

## Emotional Reactions to COVID-19 Projections and Consequences for Protective Policies and Personal Behavior

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*How does the public react to information about the likely progression of COVID-19 cases in the United States? How do these reactions vary over the course of the pandemic and by partisanship, and with what consequences for policy attitudes and personal behavior? We argue that reading projections about the peak of COVID-19 cases in the United States is likely to lead to increased levels of anxiety and sadness. We expect that these effects will be more pronounced and less polarized along partisan lines earlier in the pandemic. Finally, we expect that elevated anxiety and sadness should in turn lead to greater support for protective policies to combat the pandemic and a greater inclination to engage in protective behaviors. To test these arguments, we fielded online survey experiments at three points in time (April, June, and August 2020), in which respondents were randomly assigned to a control group or one of two projections about the likely progression of COVID-19 cases in the United States. Across all three waves, we find that exposure to information about case peaks increases anxiety and sadness, though the effects get weaker over time, particularly among Republicans. We also find evidence that these elevated emotional responses increase support for protective policies and behavior.*

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As COVID-19 cases began spreading across the globe in 2020, many countries adopted some form of lockdown, closing schools, businesses, entertainment venues, and public spaces. By early April, public health experts were recommending that people wear face coverings when in indoor spaces or outside when closer than 6 feet (Molteni & Rogers, 2020). These types of measures were widely adopted in many countries to limit the spread of SARS-CoV-2 (COVID-19; Johnson et al., 2020). More broadly, whether through instituting seat belt laws, campaigns to reduce smoking, or other public health campaigns, public health measures are a consistent part of government policy.

But the effectiveness of any such measure depends on the public's support for and willingness to comply with the policy. When public health measures such as mask mandates are imposed to fight the COVID-19 pandemic but are poorly enforced or followed among the public, their effectiveness will be minimal. We have seen this play out quite clearly in the U.S. context, where measures such as mask mandates have become politicized, even though mask use is considered one effective tool to help prevent the spread of COVID-19. It is therefore essential to understand the factors that motivate individuals to engage in protective behaviors and to support protective policies during a public health threat.

Existing scholarship suggests that certain groups, such as Republicans, men, and the highly religious, are less likely to engage in protective behaviors or to support policies to address the pandemic than women and older individuals (Allcott et al., 2020; Cassino & Besen-Cassino, 2020; DeMora et al., 2021; Gadarian et al., 2021; Haischer et al., 2020; Painter & Qiu, 2020). It is not entirely clear, though, what is underlying these associations or how people are reacting to the broader information environment about COVID-19, especially with respect to scientific information about the virus.

Drawing from work in social and political psychology, we argue that one mechanism that may lead people to engage in protective behaviors and support protective policies is emotional reactions to information about the spread of COVID-19. More specifically, reading scientific information about projections of rising COVID cases should generate feelings of anxiety and sadness, emotions that incline people toward protective behaviors (Albertson & Gadarian, 2015; Coan et al., 2020). While a great deal of work in political science has explored the role of anxiety in politics, very little scholarship has examined the emotion of sadness in a political context. We also contend that this type of information should generate stronger emotional reactions early in the pandemic given higher levels of uncertainty about the virus. Finally, we consider how exposure to such information interacts with partisanship. Democrats and Republicans may react differently to reading scientific information about the pandemic, especially at later time points as the pandemic became increasingly politicized (Albertson & Gadarian, 2015).

We test these expectations using original survey experiments fielded in three waves during the early stages of the pandemic: April, June, and August 2020. Because the scope of the COVID-19 crisis and how it would unfold over the coming months was uncertain, we embedded an experiment in which respondents were randomly assigned to a control group or treatments highlighting projections of the likely peak in cases. We find exposure to scientific projections about rising COVID-19 cases increases feelings of anxiety and sadness, most strongly earlier in the pandemic. Even in an era of high partisan polarization, we find that partisans have similar emotional reactions early in the pandemic, and it is not until later in the summer of 2020 that Republicans become less affected by information. These emotional reactions are consequential. Elevated feelings of anxiety and sadness lead to a greater intention to engage in behaviors and support policies aimed at mitigating the pandemic. These findings shed light on the conditions under which individuals will be more inclined

to comply with public health measures and add to the large body of literature showing that different emotional reactions to the information environment can affect political attitudes and behavior in distinct ways.

### Existing Understandings of Public Support for Protective Behaviors and Policies

Existing research has explored characteristics that are associated with engaging in protective behaviors like mask wearing during the pandemic or supporting policies to combat it. Men are less likely to wear a mask or support protective policies to deal with COVID-19 compared to women (Cassino & Besen-Cassino, 2020). White evangelicals also show less support for wearing masks, and a majority does not support mask mandates (DeMora et al., 2021).

One of the biggest differences to emerge with respect to support for protective behaviors and policies has been with respect to partisanship. Republicans downplay the threat of COVID-19, are less worried about contracting COVID-19, are less likely to engage in protective behaviors, and are less likely to think that protective behaviors like mask wearing and social distancing are effective (Allcott et al., 2020; Gadarian et al., 2021). These patterns have also been observed with behavioral data. Areas with more Republicans exhibit lower levels of social distancing compared to areas with more Democrats (Allcott et al., 2020), and Democrats are more likely to comply with stay-at-home orders and engage in social distancing behaviors (Grossman et al., 2020; Painter & Qiu, 2020).

Partisanship has been shown to not only be associated with levels of concern and protective behavior but also with support for policies to address the pandemic. Democrats have been more supportive of the government providing free COVID-19 testing and treatment, supporting workers, and closing schools and public events (Gadarian et al., 2021), as well as vote-by-mail policies during the 2020 election (Lockhart et al., 2020). However, it is not always clear from existing scholarship what is underlying these associations, and most of these studies do not examine the ways in which these groups are reacting to particular features of the information environment around COVID-19.<sup>1</sup>

Existing scholarship on prior public health threats suggests that “the way a new health issue emerges into media discourse has consequences for the public’s response, likely for the long term” (Gollust et al., 2020, p. 968). This is particularly important for public health threats that are novel, as in COVID-19, where individuals will be looking for information to understand the threat (Sol Hart et al., 2020). Public health communication is likely to be more effective when messaging is uniform among scientific and political elites (Gollust et al., 2020). When health threats become politicized and polarized, as in the case of the COVID-19 pandemic, individuals are more likely to evaluate information about the issue through a partisan lens (Albertson & Gadarian, 2015; Fowler & Gollust, 2015), which can have consequences for policy support.

Some existing work on COVID-19 has looked at communication in the media and possible effects on public attitudes. Coverage in mainstream press outlets early in the pandemic became increasingly politicized over time, with more coverage of political elites in news articles than of scientists, whereas politicization was lower in network news (Sol Hart et al., 2020). Right-leaning news sources were more likely to disseminate misinformation about COVID-19, and individuals

<sup>1</sup>Scholars have also explored how other attitudinal dispositions influence support for protective behaviors and protective policies (see, e.g., Djupe & Burge, 2020; Reny, 2020; Reny & Barreto, 2020).

who reported consuming such information were more likely to believe misinformation (Motta et al., 2020), whereas individuals who reported consuming mainstream media had more correct perceptions about COVID-19 and infection prevention (Jamieson & Albarracin, 2020). The politicization and polarization of media coverage of COVID-19 likely undergird the resistance of some members of the public to protective behaviors and policies (Sol Hart et al., 2020).

But how might information increase the likelihood of engaging in protective behaviors? Encouragement from political elites and scientists is one important tool to encourage such behaviors. Grossman et al. (2020) found that governors' communications encouraging protective behaviors decreased citizen mobility even before the issuance of stay-at-home orders and was more effective in Democratic-leaning counties. Less work has examined the effects of the presentation of scientific information related to COVID-19. This is an important area to consider, especially given that the public is most likely to trust information coming from scientists during a pandemic, considering their high levels of expertise (Albertson & Gadarian, 2015). Here, we explore how the public reacts to scientific information about the projected peak in COVID-19 cases, which were rising at the time of our studies and were widely reported in the news. More specifically, we explore how the public reacts emotionally to such information, since emotional reactions play an important role in motivating protective behavior during times of threat, including public health threats (Albertson & Gadarian, 2015; Brader, 2006; Marcus et al., 2000; Merolla & Zechmeister, 2009). As we elaborate on in the next section, we consider how these reactions vary over time and by party identification, and with what consequences for behavior and attitudes.

### Threats, Emotional Reactions, and Policy Preferences

Over the last several decades, scholars have demonstrated that when threats are salient in the political information environment, they evoke a range of negative emotions (Brader, 2006; Conover & Feldman, 1986; Marcus et al., 2000; Merolla & Zechmeister, 2018). The particular negative emotions experienced, and the degree to which they are experienced, depends on the nature of the threat, the way information about the threat is conveyed to the public, and characteristics of the individual. Negative emotions that individuals experience can influence the types of policies that they support to address the threat, including protective policies.

One framework that is useful for understanding the mix of emotions that individuals may experience when threat is salient in the political environment is cognitive appraisal theory. This theory considers how emotions are expressed, considered, and ultimately influence evaluations and behavior depending on how people appraise their environment along multiple dimensions, including "certainty, pleasantness, attentional activity, control, anticipated effort, and responsibility" (Lerner & Tiedens, 2006, p. 117; also see Lazarus, 1991; Smith & Ellsworth, 1985). A context of threat that broadly affects the polity is likely to be unpleasant, be caused by something outside of the individual, and involve a high degree of effort to deal with the situation, which can lead to a range of negative emotions, such as fear, anger, sadness, and disgust (Smith & Ellsworth, 1985).

Which of these emotions is more dominant will depend on secondary appraisals.<sup>2</sup> Individuals are more likely to experience anxiety/fear<sup>3</sup> when an unpleasant context is higher in uncertainty, when they feel little control, when their attention is more attuned to the stimulus, and when they are not necessarily sure where to place blame for the situation (Carver, 2004; Harmon-Jones et al., 2009; Lazarus, 1991; Lerner & Keltner, 2000; Lerner &

<sup>2</sup>As Albertson and Gadarian (2015, pp. 7–8) write, "this appraisal process does not need to occur consciously."

<sup>3</sup>We use *anxiety* and *fear* interchangeably throughout.

Tiedens, 2006; Smith & Ellsworth, 1985). Those who experience similar appraisals of high uncertainty, feel as if a situation is uncontrollable and attribute the context to situational factors, but are not personally threatened and want to divert their attention away from the threat, may be more likely to experience sadness, an emotion linked to loss, in particular the death of a loved one or events that have already occurred (Small & Lerner, 2008; Smith & Ellsworth, 1985). Individuals are instead more likely to experience anger when their sense of an unpleasant environment is associated with less uncertainty, a sense that someone or something is to blame for the unpleasant situation, when they are attuned to the threat, and when they feel as if they have greater control (Carver, 2004; Harmon-Jones et al., 2009; Lazarus, 1991; Lerner & Keltner, 2000; Lerner & Tiedens, 2006). The appraisals associated with disgust are similar, though individuals are more likely to experience disgust when they want to divert their attention away from the threat (Smith & Ellsworth, 1985), which is more likely when they face a threat that may be a contaminant (Kam & Estes, 2016).

In applying this theory to the early period of a public health threat, all four of these emotions may be relevant. Members of the public who experience a great deal of uncertainty, feel as if they have little control, and are not clear who to blame (since the main culprit is a pathogen) are likely to experience elevated anxiety and fear, especially if their attention is tuned in to the threat (Albertson & Gadarian, 2015). Studies of other health threats have found elevated levels of anxiety in reaction to such threats (Albertson & Gadarian, 2015), including with respect to COVID-19 (Gadarian et al., 2021; Remy & Barreto, 2020). Others with these types of appraisals, who may not feel personally threatened, may blame external factors, and think of those who have lost their lives to COVID, may experience sadness. Individuals may also experience disgust if they are motivated to avoid pathogens that may lead to contamination (Aaroe et al., 2016; Clifford & Piston, 2017; Kam & Estes, 2016) and place blame for the threat on others. There is a long history of othering and blame during public health threats (Dionne & Turkmen, 2020), and some of those dynamics have been present with respect to COVID-19 and treatment of Asians (Chan et al., 2020; Green et al., 2020; Remy & Barreto, 2020). To the extent that people are inclined to stay focused on the threat, blame others for it, and feel as if they have control of the situation, they may be more inclined to experience feelings of anger.

While we might expect to observe a range of elevated negative emotions when a public health threat is salient in the information environment, which emotions individuals experience will depend on how information about the threat is presented to the public. If the information conveys a sense of uncertainty or lack of control over the situation, individuals should be more likely to experience fear or sadness. If the information focuses on deaths, sadness may be the more dominant emotion of the two. On the other hand, if the presentation of information focuses more on symptoms people experience, especially those related to bodily fluids, individuals should be more inclined to experience disgust (Kam & Estes, 2016). The information we focus on is scientific projections about COVID-19. There is always uncertainty when dealing with future projections, and since this is information about projected case counts, rather than symptoms, and it does not place blame on any groups, we expect individuals will be more inclined to experience greater fear and sadness. They should not be inclined to experience greater disgust or anger. This produces the following hypotheses.

**Hypothesis 1** Respondents exposed to COVID-19 projections will feel higher levels of fear/anxiety than respondents not exposed to COVID-19 projections.

**Hypothesis 2** Respondents exposed to COVID-19 projections will feel higher levels of sadness than respondents not exposed to COVID-19 projections.

The degree to which individuals react emotionally may also vary over time and depend on the predictions themselves. Emotional reactions to reading about COVID projections should be greater earlier in the pandemic. Levels of uncertainty were much higher earlier in the pandemic, and individuals likely felt lower levels of control since it was not entirely clear how to best prevent the spread of COVID-19. Furthermore, the information environment early in the pandemic was less polarized and less politicized, so individuals would have fewer incentives to discount scientific information.<sup>4</sup> We should therefore see a stronger impact of the treatments on emotional reactions in the April wave, and this should diminish in subsequent waves.

**Hypothesis 3** (Timing): Emotional reactions to COVID-19 projections should be higher earlier in the pandemic.

Emotional reactions to information about a public health threat may also depend on individual characteristics. A long line of scholarship has argued and found that individuals use partisanship to process incoming information, form attitudes, and guide evaluations of political objects (Campbell et al., 1960; Zaller, 1992), and this has only intensified in an era of high polarization (Mason, 2018). Republicans are less worried about COVID-19 (Gadarian et al., 2021), but might this condition how they react to scientific projections?

We draw from work by Albertson and Gadarian (2015) to develop expectations for whether partisanship will moderate the effect of exposure to information about scientific projections. They argue (p. 15), “Some threats are not heavily debated. In some situations, everyone experiences anxiety, and political elites agree on a solution.” They label these types of threats unframed threats, and here we would expect individuals to react similarly regardless of partisanship. However, they argue that other threats in politics are more nuanced, and political elites may disagree with whether a threat exists, the source of the threat, and possible solutions to the threat. In short (p. 23), “With framed threats, we differ in terms of the things that make us anxious...partisanship is a key variable that shapes whether a framed threat elicits anxiety.” Finally, they note that whether a threat is unframed or framed can shift over time.

Applying this to the context we explore, early in the pandemic, when the threat was less politicized, we may see similar emotional reactions among Democrats and Republicans since both are tuned in to scientific information and have little reason to resist it. As the pandemic became increasingly politicized over time, particularly among Republican elites and the media, we may observe resistance to scientific information among Republicans but not among Democrats. This reasoning leads us to the following hypothesis:

**Hypothesis 4** As the pandemic progresses, negative emotional reactions among Republicans will diminish.

The emotional reactions individuals experience have consequences for policy preferences to deal with the threat and may impact their own behavior. When individuals feel a greater degree of uncertainty and lack of control over a situation, as in the case of anxiety, they are more likely to pay

<sup>4</sup>It is also possible that respondents became numb to case counts and fatalities over time. While not part of our a priori theorizing, we thank an anonymous reviewer for pointing this out.



attention to and carefully process information related to the threat (Marcus et al., 2000). They also have a greater desire for protection (Jarymowicz & Bar-Tal, 2006) and are more likely to engage in defensive behavior (Frijda, 1986; Marcus et al., 2000; Steimer, 2002). According to Albertson and Gadarian (2015), these motivations should also translate into greater support for policies that provide protection from the threat. Scholars have found this to be the case for those experiencing anxiety in relation to a number of policy domains, such as terrorism (Albertson & Gadarian, 2015; Fisk et al., 2019; Huddy et al., 2007), climate change (Albertson & Gadarian, 2015), and public health threats (Albertson & Gadarian, 2015), including COVID-19 (Reny & Barreto, 2020).

We expect to observe a similar relationship with respect to reading about scientific projections related to COVID-19. Those who come to experience greater anxiety should be more supportive of policies aimed at mitigating the threat. We also expect that this will translate into personal behavior, with those experiencing anxiety being more likely to engage in protective behaviors like wearing a mask and social distancing.

Existing work has not considered how feelings of sadness translate into policy attitudes related to a public health threat. We expect sadness, like anxiety, to lead to a preference for protective behaviors and policy in the context of COVID-19. According to Small and Lerner (2008, p. 153), “sadness is associated with relatively less certainty and thus gives people the meta-level sense that they should carefully examine information before forming a judgment.” In this sense, sadness is similar to anxiety. If individuals are motivated to engage in higher cognitive effort around COVID-19 cases, then they should be more open to scientific recommendations to engage in protective behaviors, like mask wearing and social distancing, as well as support policy efforts to address the threat.

Another possible mechanism is that when individuals feel sad, they are motivated to change their circumstances (Lerner et al., 2004) and repair their mood (Garg & Lerner, 2013; Lerner et al., 2004; Raghunathan & Pham, 1999). For example, sad individuals are more likely to engage in reward-seeking behaviors (Dorison et al., 2020; Garg & Lerner, 2013; Lerner et al., 2004; Raghunathan & Pham, 1999) and pro-social behaviors (Forgas, 1991), more so than those experiencing anxiety (Dorison et al., 2020; Raghunathan & Pham, 1999). Engaging in protective behaviors and supporting protective governmental policies in the context of COVID-19 could serve the dual goals of changing circumstances and making people feel better. With respect to the first, engaging in protective behaviors and supporting protective policies should reduce the transmission rates of COVID-19 and hence one’s personal risk of contracting COVID-19. With respect to the second, much of the messaging behind mask use and social distancing was a pro-social argument to protect one’s neighbors; hence, individuals might feel better by engaging in pro-social behaviors and supporting pro-social policies that should diminish community spread.

To summarize, we hypothesize the following:

- Hypothesis 5a** Those experiencing elevated fear/anxiety from reading scientific projections should be more inclined to support behaviors and policies that provide protection.  
**Hypothesis 5b** Those experiencing elevated sadness from reading scientific projections should be more inclined to support behaviors and policies that provide protection.

### Preregistration of Related Hypotheses in COVID-19 Projections Research Program

We want to be clear that we did not preregister Hypotheses 1–5. However, we did preregister predictions closely related to these hypotheses as part of a larger research program on the impact of

**Table 1.** Respondent Counts by Partisanship

	Total	Republicans	Democrats	Independents
April	5,610	2,203	2,565	842
June	5,773	2,433	2,480	860
August	5,606	2,229	2,558	819

COVID-19 projections on Americans' political views that relied upon the same experimental treatment implemented through the same three-wave survey. They were simply focused on a different, though related, dependent variable that was the most pressing subject of study at the time: whether to conduct the November 2020 election in person or whether to permit voters to cast their ballots through the mail. Our preregistrations of hypotheses for two analyses through the EGAP Registry (<https://osf.io/ewdyn>) set forth the expectation that treating respondents with predictions for either spring or fall peaks in COVID-19 case rates, relative to a control group, should lead to more support for election policies that provide protection from the health threat ("For all of the questions in the voting battery, we expect that exposure to both treatments will make voters more supportive of voting by mail options for themselves and others [and thus less supportive of in-person voting options], by bringing COVID-19 concerns to the top of their minds") and that this impact of the treatment will vary by partisanship ("By interacting our randomized survey treatments with political variables, we will test the hypothesis that Republican voters and Trump supporters are influenced less by the treatments. Because prior work has shown that these types of respondents are less concerned about COVID-19 and that they are less trusting of scientific efforts, the impact of our expert COVID-19 projections should be attenuated for them"). We have published analyses focused on the impact of this informational treatment on how elections should be run (Kousser et al., 2021) and on how these impacts vary by party (Lockhart et al., 2020). Our initial survey design did include all of the questions that we analyze in this article on emotions about COVID-19 protection policies, but due to time constraints as we worked to get the first wave of the survey into the field in early April 2020, we preregistered only the hypotheses focused on in-person voting.

## Design

We fielded three original online surveys using Luc.Id's Fulcrum platform. The sampling frame was American citizens of voting age. This platform has been demonstrated to provide nationally diverse samples that exhibit treatment effects similar to those of samples from other sources (Coppock & McClellan, 2019). Table 1 shows the number of respondents by partisanship for the three surveys.

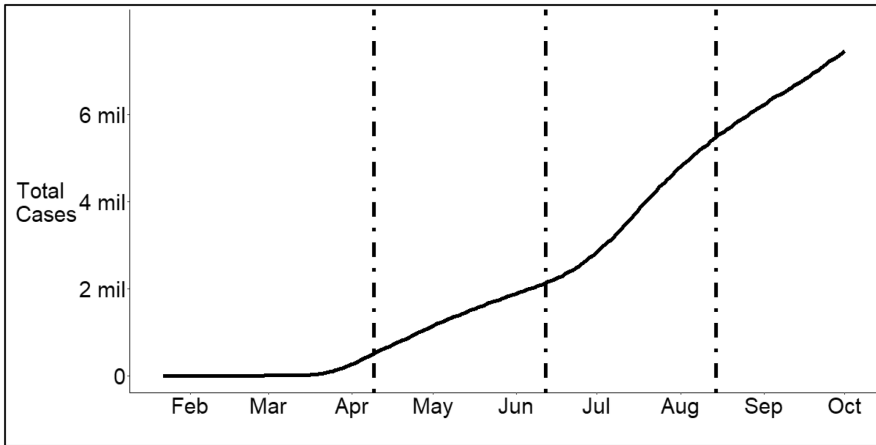
Study 1 was fielded early in the pandemic, April 8–10, with 5,610 respondents. Study 2 was fielded 2 months later, June 11–13, with 5,773 respondents. Study 3 was fielded August 13–16, with 5,606 respondents, at a point when news coverage of the pandemic had become even further politicized (see Sol Hart et al., 2020). Figure 1 shows the timing of the surveys relative to case counts<sup>5</sup> in the United States.

After consenting into the study, participants answered questions related to political predispositions and interest in the upcoming election.<sup>6</sup> To refresh, our main goal was to expose participants to scientific information about the projection of future COVID-19 cases and to examine how that

<sup>5</sup>Case counts are from the CDC page "United States COVID-19 Cases and Deaths by State over Time."

<sup>6</sup>This study was reviewed by the institutional review board at an author's affiliated university and deemed exempt as it met the criteria for minimal risk and participants were debriefed at the end.





**Figure 1.** Survey waves and COVID cases.

information impacts emotional responses, and in turn future behavior and policy preferences. Respondents in the April and June surveys were then randomly assigned to either a control group that did not receive any information or one of two treatment groups that received truthful summaries of the projections of a team of scientists about the COVID-19 outbreak. One of the treatments predicted a peak in the spring and was based on modeling by scientists at the University of Washington,<sup>7</sup> whereas the other treatment predicted a peak in the fall and was based on modeling by scientists at Imperial College.<sup>8</sup> Since these were actual predictions referenced in media, it lends higher external validity to our design and enables us to explore whether individuals are more responsive to a future peak.<sup>9</sup> The short text for each treatment was as follows:

**Spring Peak:** While no one can be certain how the COVID-19 outbreak will progress in the United States, one well-respected team of scientists at a leading university has projected that if social distancing measures are widely adopted, the effects of the virus will [reach/have reached] their peak in April, then gradually decline throughout the spring and into the summer.

**Fall Peak:** While no one can be certain how the COVID-19 outbreak will progress in the United States, one well-respected team of scientists at a leading university has projected that if social distancing measures are widely adopted now but are lifted during the early fall, a new surge in cases will come and the effects of the virus will reach their peak in November or December.

We did not identify the source of the projections to hold the source constant across treatment groups. It no longer made sense to include the spring peak condition in our August study, so we instead only included a control group and a fall peak. To test the robustness of the treatments to

<sup>7</sup>Data are available at <https://covid19.healthdata.org/united-states-of-america>.

<sup>8</sup>See Ferguson et al. (2020).

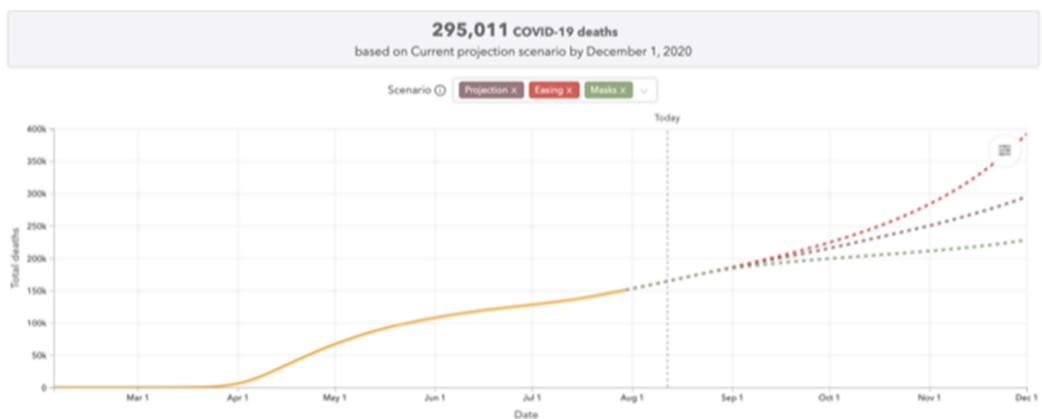
<sup>9</sup>Our original hypothesis was that if individuals believe they are currently close to the peak, they may feel less anxious and less sad, compared to if they think the worst is still yet to come. However, an alternative expectation might be that individuals think society will be better prepared to deal with a peak in the future, so they are not as anxious or sad. We thank an anonymous reviewer for raising this possibility. In the interest of space (and given that respondents did not pay close attention to the month identified in the treatment), we do not include a lengthy discussion of this hypothesis, but still note the findings in the text.

**Table 2.** Compliance Rates in Total and by Respondent Partisanship

	Total	Republicans	Democrats	Independents
<i>April wave</i>				
Fall peak	48	45	48	53
Spring peak	71	71	73	65
<i>June wave</i>				
Fall peak	67	62	69	74
Spring peak	52	50	54	51

alternative presentations, we also adapted the text slightly and added an illustration to accompany the text that showed the projected peak:

While no one can be certain how the COVID-19 outbreak will progress in the United States, one well-respected team of scientists at a leading university has projected that infections, hospitalizations, and deaths will continue to grow through the fall and that deaths in the United States may total more than 250,000 by November 1st. Below is an illustration of their projections:



Respondents were evenly balanced across experimental conditions on a host of demographic and attitudinal measures (see [Tables S1](#) and [S2](#)). Following exposure to the treatments, we asked respondents in the treated groups to recall when the effects of the virus that caused COVID-19 would reach or would have reached their peak. To maximize compliance, we gave respondents the opportunity to return to the article. [Table 2](#) shows compliance rate by respondent partisanship.<sup>10</sup>

In general, the low compliance rates suggest that the treatment may have been most effective in making the virus and case counts salient, but that respondents did not pay close attention to the timing of the peak. If inattention is a problem, we would expect this to attenuate the effects observed, especially between the fall and spring peak treatments. However, as there are no large differences between partisans, this is unlikely to drive differential treatment effects across these groups. Given these varied compliance rates, in the findings section we examine the treatments

<sup>10</sup>The August wave did not have a compliance measure.

**Table 3.** Cronbach's Alphas for Emotions Measured Using Additive Scales

	April Wave	June Wave	August Wave
Fear	0.90	0.89	0.90
Anger	0.86	0.86	0.87
Disgust	–	0.89	0.90
Optimism	0.77	0.80	0.81

both pooled and separated, but we mainly rely on the pooled treatment in our discussion and conclusion.

To capture emotional reactions, respondents were then asked to indicate the extent to which they were feeling a range of emotions on a 5-point scale, from *very slightly or not at all* (1) to *extremely* (5). Emotions with multiple component emotions (fear, anger, optimism) were put in an additive measure and rescaled from 1 to 5. To capture fear, we asked respondents the extent to which they were feeling afraid, anxious, and worried. The emotions to capture anger were contempt, bitterness, and resentful, and we again created an additive scale. We asked about feelings of being enthusiastic, proud, and hopeful to capture optimism, again creating an additive scale. All these questions are based off of the PANAS battery (Watson et al., 1988) and are those recommended by scholars to measure the constructs of fear, anger, and optimism (Neuman et al., 2007). In the three surveys, we also had respondents indicate whether they were feeling sad. Finally, for the June and August waves, we also added indicators to capture disgust, measured as grossed out and repulsed. Cronbach's alphas for the emotions measured using additive scales are shown in Table 3.

### The Effect of Scientific Projections on Emotional Reactions

We explore the main treatment effects on each emotion using OLS models.<sup>11</sup> Table 4 pools the fall and spring treatments for the April and June study (there was only a fall peak condition for August). Table 5 shows the treatment effects for the fall and spring conditions separately. For both tables, the control group serves as the baseline and respondents are weighted according to the 2018 American Community Survey.

To refresh, we expect that individuals exposed to scientific projections about COVID-19 are expected to experience increased fear (H1) and sadness (H2), which should be greater earlier in the pandemic (H3), and these effects may be moderated by partisanship as the pandemic progresses (H4). We do not have clear expectations for whether the treatments will increase anger or disgust, given the nature of the treatments. Furthermore, since the information is negative, we may find a reduction in optimism.

Turning first to Table 4, across all three studies exposure to scientific projections about COVID-19 leads to higher levels of fear. The substantive effect is also quite substantial closer to the onset of the pandemic. In April, exposure to the scientific projection leads to a one-unit increase in fear relative to those in the control group (whose mean is 2.439), whereas the effect in April and June is more modest ( $b = 0.363$  and  $b = 0.137$ , respectively). We see a similar pattern

<sup>11</sup>We created survey weights to match the U.S. citizen voting age population based on the Census's 2018 estimates. Weights are based on gender on its own, the joint distribution of age by education, and the joint distribution of race by ethnicity. Bins for the ages of respondents are 18–24, 25–44, 45–64, and 65 and older, and for education they are high school or less, some college, bachelor's degree, or graduate degree. Bins for race are White, Black, Asian, and Other, and our bins for ethnicity are Hispanic or Not Hispanic.

**Table 4.** Treatment Effects on Emotions, Combined Fall and Spring Treatments

	Fear	Optimism	Sadness	Anger	Disgust
<i>April</i>					
Treatment	0.363** (0.032)	-0.181** (0.030)	0.361** (0.037)	0.051 (0.031)	
Constant	2.439** (0.026)	2.804** (0.024)	2.310** (0.030)	2.099** (0.025)	
Observations	5,610	5,610	5,610	5,610	
R-squared	0.022	0.007	0.017	0.0005	
<i>June</i>					
Treatment	0.137** (0.032)	-0.115** (0.030)	0.120** (0.036)	-0.006 (0.031)	-0.143** (0.034)
Constant	2.371** (0.026)	2.828** (0.025)	2.291** (0.030)	2.164** (0.026)	2.029** (0.027)
Observations	5,606	5,606	5,606	5,606	5,606
R-squared	0.003	0.003	0.002	0.00001	0.003
<i>August</i>					
Treatment	0.093** (0.032)	-0.088** (0.029)	0.120** (0.035)	0.060* (0.031)	0.011 (0.033)
Constant	2.538** (0.022)	2.787** (0.020)	2.435** (0.025)	2.256** (0.022)	2.042** (0.023)
Observations	5,773	5,773	5,773	5,773	5,773
R-squared	0.001	0.002	0.002	0.001	0.00002

Note: All dependent variables are measured 1–5.

\* $p < .05$ ;

\*\* $p < .01$ .

**Table 5.** Treatment Effects on Emotions, Separated by Fall and Spring Treatments

	Fear	Optimism	Sadness	Anger	Disgust
<i>April</i>					
Fall peak	0.368** (0.038)	-0.173** (0.034)	0.372** (0.043)	0.042 (0.037)	
Spring peak	0.358** (0.037)	-0.189** (0.034)	0.351** (0.042)	0.058 (0.036)	
Constant	2.439** (0.026)	2.804** (0.024)	2.310** (0.030)	2.099** (0.025)	
Observations	5,610	5,610	5,610	5,610	
R-squared	0.022	0.007	0.017	0.0005	
<i>June</i>					
Fall peak	0.164** (0.038)	-0.132** (0.035)	0.148** (0.042)	-0.019 (0.037)	-0.160** (0.039)
Spring peak	0.110** (0.037)	-0.100** (0.035)	0.093* (0.042)	0.005 (0.036)	-0.127 (0.039)
Constant	2.371** (0.026)	2.828** (0.025)	2.291** (0.030)	2.164** (0.026)	2.029** (0.027)
Observations	5,606	5,606	5,606	5,606	5,606
R-squared	0.004	0.003	0.002	0.0001	0.003

Note: All dependent variables are measured 1–5.

\* $p < .05$ ;

\*\* $p < .01$ .

in [Table 5](#). Exposure to both treatment conditions leads to higher levels of fear. As we might expect, fear is slightly higher among those exposed to the fall peak (April  $b = 0.368$ ; June  $b = 0.164$ ) compared to the spring peak (April  $b = 0.358$ ; June  $b = 0.110$ ), though these differences are not statistically significant (April  $p(>F) = .7882$ , June  $p(>F) = .1463$ ). This could be due to respondents not paying careful attention to the peak identified in the treatment or to differences in state and local contexts.<sup>12</sup>

In sum, we receive clear support for our first hypothesis that exposure to scientific projections about the likely progression of COVID-19 cases would lead to higher levels of fear, and for our third hypothesis that these effects would be more pronounced early in the pandemic. These findings are also robust if we add controls (see [Tables S3](#) and [S4](#)).

We see a similar set of results when we turn to the emotion of sadness (H2). Across all three studies, exposure to scientific projections significantly increases sadness, by 0.361 units in April, 0.120 in June, and 0.120 in August. The effect again is largest early in the pandemic (H3). Turning to [Table 5](#) for April and June, both the spring and fall treatment conditions lead to higher sadness, and there are no significant differences between the two conditions (April  $p(>F) = .6261$ , June  $p(>F) = .1886$ ). These results are also robust to the inclusion of controls (see [Tables S3](#) and [S4](#)).

Is it the case that all emotions are elevated by exposure to the treatments? Our theoretical framework suggests this should not be the case. We should not see higher anger and will likely not see higher disgust given the nature of the information provided in our treatments. And, if anything, we should observe lower levels of optimism. As expected, we do not see any consistent increases in anger or disgust, and we see a significant decline in optimism across all three study waves.

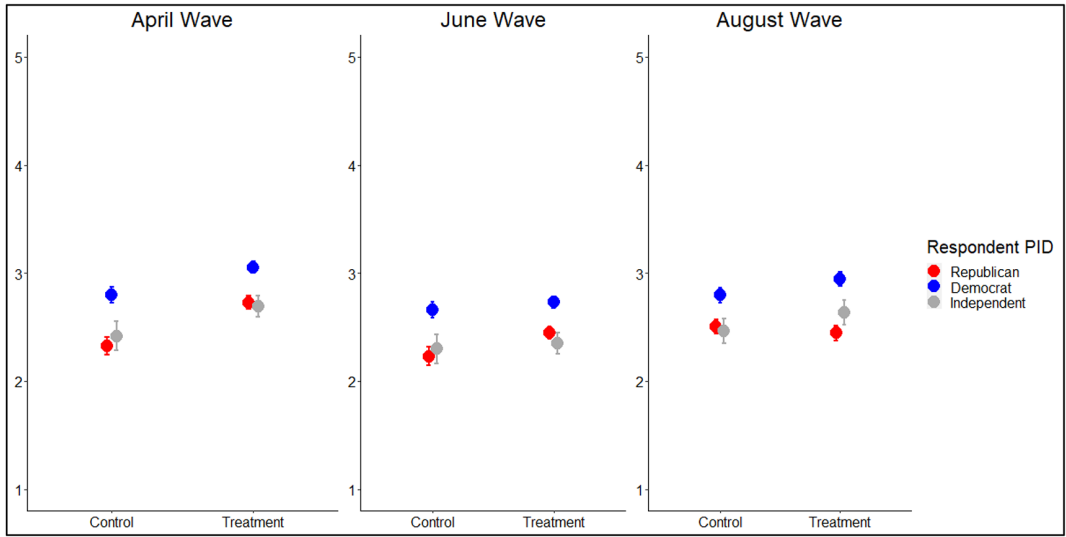
### Does Partisanship Moderate the Effect of the Treatments?

We began by considering the effects of scientific information on the full sample; however, especially in today's polarized political environment, different groups of partisans may react distinctly, especially given the increased polarization around the pandemic over time (H4). To explore whether there are any partisan differences with respect to feelings of fear across survey waves, we added measures of partisanship to the models from [Table 4](#) and added interactions with the treatment conditions. We focus on the pooled treatments since we did not observe any meaningful differences between the fall or spring peak conditions in the analyses from [Table 5](#).

Partisanship was coded by asking respondents, "Generally speaking, do you usually think of yourself as a Republican, Democrat, independent, or what?" Respondents who answered independent received a follow-up question: "Do you think of yourself as closer to the Republican Party or to the Democratic Party?" Respondents who answered neither to the follow-up question were coded as Independents; otherwise, respondents were coded as the party to which they consider themselves closer. Since interaction terms are not directly interpretable, we plot the predicted level of fear from these models across experimental conditions and by party identification in [Figure 2](#) (see [Tables S5–S8](#) for full interaction models with and without controls).

<sup>12</sup>We thank an anonymous reviewer for raising the latter possibility.





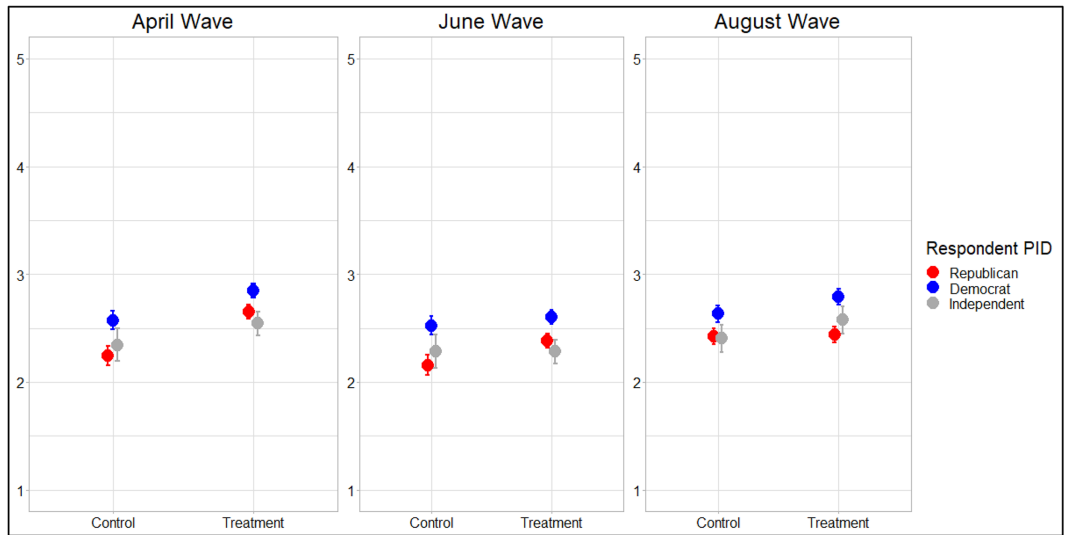
**Figure 2.** Predicted levels of fear by condition and partisanship.

In the April wave, although we observe different baseline levels of fear in the control group across partisans, with Democrats exhibiting more fear than Republicans or Independents, the treatment increases fear across all groups.<sup>13</sup>

Turning to the June wave, we again observe different baseline levels of fear across partisans in the control group. While the general patterns show higher fear given exposure to the treatment, partisanship moderates the effect of the treatment, such that the effect holds only among Republicans (see [Tables S5–S8](#) for full interaction models with and without controls). If we look separately at the fall and spring peaks, Democrats in the fall peak condition also experience increased fear (see [Table S6](#)). By August, we observe a slightly smaller partisan gap in fear in the control group; however, exposure to scientific information about a peak only increases fear among Democrats and Independents (see [Tables S5–S8](#) for full interaction models with and without controls). This is also a point at which the pandemic itself had become further polarized along partisan lines, as Republican elites, particularly Trump, increasingly played down the pandemic, holding rallies in which many in attendance would flout recommendations for wearing masks. Therefore, we observe a shift over the course of the pandemic, with Republicans being more affected by scientific projections early on, which makes sense since they started at a lower baseline level of fear, to being unaffected by such information as the pandemic became increasingly polarized.

We next turn to the emotion of sadness, shown in [Figure 3](#). In the April wave, we again see differences in sadness among those in the control group, with sadness being highest among Democrats (see [Figure 3](#) and [Tables S5–S8](#)). Exposure to the treatments leads to similar increases in

<sup>13</sup>If we look at the models that separate the fall and spring treatments, there is only one case where partisanship moderates the effect of the treatment: for Democrats in the spring peak compared to Republicans (see [Table S6](#)). While both groups exposed to the spring peak treatment express higher fear, the effect of the treatment for Republicans is slightly more pronounced than it is for Democrats.



**Figure 3.** Predicted Levels of Sadness by Condition and Partisanship.

sadness regardless of partisanship since the interaction terms are not significant.<sup>14</sup> In June, we again see a partisan gap in sadness among those in the control group, and exposure to the treatment leads to higher sadness. However, in this study, the treatment is moderated by partisanship. The effects are such that Republicans experience a bigger increase in sadness than Democrats and Independents (see Tables S5–S8).<sup>15</sup> In August, we see that Republicans no longer react with sadness to reading about scientific projections, though Democrats and Independents react with greater sadness.

In the interest of space, we do not show the figures for the other emotions. In all the waves, we find a similar pattern whereby all partisans experience a decline in enthusiasm, as expected (see Figure S1). With respect to anger, Republicans in the April and June surveys experience higher anger relative to their counterparts in the control group (see Figure S2), whereas in August Democrats experience an increase in anger in reaction to the treatment. The patterns are therefore much less consistent for anger relative to fear, sadness, and enthusiasm. The effects for disgust are also varied, with Democrats and Independents exhibiting lower disgust given exposure to the treatment in June (see Figure S3), and Republicans showing lower disgust given exposure to the treatment in August. To refresh, we did not expect clear effects for disgust given the nature of the information in the treatment conditions, which did not use words or images that would likely trigger that emotion.

### How Elevated Anxiety and Sadness Affect Future Intentions and Policy Attitudes

While it is important to understand how the public reacts emotionally to COVID-19 projections in its own right, we are also interested in the consequences of those reactions. As we noted in

<sup>14</sup>In the analysis separating the fall peak and spring peak, the spring treatment is moderated by partisanship for Democrats and Independents (see Table S6). All groups experience an increase in sadness given exposure to the spring peak condition, but the increase is more pronounced among Republicans.

<sup>15</sup>In the analysis separating the fall peak and spring peak, Democrats only experience more sadness in the fall peak condition (see Table S6).

**Table 6.** Average Causal Mediation Effects of Emotion on Protective Behaviors

	April Wave	June Wave	August Wave
Fear	0.220**	0.103**	0.065*
Sadness	0.093**	0.038**	0.041**

\* $p < .05$ ;\*\* $p < .01$ .

the theoretical section, we expect that individuals experiencing heightened fear (H5a) and sadness (H5b) in reaction to the treatments should be more supportive of protective behaviors and policies.

To assess whether elevated fear and sadness mediate the relationship between the scientific projections and intention to engage in protective behaviors or support protective policies, we calculate the average causal mediation effect (ACME) using the method by Imai et al. (2010) for the full sample. Causal mediation analysis allows us to look at the impact of emotions that are manipulated by the treatment on potentially interesting outcome variables. In this case, we ask whether the change in emotion induced by the treatment impacts personal protective behavior or policy preferences. This type of modeling works best in experimental contexts where the research directly randomizes treatments that impact the mediating variable, similar to our design (Bullock et al., 2010; Imai et al., 2010). We further report sensitivity analyses of the mediation models in Figures S4 and S5.<sup>16</sup> Since we did not observe differences between the fall and spring peaks, we look at the pooled conditions for those waves.

To measure support for protective behaviors, we asked respondents, “To help prevent the spread of COVID-19, how likely are you to do the following activities? Wash your hands regularly, avoid touching your face, avoid gatherings outside of those who live with you, maintain 6 feet away from people outside your household, shelter-in-place, and wear a mask out in public.” They responded on a 4-point scale ranging from *not at all likely* to *very likely*. We created an additive scale across all of these measures, which runs from 6 to 24 (April  $\alpha = 0.79$ ; June  $\alpha = 0.8$ ; August  $\alpha = 0.8$ ).

Table 6 shows the causal mediation analyses, or ACMEs, which represent the indirect effect of the treatment on protective behaviors through the emotion mediators. (In the online appendix, we estimate separate mediation analyses for Republicans and for Democrats to explore the possibility that the very different elite and social messages that members of each party received at this time about the pandemic impacted the pathway leading from treatment to emotion and finally to personal protective behaviors.)<sup>17</sup> In all cases, elevated fear in reaction to reading about scientific projections increases intentions to engage in protective behaviors. We find a similar pattern for sadness, where increased sadness in reaction to the treatments also leads to higher intention to engage in protective behaviors. The effect for fear and sadness is also larger in the April study compared to the later studies. In sum, we find strong support for Hypothesis 5a, that

<sup>16</sup>The sensitivity analyses suggest two minor patterns—that the results for anger and for earlier waves are more robust than those for sadness and in the later waves.

<sup>17</sup>Tables S9 and S10 have the results of the mediation analysis run separately for Republicans and Democrats. Among Republicans, the mediation effects for fear and sadness are not statistically significant for the August wave, which makes sense since the effect of the treatment on these emotions was insignificant for Republicans in that wave. Among Democrats, the mediation effects for fear and sadness are not statistically significant for the June wave, which also is consistent with the lack of a main treatment effect among Democrats in that wave. The mediation effect of sadness is not statistically significant in the August wave.

**Table 7.** Average Causal Mediation Effects of Emotion on Support for Protective Policies

	April Wave	June Wave	August Wave
Fear	0.257**	0.110**	0.080*
Sadness	0.097**	0.040**	0.054**

\* $p < .05$ ;\*\* $p < .01$ .

elevated fear and sadness in reaction to the scientific projections would lead to a greater intention to engage in protective behaviors.<sup>18</sup>

To measure support for protective policies, we asked people for their level of support (or opposition) for shelter-in-place orders, fines for those who violate shelter-in-place orders, increased government spending to help those who have lost jobs because of COVID-19, increased government spending on healthcare to address COVID-19, making testing free, and Medicare for all. We again create an additive scale across all of these measures, which runs from 6 to 30.<sup>19</sup> As hypothesized, Table 7<sup>20</sup> shows that those who experience elevated fear or sadness in reaction to scientific projections are more supportive of protective policies to address the pandemic across all three survey waves.<sup>21,22</sup> These findings provide strong support for Hypotheses 5a and 5b, that greater fear and sadness in reaction to the treatments lead to more support for protective policies to address the pandemic.

While the findings suggest that emotional reactions to reading about peaks in COVID-19 cases mediate support for protective behaviors and policies, we recognize this is not the only possible explanation for the relationship between our treatment and respondents' views on protective behaviors and policies. The mediation model assumes the direct impact of the treatment is on emotion, but the treatment could have other effects too. For example, if the treatment elicits different thoughts related to COVID-19, such as making personal health risks or concerns about family salient, it could elicit changes in respondents' views separate from the emotions elicited, and these might also impact support for protective behaviors and policies.

## Discussion and Conclusion

COVID-19 has presented the world with a uniquely threatening health pandemic, and people have experienced varied responses to that threat. We investigate how people react emotionally to reading scientific information about the pandemic, how these reactions vary by partisanship, and

<sup>18</sup>We do not observe any direct effects of the treatment on intentions to engage in protective behaviors. We also do not expect to observe the same effects for other emotions. If we run the same mediation analysis through enthusiasm, we find that it leads to lower intention to engage in protective behaviors (April: ACME =  $-0.015$ ,  $p = .23$ ; June: ACME =  $-0.019$ ,  $p = .018$ ; August: ACME =  $-0.017$ ,  $p = .042$ ). We did not look at mediation through anger or disgust since the treatments did not have effects on those emotions (see Table 1).

<sup>19</sup>The Cronbach's alphas for these additive scales of protective policies are April  $\alpha = .8$ , June  $\alpha = .83$ , and August  $\alpha = .86$ .  
<sup>20</sup>Tables S11 and S12 have the results of the mediation analysis run separately for Republicans and Democrats. The patterns are very similar to what we observed for protective behaviors.

<sup>21</sup>In the April wave, the direct effect of the treatment is negative,  $-0.142$ , but not significant ( $p = .329$ ), so the increase in support for protective policies is only among those who experience elevated fear in reaction to the treatment.

<sup>22</sup>The findings through enthusiasm are different from the findings for protective behaviors. Those with elevated enthusiasm in reaction to the treatment are more supportive of protective policies (April: ACME =  $0.123$ ,  $p = .00$ ; June: ACME =  $0.030$ ,  $p = .002$ ; August: ACME =  $0.046$ ,  $p = .000$ ).

how those emotions undergird specific attitudes on protectionist public policy and protectionist personal behaviors.

We find that respondents exposed to COVID-19 peak projections show increased fear and sadness as well as lower levels of enthusiasm. Interestingly, we observe in the early months of the pandemic (April) that partisans react similarly to reading the scientific projections, whereas Republicans react with more fear and sadness compared to Democrats in June. However, by August, this effect is attenuated for Republican respondents, who become less likely to exhibit increased fear and sadness in response to statistics about the likely peak of national COVID-19 cases. Elevated fear and sadness in turn increase support for protective policies and behavior, which may help to explain why Republicans, who were less likely to feel anxiety and sadness in response to information on COVID-19 later in the summer, were less supportive of protective public health policies. We suspect that this reflects how the pandemic became increasingly polarized along partisan lines, especially surrounding President Trump's handling of the pandemic and public health mandates enacted by state and local politicians.

These findings for fear, especially at the early onset of the pandemic, square well with existing research for other public health threats. When threats in the environment are not politicized, it is likely that many members of the public react to a public health threat with greater anxiety and support for protective behavior and policies, but when threats become politicized, we are more likely to observe differential reactions by partisanship (Albertson & Gadarian, 2015). One important advantage to our study is that we are able to examine the effects of exposure to information about COVID-19 at several points in time, when the threat was less politicized and when it became more politicized in the United States.

Furthermore, we explore an emotion that has received scant attention in the literature on public health threats and political attitudes: sadness. This emotion has been particularly salient given the sheer number of lives lost to COVID-19, as well as the emotional toll of being isolated from others for such a long stretch of time. Even though this emotion may lead people to be more inclined to turn attention away from threat, it still leads to support for protective policies and behavior, albeit to a lesser extent than anxiety.

Although early in the pandemic we find information about peaks increased anxiety and sadness at similar rates, it is possible that this has shifted over time. With vaccinations, boosters, and increased treatments for COVID-19, peaks are not associated with as many deaths as in earlier waves, so reading about new peaks or projected peaks in cases may not lead to as much sadness as when we were conducting our studies, though some individuals may still feel anxious about rising cases. And, while sadness and anxiety increased support for protective behaviors and policies to respond to the pandemic in our studies, there may be distinct effects of these emotions on other dynamics related to the pandemic. For example, since those who are sad should not feel as threatened by COVID-19 as those who are anxious, and given that they are more inclined to engage in reward-seeking and pro-social behaviors, they may have been more supportive of returning to work and social events, and may have been more supportive of school reopenings as conditions with the pandemic changed.

Even though our focus has been on behaviors and policies related to COVID-19, anxiety and sadness may lead to distinct preferences in other areas given distinct motivational goals. Those who experience sadness exhibit less patience (Lerner et al., 2013) and are more likely to favor high-risk/high-reward options in decision tasks than those who are anxious (Raghunathan & Pham, 1999), which may have important implications for policies where time horizons are relevant and that vary with respect to risk. Those who are anxious may

think more about future costs of policies than those who are sad, so the latter may be more supportive of big spending projects and not think about longer-term impacts on the budget deficit. Those who experience sadness may also be more open to new approaches to policy problems than those who are anxious because they are more likely to favor high-risk/high-reward options.

Our study also sheds light on the emotions that are less likely to be affected by the type of information we presented to participants. Scientific projections on when COVID-19 cases would peak did not lead to consistently higher levels of anger or disgust. If the scientific information we presented focused instead on bodily fluids or symptoms linked to COVID-19, it would have likely led to higher levels of disgust, which may have also increased support for protective policies (Kam & Estes, 2016). On the other hand, information by political elites that links COVID-19 to China could lead to higher levels of anger, and in turn more negative attitudes and behaviors toward the Asian community (Chan et al., 2020; Dionne & Turkmen, 2020; Reny & Barreto, 2020), rather than to support for more protective policies.

Negative emotions individuals experience in reaction to information about a threat can influence the types of policies they support to address it, as well as personal behaviors that may protect them from the threat. To this point, we show that elevated feelings of fear and sadness may lead to a greater intention to engage in behaviors aimed at mitigating the virus, such as practicing social distancing and mask use, and greater support for government policies like stay-at-home orders and assistance to combat the pandemic. The findings also suggest that as cases decline, individuals will be less likely to experience fear and sadness and, hence, may be less inclined to engage in protective behaviors or support policies like continued mask mandates.

We only examined the ways in which people react emotionally to information about peaks. As noted earlier, there may be other ways in which people react to reading about peaks in COVID-19 cases that have implications for attitudes and behavior. This will remain an important question for future work as we continue to experience waves of COVID-19 cases.

At the same time, the results from the studies have broad implications for health policy beyond the COVID-19 pandemic. While the scope of the pandemic is a unique challenge, emotional reactions to information about other public health threats might in turn affect support for or opposition to policies aimed at mitigating those threats, and reactions are likely to shift over time and across different partisan groups. These findings are important to policy makers as they consider how best to convey information about such threats to the public.

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### Supporting Information

Additional supporting information may be found in the online version of this article at the publisher's web site:

**Table S1.** Balance Tables

**Table S2.** Chi-Square Test between Treatment Assignments and Respondent Demographics

**Table S3.** Treatment Effects on Emotions, Combined Treatments, with Controls

**Table S4.** Treatment Effects on Emotions, Separated by Fall and Spring Treatments, with Controls

**Table S5.** Party and Treatment Interaction Effects on Emotions

**Table S6.** Party and Treatment Interaction Treatment Effects on Emotions, Separated by Fall and Spring Treatments

**Table S7.** Party and Treatment Interaction Treatment Effects on Emotions, with Controls

**Table S8.** Party and Treatment Interaction Treatment Effects on Emotions, Separated by Fall and Spring Treatments, with Controls

**Table S9.** Average Causal Mediation Effects of Emotion on Protective Behaviors, among Republicans

**Table S10.** Average Causal Mediation Effects of Emotion on Protective Behaviors, among Democrats

**Table S11.** Average Causal Mediation Effects of Emotion on Support for Protective Policies, among Republicans

**Table S12.** Average Causal Mediation Effects of Emotion on Support for Protective Policies, among Democrats

**Figure S1.** Predicted levels of enthusiasm by condition and partisanship.

**Figure S2.** Predicted levels of anger by condition and partisanship.

**Figure S3.** Predicted levels of disgust by condition and partisanship.

**Figure S4.** Sensitivity of mediation analysis estimates presented in Table 6.

**Figure S5.** Sensitivity of mediation analysis estimates presented in Table 7.