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RESEARCH ARTICLE

# Development of a COVID-19 Vaccine Hesitancy Single Session Group Intervention for US Veterans

**Emily L Mitchell, Sarah R Sullivan*, Kyra K Hamerling-Potts, Matthew F Dobbs, Joseph C Geraci, Marianne Goodman**

*sullivan.sarah.rose@gmail.com

ABSTRACT

**Background:** COVID-19 vaccine hesitancy remains problematic and is particularly prevalent in minority and underserved communities.

**Aim and Scope:** The development and initial efficacy of a single-session Vaccine Hesitancy-focused Telehealth Group at a Veterans hospital in the Bronx, NY are described. This single-session telehealth group integrated motivational interviewing, psychoeducation, and a "vaccine positive" peer with the goal of addressing COVID-19 vaccine hesitancy and improving vaccination rates.

**Methods:** This project was approved by the quality assurance and improvement team at the James J. Peters VA Medical Center in the Bronx, NY. From the vaccine-hesitant Veteran referrals received from providers, eight vaccine hesitancy groups, averaging 3.5 participants per session, were conducted. Thirty Veterans total participated in the telehealth group.

**Results:** Two-thirds of the participants have received the COVID-19 vaccine, with the vast majority of participants receiving the vaccine after the group. About half of the participants (n=14) were more willing to get the vaccine following the intervention and none experienced an increase in hesitancy.

**Conclusions:** Preliminary results suggest this may be one intervention to increase vaccine acceptability and COVID-19 vaccination rates. Program strengths, limitations, and suggestions are discussed.

**Keywords:** vaccine hesitancy; COVID-19; SARS-CoV-2; health behaviors; intervention

## Introduction

Despite the United States investing $10 billion in the development of a COVID-19 vaccine [1], rates of vaccine hesitancy, defined as the unwillingness to receive vaccines when vaccination services are available and accessible, are high among U.S. adults [2]. Initial rollout of the COVID-19 vaccine was met with skepticism by many in the U.S. regarding its safety, with such skepticism persisting almost two years after vaccinations became available [3]. This hesitancy poses a direct threat to ending the pandemic and protecting the health of communities, especially the vulnerable members within them [4].

Various factors may contribute to the increase in vaccine hesitancy, including misinformation and incomplete information spread through increasingly accessible forms of online media such as social media platforms [5]. Social media allows users to rapidly create and share content without much factual oversight while its algorithms contribute to ideological isolation [6]. There have been widespread public health concerns that anti-vaccination messaging on these platforms is contributing to vaccine hesitancy and compromising the public's COVID-19 vaccine confidence and literacy [6]. However, those who turn to healthcare providers for vaccine-relevant information, rather than to online platforms, typically have more accurate information regarding the COVID-19 vaccine as well as its safety and effectiveness [7]. Novel methods are needed to dispel myths and combat misconceptions that promote hesitancy in order to increase vaccination rates, especially in underserved communities.

Consistent with the disproportionate rates of COVID-19 infections and deaths affecting minority communities, it is also critical to understand and address racial, ethnic, and economic factors to effectively target vaccine hesitancy. Hesitancy towards the COVID-19 vaccine has been found to be higher within specific racial and political subgroups [8,9]. As of January 2021, some minority groups were reporting the lowest acceptance of the COVID-19 vaccine [10]. Given that our Veterans Affairs Medical Center (VAMC) resides in the Bronx, New York, one of the most ethnically diverse areas in the US yet ranked last of New York State's 62 counties for health [11], understanding and addressing factors contributing to COVID-19 vaccine hesitancy within this community are of utmost importance for curbing pandemic spread and toll.

Previous studies have shown that leveraging peer support is an influential method for engaging minority groups as well as Veterans in health-related interventions. Peer support involves lay individuals who extend social networks and complement professionals by sharing their own knowledge and experience [12]. Peer support interventions have been found to be effective in promoting the awareness, importance, and ultimate uptake of other health-related behaviors in minority populations [13]. Similarly, a review of peer-supported interventions for health promotion and disease prevention found that using peers as educators in group-based interventions improves knowledge, attitudes, beliefs, and perceptions as well as improves health engagement [14]. In a Veteran population, peers have been shown to effectively share strategies and encouragement to other veterans with similar health concerns [15]. Given this, utilizing peer support was viewed as essential in directly confronting this health-related challenge within the Bronx VAMC community.

This quality assurance and improvement project aimed to 1) identify factors underlying vaccine hesitancy in a racially diverse, Veteran population through telephone outreach calls to develop a Vaccine Hesitancy Single Session Group Intervention (SSGI) at the Bronx VAMC that addresses these concerns and improves vaccination rates; 2) conduct the SSGI, and use exploratory analyses to preliminarily assess effectiveness of the SSGI in increasing receipt of the COVID-19 vaccine.

## Methods

This Vaccine Hesitancy Program (which included initial telephone outreach and SSGI) was reviewed and determined by the Institutional Review Board (IRB) and the Quality Improvement Executive Committee (QIEC) of our VAMC to be exempt from IRB review, and was thus approved by the QIEC. As such, we utilized chart reviews and did not perform informed consent, provide participants with monetary compensation, or register this program at clinicaltrials.gov.

All registered Veterans at the Bronx VA were contacted by VA staff to assess COVID-19 vaccine acceptability and provide information regarding vaccination procedures. Three categories were developed (i.e., vaccine accepted, vaccine refused, vaccine hesitant). This last group labeled "vaccine hesitant" comprised 690 Veterans, which served as the recruitment source for this single session group intervention.

### Vaccine Hesitancy Single-Session Telehealth Group Intervention

A single-session telehealth group intervention (SSGI) was developed with content specifically designed to address concerns identified during semi-structured interviews to vaccine hesitant

Veterans.

The SSGI is manualized, offered over WebEx, and integrates elements of motivational interviewing, psychoeducation and peer support to promote helpful dialogue and decision-making tools pertaining to COVID-19 vaccines. Specifically, the SSGI balances skill instruction with opportunities for Veterans to share concerns, exchange information, and provide peer interaction. Throughout the SSGI, there were two group facilitators from the Bronx VAMC's MH services. Additionally, a Preventative Medicine resident was available as needed to address medical concerns. Importantly, the facilitators were aided by a "vaccine positive" Veteran peer who had lived experience with a MH diagnosis, was a racial or ethnic minority, and had already received the COVID-19 vaccine. The peer in each group would articulate their personal reasons for vaccination while remaining respectful of alternative viewpoints. The inclusion of a Veteran peer is in line with the priorities of the Department of Veteran Affairs, as the White House issued an Executive Order which resulted in the VA hiring and integrating 800 peer specialists into VA care [16].

The facilitators reviewed common circulating myths creating hesitancy and asked the participants to discuss the ones with which they resonated. The Preventative Medicine resident presented information pertaining to the development of the vaccine and answered questions regarding medical concerns. A chart of pros and cons was constructed with special emphasis on articulating benefits of receiving the vaccine and disadvantages of continuing to delay. The session ended by articulating what is still unknown about the vaccine and reassessing each participant's hesitancy on the scale from the beginning of the session. The group was aided by a communication coordinator who helped Veterans connect over WebEx and resolved technical issues while the group was being held. A group format was specifically chosen to increase dynamic dialogue, capitalize on peer encouragement, and leverage shared Veteran values of, courage, commitment, and loyalty to help shape decision making in hesitant individuals. Additionally, this allowed our group to capitalize on peer support. Emerging research has found that peer-provided, recovery-oriented mental health services result in outcomes equal to or better than services from non-peer professionals [17]. The SSGI combined a coordinated approach involving professionals and peers in order to facilitate dialogue related to vaccine hesitancy in Veterans.

**Procedure**

Data collection was completed remotely via phone, Qualtrics, and WebEx from February-April 2021. Vaccination status and MH diagnosis were both determined by a rigorous chart review.

**Results**

One hundred and thirty-seven Veterans were contacted for potential participation in the vaccine hesitancy program. Thirty Veterans attended the vaccine hesitancy SSGI. Demographics of those in the group include an average age of 57.3 years (range: 30-81) and 66.7% were male, as reported in **Table 1.** Ethnic, racial, religious, and residential breakdowns are also reported in **Table 1.**

For the 30 Veterans who participated in the SSGI, 20 (66.7%) have received the COVID vaccine overall, with only four having received a first vaccination dose prior to the group and hesitant about receiving a second dose (13.3%), and 53.3% (n=16) have since received their vaccines as designated in their medical chart. Among the remaining ten participants who are not yet vaccinated, none are currently scheduled to receive the vaccine.

Eight vaccine hesitancy groups, averaging 3.5 participants per session, identified additional themes for hesitancy, including: 1) concerns that the vaccine was developed too quickly, 2) the need for long-term safety data, 3) concerns about immediate side effects following injection, 4) fears of DNA modification, and 5) questions regarding vaccine ingredients.

**Table 1.** Demographic characteristics of 30 Veterans who attended the SSGI

| Characteristic | N | % |
|---|---|---|
| Age in years | | |
| (M±SD) | 57.3±15.5 | |
| Median | 60.0 | |
| Gender | | |
| Female | 10 | 33.3 |
| Male | 20 | 66.7 |
| Hispanic or Latinx ethnicity | 8 | 26.7 |
| Race | | |
| Black | 17 | 56.7 |
| White | 10 | 33.3 |
| Native Hawaiian/Pacific Islander | 1 | 3.3 |
| Did not report | 2 | 6.7 |
| Religious affiliation | | |
| Christian denomination | 25 | 83.3 |
| None reported | 5 | 16.7 |
| Residence | | |
| Bronx | 18 | 60 |
| NYC [a] (excl. Bronx) | 8 | 26.7 |
| Outside of NY state | 4 | 13.3 |
| Mental health diagnosis [b] | 24 | 80 |

[a] NYC=New York City metropolitan area.

[b] Several Veterans reported >1 mental health diagnosis.

## Discussion

This quality assurance and improvement project examined vaccine rates after participation in an adjunctive SSGI for Veterans. The SSGI incorporated principles of motivational interviewing and participation of a minority Veteran peer who was "pro-vaccine" and had lived MH experiences. Peers were instrumental in encouraging dialogue and building trust in the group, while also imparting experiential knowledge from the Veteran perspective, which is a key benefit of peer-provided services [18]. We also provided medical expertise in the form of a Preventative Medicine resident during the SSGI to facilitate learning about the development of the vaccine, concerns about medical contraindications, and efficacy with variants.

Changes in vaccine acceptance differed across groups and are likely accounted for by the mix and use of certain strategies over others (e.g., exploratory-based discussion compared to being statistics focused). Vaccine hesitant Veterans were more likely to engage in the session when discussion was more exploratory and non-judgmental rather than persuasive. Efforts focused on facts and data by providers was mostly unsuccessful. In fact, when the Preventive Medicine resident created a PowerPoint presentation highlighting studies on vaccine efficacy, this didactic approach with more technical content was negatively received. However, active listening, acknowledging concerns, and trying to understand individual viewpoints (e.g., vaccine ingredients and impacts on fertility) yielded more positive results. Veteran participants responded to the pro-vaccine peer with a desire to uphold Veteran values of commitment and helping others by "going together" to receive their shots. This trust in peers was helpful in over-riding mistrust of the government and pharmaceutical companies. These principles echo the recommendations of vaccine hesitancy experts for individual clinical encounters [19, 20].

### *Strengths and Limitations*

Our SSGI has several strengths, notably its timeliness amidst the ongoing COVID-19 pandemic, vaccine rollout and alarming spread of the Delta variant. Our numbers of vaccination may also be underestimated as we could not account for vaccinations occurring outside of our VAMC. Despite these strengths, limitations do exist. This study used 1) a small, convenience sample of Veterans, 2) only one site in New York City, and 3) ad-hoc qualitative and analytic methods, limiting its generalizability to other geographic areas and civilian populations.

### *Clinical Implications*

This project may hold clinical implications for addressing ongoing hesitancies towards supplemental COVID-19 booster immunizations. Booster doses of the COVID-19 vaccine are now recommended to protect against breakthrough

infections and boost immunity given the emergence of various COVID-19 variants. Since the initial rollout of the COVID-19 vaccine, hesitancy to accept the vaccine and additional doses of it continues to remain a problem in the United States. A recent study investigating COVID-19 booster uptake hesitancy found that almost half of a nationally representative sample of U.S. adults (41.7%) were booster hesitant [21]. This hesitant group was identified as having lower levels of education and lower scores of vaccine literacy and vaccine confidence, on average, than the non-hesitant adults in the sample [21]. Furthermore, many of the booster-hesitant individuals were African American [21]. This study highlights the need for interventions focused on building vaccine confidence and literacy in these populations by utilizing participatory dialogue that highlights advantages of booster acceptance over disadvantages [21]. The SSGI described herein highlights such an intervention and the potential impact of a dialogue-based, group, peer encounter to address vaccine hesitancy. Future research should examine how this intervention may impact levels of participant vaccine literacy and confidence through specific and validated measures of those constructs.

*Conclusion*

This quality assurance and improvement project aimed to examine the preliminary effectiveness of a Vaccine Hesitancy Single Session Group Intervention in addressing factors of vaccine hesitancy in an urban Veteran population and improving vaccination rates. From conducting the SSGI and running exploratory analyses, we found that a majority of participants either received their first vaccination or finished receiving the vaccination series after attending the session. Despite a small sample, the project offers important preliminary insights of how best to engage vaccine-hesitant individuals from lower-income and racially diverse communities in communication interventions surrounding vaccine hesitancy. The benefits of using peer-support and discussion-based techniques over didactic approaches for engaging such populations are also highlighted.

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