

## **Distribution Agreement**

In presenting this thesis as a partial fulfillment of the requirements for a degree from Emory University, I hereby grant to Emory University and its agents the non-exclusive license to archive, make accessible, and display my thesis in whole or in part in all forms of media, now or hereafter now, including display on the World Wide Web. I understand that I may select some access restrictions as part of the online submission of this thesis. I retain all ownership rights to the copyright of the thesis. I also retain the right to use in future works (such as articles or books) all or part of this thesis.

Hannah Amin

April 13, 2021

How Professional Training and Personal Experience Moderate the Relationship Between  
Partisanship and Coronavirus Knowledge, Attitudes, and Behaviors

by

Hannah Amin

Alan Abramowitz

Adviser

Political Science

Alan Abramowitz

Adviser

Elizabeth Penn

Committee Member

Jeff Mullis

Committee Member

2021

How Professional Training and Personal Experience Moderate the Relationship Between  
Partisanship and Coronavirus Knowledge, Attitudes, and Behaviors

By

Hannah Amin

Alan Abramowitz

Adviser

An abstract of  
a thesis submitted to the Faculty of Emory College of Arts and Sciences  
of Emory University in partial fulfillment  
of the requirements of the degree of  
Bachelor of Arts with Honors

Political Science

2021

## Abstract

### How Professional Training and Personal Experience Moderate the Relationship Between Partisanship and Coronavirus Knowledge, Attitudes, and Behaviors

By Hannah Amin

Claiming millions of lives and posing unprecedented health, economic, and social challenges, the COVID-19 pandemic has devastated Americans with tremendous loss and reoriented their relationships to government and each other. Despite a collective lack of immunity and scientific consensus on best practices to slow transmission, the pandemic quickly became politicized, dividing Americans on public health recommendations, the proper role of government in combatting COVID-19, and the very existence of the virus itself. My work builds on previous literature connecting partisanship to risk perception, protective behaviors, and coronavirus knowledge by exploring a mechanism through which the partisan divide may be mitigated via professional training or personal experience. Using secondary data analysis of three recent surveys, I evaluate the conditionality of partisan coronavirus cue taking on knowledge about or exposure to the virus, examining healthcare workers and individuals with firsthand experience (i.e., those who had a COVID-19 scare, personally tested or live with someone who tested positive, know someone who died from the virus). Linear regression analyses indicate that partisanship is strongly predictive of coronavirus knowledge, attitudes, and behaviors with Democrats being significantly more likely than Republicans and Independents to perceive the virus as a threat, engage in protective behaviors, and have accurate information about COVID-19. Working in a healthcare delivery setting or having personal experience mitigates the effects of partisanship across these three measures. I find that those who have had to confront the virus in some capacity through personal exposure are more likely to engage in disease-mitigating behaviors and perform better on coronavirus information assessments; however, healthcare worker status itself is not necessarily predictive of increased risk perception, adoption of protective behaviors, or even correct COVID-19 knowledge. Future work is needed in order to explain the mitigated effects of partisanship in the healthcare worker cohort, although I point to differences in cue taking between healthcare workers and the general population as a potential explanation.

How Professional Training and Personal Experience Moderate the Relationship Between  
Partisanship and Coronavirus Knowledge, Attitudes, and Behaviors

By

Hannah Amin

Alan Abramowitz

Adviser

A thesis submitted to the Faculty of Emory College of Arts and Sciences  
of Emory University in partial fulfillment  
of the requirements of the degree of  
Bachelor of Arts with Honors

Political Science

2021

## Acknowledgements

To my professors, family, and friends who extended support and guidance throughout the process of completing this thesis, I am extremely grateful. This project would not have been possible without the continuous mentorship of my adviser, Professor Abramowitz, whose expertise was invaluable in formulating the research question and methodology. He dedicated hours every week over the course of the past year to help me through this process, giving endless encouragement and pushing me to bring my work to a higher level. I extend immense gratitude to Professor Jung for holding my hand every step of the way, being a sympathetic ear to my wildest ideas and answering every last coding question up until the end. Thank you to Professor Penn for your input in the final stages of writing this thesis and your continued willingness to serve on my committee along with Professor Mullis. My appreciation also goes to Professor Rich for his guidance as I formulated my research topic and Dr. O'Reilly for dedicating numerous hours to help locate and access appropriate datasets. I would like to thank the Emory Political Science Department for giving me the opportunity to participate in the Honors Program. Writing a thesis has been one of the most challenging and rewarding experiences of my academic career. Finally, I dedicate this research to two of my grandparents who passed away from the coronavirus last year – it is my hope that this work advances understanding of partisanship in public health so that following guidance from scientific experts may become obvious, perhaps even taken-for-granted one day.

## Table of Contents

Introduction.....	1
Literature Review.....	4
Political Polarization.....	4
Partisanship in Public Health.....	7
COVID-19 Partisan Divide.....	11
Theory and Hypotheses.....	15
Data and Methods.....	20
Qualtrics Questionnaire.....	20
Kaiser Family Foundation Health Tracking Poll.....	21
Gallup Panel.....	22
Methodology.....	23
Hypotheses 1a-c.....	24
Hypotheses 2a-c.....	25
Control Variables.....	26
Results.....	27
Qualtrics Questionnaire.....	27
Risk Perception.....	27
Protective Behaviors.....	29
COVID-19 Knowledge.....	30
Kaiser Family Foundation Health Tracking Poll.....	31
Risk Perception.....	31
COVID-19 Knowledge.....	32
Gallup Panel.....	33

Risk Perception.....	33
Protective Behaviors.....	34
Discussion.....	35
Conclusion.....	40
Appendix A.....	43
Appendix B.....	46
References.....	62
Figures:	
Figure 1. Percent Following Swine Flu Story Very or Fairly Closely, by Party.....	8
Tables:	
Table 1. Hypotheses.....	19
Table 2.1. Testing Hypotheses 1a-c.....	43
Table 2.2. Testing Hypotheses 2a-c.....	44
Table 2.3. Control Variables.....	45
Table 3. Qualtrics Data: Results of Regression Analyses of Risk Perception, Protective Behaviors, and COVID-19 Knowledge by Healthcare Worker Status.....	46
Table 4. Qualtrics Data: Results of Regression Analyses of Risk Perception, Protective Behaviors, and COVID-19 Knowledge by Partisanship.....	47
Table 5. Qualtrics Data: Results of Regression Analyses of Risk Perception, Protective Behaviors, and COVID-19 Knowledge by Healthcare Worker Status Among Democrats.....	48
Table 6. Qualtrics Data: Results of Regression Analyses of Risk Perception, Protective Behaviors, and COVID-19 Knowledge by Healthcare Worker Status Among Republicans.....	49
Table 7. Qualtrics Data: Results of Regression Analyses of Risk Perception, Protective	



Behaviors, and COVID-19 Knowledge by Healthcare Worker Status Among Independents.....	50
Table 8. Qualtrics Data: Results of Regression Analyses of Risk Perception, Protective Behaviors, and COVID-19 Knowledge by Partisanship Among Healthcare Workers.....	51
Table 9. Qualtrics Data: Results of Regression Analyses of Risk Perception, Protective Behaviors, and COVID-19 Knowledge by Partisanship Among Non-Healthcare Workers.....	52
Table 10. KFF Data: Results of Regression Analyses of Risk Perception by Healthcare Worker or Experience Status.....	53
Table 11. KFF Data: Results of Regression Analyses of COVID-19 Knowledge by Healthcare Worker or Experience Status.....	54
Table 12. KFF Data: Results of Regression Analyses of Risk Perception and COVID-19 Knowledge by Partisanship.....	55
Table 13. KFF Data: Results of Regression Analyses of Risk Perception and COVID-19 Knowledge by Partisanship Among Healthcare Workers.....	56
Table 14. KFF Data: Results of Regression Analyses of Risk Perception and COVID-19 Knowledge by Partisanship Among Experienced.....	57
Table 15. KFF Data: Results of Regression Analyses of Risk Perception and COVID-19 Knowledge by Partisanship Among Non-Experienced.....	58
Table 16. Gallup Data: Results of Regression Analyses of Risk Perception and Protective Behaviors by Partisanship and Experience Status.....	59
Table 17. Gallup Data: Results of Regression Analyses of Risk Perception and Protective Behaviors by Partisanship Among Experienced.....	60

Table 18. Gallup Data: Results of Regression Analyses of Risk Perception and Protective Behaviors by Experience Status Among Republicans.....	61
---	----

## Introduction

With its high transmissibility and mortality rate, COVID-19 has wreaked havoc around the world, reorienting citizens' relationship to government and each other. The virus continues to pose unprecedented health, economic, and social challenges to the human population as nations struggle to slow its spread through testing and treating confirmed patients, contact tracing, and social distancing (Chakraborty, 2020). However, epidemics in respective countries have followed different trajectories with some being hit harder than others. As of March 24, 2021, the United States has the highest number of confirmed coronavirus cases with nearly 30 million, leaving a trail of 545,000 deaths in its wake (Johns Hopkins University, 2021).

Among the many factors contributing to the United States' dubious distinction is a rapid politicization of the pandemic. Unmoved by the World Health Organization's early warnings in March, President Trump downplayed the threat of the virus and labeled criticisms of his failure to act "a new hoax," the beginning of a series of anti-scientific pronouncements and false reassurances (Gonsalves, 2020). When public health officials recommended that Americans wear face coverings to slow transmission, Trump refused to wear one himself and promoted the use of hydroxychloroquine, an anti-malarial drug unapproved for treatment of COVID-19, in addition to "injecting disinfectant or bringing light inside the body" (Gonsalves, 2020). Encouraging his supporters to gather in large numbers to protest stay-at-home orders, specifically in areas with Democratic leadership, Trump endangered his base and others, putting many at risk for contracting the virus (Gonsalves, 2020). Beyond his deliberately lax messaging, the President made cuts to critical health agencies including the Centers for Disease Control (CDC) and World Health Organization (WHO). The devastating effects of this elite

messaging on public health have been felt by many millions of Americans. Trump's ability to define the pandemic and direct discourse have had grave consequences, shaping public opinion in opposition to science-based principles and guidance from experts on infectious diseases (Altheide, 2020).

There is now a substantial corpus of literature examining the role of partisanship in driving COVID-19 risk perceptions and willingness to comply with public health recommendations, with Republicans perceiving less personal vulnerability to the virus, the virus's severity as lower, and the media as exaggerating the virus's impact (Calvillo et al., 2020). This attitude is mirrored at the elite level beyond the President insofar as states with Republican governors and those with more Trump supporters have been slower to adopt social distancing policies such as shelter-in-place orders (SIPOs), school closings, and business shutdowns (Adolph et al., 2020). Moreover, residents in Republican counties are less likely to stay at home after SIPOs compared to Democratic counties (Painter et al., 2020), which have reduced their activity far more as the crisis unfolds (Lipsitz et al., 2020). Liberals and moderates make fewer trips than conservatives and are more disposed to change their behavior in compliance with government recommendations; accordingly, they tend to agree with the appropriateness of mandatory shutdowns unlike their political counterparts (van Holm, 2020). Likewise, numerous studies have found that mask use is robustly correlated with partisanship (Milosh et al, 2020). Across the board, Republicans are less likely than Democrats to report responding with CDC-recommended behavior and are less concerned about the pandemic (Gadarian et al., 2020).

The magnitude of this partisan divide on a seemingly non-partisan issue cannot be overstated. Not only is partisanship a predictor of attitudes toward the virus and behavioral adaptations, but it is the dominating factor differentiating Americans' beliefs and level of precaution; surveys conducted as early as March have demonstrated that party affiliation is the most consistent factor characterizing health behaviors and policy preferences (Gadarin et al., 2020). Choices around social distancing are more strongly correlated with whether or not the individual is Republican or Democrat than the actual community level incidence of COVID-19, with distancing 138 times more impacted by partisanship than county infections (Clinton et al., 2020). Moreover, it is the single most consistent predictor of local mask use, more so than regional severity and local policy interventions (Milosh et al., 2020). Perhaps most consequential, political affiliation drives the disparity in attitudes toward the virus and disease-mitigation behaviors more than actual risk of death determined by age and self-reported risk factors (Makridis et al., 2020). That a partisan divide persists among individuals with pre-existing health conditions and an age disposition to complications is a very meaningful result, affirming that the polarization of COVID-19 is deep-seated in the United States.

A wealth of correlational data points to the fact that partisan politics do indeed divide Americans' attitudes toward the virus and willingness to adopt disease-suppressing behaviors. Heterogeneity in beliefs about the pandemic and appropriate cautionary measures mirror elite framing and are increasing over time (Makridis et al., 2020). However, existing literature focuses on the observance of this phenomenon at the national scale and fails to uncover the mechanisms through which a partisan divide emerges and persists. This study aims to determine the conditionality of COVID-19 partisan cue taking on knowledge about and

exposure to the virus. Through examining whether the partisan divide persists among segments of the population with either a scientific background (i.e., healthcare workers) or personal experience with COVID-19 (e.g., was symptomatic, tested positive, lives with someone who tested positive, knows someone who died from the virus), this paper attempts to uncover the extent to which party politics are contingent on having sufficient information or familiarity with the virus to dismiss contradictory political messaging. Focusing on a subset of the population that has knowledge about or exposure to COVID-19, either directly or tangentially, can facilitate exposing whether those who perceive less risk and fail to comply with public health recommendations do not have accurate information about the disease or simply reject the information. Through determining whether scientific knowledge and experience counteract the effects of partisanship on attitudes toward the virus, this study speaks to the powerful influence of partisanship in the United States and whether uniform elite messaging provides a means to overcome partisan divisions on public health issues.

## **Literature Review**

### **Political Polarization**

The political polarization characterizing differences in Americans' attitudes toward the coronavirus is not new. Over the past few decades, Republicans and Democrats have become increasingly divided along party lines, and ideology is more closely aligning with partisanship (Abramowitz et al., 2008). The proportion of Americans whose views are consistently liberal or consistently conservative has grown dramatically (Pew Research Center, 2014). This has resulted in a sharp increase in ideological polarization between party identifiers on a wide range of issues including living standards and health insurance, all of which have tracked

increasing political polarization (Abramowitz et al., 2008). Ideological overlap has declined with a majority of Republicans and Democrats falling more extreme than the median opposing party member (Pew Research Center, 2014). In the 1980s, almost half of voters were located within one unit of the center of the liberal-conservative policy scale with only 10% positioned at the extremes; by 2004, less than a third of voters were within one unit of the center and 23% were located at the extremes (Abramowitz et al., 2006). This increasing polarization of the electorate has resulted in extremely high levels of party loyalty and straight-ticket voting. An overwhelming majority of party identifiers and leaners now vote for their party's presidential candidate and additional offices along ideological lines. Unwavering support for party elites and partisan parroting has become the norm with 70% of voters in July indicating on a Fox News Poll that there is no chance at all or only a small chance that their party nominee could say or do something before the election that would make them change their vote. Party uniformity and polarization are higher than they have ever been in the last few decades, dividing Americans deeply by core political values, the role of government in combatting global climate change and the coronavirus pandemic being just the latest examples.

Accompanying this shift is an increasingly personal view of politics characterized by mutual antipathy. Negative partisanship has been rising in the United States since the 1970s – a phenomenon in which individuals view members of the opposing party more negatively than their own (Boxell et al., 2020). Now a defining feature of American politics, affective polarization has been documented as early as 1978 when both Democrats and Republicans reported more positive feelings toward their co-partisans, on average scoring them 27 points higher than their political counterparts (Boxell et al., 2020). This cleavage has dramatically

intensified over the past few decades, with negative ratings of opposing party members increasing relative to feelings toward party aligners; by 2016, Americans were rating individuals from their own party nearly 50 points higher than those from the other party (Boxell et al., 2020). The disparity in ratings is not just a matter of favorability, but reflective of cross-party hostility. A Pew Survey from 2014 revealed that nearly a third of Democrats and Republicans consider the opposing party's policies to be "so misguided that they threaten the nation's well-being"; this rate nearly doubles when looking at those with high political engagement. The proportion of Americans who view members of the opposite party as unintelligent and selfish has grown dramatically, as has the share of those who would be displeased if one of their children married someone from the opposing party (Gentzkow, 2016). These attitudes, in turn, impact perceptions of fairness on partisan wins with both conservatives and liberals believing an equitable compromise is where their side gets more (Weissert, 2019). Believing that attitudes of the opposite party are driven by willful ignorance or dark ulterior motives makes it extremely difficult to consider opposing arguments and find common ground. These unconscious rejection filters result in widespread unwillingness to hear positions from members of the other party and a blurring of the truth with profound consequences for politicized public health crises.

Trends of this magnitude in affective polarization are exceptional to the United States. When compared to nine OECD countries over the past four decades, the U.S. indicated the sharpest increase in polarization since the 1970s (Boxell et al., 2020). Possible explanations for the localization of this phenomenon include features unique to the United States such as changing party composition, increasing racial divisions, and the emergence of partisan cable



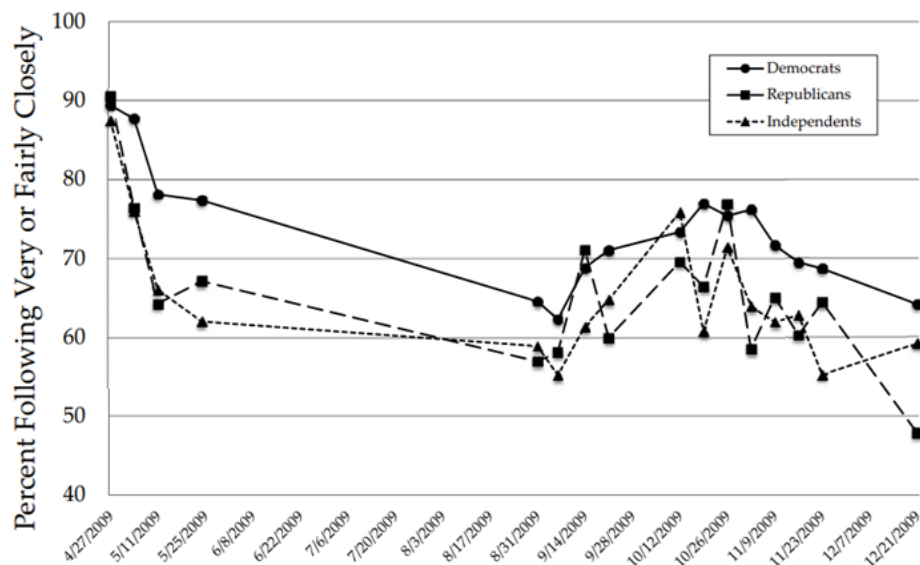
news (Boxell et al., 2020). Over the last several decades, political parties have become increasingly linked to ideology, race, and religion, a realignment that has dramatically transformed the electorate. For example, the non-White voting bloc overwhelmingly prefers the Democratic Party and Republicans are more likely to be religious. This growing gap in the demographic makeup of the two parties has tracked with increasing racial resentment and division on salient cultural issues such as abortion and gay rights (Abramowitz et al., 2018). In addition to changing party composition and heightened race hostilities, the United States has seen the rise of 24-hour partisan cable news. The result is a highly fragmented and polarized media landscape wherein reporters can present stories with a partisan bias, reinforcing and intensifying negative attitudes toward opposing party members (Abramowitz et al., 2018). When viewers can self-select media outlets, a political echo chamber emerges in which Americans maintain a primary news source that reinforces their preexisting beliefs on issues such as climate change and healthcare, laden with partisanship. This phenomenon is especially pronounced for Republicans who tend to depend on one major media outlet – namely, Fox News – while Democrats rely on multiple outlets for news (Pew Research Center, 2020). As a result, Republicans are unlikely to encounter information questioning their partisan beliefs on the coronavirus or other issues. Across the board, the level at which affective polarization operates in the United States with multiples nodes of reinforcement is uniquely American and inconsistent with explanations based on universal trends.

### **Partisanship in Public Health**

While political polarization in the United States has only recently reached unprecedented levels and Americans are feeling its impact on divergent coronavirus messaging,

this is not the first politicized public health crisis. All three public health emergencies in the past decade – H1N1, Ebola (EVD), and Zika virus – have followed partisan trajectories. When the swine flu emerged in the spring of 2009, it quickly spread across the country and world, ultimately prompting the World Health Organization and U.S. government to declare a public health emergency of international concern. Both Republicans and Democrats followed the issue closely during its initial development, indicating bipartisan attention to the news story (Pew Research Center, 2009). However, the universality of interest quickly diminished; just a week later, Democrats were 12% more likely than Republicans to report following the story closely, a trend that continued through the end of the year, peaking at a difference of 18 percentage points in November of 2009 (Baum, 2011). At the same time, Republicans were almost 2.5 times more likely to believe that media outlets were exaggerating the danger of H1N1, a disparity that intensifies when looking at Americans who reported following the story very closely (Baum, 2011).

**FIGURE 1:** Percent Following Swine Flu Story Very or Fairly Closely, by Party  
 Reprinted from “Red State, Blue State, Flu State: Media Self-Selection and Partisan Gaps in Swine Flu Vaccinations,” by M. B., 2011, *Journal of Health Politics, Policy and Law*, 36(6), 1033.



This same partisan gap is observed when evaluating attitudes toward the coronavirus with Republicans perceiving the virus's severity as lower and the media as exaggerating its impact. However, during the swine flu outbreak, despite Republicans' low level of concern compared to their political counterparts, they were nearly half as likely to report trust in the government's ability to handle the virus compared to Democrats (Baum, 2011). Since the COVID-19 outbreak, Republicans have also indicated less concern about the virus, but an overwhelming 87% approve of Trump's response in contrast to only 4% of Democrats (Allasan, 2020). The same poll indicated that 51% of Republicans say they trust Trump on the coronavirus more than the CDC. These are meaningful results, suggesting that Republicans are more likely to trust same-party leadership in managing outbreaks even after elite downplaying diminishes concern. Republicans and white evangelical Protestants are also less likely to say they would get a coronavirus vaccine, matching data from 2009 when Democrats were far more likely than Republicans to say they would get a swine flu vaccine (Pew Research Center). The differences are attributed to those we might suspect today, including varying information streams to which Republicans and Democrats are exposed. For instance, Republicans who relied on Fox News for H1N1 information were less concerned about the flu, less attentive to the story, and more skeptical of related press coverage compared to those who consumed more traditional news sources (Baum, 2011).

Similar trends emerged in light of the Ebola and Zika virus during Obama's second term. In 2014, the WHO reported the first outbreak of Ebola virus in the West African country of Guinea which subsequently spread to Sierra Leone and Liberia as well as Nigeria and Senegal. With cases mounting in West Africa and the first travel-associated case of EVD reported in the

U.S., the Obama administration began to develop what became the largest effort by a single donor government to combat Ebola. Congress appropriated a \$5.4 billion emergency fund, much of which was directed toward the international deployment of troops and medical personnel to provide aid and build treatment centers – efforts that dramatically reduced the spread of disease (Kaiser Family Foundation, 2015). Nonetheless, party politics defined discourse on the floor of Congress with Republicans vocally opposing the federal government’s response to Ebola (Singer, 2020). The result was a partisan sorting of the general public in which Republicans were more likely to express concern with the administration’s handling of the virus and disapprove of the President’s actions compared to Democrats (Singer, 2020). When polled, 47% of Democratic voters were “very confident” that the government could manage the spread of the virus compared to only 16% of Republicans (Singer, 2020). Additionally, over half of Republicans believed that Ebola was very likely to spread in the U.S. compared to a third of Democrats. Not long after, the country faced its own outbreak of Zika and issued the first warning on domestic travel after the CDC advised pregnant women to avoid the Miami area. The federal response to Zika virus was much slower and news coverage was limited until partisan conversations arose around funding. Proposals laden with partisanship were traded between representatives, and Obama ultimately received far less funding than initially requested (Singer, 2020). However, unlike Ebola, initial partisanship on Zika dissipated and opinion eventually emerged of a bipartisan nature, mirroring elite framing (Singer, 2020).

The localized risk of transmission and shifts in the political landscape led to the passage of a clean funding bill at the end of 2016 with overwhelming support from both parties, a clear departure from the partisan divisions on Ebola funding (Singer, 2020). This cooperation was

ultimately mirrored by the public with initial partisan sorting characterized by Democratic concern over contracting the virus dissipating as Republican members of Congress began requesting funding to manage its spread (Singer, 2020). The response to H1N1, Ebola, and Zika suggests that elite framing is powerful in shaping public opinion during health crises and that Republicans are more likely to trust same-party leadership in managing epidemics, regardless of infection trajectories. It raises the question then of whether uniform elite messaging around public health emergencies is the only means to achieving public consensus.

### **COVID-19 Partisan Divide**

Although infectious disease outbreaks in the past decade have been politicized, the role of partisanship in driving attitudes toward the coronavirus is unprecedented, presenting perhaps the greatest threat to public health in modern history. Over 500,000 Americans are dead, yet many still remain reluctant to change their behavior in compliance with recommendations from public health experts. During a campaign call in October amid rising case numbers, Trump called infectious disease expert Dr. Anthony Fauci “a disaster” and said people are tired of hearing from “these idiots,” just weeks after the President himself was discharged from Walter Reed Army Medical Center Hospital where he underwent extensive treatment for the virus. At a campaign rally days later, he mocked presidential contender Joe Biden, saying, if elected, Biden will “listen to the scientists” (The Associated Press, 2020). The attempted ridiculing was met with applause from a mostly maskless audience, a dire illustration of what results when cautionary measures are deemed illegitimate by political elites.

Since March, Americans have been divided over the threat of coronavirus and their willingness to comply with public health recommendations. Republicans are significantly less

likely to perceive the virus as dangerous and adopt disease-mitigating behaviors compared to Democrats. Conservatism has been associated with perceiving less vulnerability to the virus, believing that the media exaggerates infection risks, and thinking that COVID is a conspiracy (Calvillo et al., 2020). Between late March and early May, the percentage of Republicans who believed the virus was a major threat to the nation's health dropped from 52% to 43% while the share of Democrats holding this view increased from 78% to 82% (Pew Research Center, 2020). By June, Democrats were nearly 40% more likely than Republicans to perceive the coronavirus as a major threat to public health.

Conservatism was also associated with less accurately discerning between real and fake news headlines and receiving news from partisan outlets was predictive of Americans' perceptions of vulnerability, severity, media exaggeration, and conspiracy (Cavillo et al., 2020). The higher level of Fox News consumption, the less vulnerable respondents felt and the more they believed that the pandemic is a conspiracy exaggerated as a threat to the public (Cavillo et al., 2020). On the other hand, the higher level of CNN viewing, the more severe respondents believed coronavirus was, and the less they believed that the media was exaggerating the threat (Cavillo et al., 2020). When asked about the risk of not social distancing, Democrats were more likely than Republicans to anticipate additional COVID cases and believe that the probability of catching the virus in one month without social distancing is high (Allcott et al., 2020). This is consistent with findings from a Pew Survey in June which found that seven in ten Democrats, compared to only 36% of conservative Republicans, believe that new coronavirus cases can be largely attributed to not enough people following social distancing measures.

Accordingly, Democrats are more likely to change their personal health behaviors and report responding with CDC guidelines. Governors' disease-mitigating communications have larger effects on mobility in Democratic counties with the initial stay-at-home message being twice as effective at reducing mobility in counties that voted for Hilary Clinton than in counties that voted for President Trump (Grossman et al., 2020). Residents in Democratic counties are more likely to completely stay at home after a state order has been implemented and switch to remote spending (Painter et al., 2020). Moreover, partisanship is the most consistent predictor of mask use, with mask use significantly lower in areas with high Trump vote shares (Milosh et al., 2020). Overall, Democratic counties have reduced their activity far more as the crisis unfolds and are more likely to agree with the appropriateness of mandatory shutdowns (Lipsitz et al., van Holm, 2020). By contrast, areas with more Republicans engage in less social distancing and are slower to adopt distancing policies (Alcott, Adolph et al., 2020). States with a mere 10% higher share of 2016 Trump voters have been roughly 18% less likely to adopt nonessential business closures or shelter-in-place orders (Makridis et al., 2020). There is an unmistakable partisan gap in willingness to comply with public health recommendations and it is increasing over time. Since April, Democrats have become 12.7% more likely to social distance compared to Independents and Republicans who have become 27.1% less likely to do so (Clinton et al., 2020).

While, overall, Democrats are more likely to engage in disease mitigating behaviors, governors' communications and party alignment with constituents affect the degree of compliance and evaluation of governor's effectiveness at managing the spread of the virus. When Democratic and Republican governors issue stay-at-home orders, mobility is significantly

reduced among both parties, reaffirming that elite communication has a substantial impact on population behavior (Grossman et al., 2020). Governor's cues lead to an increase in social distancing Internet searches and staying home in both Democratic and Republican counties (Grossman et al., 2020). Democratic areas are, however, more likely to cooperate with stay-at-home orders, consistent with other findings. Some studies have indicated that political alignment with the governor is predictive of SIPO compliance where counties that align with the governor are more likely to stay home (Painter et al., 2020). Further, there is evidence that those who identify as a different party from the governor are more likely to say the governor's response has been ineffective, similarly to differences in trust of political leaders during the swine flu and Ebola outbreaks (van Holm, 2020). However, one study notably found that Democratic counties are even more receptive to Republican governors' cues where they reduce mobility even further (Grossman et al., 2020). This result is attributed to signaling being more pronounced and effective when the messaging contrasts general views held by Republican leaders about COVID-19 (Grossman et al., 2020). When cues do not conform with the party affiliation of the elites, the message to Democrats was stronger and more consequential. While Democratic counties are already likelier to comply with public health recommendations, behavior is even more cooperative when governors break with national party members and contribute to health solidarity with uniform messaging.

Partisanship is not only an indicator of how likely party members are to perceive COVID as a threat and engage in disease-mitigating behaviors, but it is in fact the strongest predictor of risk assessment and compliance. Political differences are the single most important factor differentiating Americans' health behaviors and policy preferences (Gadarian et al., 2020) with



partisanship as the top predictor of local mask use, more so than COVID severity and local virus management policies (Milosh et al., 2020). Whether someone is a Democrat or Republican is 138 times more predictive of social distancing than the incidence level of COVID-19 in local communities (Clinton et al., 2020). It is, in fact, more important in explaining public health recommendation compliance than actual individual risk of death determined by age and self-reported risk factors as well as gender, race, and education (Makridis et al., 2020). This is suggestive of an incredibly divisive political culture in which Americans are heterogeneous in their beliefs primarily along party lines, resulting in significant variation in attitudes toward the pandemic and social distancing behaviors with profound consequences for public health.

### **Theory and Hypotheses**

The theoretical framework for this study builds on past work connecting public opinion and behavior to elite cue taking (Zaller, 1992), as well as literature on ideological polarization between party identifiers more broadly. Extensive scholarship points to political parties becoming increasingly divided and ideology more closely aligning with partisanship (Abramowitz et al., 2008). Since 1972, there has been a substantial increase in the correlation between political party and ideological identification, and the gap between party identifiers nearly doubled between 1972 and 2004 (Abramowitz et al., 2008). The result of this has been a marked increase in polarization on a wide range of issues from views on abortion to jobs and living standards (Abramowitz et al., 2008).

Americans' party and ideological identifications are now largely predictive of views on science, trust in the media, and the proper size of government. On science-related issues, Republicans and conservatives are less likely to believe in evolution and tend to be more

skeptical about the existence and consequences of global climate change compared to Democrats and liberals (Pew Research Center, 2014-15). This is consistent with recent research indicating that Republicans perceive less personal vulnerability to the virus and the virus's severity as lower. Republicans also have higher levels of distrust in the media, the majority of which rely on Fox News whose viewers have indicated less accurate knowledge about COVID-19 such as believing the virus was made in a lab (Pew Research Center, 2020). An overwhelming majority of Republicans say they prefer a smaller government providing fewer services while a nearly identical share of Democrats prefer the opposite (Pew Research Center, 2020). Overall, Democrats are less skeptical of science, more trusting across a wide range of news sources, and more accepting of government intervention. These three patterns help contextualize the partisan divide in COVID-19 risk perception and compliance with public health recommendations.

Scholarship suggests that elite issue framing teaches and reinforces these attitudes, steering citizens toward specific policy judgements (Popkin, 1991; Lupia, 1998). In fact, party identification puts pressure on partisans to hold views that conform to elite messaging and in-group members (Morin-Chassé, 2019). Using news outlets and social media, Americans can gauge positions of political elites and orient themselves to align with those party members they trust (Lenz, 2013). A powerful and sometimes dangerous influence over beliefs and behaviors, elite cue taking is not limited to truth, often causing Americans to reject valid scientific information (Darmofal, 2005; Brulle, 2012). It explains why the public is divided over the risk COVID-19 poses and the proper role of government and individuals in limiting its spread. Republican leadership, including the President himself, has consistently downplayed the threat

of the virus and the need for social distancing. These beliefs are mirrored at the citizen level and subsequently reinforced by partisan media. On the other end, Democratic elite have stressed the importance of listening to the scientists and engaging in disease-mitigating behaviors to flatten the curve, attitudes that have been paralleled by ordinary Democrats and underpinned by news outlets.

The question then becomes whether party supporters are engaging in blind partisan cue taking reinforced by media echo chambers or if overcoming knowledge gaps through formal training or exposure is a sufficient means to uniform public opinion. The common supposition when individuals have different views from experts is: if only they knew more, we would all agree. There is some truth to this, but not as much as we might expect. Evidence from Pew Research Center shows that people's educational levels or knowledge of science sometimes explain variation in public attitudes on issues such as the use of animals in research, the safety of eating genetically modified foods, and opinions about building more nuclear power plants (Pew Research Center, 2015). Specifically, those with more education have positions on these topics that are shared by the majority of those connected with the American Association for the Advancement of Science. The findings indicate that those with more science knowledge are more likely to consider scientists as overwhelmingly in agreement about evolution, for instance. However, there are only a handful of issues where the impact of education or scientific knowledge is classified as a "strong" factor in predicting the public's view. Moreover, survey research has indicated that physicians, who are among the most scientifically educated in society, are more religious than expected, and that there is a strong link between religiosity and

skepticism of science-related issues such as climate change and evolution (UChicago Medicine, 2005; Pew Research, 2019).

Examining the extent to which exposure, through formal training or personal experience, moderates the relationship between partisanship and COVID-19 knowledge, attitudes and behaviors may unveil a mechanism through which political polarization can be reduced. Existing literature fails to consider this kind of exposure as a channel to achieve public health solidarity, specifically, and uniformity on partisan-laden issues more broadly. This paper builds and extends on existing theory through examination of a novel means through which political polarization may be diminished in the context of a public health emergency and in the aggregate.

When looking at healthcare workers then, who are presumed to have formal scientific training, I expect that a partisan divide in attitudes toward and information concerning the coronavirus persists – with Democrats (1) perceiving greater risk, (2) more willing to engage in disease-mitigating behaviors, and (3) having higher levels of correct knowledge about the coronavirus compared to Republicans – but is mitigated compared to the overall population. Individuals with a scientific background should theoretically have more correct knowledge about COVID-19 and therefore be better suited to dismiss contradictory elite, media, and in-group messaging. Therefore, healthcare workers should be more likely to perceive the coronavirus as a threat and comply with public health recommendations regardless of party affiliation.

Similarly, individuals who have had experience with the coronavirus, either directly or tangentially (e.g., had a “COVID-19 scare,” tested positive, live with an individual who tested

positive, know someone who died from the virus), should theoretically have enough correct COVID-19 knowledge to bypass the “party messaging trap” by virtue of their exposure.

Therefore, the partisan divide should at least be mitigated among this segment of the population such that these people are more likely to see the coronavirus as a threat, engage in disease-mitigating behaviors, and have more correct information about the virus. I expect Democrats with personal experience to still be more likely than Republicans to perceive COVID-19 as dangerous, comply with public health recommendations, and have higher rates of correct knowledge, but the partisan gap should be less pronounced in this subgroup.

Drawing from the literature, the following six hypotheses are proposed regarding the relationship between knowledge about or exposure to COVID-19 and virus attitudes or behaviors:

TABLE 1: Hypotheses

ARGUMENTS	HYPOTHESES NOTE: (x)=conditional on x	MACRO LEVEL	MICRO LEVEL
<b>Formal scientific training and/or exposure</b>	H1a: Party affiliation (healthcare worker status) → COVID-19 risk perception	The partisan divide in COVID-19 risk perception will be mitigated among healthcare workers compared to the general population.	Among ____, Democrats will be more likely than Republicans to perceive COVID-19 as a threat. (a) Healthcare workers (b) All respondents
	H1b: Party affiliation (healthcare worker status) → willingness to engage in protective behaviors	The partisan divide in willingness to engage in protective behaviors will be mitigated among healthcare workers compared to the general population.	Among ____, Democrats will be more likely than Republicans to engage in protective behaviors. (a) Healthcare workers (b) All respondents
	H1c: Party affiliation (healthcare worker status) → correct knowledge about COVID-19	The partisan divide in correct knowledge about COVID-19 will be mitigated among healthcare workers compared to the general population.	Among ____, Democrats will be more likely than Republicans to have correct knowledge about COVID-19. (a) Healthcare workers (b) All respondents
<b>Personal or tangential exposure to coronavirus</b>	H2a: Party affiliation (personal experience) → COVID-19 risk perception	The partisan divide in COVID-19 risk perception will be mitigated among individuals with personal experience compared to the general population.	Among ____, Democrats will be more likely than Republicans to perceive COVID-19 as a threat. (a) Individuals with personal experience (b) All respondents
	H2b: Party affiliation (personal experience) → willingness to engage in protective behaviors	The partisan divide in willingness to engage in protective behaviors will be mitigated among individuals with personal experience compared to the general population.	Among ____, Democrats will be more likely than Republicans to engage in protective behaviors. (a) Individuals with personal experience (b) All respondents
	H2c: Party affiliation (personal experience) → correct knowledge about COVID-19	The partisan divide in correct knowledge about COVID-19 will be mitigated among individuals with personal experience compared to the general population.	Among ____, Democrats will be more likely than Republicans to have correct knowledge about COVID-19. (a) Individuals with personal experience (b) All respondents

Among all respondents, Democrats should be more likely than Republicans to perceive COVID-19 as a threat, engage in protective behaviors, and have higher levels of correct knowledge about the virus. This partisan divide should persist among both healthcare workers and those who have personal experience, but I expect that it will not be as pronounced when compared to the general population.

### **Data and Methods**

Data are drawn from three original surveys: (1) a Qualtrics questionnaire administered on Facebook, (2) a Kaiser Health Tracking poll conducted by telephone, and (3) a Gallup panel through email invitation.

#### **Qualtrics Questionnaire**

Principal investigator Dr. Ralph J. DiClemente of New York University conducted an original web-based survey to assess the national landscape on COVID-19-related knowledge, beliefs, mental health, substance use changes, and behaviors. His project, entitled “Knowledge, attitudes and practices related to COVID-19 in the U.S.,” has been made publicly available on openICPSR (Inter-university Consortium for Political and Social Research) as part of the COVID-19 Data Repository, a self-publishing database for researchers to share data related to the coronavirus.

The survey was administered online to a random sample of U.S. adults from March 20-30, 2020, just one week after President Trump declared a national emergency. A Facebook advertisement campaign was used to circulate the link to an online Qualtrics survey and recruit participants ages 18 and older. The survey collected information on socio-demographic characteristics, COVID-19-related knowledge, awareness, and adoption of preventative

practices in addition to data on changes in mental health and drug use for a total of 6,602 observations on 127 variables. There are 1684 Democrats (230 of whom are healthcare workers), 1282 Republicans (207 of whom are healthcare workers), and 940 Independents (142 of whom are healthcare workers) represented in the questionnaire. Survey design decisions were informed by evidence-based literature and validated measurement scales. In order to address the overrepresentation of females and Whites observed in the advertisement's initial reach and response trends, two additional male-only and racial-minority-targeted advertisements were disseminated on the sixth and tenth days of recruitment.

### **Kaiser Family Foundation Health Tracking Poll**

Designed and analyzed by public opinion researchers at the Kaiser Family Foundation (KFF), the "September 2020 Kaiser Health Tracking Poll" was a national survey of U.S. adults that collected information on political attitudes, feelings about the coronavirus outbreak, personal developments as a result of the pandemic, and knowledge about COVID-19. It was made available at the Roper Center for Public Opinion Research at Cornell University, an archive of social science data with a focus on public opinion surveys.

The survey was fielded from August 28-September 3, 2020 to a nationally representative random digit dial telephone sample of 1,199 adults ages 18 and older residing in the United States. 299 of these respondents were recruited by calling back participants who had previously completed an interview with KFF Tracking poll at least nine months prior. An oversample of prepaid telephone numbers and a subsample of respondents who had previously completed Spanish language interviews on the SSRS Omnibus poll were also included to obtain a sufficient number of low-income and non-White participants. Telephone interviews were conducted by

landline and cell phone to obtain survey data, which was subsequently weighted to balance the sample demographics such that they matched population estimates from the Census Bureau's March 2019 Supplement of the U.S. Census Population Survey (CPS) and 2010 Census where applicable. The sample was also weighted to match telephone use patterns from the January-June 2019 National Health Interview Survey.

Among those included in the poll, 371 are Democrats (20 of whom are healthcare workers and 127 of whom have personal experience), 309 are Republicans (10 of whom are healthcare workers and 38 of whom have personal experience), and 414 are Independents (21 of whom are healthcare workers and 101 of whom have personal experience). While the sample size poses some questions about the ability to draw conclusions from the data, the KFF poll simply supplements findings from the Qualtrics Questionnaire and Gallup Panel (see Methodology).

### **Gallup Panel**

Administered as part of the Gallup Panel, a probability-based nationally representative panel of U.S. adults, the COVID-19 web survey probed participants on their well-being, general health, employment and family, coronavirus testing experiences, attitudes toward COVID-19, behavioral modifications in response to the pandemic, and political opinions. The Gallup Panel is not an opt-in panel; members are randomly selected using random-digit-dial phone interviews and weights are adjusted daily to account for selection probabilities and potential response biases.

The survey was conducted online beginning on March 13, 2020 using daily random samples of U.S. adults ages 18 and older who are members of the Gallup Panel. Around 1,200



daily responses were collected by April 26, 2020 and 500 daily completes were recorded between April 27-August 16, 2020. Beginning on August 17, 2020, the survey moved from daily to monthly surveying, ultimately resulting in a total of 117,568 participants who provided data on 783 variables. Those surveyed include 45,341 Democrats (144 of whom had personal experience), 35,756 Republicans (72 of whom had personal experience), and 25,259 Independents (67 of whom had personal experience).

### **Methodology**

In order to evaluate individuals' knowledge, attitudes, and behaviors related to COVID-19, a survey design is most appropriate. Of the formal methodologies used to measure public opinion, survey data collection has become dominant and for good reason. Surveys allow for information to be gathered, using random selection, from a large cohort on many variables, increasing sample size and external validity. Those charged with designing the survey have considerable latitude in its design, with the ability to collect demographic information on respondents in order to weigh the sample such that it matches the desired population and dissect factors that may influence the relationship between the independent and dependent variables. There is also significant control over the administration of the survey, ensuring uniformity in the phrasing of questions and preventing endogeneity.

Data from the three original surveys are used to test the six proposed hypotheses. All involve a nationally representative sample of the population of interest, U.S. adults ages 18 years and older; however, questions asked of participants are unique to each survey. Given variations in information collected as part of each study, the Qualtrics questionnaire is used to evaluate hypotheses 1a-c while the Gallup panel assesses hypotheses 2a-c. Data from the KFF

Health Tracking poll supplements assessments of hypotheses 1a, 1c, 2a, and 2c. Since the datasets cannot be merged, results from multiple sources on the same hypothesis are treated independently.

### **Hypotheses 1a-c**

A summary of the variables of interest in evaluating hypotheses 1a-c is provided in Table 2.1, where “DV” is short for dependent variable(s) and “IV” for independent variable(s). For all three hypotheses, the independent variables are political affiliation and healthcare worker status; however, depending on the dataset utilized, there is slight variation in the operationalization of these variables. Moreover, the questions used to extract party identification and career title from participants are phrased differently. While the analyses remain separate, this variability is important to consider when drawing conclusions about the identical hypothesis. Differences in political affiliation measurement are negligible, but for purposes of the KFF poll, “healthcare workers” encompasses anyone working in a healthcare delivery setting whereas the Qualtrics questionnaire is more limiting in that “healthcare workers” must be defined as those who work in an environment where they come into contact with sick people. The latter operationalization is more in line with my research question given those who interact with ill patients are more likely to be knowledgeable about infectious disease and encounter coronavirus patients as opposed to those working in a dentist’s office, for example; however, data from the KFF may supplement the findings.

Similarly, when evaluating measurements of the dependent variable, risk perception, in hypothesis 1a, the KFF poll asks respondents to indicate whether they think “the worst is behind us” or “the worst is yet to come” with respect to the coronavirus whereas there are five

indicators from the Qualtrics questionnaire (although only one is used as the main risk perception measurement). One survey allows for risk perception to be viewed in a binary fashion and the other is useful for parsing out variations in the strength or degree of risk perception. This is equally true for measuring the dependent variable, knowledge about COVID-19, in hypothesis 1c. The KFF poll asks participants to answer a limited number of questions about the virus which are coded as correct or incorrect while the Qualtrics questionnaire includes 13 measures of general coronavirus knowledge and 10 of preventing infection. These indicators can be evaluated individually or combined to award participants a score on scales of 0-13 and 0-10. Likewise, when measuring the dependent variable, protective behaviors in hypothesis 1b, respondents are asked to indicate which of 12 behaviors they have engaged in as a result of the coronavirus. These protective measures can be assessed either individually or collectively using a scale 0-12.

### **Hypotheses 2a-c**

Considering hypotheses 2a-c, the variables of interest are provided in Table 2.2. For all three hypotheses, the independent variables are political affiliation and COVID-19 personal experience; however, as was the case with hypotheses 1a-c, there is variation in the variables' operationalization and phrasing of relevant survey questions. Variability in political affiliation wording by dataset is trivial, but there are notable inequivalences in the measurement of personal experience. For purposes of the Gallup panel, individuals who have had coronavirus symptoms in the past week, tested positive, or live with someone who tested positive are considered "experienced." The KFF survey, by contrast, asked participants to indicate if they know someone who has died from the virus and whether it was a close family member or

friend, for which a response of “Yes” to either question classifies the respondent as personally experienced. While these measurements of experience are distinct, they are both likely to capture individuals who have been forced to confront the coronavirus in some capacity.

The same dependent variables discussed earlier are used in connection with hypotheses 2a-c; however, the Gallup panel has a unique conceptualization of risk perception and protective behaviors. A series of three questions are asked of participants to gauge their worry level about the coronavirus and the extent to which they comply with public health recommendations. The indicators for protective behaviors must be evaluated individually; however, those measuring risk perception may be aggregated for evaluation on a scale of 3-11 where higher scores indicate more concern about the virus. Correlations are sufficiently high on risk perception sub-questions to justify creation of a single, merged variable ( $r \geq 0.54$ ).

### **Control Variables**

In examining the relationship between the independent and dependent variables of the six hypotheses, it is worthwhile to control for potentially confounding factors. Therefore, age, sex, race, income, and education will be included as control variables in the analysis (see Table 2.3).

The operationalization of these variables and phrasing of survey questions varies slightly by dataset, but they are nearly identical. Inclusion of such factors is worthwhile given research has found that demographic characteristics are significant predictors of social distancing measures (Nikolov, 2020). Specifically, being Caucasian and having a higher household income are associated with lower adoption of disease mitigating behaviors. By contrast, being older and identifying as a woman are predictive of more mask-use. It follows that these factors

should be included in the analysis; however, controlling for education is more complicated. Given I am interested in healthcare workers for evaluating several hypotheses, it would not make sense to include education as a control in these models given healthcare worker status is contingent on educational attainment. Part of the analysis is specifically focused on whether having higher levels of scientific knowledge, or scientific education, affects the extent to which partisanship is predictive of compliance with public health recommendations. Therefore, education should be examined as a control where appropriate (i.e., in evaluating hypotheses 2a-c) and not included in assessing hypotheses 1a-c.

## **Results**

### **Qualtrics Questionnaire**

#### **Risk Perception**

Results of the Qualtrics Questionnaire reveal that, among all respondents, healthcare workers are significantly more likely to view COVID-19 as a threat compared to non-healthcare workers (e.g., Table 3). Those who work in a setting where they come into contact with sick people perceive more personal vulnerability to the virus, indicating, on average, 1.126 higher points on the risk perception scale. This is consistent with the difference in means insofar as healthcare workers' average risk perception score is 6.461 while non-healthcare workers' mean score is 5.239.

Examining the effects of partisanship on perceived risk, I find that Republicans and Independents are significantly less likely than Democrats to believe COVID-19 is a threat when looking at all respondents (e.g., Table 4). Republicans' risk perception scores are, on average, 0.689 points lower than those of Democrats and Independents' scores are 0.158 points lower

compared to Democrats. This makes sense when examining the mean risk perception scores by party with average responses being 4.919 for Republicans, 5.498 for Independents, and 5.683 for Democrats.

Looking only at Democrats, being a healthcare worker increases risk perception scores by 0.787 points (e.g., Table 5). This effect is even more pronounced for Republicans and Independents – among Republicans, working in a healthcare delivery setting raises perceived risk by 1.363 points and, among Independents, scores increase by 1.377 points, on average (e.g., Tables 6 and 7). Interestingly, when looking at healthcare workers alone, there is no significant effect of partisanship on risk perception (e.g., Table 8). Republicans still indicate lower perceived risk compared to Democrats, but not only is the difference mitigated – it is not statistically meaningful. Examining only non-healthcare workers, however, I find that the partisan divide is even more pronounced than it is in the general population (e.g., Table 9). On average, risk perception scores are 0.828 points lower for Republicans and 0.264 points lower for Independents compared to Democrats.

Results for other, more imperfect, measures of risk perception (i.e., perceived severity, beliefs about likelihood of contracting coronavirus while flying, attitudes toward government response, predictions about the number of future cases) reveal similar findings about the effects of partisanship. Republicans and Independents are significantly less likely than Democrats to believe they would suffer severe illness if infected with COVID-19; however, differences in severity perception by party are mitigated when examining healthcare workers alone – in fact, they become nearly insignificant. Republicans are also less likely to think that they would contract coronavirus by flying and the partisan divide disappears (i.e., is not

statistically significant) among healthcare workers alone. Moreover, among Republicans and Independents, being a healthcare worker increases risk perception of catching COVID-19 by flying but has no effect on Democrats. Similarly, Republicans and Independents are significantly less likely to believe coronavirus is a bigger problem than the government suggests compared to Democrats. However, I do not observe a mitigated effect of partisanship among healthcare workers. Lastly, party differences in predictions about the number of people in the United States who will contract COVID-19 in the next three months are statistically meaningful with Republicans and Independents predicting fewer future cases than Democrats. However, the effects of partisanship become nearly insignificant when examining healthcare workers alone. Moreover, among Republicans, being a healthcare worker increases predictions about the number of future COVID-19 cases in the U.S. Despite consistent differences in risk perception along party lines that diminish when examining only healthcare workers, being a healthcare worker does not significantly increase risk perception on these indicators relative to non-healthcare workers (with the exception of beliefs about catching the virus while flying).

### **Protective Behaviors**

The Qualtrics dataset reveals some counterintuitive results in that, among all respondents, healthcare workers actually engage in significantly fewer protective behaviors compared to non-healthcare workers (e.g., Table 3). However, examining the effects of partisanship, I find exactly what I would expect – Republicans and Independents are significantly less likely than Democrats to take disease-mitigating steps when looking at all respondents (e.g., Table 4). Republicans engage in, on average, 0.154 fewer protective behaviors than Democrats and Independents take 0.238 fewer protective measures compared

to Democrats. This is consistent with the difference in means insofar as Democrats average number of protective behaviors is 6.259 while Republicans is 6.043 and Independents is 5.969.

Looking at healthcare workers alone, there is no significant effect of partisanship on protective behaviors (e.g., Table 8). Republicans and Independents still indicate engaging in fewer disease-mitigating behaviors compared to Democrats, but the difference is not statistically meaningful. Examining only non-healthcare workers, however, I find that the partisan divide is even more pronounced in some ways than it is in the general population (e.g., Table 9). On average, protective behavior scores are 0.152 points lower for Republicans and 0.249 points lower for Independents compared to Democrats.

### **Knowledge about COVID-19**

Among all respondents, contrary to what I would expect, healthcare worker status has an insignificant impact on correct knowledge about COVID-19 (e.g., Table 3). However, examining the effects of partisanship, it is clear that Republicans are significantly less likely than Democrats to answer questions about coronavirus correctly when looking at all respondents (e.g., Table 4). Republicans answer, on average, 0.145 fewer questions correctly than Democrats, which makes sense when examining mean COVID-19 knowledge scores by party with average correct answers being 11.984 for Republicans and 12.243 for Democrats.

Looking at healthcare workers alone, there is no significant effect of partisanship on correct COVID-19 knowledge (e.g., Table 8). Independents still have lower scores compared to Democrats, but the difference is not statistically meaningful. Examining only non-healthcare workers, however, I find that the partisan divide is still significantly pronounced with COVID-19



knowledge scores being 0.171 points lower for Republicans compared to Democrats (e.g., Table 9).

### **Kaiser Family Foundation Health Tracking Poll**

#### **Risk Perception**

Results of the Kaiser Family Foundation Health Tracking Poll reveal that, among all respondents, being a healthcare worker or having personal experience results in a higher risk perception score, but the results are statistically insignificant (e.g., Table 10). Examining the effects of partisanship on perceived risk, however, I find that Republicans and Independents are significantly less likely than Democrats to believe COVID-19 is a threat when looking at all respondents (e.g., Table 12). Republicans' risk perception scores are, on average, 0.494 points lower than those of Democrats and Independents' scores are 0.142 points lower compared to Democrats. This makes sense when examining the mean risk perception scores by party with average responses being 0.202 for Republicans, 0.522 for Independents, and 0.721 for Democrats.

Looking at healthcare workers alone, the partisan divide remains significantly pronounced with Republicans scoring, on average, 0.642 points lower on the risk perception scale than Democrats and Independents scoring 0.284 points lower compared to Democrats; however, the magnitude of party difference is diminished among healthcare workers compared to the general population (e.g., Table 13). I find similar results among those with personal experience – Republicans and Independents still perceive less personal vulnerability to the virus (e.g., Table 14). The difference is statistically significant for Republicans who receive scores that are 0.470 points lower than those of Democrats, whereas it remains observably lower for

Independents but not in a statistically significant way. However, the magnitude of party difference is diminished among those with experience compared to the general population, as was the case with healthcare workers.

### **Knowledge about COVID-19**

Among all respondents, healthcare workers have more correct knowledge about COVID-19, but it is not statistically meaningful (e.g., Table 11). Those with personal experience, however, are significantly more likely to answer questions about the coronavirus correctly. Individuals who know someone who has died from the virus answer, on average, 0.326 more questions right compared to those without personal experience. This is consistent with the difference in means insofar as individuals who know someone who has died from COVID-19 have an average knowledge score of 5.487 while those without experience have an average score of 5.063.

Examining the effects of partisanship on correct coronavirus knowledge, I find that Republicans and Independents score significantly lower on assessments than Democrats when looking at all respondents (e.g., Table 12). Republicans' knowledge scores are, on average, 1.316 points lower than those of Democrats and Independents' scores are 0.490 points lower compared to Democrats. This makes sense when examining the mean COVID-19 knowledge scores by party with average correct responses being 4.379 for Republicans, 5.214 for Independents, and 5.746 for Democrats.

Looking at experienced individuals alone, there is no significant effect of partisanship on correct COVID-19 knowledge (e.g., Table 14). Republicans and Independents still score lower compared to Democrats, but the difference is not statistically meaningful. Examining only non-

experienced individuals, however, I find that the partisan divide remains significantly pronounced (e.g., Table 15). On average, correct COVID-19 knowledge scores are 0.190 points lower for Republicans and 0.113 points lower for Independents compared to Democrats. Similarly, examining healthcare workers alone, the partisan divide nearly disappears. Republicans still indicate less accurate coronavirus knowledge, but it is no longer statistically significant (e.g., Table 13).

## **Gallup Panel**

### **Risk Perception**

Results of the Gallup Panel reveal that, among all respondents, those with personal experience have higher risk perception scores compared to those without personal experience, but the difference is not statistically significant (e.g., Table 16). Examining the effects of partisanship on perceived risk, however, I find that Republicans and Independents are significantly less likely than Democrats to believe COVID-19 is a threat when looking at all respondents. Republicans' risk perception scores are, on average, 3.092 points lower than those of Democrats and Independents' scores are 0.984 points lower compared to Democrats. This makes sense when examining the mean risk perception scores by party with average responses being 5.715 for Republicans, 7.591 for Independents, and 9.162 for Democrats. Looking at those with personal experience alone, the partisan divide remains significantly pronounced (even though it is diminished compared to the overall population) with Republicans scoring, on average, 2.285 points lower on the risk perception scale than Democrats and Independents scoring 0.707 points lower compared to Democrats (e.g., Table 17). Interestingly, however, among Republicans alone, having personal experience significantly

increases risk perception scores by 0.690 points, on average, compared to Democrats (e.g., Table 18).

### **Protective Behaviors**

Among all respondents, individuals with personal experience engage in significantly more protective behaviors than those without personal experience (e.g., Table 16). Individuals who had coronavirus symptoms in the past seven days, tested positive for the virus, or live with someone who tested positive engage in, on average, 0.112 more disease-mitigating behaviors compared to those without personal experience. This is consistent with the difference in means insofar as individuals with personal experience have an average protective behaviors score of 4.370 while those without experience have an average score of 4.292.

Examining the effects of partisanship on protective behaviors, I find that Republicans and Independents engage in significantly fewer protective behaviors than Democrats when looking at all respondents. Republicans' take, on average, 0.543 fewer disease-mitigating actions than those of Democrats and Independents engage in 0.188 fewer protective behaviors compared to Democrats. This makes sense when examining the mean disease-mitigating behaviors scores by party with an average number of protective behaviors being 4.024 for Republicans, 4.274 for Independents, and 4.621 for Democrats. Moreover, looking only at Republicans, having personal experience significantly increases protective behavior scores by 0.289 points (e.g., Table 18). Examining those with personal experience alone, I find that the partisan divide remains significantly pronounced with Republicans engaging in, on average, 0.363 fewer protective behaviors and Independents taking 0.272 fewer disease-mitigating steps

compared to Democrats; however, the divide is diminished compared to the overall population (e.g., Table 17).

Results for the other, more imperfect, measure of protective behaviors (i.e., number of places visited in the past 24 hours) reveal similar findings about the effects of partisanship. Republicans and Independents engage in significantly fewer disease-mitigating behaviors compared to Democrats when looking at all respondents. Republicans take, on average, 1.093 fewer protective actions than Democrats and Independents engage in 0.644 fewer disease-mitigating behaviors compared to Democrats. This is consistent with the difference in means insofar as Republicans' average protective behaviors score is 8.917 while Independents' mean score is 9.407 and Democrats' is 10.012.

Looking at those with personal experience, I find that the partisan divide nearly disappears. Republicans and Independents still engage in fewer protective behaviors than Democrats, but the difference is not statistically significant for Republicans and only mildly significant for Independents. Examining those without personal experience, however, I find that the partisan divide is even more pronounced than it is in the general population with Republicans engaging in, on average, 1.159 fewer protective behaviors than Democrats and Independents taking 0.595 fewer disease-mitigating steps compared to Democrats.

## **Discussion**

Results from the three datasets are very much in line with what I would expect the effects of partisanship to be on risk perception, protective behaviors, and COVID-19 knowledge. The Qualtrics Questionnaire, Kaiser Family Foundation Health Tracking Poll, and Gallup Panel each indicate that, among all respondents, Democrats are more likely to perceive COVID-19 as a

threat compared to Republicans and Independents. Across a wide range of indicators – from perceived risk of contracting the virus and severity of illness to general anxiety about what the future holds and predictions about case numbers in the U.S. – Democrats perceive more personal vulnerability to the virus and express higher levels of concern about their own and others’ health. This is consistent with recent studies on divergent attitudes toward the coronavirus along party lines and longstanding trends in political polarization (Cavillo; Gadarian et al., 2020).

As predicted, the partisan divide on risk perception is mitigated among healthcare workers and those with personal experience compared to the overall population. Within the healthcare worker and “personally experienced” cohorts, while Democrats are still more likely to indicate concern about contracting the virus compared to Republicans (and Independents in the case of the Kaiser Tracking Poll and Gallup Panel), the party difference largely diminishes; in fact, the divide becomes statistically insignificant in the Qualtrics Questionnaire. It makes sense then that, among all respondents in the questionnaire and panel, Democrats are also significantly more likely than Republicans and Independents to engage in protective behaviors ranging from purchasing a face mask and frequent hand washing to keeping away from crowded places and working from home. This partisan divide is mitigated, however, among healthcare workers and those with personal experience compared to the overall population as I expected. Democrats in both groups are still more likely to engage in disease-mitigating behaviors compared to Republicans and Independents, but the magnitude of difference is either diminished (i.e., Gallup) or no longer statistically meaningful (i.e., Qualtrics). There is strong confirmation from the datasets that, in general, partisanship is predictive of divergent

coronavirus attitudes and behaviors, which become less polarized when examining healthcare workers and experienced individuals alone.

What is more unclear, however, is whether or not healthcare workers and those with personal experience have increased risk perception and protective behaviors compared to non-healthcare workers and non-experienced individuals. Results from the Qualtrics dataset indicate that healthcare workers do report higher levels of concern about contracting the virus, but this result is inconsistent across measures of risk perception. While healthcare worker status is predictive of increased worry on my primary risk perception indicator (i.e., perceived risk of getting infected with coronavirus on a scale from 0–10) and one additional measure (i.e., perceived risk of catching coronavirus by flying), it has an insignificant effect on perceived severity, attitudes toward government response, and predictions about the number of future cases. Results from the Kaiser dataset add to this inconsistency in that healthcare workers are more likely to believe “the worst is yet to come” as opposed to “the worst is behind us” when asked about their feelings toward the coronavirus outbreak, but the difference is not statistically significant.

Similarly, both the Kaiser poll and Gallup panel indicate that those with personal experience have higher risk perception scores compared to non-experienced individuals, but the difference is not statistically meaningful. However, despite not having more concern about the virus, respondents with personal experience engage in significantly more protective behaviors than those lacking experience. A possible explanation for this inconsistency is that those who had a coronavirus scare or know someone who tested positive do not necessarily believe the virus is any more severe than an average individual does, but they are more willing

to engage in disease-mitigating behaviors to protect themselves and others knowing first-hand that the virus can be easily contracted. For healthcare workers, however, the counterintuitive results do not end at risk perception. Data from the Qualtrics Questionnaire reveals that healthcare workers actually engage in significantly fewer protective behaviors compared to non-healthcare workers.

While examining the effects of healthcare worker status on risk perception and protective behaviors was not explicitly sought out as part of my analysis, this result is important in evaluating the strength of the mechanism proposed in my theoretical framework. That healthcare workers would be more likely to perceive COVID-19 as a threat and comply with public health recommendations was an assumption I made in order to explain a potential partisan mitigation among this cohort. Specifically, I suggested that individuals working in healthcare should have baseline scientific knowledge by virtue of their profession that uniquely equips them to dismiss contradictory elite, media, and in-group messaging, thereby shifting Republican healthcare workers toward the Democratic platform (i.e., high perceived risk and protective behaviors) and shrinking the partisan divide. However, this assumption is not consistent with findings from the datasets.

Both the Qualtrics Questionnaire and Kaiser Family Foundation Health Tracking Poll indicate that healthcare worker status has an insignificant effect on correct COVID-19 knowledge. Among all respondents, Democrats do score significantly higher than Republicans and Independents on assessments testing coronavirus knowledge (such as understanding of whether COVID-19 is a contagious disease or children are at high risk for complications from the virus). Moreover, the partisan divide is mitigated among healthcare workers and those with



personal experience – Democrats are still more likely to have correct knowledge about coronavirus, but party differences become statistically insignificant. Moreover, those with personal experience score significantly higher on COVID-19 assessments compared to non-experienced individuals. However, contrary to what I expected, it is not the case that healthcare workers have higher levels of knowledge about the virus and are therefore better equipped to dismiss rhetoric downplaying the severity or even existence of the virus. This unanticipated finding could be due to the imperfectness of my healthcare worker status measures; phrasing of the healthcare employment question in both the Qualtrics and Kaiser datasets does not limit healthcare worker status to nurses or physicians. The measurement could reasonably include any individual working in a healthcare delivery setting, from an emergency room physician to a dining room staff member. Therefore, those who are coded as healthcare workers do not necessarily have formal scientific training and may be skewing the results.

Nonetheless, if “healthcare workers” do not necessarily have more accurate scientific knowledge about COVID-19 and therefore higher risk perception and more protective behaviors compared to non-healthcare workers, what else might explain the mitigated effects of partisanship on coronavirus knowledge, attitudes, and behaviors among the healthcare worker cohort? It may be the case that there are significant differences in cue taking between healthcare workers and the general population. Perhaps those who work in a healthcare delivery setting receive their political information (specifically about the coronavirus) from their colleagues whereas most other Americans take cues from highly polarized political elites. This would not necessarily mean that those in healthcare are any more informed than the general population about best scientific practices or have higher risk perception and avoidance

behavior, but simply that they are less polarized as a group because the cues from coworkers are more salient than those from political leaders. Alternatively, it may be the case that healthcare workers make a stronger distinction between professional and personal life than I expected, meaning that receiving accurate scientific information at work does not carry enough weight in and of itself to shift political attitudes formed at home.

### **Conclusion**

Across the United States and around the world, the coronavirus pandemic has devastated millions with tremendous loss and forever changed the way citizens view their relationship to government and each other. Despite a shared lack of immunity and scientific consensus on best practices to slow transmission, Americans quickly became divided not only on the proper role of government and their neighbors in combatting COVID-19, but on the very existence of the virus itself. There is now substantial literature exploring the effects of partisanship on risk perception, protective behaviors, and coronavirus knowledge with Republicans perceiving less personal vulnerability to the virus, being less willing to adopt disease-mitigating behaviors, and having less accurate information about COVID-19. This is consistent with trends in political polarization over the past few decades, including partisan divides in matters of public health.

My work builds on these findings, attempting to uncover a mechanism through which the partisan divide may be mitigated via professional training or personal experience. Specifically, I aimed to determine the conditionality of partisan coronavirus cue taking on knowledge about or exposure to the virus with the expectation that professional training or familiarity with COVID-19 are sufficient to dismiss contradictory (i.e., nonscientific) political

messaging. Examining three robust datasets in tandem, I measure risk perception, protective behaviors, and knowledge about the virus in connection with partisanship, healthcare worker status, and personal experience with COVID-19.

Consistent with my hypotheses, the results indicate that partisanship is strongly predictive of coronavirus knowledge, attitudes, and behaviors with Democrats being significantly more likely than Republicans and Independents to perceive the virus as a threat, engage in protective behaviors, and have accurate information about COVID-19. Moreover, working in a healthcare delivery setting or having personal experience mitigates the partisan divide across these three measures. I find that those who have been forced to confront the virus in some capacity (e.g., had a COVID-19 scare, tested positive, know someone who died from the virus) are more likely to engage in disease-mitigating behaviors and perform better on coronavirus information assessments; however, healthcare worker status itself is not necessarily predictive of increased risk perception, adoption of protective behaviors, or even correct coronavirus knowledge.

While my findings suggest that personal experience may be a means through which to bypass the “party messaging trap,” future work is needed in order to explain the mitigated effects of partisanship among healthcare workers. The framework of this study should be extended to parse out the background and daily work of those labeled “healthcare workers” in order to separate individuals with formal scientific training (i.e., the intended interest group) from hospital staff, for example. Moreover, uncovering where healthcare workers receive information that shapes their political views would help determine whether this cohort experiences less polarization by virtue of receiving cues from each other. It may even be

worthwhile to test the impact of providing information on healthcare workers or those with experience through an experiment to see if there are observable differences when compared to educating the general public. Beyond education, lessons from the Zika virus outbreak in which initial partisanship dissipated and opinion eventually emerged of a bipartisan nature suggest that uniform elite messaging may facilitate achieving public consensus in emergencies such as the coronavirus pandemic (Singer, 2020). It would be interesting to investigate whether partisan resistance to public health recommendations can be mitigated through providing clear and consistent messaging, and if there are certain types of messages that work better with healthcare workers as opposed to the general population.

In light of vaccine rollout efforts, this framework may also be tested in evaluating the role of professional training and personal experience in attitudes toward receiving a coronavirus vaccination. Recent findings from a Washington Post-Kaiser Family Foundation poll suggest that it may not be as unusual for healthcare workers to dismiss scientific recommendations as we might think. The study found that 18% of healthcare workers do not plan on getting vaccinated and more than a third said they were not confident that the vaccine was adequately tested for safety and effectiveness (Ahmed et al., 2021).

While the evidence does not allow me to conclusively claim that professional training and personal experience are sufficient to bypass unscientific cue taking from political elite, the patterns are consistent with polarization literature and provide a theoretical model through which to examine potential moderators of the relationship between partisanship and public health opinion.

TABLE 2.1: Testing Hypotheses 1a-c

HYPOTHESIS	DV	DV MEASUREMENT		IV	IV MEASUREMENT	
		Data Source	Key		Data Source	Key
1a	Risk Perception	<p><b>On a scale from 0–10, what do you think is your risk of getting infected with Coronavirus?</b> (risk perception measure used in regressions) Range = 0 (Not likely at all) – 10 (Extremely likely) <b>On a scale from 0–10, if you were infected with Coronavirus, how severe do you think it would be?</b> Range = 0 (Not severe) – 10 (Very severe)</p> <p><b>I believe my risk of catching Coronavirus by flying is...</b> Range = 0–4; Extremely low; Low; Moderate; High; Extremely high <b>Coronavirus is a bigger problem than the government suggests.</b> Range = 0–3; Strongly Agree; Agree; Disagree; Strongly Disagree <b>In the next 3 months, how many people in the United States do you think will contract the coronavirus?</b> Range = 0–6; Up to 100; Up to 1,000; Up to 10,000; Up to 100,000; Up to 1,000,000; Up to 10,000,000; More than 10,000,000</p>	<p>KEF (8/28/20–9/3/20) <b>Which of the following best describes your feelings about the coronavirus outbreak in the United States?</b> Range = 0–1 (0 for (a), 1 for (b)); (a) The worst is behind us; (b) The worst is yet to come</p>	<p>Political Affiliation</p>	<p>QUALTRICS (3/20/20–3/30/20) <b>What is your political affiliation?</b> (‘Other’ coded as ‘Independent’) Democrat; Republican; Other</p>	<p>KEF (8/28/20–9/3/20) <b>In politics today, do you consider yourself a: Republican, Democrat, an Independent, or what?</b> Democrat; Republican; Independent</p>
1b	Protective Behaviors	<p><b>Sum of protective behaviors</b> Range = 0–12 (1 for each behavior): Got a flu shot (or had my children get a flu shot) after hearing about Coronavirus; Purchased a face mask; Started working from home; Started using hand-sanitizer and/or washing my hands more often; Started drinking more fluids and/or getting more rest; Started taking antiviral and/or antibiotics; Started taking dietary supplements (e.g., vitamins, probiotics); Avoided public transportation; Kept away from crowded places; Started cleaning and/or disinfecting things that I might touch (e.g., doorknobs, phone); Started wearing rubber gloves in public; Started taking more hot baths.</p>	<p>—</p>	<p>Do you work in an environment where you come into contact with sick people in a healthcare of clinical setting (e.g., doctor, nurse, hospital staff, paramedic, etc.)? (Yes/No) Coded as ‘healthcare worker’ if answered ‘Yes’</p>	<p>Do you or anyone in your household work in a health care delivery setting, such as a doctor’s office, clinic, hospital, nursing home, or dentist’s office? Coded as ‘healthcare worker’ if answered (a); (a) Yes, I work in a health care delivery setting; (b) Yes, someone else in my household works in a healthcare delivery setting; (c) No</p>	
1c	Knowledge about COVID-19	<p><b>Knowledge about COVID-19 score</b> Range = 0–13 (1 for each correct answer): Coronavirus is a contagious disease; A person infected with Coronavirus is not contagious until after symptoms appear; Coronavirus cannot be spread through sneezing and coughing; Currently, there is an FDA-approved drug for treating individuals with Coronavirus; Coronavirus can live on surfaces outside of the body for a few hours or several days; There is no vaccine currently available to prevent infection with Coronavirus; Children are at high risk for complications from Coronavirus; Older people with other health conditions are more likely to die from Coronavirus; People with Coronavirus can have no symptoms at all; Most people with Coronavirus will have severe or critical symptoms; Alcohol-based hand sanitizers cannot protect you from Coronavirus; Coronavirus may be transmitted through mosquito bites; Coronavirus originated from animals. <b>Knowledge about preventing infection score</b> Range = 0–10 (1 for each correct answer): Washing your hands frequently with soap or water; Getting a flu shot; Wearing a face mask; Stop going to school/work; Wiping potentially contaminated surfaces with disinfectant; Staying away from Asian people; Staying away from people who sneeze and cough; Avoiding touching your eyes, nose and mouth; Taking antibiotics; Stop eating Chinese food.</p>	<p><b>As far as you know, (insert item), or not?</b> Range = 0–6 (1 for each correct answer): Is there a cure for coronavirus; Is there a vaccine to prevent coronavirus that has been approved by the FDA; Is it possible for children under age 18 to transmit coronavirus to other people; Does wearing a face mask help to limit the spread of coronavirus; Is wearing a face mask harmful to your health; Is Hydroxychloroquine an effective treatment for COVID-19.</p>	<p>Healthcare Worker Status</p>	<p>Do you or anyone in your household work in a health care delivery setting, such as a doctor’s office, clinic, hospital, nursing home, or dentist’s office? Coded as ‘healthcare worker’ if answered (a); (a) Yes, I work in a health care delivery setting; (b) Yes, someone else in my household works in a healthcare delivery setting; (c) No</p>	

Appendix A

TABLE 2.2: Testing Hypotheses 2a-c

HYPOTHESIS	DV	DV MEASUREMENT		IV	IV MEASUREMENT	
		Data Source	KEF (8/28/20-9/3/20)		Data Source	KEF (8/28/20-9/3/20)
2a	Risk Perception	<p><b>How worried are you that you will get the coronavirus?</b> Range = 3-11 (Combined risk perception score, sum of following questions): Range = 1-4: Not worried at all; Not too worried; Somewhat worried; Very worried</p> <p><b>What's your impression of the coronavirus situation in the U.S. today?</b> Range = 1-5: Getting a lot worse; Getting a little worse; Staying the same; Getting a little better; Getting a lot better</p> <p><b>Which of these do you think is better advice right now for people who do not have symptoms of coronavirus and are otherwise healthy?</b> Range = 1-2: To stay at home as much as possible to avoid contracting or spreading the virus; To lead their normal lives as much as possible and avoid interruptions to work and business</p>	<p><b>Which of the following best describes your feelings about the coronavirus outbreak in the United States?</b> Range = 0-1 (0 for (a), 1 for (b)): (a) The worst is behind us; (b) The worst is yet to come</p>	Political Affiliation	<p><b>In politics, as of today, with which political party do you most closely affiliate?</b> Democrat; Republican; Independent</p>	<p><b>In politics today, do you consider yourself a Republican, Democrat, an Independent, or what?</b> Democrat; Republican; Independent</p>
2b	Protective Behaviors	<p><b>Over the past 24 hours, how often have you been practicing social distancing?</b> (protective behaviors measure used in regressions) Range = 1-5: Always; Very often; Sometimes; Rarely; Never</p> <p><b>In the past 24 hours have you visited any of the following places? Select all that apply.</b> Range = 0-12: Your place of work; Grocery store; Pharmacy; Other store; Restaurant; Public transportation (including bus, train, etc.); Travel (including by airplane, boat, etc.); Someone else's home or apartment; Doctor's office, hospital, or treatment center; Place of worship (church, temple, synagogue, etc.); Gym; Salon or barber shop</p>	—		<p><b>Experience status</b> (Yes/No) Coded as 'experienced' if answered 'Yes' to any of the following questions: In the past 7 days, have you experienced any symptoms associated with coronavirus; Did you test positive for coronavirus; Has anyone in your household tested positive for the coronavirus (not including you)</p>	<p><b>Experience status</b> (Yes/No) Coded as 'experienced' if answered 'Yes' to any of the following questions: Do you personally know anyone who has died from coronavirus, or not; Were any of the people you know who died from coronavirus family members or close friends</p>
2c	Knowledge about COVID-19	—	<p><b>As far as you know, (insert item) or not?</b> Range = 0-6 (1 for each correct answer); Is there a cure for coronavirus; Is there a vaccine to prevent coronavirus that has been approved by the FDA; Is it possible for children under age 18 to transmit coronavirus to other people; Does wearing a face mask help to limit the spread of coronavirus; Is wearing a face mask harmful to your health; Is Hydroxychloroquine an effective treatment for COVID-19.</p>	COVID-19 Personal Experience	<p><b>Experience status</b> (Yes/No) Coded as 'experienced' if answered 'Yes' to any of the following questions: Do you personally know anyone who has died from coronavirus, or not; Were any of the people you know who died from coronavirus family members or close friends</p>	

TABLE 2.3: Control Variables

CV	QUALTRICS (3/20/20-3/30/20)	Data Source	GALLUP (03/13/20-04/26/20)
Age	<b>Age group</b> Coded as continuous, quantitative: 18-29; 30-29; 40-49; 50-59; 60-69; 70-79; 80+ years old	<b>What is your age?</b> Coded as continuous, quantitative: Exact age as two-digit code	<b>What is your age?</b> Open-ended
Sex	<b>Sex</b> Female; Male	<b>Record respondent's sex</b> Male; Female	<b>What is your gender?</b> Male; Female
Race	<b>What's your race/ethnicity?</b> Coded as White, Black, or Other Race: Asian/Pacific Islander; Black, Non-Hispanic; Hispanic/Latinx; Interracial, Mixed Race, or Other; Native American or American Indian; White, Non-Hispanic	<b>What is your race? Are you white, black, Asian or some other race?</b> Coded as White, Black, or Other Race: White; Black or African American; Asian; Other or mixed race	<b>Which of the following describes your race? Select all that apply.</b> Coded as White, Black, or Other Race: White; Black or African American; Asian; American Indian or Alaska Native; Native Hawaiian or Pacific Islander
Income	-	<b>Last year – that is, in 2019 – what was your total family income from all sources, before taxes?</b> Coded as continuous, quantitative: Less than \$20,000; \$20,000-\$30,000; \$30,000-\$40,000; \$40,000-\$50,000; 50,000-\$75,000; \$75,000-\$90,000; \$90,000-\$100,000; \$100,000 or more	<b>What is your total annual household income before taxes?</b> Coded as continuous, quantitative: Less than \$12,000; \$12,000-\$23,999; \$24,000-\$35,999; \$36,000-\$47,999; \$48,000-\$59,999; \$60,000-\$89,999; \$90,000-\$119,999; \$120,000-\$179,999; \$180,000-\$239,999; \$240,000 and above
Education	<b>What is your highest level of education?</b> Coded as continuous, quantitative: Less than a Highschool diploma; Highschool diploma or GED; Some college; Bachelor's degree; Masters/Professional degree or above	<b>What is the highest level of school you have completed or the highest degree you have received?</b> Coded as continuous, quantitative: Less than high school; High school incomplete; High school graduate; Some college, no degree; Two-year associate degree from a college or university; Four-year college or university degree/Bachelor's degree; Some postgraduate or professional school, no postgraduate degree; Post-graduate or professional degree, including master's doctorate, medical, or law degree	<b>What is the highest level of school you have completed or the highest degree you have received?</b> Coded as continuous, quantitative: Less than a high school diploma; High school graduate; Technical, trade, vocational or business school or program after high school; Some college but no degree; Two year associate degree from a college, university or community college; Four year bachelor's degree from a college or university; Some postgraduate or professional schooling after graduating college; but no postgraduate degree; Postgraduate or professional degree including master's, doctorate medical or law degree

## Appendix B

Table 3: Qualtrics Data: Results of Regression Analyses of Risk Perception, Protective Behaviors, and COVID-19 Knowledge by Healthcare Worker Status

	<i>Dependent variable:</i>		
	Perceived Risk (1)	Protective Behaviors (2)	Knowledge about COVID-19 (3)
Healthcare Worker	1.126*** (0.085)	-0.192*** (0.068)	-0.048 (0.043)
Age	-0.117*** (0.022)	0.029* (0.018)	-0.058*** (0.011)
Male	-0.394*** (0.063)	-0.293*** (0.050)	-0.092*** (0.032)
Black	-0.404 (0.354)	0.347 (0.284)	-0.007 (0.181)
Other Race	-0.101 (0.121)	0.641*** (0.097)	-0.305*** (0.062)
Constant	5.845*** (0.092)	6.112*** (0.073)	12.364*** (0.047)
Observations	4,939	4,951	4,951
R <sup>2</sup>	0.054	0.016	0.011
Adjusted R <sup>2</sup>	0.053	0.015	0.010
Residual Std. Error	2.145 (df = 4933)	1.720 (df = 4945)	1.097 (df = 4945)
F Statistic	55.890*** (df = 5; 4933)	16.418*** (df = 5; 4945)	11.444*** (df = 5; 4945)

Note:

\*p&lt;0.1; \*\*p&lt;0.05; \*\*\*p&lt;0.01



Table 4: Qualtrics Data: Results of Regression Analyses of Risk Perception, Protective Behaviors, and COVID-19 Knowledge by Partisanship

	<i>Dependent variable:</i>		
	Perceived Risk (1)	Protective Behaviors (2)	Knowledge about COVID-19 (3)
Republican	-0.689*** (0.083)	-0.154** (0.066)	-0.145*** (0.040)
Independent	-0.158* (0.089)	-0.238*** (0.071)	-0.049 (0.043)
Age	-0.124*** (0.025)	0.039* (0.020)	-0.074*** (0.012)
Male	-0.351*** (0.071)	-0.266*** (0.056)	-0.030 (0.034)
Black	-0.458 (0.433)	0.629* (0.345)	-0.017 (0.207)
Other Race	-0.188 (0.139)	0.619*** (0.110)	-0.340*** (0.066)
Education (ordinal)	0.020 (0.035)	0.012 (0.028)	0.211*** (0.017)
Constant	6.188*** (0.170)	6.112*** (0.135)	11.732*** (0.081)
Observations	3,870	3,879	3,879
R <sup>2</sup>	0.037	0.019	0.064
Adjusted R <sup>2</sup>	0.035	0.018	0.062
Residual Std. Error	2.149 (df = 3862)	1.711 (df = 3871)	1.028 (df = 3871)
F Statistic	21.066*** (df = 7; 3862)	10.945*** (df = 7; 3871)	37.833*** (df = 7; 3871)

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table 5: Qualtrics Data: Results of Regression Analyses of Risk Perception, Protective Behaviors, and COVID-19 Knowledge by Healthcare Worker Status Among Democrats

	<i>Dependent variable:</i>		
	Risk Perception (1)	Protective Behaviors (2)	Knowledge about COVID-19 (3)
Healthcare Worker	0.787*** (0.144)	-0.163 (0.113)	-0.111 (0.068)
Age	-0.113*** (0.034)	0.028 (0.026)	-0.094*** (0.016)
Male	-0.191* (0.104)	-0.149* (0.081)	-0.030 (0.049)
Black	-0.587 (0.425)	0.687** (0.331)	-0.069 (0.200)
Other Race	-0.314* (0.184)	0.514*** (0.143)	-0.329*** (0.086)
Constant	6.074*** (0.138)	6.184*** (0.108)	12.633*** (0.065)
Observations	1,664	1,667	1,667
R <sup>2</sup>	0.030	0.012	0.028
Adjusted R <sup>2</sup>	0.027	0.009	0.025
Residual Std. Error	2.015 (df = 1658)	1.571 (df = 1661)	0.947 (df = 1661)
F Statistic	10.287*** (df = 5; 1658)	4.054*** (df = 5; 1661)	9.635*** (df = 5; 1661)

*Note:*

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table 6: Qualtrics Data: Results of Regression Analyses of Risk Perception, Protective Behaviors, and COVID-19 Knowledge by Healthcare Worker Status Among Republicans

	<i>Dependent variable:</i>		
	Risk Perception (1)	Protective Behaviors (2)	Knowledge about COVID-19 (3)
Healthcare Worker	1.363*** (0.167)	-0.088 (0.141)	0.065 (0.088)
Age	-0.120** (0.047)	0.061 (0.040)	-0.096*** (0.025)
Male	-0.322*** (0.122)	-0.398*** (0.103)	-0.042 (0.064)
Other Race	0.106 (0.316)	0.697*** (0.264)	-0.428*** (0.165)
Constant	5.304*** (0.205)	5.983*** (0.171)	12.374*** (0.108)
Observations	1,275	1,280	1,280
R <sup>2</sup>	0.068	0.019	0.018
Adjusted R <sup>2</sup>	0.065	0.016	0.015
Residual Std. Error	2.169 (df = 1270)	1.825 (df = 1275)	1.146 (df = 1275)
F Statistic	23.112*** (df = 4; 1270)	6.045*** (df = 4; 1275)	5.743*** (df = 4; 1275)

*Note:*

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table 7: Qualtrics Data: Results of Regression Analyses of Risk Perception, Protective Behaviors, and COVID-19 Knowledge by Healthcare Worker Status Among Independents

	<i>Dependent variable:</i>		
	Risk Perception	Protective Behaviors	Knowledge about COVID-19
	(1)	(2)	(3)
Healthcare Worker	1.377*** (0.203)	-0.060 (0.165)	-0.076 (0.100)
Age	-0.030 (0.053)	0.017 (0.043)	0.021 (0.026)
Male	-0.375*** (0.145)	-0.293** (0.118)	-0.128* (0.071)
Black	-0.354 (1.555)	-0.385 (1.269)	-0.139 (0.764)
Other Race	-0.195 (0.260)	0.719*** (0.212)	-0.296** (0.128)
Constant	5.586*** (0.211)	6.006*** (0.171)	12.172*** (0.103)
Observations	931	932	932
R <sup>2</sup>	0.061	0.019	0.010
Adjusted R <sup>2</sup>	0.056	0.014	0.005
Residual Std. Error	2.191 (df = 925)	1.788 (df = 926)	1.077 (df = 926)
F Statistic	12.114*** (df = 5; 925)	3.558*** (df = 5; 926)	1.927* (df = 5; 926)

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table 8: Qualtrics Data: Results of Regression Analyses of Risk Perception, Protective Behaviors, and COVID-19 Knowledge by Partisanship Among Healthcare Workers

	<i>Dependent variable:</i>		
	Risk Perception	Protective Behaviors	Knowledge about COVID-19
	(1)	(2)	(3)
Republican	-0.197 (0.219)	-0.128 (0.171)	0.022 (0.102)
Independent	0.312 (0.238)	-0.126 (0.187)	-0.025 (0.111)
Age	-0.138* (0.073)	0.120** (0.057)	-0.061* (0.034)
Male	-0.010 (0.195)	-0.118 (0.152)	0.052 (0.091)
Black	0.001 (0.908)	1.371* (0.712)	0.775* (0.425)
Other Race	-0.638* (0.354)	0.757*** (0.277)	-0.156 (0.165)
Education (ordinal)	0.122 (0.099)	-0.115 (0.077)	0.197*** (0.046)
Constant	6.437*** (0.458)	6.112*** (0.359)	11.585*** (0.214)
Observations	576	576	576
R <sup>2</sup>	0.023	0.031	0.041
Adjusted R <sup>2</sup>	0.011	0.019	0.029
Residual Std. Error (df = 568)	2.189	1.715	1.023
F Statistic (df = 7; 568)	1.906*	2.623**	3.439***

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table 9: Qualtrics Data: Results of Regression Analyses of Risk Perception, Protective Behaviors, and COVID-19 Knowledge by Partisanship Among Non-Healthcare Workers

	<i>Dependent variable:</i>		
	Risk Perception (1)	Protective Behaviors (2)	Knowledge about COVID-19 (3)
Republican	-0.828*** (0.088)	-0.152** (0.072)	-0.171*** (0.043)
Independent	-0.264*** (0.094)	-0.249*** (0.077)	-0.047 (0.046)
Age	-0.090*** (0.026)	0.024 (0.021)	-0.078*** (0.013)
Male	-0.322*** (0.075)	-0.293*** (0.061)	-0.044 (0.037)
Black	-0.682 (0.485)	0.399 (0.395)	-0.249 (0.238)
Other Race	-0.106 (0.148)	0.599*** (0.120)	-0.374*** (0.072)
Education (ordinal)	0.001 (0.036)	0.029 (0.030)	0.212*** (0.018)
Constant	6.020*** (0.179)	6.132*** (0.146)	11.764*** (0.088)
Observations	3,294	3,303	3,303
R <sup>2</sup>	0.042	0.020	0.071
Adjusted R <sup>2</sup>	0.040	0.018	0.069
Residual Std. Error	2.095 (df = 3286)	1.709 (df = 3295)	1.028 (df = 3295)
F Statistic	20.585*** (df = 7; 3286)	9.636*** (df = 7; 3295)	35.999*** (df = 7; 3295)

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table 10: KFF Data: Results of Regression Analyses of Risk Perception by Healthcare Worker or Experience Status

	<i>Dependent variable:</i>	
	Risk Perception	
	(1)	(2)
Healthcare Worker	0.033 (0.076)	
Experienced		0.059 (0.040)
Age	0.002* (0.001)	0.001 (0.001)
Male	-0.154*** (0.035)	-0.145*** (0.035)
Black	0.178*** (0.054)	0.166*** (0.055)
Other Race	0.025 (0.055)	0.017 (0.055)
Income (ordinal)	-0.013* (0.007)	-0.027*** (0.008)
Education (ordinal)		0.032*** (0.010)
Constant	0.560*** (0.073)	0.459*** (0.079)
Observations	813	814
R <sup>2</sup>	0.052	0.068
Adjusted R <sup>2</sup>	0.045	0.060
Residual Std. Error (df = 806)	0.488	0.485
F Statistic	7.427*** (df = 6; 806)	8.427*** (df = 7; 806)

*Note:*

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table 11: KFF Data: Results of Regression Analyses of COVID-19 Knowledge by Healthcare Worker or Experience Status

	<i>Dependent variable:</i>	
	COVID-19 Knowledge	
	(1)	(2)
Healthcare Worker	0.120 (0.188)	
Experienced		0.326*** (0.094)
Age	-0.0001 (0.002)	-0.001 (0.002)
Male	-0.288*** (0.087)	-0.245*** (0.083)
Black	0.211 (0.143)	0.138 (0.139)
Other Race	-0.028 (0.136)	-0.075 (0.130)
Income (ordinal)	0.056*** (0.018)	-0.009 (0.019)
Education (ordinal)		0.158*** (0.024)
Constant	5.021*** (0.183)	4.509*** (0.189)
Observations	795	796
R <sup>2</sup>	0.026	0.097
Adjusted R <sup>2</sup>	0.019	0.089
Residual Std. Error (df = 788)	1.182	1.139
F Statistic	3.549*** (df = 6; 788)	12.028*** (df = 7; 788)

*Note:*

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01



Table 12: KFF Data: Results of Regression Analyses of Risk Perception and COVID-19 Knowledge by Partisanship

	<i>Dependent variable:</i>	
	Risk Perception	COVID-19 Knowledge
	(1)	(2)
Republican	-0.494*** (0.045)	-1.316*** (0.103)
Independent	-0.142*** (0.039)	-0.490*** (0.091)
Age	0.002*** (0.001)	-0.001 (0.002)
Male	-0.092*** (0.034)	-0.088 (0.079)
Black	0.053 (0.054)	-0.211 (0.132)
Other	-0.029 (0.053)	-0.206* (0.122)
Income (ordinal)	-0.013* (0.008)	0.015 (0.018)
Education (ordinal)	0.013 (0.010)	0.116*** (0.023)
Constant	0.605*** (0.081)	5.169*** (0.191)
Observations	766	750
R <sup>2</sup>	0.195	0.255
Adjusted R <sup>2</sup>	0.187	0.247
Residual Std. Error	0.451 (df = 757)	1.026 (df = 741)
F Statistic	22.947*** (df = 8; 757)	31.732*** (df = 8; 741)

*Note:*

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table 13: KFF Data: Results of Regression Analyses of Risk Perception and COVID-19 Knowledge by Partisanship Among Healthcare Workers

	<i>Dependent variable:</i>	
	Risk Perception	Knowledge about COVID-19
	(1)	(2)
Republican	-0.642*** (0.232)	-0.230 (0.263)
Independent	-0.284* (0.164)	0.092 (0.203)
Age	0.007 (0.005)	-0.010 (0.006)
Male	-0.098 (0.166)	-0.063 (0.204)
Black	-0.134 (0.212)	-0.070 (0.251)
Other Race	0.021 (0.303)	0.350 (0.344)
Income (ordinal)	0.020 (0.040)	0.066 (0.049)
Education (ordinal)	-0.091 (0.056)	-0.015 (0.068)
Constant	0.950** (0.350)	2.973*** (0.444)
Observations	42	51
R <sup>2</sup>	0.286	0.164
Adjusted R <sup>2</sup>	0.112	0.004
Residual Std. Error	0.468 (df = 33)	0.632 (df = 42)
F Statistic	1.649 (df = 8; 33)	1.027 (df = 8; 42)

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table 14: KFF Data: Results of Regression Analyses of Risk Perception and COVID-19 Knowledge by Partisanship Among Experienced

	<i>Dependent variable:</i>	
	Risk Perception	COVID-19 Knowledge
	(1)	(2)
Republican	-0.470*** (0.111)	-0.178 (0.135)
Independent	-0.095 (0.074)	-0.042 (0.094)
Age	0.004** (0.002)	-0.001 (0.003)
Male	-0.131* (0.069)	0.131 (0.088)
Black	-0.051 (0.090)	-0.015 (0.113)
Other Race	0.023 (0.100)	-0.100 (0.119)
Income (ordinal)	0.002 (0.016)	0.003 (0.020)
Education (ordinal)	-0.016 (0.020)	0.043* (0.025)
Constant	0.604*** (0.169)	2.652*** (0.211)
Observations	208	244
R <sup>2</sup>	0.131	0.039
Adjusted R <sup>2</sup>	0.096	0.006
Residual Std. Error	0.469 (df = 199)	0.639 (df = 235)
F Statistic	3.735*** (df = 8; 199)	1.186 (df = 8; 235)

*Note:*

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table 15: KFF Data: Results of Regression Analyses of Risk Perception and COVID-19 Knowledge by Partisanship Among Non-Experienced

	<i>Dependent variable:</i>	
	Risk Perception (1)	Knowledge (2)
Republican	-0.495*** (0.050)	-0.190*** (0.067)
Independent	-0.154*** (0.046)	-0.113* (0.063)
Age	0.002* (0.001)	-0.004** (0.001)
Male	-0.087** (0.040)	-0.055 (0.053)
Black	0.131* (0.069)	-0.005 (0.095)
Other Race	-0.053 (0.064)	-0.134 (0.083)
Income (ordinal)	-0.018** (0.009)	0.018 (0.012)
Education (ordinal)	0.022* (0.012)	0.049*** (0.015)
Constant	0.606*** (0.093)	2.722*** (0.127)
Observations	558	729
R <sup>2</sup>	0.222	0.055
Adjusted R <sup>2</sup>	0.211	0.044
Residual Std. Error	0.444 (df = 549)	0.681 (df = 720)
F Statistic	19.626*** (df = 8; 549)	5.211*** (df = 8; 720)

*Note:*

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table 16: Gallup Data: Results of Regression Analyses of Risk Perception and Protective Behaviors by Partisanship and Experience Status

	<i>Dependent variable:</i>	
	Risk Perception	Protective Behaviors
	(1)	(2)
Experienced	0.088 (0.129)	0.112* (0.059)
Republican	-3.092*** (0.128)	-0.543*** (0.057)
Independent	-0.984*** (0.124)	-0.188*** (0.056)
Age	-0.007** (0.003)	0.009*** (0.002)
Male	-0.332*** (0.103)	-0.138*** (0.047)
Black	0.402 (0.474)	-0.334 (0.214)
Other Race	0.136 (0.146)	0.145** (0.066)
Income (ordinal)	-0.031 (0.026)	-0.010 (0.012)
Education (ordinal)	0.056* (0.030)	0.032** (0.013)
Constant	9.886*** (0.308)	3.904*** (0.141)
Observations	1,173	1,348
R <sup>2</sup>	0.388	0.109
Adjusted R <sup>2</sup>	0.383	0.103
Residual Std. Error	1.690 (df = 1163)	0.820 (df = 1338)
F Statistic	81.944*** (df = 9; 1163)	18.214*** (df = 9; 1338)

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table 17: Gallup Data: Results of Regression Analyses of Risk Perception and Protective Behaviors by Partisanship Among Experienced

	<i>Dependent variable:</i>	
	Risk Perception	Protective Behaviors
	(1)	(2)
Republican	-2.285*** (0.330)	-0.363** (0.148)
Independent	-0.707** (0.316)	-0.272* (0.145)
Age	-0.012 (0.009)	0.007* (0.004)
Male	-0.362 (0.265)	-0.187 (0.121)
Black	1.175 (0.924)	0.222 (0.416)
Other Race	0.368 (0.299)	0.195 (0.141)
Income (ordinal)	-0.124* (0.064)	-0.021 (0.030)
Education (ordinal)	0.091 (0.080)	0.039 (0.036)
Constant	10.373*** (0.712)	4.159*** (0.329)
Observations	216	248
R <sup>2</sup>	0.309	0.083
Adjusted R <sup>2</sup>	0.282	0.052
Residual Std. Error	1.781 (df = 207)	0.886 (df = 239)
F Statistic	11.548*** (df = 8; 207)	2.706*** (df = 8; 239)

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table 18: Gallup Data: Results of Regression Analyses of Risk Perception and Protective Behaviors by Experience Status Among Republicans

	<i>Dependent variable:</i>	
	Risk Perception	Protective Behaviors
	(1)	(2)
Experienced	0.690** (0.330)	0.289** (0.137)
Age	0.003 (0.010)	0.015*** (0.004)
Male	-0.680** (0.275)	-0.425*** (0.115)
Black	1.470 (1.256)	0.268 (0.586)
Other Race	1.273** (0.550)	0.512** (0.236)
Income (ordinal)	-0.074 (0.070)	-0.019 (0.029)
Education (ordinal)	0.136** (0.068)	0.068** (0.029)
Constant	6.086*** (0.824)	3.060*** (0.341)
Observations	279	349
R <sup>2</sup>	0.070	0.091
Adjusted R <sup>2</sup>	0.046	0.072
Residual Std. Error	2.109 (df = 271)	0.990 (df = 341)
F Statistic	2.936*** (df = 7; 271)	4.850*** (df = 7; 341)

*Note:*

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

## References

- Abramowitz, Alan I., and Kyle L. Saunders. 2006. "Political Engagement and Polarization in the American Electorate." *Conference Papers -- Western Political Science Association*: 1–17.
- . 2008. "Is Polarization a Myth?" *The Journal of Politics* 70(2): 542–55.
- Abramowitz, Alan I., and Steven Webster. 2016. "The Rise of Negative Partisanship and the Nationalization of U.S. Elections in the 21st Century." *Electoral Studies* 41: 12–22.
- Abramowitz, Alan I., and Steven W. Webster. 2018. "Negative Partisanship: Why Americans Dislike Parties But Behave Like Rabid Partisans." *Political Psychology* 39(S1): 119–35.
- Adolph, Christopher et al. 2020. "Pandemic Politics: Timing State-Level Social Distancing Responses to COVID-19." *medRxiv*: 2020.03.30.20046326.
- Ahmed, Naema. "More than 4 in 10 Health-Care Workers Have Not Been Vaccinated, Post-KFF Poll Finds." *Washington Post*.  
<https://www.washingtonpost.com/health/2021/03/19/health-workers-covid-vaccine/>  
(March 21, 2021).
- Allasan, Fadel. "Poll: 51% of Republicans Trust Trump on Coronavirus More than the CDC." *Axios*. <https://www.axios.com/coronavirus-trump-cdc-poll-fd7df7c3-5808-4f1a-996a-f9ef37accb48.html> (October 20, 2020).
- Altheide, David L. 2020. "Pandemic in the Time of Trump: Digital Media Logic and Deadly Politics." *Symbolic Interaction* 43(3): 514–40.
- Baum, Matthew A. 2011. "Red State, Blue State, Flu State: Media Self-Selection and Partisan Gaps in Swine Flu Vaccinations." *Journal of Health Politics, Policy and Law* 36(6): 1021–59.



- Boxell, Levi, Matthew Gentzkow, and Jesse M. Shapiro. 2020. *Cross-Country Trends in Affective Polarization*. Rochester, NY: Social Science Research Network. SSRN Scholarly Paper. <https://papers.ssrn.com/abstract=3522318> (October 20, 2020).
- Brulle, Robert, Jason Carmichael, and J. Jenkins. 2012. "Shifting Public Opinion on Climate Change: An Empirical Assessment of Factors Influencing Concern over Climate Change in the U.S., 2002–2010." *Climatic Change* 114(2): 169–88.
- Calvillo, Dustin P. et al. 2020a. "Political Ideology Predicts Perceptions of the Threat of COVID-19 (and Susceptibility to Fake News About It)." *Social Psychological and Personality Science*: 1948550620940539.
- . 2020b. "Political Ideology Predicts Perceptions of the Threat of COVID-19 (and Susceptibility to Fake News About It)." *Social Psychological and Personality Science*: 1948550620940539.
- Chakraborty, Indranil, and Prasenjit Maity. 2020. "COVID-19 Outbreak: Migration, Effects on Society, Global Environment and Prevention." *Science of The Total Environment* 728: 138882.
- Clinton, Joshua, Jon Cohen, John S. Lapinski, and Marc Trussler. 2020. *Partisan Pandemic: How Partisanship and Public Health Concerns Affect Individuals' Social Distancing During COVID-19*. Rochester, NY: Social Science Research Network. SSRN Scholarly Paper. <https://papers.ssrn.com/abstract=3633934> (September 30, 2020).
- Darmofal, David. 2016. "Elite Cues and Citizen Disagreement with Expert Opinion." *Political Research Quarterly*. <https://journals.sagepub.com/doi/10.1177/106591290505800302> (October 23, 2020).

Gentzkow, Matthew. "Polarization in 2016." *Stanford University*.

<https://web.stanford.edu/~gentzkow/research/PolarizationIn2016.pdf>.

Green, Jon et al. 2020. "Elusive Consensus: Polarization in Elite Communication on the COVID-19 Pandemic." *Science Advances* 6(28): eabc2717.

Grossman, Guy, Soojong Kim, Jonah Rexer, and Harsha Thirumurthy. 2020. *Political Partisanship Influences Behavioral Responses to Governors' Recommendations for COVID-19 Prevention in the United States*. Rochester, NY: Social Science Research Network. SSRN Scholarly Paper. <https://papers.ssrn.com/abstract=3578695> (September 30, 2020).

van Holm, Eric Joseph et al. 2020. *The Impact of Political Ideology on Concern and Behavior During COVID-19*. Rochester, NY: Social Science Research Network. SSRN Scholarly Paper. <https://papers.ssrn.com/abstract=3573224> (September 30, 2020).

Holm, Van, and Eric Joseph. 2020. *The Role of Partisanship, Circumstances, and Action on Citizen Views of Government Effectiveness during the Initial COVID-19 Response*. Rochester, NY: Social Science Research Network. SSRN Scholarly Paper. <https://papers.ssrn.com/abstract=3594967> (September 30, 2020).

Jurkowitz, Mark, Amy Mitchell, Elisa Shearer, and Mason Walker. 2020. "1. Democrats Report Much Higher Levels of Trust in a Number of News Sources than Republicans." *Pew Research Center's Journalism Project*. <https://www.journalism.org/2020/01/24/democrats-report-much-higher-levels-of-trust-in-a-number-of-news-sources-than-republicans/> (October 23, 2020).

Kushner Gadarian, Shana, Sara Wallace Goodman, and Thomas B. Pepinsky. 2020a. *Partisan Endorsement Experiments Do Not Affect Mass Opinion on COVID-19*. Rochester, NY:

- Social Science Research Network. SSRN Scholarly Paper.  
<https://papers.ssrn.com/abstract=3574605> (September 30, 2020).
- . 2020b. *Partisanship, Health Behavior, and Policy Attitudes in the Early Stages of the COVID-19 Pandemic*. Rochester, NY: Social Science Research Network. SSRN Scholarly Paper. <https://papers.ssrn.com/abstract=3562796> (September 30, 2020).
- Lenz, Gabriel S. *Follow the Leader?*  
<https://press.uchicago.edu/ucp/books/book/chicago/F/bo11644533.html> (October 23, 2020).
- Lipsitz, Keena, and Grigore Pop-Eleches. 2020. *The Partisan Divide in Social Distancing*. Rochester, NY: Social Science Research Network. SSRN Scholarly Paper.  
<https://papers.ssrn.com/abstract=3595695> (September 30, 2020).
- Lupia/McCubbins. 2008. *The Democratic Dilemma:Lupia*. Cambridge, U.K. ; New York: Cambridge University Press.
- Milosh, Maria, Marcus Painter, David Van Dijcke, and Austin L. Wright. 2020. *Unmasking Partisanship: How Polarization Influences Public Responses to Collective Risk*. Rochester, NY: Social Science Research Network. SSRN Scholarly Paper.  
<https://papers.ssrn.com/abstract=3664779> (September 30, 2020).
- Nikolov, Plamen, Andreas Pape, Ozlem Tonguc, and Charlotte Williams. 2020. "Predictors of Social Distancing and Mask-Wearing Behavior: Panel Survey in Seven U.S. States." : 43.
- NW, 1615 L. St, Suite 800 Washington, and DC 20036 USA 202-419-4300 | Main 202-857-8562 | Fax 202-419-4372 | Media Inquiries. 2014. "Political Polarization and Personal Life." *Pew Research Center - U.S. Politics & Policy*.

- <https://www.pewresearch.org/politics/2014/06/12/section-3-political-polarization-and-personal-life/> (October 23, 2020).
- . 2015. “Politics and Science: What Americans Think.” *Pew Research Center Science & Society*. <https://www.pewresearch.org/science/2015/07/01/americans-politics-and-science-issues/> (October 23, 2020).
- . 2019. “Public Trust in Government: 1958-2019.” *Pew Research Center - U.S. Politics & Policy*. <https://www.pewresearch.org/politics/2019/04/11/public-trust-in-government-1958-2019/> (October 23, 2020).
- . 2020a. “Americans’ Views of Government: Low Trust, but Some Positive Performance Ratings.” *Pew Research Center - U.S. Politics & Policy*. <https://www.pewresearch.org/politics/2020/09/14/americans-views-of-government-low-trust-but-some-positive-performance-ratings/> (October 23, 2020).
- . 2020b. “Partisan Differences Over the Pandemic Response Are Growing.” *Pew Research Center Science & Society*. <https://www.pewresearch.org/science/2020/06/03/partisan-differences-over-the-pandemic-response-are-growing/> (October 22, 2020).
- . “How Highly Religious Americans View Evolution Depends on How They’re Asked about It.” *Pew Research Center*. <https://www.pewresearch.org/fact-tank/2019/02/06/how-highly-religious-americans-view-evolution-depends-on-how-theyre-asked-about-it/> (October 23, 2020a).
- . “Majority of Americans Disapprove of Trump’s COVID-19 Messaging, Though Large Partisan Gaps Persist.” *Pew Research Center*. <https://www.pewresearch.org/fact-tank/2020/09/15/majority-of-americans-disapprove-of-trumps-covid-19-messaging->

though-large-partisan-gaps-persist/ (October 20, 2020b).

———. “Most Americans Expect a COVID-19 Vaccine within a Year; 72% Say They Would Get Vaccinated.” *Pew Research Center*. <https://www.pewresearch.org/fact-tank/2020/05/21/most-americans-expect-a-covid-19-vaccine-within-a-year-72-say-they-would-get-vaccinated/> (October 20, 2020c).

———. “Nearly Three-in-Ten Americans Believe COVID-19 Was Made in a Lab.” *Pew Research Center*. <https://www.pewresearch.org/fact-tank/2020/04/08/nearly-three-in-ten-americans-believe-covid-19-was-made-in-a-lab/> (October 23, 2020d).

———. “Republicans’ Views on Evolution.” *Pew Research Center*. <https://www.pewresearch.org/fact-tank/2014/01/03/republican-views-on-evolution-tracking-how-its-changed/> (October 23, 2020e).

Painter, Marcus, and Tian Qiu. 2020. *Political Beliefs Affect Compliance with COVID-19 Social Distancing Orders*. Rochester, NY: Social Science Research Network. SSRN Scholarly Paper. <https://papers.ssrn.com/abstract=3569098> (September 30, 2020).

Pennycook, Gordon et al. 2020. “Fighting COVID-19 Misinformation on Social Media: Experimental Evidence for a Scalable Accuracy-Nudge Intervention.” *Psychological Science* 31(7): 770–80.

Perry, Samuel L., Andrew L. Whitehead, and Joshua B. Grubbs. 2020. “Culture Wars and COVID-19 Conduct: Christian Nationalism, Religiosity, and Americans’ Behavior During the Coronavirus Pandemic.” *Journal for the Scientific Study of Religion* 59(3): 405–16.

Pew Research Center. 2014. “Political Polarization in the American Public.” *Pew Research Center - U.S. Politics & Policy*.

<https://www.pewresearch.org/politics/2014/06/12/political-polarization-in-the-american-public/> (October 20, 2020).

Pickup, Mark, Dominik Stecula, and Clifton van der Linden. 2020. "Novel Coronavirus, Old Partisanship: COVID-19 Attitudes and Behaviours in the United States and Canada." *Canadian Journal of Political Science/Revue canadienne de science politique* 53(2): 357–64.

"Polarization and Public Health: Partisan Differences in Social Distancing during the Coronavirus Pandemic | SIEPR." <https://siepr.stanford.edu/research/publications/polarization-and-public-health-partisan-differences-social-distancing-during> (September 30, 2020).

Popkin, Samuel L. *The Reasoning Voter*.

<https://press.uchicago.edu/ucp/books/book/chicago/R/bo3636475.html> (October 23, 2020).

Press, The Associated. 2020. "Trump Calls Fauci a 'Disaster,' Mocks Biden for Listening to Scientists." *Syracuse*. <https://www.syracuse.com/us-news/2020/10/trump-calls-fauci-a-disaster-mocks-biden-for-listening-to-scientists.html> (November 22, 2020).

Singer, Phillip M., Charley E. Willison, and Scott L. Greer. 2020. "Infectious Disease, Public Health, and Politics: United States Response to Ebola and Zika." *Journal of Public Health Policy*: 1–11.

"Survey Shows That Physicians Are More Religious than Expected."

<https://www.uchicagomedicine.org/forefront/news/survey-shows-that-physicians-are-more-religious-than-expected> (October 23, 2020).

"The Real Cost of Political Polarization: Evidence from the COVID-19 Pandemic by Christos

Makridis, Jonathan T. Rothwell :: SSRN."

[https://papers.ssrn.com/sol3/Papers.cfm?abstract\\_id=3638373](https://papers.ssrn.com/sol3/Papers.cfm?abstract_id=3638373) (September 30, 2020).

"The Rise of Negative Partisanship and the Nationalization of U.S. Elections in the 21st Century  
| Elsevier Enhanced Reader."

<https://reader.elsevier.com/reader/sd/pii/S0261379415001857?token=C8C273CF5C9FA5C596F85FD870CD7529921AB5B9A3F528F2BB4363B2105292F63348182CF63C41252B3119B37F941FC0> (October 20, 2020).

Wexler, Adam, Allison Valentine Published: Dec 11, and 2015. 2015. "The U.S. Response to Ebola: Status of the FY2015 Emergency Ebola Appropriation." *KFF*.

<https://www.kff.org/global-health-policy/issue-brief/the-u-s-response-to-ebola-status-of-the-fy2015-emergency-ebola-appropriation/> (October 20, 2020).

Yamey, Gavin, and Gregg Gonsalves. 2020. "Donald Trump: A Political Determinant of Covid-19." *BMJ* 369. <https://www.bmj.com/content/369/bmj.m1643> (October 14, 2020).

Zaller, John R. 1992. *The Nature and Origins of Mass Opinion*. 1st Edition. Cambridge England ; New York, NY, USA: Cambridge University Press.