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REVIEWED BY

Kristin Lunz Trujillo,
University of South Carolina, United States
Ray Block,
The Pennsylvania State University (PSU),
United States

*CORRESPONDENCE

Florent Nkouaga
✉ fnkouaga@gmail.com

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Exploring the link between public health compliance and voting patterns in the 2020 U.S. presidential election

Florent Nkouaga*

National Association of Insurance Commissioners, Kansas City, CO, United States

Introduction: The COVID-19 pandemic has significantly impacted society and politics, particularly in the context of the 2020 U.S. presidential election. Public officials' unpreparedness resulted in skepticism regarding government responses. Additionally, health inequities and political polarization profoundly influenced voter attitudes and behaviors.

Methods: This study employs statistical techniques to examine voting patterns, leveraging data from the 2021 African American COVID-19 Vaccine Polls (AACVP) alongside the 2020 Collaborative Multiracial Post-Election Survey (CMPS). Specifically, it utilizes logistic regression and *t*-tests to dissect and understand the dichotomous electoral decisions made by voters between Donald Trump and Joe Biden in the U.S. presidential election. The research analyzes the nuances of the electorate's behavior by considering many factors that may influence the binary vote decision.

Results: *T*-tests revealed significant mean differences in voting patterns based on public health compliance, with less compliant individuals more likely to vote for Trump and more compliant individuals favoring Biden. Logistic regression analysis showed a substantial statistical correlation between public health compliance and voting preferences, independent of confounding variables.

Discussion: The study confirmed that public health compliance during the pandemic impacted voting behavior, with a divide based on attitudes toward health measures. This reflected broader societal divisions, suggesting that public health behaviors are linked with political identities. Additionally, media sources and racial identity significantly influenced voting decisions.

KEYWORDS

health behaviors, political behaviors, public health compliance, voting choice, US presidential election, COVID-19

1 Introduction

The COVID-19 pandemic, a significant social and political turmoil, profoundly influenced the 2020 United States presidential election. The pandemic's unforeseen nature greatly impacted responses from government entities, private organizations, and the public. There was a notable lack of coordination among government actors, undermining the effectiveness of policies to mitigate the pandemic's impact on communities and social institutions (Redbird et al., 2022). According to Funk (2022), a significant portion of U.S. adults, about 46%, felt that public health officials were not well-prepared for the COVID-19 outbreak, suggesting a general skepticism about the government's readiness and response to the pandemic¹. Katella (2021) considers that the pandemic exposed and

¹ Pew Research Center: [Lack of Preparedness Among Top Reactions Americans Have to Public Health Officials' COVID-19 Response](https://www.pewresearch.org/2023/03/01/lack-of-preparedness-among-top-reactions-americans-have-to-public-health-officials-covid-19-response/). Last retrieved 11/23/2023.

intensified underlying social issues, leading to increased inequalities. The year 2020 was marked as a “year of disruption due to the pandemic’s multifaceted negative effects on society”. The public health crisis necessitated a unified response from political institutions, and the strategies for addressing the pandemic became a central point of debate in the 2020 U.S. presidential election. Each party and its candidates presented divergent approaches to managing the pandemic’s societal impact. This polarization significantly influenced voter attitudes and behaviors during the election, reflecting the deep divisions in American society in response to the pandemic.

The pandemic’s impact on political beliefs and compliance with government mandates is significant. Research has shown that political ideologies play a crucial role in how individuals respond to government directives, especially in the context of COVID-19 (Cakanlar et al., 2022). This trend is evident in various studies highlighting how political leanings influence adherence to social distancing orders and other public health guidelines. Notably, conservative ideologies have been linked to a lower likelihood of taking actions that might limit the spread of the coronavirus (Brownstein, 2020; Kerr et al., 2021)². This political divide affects individual behaviors and contributes to the broader political polarization observed during the pandemic response, especially in the United States. This divergence in health-related behaviors reflects individual choices and the deep-seated nature of political beliefs and their influence on public health crisis responses. The pandemic has accentuated societal divisions that were once predominantly in the political domain but now significantly affect health behaviors and public health policy-making. These observations underscore the importance of health beliefs as a critical determinant of political participation, particularly in crises, and highlight how personal risk perceptions and protective actions are intimately connected to political affiliations.

Furthermore, the 2020 U.S. presidential election was shaped by several key factors: political polarization, health disparities³, and the public health crisis brought on by the COVID-19 pandemic. Political polarization has intensified, leading to deeply entrenched ideological divisions significantly influencing voter decisions and party allegiances. Health disparities, particularly those highlighted during the pandemic, also played a crucial role in shaping public opinion and priorities. The COVID-19 pandemic itself was a

pivotal issue, affecting not only public health but also the economy and day-to-day life, thereby becoming a critical factor in voter behavior and perceptions (Mitchell, 2023; Ndugga and Artiga, 2023). These elements combined to create a unique and complex political landscape in which the presidential election unfolded, reflecting the multifaceted challenges and concerns of the American populace during this period. According to a poll conducted by The Associated Press-NORC Center for Public Affairs Research, a substantial portion of the American population, ~54%, expressed disapproval of President Donald Trump’s handling of the COVID-19 pandemic in the weeks leading up to the election. This disapproval was markedly divided along partisan lines, with a vast majority of Democrats (84%) criticizing Trump’s pandemic response, compared to a much smaller percentage (21%) of Republicans who felt the same way⁴. This stark contrast indicates that political affiliations and ideologies played a crucial role in shaping public opinion on the management of the pandemic, reflecting the deep partisan divide in the country.

While some studies have revealed that personal and family experiences with COVID-19 had a surprisingly minimal influence on voting behavior in the presidential elections (Baccini et al., 2021; Jungkunz, 2021; Miller et al., 2022; Levin et al., 2023), suggesting that partisan allegiance played a more significant role in guiding voting decisions than the direct effects of the pandemic, this paper aims to establish a link between personal beliefs, health behaviors during significant public health events like the COVID-19 pandemic, and political behaviors, including voting patterns. Specifically, this research focuses on assessing the influence of health belief predispositions and health policy preferences during the COVID-19 pandemic on political participation, particularly in terms of voting behavior in the 2020 U.S. presidential election. The pandemic posed unique challenges and brought health issues to the forefront of political discourse (KFF, 2020; Atkeson et al., 2022; Panagopoulos and Weinschenk, 2023). This study investigates how people’s health beliefs may have influenced their voting behavior in the latest election. Considering the COVID-19 pandemic’s extensive impact on people’s lives, wellbeing, and financial stability, these factors likely played a significant role in shaping how people voted. The research delves into the question of whether attitudes toward practices like wearing masks, keeping distance from others, and staying in quarantine, as well as views on the government’s response to the health crisis and a preference for specific health-related policies, were associated with the choices voters made in the ballot box. These are important questions, especially considering that the election occurred when emotions and political tensions were running high.

2 Background

The SARS-CoV-2 pandemic, commonly known as COVID-19, has revealed the intricate interdependence among nations and the interconnectedness across various public life sectors. At the national level, policymakers were compelled to modify their strategies to respond to the pandemic effectively. This global health crisis has had a significant impact on several areas, including

2 Conservatives, for example, tend to view their coronavirus-prevention efforts as less impactful compared to liberals (Kemmelmeier and Jami, 2021).

3 The research by Willems et al. (2022) highlights that the COVID-19 pandemic has intensified pre-existing health inequalities. It has been particularly hard on minority groups such as Black, Hispanic, and Native American communities, who have seen higher numbers of hospital stays and deaths. Andraska et al. (2021) underscore this by noting that, during the summer of 2020, the Black community in the US was hit harder by COVID-19 than other racial groups, with more cases and more severe outcomes. Perry et al. (2021) expand this view to consider how other factors like gender, age, and education level intertwine with race to impact a person’s risk during the pandemic, illustrating that the effects of COVID-19 cut across many areas of social inequality. These layers of disadvantage might also shed light on the political choices made during the pandemic, such as why minority groups were seemingly less inclined to support Trump, who was the incumbent president during the COVID-19 outbreak.

4 Get more information on AP NEWS: AP-NORC poll: Americans critical of Trump handling of virus Last retrieved 12/5/2023 at 2:09 p.m. MDT.

the management of national economies, foreign policy, and interactions between the electorate and policymakers. Particularly in the United States, the pandemic has notably influenced public attitudes and behaviors, especially in politics and public health. While most research in this area focuses on political factors like partisanship, media consumption, and accountability to voters as key influencers of political attitudes and behaviors, only a limited number of studies examine how preexisting health beliefs might explain these political attitudes and actions (Carpenter, 2010, 2012; Pacheco and Fletcher, 2015; Lerman et al., 2017; Nkouaga, 2022). Public health is often viewed as a result of political systems, implying a direct or indirect link between governmental actions and citizen needs. Understanding how the preexisting health beliefs and health policy preferences among the constituents contribute to successful health policy-making.

2.1 Partisanship and voting choice

Understanding voting behaviors necessitates an analysis of the political factors influencing voter's choices, with partisanship recognized as a key determinant. Scholars such as Campbell et al. (1980), Wattenberg (1981), Rose and Mishler (1998), and Campbell et al. (1980) have debated the role of partisanship in U.S. voting behaviors. Some argue for a decline in its relevance (partisan dealignment) (Franklin et al., 2009), while others like Bartels (2000) affirm its enduring influence in shaping not only voting behavior but also the broader political landscape in America. Downs (1957) posits that self-interest drives political behaviors, leading voters to engage in politics to influence policies that affect their lives. Page and Shapiro (2010) extends this idea, noting that by aligning voters' preferences with ideological positions, political parties foster political polarization and thereby engage the electorate more deeply in politics. Despite the marginal individual impact of political participation and the high cost of information, which Ansolabehere (2008) highlights salient issues, especially in times of crisis⁵ become politicized, sparking political participation interest among voters. This polarization and engagement suggest that, contrary to the view of declining partisanship, it remains a potent force in shaping voting behaviors in the United States. Olson (2009)'s theory on the "free-rider issue" is mitigated by political parties that serve as heuristic shortcuts for voters, guiding their choices and stimulating political participation⁶. Converse and Dupeux (1962)'s analysis further suggests that short-term external shocks (exogenous chocs) do not significantly alter the impact of partisanship on vote choice,

5 Like race politics, wealth redistribution, and abortion laws, for example.

6 Mancur Olson's seminal work, "The Logic of Collective Action: Public Goods and the Theory of Groups," extensively discusses the free-rider problem, a pivotal concept in social science and economics. This problem occurs when individuals benefit from resources, goods, or services (referred to as collective or public goods) without bearing the cost or contributing to their provision. Such situations often arise in the context of public goods, where the benefits are available to all members of a group or society, regardless of their individual contributions. This leads to a scenario where people have an incentive to avoid contributing while still reaping the benefits, potentially leading to under-provision of these goods or services and other inefficiencies in their distribution and maintenance.

indicating that phenomena like swing voting are temporary and marginal, unable to substantially offset the influence of partisanship on voting behaviors.

The influence of the pandemic on political attitudes and behaviors is multifaceted, involving aspects like party affiliation, political culture, and government responsibility. Studies have shown that political beliefs were a major factor in determining health-related behaviors during the pandemic. People's adherence to and response to COVID-19 guidelines often mirrored their political ideologies. This phenomenon was particularly evident during a period of intense political division in the United States, which played a significant role in both how the government handled the pandemic and how the public perceived these efforts. Understanding public opinion and ensuring active participation is crucial in devising effective health policies, especially in environments where political opinions are deeply divided (Rodriguez et al., 2022; Rui et al., 2022).

Political parties in the United States have been actively working to define distinct boundaries in their programs and policies to align with the ideological spectrum from left to right. Aldrich and Freeze (2011) highlights that party elites consistently endeavor to associate their party with specific policy stances, particularly on key issues like healthcare, abortion, and gun control. This effort has led to a stronger connection between ideologies and political parties, with Democrats leaning liberal and Republicans leaning conservative (Grynaviski, 2010; Abramson et al., 2011). Individuals with specific policy preferences will evaluate their party and or candidate approval through that left-right ideological spectrum. Party elites play a crucial role in shaping and reinforcing the perceived policy preferences of their parties. This strategy of promoting policy-based reputations helps political leaders communicate their policy stances to voters. Representatives from the same state but different parties often exhibit varying policy preferences, even when representing the same constituents. Grofman et al. (1990) notes a growing ideological gap between representatives of different parties, a trend that has been widening over the past five decades. This increasing ideological divide reflects the deepening polarization in American politics, affecting both political discourse and governance.

2.2 Media and voting choice

Media plays a pivotal role in shaping political attitudes and behaviors. Studies, such as those conducted by Lazarsfeld et al. (1954), reveal that voters are prone to confirmatory biases, preferring media content that aligns with their preexisting beliefs. This tendency is significant given the media's legal obligation to remain transparent and impartial, which often casts them as more neutral sources of information than political parties.

The concept of media priming plays a crucial role here. Priming refers to how media outlets can influence the importance assigned to different political issues by the audience (Gunther and Mughan, 2000; Gerber et al., 2009). This process can significantly impact how the electorate evaluates the government and political parties. Iyengar et al. (1982), and Pan and Kosicki (1997) underscore that this priming effect is more pronounced among voters with lower political knowledge, who rely on media as a heuristic to evaluate political actions.

Furthermore, Scheufele and Tewksbury (2007) elaborate that media not only elevate certain policy issues in terms of their importance but also establish benchmarks for assessing governmental performance. This means that the government's handling of issues highlighted by the media becomes a key factor in its overall evaluation by the public. As a result, a government's poor performance on these media-primed issues can lead to a negative perception among voters, irrespective of its successes in other domains.

Like priming, research shows that media framing is instrumental in shaping voter's attitudes and behaviors. Media framing refers to the way news and information are presented to the public by the media, influencing how audiences interpret and understand events. Capron (2019) observes that During elections, the framing of news coverage, such as using a "horse-race" frame, can influence voters' perceptions and attitudes toward candidates and issues. Pfister et al. (2023) go further by arguing that even mere exposure to news headlines or mentions of a candidate can sway voting behavior. How candidates are presented in the media, positively or negatively, can shape public opinion and electoral choices (Stewart et al., 2021). The visual framing of candidates in media, particularly on television, can influence public perception. This includes how candidates' appearances, gestures, and expressions are portrayed and interpreted. Maier et al. (2023) find that media professionals utilize various production techniques to portray politicians on television visually. These techniques can create biases or influence viewers' perceptions and attitudes toward the candidates.

2.3 Electoral accountability

The concept of electoral accountability significantly shapes voting behavior in the United States. Studies indicate a positive correlation between incumbent candidates' job performance and approval ratings. Ashworth et al. (2017) focuses on the pivotal role of electoral accountability, analyzing how it affects voter behavior, necessitates institutional reforms, and impacts voter welfare. Ashworth emphasizes the importance of holding elected officials accountable, which profoundly affects voter choices and perceptions of political figures. The research argues that effective accountability within electoral processes is essential for ensuring that politicians prioritize their constituents' interests, enhancing the functionality and integrity of democratic systems. Furthermore, Simon (1989) shows that citizens' assessments of presidential performance can influence voting patterns, underscoring a connection between perceptions of presidential accountability and voter behavior. Aldrich (1993), King (2001), Hiskey and Moseley (2018), Sievert and McKee (2019) research provides significant insights into the influence of citizens' evaluations of presidential performance on voting behavior. Such findings emphasize the broader implications of presidential performance evaluations on various aspects of the electoral process⁷.

⁷ Another aspect of the theory of electoral accountability is Economic Perceptions and Electoral Behavior. Lewis-Beck and Martini (2020) delves into the intricate relationship between economic perceptions and voting behavior

Contrasting with earlier perspectives by researchers like Aldrich, King, Hiskey, and Sievert, Bitecofer (2020) presents a critical analysis of the role of elections in ensuring democratic accountability amid the stark political polarization witnessed in the 2020 U.S. presidential election. This research illuminates how intense partisan loyalty and extreme ideological positions can undermine the traditional function of elections as mechanisms for democratic accountability. Bitecofer argues that such polarization may impair elections' ability to accurately represent the electorate's will or hold political leaders accountable. The study exposes the intricate challenges and constraints of utilizing elections for democratic governance, particularly during significant social and political divides (rally to flag effect).

2.4 Leapfrog representation and the leader effect

The 2020 U.S. presidential election was remarkably different from the 2016 election, especially in terms of polarization and the candidates' stances on significant issues, most notably the COVID-19 pandemic. While candidates typically adopt moderate positions to appeal to a broad range of voters, the 2020 election saw a departure from this trend. President Trump adopted policies that were considered far-right, particularly his handling of the COVID-19 crisis, which often ran counter to the guidance of public health experts and institutions like the CDC (Kates et al., 2020; Baccini et al., 2021; Kerr et al., 2021).

In contrast to the 2016 election, where the dominant issues were immigration, economic policy, and the candidates' personalities, the 2020 election was dominated by the pandemic response. Studies have suggested that COVID-19 incidence was not correlated with changes in Republican vote share in previous elections, yet in 2020, COVID-19 cases negatively affected President Trump's vote share compared to 2016 (Baccini et al., 2021). Furthermore, political polarization on COVID-19 responses was significant, as liberals and conservatives had sharply differing risk perceptions and trust in politicians to handle the crisis (Kerr et al., 2021).

Unlike Trump, Joe Biden positioned himself as a moderate liberal and gained significant support through the Democratic Party's endorsement and consolidation. This included strategic endorsements from progressives like Pete Buttigieg and Bernie Sanders. The emergence of the COVID-19 pandemic in early 2020 shifted the election's focus toward public health and economic stability. Biden's emphasis on experienced leadership and his

in U.S. presidential elections. Their study is at the heart of a significant debate within the field of economic voting: the extent to which economic perceptions are exogenous and independently influence individual voting behavior. The research posits that voters engage in a rational assessment of economic conditions and use this information to guide their electoral choices. This perspective underlines the importance of voters' understanding and evaluation of the economy in shaping their decisions at the ballot box. The findings from Lewis-Beck's study indicate that voters' perceptions of the economy are not merely passive reflections of their political preferences but active factors that significantly influence voting patterns, especially in the context of presidential elections.

commitment to effectively addressing the pandemic struck a chord with voters deeply concerned about the crisis. The race between Trump and Biden is an expression of leapfrog representation in the context of a presidential election.

Leapfrog representation is a concept in political science that describes a situation where a candidate from the opposite end of the ideological spectrum replaces an incumbent with extreme views. This phenomenon can lead to a disconnect between the electorate and their representatives, potentially driving extremism or misalignment in policy preferences. In the broader context of congressional elections, [Bafumi and Herron \(2010\)](#)'s study observes a misalignment between voters' policy preferences and those of candidates, with candidates often leaning more toward the extremes of the political spectrum than the voters themselves. A similar dynamic was observable in the 2020 presidential race. [Simas and Ozer \(2021\)](#)'s research on polarization highlights that presidential elections often become the battleground for extreme candidates, especially during times of dissatisfaction with the incumbent. The candidates' policy preferences and ideological distance from each other can stimulate political participation among voters, as noted by [Abramowitz and Stone \(2006\)](#).

Moreover, the 2020 election was characterized by nationalist polarization. Both Trump and Biden framed the election as a significant struggle over the nation's future, further emphasizing the deep divisions within the American political landscape. This polarization, fueled by nationalist sentiments, added another layer of complexity to the election dynamics.

[DeSilver \(2022\)](#) observes that there has been an increasing ideological gap between elites and political leaders of the two different parties, Democrats and Republicans. The fact that political leaders in the United States have striven to go beyond party image and use policy-based reputations to communicate their policy preferences to voters, which has widened the ideological gap between political parties and within parties. [Galvin \(2020\)](#), for example, argues that President Trump has raised his personal reputation over that of the Republican party. The rise of antipathy (affective polarization) between members of different parties, which according to [Maggiotto and Piereson \(1977\)](#) is an expression of party loyalty, and the increasing impact of political activists contribute to this ever-increasing ideological gap ([Kleinfeld, 2023](#)). The motivations of political elites now appear to extend beyond merely seeking re-election. They seem more inclined to prioritize policy preferences, often aligning with the more extreme elements within their parties ([Broockman and Kalla, 2020](#)). This shift suggests a move away from the traditional reelection-seeking goal, as proposed by [Mayhew \(\[1974\] 2004\)](#), toward a focus more in line with [Fenno \(1973\)](#)'s policy preference goals.

In the context of the 2020 U.S. presidential election, preexisting health beliefs emerged as a crucial factor influencing voter choices, alongside the traditionally dominant forces of partisanship, electoral accountability, and media use. The pandemic brought health issues to the forefront of political discourse, amplifying health beliefs' role in shaping voting behaviors. This differed from previous elections, where such beliefs held less sway over electoral choices. The unique circumstances of the 2020 election, with its focus on public health, healthcare policies, and pandemic management strategies, highlighted the importance of health beliefs as a critical determinant in voter decision-making processes.

3 Theory

[Easton \(\[1965\] 2017\)](#)'s systems theory posits that political phenomena are driven by causal relationships similar to those in biological systems. According to this theory, health policies are outcomes of the political system, which then integrate into the social milieu, potentially generating new demands within the political sphere. This process reflects a complex system wherein "agency" (individual choices and free will) and "structure" (the institutional framework shaping societal choices) coexist. The theory emphasizes the intricate interplay between political decisions, institutional structures, and individual actions in influencing health policies and their societal impacts ([Bourdieu, 1977, 1990; Barker, 2003; Nkouaga, 2022](#)).

Systems theory also examines the roots of constituent demands, offering two perspectives. One, as suggested by [Converse \(1964\)](#), is that these demands stem from individual beliefs and rational choices. Others argue that ideological values largely influence electoral preferences ([Hurwitz and Peffley, 1987a,b; Feldman, 1988; Herrmann et al., 1999](#)). This dual perspective is particularly evident during significant events like the COVID-19 pandemic, where preexisting health beliefs and ideological factors drive public health issues. Political ideologies and existing health beliefs have significantly affected public attitudes and behaviors toward pandemic responses, highlighting the complex interaction between these beliefs, ideological values, and external factors in shaping public responses ([Halpern, 2020; Hart et al., 2020; Bolsen and Palm, 2021](#)).

The COVID-19 pandemic, a significant public health crisis in the United States, also highlighted and exacerbated underlying social issues, including disparities in health care. The Trump administration's handling of the pandemic, notably its emphasis on economic reopening over public health, added complexity to the crisis. This approach, as observed by [Bitecofer \(2020\)](#), complicated the management of the pandemic, especially as a notable segment of the population disregarded public health guidelines aimed at curbing the virus's spread. Moreover, the administration's reliance on political narratives and visual cues profoundly influenced the electorate's health behaviors, a prime example being the politicization of mask-wearing. The administration's frequent non-compliance with mask-wearing in public events conveyed a message to its supporters, fostering mistrust toward health institutions like the CDC and leading to widespread disregard for public health directives. This handling of the pandemic and the communication of public health advice is believed to have negatively impacted the Republican Party's reputation, contributing to their loss in the presidential election and the Senate majority.

During the 2020 U.S. presidential election, health policy significantly shaped voter decisions, particularly the response to the COVID-19 pandemic. Research indicates that a key factor affecting the election's outcome was the electorate's dissatisfaction with President Donald Trump's handling of the pandemic ([Blendon and Benson, 2020](#)). This dissatisfaction suggests that voters heavily weighed the president's performance in managing this public health crisis when making their voting decisions. The election underscored the vital importance of health policy in a global health emergency context, influencing presidential approval and

potentially reinforcing or challenging preexisting health beliefs among voters. The adherence to public health guidelines and the government's pandemic response were central issues, likely influencing and swaying the opinions and decisions of voters in the 2020 election.

3.1 Health behavior and public health

Health behaviors, which include beliefs, values, attitudes, and actions, are essential in determining the effectiveness of public health policies. Public health compliance, involving both external acceptance and internal adoption of health regulations by individuals, is vital for the success of public health strategies. Various factors, including social learning, influence this compliance. Bandura (1971)'s social learning theory posits that people's willingness to adhere to public health guidelines is often shaped by observing and emulating the behavior of others, as well as following institutional directives. This phenomenon has been particularly evident in the management of public health crises such as the COVID-19 pandemic, where the public's adherence to health guidance was crucial for controlling the spread of the virus (Jaureguizar et al., 2021; Galende et al., 2022). Additionally, trust in public health authorities and the accuracy of the information they provide play a significant role in determining public adherence to health recommendations. These factors contribute to the effectiveness of public health policies and strategies.

Recent research into health attitudes and behaviors in the United States, especially during the COVID-19 pandemic, has identified several key factors that impact public compliance with health guidelines. Studies, including those by Schnell et al. (2022), have shown that personal concerns about the virus and an individual's distance from conspiracy theories significantly influence their adherence to public health directives. Notably, the fear of contamination and the limitations imposed on social contact were identified as significant risk factors driving compliance during the pandemic. Furthermore, psychosocial and sociodemographic factors, such as race, gender, and a person's knowledge of the infection, also affect compliance levels. These findings highlight the importance of combining personal health concerns with an informed and rational understanding of the health situation to ensure public adherence to health guidelines (Rusou and Diamant, 2022).

3.2 Public health compliance and vote choice

Public health compliance involves the proactive participation of individuals in following behaviors that prevent and control diseases. This encompasses a broad spectrum of practices and attitudes aligned with established public health guidelines and regulations. The primary objective of such compliance is to maintain and improve community health, as highlighted in the study by Zhang et al. (2022). Compliance in public health extends beyond mere adherence to health recommendations; it includes understanding and supporting the underlying principles

of public health policies. The significance of compliance in the field of public health is critical, as it plays an essential role in effectively managing a range of public health issues. These issues include the containment of infectious disease outbreaks and the management of chronic health conditions. In summary, public health compliance is crucial for protecting and promoting the wellbeing of the broader population, ensuring the efficacy of health initiatives, and fostering sustainable health outcomes.

The study conducted by Czeisler et al. (2020) provides significant insights into public attitudes during the COVID-19 pandemic, particularly regarding government-imposed measures like stay-at-home orders. Their findings reveal substantial public support for these measures, reflecting a broader trend of compliance with and agreement to health guidelines among the general population in response to the challenges posed by the public health crisis. This widespread support underscores the public's acknowledgment of the critical importance of following health guidelines. Adhering to such directives is essential not only for mitigating the spread of the virus but also for safeguarding the health and wellbeing of the community. These observations highlight how public cooperation and support are vital in successfully addressing the challenges of public health emergencies. Furthermore, Block et al. (2022) points out that a person's willingness to follow health advisories is often tied to how they perceive the risks associated with health issues. This research suggests that political leanings might influence one's readiness to abide by health guidelines, with those politically left-leaning generally more prepared to follow them than their right-leaning counterparts. However, this division seems to diminish when the perceived threat of COVID-19 grows, hinting at a unifying effect in the face of heightened risk.

Adherence to public health directives frequently requires people to put collective wellbeing above individual liberty, a dynamic that has historical roots and contemporary relevance (Kahane, 2021). This balance between personal freedom and public health can sometimes create friction, since it is seen as an overreach by authorities. Historical instances, like the 1918 "Anti-Mask League" of San Francisco, demonstrate resistance to such mandates, where people openly opposed mask-wearing during the Spanish flu, an early example of pushback against public health measures (Crosby, 2003). Modern instances mirror these historical sentiments, especially observable during the recent COVID-19 pandemic. People's attitudes toward mask-wearing have been noted as an indicator of political affiliation, influencing their choices at the polls (Block and Plutzer, 2022). The pandemic has seen a resurgence of protests against health mandates across the United States, reflecting enduring skepticism about government-enforced health actions (Hauser, 2020). Such opposition has sometimes found champions in political figures, most notably President Trump, suggesting a deep intertwining of health compliance with political ideology and differing views on the extent of government's role in individual health decisions.

Furthermore, the role of presidential incumbency during the COVID-19 crisis was significantly impactful. In the United States, the performance of the sitting president is often linked to the nation's economic condition and overall trajectory. In 2020, this dynamic was more evident as the response to the pandemic became

a crucial aspect of presidential evaluation. How the incumbent president managed the crisis, including implementing public health measures and handling economic repercussions, was critical in shaping public perception and judgment. Voters relied on their existing health beliefs and perceptions of pandemic management to assess the president's performance. This situation highlights the presidential office's intensified scrutiny and responsibility during exceptional events like a global health emergency. The public's focus on the administration's response to the pandemic underscored the significant influence of crisis management on presidential evaluation.

The impact of the politicization of the COVID-19 pandemic on the 2020 U.S. presidential election is discussed in the work of [Gadarian et al. \(2022\)](#), who analyze how the pandemic became a partisan issue in the United States. [Gadarian et al. \(2022\)](#) delve into President Donald Trump's handling of the crisis, highlighting how he placed political agendas above public health directives. Such a stance resulted in casting the pandemic in a partisan light, which ultimately swayed the behavior of the American public, deepening national divisions. The authors bring to light, fresh data to illustrate the influence of these political rifts on various facets of daily life, such as the economy and racial dynamics, while also probing the potential enduring effects on democracy and public health. Contrasting with this broad analysis, my paper hones in on the particular dynamics of how individual health beliefs shaped electoral choices during the same election period. A unique index named "public health compliance" was crafted to gauge people's compliance with health protocols set out by public health institutions like the CDC. The premise of my argument is that individuals whose health beliefs led to a lower score on this index were inclined to vote for Trump, who frequently dismissed CDC advice. Conversely, those who scored higher on the compliance index, hence more in line with health advisories, seemed predisposed to support Biden, aligning with his pledge to heed public health counsel. The differing responses from political leaders like Trump and Biden, especially on visible issues such as mask-wearing, notably influenced public practices. Trump's tendency to be seen without a mask and to minimize its importance during public appearances like debates ([Green et al., 2020](#)) contributed to a patchwork of responses across states, some of which decided to enact mask mandates to fill the void left by the lack of uniform federal guidance ([Knight and Nadel, 1986](#)). In stark contrast, Biden's public adoption of mask-wearing symbolized a different approach that promised aggressive action against the virus while avoiding nationwide shutdowns. Drawing on the details outlined, we can present the following

Hypothesis: There is a negative correlation between the level of public health compliance and the likelihood of voting for Trump and a positive correlation with the likelihood of voting for Biden.

The hypothesis that public health compliance is inversely related to voting for Trump and positively associated with voting for Biden is substantiated by this research, particularly in the context of the COVID-19 pandemic. This research suggests that individuals who supported President Trump, known for downplaying the severity of COVID-19, were generally less compliant with public health guidelines. Conversely, those who supported Biden, who advocated

for stricter public health measures, tended to exhibit higher compliance rates.

4 Methodology

4.1 Data source and sample design

This study aims to understand the influence of preexisting health attitudes and behaviors on voting behavior during the 2020 U.S. presidential election. The study utilizes data from two key sources: the 2021 African American COVID-19 Vaccine Poll (AACVP) and the 2020 Collaborative Multi-Racial Post-Election Survey (CMPS). Each dataset offers distinct perspectives. The AACVP focuses on public health compliance, providing insights into how health attitudes may have impacted voting decisions. However, it does not include controls for factors like registered voter status or incorporate other voting behavior models, like the economic voting model. In contrast, the CMPS offers a broader range of measuring voting behavior, including data on registered voter status, but it lacks detailed questions related to health-related behaviors. The combination of these datasets allows for a more comprehensive analysis of how health attitudes and behaviors, shaped by the COVID-19 pandemic, might have influenced voter preferences and decisions in the 2020 election.

The integration of multiple datasets in a study significantly strengthens its external validity. External validity refers to the generalizability of research findings beyond the specific conditions or sample of the study ([Kołczyńska, 2022](#)). When a study's results are consistent across various datasets, it indicates that these findings are not an artifact of a particular sample but rather reflect a more universally applicable truth. This robustness is crucial, especially in studies dealing with complex, real-world phenomena like health attitudes and their influence on voter decisions during a pandemic. The principles of enhancing external validity, as discussed in the literature by [Bangdiwala et al. \(2016\)](#), involve ensuring that the study's conclusions can be generalized across different settings, populations, and conditions. By incorporating diverse demographic and geographic characteristics, a study can more accurately represent the variability found in the real world, thereby increasing the likelihood that its conclusions are valid across different groups and contexts. Such a comprehensive approach is precious in analyzing how multifaceted issues like health attitudes intersect with other factors, like political decisions, in critical times such as an election year. It provides insights that reflect the complexity and diversity of human behavior and decision-making processes.

The COVID-19 Vaccine study conducted by the African American Research Collaborative Team represents a significant effort to gather comprehensive data across various racial and ethnic groups in the United States, including Black, Latino, Asian American, Pacific Islander, Native American, and White groups. Conducted between May 7 and July 7, 2021, this study involved a large sample of 12,887 adults from different regions of the U.S., providing a broad perspective on vaccine attitudes and uptake. The methodological approach of this study was meticulous and inclusive, utilizing a mix of phone calls and online surveys

to collect data. This mixed-mode method ensured that a wide demographic range was covered, with 31% of the participants completing the survey over the phone (catering to mobile and landline users) and 69% participating online. Such an approach not only maximized the response rate but also catered to people with varying access to technology, thereby enhancing the diversity and representativeness of the sample. Furthermore, the survey design was carefully crafted by an experienced research team. It minimized non-coverage bias and accurately represented different sociodemographic groups. Post-stratification weighting based on race, aligned with American Community Survey (ACS) census data, corrected any demographic disparities between the sample and the general population. Pre-stratification quotas were also utilized, balancing the randomness of interview selection with the necessity for minority representation. This rigorous methodology ensured that the survey's findings were statistically accurate and reflected the diverse American population's views and experiences regarding the COVID-19 vaccine.

The Collaborative Multi-Racial Post-Election Survey (CMPS), implemented by UCLA, is a significant resource in sociopolitical research, particularly for examining the political and policy attitudes among diverse racial groups in the United States. The 2020 CMPS survey involved a substantial number of respondents, ~15,000, which underscores its extensive coverage and relevance in sociopolitical studies. This survey is distinctive for its large and diverse sample, which prominently includes Black, Latino, and White respondents, facilitating nuanced and in-depth comparisons across different racial lines regarding policy preferences and political attitudes. A key feature that sets the CMPS apart from surveys like the AACVP (African American COVID-19 Vaccine Poll) is its incorporation of controls for registered voters. This aspect is crucial for research that delves into political participation and voter behavior, providing a more accurate and representative understanding of the electorate. The methodology employed in the CMPS for sampling is designed to ensure representativeness, paralleling the approach used in the AACVP. Such a methodological framework ensures that the CMPS offers a comprehensive and detailed perspective on the attitudes and behaviors of the electorate, making it an invaluable tool for researchers and policymakers alike to understand and analyze the complex dynamics of race and politics in the United States.

4.2 Main variables

In this study focusing on the 2020 U.S. presidential election, the primary dependent variable under consideration is the vote choice of respondents, as determined through the AACVP survey. This survey asked participants about their voting preference, offering them the options of "Donald Trump," "Joe Biden," "Someone Else," or "I did not vote for President." This analysis focuses exclusively on active voters, which excluded participants who indicated that they did not vote in the presidential election. The vote choice variable is dichotomized for analytical clarity. This means that in one analytical model, a vote for Donald Trump is coded as 1, and in a separate model, a vote for Joe Biden is similarly coded as 1. Such a dichotomous approach facilitates a straightforward

and focused comparison between the two leading candidates in the election. The sample size for this particular analysis, consisting of 9,903 respondents, is substantial. This sizeable and specific sample allows for a detailed and representative understanding of voter preferences in the pivotal 2020 election, reflecting the diverse political landscape of the United States at that time.

In the Collaborative Multi-Racial Post-Election Survey (CMPS), participants were asked about their voting choices for the 2020 U.S. presidential election. The survey provided options that included significant party candidates: Republican candidates Trump and Pence, Democratic candidates Biden and Harris, as well as third-party candidates like Libertarian candidates Jorgensen and Cohen, and Green Party candidates Hawkins and Walker. These responses were numerically coded to facilitate analysis: 1 was assigned for those who voted for Trump & Pence, 2 for Biden & Harris, and so forth. This coding scheme also included options for "someone else" and "none of these," allowing respondents to indicate a choice outside the listed candidates or no preference at all. The primary focus of the research was on respondents who supported either the Trump & Pence ticket or the Biden & Harris ticket. By categorizing these responses into two separate groups, the researchers aimed to analyze and compare the supporter bases of the two leading political party candidates in the election. This segmentation is crucial for understanding the voter preferences and key issues influencing election outcomes.

The Collaborative Multiracial Post-Election Survey (CMPS) primarily differentiates itself from the African American COVID-19 Vaccine Poll (AACVP) by offering the option to control registered voters. This decision to control for voter registration status allows a more targeted analysis, reflecting specifically the perspectives and behaviors of those eligible and registered to vote. Consequently, the research narrowed the sample to 9,779 respondents, focusing on registered voters as its main dependent variables. Focusing exclusively on registered voters is significant because it yields insights into the voting patterns, political preferences, and policy opinions of a demographic actively participating in the electoral process. This approach provides a nuanced understanding of the electorate's attitudes during and following the 2020 U.S. presidential election, a period notable for its unique challenges, including the COVID-19 pandemic. For researchers and policymakers, a sample concentrated on registered voters is invaluable for extracting specific insights about the voting choices and opinions of the American electorate in such a pivotal year.

Using the African American COVID-19 Vaccine Poll (AACVP) survey, this research focuses on public health compliance as a key factor in understanding voting behavior. The study assesses compliance by measuring how closely respondents follow the COVID-19 guidelines recommended by health authorities. Key focus areas include wearing masks, practicing social distancing, and seeking medical attention if COVID-19 symptoms are present. A public health compliance scale was developed using factor analysis techniques, incorporating these specific behaviors to quantify compliance. Respondent adherence is measured on a three-point scale, from strong adherence ("Definitely will do this") to non-adherence ("No, I will not do this"). The reliability and consistency of this scale are confirmed using Cronbach's alpha, a statistical tool

for evaluating the internal consistency of a scale. In this instance, the scale achieves a Cronbach's alpha score of 0.81, indicating a high level of reliability. This high score demonstrates that the scale effectively captures the concept of public health behavior, thereby validating the survey's effectiveness in measuring compliance with health guidelines.

The CMPS survey's approach to measuring public health compliance centers on participants' attitudes toward mask mandates. This method involves respondents selecting between two perspectives:

- Agreeing that mask mandates are a justified public health action.
- Considering these mandates as an overreach of government authority.

For analytical purposes, the choice of viewing mask mandates as an excessive governmental intrusion is quantified as "0". This binary approach simplifies the analysis by categorizing responses into clear, opposing viewpoints, facilitating a more straightforward interpretation of public sentiment and compliance regarding mask mandates.

The research aims to understand the influence of public health compliance on voting behavior, incorporating various factors. The study controls for demographic elements like race, education, and gender, as well as risk factors such as existing health conditions. Political inclinations, especially partisanship, are considered due to their potential impact on public health compliance and voting choices (Sigelman et al., 1985; Pearl, 2009; Lindgren et al., 2019; Geys and Sørensen, 2022). The role of media, primarily through ideologically distinct channels like CNN and Fox News, is also examined to comprehend its effect on voting decisions. To maintain statistical integrity, the study applies a cutoff point of 0.5 to address multicollinearity, ensuring that the relationships between variables are accurately represented and the findings are reliable (Edwardson et al., 2016; Vatcheva et al., 2016).

4.3 Data analysis

The research utilizes logistic regression to analyze voting patterns in the 2020 U.S. presidential election, focusing on the binary choice of voting for Donald Trump or Joe Biden. Logistic regression is chosen for its suitability in modeling probabilities of binary outcomes based on predictors. Unlike Ordinary Least Squares (OLS) regression, logistic regression's coefficients indicate the log odds of an outcome, offering insights into the influence of factors like public health behaviors on voting. The study examines these factors' direction and statistical significance to provide a nuanced understanding of their impact. By employing secondary data analysis, the study navigates consent and privacy issues while adhering to ethical standards in data management, ensuring confidentiality, and presenting findings responsibly. This methodology effectively controls for confounding variables and tests alternative hypotheses, reducing the likelihood of spurious correlations (Mendoza Aviña and Sevi, 2021; Rönn et al., 2023).

Understanding the factors influencing voting behavior, especially vote choice, requires applying robust statistical techniques. Logistic regression is widely recognized for its effectiveness in modeling binary outcomes, such as the decision to vote for or against a particular candidate or proposition. However, conducting a preliminary analysis using a non-parametric method like the *t*-test is often advantageous before employing logistic regression. The *t*-test, being non-parametric, does not assume a normal distribution of data and can provide insights into the differences between groups (such as voters for different candidates). This step is crucial for understanding the dataset more comprehensively and verifying logistic regression assumptions. By combining these statistical approaches, researchers can better understand voting behaviors and the various factors influencing voter decisions (Harwell, 1988; Nussbaum, 2014).

The *t*-test is a statistical method used for comparing the means of two distinct groups. In the context of voting behavior analysis, a *t*-test can be instrumental in comparing average responses across different voter demographics or opinions. This approach is beneficial for understanding primary distinctions in data, focusing on aspects like central tendency and variability. Such initial analysis is crucial for effectively interpreting results from more complex models like logistic regression (Newman and Sheth, 1985). Furthermore, utilizing a *t*-test before logistic regression can enhance the robustness of the findings. If both tests suggest similar effects of independent variables on the dependent variable (vote choice), it adds credibility to the research outcomes. While the *t*-test provides essential comparative insights, logistic regression delves deeper, elucidating how different predictors interact and influence voting decisions. This layered approach allows for a more comprehensive and nuanced analysis of voting behavior.

The research focuses on exploring the influence of health-related behaviors on voting choices. By examining the correlation between personal health considerations and electoral participation, the study aims to provide insights into the decision-making processes of U.S. voters. This investigation is particularly relevant in evolving political landscapes and significant public health challenges. The goal is to enhance understanding of how health factors, whether personal or community-wide, might sway voter turnout and preferences, thereby contributing to a broader comprehension of political behavior in the face of health crises or policies.

5 Results

In voter choice research, the outcomes of *t*-tests offer valuable insights into the electorate's political preferences about public health compliance. Table 1 reveals a significant mean difference in voting patterns based on compliance with public health guidelines. This variance is highly significant, with a *p*-value of 0.001, indicating a robust statistical relationship. Individuals less compliant with public health measures show a higher propensity to vote for Donald Trump, as evidenced by a negative mean difference in their vote choice scores. Conversely, those with higher levels of compliance tend to favor Joe Biden, demonstrated by a positive mean difference in vote choice scores for Biden, also significant at the 0.001 level. These findings highlight a distinct divide in

TABLE 1 Summary statistic: *t*-test IVs by vote choice.

	Trump (<i>n</i> = 9,903)		Biden (<i>n</i> = 9,903)	
	Diff in mean	<i>P</i> -values	Diff in mean	<i>P</i> -values
Public health compliance	-0.17	0.001	0.18	0.001
Preexisting condition	0.04	0.05	-0.03	0.11
Democrats	-0.62	0.001	0.65	0.001
Republicans	0.68	0.001	-0.64	0.001
Whites	0.34	0.001	-0.34	0.001
Blacks	-0.2	0.001	0.19	0.001
Latinos	-0.1	0.001	0.1	0.001
Asians	-0.04	0.001	0.04	0.001
Pacific Islanders	-0.01	0.001	0.01	0.001
Native Americans	-0.002	0.001	0.002	0.01
Female	-0.01	0.54	0.02	0.42
Age	0.65	0.001	-0.54	0.001
Education	-0.16	0.001	0.16	0.01
Income	-0.06	0.36	0.1	0.3
Unemployed	0.08	0.001	-0.07	0.001
CNN	-1.18	0.001	1.16	0.001
Fox News	0.54	0.001	-0.53	0.001

African American COVID-19 Vaccine Polls (AACVP).

voter behavior tied to attitudes toward public health, reflecting how health crises can influence political decisions.

Table 2 reinforces the previously observed patterns in the study, providing further insights into the relationship between public health behavior and political preferences. It uses mask-wearing adherence as a proxy for public health compliance, uncovering significant trends in voting behavior. The analysis reveals a notable and statistically significant negative mean difference at the 0.001 level in vote choice scores when comparing individuals who resist mask-wearing guidelines to those who follow them. This finding suggests a strong correlation between the refusal to wear masks, a critical preventive measure during the COVID-19 pandemic, and a greater likelihood of voting for Donald Trump. On the other hand, adherence to mask-wearing guidelines, which represents a higher level of compliance with public health recommendations, tends to be associated more with voting for Joe Biden. These trends confirm how health-related behaviors, particularly in a global pandemic, can profoundly influence political choices, reflecting broader societal divisions and attitudes toward public health measures.

Incorporating confounding variables such as political affiliation, pre-existing health conditions, and sociodemographic factors into the multivariable logistic regression analysis, outlined in Table 3, reinforces the significant impact of public health compliance on voting behavior. Despite the potential influence of these variables, the results clearly show a substantial statistical correlation ($p < 0.001$) between the level of public health compliance and voting preferences in the studied population. Notably, this compliance is found to be negatively associated with voting for Donald Trump and positively associated with voting for

Joe Biden. This result suggests that attitudes toward public health measures, especially in a global health crisis like the COVID-19 pandemic, strongly indicate political leanings, underscoring the intersection between health behaviors and political choices.

Figure 1 presents a logistic regression analysis to predict voting behavior about public health compliance levels. This statistical model utilizes probabilities, ranging from 0 to 1, to estimate the likelihood of voters choosing a specific candidate. The illustration includes two distinct scenarios: The first depicts a situation where public health compliance is minimal, and other variables are at their median level. In this case, there's a 25% probability of voters opting for Trump and a 71% likelihood for Biden. The second scenario describes a context where public health compliance is at its highest, with other factors remaining at their median. Here, the probability of voting for Trump drops to 5%, while the chance of voting for Biden increases significantly to 94%. These contrasting scenarios highlight how varying degrees of public health compliance can influence voter preferences, reflecting the complex interplay between public health attitudes and political choices.

The confounder analysis from the 2020 U.S. presidential election underscores the profound impact of partisanship, media influence, and socioeconomic factors on voting behavior. Particularly highlighted in Tables 1, 2, the data establish partisanship as a crucial determinant of voter preference. The analysis of voting percentages, with a high statistical significance ($p < 0.001$), reveals a distinct pattern: a negative correlation exists between Democrat (vs. non-Democrat) and voting for Trump, and conversely, a positive correlation with voting for Biden. This result

TABLE 2 Summary statistic: *t*-test IVs by vote choice.

	Trump (<i>n</i> = 14,988)		Biden (<i>n</i> = 14,988)	
	Diff in mean	<i>P</i> -values	Diff in mean	<i>P</i> -values
Mask wearing	−0.24	0.001	0.23	0.001
Democrats	−0.55	0.001	0.59	0.001
Republicans	0.58	0.001	−0.47	0.001
Whites	0.28	0.001	−0.25	0.001
Blacks	−0.23	0.001	0.2	0.001
Latinos	−0.04	0.001	0.03	0.01
Asian/Pacific/Native	−0.01	0.5	0.03	0.01
Female	−0.06	0.001	0.06	0.001
Age	0.33	0.001	−0.13	0.001
Education	0.005	0.9	0.13	0.01
Unemployed	0.03	0.01	−0.04	0.001
CNN	−0.83	0.001	0.88	0.001
Fox News	0.7	0.001	−0.53	0.001

Collaborative Multi-Racial Post-Election Survey (CMPS).

suggests that Democrats were less likely to vote for Trump and more likely to vote for Biden. Conversely, the mean difference in voting for Biden is positively associated with being a Democrat, as opposed to a non-Democrat, and negatively associated with Trump. Table 3 further reinforces these findings by indicating a statistically significant positive relationship between identifying as a Republican (as opposed to a Democrat) and voting for Trump and a similar positive correlation between identifying as a Democrat (as opposed to a Republican) and voting for Biden. This analysis vividly illustrates how political affiliations significantly influenced voter decisions in the 2020 election.

The research highlights how media sources were crucial in shaping voting decisions during the 2020 U.S. presidential election. The statistical analysis, as depicted in Tables 1, 2, establishes a significant correlation at the 0.001 level between the sources of news that individuals consumed and their subsequent voting behavior. Specifically, individuals who relied on liberal media outlets such as CNN exhibited a statistically significant negative correlation with voting for Trump and a positive correlation with voting for Biden. Conversely, those who sourced their news from conservative channels like Fox News showed a statistically significant positive correlation with voting for Trump and a negative correlation with voting for Biden. These patterns are further substantiated by the results of multiple logistic regression analyses, which account for various confounders. As outlined in Table 3, consuming news from CNN is significantly associated ($p < 0.001$) with a higher probability of voting for Biden and a lower probability of voting for Trump. On the other hand, obtaining news from Fox News is significantly associated ($p < 0.001$) with a higher likelihood of voting for Trump and a lower likelihood of voting for Biden. These findings underscore the profound impact of media sources on electoral outcomes.

The analysis of racial variations in voting behavior during the 2020 U.S. presidential election, as indicated by a *t*-test, reveals

significant differences among various racial groups. The study, as presented in Tables 1, 2, shows that among White voters, there is a statistically significant positive mean score for voting for Trump (as opposed to not voting for him) at the 0.001 level. Conversely, the mean score for voting for Biden (vs. not voting for Biden) among White voters is negative and significant at the same level. For Black voters, the scenario is reversed; the mean score of voting for Trump is negative and statistically significant at the 0.001 level, while the mean score of voting for Biden is positive and also significant at the 0.001 level. This pattern of voting behavior is also observed among other racial groups, such as Latinos, Asians, Native Americans, and Pacific Islanders, albeit with variations in the statistical significance levels. Specifically, among Native American voters, the mean score for voting for Biden (as opposed to not voting for Biden) is positive and reaches statistical significance at the 0.01 level. Similarly, the mean score for voting for Biden among Latino voters, as indicated by the Collaborative Multiracial Post-Election Survey (CMPS) data, is also positive and statistically significant at the 0.01 level. These findings highlight the distinct voting behaviors across different racial groups in the 2020 U.S. presidential election.

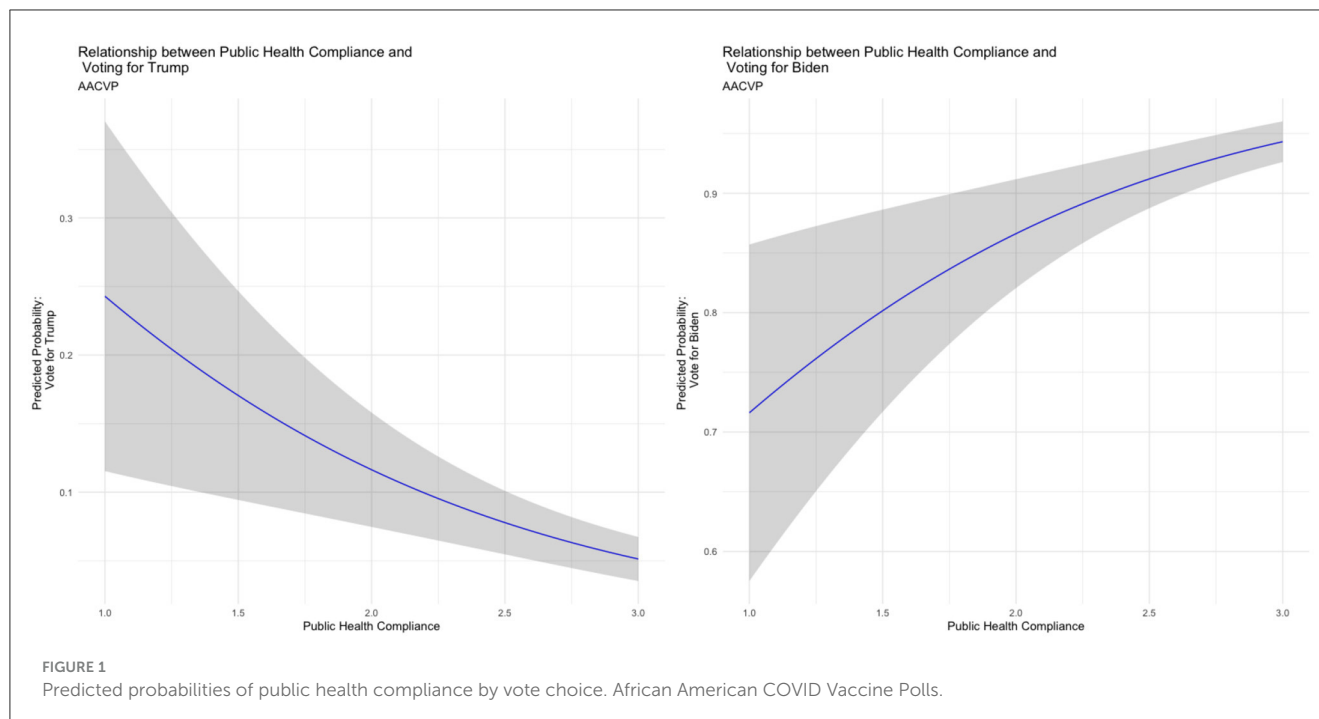
6 Discussion

The research findings validate the hypothesis that public health compliance during the COVID-19 pandemic significantly impacted voting behavior in the 2020 U.S. presidential election. Table 1 in the study clearly shows a trend where voters with low public health compliance, such as a reluctance to adhere to COVID-19 safety measures, voted for Donald Trump. In contrast, voters with high public health compliance were more inclined to vote for Joe Biden. This trend suggests a clear political divide based on attitudes toward public health guidelines. Further supporting this conclusion, Table 2 uses the willingness to wear a mask as a proxy

TABLE 3 Logistic regression: vote choice.

	AACVP		CMPS	
	Trump	Biden	Trump	Biden
Intercept	-0.14 (0.56)	-4.71*** (0.57)	0.12 (0.24)	-2.30*** (0.23)
Public health compliance	-0.89*** (0.18)	0.94*** (0.19)		
Mask wearing			-1.39*** (0.10)	1.30*** (0.10)
Preexisting condition	0.04 (0.15)	-0.00 (0.14)		
Republicans	4.35*** (0.17)		3.17*** (0.10)	
Democrats		4.34*** (0.17)		3.11*** (0.11)
Independents	1.75*** (0.15)	2.28*** (0.15)	0.66* (0.28)	-0.06 (0.23)
Latinos	-0.69*** (0.15)	0.67*** (0.14)	-0.71*** (0.11)	0.64*** (0.10)
Blacks	-1.72*** (0.16)	1.44*** (0.15)	-2.07*** (0.14)	1.68*** (0.12)
Asian Americans	-0.66*** (0.14)	0.72*** (0.13)		
Pacific Islander	-0.74* (0.35)	0.76* (0.32)		
Native Americans	-0.39** (0.15)	0.33* (0.15)		
Asian/Pacific/Native			-0.52*** (0.12)	0.77*** (0.11)
Female	0.24 (0.13)	-0.21 (0.12)	-0.24** (0.09)	-0.00 (0.08)
Age	0.14*** (0.04)	-0.08* (0.04)	0.02 (0.03)	0.01 (0.03)
Education	0.03 (0.05)	-0.02 (0.05)	-0.00 (0.04)	0.03 (0.03)
CNN	-0.35*** (0.04)	0.33*** (0.04)	-0.97*** (0.05)	0.91*** (0.04)
Fox News	0.31*** (0.04)	-0.29*** (0.04)	0.87*** (0.04)	-0.86*** (0.04)
Unemployment	0.15 (0.15)	-0.14 (0.14)	0.04 (0.10)	-0.10 (0.09)
Income	-0.06 (0.05)	0.06 (0.04)		
Deviance	5237.50	5461.56	4946.41	5714.83
Dispersion	1.02	0.97	1.03	1.27
Num. obs.	8648	8648	9779	9779

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.



for public health compliance. The data from this table reinforce the findings of Table 1. Voters willing to wear masks, indicative of higher public health compliance, were likelier to vote for Biden and less likely to vote for Trump. Conversely, those less willing to wear masks, showing lower public health compliance, were more inclined to support Trump. These results from the CMPS (Collaborative Multiracial Post-Election Survey) data highlight the strong correlation between public health behavior and political preferences in the context of the 2020 election.

The research findings highlight the significant interplay between public health behaviors and political preferences, particularly in the context of the COVID-19 pandemic. The politicization of the pandemic, especially concerning preventive measures like mask-wearing, has had a discernible impact on voting choices. Individuals who align with former President Trump's policies and viewpoints tend to exhibit lower compliance with public health measures. Conversely, supporters of President Biden are more likely to adhere to these measures. This dichotomy in public health behavior reflects a broader societal and political divide, where attitudes toward health measures have become closely associated with political identities. This phenomenon underscores how public health issues, typically non-partisan, can become deeply entangled in the political landscape, influencing voter behavior and electoral outcomes.

The statistical analysis conducted at the 0.001 significance level in the presented tables reveals a strong and significant relationship between public health attitudes and political preferences. This high significance level indicates that the observed differences are not mere coincidences but reflect a profound and meaningful link. These findings are particularly relevant in the COVID-19 era, where public health attitudes have become increasingly intertwined with political leanings. The research provides essential

insights for political strategists, public health officials, and social scientists. It sheds light on the dynamics of voter behavior influenced by preexisting health beliefs, highlighting how public health beliefs and practices are aligned with political ideologies. This understanding is crucial for devising effective communication strategies and policies that resonate with different population segments based on their political and health-related views.

Table 3 highlights a clear statistical link between public health compliance, particularly mask-wearing behavior, and voting preferences during the 2020 U.S. presidential election. This relationship remains significant even after adjusting for potential confounding factors such as political leanings, health conditions, and economic status. The analysis thus emphasizes the independent and considerable influence of public health compliance on electoral choices. It establishes a robust and statistically significant relationship with voter behavior, demonstrating that public health attitudes, especially during the COVID-19 pandemic, played a crucial role in shaping voting decisions, independent of other variables like political affiliation or socioeconomic background.

The predicted probability from Figure 1 demonstrates that at the lowest level of public health compliance, while keeping other factors at median levels, there's a 25% probability of voters choosing Trump and a 71% likelihood of selecting Biden. Conversely, when public health compliance is at its highest, with other variables remaining constant, the likelihood of voting for Trump significantly decreases to 5%. In contrast, the probability of voting for Biden increases dramatically to 94%. These results highlight the profound impact of public health compliance on voting preferences, underscoring how attitudes toward public health during the COVID-19 pandemic significantly influenced electoral choices.

The analysis of various factors, including partisanship, media influence, and socioeconomic status, reveals their significant impacts on voting choices during the 2020 U.S. presidential election. As highlighted in [Tables 1, 2](#), partisanship stands out as a dominant predictor of voting behavior as demonstrated in various research ([Theodore, 1961](#); [Converse, 1976](#); [Maggiotto and Piereson, 1977](#); [Campbell et al., 1980](#); [Miller et al., 1996](#); [Martinez, 2016](#); [Petersen and Shuel, 2016](#)). The comparison of average voting percentages between Democrats and non-Democrats, as well as Republicans and non-Republicans, showcases a clear pattern. At the 0.001 significance level, the mean difference in vote choice scores between Democrats and non-Democrats shows a negative association with voting for Trump but a positive association with voting for Biden. Conversely, for Republicans compared to non-Republicans, this mean difference is positively associated with voting for Trump and negatively with voting for Biden. These findings underscore a stark partisan divide in voter preferences, affirming that partisanship substantially shaped the election outcomes.

This research provides compelling statistical evidence, with a high significance level of 0.001, demonstrating the correlation between party affiliation and voting patterns in the 2020 U.S. presidential election. The data clearly shows that Republicans were significantly more likely to vote for Trump compared to Democrats. In contrast, Democrats exhibited a strong positive correlation with voting for Biden, as opposed to Republicans. This stark contrast highlights the profound partisan divide that characterized voting behavior in the election. Additionally, the table reveals an interesting trend among Independent voters. These voters, who do not strongly align with either major political party, tended to lean more toward one candidate than members of the opposing party. This behavior of Independents is crucial, as they often play a decisive role in election outcomes. Their variable voting preferences, particularly in a highly polarized political environment, can significantly sway the direction of elections. This underlines the importance of Independent voters in the political landscape, especially in closely contested elections where their median position can tip the balance ([Mathis and Zech, 1986](#); [Kleinfeld, 2023](#)).

The research underscores the significant impact of media sources on voting choices. As indicated in [Tables 1, 2](#), there is a notable statistical difference at the 0.001 level concerning voting behavior based on news sources. Individuals who predominantly consume news from liberal channels like CNN exhibit a negative correlation with voting for Trump and a positive correlation with voting for Biden. On the flip side, those who rely on more conservative channels, such as Fox News, show a significant positive correlation with voting for Trump and a negative one with voting for Biden. These results emphasize media outlets' considerable influence and ideological orientations in shaping political preferences and voting decisions. The role of media in informing, persuading, and potentially biasing voters' choices is evident, reflecting the power of media consumption patterns in the political landscape ([DellaVigna and Kaplan, 2005](#); [Jones, 2020](#); [Jurkowitz et al., 2020](#); [Nelson, 2020](#); [Stelter, 2020](#); [Grant et al., 2021](#); [Belcastro et al., 2022](#); [Benson and Limbocker, 2023](#); [Fujiwara et al., 2023](#)).

The result also suggests considerable racial differences in voting patterns during the 2020 U.S. presidential election, as evidenced by a *t*-test analysis in [Tables 1, 2](#). This analysis underscores the disparities among various racial groups. For White voters, there is a significant positive mean score for voting for Trump as opposed to not voting for him, a difference that is statistically significant at the 0.001 level. Conversely, the mean score for White voters in terms of voting for Biden, as opposed to not voting for Biden, is negative and reaches a high statistical significance level at the 0.001 level. These findings highlight the distinct voting behaviors among racial groups, emphasizing how race played a crucial role in voter preferences and decisions in the 2020 election.

When analyzing the voting patterns of Black voters in the 2020 U.S. presidential election, a distinct reversal is observed compared to White voters. The *t*-test analysis, as detailed in the study, shows that the mean score for Black voters voting for Trump, as opposed to not voting for him, is negative. This difference is statistically significant at the 0.001 level, indicating a strong tendency among Black voters not to support Trump. On the other hand, the mean score for voting for Biden among Black voters is positive, also achieving statistical significance at the 0.001 level. These results underscore a clear preference for Biden over Trump among Black voters. Such studies and analyses of racial voting behaviors are crucial. They provide insights into how different demographic groups interact with the political process, revealing their unique preferences and influences on election outcomes. Understanding these patterns is vital for comprehending the dynamics of elections and the diverse factors that shape voter decisions across various racial and ethnic groups.

The trend of distinct voting preferences observed in the 2020 U.S. presidential election extends beyond White and Black voters, encompassing various other racial groups such as Latinos, Asians, Native Americans, and Pacific Islanders. Each of these groups displayed unique voting patterns, albeit with some variations in statistical significance (*p*-values). This diversity in voting behavior highlights the complex relationship between racial identity and political preferences. The 2020 election thus serves as a testament to the diverse and multifaceted nature of the American electorate, where racial identity plays a significant role in shaping voting behavior. These patterns reflect the intricate dynamics of race and politics in the United States, demonstrating how different racial groups engage with and influence the electoral process ([Center, 2020](#); [Blankenship et al., 2021](#); [Jardina, 2021](#); [Garzia and Ferreira da Silva, 2022](#)).

7 Conclusion

The 2020 U.S. Presidential election highlighted a significant correlation between public health compliance, particularly regarding COVID-19, and voting preferences. Voters with lower public health compliance, such as reluctance to wear masks, were more inclined to vote for Trump. In contrast, those with higher compliance were more inclined to vote for Biden. These findings underscore a deep interconnection between public health behaviors and political preferences, reflecting the pandemic's politicization. The division along public health lines mirrors

broader societal and political divides, where public health measures, such as mask-wearing, have become intertwined with political identities.

The statistical significance of these differences at the 0.001 level in both tables suggests a robust and meaningful relationship between public health attitudes and political preferences. This result provides valuable insights for political strategists, public health officials, and social scientists, particularly in understanding voter behavior dynamics during the COVID-19 era.

Furthermore, logistic regression analysis, including confounding factors like political affiliation, medical conditions, and socioeconomic status, shows a significant association between public health compliance and voting preferences. This indicates that public health compliance independently influenced voting choices, maintaining a considerable relationship even when controlling for other variables.

The research also reaffirms the strong predictive power of partisanship in voting behavior. The clear partisan divide in voter preferences indicates that partisanship significantly shaped the election outcomes. Additionally, the media's role in influencing voting choices is evident, with different news sources correlating with distinct voting behaviors.

Racial variations in voting behavior were also significant, with distinct patterns observed among different racial groups. This diversity reflects the complex interplay of racial identity and political preferences, underscoring the multifaceted nature of the American electorate.

The findings reveal the profound impact of public health compliance, media influence, and racial identity on voting behavior during the 2020 U.S. presidential election. Further research beyond pandemic contexts could enhance understanding the long-term relationship between health and political attitudes/behaviors.

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Data availability statement

Publicly available datasets were analyzed in this study. This data can be found here: <https://cmpsurvey.org/2020-survey/>; <https://africanamericanresearch.us/covid-poll-methodology/>.

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