The Politicization of Covid-19: Public Trust, Vaccine Hesitancy, and Political Polarization

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Abstract

The politicized Covid-19 response between Democrats and Republicans creates uncertainty and low public trust in American people, interplaying with the spread of misinformation and—most importantly—threatening the public health by fueling non-compliance to disease-prevention behaviors. The study will explore the direct consequences of the politicized Covid-19 response at the state level and the ineffective discourses which the politicization has generated to obstruct the Covid-19 response. The Covid-19 outcomes and the results of 2016 and 2020 Presidential Elections will be compared between mandate states and mandate-banning states. The results correspond with the hypotheses: mandate-states (which are most likely to be Democratic-led) have a lower averages of cumulative cases per capita, cumulative death per capita, and a higher average percentage of population vaccinated, also these states were less likely to vote for Trump than mandate-banning states (which are mostly likely to be Republican-led). The problematic discourse of Covid-19 response is prioritizing individualism rather than collectivism by framing public health actions as individual choices. The Discussions focus on the relatively high vaccine hesitancy among Republicans and minorities due to lack of public trust. The Discussions also pay attention to the damage to public trust during historical and current emergency responses due to devoid of competency, integrity, openness, and fairness. The study recommends short-term solutions to the pandemic response by launching social media campaigns to mitigate the spread of misinformation and to target various vaccine-hesitant demographics. It is urgent to prepare for the next pandemic because it is very possible as well as might tolerates little chance for errors. Future research needs to focus more on the social science aspects of vaccine hesitancy and how political and public health officials could respond to infectious diseases with coordinated plan, leadership, and sufficient medical supplies.

Introduction

Covid misinformation and conspiracies are extremely prevalent in the US, which has caused resistance to preventive health behaviors and vaccination (Romer 2020). Many misinformation and conspiracies demonstrate populist, racist, and xenophobic traits, such as the belief that 5G radiates Covid-19, as 5G is a technological advancement from China, Trump claiming COVID-19 is a "Chinese virus," since the coronavirus was first identified in China, and the claim that Bill Gates put tracking microchips into Covid-19 vaccines.

The misinformation has inspired anti-Asian violence. Since the Covid-19 was first reported in China, the Asian community and the Pacific Islanders have experienced a rising number of anti-Asian incidents ranging from taunts to downright assaults ("More Than 9,000 Anti-Asian Incidents", 2021). The Stop AAPI Hate, a nationwide coalition which organizes data on racially inspired attacks related to the Covid-19, displays 9,081 incident reports between 19 March 2020 and June 2021 ("More Than 9,000 Anti-Asian Incidents", 2021). Among these attacks, 4,548 happened last year and 4,533 happened in 2021 ("More Than 9,000 Anti-Asian Incidents", 2021). The misinformation has also undermined the authority of scientists since populist beliefs—emphasizing the conflict between "the people" and "the elite"—correlate strongly with conspiratorial thoughts (Stecula & Pickup, 2021).

Despite the horrible consequences of Covid misinformation, some politicians—including Donald Trump, Michael Flynn (claiming Covid vaccine in salad dressing), and Republican Rep. Louie Gohmert (mask wearing caused his Covid-19 diagnosis), endorse Covid-19 misinformation and conspiracy and politicize the pandemic response (Bort, 2020; Teh, 2021). The politicized Covid-19 response divided the already polarized blue states and red states and further cultivates the spread of misinformation. Misinformation has been a notorious strategy to

harness political support but could also further politicization of information (Chen et al., 2021). With low public trust, sense of insecurity, and political polarization, the politicization of science and public health—interplaying with misinformation—divides the Covid-19 pandemic response at the Federal level as well as the State level.

The politicized and non-unified Covid-19 response between Democrats and Republicans engenders an enormous amount of uncertainty in American people, facilitates the spread of misinformation, damages public trust, and—most importantly—increases the threat to public health and the loss of life. There are some possible reasons for public officials to keep enabling the politicized Covid-19 response and misinformation, including preserving power, fearmongering, deflecting blame, and enforcing political agendas (Jaiswal et al., 2020). This project narrows in on the particular questions: what are the direct consequences of the politicized Covid-19 response at the state level, and what are the ineffective discourses that the politicization has created to hinder the Covid-19 response?

To answer the first question, this study will categorize the eighteen most populous states into “mandate states” (states that implement any forms of mask or vaccine mandates) and “mandate-banning states” (states that prohibit any types of mask or vaccine mandates). The Covid-19 outcomes of these states which includes the cumulative cases per capita, cumulative deaths per capita, one-dose vaccination rate by state of residency, full vaccination rate by state of residency, and full vaccination with booster rate by state of residency, will be compared.

Additionally, the state-level Presidential Elections results in 2016 and 2020 will also be compared. The second question would be explored in the Discussion to inform how political officials could better frame the pandemic response. Finally, the Discussion would explore more

issues related to the pandemic, like low public trust, vaccine hesitancy, communication, some potential short-term solutions, and the urgency to prepare for the next pandemic.

How Covid-19 has been Politicized

Psychological Risk Factors That Make People Vulnerable to Misinformation

There are some individual level-psychological risks factors that make people more susceptible to believe and share misinformation. First, partisan bias, as partisans tend to comprehend information with prejudice that emphasizes the original predisposition when they are exposed to information related to a favored social identity and ideology (Van Bavel et.al., 2021). For example, somebody who is pro-life may give less weight to messages that argue for pro-choice. Furthermore, political polarization is a risk factor that stimulates people to disseminate misinformation for political agendas, which could, from another perspective, expose a larger proportion of population to misinformation (Van Bavel et.al., 2021).

Polarization is highly likely in a two-party system and encourages publicizing misinformation to activate people's attachment to their own political identity (Brady et al., 2020). Likewise, individuals care less about the accuracy of the information if the information matches their partisan identity in a polarized background (Van Bavel et.al., 2021). From a social identity point of view, a two-party system would give rise to an "us vs them" mentality, causing rising prejudice, intergroup conflict, and general out-group or out-party derogation (Van Bavel et.al., 2021).

Additionally, political ideology makes some people more susceptible to misinformation. A study conducted during Covid-19 has discovered a correlation between political conservatism and eagerness to trust misinformation about the pandemic in a large US sample (Calvillo et al., 2020). A study done by Emily Chen from University of Southern California indicates that a large

cluster of both liberal and conservative Twitter users are in favor of mask-wearing and mail-in voting, but a small but dense cluster of conservative users urge misinformation around the inefficacy of masks and voter fraud in the context of the 2020 Presidential Election (2021). Even though it is hard to disentangle the influence of identity from political ideology now, partisan alignment is prevalent to both conservatives (regarding false information from conservative sources to be correct) and liberals (regarding false information from liberal sources to be correct) (Van Bavel et.al., 2021).

Memory could be a risk factor, too. According to illusory truth effect, information which is seen repetitively tends to be recalled as true, regardless of if it is correct (Hasher et al., 1977). Another significant factor is morality and emotion. According to a project analyzing over 100,000 tweets between 2006 to 2017, the major discovery is that misinformation spread faster and wider than true information, especially political misinformation (Vosoughi et.al., 2018). Additional factors are also worth consideration. Misinformation is likely to be novel and elicits more surprise, as well as fear and disgust, relative to true information (Vosoughi et al., 2018). In addition, "morality, specifically moral violations, are associated with negative emotions (e.g., contempt, anger and disgust)" (Van Bavel et.al., 2021). It is found that moral-emotional language is associated with increasing retweet count in political messages (Brady et.al. 2017). Importantly, the language is related with more polarization in the retweet since people tend to share information which matches their political ideology (Van Bavel et.al., 2021).

Why Individuals Believe in Conspiracy Theories (A Type of Misinformation)

The Cambridge Dictionary defines conspiracy as "a secret agreement made between two or more people or groups to do something bad or illegal that will harm someone else (n.d.). According to Douglas (2021), conspiracies are tempting when the fundamental psychological

needs of humans are not met. Epistemic needs comprise satisfying curiosity and preventing uncertainty (Douglas, 2021). Studies have demonstrated that conspiracy belief is correlated with looking for patterns and meanings even when there is no pattern, and with lower education levels (Van Prooijen et al., 2017; Douglas, 2021).

Another significant psychological need is existential (Earnshaw et al., 2020). Existential needs include safety and a sense of control (Earnshaw et al., 2020). In other words, people are vulnerable to conspiracy when feeling anxious, worried, and powerless (Earnshaw et al., 2020). The third need is social, which comprises the eagerness to maintain the positive image for oneself and one's group, according to Douglas (2021). Individuals tend to believe in conspiracy theories if they have a desire to feel special and a sense of belonging, or if their group perceives themselves as underappreciated and threatened (Douglas, 2021).

People are especially frustrated during the pandemic due to many uncertainties and fear toward the future. As a result, people are seeking answers. Nevertheless, information is complicated and includes contradictory information (Douglas 2021). In addition, individuals are incredibly isolated with restricted access to their social support during a pandemic. More importantly, literature suggests that people are inclined to conspiracy theories when experiencing crisis and major events with relentless consequences (Earnshaw et al., 2020). In a nutshell, it is easier for conspiracy to flourish during the pandemic with heightened uncertainties and fear.

Inconsistency Between Trump and the CDC Creates Uncertainty and Politicizes Covid-19

The White House and the CDC communicated with inconsistent messages during the pandemic, which not only created fertile soil for Covid-19 misinformation by heightening sense of fear and uncertainty but also politicized the public health response. Since the beginning of the Covid-19 crisis, President Trump has failed to communicate the problem, the policy, and

procedures (Hatcher, 2020). On February 28th, 2020, Trump downplayed the severity of the virus by saying it is "going to disappear. One day, it is like a miracle, it will disappear", even though Nancy Messonnier, director of the CDC's National Center for Immunization and Respiratory Diseases, warned that an outbreak was inescapable, and "disruption to everyday life might be severe" (Goldberg, 2020).

After six Covid-19 deaths and twelve states had reported Covid-19 cases, Dr. Anthony Fauci, the director of the National Institute of Allergy and Infectious Diseases, expressed his concern on CNN on March 3rd , "My concern is as the next week or two or three go by, we're going to see a lot more community-related cases" (Maxouris, 2020). On March 9th, 2020, Trump kept on downplaying the virus by tweeting "so last year 37,000 Americans died from the common Flu. It averages between 27,000 and 70,000 per year. Nothing is shut down, life & the economy go on" (Goldberg, 2020). On March 11th, 2020, the WHO declared Covid-19 as a global pandemic. Trump's misinformation made it hard for public leaders and health officials to instruct the public, and made some people refuse to comply to public health guidelines, such as social distancing and staying at home, since their favored president regarded the Covid-19 as not so serious (Hatcher, 2020). Therefore, the inconsistency between Trump and the public health officials caused much confusion and enabled the pandemic to be politicized since some people who favor President Trump would refuse to follow Covid-19 preventive behaviors.

More importantly, Trump's misleading claims about the public health policies undermined the authority of public health agency and scientists. As far back on April 3rd, 2020, when the CDC changed its guidance about mask-wearing in public from unnecessary to "recommended," Trump emphasized that mask-wearing was "voluntary" and that "you do not have to do it" (Cathey, 2020). Furthermore, he mocked Democratic Presidential nominee Joe

Biden for wearing a mask during the 1st Presidential Debate by saying “I don't wear masks like him. Every time you see him, he's got a mask. He could be speaking 200 feet away from it, and he shows up with the biggest mask I've seen” (Cathey, 2020). Making misinformation easier to spread, weakened authority of federal agencies and the scientific community is less capable of preventing the politicization of Covid-19 respond.

Suffering from enormous stress, fear, and uncertainties from the pandemic, inconsistency between the White House and the federal agency with authority over public health undermined not only increased people’s anxiety, worry, and powerlessness but also damaged public trust toward government and scientists. Lack of basic psychological needs, low public trust, and low authority set up a platform for the spread of misinformation and conspiracy. In addition, the inconsistent messages from the President justify some people’s defiance of public health guidelines and politicize the pandemic.

Partisan Bias That Does Not Clarify Uncertainties and Enables Politicization

The Covid-19 pandemic is fundamentally a public health crisis. However, it has been highly politicized in the US under increasing political polarization. Although Kamala Harris and Joe Biden promised to “restore trust, transparency, common purpose, and accountability to our government” on the Biden Harris website, she still falls in the rabbit hole of “politicizing the pandemic,” which would not contribute to restoring trust and common purpose.

Uploaded on May 11st 2021 and spreading on Facebook, a video that includes claims from Biden and Harris casting doubt on vaccine as they were running for Presidency and Vice Presidency last year has been “flagged as part of the Facebook’s effort to combat fake news and misinformation on its News Feed” (Kertscher, 2021). According to PolitiFact, the video is “selectively edited to take the statement out of context” (Kertscher, 2021). Nevertheless, it is not

hard to notice that Harris' statements are partisan for the sake of attacking Trump administration. According to the State of Union transcript aired on September 6, 2020 by CNN:

> Dana Bash, a CNN host, asked: "So, let's just say there is a vaccine that is approved and even distributed before the election. Would you get it?"
>
> Harris answered "Well, I think that's going to be an issue for all of us. I will say that I would not trust Donald Trump. And it would have to be a credible source of information that talks about the efficacy and the reliability of whatever he's talking about. I will not take his word for it. He wants us to inject bleach. I -- no, I will not take his word."

It is common to attack political opponents during campaign year, but Covid vaccines and science are not about politics or attacking your political opponent. Despite mentioning "a credible source of information that talks about the efficacy and the reliability," her information was drowned by her intention to attack Donald Trump ("State of the Union*",* 2020). If Harris' promise to the American people is restoring trust and common purpose, her message had better prioritize "a credible source that assures the efficacy and reliability of vaccines" to restore trust toward the scientific community and fully support the development of the vaccines. It is utterly unnecessary to focus on your political opponent when the question is would you get the vaccine. Moreover, during the Vice-Presidential Debate, Harris again added Donald Trump into the answer (Page, 2020):

> Susan Page: For life to get back to normal Dr. Anthony Fauci and other experts say that most of the people who can be vaccinated need to be vaccinated, but half of Americans now say they wouldn't take a vaccine if it was released now. If the Trump administration approves a vaccine, before or after the election, should Americans take it and would you take it?

> Harris: If the public health professionals, if Dr. Fauci, if the doctors tell us that we should take it, I'll be the first in line to take it. Absolutely. But if Donald Trump tells us that we should take it, I'm not taking it.

Susan Page asked about how Harris would respond to vaccine hesitancy if the vaccines were approved by the Trump administration. When it comes to hesitancy or uncertainties, it is best to be precise, simple, consistent, and straightforward to establish credibility for the vaccine. In other words, Harris' answer had better emphasize "what makes people to take it" rather than "what makes people not take it." Therefore, mentioning Trump as the reason why she would not take the vaccine is not going to address concerns or hesitancy from the American people. In short, her answer should have focused on the science as a reason for people to take the vaccine to restore trust toward science and highlight a common purpose.

Partisan Divide over Covid-19 and a General Lack of Public Trust

Divides between Republicans and Democrats over Covid-19 and an overall void of public trust persist. Over the course of the pandemic, public health guidelines have been repeatedly updated on how to respond to Covid-19. According to Pew Research Center, 61% of US adults believes that changing guidelines "made sense because scientific knowledge is always being updated," while 55% of US adults reacts that it made them "wonder if public health officials were holding back important information." Generally, the changing guidelines make 53% OF US adults "feel confused." Mask-wearing, as a policy hotspot at the state and local level, has become a less prevalent behavior in August 2021, compared to February 2021 (mask mandate was more common in the US at that time). In sum, 53% of US adults claim to wear a face-covering always or most of the time while being in stores or business in August, compared to 88% of adults in February.

Nevertheless, Democrats are over twice as likely to always wear mask in stores and business around August than Republicans (71% vs. 30%). Even though both Democrats and Republicans believe that Covid-19 is a major threat to the economy, around 80% of Democrats and Independents leaning toward Democrats believes Covid-19 is a public health treat while only 38% of Republicans and Independents leaning Republicans believe so. The partisan gap on this issue has always been similar throughout the pandemic.

Figure 1

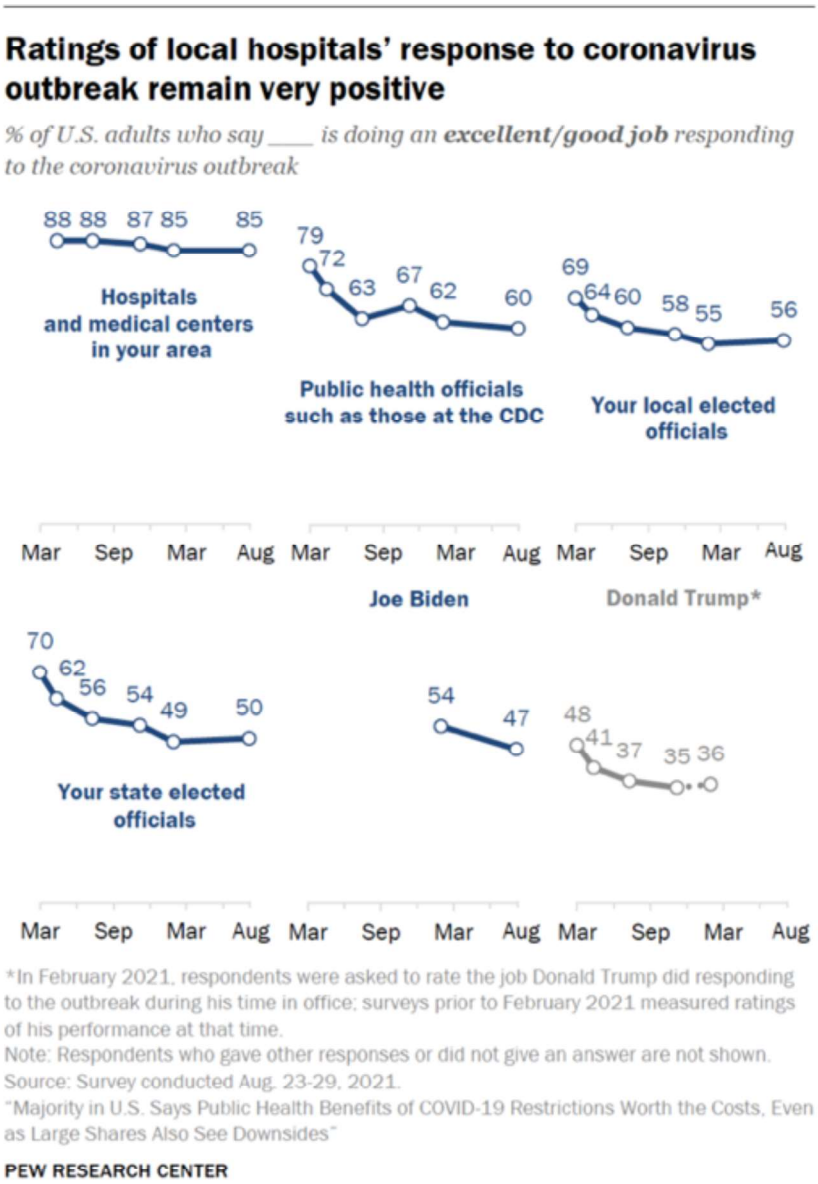
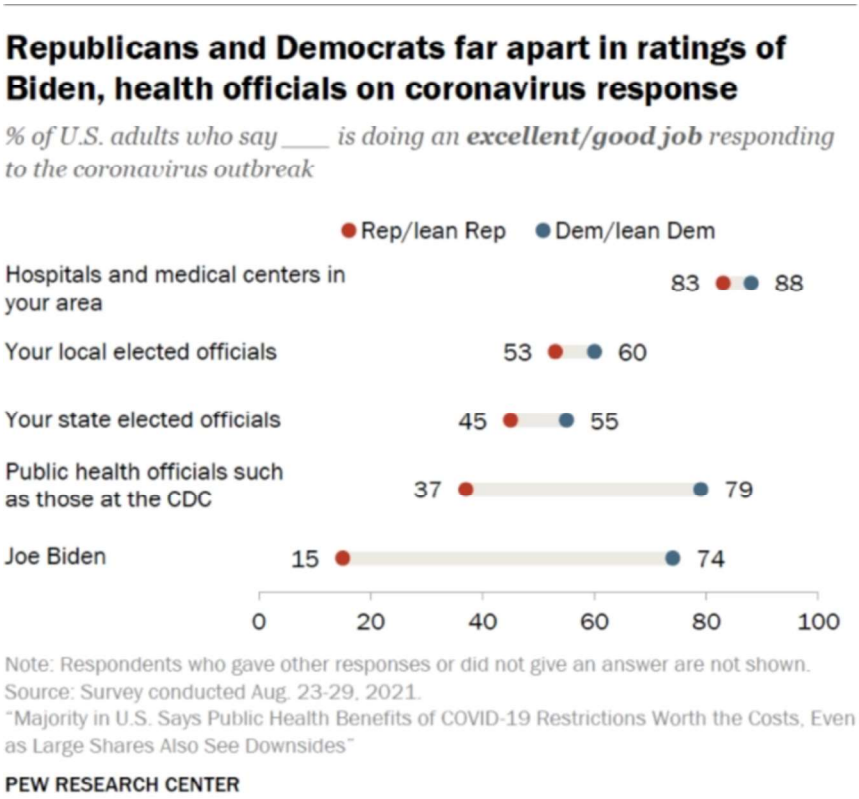


Figure 2



Based on Figure 1: Ratings of local hospitals' response to coronavirus outbreak remain very positive and Figure 2: Republicans and Democrats far apart in ratings of Biden, health officials on coronavirus response, local hospitals and medical centers received the most positive response in dealing with the Covid outbreak. The elected officials received a lot less positive response than local hospitals and medical centers, which demonstrates the damaged authority of elected officials. When it comes to Joe Biden and public health officials at CDC, there is a staggering gap between Democrats and Republicans. 79% and 74% of Democrats thought public health officials and Joe Biden have done a good job responding to the Covid-19, compared to 37% and 15% of Republicans.

Republicans and Democrats also have great split views over Covid vaccines and scientists. Whereas 55% of Republicans and Republican leaners are very and fairly confident in the research and development process of the Covid vaccines, 87% of Democrats and Democrat

leaners are confident. More importantly, more Democrats believes scientists' judgement is factual in September than in 2019 (73% vs. 62% in 2019), whereas a growing number of Republicans claims that scientists have prejudice (68% vs. 55% in 2019).

The overall less positive evaluation from the US adults to elected officials' Covid-19 response depicts damaged governmental authority, which signifies a general lack of public trust. It also becomes harder for scientists to address misinformation when a substantial portion of population is not confident toward them and their ability to be unbiased. With the partisan divide over issues around Covid-19 and a general lack of public trust toward the government and public health officials, this not only heightens the sense of uncertainty—creating an optimal environment for misinformation—but also drives politicization of the Covid-19.

The Legality of Federal, State, and Municipal Vaccine Mandates

On November 4th, 2021, the OSHA issued a COVID-19 Vaccination and Testing Emergency Temporary Standard (ETS) (which would be called Biden's Vaccine Mandate next) to mandate employers with 100 or over 100 employees to ensure their employees are vaccinated by January 4th and demand unvaccinated employees to test weekly, according to the White House Statement and Releases. Additionally, mask-wearing was a requirement for unvaccinated employees ("Fact Sheet", 2021). The mandate met strong backlash as many governors have been filing lawsuits against it.

The United States Court of Appeals for the Fifth Circuit granted a "stay pending" of the enforcement of the "Covid Vaccination and Testing; Emergency Temporary Standard" and argued that the Mandate is "a one-size-fits-all sledgehammer that makes hardly any attempt to account for differences in the workplaces (and workers)" and is "staggeringly overbroad,"

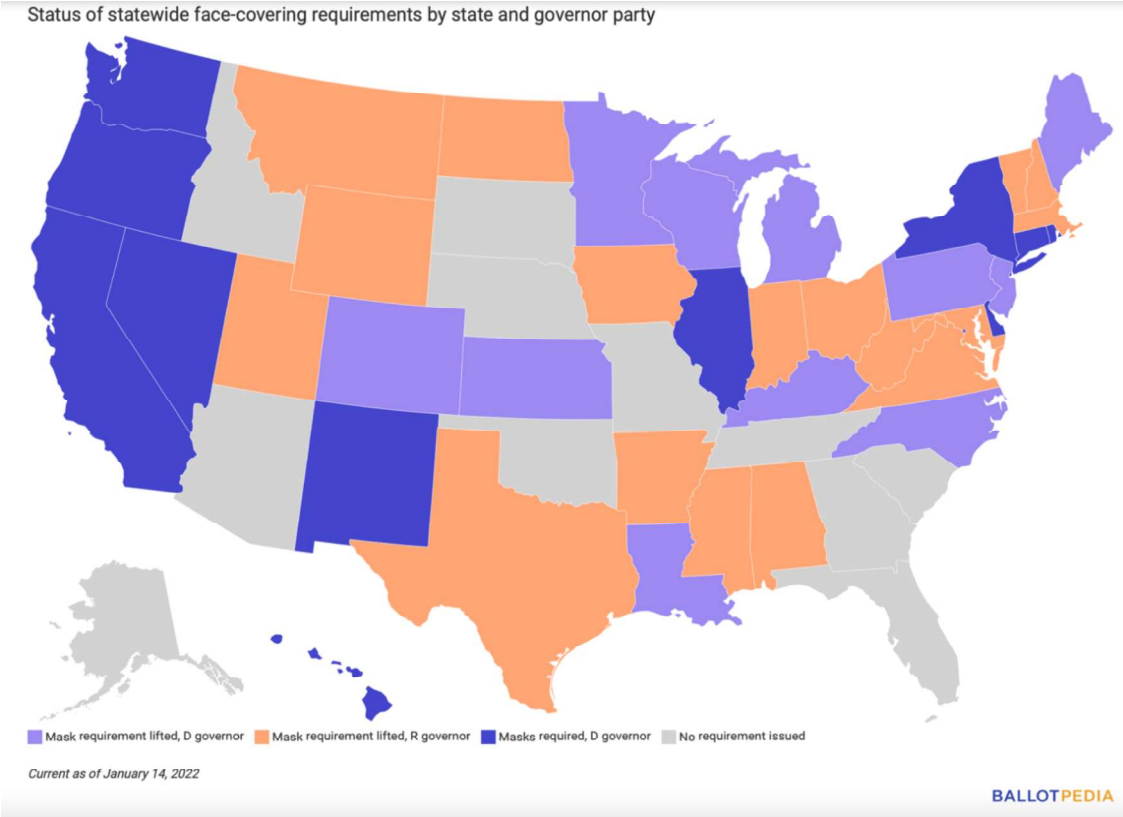
issuing a decision on November 12, 2021. Therefore, the legitimacy of Federal vaccine mandate is debatable currently.

Nonetheless, a State may mandate vaccines, as Supreme Court Justice John Marshall Harlan ruled that the vaccination law did not violate the 14th Amendment as the police power of a State may be permitted to confine individual liberty via justifiable regulations to protect public safety, based on *Jacobson v. Massachusetts*. Considering the police power of a State, the legislature is allowed to enact mandatory vaccine law. Thus, it is legal for a State to require compulsory vaccinations and mask-wearing during the Covid-19 pandemic.

Despite controversies around vaccine mandates, the New York City issued strictest-in-nation vaccine mandate (Millman, 2021). According to NYC Health, "all employees at private sector businesses must have received at least one dose of a COVID-19 vaccine" until December 27, 2021 ("General Vaccine Information"). Furthermore, at least one dose of vaccine is required for children ages 5 to 11 for indoor public activities, while two-dose vaccinations (except Johnson-Johnson which needs only one dose), in other words full vaccination, are required for people ages over 12 ("Vaccine Requirement"). Beginning January 29, 2022, children ages 5-11 are obliged to be fully vaccinated for indoor public activities ("Vaccine Requirement"). NYC mayor Bill de Blasio claimed the mandate is "a necessary preemptive strike" against omicron as the NY State was hitting single-day case records fueled by the Covid-19 variant on almost daily basis. Meanwhile hospitalizations are highest since February 2021 up until December 2021 and keep rising in the NY state (Millman, 2021).

Politicized Covid-19 Preventive Policies that Regulate Individual Behaviors

Figure 3



Mask and vaccine requirements are the most prevalent Covid-19 preventives measures over individual behaviors in the US. Considering the public health nature of Covid-19 pandemic, it is rational to assume that these preventive policies should mostly be consistent. Nevertheless, the highly-politicized Covid-19 responses—partially fueled by as well as fueling the misinformation—have divided Red States and Blue States. According to Ballotpedia's "State-level mask requirements," one state with Democratic governors is currently implementing a statewide mask mandate for unvaccinated individuals, and ten states with Democratic governors are ordering masks for vaccinated and unvaccinated individuals, through January 28, 2022. All in all, thirty-nine states have ordered statewide mask requirements, which thirty-two of them (seventeen states with Republican governors and fifteen states with Democratic governors) have acquiesced the requirements to expire. Five states, after the expiration of statewide mask

requirements, reinstated them. According to Figure 3: State of statewide face-covering requirements by state and governor party, it indicates that all states that have never issued statewide mask mandate have Republican governors, and all states with Democratic governors are either currently implementing statewide mask requirements as of 14 January 2022 or implemented statewide mask requirements before expiration ("State-level mask requirements," Ballotpedia).

Proof-of-vaccination requirements (i.e. vaccine passports) are commonly adopted by government or businesses to prove individuals have received Covid-19 vaccines. State governments have enacted various policies based on it, like prohibiting it or implementing it via granting vaccinated individuals to circumvent Covid-19 restrictions or participate in activities unavailable to unvaccinated individuals (Ballotpedia, "vaccine passports"). As of 2 February 2022, twenty states with Republican governors ban vaccine passport through executive orders (eleven states) or through laws passed by legislators (nine states), while five states with Democratic governors (California, New York, Hawaii, Oregon, and Washington) enacted the vaccine passport.

In a nutshell, mask and vaccine policies are divided between States with Democratic governors and with Republican governors, a clear indication of the extremely politicized and partisan Covid-19 response in the US. The current situation is the consequence of incessant political polarization for years, misinformation ("conservative media consumption tends to be a strong predictor of" believing Covid-19 conspiracies among very populist individuals, according to Stecula & Pickup), and public distrust (2021). It is a bleak circumstance in which partisanship, politicization, and misinformation—interplaying with each other—take the center stage of a pandemic response.

Likewise, Emily Chen concludes that misinformation and "a narrative's potential to be misinformation" contributes to the politicization of information almost equally (2021). For example, a mask narrative claimed that negligence from the Obama administration to perverse N95 stockpile caused the N95 mask shortage, which sounds like a bad-faith attack toward the then Presidential Candidate Joe Biden (Chen et al., 2021). This is rebuffed by a number of left-leaning users on Twitter, whereas this is actually factual (Chen et al., 2021). Consequently, partisan bias and politicization of information enhance people's vulnerability towards misinformation, also reciprocally misinformation and narratives' potential to be misinformation contribute to politicization.

Methodology

The Covid-19 pandemic, a public health crisis, has been severely politicized since the beginning. The inconsistency between President Trump and the public health agencies politicized the pandemic and provided breeding ground for misinformation, which drives further politicization. Promising to restore trust and a common purpose, the Biden administration failed their promise and kept enabling the politicization. It is unfortunate but not surprising that the Covid-19 response is politicized and divided on the state level.

For method of the study, the policies over mask and vaccine of eighteen most populous states (based on US census's population estimates, July 1, 2021) will be categorized. The reasons why the study focuses on masks and vaccines are because these are policies that aim to change individual behaviors. Once categorized, the states' Covid-19 outcomes (cumulative cases per capita, cumulative death per capita, vaccination rates by state residency) would be compared to evaluate the direct consequences of their policy decisions regarding masking and vaccines (Table 4 and Table 6). The states are separated into "states that have implemented any forms of vaccine

or statewide mask mandate without ever prohibiting Covid-19 vaccine or masks (mandate-states)" and "states that have prohibited vaccine or statewide mask mandates in certain places via executive orders or via the state legislature (mandate-banning states)" (Table 1; Table 2; and Table 3).

Among the Top 18 states, Virginia would be categorized as a mandate-state, despite Executive Order No.2 (2022) by Governor Glenn Youngkin, and a Democratic-led state. Based on the Executive Order, a child whose parent has decided to not let his or her child to be subjected to mask-requirement should not be required to follow mask policies by a teacher, school, or any state authorities. In other works, the Executive Order allows children to not follow mask requirement by education institutions without justifications and punishment for non-compliance. Considering the state government of Virginia is not outright prohibiting mandates and implemented a mask mandate before May 2021, Virginia would be categorized as "mandate-states" (Northam, 2021). Moreover, Virginia will be regarded as a Democratic-led state since they had a Democratic governor in 2020 and 2021 during most of the pandemic and only have a Republican governor after January 15th, 2022.

In addition to analyzing the statewide vaccine and mask policies, the study would also list the percentages of popular votes obtained by President Trump, Secretary Clinton, and President Biden at the statewide level in the 2016 and 2020 Presidential Elections, because Covid-19 has been a major topic of 2020 Presidential Election (Table 5 and Table 7). In the discussion, the unhelpful discourse of Covid-19 response would be analyzed to avoid these ineffective narratives in the future.

Data on cumulative cases per capita (per 100,000 people), cumulative deaths per capita, one-dose vaccination rate by state of residency (abbreviated as one-dose vaccination rate), full vaccination rate by state of residency (abbreviated as full vaccination rate), and full vaccination

with booster rate by state of residency (which would be abbreviated as “booster rate”) are from the CDC around 10 pm to 11 pm on February 8, 2022. The cumulative data is counted since January 21st, 2020. The Data was generated from CDC Covid Data Tracker, which updated mostly on a daily basis. The data generated is provisional, considering each state reports and updates their data differently. Therefore, there would be discrepancy with the actual historical data. Moreover, the number generated has been automatically rounded to integers. Since the CDC is a federal public health agency, their data is mostly likely the most reliable source in the US when the Covid-19 is still an ongoing pandemic. Hypotheses includes:

H1: mandate states have lower cumulative cases per capita and cumulative deaths per capita

H2: mandate states have higher all types of vaccination rates than mandate-banning states.

H3: for the Presidential Elections, mandate-banning states are more likely to vote Trump in 2016 and 2020 than mandate-states.

Table 1

Vaccine Policies of Mandate States:

Governor	State	Vaccine Passport	Vaccine Mandate School	Vaccine Mandate Healthcare	Vaccine Mandate State Employees/Agencies
Blue	California	Vaccine or negative test for Maga events (California Department of Public Health, "Beyond the Blueprint for Industry and Business Sectors")	K-12 (Aragón, "Order of August 11, 2021")	Vaccine or negative test (Aragón, "Order of February 22, 2022")	Vaccine or negative test ("California Implements First-in-the-Nation Measures," 2021)

Blue	New York	Mask-mandate for all indoor places unless business or venues requires proof-of-vaccination (Hochul, 2022)	N/A	Vaccine or negative test (Cuomo, 2021)	Vaccine or negative test (Cuomo, 2021)
Blue	Pennsylvania	N/A	N/A	Vaccine or Negative test (Wolf, 2021)	N/A
Blue	Illinois	N/A	Vaccine or Negative Test (Pritzker, 2021)	Vaccine or Negative test (Pritzker, 2021)	Vaccine or Negative test (Pritzker, 2021)
Blue	North Carolina	N/A	N/A	N/A	Vaccine or Negative test for cabinet agencies, mask required for not fully vaccinated people (Cooper, 2021)
Blue	New Jersey	N/A	Vaccine or negative test for school employees (Murphy, "All Preschool to Grade 12 Personnel")	Vaccine or Negative test (Murphy, "Health Care Facilities and High-Risk Congregate Settings")	Vaccine or Negative test (Murphy, "All Preschool to Grade 12 Personnel")
Blue, but Red after January 15, 2022	Virginia	N/A	N/A	N/A	N/A
Blue	Washington	Full vaccination or negative tests for large events (Inslee, "vaccination verification for large events")	Fully Vaccinated (Inslee, "Proclamation")	Fully vaccinated (Inslee, "Proclamation")	Fully vaccinated (Inslee, "Proclamation")

Red	Massachusetts	N/A	N/A	Vaccinated home care workers and healthcare workers (Lannan, 2021)	Executive branch employees vaccinated (Baker, 'Executive Order No.595')

Table 2

Mask Policies of Mandate States ("State-level mask requirements", n.d.)

Governor	State	Any Mask Mandate in Public Space at the State level	Duration of Mandate as of January 28 2022	Number of Days	Type of order ending mask mandate
Blue	California	Yes	694	6/18/2020-Present	N/A
Blue	New York	Yes	650, 7	4/15/2020-1/25/2022; 1/26/2022-Present	N/A
Blue	Pennsylvania	Yes	438	4/17/2020-6/28/2021	Executive Order
Blue	Illinois	Yes	407, 156	5/1/2020-6/11/2021; 8/30/2021-Present	Executive Order, N/A
Blue	North Carolina	Yes	323	6/26/2020-5/14/2021	Executive Order
Blue	New Jersey	Yes	414	4/10/2020-5/28/2021	Executive Order
Blue, but Red after January 15, 2022	Virginia	Yes, and Executive Order No.2 (2022): "A child whose parent has elected that he or she is not subject to a mask mandate should not be required to wear a mask under any policy implemented by a teacher, school, school district, the Department of Education, or any other state authority" (Youngkin).	351	5/29/2020-5/15/2021	Executive Order

Blue	Washington	Yes	568	6/26/2020-Present	N/A
Red	Massachusetts	Yes	388	5/6/2020-5/29/2021	Executive Order

Table 3

Vaccine and Mask policies of Mandate-banning States ("State-level mask requirements", n.d.)

Governor	State	Places Where "Proof of Vaccination" is Prohibited	Places Where Mask-mandate is prohibited	Any Mask Mandate in Public Space at the state level	Dates
Red	Texas	Banning at governmental entity and entities that receive public funds (Abott, 2021)	No governmental entity could mandate mask-wearing (Abott, 2021)	Yes	7/3/2020-3/10/2021
Red	Florida	Ban; Allow governor to invalidate local emergency order; banning at any business and government entity (DeSantis, 2021)		N/A	
Red	Ohio	Banning at public schools and state institution of higher education (The General Assembly of the State of Ohio, "Amended House Bill Number 244")		Yes	7/23/2020-6/2/2021
Red	Georgia	Ban at state agencies (Kemp, 2021)	Local government could not implement mask-mandate (Mansell, 2020). However, after August 15, 2020, local government could mandate masks without	N/A	

			punishment for violation (Associated Press, 2020).		
Blue	Michigan	Bans at any state entity except some healthcare settings, such as hospitals, congregate care facility, and other medical facility (Whitmer, 2021)		Yes	4/26/2020-6/22/2021
Red	Arizona	"Vaccine passports" are banned at state and local governments (Ducey, 2021)		N/A	
Red	Tennessee	"Prohibiting state or local governmental official, entity, department, or agency requiring proof of vaccination", according to Senate Bill 0858 (Bowling, 2021)		N/A	
Red	Indiana	Ban, "Prohibits the state or a local unit from issuing or requiring a COVID-19 'immunization passport'" (Carbaugh, 2021)		Yes	7/27/2020-4/6/2021
Red	Missouri	Ban, "prohibits local, publicly funded entities from requiring a vaccine passport." "Prohibits county or municipal governments that receive public funds from requiring" proof of vaccination (Parson, 2021)		N/A	

Table 4

Covid-19 Outcomes of Mandate States ("CDC Covid Data Tracker", 2022):

State	Cumulative Cases per capita	Cumulative death per capita	One-dose Vaccination Rate	Full Vaccination Rate	Booster Rate
California	21,906	203	80.90%	69.50%	46.50%
New York	23,401	238	88%	74.60%	41.70%
Pennsylvania	21,089	324	82.50%	66.20%	40.30%
Illinois	23,450	279	75.70%	66.60%	48%
North Carolina	23,782	202	81.50%	58.80%	24.40%
New Jersey	24,005	360	88.10%	73.40%	43.30%
Virginia	18,616	201	83.50%	70.90%	43.60%
Washington	18,159	145	79.10%	70.30%	48.50%
Massachusetts	23,758	326	95%	76.70%	48.10%
Means	22,018	253.11	83.81%	69.67%	42.71%

Table 5

Presidential Elections of Mandate States (Ballotpedia)

State	2016 Election	2016 Winner	2016 Margin	2020 Election	2020 Winner	2020 Margin
California	61.7% vs 31.6%	Clinton	30.10%	63.5% vs 34.3%	Biden	29.20%
New York	59% vs 36.5%	Clinton	22.50%	60.9% vs 37.7%	Biden	23.20%
Pennsylvania	47.9% vs 48.6%	Trump	0.70%	50% vs 48.8%	Biden	1.20%
Illinois	55.8% vs 38.8%	Clinton	17.10%	57.6% vs 40.6%	Biden	17%
North Carolina	46.2% vs 49.8%	Trump	3.70%	48.6% vs 49.9%	Trump	1.30%
New Jersey	55.5% vs 41.4%	Clinton	14.10%	57.3 vs 41.4	Biden	15.90%
Virginia	49.8% vs 44.4%	Clinton	5.30%	54.1% vs 44%	Biden	10.10%
Washington	54.3% vs 38.1%	Clinton	16.20%	58% vs 38.8%	Biden	19.20%
Massachusetts	60% vs 32.8%	Clinton	27.20%	65.6% vs 32.1%	Biden	33.50%
Means		Clinton	18.93%		Biden	18.66%

Table 6

Covid-19 Outcomes of Mandate-banning States ("CDC Covid Data Tracker", 2022)

State	Cumulative Cases per capita	Cumulative death per capita	One-dose vaccination Rate	Full vaccination rate	Booster Rate
Texas	22,016	273	70.10%	59.20%	34.80%
Florida	26,540	309	77.50%	65.40%	37.60%
Ohio	22,352	292	62.50%	57.10%	49.60%
Georgia	22,754	315	64%	53.20%	34.10%
Michigan	23,092	329	65.50%	58.50%	49.20%
Arizona	26,412	365	70.70%	59.30%	38.30%
Tennessee	28,427	337	60.90%	53%	41%
Indiana	24,538	323	60.20%	53.50%	43.10%
Missouri	22,144	286	64.90%	54.60%	39.90%
Means	24,253	314.33	66.26%	57.09%	40.84%

Table 7

Presidential Elections of Mandate-banning States (Ballotpedia)

State	2016 Election	2016 Winner	2016 Margin	2020 Election	2020 Winner	2020 Margin
Texas	43.2% vs 52.2%	Trump	9%	46.5% vs 52.1%	Trump	5.60%
Florida	47.8% vs 49%	Trump	1.20%	47.9% vs 51.2%	Trump	3.30%
Ohio	43.5% vs 51.7%	Trump	8.10%	45.2% vs 53.3%	Trump	8.10%
Georgia	45.9% vs 51%	Trump	5.20%	49.5% vs 49.3%	Biden	0.20%
Michigan	47.3% vs 47.5%	Trump	0.20%	50.6% vs 47.8%	Biden	2.80%
Arizona	45.1% vs 48.7%	Trump	3.50%	49.4% vs 49.1%	Biden	0.30%
Tennessee	34.7% vs 60.7%	Trump	26%	37.5% vs 60.7%	Trump	23.20%
Indiana	37.8% vs 56.9%	Trump	19.20%	41% vs 57%	Trump	16%
Missouri	38.1% vs 56.8%	Trump	18.60%	41.4% vs 56.8%	Trump	15.40%
Means		Trump	10.11%		Trump	11.93%

Results

Based on comparisons of rates between mandate-banning states and mandate states, the averages of cumulative cases per capita (24,253 vs. 22,018) and cumulative death per capita (314.33 vs. 253.11) are 1.102 times and 1.242 times higher for mandate-banning states than mandate-states, and the averages of all vaccination rates are higher for mandate-states than mandate-banning states (averages of one-dose vaccination rates 83.81% vs. 66.26%, means of full vaccination rates 69.67% vs. 57.09%, and averages of booster rates 42.71% vs. 40.84%). Four of the mandate-banning states (Florida, Arizona, Tennessee, and Missouri) have never implemented statewide mask mandates. During the Covid-19 pandemic, mandate-banning states (except Michigan) have Republican governors, whereas the mandate-states (except Massachusetts with a Republican governor) have or had Democratic governors. Virginia had a Democratic governor before 15 January 2022, the election of Republican governor Glenn Youngkin.

For the 2016 Presidential election, the winner at the state level for all mandate-banning states was Trump, who won with an average margin of 10.11%. In contrast, the winner of mandate-states (except North Carolina and Pennsylvania, which Trump won with margins of 3.7% and 0.7%) was Clinton, who won with an average margin of 18.93%.

For the 2020 Presidential Election, the winner for the mandate-banning states (except Georgia, Michigan, and Arizona) was Trump, who won with an average margin of 11.93%, while Biden won Georgia with a margin of 0.2%, Michigan with a margin of 2.8%, and Arizona with a margin of 0.3%. The winner of the mandate-states in 2020 (except North Carolina, which Trump won with a margin of 1.3%) was Biden who won with an average margin of 18.825%. In

sum, mandate-banning states were more likely to vote Trump over Clinton or Biden in both Presidential elections, while the mandate-states were more likely to vote Clinton and Biden.

Discussions

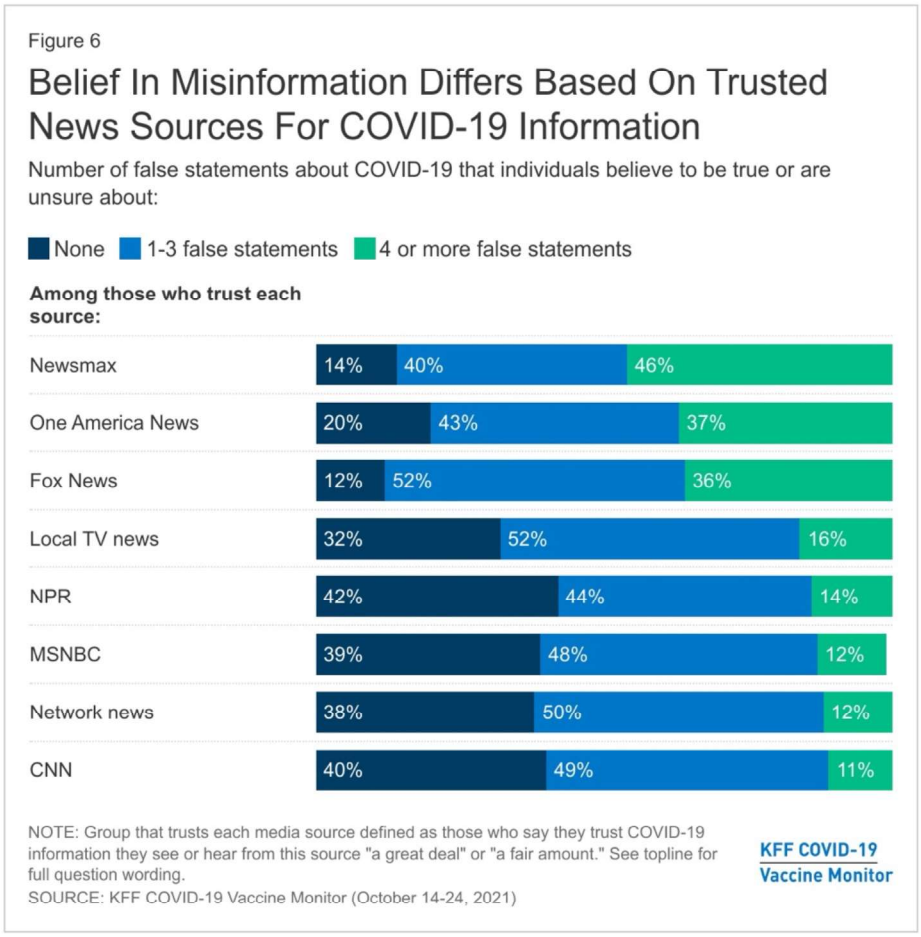
The findings conform with the hypotheses: mandate-states have lower average of cumulative cases per capita and death per capita, have a higher average percentage of population vaccinated, and were less likely to vote for Trump than mandate-banning states. So far, the results demonstrate that mandate-banning is correlated with worse Covid-19 outcomes. The ban versus mandate divide was split evenly between Republican-led and Democratic-led states respectively, with Michigan as the only exception. In addition, mandate-banning states' winner for 2016 and 2020 Presidential Election was more likely to be Trump. Therefore, politicized Covid-19 response at the state level does has negative impact on the Covid-19 outcomes.

Lower Vaccination Rate among Republicans and the Conservative Media

Red states, twenty of which having prohibited requiring proof-of-vaccination as of 23 February 2022, are more negatively impacted by the Covid-19 (Ballotpedia, "vaccine passports"). According to Liz Hamel et al.'s poll "KFF Covid-19 Vaccine Monitor: January 2022", Republicans are less likely to receive at least one-dose of vaccine (91% vs. 63%) and booster (62% vs 32%) than Democrats. In addition, based on CDC's "Rates of Covid-19 Cases and Deaths by Vaccination Status" (These Data updated monthly), unvaccinated individuals aged five years and older are 2.4 times more likely to test positive and 9 times more likely to die than fully vaccinated individuals in January 2022. The relatively higher Covid-19 risks for unvaccinated individuals, who tend to be Republicans, also reflects in the reality. Since May 2021 to November 2021 in a sample of 2,944 counties around the US, individuals that live in counties which 60% and more voted Trump in the 2020 Presidential Election are three times as

likely to die from Covid-19 than those who live in counties that voted for Trump at 40% or less (Wood & Brumfiel, 2021). Consequently, the comparatively higher unvaccinated rate for Republicans reflects through the higher case rate and higher death rate.

There is a positive correlation between conservative media consumption and believing in Covid-19 misinformation among very populist individuals (Stecula & Pickup, 2021). Among eight pieces of Covid-19 misinformation, 94% of Republicans believe or are unsure about at least 1 false statement about Covid-19, while 62% of Democrats believe or are unsure about at least 1 false statement (Hamel et al., "Media and Misinformation"). People who believe Covid-19 information from conservative media outlets are more misinformed since 36% of Fox News believers, 37% of One America News believers, and 46% of Newsmax believers believe or are unsure about at four false statements, while believers of other outlets share much lower



percentages of people who believe in at least four false statements (Figure 6) (Hamel et al., "Media and Misinformation"). Even though the positive correlation between conservative media consumption and Covid-19 misinformation is apparent, this study could not determine if this is caused by people being exposed to misinformation from these outlets or if people who watch these outlets are pre-disposed to believe in the misinformation.

Vaccine Hesitancy in General Population

Vaccine hesitancy has been hindering the Covid-19 response as well as has caused the resurgence of many preventable diseases long before Covid-19. In 2019, the WHO identified vaccine hesitancy as one of the top 10 threats to global health for it "threatens to reverse progress made in tackling vaccine-preventable diseases." For example, the 2014 California Disneyland measles outbreak infected 110 Californian patients. Among them, 45% was unvaccinated (49 patients), 1% received one dose of measle-containing vaccine, and 43% of their vaccination status was unknown and undocumented (Zipprich et al., 2015). Twelve of the unvaccinated patients were infants who were too young for vaccines (Zipprich et al., 2015). This also stresses the significance of herd immunity to protect individuals who are medically unable to be vaccinated by getting people who can get vaccination to be vaccinated. Unfortunately, the rising unvaccinated rate is stopping some communities reaching the threshold of herd community and causing the spread of preventable disease.

Vaccine hesitancy is especially severe in minority communities in the US and the UK and in people who share little public trust. In the US, African American communities share a low trust toward the healthcare system. This could harken back to the Tuskegee syphilis study, a racist study that refused African Americans efficient medication for syphilis. Additionally, racial disparities in healthcare further exacerbated the mistrust since minorities tend to have less access

toward healthcare services in the US. Furthermore, a UK survey as of March 2021, Black African (58.8%), Black Caribbean (68.7%), Bangladeshi (72.7%), and Pakistani (74%) who are eligible for Covid-19 vaccines have much lower vaccination rates than white British (91.3%) (Razai, et al., 2021). Also, high Covid-19 vaccine hesitancy is a feature among women (21% vs. men 15%), younger age groups (28% among 25-34 years old vs. 14% among 55-64 years old), and individuals with lower education levels (24% in secondary school graduates vs. 13% in university graduates) (Razai et al., 2021). Similar to the Covid-19 vaccine, socioeconomically disadvantaged people and ethnic minorities always have lower vaccination rates of pneumococcal, influenza, rotavirus, and shingles, and ethnic minorities fall behind in childhood immunizations (Razai, et al., 2021). It is apparent that minorities and individuals from lower socioeconomic backgrounds tend to be more hesitant toward vaccines potentially due to low public trust.

Vaccine hesitancy is not only a public health issue but also a political and social issue in the US, because low public trust has existed throughout the pandemic for Republicans and Democrats. Nonetheless, the research on vaccine hesitancy has been limited in focus on public health and thus needs to be studied from various angles. Timothy Neff researched about vaccine hesitancy online through 100 articles out of 236 articles from Web of Science database (2021). The amount of study regarding vaccine hesitancy in online spaces has skyrocketed since 2010, which nearly coincide with the launches of social media platforms such as Facebook and Twitter in 2006 (Neff et al., 2021).

Seventy-six out of the 100 articles in academic journals are from the field of public health and medicine (Neff et al., 2021). The majority of the articles (64%) focus on how people communicate about vaccines online, according to Neff (2021). Despite the large number of

articles related to public health and medicines, a limited number of papers pay attention to areas like gender, ethnicity, age, and places outside North America and Western Europe (Neff et al., 2021). However, disparities among genders, ethnicities, and age groups over vaccination have been a distinct feature in US and the UK. Neff ultimately recommends research for online vaccine hesitancy to broaden the scope by incorporating interdisciplinary comparative research across national, reginal, local, and cultural backgrounds and investigating factors like gender, race, spiritual belief, and political ideology, and their vulnerabilities toward vaccine misinformation (2021). In a nutshell, researchers need to study more about the social, political, and cultural aspects of vaccine hesitancy to reflect the gender and cultural disparities over vaccines in the real world.

Ineffective Public Health Discourses

When communicating with the US public about Covid-19, political officials have made some mistakes, which damage public trust and obstruct pandemic response by conveying conflicting information with public health agencies and by emphasizing individualism instead of collectivism. Based on the CDC Foundation, public health manages the health of the whole populations (n.d.). The populations could range from a local neighborhood, a nation, and a region of the world ("What is Public Health," n.d.). Therefore, public health requires collective actions and coordination.

Nevertheless, narratives from some political leaders underscore "individualism" rather than much-needed "collectivism" during a pandemic response. According to Florida governor Ron DeSantis' news release, "your personal choice regarding vaccinations will be protected and no business or government entity will be able to deny you services based on your decision" (2021). And the Executive Order GA-38 from Texas Governor Greg Abbott mentions that

getting Covid-19 vaccine is “always voluntary and will never be mandated by the government.” As the second and third most populous states as well as two of the most political influential ones in the US, these statements from state officials fail to convey the urgency of vaccinations as well as undermines the collective consciousness of pandemic response by emphasizing individualism.

Inspiring collective resilience and shared values can be a very effective way to encourage public health behaviors. Effective communications could include “inspiring” instead of “ordering” individuals to adopt public health behaviors through appealing to common values (Udow-Phillips et al., 2020). This could be achieved by validating people’s difficulty, highlighting the historic importance of our actions, and affirming determination instead of fear (Udow-Phillips et al., 2020). For example, New Zealand Prime Minister Ardern indicated the serious threat of Covid-19 and empowered citizens collectively through appealing to the value of mutual help when framing protective measures (Vignoles et al., 2021):

> Ardern: In the face of the greatest threat to human health we have seen in over a century, Kiwis have quietly and collectively implemented a nationwide wall of defence. You are breaking the chain of transmission. And you did it for each other. As a Government, we may have had pandemic notices. We may have had powers that come with being in a national emergency. But you held the greatest power of all. You made the decision that together, we could protect one other. And you have.

With strict public health regulations toward social-distancing, stay-at-home orders, testing, and contact tracing, New Zealand had low rates of serious morbidity and death from Covid-19 in 2020 (Vignoles et al., 2021). The pandemic response discourse needs to inspire collective actions based on shared values and highlight the urgency of taking precautions. Therefore, when

communicating with the public, public officials had better rally people around shared values and underline urgency of taking actions to encourage collective public health behaviors.

How Public Trust has been damaged by Historical and Current Emergency Response

Figure 7

The OECD Trust Framework

Trust Component	Government Mandate	Concern affecting trust	Policy Dimension
Competence The ability of governments to deliver to citizens the services they need, at the standard they expect	Provide public services	Access to public services, regardless of socio-economic status; Quality and timeliness of public services; Respect for public service provision, including responsiveness to citizens' feedback;	Responsiveness
	Anticipate change, protect citizens	Anticipation and adequate assessment of evolving citizen's needs and challenges; Consistent and predicable behaviour; Effective management of social, economic and political uncertainty;	Reliability
Values The drivers and principles that inform and guide government action	Use power and public resources ethically	High standards of behaviour; Commitment against corruption; Accountability;	Integrity
	Inform, consult and listen to citizens	Ability to know and understand what government is doing; Engagement opportunities that lead to tangible results;	Openness
	Improve socio economic conditions for all	Pursuit of socio economic progress for society at large; Consistent treatment of citizens and businesses (vs. fear of capture);	Fairness

Institutional trust is significant for the functioning of the society and public policy, specifically during a crisis ("Enhancing public trust", 2021). "The most important ingredient in all vaccines is trust" according to Dr. Barry Bloom of the Harvard T.H. Chan School of Public Health ("Enhancing public trust", 2021). In sum, vaccination campaigns heavily rely on individuals' trust over the effectiveness and the security of vaccines, the reliability of the institutions that deploy them, and frameworks that guide the decisions and actions of governments ("Enhancing public trust", 2021)). Based on the OECD Trust Framework from the article "Enhancing public trust" (2021) (Figure 7: OECD Trust Framework), the two major components are competence, government's capability to serve their citizens at the standard they look forward to, and values—motivators which advise and lead actions. To be competent, the government has to be responsive by offering public service equally and efficiently and be reliable through adapting to changes and challenges from the inside and the outside and through protecting their citizens ("Enhancing public trust", 2021). Additionally, the central values ought to be integrity, openness, and fairness ("Enhancing public trust", 2021). Nonetheless, the pillars of trust have been damaged before and during the pandemic.

Hurricane Katrina (August 23-August 31, 2005) is the most catastrophic natural disaster in the U.S., but also a disastrous emergency management that was neither competent nor fair and that significantly damaged public trust. Similar lack of competency and fairness also happened to Covid-19 response. In New Orlans on August 30th, the residents who could not evacuate were stranded in a city that was 80% underwater ("Hurricane Katrina", 2021). Without coordinated effort for security, certain neighborhoods suffered from looting ("Hurricane Katrina", 2021). By September 1st, around 30,000 were sheltering at Superdome, and about 25,000 evacuated to the convention center, based on the article "Hurricane Katrina" (2021). Nevertheless, they suffered

from food and drinking water shortages as the temperature hit 90 Fahrenheit (32 degrees in Celsius) (“Hurricane Katrina”, 2021). According to the article “Hurricane Katrina”, lack of sanitation with bacteria-filled floodwater also generated a huge public health crisis (2021). Finally, military presence was only available after September 2nd, and the National Guard began to distribute food and water (“Hurricane Katrina”, 2021). The damaged levees also started to be rebuilt (“Hurricane Katrina”, 2021). So far, it is noticeable that the emergency response is not competent or reliable since it took until September 2nd to have military presence to maintain order and since many displaced people suffered from insufficient food, water, and sanitation.

The emergency response has been further complicated by delayed acknowledgement of mistakes, and this violates the values of integrity and openness. According to the article “Hurricane Katrina”, the US Army Corps of Engineers only admitted defections in the construction of city’s levees and flood-protection system after a decade (2021). For instance, the levees and sea wall were too short to hold back the sea water, and the floodgates were incapable of closing appropriately (“Hurricane Katrina”, 2021). Furthermore, the Federal Emergency Management Agency (FEMA) did not formally mark many locations in New Orleans which are susceptible to flooding as “flood zones” (“Hurricane Katrina”, 2021). Therefore, the destruction suffered by many homeowners was not compensated as they were not advised to buy flood insurance, based on the article “Hurricane Katrina” (2021). It took a decade for the government and emergency management to acknowledge their mistakes and the low quality of infrastructure. These behaviors certainly violated governmental integrity and openness.

The value of fairness was also violated since the emergency response failed to protect the elderly, the poor, and the minorities equally. When the crops and livestock were devasted in rural and minority communities, most aids were delivered to middle-class white neighborhoods, based

on Offenheiser (2021). Insurance abuse made the dire situation of minorities and rural areas harder because the insurance companies asked them to raise their homes twelve to fifteen feet over the ground to secure insurance, which were unaffordable for most of the rural individuals (Offenheiser, 2021). Without help from the government, most seniors, low-income, and minorities had to depend on church volunteers for help and places to live (Offenheiser, 2021).

Similar unfairness happened to the African American and Vietnamese residents in Biloxi, Mississippi. When the offshore barges, casinos, bridges, and homes were destroyed, the state prioritized reopening casinos and real estate developers rather than the minority families, according to Offenheiser (2021). After suffering from the devastating hurricane, the minorities and the low-income families were suffering from the unfair discrimination simultaneously. In the end, the emergency response toward Hurricane Katrina has been neither competent nor fulfilling the values of integrity, fairness, and openness.

The already disappointing emergency management for the public has been further exacerbated by the chaotic Covid-19 response. When developing and releasing test kits for Covid-19, the CDC violated integrity and openness by releasing a diagnostic kit which would fail 33% of the time and was potentially contaminated (Temple-Raston, 2020). Furthermore, some political officials at the state level have not been competent enough to encourage collective mask-wearing and vaccinations, such as using the power of state to mandate Covid-19 vaccinations based on the Supreme Court Precedent *Jacobson v. Massachusetts, 1905*. Additionally, essential workers whose demographic includes a large number of African American and Hispanics have had to work during the pandemic without sufficient protections and healthcare service. Just like the inequality during the Hurricane Katrina, minorities in the US are disproportionately more severely impacted and are more likely to be hospitalized or dead

because of Covid-19. Thus, the already damaged public trust before the pandemic has been further deteriorated by the incompetent public health and political officials, the inconsistency between public health agencies and political entities, the politicization of the Covid-19, and the resulting spread of Covid-19 misinformation.

Possible Short-Term Solutions for Pandemic Response in the US

Although political polarization and discrimination are serious causes of low public trust, devoid of public compliance to Covid-19, vaccine hesitancy, and the prevalence of misinformation, systematic problems are complicated with many nuances and could not be solved in one day. Under urgent circumstances, legal and efficient approaches to achieve the most optimal outcomes—including getting as many people who are eligible for vaccines to be vaccinated as possible, increasing public compliance to Covid-19 guidelines, and curbing the spread of misinformation—in a short time ought to be prioritized.

The Covid-19 pandemic also has a sibling called “infodemic”, which includes the overload of information and the spread of misinformation. Facts have been manipulated, and unproven theories have been disseminated online. Since the study of Covid-19 is an evolving science, it is not only hard for scientists to communicate with the public but also difficult for most people to understand the situation, as they normally are unfamiliar with the process of scientific research. Something worse online is that social media algorithms always recommend similar information to the users, which makes some users access more misinformation much more easily. Compelling and authoritative communication with the public could boost public trust (“Enhancing public trust”, 2021).

Endeavors to develop people’s capability to distinguish misinformation and increase scientific literacy can help decrease vaccine hesitancy (“Enhancing public trust”, 2021). In

Demark, the health authority put a video about how to identify fake news on their website, such as by teaching people to verify whether something is from a credible source, according to the article “Enhancing public trust” (2021). In addition, the UK government with the University of Cambridge developed a game “go viral” to introduce people the techniques which are used to dissipate misinformation online (“Enhancing public trust”, 2021).

Furthermore, good communications need to target different audiences by engaging community leaders and the local government. Minorities in the UK are generally less vaccinated. To respond to this, the UK Department for Digital, Culture, Media and Sport targets vaccine misinformation shared among minority groups, using content to be shared on WhatsApp and Facebook community groups, Twitter, YouTube, and Instagram (“Enhancing public trust”, 2021). The campaign is pioneered by trusted community figures, like religious leaders and clinicians, and informs people about how to spot and stop misinformation.

Is targeted messaging effective? The campaign in Italy was effective and successful in increasing compliance. Italy tried to target their most non-compliant groups towards Covid-19 guidelines, such as mask-wearing, hand-washing, and social distancing (“Enhancing public trust” 2021). The Presidency of the Council of Ministers campaigned on social media with ad-hoc messages to target youth and small and medium business owners (“Enhancing public trust”, 2021). Eventually, the three-week campaign enabled a 2.4% increase in memorizing the ad campaign and a 1.5% increase in compliance, based on the “Enhancing public trust” from the OECD (2021).

The US can also launch campaigns on various platforms to improve public trust and public compliance via instructing people how to identify misinformation and via targeting vaccine-hesitant minority communities. By teaching the general population to determine

misinformation and look for scientific-credible sources, it is possible to increase vaccination rates among the general population. Nevertheless, it is important to designate specific campaigns to target the minorities due to their relatively much lower public trust towards healthcare than the non-Hispanics white majority.

By both campaigning on social media platforms and community outreach via engaging trusted community leaders, multi-language options must be available since some people from minority communities are not fluent in English. These short-term solutions to achieve public compliance towards Covid-19 guidelines are relatively effective. Unfortunately, low public trust caused by political polarization, discrimination, and incompetency will not be corrected in one day. Researchers need to figure out long-term solutions to low public trust to ensure the future smooth emergency response during epidemic or pandemic.

We Urgently Have to Prepare for the Next Infectious Disease or Pandemic

The chaotic disaster of Covid-19 response is not the first indication of how unprepared we are when confronting infectious disease outbreak. In 2016, Dr. Jerry Jaax, the Associate Vice President for Research Compliance and University Veterinarian at Kensas State University, gave a Ted Talk about the Reston Ebola Outbreak, the first time Ebola emerged in the US carried by monkeys. As a core participant of the event, Dr. Jaax mentioned the significance of emergency planning, teamwork, coordination, high-quality PPE, and leadership in his TEDx Talk. However, the later 2015 U.S. Ebola Outbreak exposed that decades of extensive and costly federal and state bio-preparedness programs, training, and equipment were not enough, and long-term lessons were not learnt from the Reston Outbreak (Jaxx, 2016).

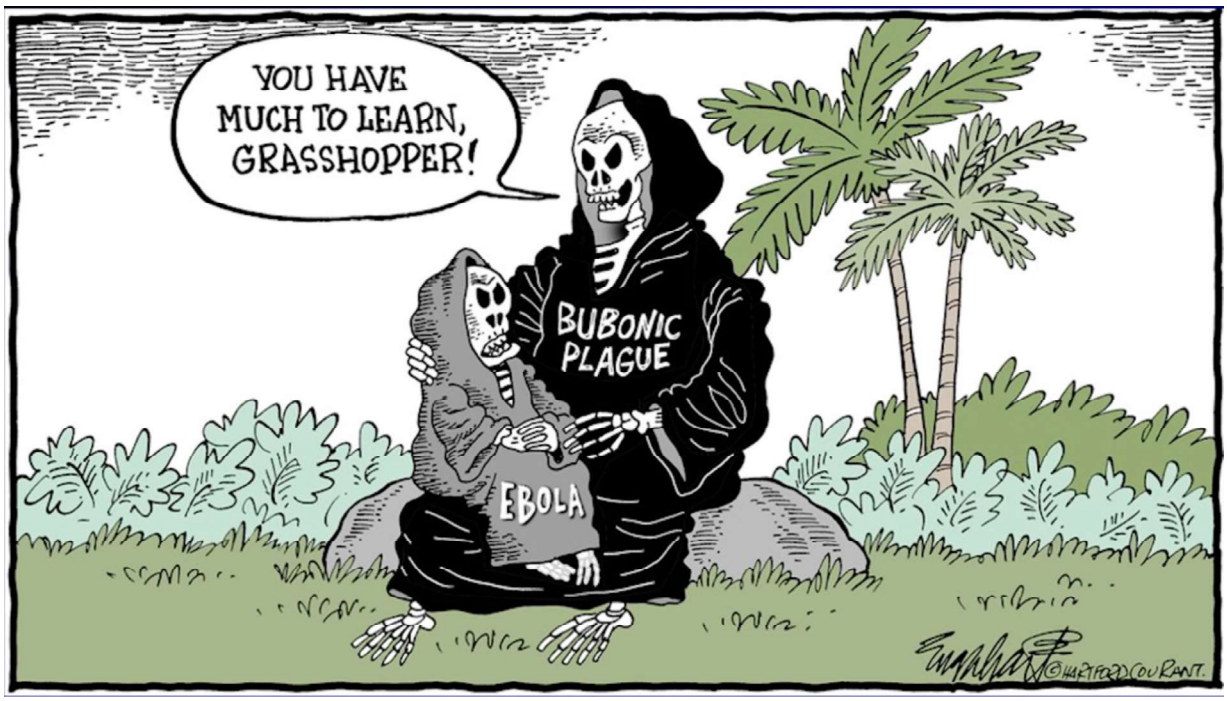
In other words, the preparedness for infectious diseases in the US is not adequate even after many months of Ebola outbreak in Africa at that time. It is lucky that Ebola was not too

contagious to cause a massive causality in the US (Jaxx, 2016). Nonetheless, Dr. Jaxx ended with a not so positive tone and said that “we might not be so lucky next time or with the next pathogen” (2016). This warning has since become prophecy, but the Covid-19 response has been devoid of coordination, lack of leadership, and lack of PPE for healthcare workers even after the precedents of Reston Outbreak and the 2015 US. Ebola Outbreak.

Also on a not so positive note, the chance of the next pandemic is drastically rising because of climate change and the ambiguous divide between man and animals now. With global travel, overpopulation, and urbanization, diseases become easier to spread (Jaxx, 2016). The rise of temperature caused by the climate change increases the chance of zoonotic diseases because animals are forced to shift their habitats to places that are likely with a lot of humans (Georgetown University Medical Center, 2022). The Georgetown University Medical Center claims that these changes provide more chances for viruses—such as Ebola and coronavirus—to appear in new places, making the creation of zoonotic diseases easier (2022). Additionally, “we are in the midst of a resurgence of old diseases and new diseases on a global scale,” said Paul Epstein, associate director of the Center for Health and the Global Environment at the Harvard Medical School, on October 10th, 2006 (Jaxx, 2016). This statement is absolutely valid since Covid-19 is not the first influential infectious diseases in the Twenty-First Century, such as SARS, Zika, Swine Flu, and Ebola. More importantly, one old disease, like measles, is on the rise due to vaccine hesitancy. It is urgent for human to prepare for the next pandemic adequately with good leadership, coordination, policies, and vital resources, because there will probably be no chance for error when we are dealing with the very possible next pandemic.

Figure 8

Meme from Dr. Jaxx's TEDx Talk in 2016



Limitations

The study explores the Covid-19 outcomes of the politicized Covid-19 responses at the state level, whereas it does not consider the Covid-19 policy variations on the local level, using Covid-19 outcome data on February 8th, 2022, and Covid-19 policies until January 28th, 2022. Thus, the study is limited by a time frame of an ongoing pandemic. In addition, the study's sample is limited to the eighteen most populous states in the US since they are commonly the most political influential states (nine states with Democratic governors and nine states with Republican governors). Although there is a positive correlation between conservative media consumption and belief in Covid-19 misinformation and a partisan divide over Covid-19 vaccinations and compliance to Covid-19 guidelines, the study could not fully explain the partisan divide over Covid-19.

Vaccine hesitancy is stronger in many minority groups and Republicans in the US. And the issue could not be addressed without long-term solutions and requires research on vaccine hesitancy, which traditionally mostly focus on public health and medicines, over ethnicities, races, religions, and political ideologies. More importantly, vaccine hesitancy in various cultures and non-western backgrounds needs to be studied since many minorities do not come from a western background.

This study merely explores the short-term solutions of vaccine hesitancy, Covid-19 misinformation, and lack of public compliance. However, these solutions are not permanent because these problems are the consequences of long-term systematic racism, low public trust, and political polarization. Finally, future research had better pay attention to the social, cultural, and political factors behind vaccine hesitancy and their relations among pandemic response, political polarization, and discrimination to better handle the next pandemic.

Conclusions

A pandemic is a breeding ground for misinformation as people are worried and anxious. However, the politicization of Covid-19 response and political polarization, along with the inconsistency between the white house and the public health agencies, not only made people more anxious but also created platform for low public trust and misinformation. The politicization includes the Covid-19 policies' division on the state level, which is not completely unexpected since the American political system has been bipolarly divided for a while. Based on the most populous eighteen states, mandate states on average have less cumulative cases per capita and cumulative death per capita and higher one-dose vaccination rate, full vaccination rate, and booster rate than mandate-banning states. Moreover, mandate states are more likely to have Democratic governors and vote Clinton and Biden in 2016 and 2020 Presidential Elections,

while mandate-banning states are more likely to have Republican governors and vote Trump in the Presidential Elections.

The relatively higher unvaccinated rate in Republicans also reflects in the reality as individuals from counties where Trump got more than 60% of votes in 2020 Presidential Election are more likely to die from Covid-19 than those from counties where Trump got less than 40% of votes. There is also a positive correlation between belief in Covid-19 misinformation and exposure to conservative media, whereas the factors and causes for the correlation are still unclear.

Vaccine hesitancy has plagued the US long before the Covid-19. Measles comes back recently because of lack of mass vaccination. Vaccine hesitancy toward Covid-19 vaccines is relatively higher in minorities and Republicans due to lower public trust. Nevertheless, research on vaccine hesitancy rarely focuses on the social, political, and cultural issues rather than public health and medicines. Similarly, researchers need to pay more attention to the social science—especially non-western—aspects of vaccine hesitancy to realistically combat it. Based on examples from other OECD countries, the US could conduct campaigns online via educating people how to identify misinformation and via targeting social groups that are less likely to comply to Covid-19 guidelines.

The incompetency of public officials during emergencies contributes to low public trust. The botched response of Hurricane Katrina has violated multiple principles of competency and values for trust. Hence, it is not surprising that incompetency during the Covid-19 leads to non-compliance and misinformation. Furthermore, political and public health officials have to master effective communication during public health crisis through highlighting the importance and

values of collective actions instead of individualism to boost compliance and social cohesiveness.

In a nutshell, it is urgent to prepare for combating the next pandemic as good as we can. Climate change and human development make the birth and transmission of infectious diseases much easier, so the next time human probably would have very little room for errors. Infectious disease response requires planning, teamwork, coordination, high-quality PPE, and leadership. Nevertheless, many of these elements have been inadequate during the Covid-19 response. The Covid-19 emergency response also underlines social and political obstacles—like low public trust, political division, discrimination, vaccine hesitancy, and incompetency. Researchers need to study the long-term influence and solutions of these problems to ensure the optimal emergency response in the future, even though there are temporary effective measures to these problems.

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