

The Messenger Matters: Religious Leaders and Overcoming COVID-19 Vaccine Hesitancy

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Abstract

Experts agree that vaccination is the most effective way to bring the COVID-19 pandemic under control. Nevertheless, vaccination rates have slowed nationwide and large segments of the population report an unwillingness to get vaccinated. We conducted an online survey experiment to investigate if endorsement from various types of leaders can encourage the unvaccinated population to receive the vaccine. We surveyed 709 unvaccinated registered voters in South Dakota in April, 2021 and presented them with identical messages endorsing vaccination from a political, religious, or medical leader. Our results show that messaging from a religious leader has a positive and statistically significant effect on interest in getting vaccinated, while messages from a political or medical leader have no statistically significant effect. These results strongly suggest that religious leaders are more effective messengers than other potential messengers and that public health officials would be well served to coordinate their efforts with leaders in faith communities.

Introduction

The COVID-19 pandemic has been one of the largest public health emergencies in decades. Virtually everyone in society has been affected by the pandemic in some way. Vaccination has been considered key to bringing the pandemic under control (CDC 2021). However, vaccines go unused and vaccination centers are closing around the country. Lack of interest and even hostility towards vaccination threaten to prolong the pandemic. Experts believe that well-crafted messages could increase trust and confidence of the population in COVID-19 vaccines, and boost interest in vaccination (Chou and Budenz 2020; Finset et al. 2020).

To investigate how messages from leaders could affect vaccination intentions, we conducted a survey experiment on a sample of 709 unvaccinated registered voters in South Dakota in April 2021. Participants received identical messages from a political, religious, or medical leader encouraging vaccination, and afterwards answered questions about their vaccination intentions. We find that religious messengers have a positive and statistically significant impact on interest in receiving a vaccine.

Our results suggest that religious leaders might be the most effective messengers. Given the fact that evangelical Christians are showing more vaccine hesitancy than the rest of the population, public health officials should consider collaborating with religious leaders. Despite the fact that people take cues from political elites on a range of other issues, we find the political messenger to be ineffective. The results also suggest that medical leaders are not always successful messengers.

Overcoming Vaccine Hesitancy

Experts estimate that at least 70–80% of society must be vaccinated in order to achieve so-called “herd immunity” and bring the pandemic under control. While vaccination interest in the United States and worldwide was strong at the beginning of vaccination efforts, the rates have been slowing, possibly due

to the prevalence of conspiracy theories, widespread misinformation, and politicization surrounding COVID-19 mitigation efforts (Romer and Jamieson 2020). Some groups, such as Republicans, evangelical Christians, and residents of rural areas have displayed strong reluctance towards vaccination. Scholars discovered evidence of vaccine hesitancy even among medical professionals (Kwok et al. 2021). Even more worryingly, a large portion of unvaccinated people show little interest in getting vaccinated (Dias and Graham 2021). Vaccine hesitancy has emerged as one of the central challenges in bringing the coronavirus pandemic under control (Khubchandani et al. 2021; Dror et al.2020).

How then can people be encouraged to get vaccinated? Experts believe that effective communication could increase the confidence and trust of the public in COVID-19 vaccines (Chou and Budenz 2020; Finset et al. 2020; Ratzan et al. 2021). Evidence exists that changes in the wording of messages encouraging vaccination can affect vaccination willingness (Palm, Bolsen, Kingsland 2021). One study finds that messages emphasizing “personal health risks and collective health consequences of not vaccinating significantly increase Americans’ intentions to vaccinate” (Motta et al. 2021: 1). Nevertheless, other studies do not report a relationship between providing detailed information on the efficacy or safety of COVID-19 vaccines and the willingness to get vaccinated (Duquette 2020; Kerr et al.2021). Transparency about the pros and cons of the vaccine is necessary, but not sufficient to convince people to get vaccinated (Petersen et al. 2021). Special care needs to be taken in crafting these messages; previous experiences tell us that incorrect messaging makes skeptics even more reluctant to get vaccinated (Nyhan and Reifler 2015). Overall, scholars have explored on how the wording of messages can affect the willingness to get vaccinated, though the results have been mixed.

Existing studies on how to overcome vaccine hesitancy examine the content of messages and pay less attention to the presenter of the message. Findings in social and behavioral sciences, however, suggest that the messenger might have a greater effect on shaping people’s attitudes on an issue than the content of the message (Kuklinksy and Hurley 1994; Nujiten, Keil, Commandeur 2016). For example, evidence exists that characteristics of the messenger affect popular tolerance of free speech (Doherty and Stancliffe 2017). It has also been shown that the perceived ideological background of a news station shape how people consume political news (Turner 2007). We suspect that a similar mechanism might also shape the formation of COVID-19 vaccination attitudes. People might evaluate a message encouraging COVID-19 vaccination not based solely on its content, but on their view of the messenger. An unfavorable view of the messenger might serve as a cognitive block, which will prevent the audience from processing the information in the message. In other words, the content of a message might be overwhelmed by the messenger. An encouragement from a trusted messenger might be the key to overcoming vaccine hesitancy. This begs the question, which messenger is most effective?

The Impact Of The Messenger On Vaccination Preferences

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This study examines the effectiveness of political, religious, or medical leaders in increasing public favorability towards vaccination. Given the extent to which COVID-19 has been politicized, we suspect

that messages from political leaders might encourage people to get vaccinated. Evidence exists that people take cues from political leaders on a number of social, medical, and environmental issues (Behaghel and Blau 2012; Slothuus and Bisgaard 2020). Despite being a medical issue, coronavirus quickly became politicized in several countries around the world, particularly those with populistic leadership (Peeverhouse 2020). In the United States, the Democratic Party took a pro-vaccination stance, while the Republican Party has been more skeptical. Former Republican President Trump, openly dismissed and downplayed the threat coming from COVID-19. Evidence exists that both Democratic and Republican voters have been taking cues from the party elites when it comes to COVID-19 mitigation behaviors, such as mask wearing or social distancing (Allcott et al. 2020). One study finds that unvaccinated Republicans were more likely to receive a vaccine after viewing an endorsement from a Republican leader (Pink et al. 2021). A message from a political leader could positively affect their attitudes towards vaccination. Therefore, we expect that,

H1: A message from a political leader will make unvaccinated people more interested in receiving a COVID-19 vaccination.

Religious messengers could also affect attitudes on COVID-19 vaccination. Research has demonstrated the importance of religion as a frame through which people perceive the world (Glazier 2013). Religious figures have high standing amongst the population, and are considered impartial and trustworthy. Evidence exists that religious leaders can improve the participation of their congregations in public health and even vaccination acceptance (Ruijs et al. 2013; Toni-Uebari and Inusa 2009). At the same time, opposition from religious figures can slow down vaccination efforts (Renne 2006). We propose that a message from a religious leader could have a positive effect on people's attitudes COVID-19 vaccination. Thus,

H2: A message from a religious leader will make unvaccinated people more interested in receiving a COVID-19 vaccination.

Lastly, we propose that encouragement from medical leaders could help overcome vaccine hesitancy. COVID-19 is fundamentally a medical issue, and medical doctors are considered the central agents in building the public trust in vaccines (Coustasse, Kimble, Maxik 2021; Paterson et al. 2016). Their knowledge and expertise make them ideal messengers. Evidence exists that conversations with medical experts have a positive effect on willingness to receive the H1N1 vaccine (Borah and Hwang 2021). One study reports that an endorsement from Dr. Anthony Fauci increased interest in vaccine among all groups (Bokemper et al. 2021). We suggest that a message from a medical leader will have a positive effect on people's attitudes towards vaccination. Therefore,

H3: A message from a medical leader will make unvaccinated people more interested in receiving a COVID-19 vaccination.

Research Design

Sample

We conducted a survey experiment to evaluate our theoretical expectations. It was fielded from April 12–25, 2021 on a sample of 709 unvaccinated residents of South Dakota. The experiment was part of a larger survey on the impact of the COVID-19 pandemic, of 3,057 registered voters in South Dakota. Our sample was drawn from 44,000 randomly selected registered voters in the state who received a letter invitation to complete an online survey via the QuestionPro survey platform, yielding a relatively strong response rate of 6.9% (Barber et al. 2014). Some of the most vaccine-resistant subgroups in the United States are whites, rural residents, born again Christians, and Republicans. For these reasons, South Dakota is a good population for testing which of the messengers will have the greatest impact on people's attitudes towards vaccination. By the time of the survey's fielding, South Dakota had opened vaccinations to all residents aged 16 years and older, with wide availability in community vaccination centers, pharmacies, grocery stores, hospitals, and clinics. Given that over three-quarters of those sampled in our survey had been vaccinated, we assume that most respondents that had not received at least one dose at that time were exhibiting at least a degree of vaccination hesitation.

Experimental Design

In our study, unvaccinated participants read a short message from either a religious, political, or a medical leader encouraging vaccination (see Supplementary Information for full text). The content of the message was identical and was delivered by either Republican Senator John Thune, Constanze Hagmaier, Bishop of the Evangelical Lutheran Church in America South Dakota Synod (ELCA), or Dr. Benjamin Aaker, President of the South Dakota State Medical Association (SDSMA). Senator Thune was chosen because of his long service and near-universal name recognition in the state. Bishop Hagmaier was chosen since the ELCA is the largest sect in the state. Finally, Dr. Aaker was chosen since the SDSMA is the state affiliate of the American Medical Association and a well-known medical advocacy group. Each of these individuals had independently articulated the content of our message, we simply reworked the language to be identical between treatments. The control group participants read a message of the same length that was unrelated to coronavirus (the messages are available in the supplemental material). After reading the message, subjects were asked about their interest in getting vaccinated: "How interested are you in getting a COVID-19 vaccine?" Interest in vaccination was measured on a 1–5 scale ranging from "not at all interested" to "very interested." Participants were asked a battery of demographic and political questions. The survey also included an instructional manipulation check, which 97.4% participants answered correctly.

Results

Does a message from a leader affect public's attitudes towards COVID-19 vaccination? First, we conduct a difference-in-means test to estimate the impact of messenger on the interest in vaccination (Table S3). We find that compared to the control group, the religious messenger the only treatment that is in the expected direction and is statistically significant ($p = 0.0495$; two-tailed test). Thus, we find empirical

support for H2, but not for H1 and H3. To get a more complete understanding on the effect of messenger on vaccination attitudes, we also estimate an ordinary least squares regression using the question on interest in getting a vaccination as the dependent variable. The results are presented in Fig. 1. The three treatments are included as binary indicators. To control for the effects of people's attitudes on the individual messengers, we include thermometers (ranging from 0 to 100) on John Thune, the ELCA, and the SDSMA. The model also includes control variables that have been associated with vaccination hesitancy, and COVID-19 attitudes more generally, such as three-point partisan identification, age (in years), an indicator for males, education, trust in government, knowing a someone who died to COVID-19, and an indicator for evangelical self-identification (Table S4).

Of the three messengers tested relative to the control message, we again see positive results for the religious messenger, thus supporting H2, but failing to find support for H1 and H3. The respondents who read an encouragement from the religious messenger show a statistically significant and substantive increase of interest in vaccination of .51 on a five-point scale. Interest in getting vaccinated is also clearly driven by partisan identification. Since the scale ranged from Democrats at "1" to Republicans coded "3," this comports with our expectations. We are somewhat surprised that the political messenger did not resonate with unvaccinated voters, given that the unvaccinated public skewed heavily towards Republican identifiers. Also of a surprise is that the effect of Evangelical identification is small and insignificant, once partisan identification is controlled for. We also find that trust in government and knowing someone who has died due to COVID-19 has a statistically significant effect on interest in vaccination.

To understand just who is most receptive to these messengers, we conduct difference-in-means test on different sample subgroups. Subgroup analysis enables us to provide more finely-grained advice to public health officials on how to best frame and direct their messaging on vaccination promotion. Contrary to what many would expect given the popular perception that evangelical Christians are amongst the most resistant population, all of the messengers have a statistically significant effect on interest in vaccination among self-identified as evangelicals; with the effect of the religious messenger being particularly strong ($p = 0.0047$; two-tailed test). We also find that the religious messenger has an effect on interest in vaccination among the people younger than 65 years ($p = 0.0420$; two-tailed test). This is encouraging given that younger people are vaccinated at lower rates compared to the more senior segments of the population. The various messengers had no effect on those participants who identified as Republicans and Independents, suggesting that the one explicit partisan messenger, Senator John Thune, falls flat amongst his own partisans.

Discussion

We hope that these results will aid public health officials in crafting strategies to increase public interest in vaccination. While the bulk of research has focused on the content of messaging, the messenger clearly matters in breaking through to citizens showing hesitancy to the COVID-19 vaccines. We have shown that using religious messengers has real potential in moving people's attitudes. We feel that these

results may in fact *underestimate* the potential for religious messengers since we used a single messenger from a specific ecclesiastical institution. If the messaging could target specific religious communities with messengers from within those groups, the impact could be even greater. These results also cast doubt on the effectiveness of messengers bearing credentials from medical organizations amongst the unvaccinated population. Medical leaders, such as Dr. Fauci, have become part of the political skirmish that has been surrounding COVID-19 mitigation strategies, which has made the unvaccinated population skeptical of the medical experts and their opinions. Using other messengers might be more effective, particularly if the messenger comes from a faith community.

A number of questions remain, which provide the foundation for future research. First, our sample is composed of residents of South Dakota. Given the fact that whites, rural residents, Republicans, and evangelical Christians show less interest in vaccination, we believe that this focus is justified, however, it might limit the generalizability of our findings to more heterogeneous areas. Second, all three messengers in our study were state-level figures. In the future, scholars should explore the role of local level officials, such as city mayor or a pastor at a local church. Local officials are often times more trusted than the state or federal officials, and messages encouraging vaccination from local leaders could be more effective. Third, contrary to existing scholarship, this study used the same message and varied the messenger. It would be interesting to combine differently framed messages with different messengers. Such an undertaking is beyond the scope of this project, but is something scholars should explore in the future. Finally, the finding that a message from a medical leader had decidedly marginal effects provides foundation for further research. Doctors and experts representing large public health organizations may have been caught up in the political melee surrounding COVID-19 and mitigation efforts. It is plausible that they have been increasingly viewed as political figures rather than scientists, which compromised their effectiveness as messengers, but more research on this is needed.

Note

All surveys, methods, and data handling procedures associated with this study were approved by [XXX] University's Research Compliance and Integrity Officer, approval number IRB-2105006-EXM.

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Figures

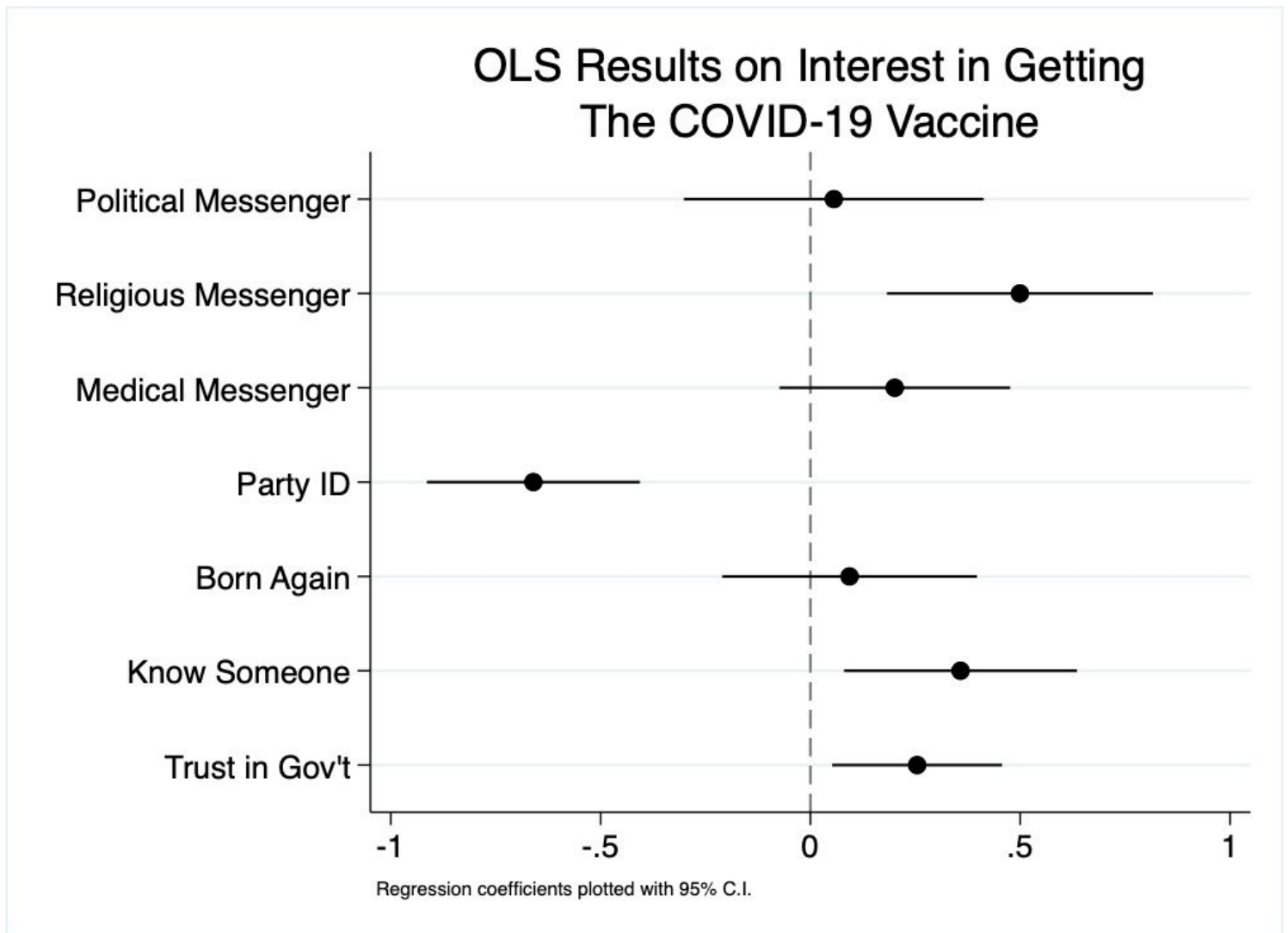


Figure 1

Regression results on interest in vaccination and likelihood of getting more information about the vaccine (two-tailed test).

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [Appendixpaper1.docx](#)
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