Assessing and addressing COVID-19 vaccine hesitancy in a West Texas Free Clinic through motivational interview-guided intervention

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Abstract

Background: *Vaccine hesitancy is a public health issue that threatens the successful prevention of vaccine-preventable diseases. The Free Clinic at Lubbock Impact serves rural West Texas uninsured patients. In recognition of low vaccination rates among this population, an initiative was undertaken to better understand factors contributing to COVID-19 vaccine reluctance and conduct interventions to reduce hesitancy.*

Methods: *Patients at the Free Clinic between January 2022 and March 2022 received a voluntary survey regarding their COVID-19 vaccination status, perceived barriers to vaccination, and factors influencing vaccination status with Likert-scale response options. Following the first 3 weeks of data collection, an educational intervention was designed and implemented for unvaccinated participants. The intervention included a motivational interview, pamphlet review, and exit survey to assess future likelihood of vaccination.*

Results: *A total of 161 survey responses were obtained from the initial survey with a total, unique patient population of 138. Of the 138 unique patients surveyed, 73 reported as vaccinated and 65 reported as not vaccinated against COVID-19. For hesitancy factors among unvaccinated participants, the mode for the "Extremely Important" hesitancy factor was "Personal Preference." Thirty-seven of the 41 unvaccinated participants who received an intervention reported liking the discussion of the COVID-19 vaccine (90.2%), 4 reported they were not interested (9.8%), and 0 reported disliking the intervention. Half of the respondents indicated an increased likelihood of future vaccination.*

Conclusion: *The goal of reducing vaccine hesitancy at The Free Clinic was successful. These findings support the benefits of openness to educational interventions among vulnerable populations.*

Keywords: Uninsured, Underserved, minorities, vaccine, vaccine hesitancy, COVID-19, pandemic, free healthcare, rural health, public health

Introduction

By reducing morbidity and mortality of many infectious diseases, vaccines are an essential part of modern public health. However, hesitancy and resistance to vaccines, driven by beliefs surrounding safety or necessity, threatens the successful prevention of outbreaks caused by vaccine-preventable diseases.[1] Vaccine hesitancy was considered a threat to public health before the emergence of SARS-CoV-2, but the resistance by many to receive the COVID-19 vaccine brought vaccine hesitancy into the public awareness.

SARS-CoV-2 first emerged in 2020 in The United States and has since been a growing concern. The development of vaccines against COVID-19 was a

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major step towards mitigating the morbidities associated with infection. However, current data suggest that there has been a large population of people who are averse to receiving the vaccines available to them.[2] Understanding factors that influence vaccine hesitancy is critical for the development of tailored strategies to increase vaccination rates and reduce incidence, morbidity, and mortality from disease. This is particularly among vulnerable populations who often experience increased medical mistrust, reduced access to healthcare, and worse outcomes.

Lubbock County, Texas, has a population of just over 300,000 people, with 13.5% uninsured and 18.9% living in poverty compared to national averages of 9.2% and 10.5% respectively.[3] While a community is considered to have reached herd immunity when 75–85% of its population is vaccinated, only 49.5% of Lubbock's population is fully vaccinated against COVID-19.[4]

The Free Clinic is a student-run free clinic conducted on Wednesday evenings that provides healthcare to medically uninsured patients without a primary care physician. The Free Clinic hosts monthly vaccine clinics in which patients may elect to receive their COVID-19 vaccines at no charge. This project was begun to evaluate the factors contributing to vaccine hesitancy among unvaccinated patients and the efficacy of educational intervention.

This project was designed to assess and address common hesitancy factors and concerns of participants with the ultimate goal of increasing vaccination rates in our patients with educational interventions addressing underlying concerns. This project and intervention were designed and led by the student co-authors. This project received Quality Improvement Review Board Approval on January 5, 2022 (QIRB PROJECT #: QI-21131).

Methods

Study design

An optional survey [Appendix A] was included in the incoming patient paperwork for patients at the Lubbock Impact Free Clinic. Patients were asked their vaccination status and to report any barriers they had faced to vaccination. Participants who had not been vaccinated against COVID-19 were asked to complete the remainder of the survey, which included a self-rated likeliness of being vaccinated in the future and a Likert scale to assess the importance of hesitancy-driving factors.

An intervention for unvaccinated participants was designed after analysis of preliminary data from the first three weeks of completed surveys. The intervention included a brief motivational interview [Appendix B] to assess patient understanding and individual hesitancy. Study personnel then orally reviewed and provided a printed copy of a standardized information sheet on the FDA-approval process for vaccines as well as risks and benefits of the COVID-19 vaccine [Appendix C]. All information included was collected from the Centers for Disease Control Information on COVID-19 vaccines.[5] Study participants were then invited to ask any questions and allowed to engage in a conversation about the vaccine as guided by the participant. Following the intervention, participants were asked to complete an exit survey [Appendix D] asking whether they liked the intervention, their likelihood of receiving the vaccine in the future, primary hesitation factor, and any feedback.

Inclusion/Exclusion criteria

Respondents were patients seen at the Wednesday evening Free Clinic. Included patients were between the ages of 18 and 65 with the ability to consent. No specific participant exclusion criteria existed aside from inability to consent. Any unvaccinated patient who completed the survey was able to opt out of receiving an intervention.

A consent statement was included at the top of the written survey and an oral consent statement was reviewed with participants receiving the intervention. Participation and data collection were performed in compliance with human-studies guidelines and in compliance with FDA guidelines.

Data collection

Data collection continued for 10 weeks from January to March in 2022. The intervention was performed for

7 weeks. Entrance and exit surveys were collected and collated alongside brief notes on motivational interviews. This study did not involve the use of treatment versus control groups. All data were de-identified to maintain confidentiality, and informed consent was ensured for surveys and intervention participation. All results for each participant, including any repeated surveys at later visits, were collated under the same randomized study number.

Statistical Analysis

Reported barriers were collected across surveys to determine which barriers were most impactful for our studied population. Likert scale responses for influencing factors were analyzed by mode to understand which factors are most impactful overall in influencing vaccine reluctance. In addition, success of intervention will be evaluated by comparing pre- and post-intervention likelihood of future vaccination. The tolerability of the intervention by participants will be based on reported like, dislike, or lack of interest in discussing the vaccine. Given that ordinality of survey responses, mode is an appropriate measure for central tendency and frequency.[6]

Results

One hundred sixty-one responses were obtained from the initial survey. Of the 161 responses, 23 responses were from repeat patients, thus leaving a total unique patient count of 138. Of the 138 unique patient surveys, 73 reported to be vaccinated, and 65 reported to not be vaccinated (Figure 1).

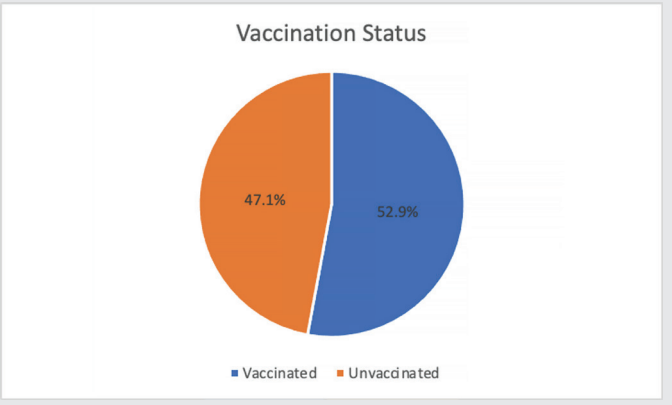

Figure 1. Total number of responses to the survey's initial vaccination status question.

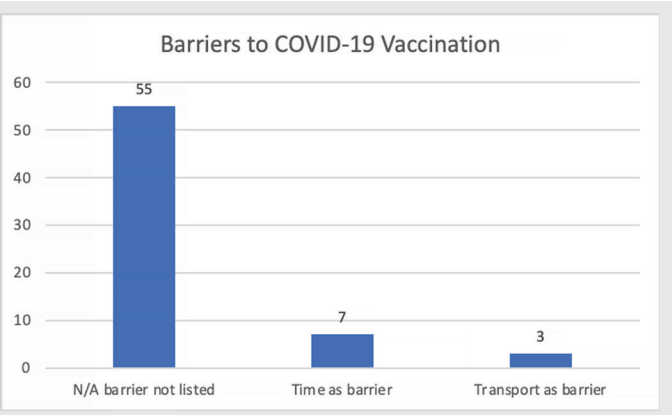

Figure 2. Frequency of barriers to vaccination as reported by survey responses.

The second question of the survey asked participants about their experienced barriers to vaccination from the options of lack of time, lack of transportation, availability of vaccines, not applicable. Fifty-five out of the 65 (84.6%) total unvaccinated respondents reported barriers to vaccination were "Not Applicable." Seven respondents (10.8%) reported lack of time as a barrier to vaccination, while 3 reported lack of transportation as a barrier (Figure 2).

Unvaccinated respondents were asked to report the importance of six hesitancy-driving factors influencing their vaccination status on a 5-option Likert scale from not to extremely important. Among unvaccinated participants, the mode of responses rated "Extremely Important" was "Personal Preference" with 25 respondents. Sixteen respondents reported "Religious Beliefs", while 14 reported "COVID/Vaccine Beliefs" as "Extremely Important."

According to the survey results, the mode of factors rated "Not Important at All" was "Political Beliefs" with 40 respondents marking this category. This was followed by 33 participants and 32 participants reporting "Healthcare Mistrust" and "Government Mistrust" as not important respectively. Thirteen patients rated all factors as not important; three respondents rated all factors as extremely important (Figure 3).

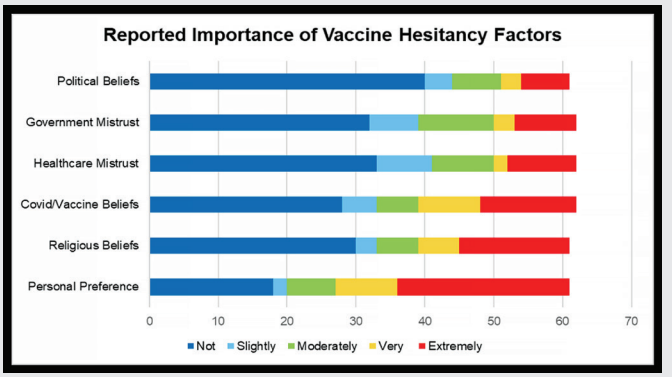

Figure 3. Reported importance of surveyed vaccine hesitancy driving factors among unvaccinated participants.

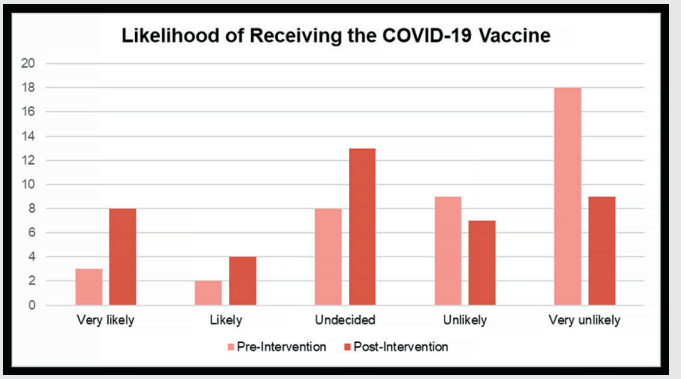

Figure 5. Self-reported likelihood of receiving the COVID-19 Vaccine pre- and post-intervention.

Out of the patients who were unvaccinated, 41 of them had interventions; 24 did not. Patients who did not receive an intervention were either surveyed prior to the intervention start, declined intervention, or had an incomplete intervention. Of the 41 patients who had interventions, 37 respondents (90.2%) reported that they liked discussing the COVID-19 vaccine with project personnel during their interventions, and four respondents (9.8%) reported they were not interested in discussing the COVID-19 vaccine at their visits. None of the respondents claimed to dislike the interventions (Figure 4).

After the interventions took place, nine of the 18 (50%) respondents who claimed that they were very unlikely to get a vaccination had changed their minds.

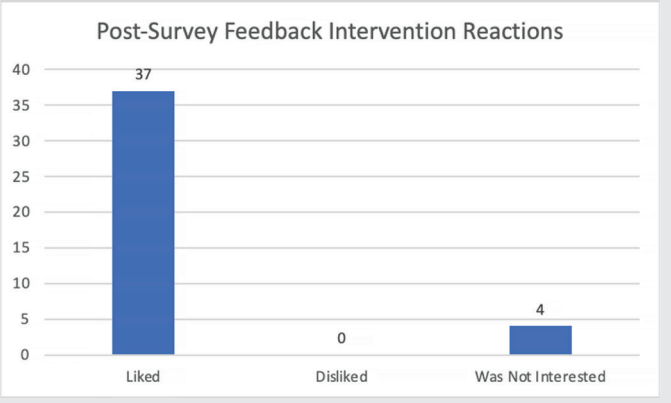

Figure 4. Reported feelings towards discussing COVID-19 vaccine in intervention.

There were five more patients who claimed that after the intervention, they were very likely to get a vaccination which represents a 167.7% increase. Cumulatively, 20 respondents did not have a change in reported likelihood in vaccination between pre- and post-intervention surveys, while 20 respondents changed their likelihood to get vaccinated post intervention. One survey exit survey was incomplete. The mode of the data shifted from "Very unlikely" pre-intervention (18) to "Undecided" post-intervention (13) (Figure 5).

Discussion

Although accessibility and availability of COVID-19 vaccines proved the initial limitation to vaccination, vaccine opposition and hesitancy has been an enduring public health challenge. Opposition to vaccination dates back to the 1800s. A variety of factors contribute to a person's hesitancy to receive a vaccine; these include evaluation of risks and benefits, political beliefs, and level of trust in the healthcare system. Conceptual models and schemas have been developed to better understand the drivers of vaccine hesitancy. Interactions between patients and healthcare providers significantly contribute to confidence in vaccination, most importantly through maintaining trustworthy patient-provider relationships and individualized addressing of concerns.[1]

Vaccine hesitancy is also higher among vulnerable populations. Factors such as lower educational

attainment, rural settings, low-income, and no health insurance have an association with lower vaccine acceptance in the United States.[8] Educational efforts to address vaccine hesitancy have had varying degrees of success. A COVID-19 vaccine education intervention conducted among personnel associated with Wright-Patterson Air Force Base found 64% of participants remained hesitant following a series of seminars.[9]

In this study, the majority of unvaccinated respondents reported they had not faced any particular barrier to vaccination, supporting the importance of other hesitancy drivers. Our patients are uninsured rural patients, most of whom have lower educational attainment and socioeconomic status. These patients are at increased risk for vaccine hesitancy. Despite the politicization of COVID-19 in this country, "Political Beliefs" was ultimately the least important factor as reported by unvaccinated participants. "Personal Preference" was rated most important by most participants in their reluctance to receive the COVID-19.

Half of intervention participants rated their likelihood of receiving the COVID-19 vaccine as higher post-intervention. Although sample size and statistical power of this study are limited, the change in mode and trend of responses towards increased likelihood post-intervention demonstrates the benefit of the intervention in decreasing hesitancy. In addition, almost all patients who received the intervention enjoyed the experience of speaking to a healthcare provider about the vaccine. This positive response demonstrates amenability to public health interventions in this population. Future study to evaluate change in behaviors can help quantify the impact of such changes, but our results support the success of the intervention through overall increased willingness/likelihood to get vaccinated among participants.

The results of this project contribute to the growing literature and understanding of vaccine hesitancy, specifically within a rural uninsured patient population. Understanding what factors and intervention efforts impact vaccination rates allows healthcare providers to better attend to the needs and concerns of their patients, contributing to the personal and public health of the communities in which they practice. Our findings suggest that simple educational efforts can address public health issues like vaccine hesitancy.

Limitations of this study include small sample size. Potential neutral and extreme response bias may also exist among patients who marked all factors as "Extremely Important" or "Not Important at All." Additionally, although intervention participants were encouraged to respond honestly, response bias may have impacted exit survey responses and contributed to demonstrated decreased hesitancy. Another limitation was the variability in the interviews due to having 3 different study personnel. Intervention differences between personnel, particularly in the free-form response time, may have affected responses from respondents.

Conclusion

Vaccine hesitancy is not a phenomenon new to the COVID-19 era. However, the heightened public attention around this issue provides the opportunity to better understand hesitancy drivers. The pre- and post-intervention survey results demonstrated the promise of such educational efforts for addressing and reducing vaccine hesitancy among uninsured, rural patients. The majority of the patients stated that they enjoyed being part of the COVID-19 Vaccine Hesitancy Intervention and half of them self-reported an increased willingness to receive a COVID-19 vaccination post-intervention. Although further investigation is warranted to assess the patients' "Personal Preference" survey responses and actual post-intervention vaccine rates, the data gained from this project provide insight into vaccine hesitancy in a rural underserved west Texas population and can be used as a guide to address vaccination hesitancy with the ultimate goal of increasing vaccination rates in the future.

Acknowledgments

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