specific issues
3.1	Misinformation
3.2	Vaccine development
3.3	Side effects
3.3a	Short-term (side effects)
3.3b	Long-term (side effects)
3.4	Mode of administration
3.5	Design of vaccination program, mode of delivery
3.6	Reliability and/or source supply of vaccine, vaccination equipment
3.7	Vaccination schedule
3.8	Changes in attitude over time
4.0	VA/Military
4.1	Work environment
4.2	Trust in the VA
4.2a	Military experience
4.3	Prioritization scheme
4.4	Scheduling
4.5	Information accessibility
4.6	Information content
4.7	Suggestions/opportunities for improvement

discuss their coding, to determine what discrepancies in coding were present. Through discussion, analysts arrived at a consensus as to what a piece of text signified in terms of coding. Codes were then transferred to Microsoft Excel, which served as a data analysis management tool for this rapid QI project [22].

The next step was to classify each segment of coded text into one of the following categories of vaccine hesitancy, previously identified: [6] 1) vaccine deliberation: watchful waiting, need for more data on vaccine safety; 2) vaccine dissent: those not in favor of vaccines in general; 3) vaccine distrust: distrust about vaccines due to the perceived involvement of the government and/or historical ethical and safety violations and present-day inequities; 4) vaccine indifference: those who say they are not concerned about COVID-19 and thus do not see the need for a vaccine; and 5) vaccine skepticism: fears of illness, unnatural substances, and elite conspiracy. This classification was done through an additional discussion and consensus process among four coders.

Results

Tables 2 and 3 provide demographic information on participants. Of the 31 employees and 32 Veteran participants, 8 employees and 14 Veterans expressed some form of vaccine hesitancy, defined in our project as those who state they do not intend to get the vaccine, those who are unsure of whether to get vaccinated and are not scheduled to get the vaccine, and those who say they intend to get vaccinated but are not yet scheduled to do so despite vaccines being available to them. Our analytic process highlighted

Table 2
Veteran demographics (N = 32).

Veteran characteristic	N (%)
Gender	
Male	25 (78.1)
Female	7 (21.9)
Age (years)	
Average	59.1
Range	33–76
30–39	4 (12.5)
40–49	2 (6.3)
50–59	9 (28.1)
60–69	9 (28.1)
70–80	8 (25.0)
Race	
African American or Black	5 (15.6)
White ¹	23 (71.9)
Asian	1 (3.1)
Latino	2 (6.3)
American Indian ¹	2 (6.3)
Ethnicity	
Hispanic	3 (9.4)
Non-Hispanic	28 (87.5)
Unknown	1 (3.1)
Education	
High School/GED	8 (25.0)
Associate Degree or Some College	7 (21.9)
Bachelor's Degree	5 (15.6)
Some Graduate or Masters' Degree	5 (15.6)
Doctorate	1 (3.1)
Unknown	5 (33.3)
Vaccination status at time of interview	
Yes, fully vaccinated (both doses)	11 (34.4)
Yes, one dose	6 (18.8)
No, Scheduled	1 (6.7)
No, Intends to get, but not scheduled	4 (12.5)
No, Not scheduled	3 (9.4)
No, Doesn't intend to get	7 (21.9)

¹ One participant reported both White and American Indian and is counted in both groups.

Table 3
Employee demographics (N = 31).

Employee characteristic	N (%)
Gender	
Male	7 (22.6)
Female	24 (77.4)
Age (years)	
Average	47.32
Range	32 – 63
30–39	10 (32.2)
40–49	6 (19.4)
50–59	9 (29.0)
60–69	6 (19.4)
Race	
African American or Black ¹	2 (6.5)
White	24 (77.4)
South Asian	2 (6.5)
Asian ¹	2 (6.5)
Declined to respond	1 (3.2)
Ethnicity	
Hispanic	1 (3.2)
Non-Hispanic	24 (77.4)
Unknown	6 (19.4)
Education	
Associate Degree	1 (3.2)
Bachelor's Degree	4 (12.9)
Post-graduate or Master's Degree	15 (48.4)
Doctorate	9 (29.0)
Unknown	2 (6.5)
Vaccination status at time of interview	
Yes, fully vaccinated (both doses)	22 (80.0)
Yes, one dose	1 (3.2)
No, Intends to get, but not scheduled	1 (3.2)
No, Not scheduled	6 (19.4)
No, Doesn't intend to get	1 (3.2)

¹ One participant reported both Black and Asian and is counted in both groups.

that some categories of vaccine hesitancy are not necessarily mutually exclusive. For example, some aspects of vaccine skepticism are present in both vaccine dissent and vaccine distrust. Below we highlight pertinent information about types of vaccine hesitancy we identified, referring to the specific codes that illustrate each. Finally, we present facilitators of vaccine acceptance. Table 4 provides an overview of vaccine hesitancy categories

Table 4
Vaccine hesitancy categories represented by specific codes.

Vaccine hesitancy category	Framework domain	Framework code	Exemplar quote
Vaccine dissent Those who are not in favor of vaccines in general	Contextual influences	Religion, culture, gender or socio-economic	Well, [taking the vaccine] has a lot to do with my culture. I believe I was raised not to really take some medication and I don't like medication and that's just me personally (Staff).
Vaccine deliberation Those engaged in watchful waiting, need for more data on vaccine safety	Barriers and facilitators	Personality traits/ characteristics	So I guess I would describe myself as not an early adopter of anything, so I'm, I'm not the first one to buy anything. Try anything. I basically like to sit back and I may be interested in something, a product, or a service or medication, but I'll sit back and watch what happens and see if there's any unintended consequences of for the rollout of whatever the product or service, a vaccine or medication happens to be (Veteran).
Vaccine distrust Distrust about vaccines grounded in distrust in government and systems	Vaccine-specific issues	Vaccine development	Uh, yeah, so I know that there is, you know, a lot of different trials or whatever they do to approve something so. And I guess when you see that something's FDA approved, you know it went through the correct channels, the correct process to get approved. So when it wasn't, it's like what was what was different this time. What was potentially skipped (Staff).
Vaccine indifference Those who say they are not concerned about COVID-19	Barriers and facilitators	COVID susceptibility/exposure (perceived, heuristic)	No, I don't expect that I'll get it. I think if I was gonna get it I would have had it by now (Veteran).
Vaccine skepticism This represents a fears of illness, unnatural substances, and/or elite conspiracy	Contextual influences	Historical influences	And then there's always a fear which I know could be very far-fetched. But there's always a fear like what's in this injection, like is it a tracker? Is it? You know what I mean? And then you think of things you know, being a nurse is when you think of things like the Tuskegee syphilis trial and things like that... I know that I'm going to get the same vaccine as the Caucasian sitting next to me, but you just have that fear. You just don't know (Staff).

represented by specific codes from our *a priori* coding framework; online supplemental material of exemplar quotes provides more details on all coding categories.

Vaccine deliberation

For some, a period of watchful waiting was needed until more data on the COVID-19 vaccines would be available. Sometimes this need for more information was related to the *level of knowledge or awareness* that a person expressed about the vaccines. As one staff member stated, “it’s not [that] I don’t wanna get it, but I, I have some unanswered questions.” One Veteran wanted to know more, but stated “I didn’t know what questions to ask. I knew so little, but I didn’t know what kind of questions to ask”. For both Veterans and employees, talking to a trusted *healthcare provider* was helpful when deliberating the decision to receive a vaccine or not. When conversations did not address appropriate concerns, vaccine deliberation continued. A Veteran said: “[I go] to see the same doctor I built up a longstanding relationship with, so I trust her judgment... Her response was no specifics, just I recommend you get the shot. So there’s a little, little disappointment in not addressing the specific concerns.”

Vaccine dissent

Vaccine dissent applied when someone expressed a general feeling against vaccines. One Veteran talked about *historical influences* for their vaccine dissent: “...if you know the history of vaccinations in African Americans and stuff that was always in the back of my mind and just not being sure how it affects the African American community.” One employee expressed dissent due to negative *beliefs about vaccines* in general, aligning with the stance taken by many not in favor of vaccines in general: “It’s it seems like every time I turn around, there’s another flu vaccine again, and I’m just wondering about how much medication does a body need and things like that? Are we overdoing this or are we helping or hurting? I don’t know.” A Veteran also described their *military experience* as a factor that increased their opposition to the COVID-19 vaccines: “Only because I’ve been, you know, in the military and I went in the Marine corps and I was exposed to a whole bunch

of chemicals and now I'm sick from them and I don't want, I don't want any more, like, chemicals added to my body that don't have to be added to my body." This Veteran's stated membership in anti-vaccination and extreme conservative political groups contributed to this person's strong vaccine dissent.

Vaccine distrust

Distrust about COVID-19 vaccines was sometimes reflected in the *politics* involved in the pandemic, reflecting government or system distrust. As one staff member stated, "I will say that because the previous administration pushed it so hard it's making a lot of people just not trust it. I think that is playing a huge factor." Others looked to government agencies for direction, but because *policies* changed often, distrust occurred. One staff member stated, "Like in the CDC [Centers for Disease Control and Prevention] and OSHA [Occupational Safety and Health Administration], I think I lost faith in their recommendations, 'cause I didn't feel like they had health care workers' best- like, I didn't think they were protecting us as much as they could. I think they were trying to, you know, because there was a quote, unquote, 'lack of supply' [of personal protective equipment], I think they were changing their recommendations and not necessarily protecting us to the optimal capacity, and so I kind of was hesitant to even consider a vaccine at the time." For one employee, the perceived *vaccine development* process itself led to a lack of trust and uncertainty about vaccination: "I don't want the vaccine, [it] doesn't sound like the vaccines are [a] tried and true process. It's a whole new way of vaccinating individuals. I want to opt for the wait and see." One Veteran stated: "You know, we just don't trust this system. It's not that we don't trust science."

Vaccine indifference

Some Veterans and employees indicated that they just were not concerned about the risks associated with COVID-19 overall and thus did not feel that they needed a vaccine. One staff member reflected a low *COVID-19 perceived susceptibility*: "... I'm a healthy individual. I'm young, I'm healthy. I live my life in a way that I think I'm very, I'm considered very low risk, and so for what we know about the disease. And although we've seen that young people who are seemingly healthy obviously can still become severely ill and have died from it, it's and it's such a low percentage." A contextual influence of *politics and policies* also played into indifference. An employee described indifference to vaccination as a result of tensions within the U.S.: "A lot of my attitudes are really embedded in the socio-political reality of what the country is like at this point in time. So it's not just about the vaccine, it's about conflict between Democrats and Republicans and the role of misinformation. It's all very much entwined." One Veteran stated, "I feel that this is the United States of America and we shouldn't have to take a vaccine if we don't want to take a vaccine." Another Veteran who professed specific *beliefs about health and prevention* stated, "So I think that—facing, facing the virus itself and getting letting your body build its own immune system to this virus, that's probably the best thing." This Veteran, like others who expressed vaccine indifference, did not intend to get vaccinated.

Vaccine skepticism

One Veteran's perceptions of the *vaccine development process* and *misinformation* fueled their skepticism: "I don't feel like the vaccine itself to be getting is safe because it's still really in the trial. It's not really-- I mean it was, it was sped up, you know, so that people could take it, and it's really in a trial situation right now still, it hasn't been proven to work. And what I've read about it, [is] that it's an RNA where it goes in and changes your DNA. And

I really don't want my DNA being messed with right now. Have enough problems." An employee discussed how they heard Veteran patients talking about COVID-19 as a result of *misinformation*, suggesting it might be a conspiracy: "A handful of Veterans on my caseload have explicitly, kind of, expressed doubt about COVID, kind of spoken about it as if it was a hoax, or if it you know was sort of like a political, you know, kind of stunt". For others, fears stemmed from concern about unknown *long-term side effects* of the COVID-19 vaccines. One staff member worried that getting the injection would lead to fertility issues in the future: "Like oh, it'll be like did you take the Covid vaccine five years ago? Can you not have a baby? Well, call this number. And I would be like God, why did I take that vaccine."

Vaccine acceptance: moving beyond vaccine hesitancy

Both Veterans and employees who had received a vaccine spoke about the *community-and society-level benefits* of this. A Veteran who was initially vaccine hesitant stated "What influenced my decision was seeing people who probably aren't as healthy as I am or not strong as I am, they're going and taking that risk and getting the shot and stuff like that. And I said, I told myself, 'If they can do it, why can't I?'" One staff member stated "When it was time to get my first shot I cried tears of joy, again out of relief that, like, this is what, it's going to be my ticket to freedom and everybody else's." Recognizing the vaccine's *impact on family and friends* was also a facilitator for participants. One Veteran stated: "If I was single I probably wouldn't have got it, but because I'm married and have a kid at home and I gotta make sure, like I said, my wife's out of work, so I gotta make sure I'm working. So I didn't wanna- I just weighed the pros and cons and I said it'd be kind of selfish of me if I don't take the vaccine and then I get it [COVID-19] then people will have been like, oh you should have. You should have took this." Similarly, an employee stated, "I'm just hoping that it will allow more opportunity for life to be as it was, you know, see family that we haven't seen in quite some time and, you know, be able to, to celebrate these big moments altogether." One employee expressed an *interpersonal-level facilitator* for vaccination, wanting to be the first in her family to get the vaccine, to try it out before her family members did. She said: "I was slightly hesitant before the vaccine came out, and then I was reassured by you know, the clinical trials and I, you know, the risk of getting it - or the benefits, I should say, the health benefits - clearly outweighed any risks. And I'd rather be the Guinea pig in my family than have it be my family member, so I was sort of like, 'OK, I'll do it, I'll be the one.'"

Hearing from trusted others on the importance of getting vaccinated was important for decision-making. One Veteran's *social network* influenced him: "You know, like I said, hearing it from another peer, hearing their experiences does bring comfort. Especially if you know you, you're hearing it from somebody that you've trusted, somebody that you know you have a good connection with, and you know it's, it's the validation that really kind of proves that, you know, it's OK." An employee's conversation with a *healthcare provider* was a turning point: "I feel like the only thing that kind of swayed me the other way was hearing from my PCP [primary care provider]. Obviously, I trust you know, my fellow coworkers who I've worked with for an extended period of time and their reactions to the shot and kind of their firsthand knowledge about it. But as far as who I trust to help me make that decision, it would just be my primary care." Finally, *not having transportation concerns* was a facilitator for receiving a vaccine. One employee stated: "A barrier would be if I had to transport to some place and take it, like go down to [location], which is an hour away and wait in a line or something, that would have been a barrier for me. The fact that it was right here at [facility] was good."

Discussion

This rapid qualitative evaluation of COVID-19 vaccine hesitancy among Veterans and VA employees highlights the many reasons why vaccine hesitancy is present during the current pandemic, covering issues related to contextual influences, interpersonal and societal barriers and facilitators, vaccine-specific issues, and reasons specific to VA and military experiences. Moreover, we also found that vaccine hesitancy is multifaceted and potentially can be conceptualized as several types of hesitancy, covering vaccine dissent, deliberation, distrust, indifference and skepticism, with no one single category responsible for decisions to receive or not receive a COVID-19 vaccine. There were several instances where our *a priori* subcodes were present in different forms of vaccine hesitancy; thus, we do not think that these categories of hesitancy are mutually exclusive.

The large task at hand is how to address these the forms of vaccine hesitancy in addition to the factors that underlie an individual's type or types of hesitancy. An online survey of 1,100 Americans showed that specific language is preferable when discussing the COVID-19 pandemic and the vaccines, with even small differences of wording resulting in more positive perceptions [23]. For example, the language of government control such as "mandate" or "orders" was viewed as threatening and is likely to be ineffective; those surveyed preferred terms such as "protocols" instead. This may reflect our finding that contextual influences—in this case, the role of politics and policies in the COVID-19 pandemic—plays a significant role in how Veterans and VA employees view vaccine uptake. Others have stated that mandates override perception of personal autonomy; in order to convince healthcare workers that COVID-19 vaccines are needed, health care institutions should institute infection control protocols [24]. This reflects the preferred language mentioned above, but it also highlights the barriers and facilitators represented by the personal (autonomous) versus community and societal benefits of receiving a vaccine, which we saw reflected in both Veteran and VA employee statements. A facilitator for receiving the vaccine was recognizing the ability for life to get back to normal, for families to share important moments together. Messaging that focuses on the importance of protocols for community- and societal benefits may be more effective at encouraging vaccine uptake than mandates that make people feel that their personal rights are being taken away.

Despite this research suggesting negative views of mandates, the ongoing challenges with overcoming vaccine hesitancy in the U.S. has led the VA to take a monumental step towards increasing vaccinations by issuing a COVID-19 vaccine mandate. VHA Directive 1193 issued on July 27, 2021 states that all frontline healthcare providers, known as Title 38 personnel—physicians, dentists, podiatrists, optometrists, registered nurses, physician assistants, expanded-function dental auxiliaries, and chiropractors— must be fully vaccinated against COVID-19 by September 2021, or must declare medical or religious exemptions and acknowledge the requirement to wear a face mask in their work environments [25]. While this mandate may increase vaccinations among those who are deliberating their intentions to receive a vaccine, overcoming vaccine hesitancy among those expressing distrust, dissent and skepticism of vaccines through conversations with trusted others is even more urgent if the VA is to successfully implement this directive, and ensure continued health of all Veteran patients.

The importance of conversations with trusted others in making decisions about whether or not to receive a COVID-19 vaccine was apparent in both Veterans' and employees' statements. Vaccine deliberation, when watchful waiting is occurring and people are looking for more answers to their safety concerns, is a time when both Veterans and employees mentioned having talked to their

own primary care providers and peers about what they should do. In order to engage more people in conversations about COVID-19 vaccines, we need more "high-touch", personal approaches to sharing information about the vaccines [26]. Participants in our project used the opportunity for discussion that our interviews allowed as a way to ask questions about the vaccines. While interviewers were careful not to deliver an intervention or respond directly to any misinformation stated by participants, if a participant had questions about the vaccine upon interview conclusion, we were able to respond with factual information. Participants indicated that the discussion was helpful to them and thanked us for the opportunity to engage in conversations about the vaccines. This suggests that Veterans and VA employees are potentially in need of more personal, one-on-one opportunities for learning about vaccines. As primary care providers were mentioned by several participants as trusted sources of information, we encourage our VA primary care provider colleagues to engage as often as possible with both the Veterans they serve and colleagues who may be vaccine hesitant.

Our team drew upon the findings presented in this manuscript to create a *3-Step Plan for Reaching Vaccine Acceptance*, developed in partnership with the VA National Center for Health Promotion and Disease Prevention, the program office leading vaccination implementation across the entire healthcare system, which has been disseminated through many national, regional and local presentations. The 3-Step Plan encourages 1) patient-centered communication principles, 2) sharing altruistic reasons for vaccination heard from employee and Veteran participants, and 3) ensuring those who are trusted most by employees and Veterans are the ones who are having conversations with them. Patient-centered communication principles ensure that a) those talking with employees and Veterans about vaccines ask permission to share information with them; b) explore their beliefs, understanding and readiness for vaccines; and c) a plan is made for next steps, whether that be further conversations or scheduling of a vaccination appointment. Employees and Veterans often described how they became vaccinated in order to protect their friends, family members, colleagues and patients. Our 3-Step Plan provides concrete examples of these that others can share during conversations with those currently unvaccinated. Finally, we urged VA medical center directors and other VA leaders to make time available for conversations between employees, Veterans and trusted others through as many outreach activities as possible, such as specific one-on-one meeting times, small group meetings, and town halls.

There are several limitations to this project. First, we used a snowball sampling approach that stemmed from convenience sampling. In our employee sample, we interviewed fewer men, and in both samples, we had only small numbers of those representing racial and ethnic minorities. We interviewed participants in two U.S. regions, but were not able to learn about vaccine hesitancy in other parts of the country. Still, our overall interview sample consisted of those who had been vaccinated and those who had not. Further, these interviews represent a time interval during a period of change in the vaccine rollout. Collecting follow-up data in the VA, now that a COVID-19 vaccine directive is in place, could help determine how vaccine hesitancy and its determining factors may change over time.

Conclusion

Vaccine hesitancy is multi-faceted and likely requires multiple strategies for engaging in conversations to address Veteran and VA employee concerns. Messages should involve patient-centered communication principles delivered by trusted healthcare provi-

ders and peers and should focus on addressing altruistic benefits for family, friends, and society.

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.

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Appendix A. Supplementary material

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jvacx.2021.100116>.

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