

# The Influence of Institutional Trust and Conspiracy Ideation on COVID-19 Behaviors

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## ABSTRACT

In this study, we examine the effect of conspiratorial ideation and institutional trust on COVID-19 mitigation behaviors. We hypothesize institutional trust increases compliance with government-recommended behavioral changes to mitigate COVID-19. We further hypothesize that a general disposition towards belief in conspiratorial explanations decreases compliance with COVID-19 mitigation behaviors. Additionally, we posit that institutional trust mediates the relationship between conspiratorial ideation and COVID-19 mitigation behaviors. Based on a targeted sample of a highly Republican area, we fielded a three-wave survey gauging levels of trust, conspiratorial ideation, and COVID-19 mitigation behaviors. The results show strong support for our pre-registered hypotheses and suggest that institutional trust and conspiratorial ideation may play a more complex role in determining health behaviors than previously considered.

## Introduction

Why did some people choose not to protect themselves from the COVID-19 pandemic before the widespread availability of vaccines? Many Americans resisted the adoption of preventative health behaviors despite consistent warnings and repeated messaging about the benefits of such measures, specifically masking and social distancing (Fazio et al. 2021; Fischer et al. 2021). These lifesaving behaviors are inexpensive and do not impose significant time constraints. The perplexing question is why people refuse to safeguard themselves and their families by adopting these inexpensive, easy-to-do behaviors. In this study, we examine the impact of conspiratorial ideation and institutional trust on the likelihood of adopting COVID-19 preventative behaviors in a targeted population known to be less compliant.

Public health experts routinely measure trust in government health institutions for predictive analysis of compliance based on research indicating higher institutional trust leads to greater compliance with mitigation measures and better public health outcomes (Rowe & Calnan 2006; Vinck et al. 2019; Tang & Wong 2005; Rubin et al. 2009; Oksanen et al. 2020).<sup>1</sup> Institutional trust has remained influential throughout the current pandemic in determining behaviors and attitudes related to COVID-19 (Caplanova et al. 2021; Pagliaro et al. 2021). Varied forms of trust, including institutional trust and trust in “governmental policymakers,” predict vaccine intention globally and in the United States (Goldberg & Richey 2020; Latkin et al. 2021). Institutional trust is also shown to significantly impact the likelihood of belief in ideologically motivated conspiracy theories (Miller, Saunders, & Farhart 2016). Our research adds to this burgeoning literature by showing that COVID-19 mitigation behaviors are strongly correlated with institutional trust and identifies a potentially understudied factor contributing to both mitigation behaviors and institutional trust – conspiratorial ideation.

It is not only the case that some people believe in conspiracy theories while others do not; conspiratorial ideation forms a “monological belief system” that is associated with traits in the Big-Five personality typology, interpersonal trust, paranormal and supernatural ideation, and minority and/or perceived marginalized status (Goertzel 1994; Swami et al. 2011; Brotherton et al. 2013; Brader et al. 2013; Edelson et al. 2017).<sup>2</sup> This conspiratorial predisposition alters information processing and is shown to reduce compliance with public health recommendations and vaccination intention (Bertin et al. 2020; Marinthe et al. 2020; Romer & Jamieson 2020; Loomba et al. 2021; Oleksy, et al. 2021; Sallam et al. 2021; Winter et al. 2021; Pummerer et al. 2022). Those with a generalized propensity to believe anti-governmental conspiracy theories are unlikely to trust and take

<sup>1</sup><https://ccp.jhu.edu/kap-covid/kap-covid-trend-analysis-for-23-countries/>

<sup>2</sup>It is important to note that newer research questions this formulation of conspiracy ideation as monological, e.g., see Enders, Uscinski, Klofstad, Seelig, Wuchty, Murthi, Premaratne, and Funchion (2021).

advice from government-run health institutions, such as the U.S. Centers for Disease Control and Prevention (CDC) or the National Institute of Health (NIH; Einstein & Glick 2015). Individual psychological responses, such as uncertainty and anxiety, and contextual factors, such as an increase in misinformation present in the media environment, can contribute to the uptake of conspiratorial beliefs (Grzesiak-Feldman 2013; Kim & Kim 2021; De Connick et al. 2021; Larsen et al. 2021). Social media has proven to be an especially virulent vector of transmission for COVID-19-specific conspiracy theories, with exposure reducing the likelihood of compliance among recipients (Allington et al. 2020; Georgiou, Delfabbro, & Balzan 2020; Basch et al. 2021).

Most relevant for our research, recent studies suggest a significant relationship between conspiratorial beliefs, institutional trust, and COVID-19 attitudes and behaviors (Bierwiazzonek, Kunst, & Pich 2020; Havey 2020; Uscinski et al. 2020; Caplanova et al. 2021; Bruder & Kunert 2022; Pummerer et al. 2022). We follow Bruder & Kunert (2022) by examining the proposed mediating role of institutional trust between conspiratorial ideation and COVID-19 behaviors. However, the two surveys were fielded contemporaneously, and we focus on a subset of the population known to be less compliant than the general population (Bruder & Kunert 2022). Our focused approach provides greater insight into the factors contributing to low rates of mitigation behaviors and, thus, higher rates of COVID-19 infection amongst this targeted population (Chu et al. 2020). Our approach is complementary to broadly representative approaches, and the trade of specificity over generalizability is worthwhile where population subsets exhibit atypical behaviors. Approaches such as this may illuminate relationships unobservable to the public. They, therefore, may be of greater importance in developing strategies to induce greater rates of preventative behaviors amongst recalcitrant populations.

## Hypotheses

We theorize that lower levels of institutional trust and higher levels of conspiratorial ideation will decrease the likelihood of individuals adopting COVID-19 mitigation behaviors — masking, social distancing, and encouraging others to socially distance. Additionally, we posit that institutional trust mediates the relationship between conspiratorial ideation and COVID-19 behaviors — higher conspiratorial ideation leads to lower institutional trust, reducing the likelihood of adopting COVID-19 mitigation behaviors. We maintain that conspiratorial ideation has a direct effect on the likelihood of mitigation behaviors, but much of this effect manifests in lower institutional trust.

Before fielding the survey, we preregistered our research hypotheses through the Open Science Foundation. Though the mediating effect of conspiratorial ideation through institutional trust is not explicitly included in the preregistered study information, our expectations are in line with our underlying theory due to the rapidly evolving nature and information on the pandemic at that time. This can be inferred from preregistered hypotheses 4 and 6, discussing the negative impact of conspiratorial ideation and the positive impact of institutional trust, respectively. Hypothesis preregistration is one component of the open science movement, attempting to introduce greater standards of transparency and replicability in the social sciences. The transparency provided by preregistration increases trust in social scientific findings and far outweighs the costs of doing so.<sup>3</sup>

Formally stated, our hypotheses are:

**H<sub>1</sub>**: Respondents higher in conspiratorial ideation will be less likely to adopt appropriate COVID-19 mitigation behaviors than respondents lower in conspiratorial ideation.

**H<sub>2</sub>**: Respondents lower in institutional trust will be less likely to adopt appropriate COVID-19 mitigation behaviors than respondents higher in institutional trust.

**H<sub>3</sub>**: Institutional trust mediates the relationship between conspiratorial ideation and COVID-19 behaviors.

## Data

We preregistered our hypotheses, survey questionnaire, and research methodology to test these expectations. We focus on a population with lower expected levels of COVID-19 mitigation behaviors: Republican voters in a highly conservative exurb of Atlanta.<sup>4</sup> Epidemiological research regularly focuses on specific geographical areas to examine pathogens' origins or rapid spread (Di Giallonardo et al. 2016; Dudas et al. 2017). We expect that geographically distinct regions characterized by lower rates of COVID-19 mitigation behaviors will contribute to the spread of COVID-19 to a greater extent than other comparable areas. This expectation derives from the recent findings that Republicans are less likely to comply with COVID-19 mitigation behavior (Allcott et al. 2020), are more likely to believe in COVID-19 conspiracy theories through increased conservative media consumption (Stecula & Pickup 2021), and are more likely than Democrats to believe in a variety of conspiracy theories

<sup>3</sup>[https://osf.io/wqha8/?view\\_only=5459e3685a994a93868f31bedd746256](https://osf.io/wqha8/?view_only=5459e3685a994a93868f31bedd746256)

<sup>4</sup>Exurb refers to distinct regions outside of a suburb; generally characterized by prosperous communities. Cobb County, GA.

(Havey 2020; Uscinski et al. 2020; Enders, Smallpage, & Lupton 2020; Enders & Smallpage 2019).<sup>5</sup> The lower rates of these behaviors in our sample, compared to the general public, are presented in the Online Appendix, Table A4.

This research uses the results of a survey fielded in an exurban county in Atlanta from September 2nd to October 7th, 2020, in three waves. This survey gauged respondents' reported mitigation behaviors for COVID-19. We chose this population for their atypical resistance to COVID-19 mitigation behaviors and strong partisan identification as Republican. Public health crises often propagate through definable populations at greater rates than the general public (Millett et al. 2010). Understanding the transmission patterns in these communities and thus developing population-specific mitigation efforts may provide a proportionally greater impact than interventions in the general public.

The survey proceeded as follows: Respondents were identified and contacted by Cygnal, a political polling firm specializing in reaching respondents in our area of interest, based on voting records to identify consistent Republican voters. Respondents agreed to participate for a monetary incentive – a five-dollar Amazon gift card upon completion of all waves. Respondents were sent a link to the survey via SMS or email. Respondents answered a series of behavioral and attitudinal questions regarding COVID-19, were given a treatment analyzed elsewhere, and closed with a series of demographic questions – age, gender, race, income, and education, among others. The second wave proceeded with the same format after a delay of two weeks, with the final wave fielded a week after the second. The first survey wave comprised 829 respondents, with 291 returning for the second and 181 for the third. The complete survey questionnaire can be found in online Appendix B.

The behavioral responses collected in the first wave form the outcome variables of interest for this research. Specifically, the survey asked respondents about their likelihood of masking, social distancing, and encouragement of others (family and friends) to mask and/or socially distance. Rather than examine each composite factor individually, we constructed an aggregate measure for COVID-19 behaviors. Each measure's composite elements correlate at moderate levels but not at the  $\alpha \geq 0.7$  level desired to form additive or multiplicative indices with confidence. We instead perform confirmatory factor analysis to predict the latent measure of behaviors used in the analysis.<sup>6</sup> This predicted factor forms the outcome of interest for this research. This approach allows for a more holistic view of behaviors relating to COVID-19, which we view as theoretically preferable to individual outcomes. Notably, the results for the individual behavior measures are substantively identical to the combined results discussed below - see Online Appendix C, Tables C2, C3, and C4. Descriptive statistics for all measures used are presented in Online Appendix A, Table A1.

We used the multi-wave design to include three abbreviated psychometric batteries in the later waves. Conspiratorial ideation was measured via an abbreviated version of the battery developed by Brotherton, French, and Pickering (2013). Conspiracy ideation is important for fully understanding American politics, which has featured prominent conspiracy theories throughout its history (Knight 2003; Moore 2016). Illuminating the relationship between health behaviors and conspiratorial ideation may provide practical insights for harm reduction and mitigation strategies. This battery measures conspiratorial ideation along five subdomains – personal well-being, government malfeasance, extraterrestrial cover-up, malevolent global conspiracies, and information control. Conspiratorial ideation is theorized as longitudinally stable and domain-general – relatively static over time and capturing a propensity towards general belief in such theories beyond only those included in the battery (Brotherton, French, & Pickering 2013). The full conspiratorial ideation battery was prohibitively lengthy for our purposes. Thus, we excluded items related to personal well-being as the subject matter (COVID-19) would likely affect responses. We then selected eight items from the remaining four subdomains, over-selecting items in the government malfeasance and control of information subdomains. This was done to eliminate irrelevant or otherwise immaterial items for this study. We selected the remaining items based on their factor loadings in the original work. This battery's results form an additive index, with higher values indicating a higher value of conspiratorial ideation. The study's other measured psychological variables are beyond the scope of this research.

The survey also measured respondent's trust in public health institutions – both state and federal. We anticipate our sample – Republican voters in a state with a Republican trifecta of elected officials when the survey was fielded – will trust state institutions and their mitigation messaging over federal institutions, given the high politicization of federal institutions during the pandemic, such as the CDC and NIH. The state and federal institutional trust measures correlate at  $\alpha = 0.526$ , illustrating some disparity in trust; we therefore analyze these variables separately. Trust in state and federal institutions is measured on a 5-point scale, where higher values indicate higher trust.<sup>7</sup>

The demographic variables are included in the analysis to account for their influence, political ideology, and personal experience with COVID-19. Ideology is measured via the standard ANES 7-question battery, with higher values indicating more

<sup>5</sup>This may be due to an increased prevalence of conspiratorial ideation among this population or more frequent media exposure that promotes such theories (Stempel, Hargrove, & Stempel III 2007; Zhao et al. 2020). Any explanation for this prevalence is beyond the scope of this research.

<sup>6</sup>Specifically, responses to the question: "Do you believe you or someone in your household, a friend, or a coworker has been infected with COVID-19 at any time?" Where 1 is 'No', 2 is 'Yes, but not confirmed via test,' and 3 is 'Yes, confirmed via a test.'

<sup>7</sup>Specific question wording: "I trust COVID-19-related news from official Georgia government sources, such as the Georgia Department of Public Health and the Governor's Office" and "I trust COVID-19-related news from official national government sources, such as the Centers for Disease Control (CDC) and the National Institutes of Health (NIH)".

conservative identification, though respondents only responded to 5 of these options. Ideology is included because existing and emerging research indicates a significant influence of ideology on conspiratorial beliefs and a stark partisan divide in responses to COVID-19 (Douglas et al. 2019; Allcott et al. 2020). Even though our sample consists almost entirely of Republicans (94%), ideological variability within Republicans may significantly impact responses. Those more conservative respondents may be less likely to engage in safe behaviors, as opposed to their less conservative counterparts. Personal experience with COVID-19 is measured as a trinary variable, where higher values indicate a higher level of personal experience, i.e., has personally witnessed the impact and severity of COVID-19.<sup>8</sup> We assume that respondents who have personally experienced COVID-19 are more aware of the dangers and expected to adopt mitigating COVID-19 behaviors. However, this question is not a focus of our research, and we include this measure to account for the influence of this potentially confounding factor on our outcomes of interest.

## Methods

We examine the direct relationships between our preregistered hypotheses and our proposed mediation pathway – conspiratorial ideation affecting trust in public health institutions and, consequently, affecting COVID-19 behaviors. The direct relationships are analyzed through a series of linear regression analyses to identify the influence of conspiratorial ideation, institutional trust, and demographic variables on COVID-19 behaviors.<sup>9</sup> Conspiratorial ideation and institutional trust are also modeled as interaction terms to identify the mutual influence on COVID-19 behaviors. All models are robust to the linear regression assumptions, and post-estimation tests confirm the proper functioning of the specified models.<sup>10</sup> The only exception is that several models exhibited heteroskedastic residuals. We adopt the Efron (1982) calculation of ‘robust’ standard errors in these models to account for this heteroskedasticity. The Efron variant is optimal due to its greater ability to manage relatively low sample sizes (Long & Ervin 2000). This implementation is noted where used. We then test our third hypothesis through mediation analysis, first proposed by Baron & Kenny (1986) and more recently by Brader, Valentino, & Suhay (2008) and Bruder & Kunert (2022). This is done to test the proposed mediating effect of institutional trust between conspiratorial ideation and COVID-19 behaviors. The entire process and results are presented in the Online Appendix D. The relevant results are presented in Figure 2.<sup>11</sup> Of course, as with all survey research, these correlational results are open to critiques over omitted variable bias, endogeneity, and generalizability.

## Results

Table 1 presents the coefficient estimates for the relationship of institutional trust and conspiratorial ideation on COVID-19 behaviors. These results provide strong suggestive evidence for Hypotheses 1 and 2. Respondents higher in conspiratorial ideation are less likely to adopt COVID-19 mitigating behaviors. Substantively, moving from the minimum to maximum value of conspiratorial ideation reduces the predicted likelihood of positive COVID-19 behaviors by roughly 2 units – out of a possible 3.<sup>12</sup> Respondents higher in institutional trust, both state and federal, are more likely to adopt COVID-19 mitigating behaviors. The effect size of federal trust is greater than that of state trust. This is expected given the Republican control of Georgia’s politics and the conservative movement’s common refrain about the desirability of devolution of powers to state governments. However, it was not explicitly hypothesized for the study. These effects are consistent when demographic measures, personal experience with COVID-19, and ideology are included in the analysis.

<sup>8</sup>Specifically, responses to the question: “Do you believe you or someone in your household, a friend, or a coworker has been infected with COVID-19 at any time?” Where 1 is ‘No’, 2 is ‘Yes, but not confirmed via test,’ and 3 is ‘Yes, confirmed via a test.’

<sup>9</sup>Although the composite measures used in factor analysis are ordinal in nature – five-item Likert scales – the resulting predicted factor is a normally distributed continuous variable. As such, linear regression and not ordered logistic regression is the most appropriate statistical approach for this analysis.

<sup>10</sup>The results of all post-estimation tests are available upon request.

<sup>11</sup>Stars signify statistical significance at difference  $\alpha$  levels \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\*  $p < 0.01$ .

<sup>12</sup>See Online Appendix Table A1 for descriptive statistics of all variables.

**Table 1.** Effect of Conspiratorial Ideation and Institutional Trust on Predicted COVID-19 Mitigation Behaviors.

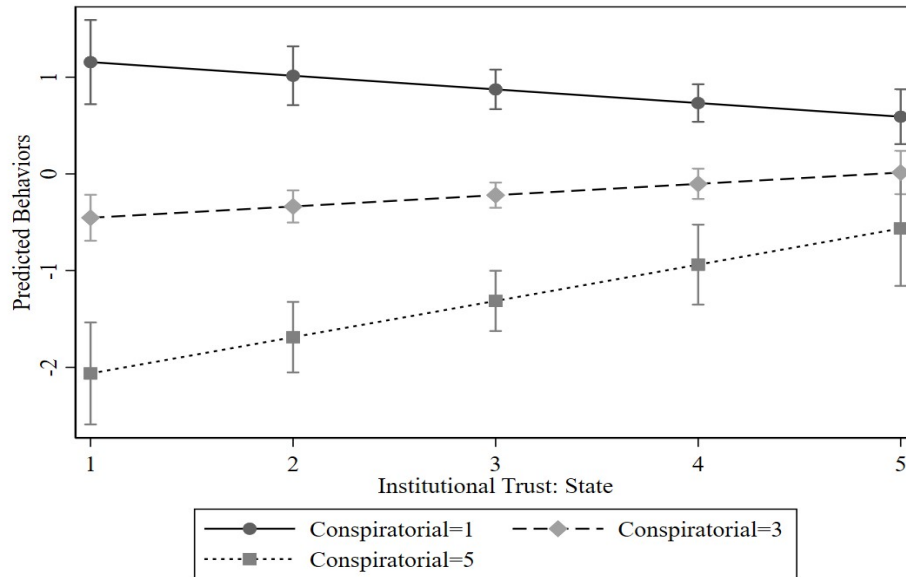
Conspiratorial Ideation	-0.513*** [0.057]	-0.446*** [0.080]				
Institutional Trust: State			0.155*** [0.045]	0.170*** (0.054)		
Institutional Trust: Federal					0.265*** [0.038]	0.276*** (0.049)
Female		0.234* [0.124]		0.109 (0.125)		0.122 (0.116)
Age		0.063 [0.079]		0.118 (0.084)		0.096 (0.079)
Income		-0.121 [0.080]		-0.089 (0.085)		-0.075 (0.079)
Education		-0.072 [0.103]		-0.062 (0.105)		-0.162 (0.100)
Ideology		-0.129** [0.062]		-0.281*** (0.073)		-0.144** (0.071)
Person of Color		-0.113 [0.178]		-0.065 (0.200)		0.032 (0.187)
COVID-19 Personal Experience		-0.037 [0.071]		-0.135* (0.081)		-0.086 (0.076)
Constant	1.339*** [0.140]	2.107*** [0.577]	-0.456*** [0.170]	0.928 (0.599)	-0.773*** [0.145]	0.260 (0.574)
N	203	154	314	149	314	148
Adjusted R <sup>2</sup>	0.249	0.223	0.042	0.127	0.151	0.234

*Note.* Values presented are linear regression estimates. Dependent variable is predicted COVID-19 behaviors - coded such that higher values indicate a higher likelihood of behaving in line with scientific recommendations for COVID-19 transmission mitigation. Gender and race are dummy variables coded such that 1 denotes female and person of color respectively. Higher values of ideology denote more conservative responses. All other variables coded such that higher values indicate higher levels of variable name. Standard errors in parentheses. Efron (1982) variant standard errors in square brackets. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01.

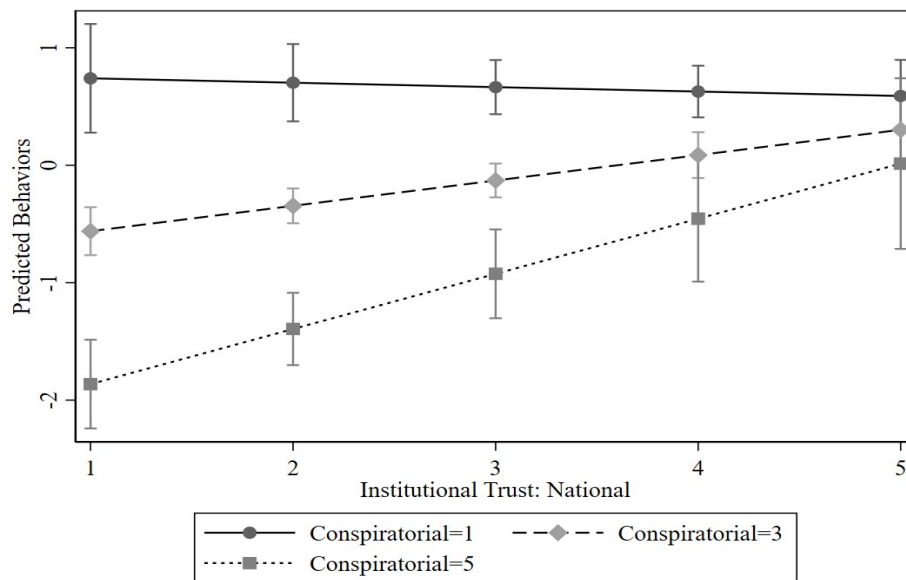
Figures 1 and 2 present the estimates of the interaction effect of conspiratorial ideation and institutional trust on COVID-19 behaviors.<sup>13</sup> Both sets of coefficient estimates – for state and federal institutional trust interacted with conspiratorial ideation – are positive and statistically significant, with and without demographic factors, indicating their mutual influence on behavior and independent influence. Low institutional trust and high conspiratorial ideation levels result in the lowest predicted rate of positive COVID-19 behaviors. Substantively, this means that conspiratorial ideation exerts an additional negative effect on those lowest in institutional trust. Individuals who are low in institutional trust and conspiratorial ideation are more likely to adopt scientifically accepted mitigation behaviors than those who are low in institutional trust and high in conspiratorial ideation.

Having established the influence of conspiratorial ideation and institutional trust on COVID-19 behaviors, we next examine these variables’ potential causal pathways. Our hypothesized relationship is that institutional trust mediates the relationship between conspiratorial ideation and COVID-19 behaviors. We examine this claim through mediation analysis. As illustrated in Figure 3, federal institutional trust partially mediates the negative impact of conspiratorial ideation on COVID-19 behaviors, while state institutional trust does not mediate this relationship. The indirect effect of conspiratorial ideation on COVID-19 behaviors is statistically significant, as indicated by Sobel’s z-test, meaning that conspiratorial ideation contributes to lower federal institutional trust, contributing to lower compliance with COVID-19 mitigation behaviors. However, the indirect effect size – conspiratorial ideation through federal institutional trust in behaviors – is roughly 30% of the direct effect size

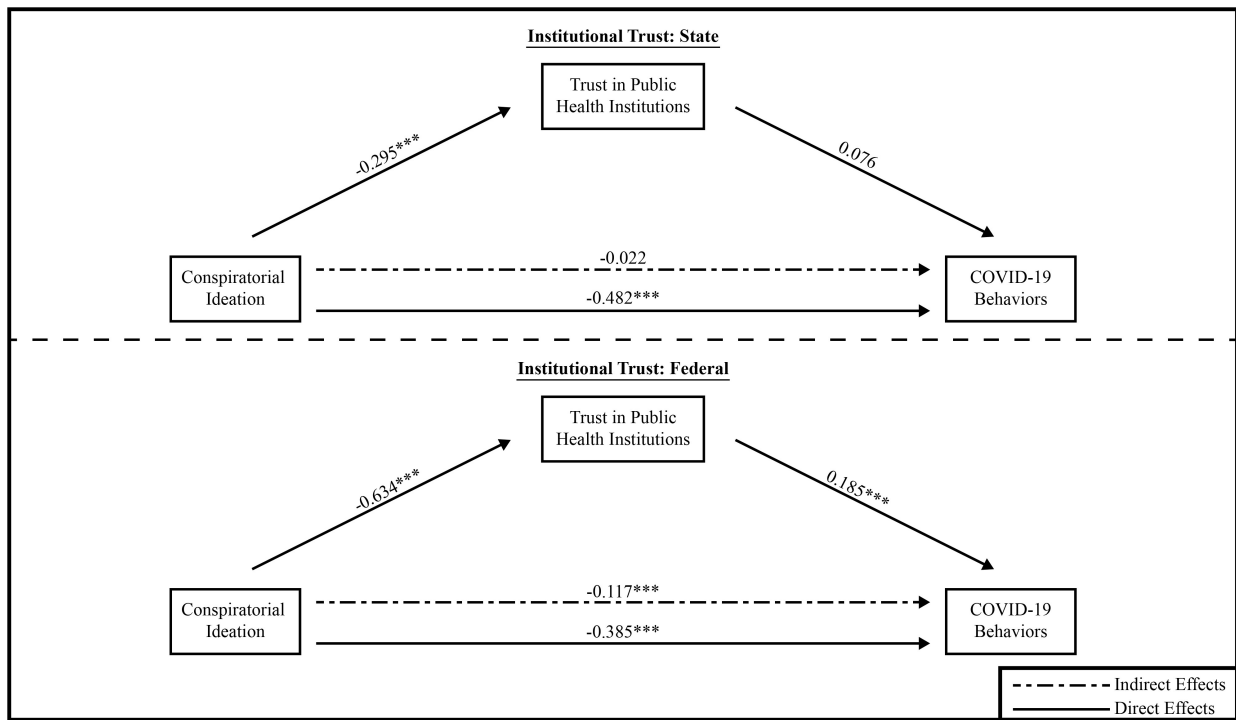
<sup>13</sup>Full table omitted for aesthetic purposes. Reporting primary findings via format, coefficient (standard errors). Interaction of state institutional trust and conspiratorial ideation without demographics, 0.129 (0.044); interaction of state institutional trust and conspiratorial ideation with demographics, 0.131 (0.066); interaction of federal institutional trust and conspiratorial ideation without demographics, 0.127 (0.042); interaction of federal institutional trust and conspiratorial ideation with demographics, 0.130 (0.056). All reported coefficients are statistically significant at the  $\alpha = 0.05$  level. See Table C1 in Online Appendix C for the full results.



**Figure 1.** Interaction Effect of Institutional Trust and Conspiratorial Ideation on COVID-19 Behaviors, State Level



**Figure 2.** Interaction Effect of Institutional Trust and Conspiratorial Ideation on COVID-19 Behaviors, Federal Level



**Figure 3.** Effect of Conspiratorial Ideation on COVID-19 Mitigation Behaviors, Mediated by Institutional Trust

(conspiratorial ideation on behaviors). Therefore, we can conclude that while federal institutional trust is an influential factor in mediating the relationship between conspiratorial ideation and COVID-19 behaviors, most of this relationship lies in the direct effect of conspiratorial ideation.

Figure 3 illustrates that trust in state institutions does not mediate the effect of conspiratorial ideation on COVID-19 behavior. This further supports our decision to analyze state and federal institutional trust separately, as federal institutional trust appears to suffer from a distinct ‘anti-Washington’ sentiment among our sample. Any explanation for this sentiment is beyond this paper’s scope.

### Conclusion

Our results provide strong suggestive evidence that respondents higher in conspiratorial ideation and lower in institutional trust are less likely to adopt COVID-19 mitigation behaviors. This effect is robust where demographic variables are considered. We find that the preponderance of this relationship is due to the influence of conspiratorial ideation. However, a lack of trust in federal public health institutions also contributes to lower rates of COVID-19 mitigation behaviors. The disparity between trust in the state and federal public health institutions should guide future attempts to influence resistant populations – messaging from the CDC will be less efficacious than messaging from the Georgia Department of Public Health, for example. Future research should explore if this disparity is contingent on in-party control of state politics, as was the case in Georgia when the survey was fielded, or if this effect is exacerbated with out-party control of the federal government.

This research highlights the importance of combating conspiracy theories during public health crises. Many of these conspiracy theories are political, such as the origins of COVID-19 as a deliberate plot by the Chinese government or a globalist cabal enacted through 5G technology (Romer & Jamieson 2020; Bolsen, Palm, & Kingsland 2020). Psychological factors such as conspiratorial ideation may play a more significant role in determining health behaviors than previously considered, directly and indirectly impacting institutional trust. This underscores the need for a unified, multidisciplinary approach, marrying the foci of political science, psychology, and public health to understand the multifaceted nature of such problems better and develop holistic solutions. Future work in public health should deeply consider the influence of political attitudes and psychological factors on the likelihood of success in gaining compliance from the targeted audience.

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