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Misinformation and Vaccine Hesitancy Determinants: The Significance of Framed Public Health Messaging

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by

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Abstract

In 2020, the SARS-CoV-2 (COVID19) outbreak effectively disrupted worldwide operations for months, leading to tremendous economic loss and adverse health outcomes. While countries grappled to control the virus and scientists worked around the clock to deliver a vaccine in record time, a public health communication crisis emerged. The spread of false and misleading information, also known as misinformation, has proved to be a barrier in the fight against COVID19 and its vaccination effort. Many factors including the rise of social media, distrust of government, polarization of news sources, and fragmented media have created an environment susceptible to misinformation (Gollust et al., 2020). Utilized correctly, health messaging has the potential to be a tremendous resource for health promotion, especially during emergency situations. Framed messaging, or messaging that is either focused on achieving the desired outcome or dissuading an undesirable outcome, is thought to be a potential avenue for changing behavior and perception (Feng & Jang, 2017). This type of messaging, especially when tailored to target and appeal to a specific population, may serve to alleviate the effects of misinformation, specifically in targeting under-vaccinated groups.

The relevance of this capstone is that it attempts to bring focus to the emergence of misinformation, and explores strategies deployed by regional public health departments against misinformation. To this end, a goal of this work is to inform future public health organizations about the options for successful public health messaging and guidance.

A literature review was conducted, which collected and reviewed studies centered around messaging, vaccine hesitancy, and misinformation. A qualitative assessment was also conducted, through interviews with four local Nebraska health department personnel to determine their actions and perceptions of the uses and power of misinformation. Interview

questions centered around messaging strategies. Based on the results of the qualitative data, framed health messaging was effective in decreasing misinformation and increasing vaccine rates and might be a worthwhile strategy. However, further research is needed to determine how public health can be more effective in message framing to combat misinformation.

Chapter I: Introduction

Problem Statement

Misinformation is a significant issue that has hindered the effectiveness of the COVID19 public health response. Due to a myriad of factors such as topic politicization, increasing government distrust, social media use increase, and conflicting messaging, misinformation has been difficult to mitigate. 78% of the American population either believes, or is not sure, about one or more false claims about COVID19 or its respective vaccine (Kaiser Family Foundation, 2021). With almost a quarter of Americans being unsure and demonstrating resistance to being vaccinated, misinformation about the vaccine's efficacy, side effects, or even positive effects, has been prevalent since the onset of the pandemic. The unprecedented amount of counter-information has been problematic for federal, regional, and local public health organizations. To better understand how to effectively deal with future scenarios, public health needs to reflect on the handling of the pandemic and make improvements for the future.

Purpose of the Study

The goal of this work is to review the elements and spread of the many forms of misinformation that public health must combat, and offer messaging options to better target specific populations and demographics. Utilizing a literature review and qualitative data obtained from interviews with health department personnel, recommendations are given to more effectively tailor messaging for this pandemic and the next.

Research Questions

- What caused the spread of misinformation and what elements make correction difficult?
- What do public health professionals perceive as the consequences of misinformation in their communities?

- How can public health effectively respond better in terms of messaging?

Effective messaging is crucial in time-sensitive situations regarding infectious diseases. This project hopes to determine whether framed messaging can assist in combating misinformation, ultimately leading to higher vaccination rates.

Chapter II: Literature Review

Introduction

In 2020, countries grappled with the emergence of COVID19. Schools, offices, and businesses were forced to close their doors to slow the novel virus, while scientists and governments struggled to identify strategies to slow its spread. Certain countries fared better than others, as public health approaches for infection containment varied greatly (Blavatnik School of Government, n.d.). Some countries imposed strict quarantine, constant and readily available testing, and contact tracing, while others stalled to implement containment strategies, leading to outbreaks and high degrees of morbidity and mortality. Even now, COVID19 still has its grip on many countries, causing mask mandates, calls for increased vaccination, and travel bans when new variants arise.

The United States and public health seemed to struggle regarding its public health messaging surrounding the importance of precautions and diligence to mitigate the virus (Shear & Stolberg, 2021). It seemed that misinformation coupled with a distrust of government worked against public health efforts. This distrust and reluctance to follow national guidelines is not new to the country, the nation's distrust of vaccines predates COVID19 by almost a century.

In 1879, the Anti-Vaccination Society in America was established, and there were widespread and organized protests when smallpox vaccinations became mandatory in the nineteenth century. In 1905, the Supreme Court heard *Jacobson v. Massachusetts*, and ultimately permitted the government to mandate wide, sweeping, vaccine mandates, much to the chagrin of those against vaccination (Schwartz, 2012). Vaccines are touted as one of the most significant public health advancements to date (Centers for Disease Control, 2011). Within the United States, ten previously deadly diseases (smallpox, diphtheria, measles, mumps, pertussis,

polio, rubella, congenital rubella syndrome, tetanus, and Haemophilus *influenza*) have reduced the incidence being upwards of 90% (Ahmed & Orenstein, 2017). However, vaccine effectiveness relies heavily on the public's willingness to utilize them, which can be undermined by a lack of vaccine confidence. An example of hesitancy leading directly to disease can be seen in the re-emergence of measles in unvaccinated children across 31 states (Mical et al., 2021).

However, the current pandemic is a threat that extends far beyond health. Distrust has led to an environment where messaging is fragmented, inconsistent, and ineffective. Posts containing misinformation spreads farther over social media than factual posts, making it unsurprising that in a study analyzing COVID-related reports from social media posts related to conspiracy, stigma, and rumors, 82% of all claims were found to be false. With less than half of all Americans receiving a booster dose of the vaccine, it is evident that hesitancy is still a significant problem. Unfortunately, correcting misinformation is far more challenging than simply stating a fact to disprove a myth. It is far more complex, and must address social media, political message framing, distrust in governmental organizations, and cognitive dissonance.

The Rise of Social Media and Misinformation

A significant factor contributing to misinformation is the high degree of social media use. The explosive rise of social media is nothing short of impressive, with more than two-thirds of internet users utilizing some sort of social media. In 2005, only 5% of Americans utilized social media, and in 2019, the percentage had skyrocketed to 79%. Facebook, Reddit, and YouTube have existed for more than a decade, with Facebook having the largest number of users compared to any other social media site with 2.4 billion members. Newer platforms like Tik-Tok have seen an even greater increase in participation. Between 2016 and 2018, TikTok gained 20 million users per month, amassing half a billion users in just two years. Even though Facebook

remains the largest social media platform in the world, five other platforms (YouTube, Whatsapp, WeChat, Instagram, and TikTok) have more than half a billion users. The ubiquitous nature of social media has made it easier than ever to spend considerably more time on platforms, with US adults averaging over six hours of media consumed per day, through mobile phones, computers, tablets, and other internet-connected devices.

The widespread use of social media has fundamentally changed how Americans receive and perceive the news. In 2020, Pew Research Center found that 86% of Americans received news from their phones, tablet, or computer. Television, radio, and print publications were less prominent, at 68%, 50%, and 32%, respectively. However, Americans differ in the methods by which they obtain electronic news. 68% report getting news from mobile apps or news websites (ex. CNN), 65% utilize search engines (ex. Google), 53% use social media (ex. Facebook), and 22% cite podcasts (ex. NPR). Differences in platform and perspectives of use also exist between younger and older generations, as younger individuals are far more likely to receive news from mobile devices. More than 50% of individuals over the age of 50 report watching the news on TV, compared to just 16% of individuals between 18 and 29. This all has ushered in news sources that have motivated messaging agendas. Due to the enhanced availability of news, individuals have access to news that reinforces their points of view and can "cherry-pick" sources that limit any counter-messaging.

With individuals able to access news that reinforces currently held beliefs, the nature of novel infectious diseases also aligns itself particularly well with social media, due to the ability to immediately access any sort of information, regardless of accuracy. Upon its initial detection in Wuhan, China, extremely little was known about the virus. As information did start to emerge, the news cycle became a torrential wave, filled with COVID19 stories of all kinds. News sources

were largely unhindered and unrestricted to produce their perceptions and opinions, resulting in narratives that countered the public health messages. 4% of the world's entire research output in 2020 was dedicated to COVID19, and there was an increase in article submission to scientific journals, the likes of which have never been seen. The number of published articles is unknown as search terms and databases vary drastically, but the number is estimated to be between 100,000 and 200,00 articles. Elsevier, specifically, cited a 92% increase in article submission related to health and medicine. Due to the dramatic increase in research, misinformation was also more prominent. Debates surrounding topics related to masking effectiveness, COVID severity, and treatment efficacy (i.e., hydrocholorquine) were broadcasted on social media, and a perfect storm was created. 78% of the American population either believe, or are not sure, about one or more false claims about COVID or its vaccine. Regardless of vaccination status or political affiliation, belief in common falsehoods of COVID or the vaccine is troublesome. Of the American public, KFF found 38% to believe the government is exaggerating COVID19 deaths, 14% think the vaccine can cause COVID19, 8% agree that the vaccine can cause infertility, 8% believe the vaccine may change DNA, and 7% think the vaccine has a microchip. These statistics highlight the distrust and misconceptions against the vaccine, which suggests that individuals may not choose to take the proper steps that would lead to reduced illness, spread, and higher degrees of mortality. Misinformation is a massive factor in why so many have a mentality rooted in distrust.

Politicization and Party-Biased Framing

While COVID19 may be the first substantial pandemic many have seen and lived through, the United States has a history of viewing emerging health issues through a political lens, as described by Gollust et al. (2020). In 2006, many states proposed mandatory human

papillomavirus (HPV) vaccines for girls in middle school. Shortly after, specific groups such as medical experts, religious groups, pharmaceutical companies, and politicians, emerged with different agendas. The media would frequently cover the deepening divide, mentioning "controversy" throughout reporting. HPV coverage became increasingly partisan, which effectively manipulated the public's understanding and emerging policies. The Affordable Care Act (ACA) is another example of the intersection of politics and communication, as the ACA immediately became a partisan issue. Local news stations would often air features with political framing, rather than reporting factual details about the emerging ACA policy. When COVID19 was detected and became a concern in early 2020, little scientific research was available about the virus and many were fearful, anxious, and stressed (Gollust et al., 2020). Many people resorted to news and social media for guidance, but when Americans turned on the TV or opened their smartphones, many were immediately met with an already-politicized frame of COVID19.

On February 28, 2020, President Donald Trump held a campaign rally in which he not only called the virus a "hoax" but blamed the Democratic party for politicizing it (Cook et al., 2020). Party lines were drawn, with Republicans being initially quick to dismiss and downplay the severity of COVID19, and Democrats being concerned and quick to voice support for protective measures for the virus (Gadarian et al., 2020). There is supporting literature that details how an individual's perspectives of an emerging health threat may align with his or her political party affiliation (Nyhan, 2014). The differences between trusted sources of news between political parties are also notable, CNN, NBC News, ABC News, and CBS News are trusted by 67%, 61%, 60%, and 59% of Democrats, respectively. Republicans cite trust percentages of Fox News, ABC News, CBS News, NBC News, and the Sean Hannity radio show to be 65%, 33%, 30%, 30%, and 30%, respectively. While both parties share some similarities in

most-trusted news sources, the percentages vary drastically. For example, 60% of Democrats trust ABC News, compared to just 33% of Republicans. 61% of Democrats reported trust in NBC News, compared to Republicans at 30% Another stark trust difference can be seen in the Sean Hannity Show, with 30% of Republicans and less than 1% of Democrats (Jurkowitz et al., 2022).

COVID19 seems to align with this assertion which is dangerous, as providing news through political lenses makes it increasingly more difficult to present unified health messaging and guidance. The politicization of these mainstream news sources provide only a surface-level view, and does not account for non-mainstream news that spreads on the web and social media platforms. These sources have grown in their influence and ability to create powerful messages, and public health must be able to not only exist alongside them but address the growing distrust of government.

Distrust

Trust in government and civic processes is crucial during emergency situations, especially if the public's compliance is essential to crisis management (i.e., mask-wearing, social distancing, vaccinations) (OECD, 2013). The earliest studies surrounding distrust in the American government were published in the 1960s, and there has been a growing body of literature regarding its effects ever since. Polling has shown that distrust in the government has been decreasing since the 1950s. Today, only 1 in 5 Americans trust their government to "do the right thing", which is a near-record low (Pew Research Center, 2021). Prooijen et al. 2022 find governments that can display the ability to manage societal issues foster a sense of security amongst its citizens, while nurturing similar national core values. However, significant levels of institutional distrust "reduce trust between strangers, within-group cooperation, commitment, and

prosocial behavior, and increases prejudice, intergroup conflict, polarization, and extremism"
(Prooijen et al., 2022). America's struggle to handle the emerging pandemic, alongside other
major issues such as racism and police brutality, has undoubtedly fostered distrust and politicized
serious issues that require bipartisan problem-solving. Trust is essential in societies, especially
when a solution to an existing issue may require a unified behavior from the public (OECD,
2013). In the case of COVID19, the behaviors were interventions such as quarantining, masking,
and social distancing, and each was implemented with mixed adherence (Norton et al., 2021).

However, distrust is not localized to social media platforms, but disappointingly extends
to public health institutions as well. Harvard T.H. Chan School of Public Health (2021) surveyed
1,305 individuals in 2021, asking the question "In terms of recommendations made to improve
health, how much do you trust the recommendations of each of the following groups?". Answers
were divided into four categories: Great deal/quite a lot, somewhat, not very much/not at all, and
don't know. When asked about the Centers for Disease Control and Prevention (CDC), the
responses were 52%, 25%, 20%, and 3%, respectively. Local health departments had a relatively
similar trajectory, citing trust levels as 44%, 36%,18%, and 2%. RAND American Life Panel
conducted a similar trust assessment, but with an emphasis on the degree of change regarding
trust. In May 2020, Participants were asked to rank their trust levels in the following institutions:
CDC, USPS (United States Postal Service), and FEMA (Federal Emergency Management
Agency). Then, six months later, participants were asked to rate their trust levels again. The
CDC experienced a statistically significant decrease in trust, and both USPS and FEMA saw a
significant trust increase between May and October of 2020. In efforts to understand the degree
of distrust existing in specific groups, participants, and their respective responses, were
calculated into the following groups: Urbanicity, Race/Ethnicity, Age, and 2020 Vote Intention.

All ages reported a similar degree of trust decline, as did those in rural and urban areas. Hispanic and non-Hispanic White participants showed a statistically significant trust decline. Hispanic Black individuals reported a decline as well, but it was not found to be statistically significant. Most stark, however, is the difference in trust decline between those who reported voting for Donald Trump, and Joe Biden. Biden voters did cite an overall decline, but it was small and nonsignificant. However, Trump voters displayed statistically significant and large declines in trust. Another study found that 76% of Democrats report high levels of trust in the CDC, compared to just 27% of Republicans (Harvard T.H. Chan School of Public Health, 2021).

Cognitive Dissonance Theory

When misinformation is being disseminated through various politicized channels correcting falsehoods can be near impossible. Correcting misinformation is an extremely complicated issue and is far more difficult than providing a factual rebuttal. Several potential solutions have been published, including an interactive game that has been proven to teach individuals to discern factual information from false information (Play go viral!, 2022). The COVID-19 Vaccine Communication Handbook provides details about countering misinformation and debunking myths, in an easy-to-follow, detailed outline. While these may be useful avenues, misinformation remains pervasive. A phenomenon known as cognitive dissonance may help explain why it is so difficult to reverse.

Aronson & Tavris (2020) describe cognitive dissonance occurs when an individual experiences opposing thoughts, beliefs, or feelings, and adjusts to make sense of the contradictions. Typically, we will either justify our position or accept a new one, which is easier said than done. Social psychologist, Carol Tavris, elaborates, "Cognitive dissonance is what we feel when the self-concept—I'm smart, I'm kind, I'm convinced this belief is true—is threatened

by evidence that we did something that wasn't smart, that we did something that hurt another person, that the belief isn't true". In Carol's book, "Mistakes Were Made (But Not by Me), she describes an experiment conducted in 1954 on cognitive dissonance in a religious group that believed an unidentified flying object (UFO) would come to save them from the apocalypse on December 20, 1954. When the date passed and a UFO did not appear, the religious group justified their initial belief, stating that God had spared their lives (Aronson & Tavris, 2020). While this may be an extreme example, people often adapt to relieve cognitive dissonance through the acceptance of false information that aligns and explains their beliefs. While COVID19 may not bear a tremendous number of similarities to a UFO abduction, the human ability to justify and modify our reasoning to align with thinking is consistent.

Additionally, cognitive dissonance can challenge one's identity, especially if it is linked to membership in a group (e.g. political, religious, cultural). Trevors (2020) conducted an online study on individuals living in geographic regions with strong opinions on crime, immigration, and vaccination safety. The participant would voice his or her views on the topics, and subsequently, be presented with information designed to refute the view. Then, each would comment on levels at which they experienced negative emotion, threat, and identity conflict. It was found experiencing these three factors ultimately led to negative learning from the provided refutation texts. "…accepting the claims in refutations may be perceived as undermining the integrity of a personal identity reflected in ideological or political beliefs or a social identity reflected in membership in some shared cultural group" (Trevors, 2020). When misinformation becomes tied to cognitive dissonance and negative emotions, utilizing methods to frame messaging to the appropriate party may be a worthwhile strategy.

Diffusion of Innovation Theory

Another theory that offers potential insight into attitude and behavioral change is Diffusion of Innovation theory (DOI). This theory is among the oldest social science theories and discusses the adoption of a new behavior, product, or idea (LaMorte, n.d.). It details innovation spread throughout society, and how certain populations may adopt early, or late. Goodson & Rosen (2013) finds five characteristics of the innovation that ultimately helps to confer its rate of adoption: relative advantage, compatibility, complexity, trialability, and observability. Relative advantage is the benefit the innovation poses compared to current ideas and methods. Compatibility is the ability of the innovation to align with the potential adopter's currently held values, needs, and experiences. Complexity is how complicated the innovation is to use and understand. Trialability is if an innovation can be experimented with, and observability is if the innovation's effects can be seen. Observability is the most important characteristic regarding vaccines, as vaccines are "prevention innovations" which focus on prevention, rather than treatment. Because the benefit of prevention innovation lies in not experiencing undesirable outcomes (i.e., sickness), observability levels are low, which naturally leads to a slow rate of adoption. Because vaccines have characteristics that facilitate a slow pace of uptake, diffusion throughout communication channels through opinion leaders is a promising strategy.

DOI also observes the flow and integrity of information as it passes between parties through various communication channels. Information is typically spread through a main media source, which is typically social media, news, TV, radio, etc. An opinion leader, or an individual with authority or a strong social status, will consume the information put forth by the media source, and form his or her own opinions. Then, the opinion leader spreads the information, alongside personal information, to followers and those within their network. DOI has found that while media sources are the most successful strategy in disseminating information to the largest

audience, opinion leaders and interpersonal channels of communication are the most effective in changing attitudes regarding an innovation. Opinion leaders have the power to influence the behaviors of others as "Most people evaluate an innovation, not through scientific research conducted by experts, but through the subjective assessment of the innovation by "near peers" – role models whose behavior tends to be copied by others in their social system" (Goodson & Rosen, 2013). DOI highlights how most individuals tend to make decisions on innovation, which is through the advisement of respected opinion leaders. This illustrates two important points: the significance of an opinion leader, and the need to utilize interpersonal communication to influence behavioral change. In the case of the current pandemic, the behavioral change is increasing the rate of vaccine uptake.

Power, Framed Messaging, and Trusted Voices

One method that has been utilized in increasing vaccine acceptance has been to spread messaging through trusted voices. Trusted voices are like opinion leaders, as they typically hold a category of power that confers them with trust from their community. Green (1999) describes the five types of power that one may exhibit: reward, coercive, legitimate, expert, and referent. Trusted voices usually obtain influence through expert and referent power. Expert power, sometimes called the skill power, is obtained when an individual has substantial knowledge about the topic in question and is believed to be able to make informed decisions due to their skill set. An example of expert power can be seen with doctors or lawyers. Doctors and lawyers are ultimately trusted by the rest of the population due to their specialized and extensive training, which is far more substantial than the typical person. Referent power, sometimes called the "friendship" power occurs when individuals are admired or easily identified with. Those with referent power are typically individuals with interpersonal skills or relatable qualities that

ultimately lead to admiration, identification, or respect. Examples of those with referent power are celebrities, spiritual leaders, well-known community members, and individuals who represent a specific group (Green, 1999).

Understanding how power leads to influence can aid in targeting specific demographics is helpful and might be a worthwhile strategy for decreasing vaccine hesitancy. One example of the effectiveness of trusted voices and framed messaging can be observed in the study by Rayman & Palm (2021), titled FLU and COVID VCX Campaigns. The project's overarching goal was to increase immunization rates for influenza and COVID19 across Nebraska in 2021. One major aspect of the study was the emphasis placed on the utilization of trusted voices in media campaigns. The media campaign was deployed in 25 rural areas across Nebraska, with the main target being women between the ages of 25 and 65, as this demographic is typically the head of the household regarding health decisions. The study also chose to intentionally target the Somali population by obtaining targeted zip codes from Somali organizations and incorporating these zip codes into the project as well. Trusted voices from a variety of ethnicities were subsequently identified and photographed, with the media being used to craft campaign materials (both digital and print). Twenty-three trusted voices for COVID19 were identified, as well as 15 for influenza. Individuals chosen were able to explain their personal choices for receiving vaccines in their own words, which were published on posters that were both printed and shared via social media. The most successful trusted voices posters included a family of farmers, an 80-year-old senior, and a construction land surveyor.

The COVID campaign was largely successful, with 3,779,210 total impressions (total number of times ads were on a screen), and 34,467 total clicks to redirect to VaxNE.org. It also had higher click-through and engagement rates when compared to the industry. Individuals

belonging to at-risk communities such as the agricultural, women, Somali, Spanish, and Native American were also reached at an improved rate, with the farming audience being the most engaged. The influenza campaign had almost 4 million impressions, with 20,436 redirections to VaxNe.org. The click-through rate was lower than the industry standard, and the engagement rate was similar (Raymond & Palm, 2021). The project's mission was to reach and educate at-risk populations that have lower vaccination rates compared to the rest of Nebraska, and it successfully did so. Utilizing this project as precedence and a foundation to build upon with framed messaging may be a worthwhile avenue.

Chapter III: Interviews

Introduction

As made evident by the literature review, misinformation is an extremely complex and multi-faceted problem. Its prevalence and pervasiveness are derived from many factors, including social media, governmental distrust, cognitive dissonance, political divisiveness, and media framing. The overall goal of this project is to identify how to better manage misinformation, and if framed public health messaging could be a potential strategy to tailor information delivery in hopes of ultimately increasing vaccination rates.

Research Design and Procedures

In addition to the literature review, multiple interviews were also conducted to gather qualitative data. Four counties, and their respective health departments, were selected for interviews to provide a modest representation of distinct geographic areas across Nebraska. Counties were chosen utilizing the Tableau model, "COVID-19 Vaccination Rates – % of Population Age 18+ with Two Doses" by Healthy Nebraska. The map presented a trend showing two-dose vaccination rates to be lower in western Nebraska and higher in eastern Nebraska. The Tableau model is a color-coded map of Nebraska, where counties with less than 50% of the population age 18+ with Two Doses are represented with orange coloration, and counties with more than 50% of the population age 18+ with Two Doses are represented with a blue coloration. Outlier counties were chosen to highlight the efficacy of messaging strategies between counties with differing vaccination statuses. An outlier county was a county with a higher vaccination rate than anticipated (blue county surrounded by orange counties), or a county with a lower vaccination rate than anticipated (orange county surrounded by blue counties). Two

outlier counties from each outlier category (higher or lower than anticipated) were chosen, ensuring each county belonged to a different health department jurisdiction.

An initial introductory email was then sent to the corresponding health department director of each resulting jurisdiction. Emails included an explanation of the Capstone, its goals, and an invitation to interview. One director was unable to accept but forwarded a contact with expert local knowledge on COVID trends throughout the respective district. Therefore, three department directors accepted the interview, as well as one COVID coordinator. All interviews were conducted via Zoom, and interview questions were emailed in advance to interviewees to ensure sufficient time to allow for reflection. While all interviewees received the same questions, relevant follow-up questions may have been asked to ensure clarity and thorough answers. Interviews were recorded via Zoom once given explicit approval by the interviewee, as well as a phone recording as a backup. Identifying data such as county, health department, or name, is not used to ensure anonymity.

Survey Instrument

Participants were sent a set of pre-written interview questions in advance. The interview was conducted and recorded via Zoom, with no time constraints or limitations. The questions asked were as follows.

1. What is the overall attitude and receptiveness towards the COVID19 vaccine? Why do you think this is? Feel free to comment on the general attitude of all individuals or break it down into age groups if easier (ex. adolescents, young adults, and adults).

2. What do you perceive are the greatest factors that prevent individuals from wishing to be vaccinated?

3. Have perspectives and attitudes on vaccines shifted after reports of efficacy and safety were published, including FDA approval?

4. What methods, particularly in messaging, have you deployed in attempts to reach under-vaccinated populations? How successful have these messages been?

5. What messaging channels were most effective? Least effective?

Limitations

Due to health department jurisdictions, it is difficult to inquire about an outlier single county as jurisdictions typically oversee various counties. Isolating the findings and behaviors of a specific county was not part of this project. There was also difficulty in locating counties with higher vaccination rates than expected, as the majority of Nebraska has lower vaccination rates than the country average, except for Lancaster and Douglas counties. Counties with higher vaccination rates than surrounding areas became the outlier by default, even though it was vaccinated at a lower rate when compared to the country. If this study, or one similar, were to be conducted in the future, recommendations would include a methodology that could obtain country-specific data.

Chapter IV: Results

Introduction

Interviews served as a qualitative data source in attempts to determine whether framed messaging could serve as a potential avenue to combat misinformation. Although questions were based largely on messaging strategies, the answers provided by interviewees often included other topics that were prominent throughout the literature review, such as politicization of health information and distrust. These answers will also be highlighted in the summary portion. As discussed, the data presented will not contain identifiers to ensure anonymity.

Summary

While each community has its specific barriers and populations, all four interviewees described similar pandemic experiences, such as misinformation, politicization, distrust, inconsistent messaging, stigma, and framed messaging. While every jurisdiction did not elaborate on or describe every one of those experiences, these themes are undoubtedly the most common.

Misinformation & Politicization

Misinformation was cited to come from a variety of sources, with examples such as unchecked social media, politicians, religious groups, and even physicians. Misinformation was thought to have existed well before the pandemic, but due to the worldwide disruption that COVID caused, a significant amount of interest was cast on the topic. In addition to enabling misinformation to spread, people vehemently opposed to the vaccine were able to find other like-minded individuals to group with. Regarding the widespread acceptance of misinformation, one interviewee was quoted, "It was kind of like we were on the wrong path before we ever got to the vaccine".

Politicization was also cited to be a massive issue facing health departments, which undermined credibility from the beginning. The CDC was even described to be a "dirty word" by one interviewee, which may be explained by the emphasis on personal freedom and rights in rural communities. Consequently, many people were not open to the idea of following government guidance. When health departments recognized this, special care was given to using neutral language. Utilizing messaging with political undertones causes individuals to assume that the health department must be from the opposite camp, which can alienate an entire group of individuals. Information should be presented factually and without bias, while still being empathetic and professional.

Distrust & Inconsistent Messaging

Due to the rapidly changing nature of COVID, especially in the beginning, health guidance was constantly shifting. People expected health departments to have all the answers, and to be unwavering. When recommendations did change, this cast doubt on health organizations, both national and local. However, new vaccines tend to be associated with some level of doubt, as quoted by an interviewee, "Anything new is going to be mistrusted in some way, shape, or form, to some extent".

Quality, initial messaging was crucial, especially at the beginning of the vaccine effort. Companies that had initial health guidance reported higher percentages of vaccinated employees, but some company leaders did not wish to engage with health messaging. A perfect storm emerged, with health departments not only battling an infectious respiratory virus, but leadership that was not supportive of health messaging. Conflicting messages also led to distrust, effectively undermining credibility, and reputation. By the time the vaccine arrived, health departments felt they were already losing.

Stigma

It was reported that rural communities associated receiving the vaccine with high degrees of stigma and judgment. Values such as personal freedom and liberty are especially prevalent in rural areas, and the push for vaccines is seen as a threat to these core values. As a result, receiving the vaccine was stigmatized, with an interviewee stating that many "don't want their friends to know they got the vaccine". After some individuals reported feeling uncomfortable receiving a vaccine in a public setting (i.e., mass vaccination clinic) strategies such as home visits, mobile clinics, and physician vaccination were implemented to provide more privacy. Alternative vaccination routes allowed for increased anonymity and prevented people from risking their reputation if they received a vaccine.

Framed Messaging

A myriad of messaging strategies was discussed, with framed messaging offering promising results. Strategy examples discussed included utilization of bilingual nurses, identification of trusted voices, and increased education efforts. Trusted voices and education were discussed as forms of framed messaging that allowed health departments to reach and communicate with their respective communities more effectively. It was found that many individuals favored discussing the vaccines with those within their trusted circles, compared to CDC guidance. Identification of trusted community voices also seemed to improve reach. A nurse and a doctor from a local hospital created a video addressing vaccine hesitancy when hospitals became overrun with COVID patients. Instead of pushing people to get the vaccine, they recognized not everyone would want to receive one, and instead asked them to take precautionary measures such as staying home if feeling unwell. This video was especially helpful

because the nurse and doctor were locally recognized voices and allowed communities to see that COVID was affecting not just large cities like Omaha or New York City, but towns like theirs.

Utilizing the belief that people tend to value their trusted circles for advice over government entities, health departments cited the need to partner with organizations that are active within their community. Finding trusted voices and having them advocate for vaccines was reported to be effective. Further, community partnerships, notably relationships with LGBTQA and minority groups as well as the local paper, were described to be invaluable. One interviewee described the importance of utilizing the existing relationship with the local newspaper. At the height of the pandemic, the newspaper featured the local health department almost daily, which aided in establishing constant and up-to-date information for the community. It was also found that double-checking information to be published for accuracy assisted in establishing credibility for both the newspaper and health department alike. This also demonstrates the need to include better framing to capture the narrative and better frame public health messaging.

Chapter V: Summary, Conclusions, and Recommendations

Summary of the Results

COVID19 has existed simultaneously as a public health and communication issue. The literature review has shown the virus to be the perfect storm in a country that has historically politicized health issues and distrusted the government. When the first case appeared in the United States on January 20th, 2020, little to no information existed about the virus (Centers for Disease Control, 2022). When Americans sought guidance on how to keep themselves and their families safe, they were met with not only a politicized view of the pandemic from top politicians, but also fragmented guidance from health organizations (Gollust et al., 2020). As scientists and health organizations scrambled to understand the novel virus, recommendations and guidance were being published and spread inconsistently. This effectively undermined the credibility and caused increasing lower levels of trust in many governmental organizations (Harvard T.H. Chan School of Public Health, 2021). This distrust allowed for the integration of misinformation into health guidance, which was partially fueled by the widespread use and immediate nature of social media. With only 20% of Americans trusting their government, the country has a severe trust problem (Pew Research Center, 2021). However, based on the literature review and notably the success found in the FLU and COVID VCX Campaigns, framed messaging with the assistance of trusted voices from the community is an effective way to address misinformation (Rayman & Palm, 2021). In the end, however, misinformation may have prolonged the nation's response and increased morbidity.

To analyze whether framed messaging was found to be truly helpful, four interviews were conducted throughout rural Nebraska with health department personnel. Jurisdictions were stratified into two categories of outliers, counties with higher and lower vaccination rates than

expected. While all interviewees commented on framed messaging and its effectiveness, the interviewee representing the jurisdiction with the highest degree of overall vaccinated individuals commented explicitly on "trusted people", and having "them be advocated for vaccines, as that really seems to be effective". The second highest-jurisdiction interviewee discussed, at length, the importance of partnerships with the media, specifically a well-respected local newspaper. While the interviewee had a partnership with the newspaper before the pandemic, it became far more significant during the pandemic, and the health department was featured in the paper much more routinely during the height of the pandemic. However, further research is needed to determine if this observation can be said to translate directly into an increased vaccination rate.

While responses did vary between all jurisdictions, all interviewees reported experiencing misinformation, distrust, and politicization which was exacerbated by inconsistent and fragmented messaging. Three out of four jurisdictions reported high levels of stigma, which effectively dissuaded many from receiving vaccines out of fear of judgment. Interviewees recalled instances of framed messaging techniques that were implemented to target under-vaccinated populations such as the utilization of mobile clinics, bilingual nurses, local health provider videos, increased communication, and partnerships with trusted voices. Trusted voices were hypothesized to have a greater ability to advocate for vaccines rather than government organizations, as individuals primarily sought vaccine advice from those within their inner circle. Due to the stigma and distrust surrounding vaccines and governmental organizations, trusted voices were reported to have an advantage in communicating vaccine benefits. Health departments further tailored communication to be politically neutral, to not isolate certain demographics.

Conclusions

  Combining findings from the literature review and interviews with health department personnel, it seems that framed messaging is a worthwhile avenue to combatting misinformation and increasing vaccination rates. This Capstone shows that framed messaging may mitigate misinformation by targeting specific groups more effectively, especially during emergency situations. Framed messaging allows for each health department to tailor outreach specifically to its community, often with favorable results. Understanding how to reach under-vaccinated populations is critical and can often be aided by local partnerships with newspapers, television stations, minority groups, and trusted voices.

  While the pandemic response has been undoubtedly hindered by politicization and distrust, the positive outcomes should not be overlooked. In the face of a novel virus, scientists created a highly effective and safe vaccine in record time. Healthcare workers became heroes as they provided selfless and compassionate care to those experiencing the worst of the virus. The number of scientific articles published about COVID19 skyrocketed, and while misinformation did appear, countless reports had salient findings to inform public health guidance. Health departments worked tirelessly to adapt to a rapidly changing environment and kept their communities safe through consistent outreach and a steadfast, unwavering presence. As best described by an interviewee, "If we do the right thing, for the right reason, over the long-term, that's how trust is earned. We're here for our communities before the pandemic, we're still here now, and we'll be here well after this."

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