In harm's way, but not stressed about it: On the antecedents and
consequences of belief in COVID-19 conspiracy theories

Javier A. Granados Samayoa¹, Courtney A. Moore¹, Benjamin C. Ruisch²,
Shelby T. Boggs¹, Jesse T. Ladanyi¹, & Russell H. Fazio¹

¹ Department of Psychology, The Ohio State University, Columbus, Ohio, USA

² Institute of Psychology, Leiden University, Leiden, The Netherlands

Author Note

This research was supported by a RAPID grant from the National Science Foundation [Award ID BCS-2031097 (RHF)].

Correspondence concerning this article should be addressed to Russell H. Fazio, Department of Psychology, The Ohio State University, 1835 Neil Avenue, Columbus, Ohio 43210. Telephone: 614-688-5408. Email: fazio.11@osu.edu.

Declarations of interest: none

Word count: 4,984

Abstract

Conspiracy theories proliferate during times of turmoil. Not surprisingly, the COVID-19 pandemic has created an environment in which virus-related conspiracy theories have thrived. The current study leverages prior research to shed light on the antecedents and consequences of conspiracy theory beliefs in the important, real-world context of the COVID-19 pandemic. Specifically, we found that suffering greater negative economic consequences due to the pandemic predicted greater belief in COVID-19 conspiracy theories, and this relation was strongest among those generally inclined to believe conspiracy theories. We then examined the consequences of coming to hold such beliefs. Greater endorsement of COVID-19 conspiracy theories predicted less social distancing behavior, greater minimization of the threat of COVID-19, and lower levels of general stress. These findings replicate and extend prior research showing a link between conspiracy theory beliefs and rejection of scientific advice, but also offer evidence pointing to a psychological benefit of believing conspiracy theories.

Keywords: conspiracy theories, conspiracist ideation, stress, social distancing, COVID-19

Word count: 150

In the late 2010's, journalists and commentators proclaimed that conspiracy theories—explanations for events that involve secretive plots by nefarious and powerful groups of people (Douglas et al., 2017)—were enjoying their golden age (Collins, 2018; Goldberg, 2019). Violent incidents inspired by the QAnon conspiracy theory (Beckett, 2020) and disease outbreaks linked to the antivax movement (CDC, 2019)—among other events—have brought the topic to the forefront of public consciousness. There is reason to believe, however, that belief in conspiracy theories has remained relatively steady over time. After all, conspiracy-based accounts have enjoyed some degree of popularity for centuries (van Prooijen & Douglas, 2017). A content analysis of letters written to the New York Times between 1890 and 2010 conducted by Uscinski and Parent (2014) found that conspiratorial content had generally remained steady over time, and Google Trends data suggest a similarly steady pattern from 2016 to start of 2020. When spikes were evident in these data, they aligned with times of social turmoil.

It comes as no surprise, then, that the coronavirus disease 2019 (COVID-19) pandemic—which has caused widespread disruptions and damage not seen in a century—has spawned numerous conspiracy theories. The current study leverages this important real-world situation to explore the antecedents and consequences of believing two such COVID-19 conspiracy theories. Before outlining our hypotheses, we provide a brief review of the conspiracy theory literature.

Antecedents of Belief in Conspiracy Theories

Consistent with historical trends, experimental work suggests that people gravitate toward believing conspiracy theories when situations threaten existential or epistemic motives—i.e., those related to maintaining a sense of understanding, control, and security (see Douglas et al., 2017 and Douglas et al., 2019, for a comprehensive review of the factors influencing conspiracy theory beliefs). In one study, people who were waiting to take an exam—an anxiety-

inducing situation—reported greater endorsement of conspiracy theories about Jewish people than did people who were simply waiting to hear a lecture—a much more relaxed setting (Grzesiak-Feldman, 2013). Other experiments have found that people report greater belief in conspiracy theories when induced to experience uncertainty or a lack of control (van Prooijen & Jostmann, 2013; Whitson & Galinsky, 2008).

There is also evidence that certain people generally gravitate toward conspiracy theories when explaining events (colloquially known as “conspiracy theorists”). *Conspiracist ideation*—the general tendency to believe conspiracy theories—has been assessed in a variety of ways. One method asks people to indicate the extent to which they endorse a variety of specific conspiracy theories about real-world issues or events. Participants in one study reported their level of agreement with conspiracy theories ranging from the deliberate release of HIV/AIDS to alternative accounts of the assassination of John F. Kennedy. In line with expectations, there were individual differences in the extent to which participants endorsed the conspiracy theories: whereas some individuals reported believing many, others believed none, and most people fell in between (Goertzel, 1994; see Miller et al., 2016 and Oliver & Wood, 2014, for additional examples).

An alternative method of assessing conspiracist ideation instead asks participants to report the extent to which they agree with a number of generic statements that capture the essence underlying many conspiracy theories (e.g., “The government has employed people in secret to assassinate others”). Such general measures have been shown to predict belief in more specific conspiracy theories (e.g., Brotherton et al., 2013; see Swami et al., 2017, for a review) and attitudes towards issues like vaccination and the use of genetically-modified organisms (Hornsey, 2020; Lewandowsky et al., 2013). Moreover, one study found that the positive relation

between exposure to a conspiracy cue and belief in a related conspiracy theory was strongest among those highest in conspiracist ideation (Uscinski et al., 2016). Thus, conspiracist ideation seems to amplify the influence of situational factors on belief in specific conspiracy theories, though such interactive effects are relatively understudied (see Gebauer et al., 2016 and Nyhan et al., 2016, for additional demonstrations).

Consequences of Belief in Conspiracy Theories

Believing conspiracy theories does not invariably lead to disastrous outcomes. However, as alluded to earlier in relation to conspiracy-fueled violence and disease outbreaks (Beckett, 2020; CDC, 2019), belief in conspiracy theories can sometimes carry great costs. The literature provides some clarity regarding the pathways through which conspiracy theory beliefs may lead to such unfortunate consequences. For instance, parents with greater vaccine-related conspiracy theory beliefs are less likely to vaccinate their children (Jolley & Douglas, 2014a; Tomljenovic et al., 2020). More broadly, belief in conspiracy theories predicts denial of well-established scientific findings (e.g., smoking causes cancer; Lewandowsky et al., 2013). This link between belief in conspiracy theories and behavior that defies scientific advice can have serious consequences for the believer and those around them (see Douglas et al., 2019, for a review).

Are these potentially serious costs, however, not accompanied by some immediate benefits for the conspiracy theory believer? Indeed, one potential consequence of believing in conspiracy theories is conspicuous by its absence: there is a surprising lack of evidence that believing conspiracy theories fulfills the existential and epistemic motives that seem to drive people to believe them (Douglas et al., 2017). That is, even though one reason people gravitate toward conspiracy theories is the experience of threat, it is not clear that believing in these conspiratorial explanations alleviates the threat and makes people feel better. In fact, the

available research suggests quite the opposite. People experience a greater lack of control, and more powerlessness, uncertainty, and disillusionment after being exposed to conspiracy theories (Jolley & Douglas, 2014a, 2014b), and the tendency to believe conspiracy theories is associated with poorer well-being, among a variety of other undesirable mental health outcomes (Freeman & Bentall, 2017; Furnham, 2017).

The COVID-19 Pandemic and Current Study

In late 2019, the severe acute respiratory syndrome coronavirus 2 quickly spread around the world, leaving millions dead and many more ill. The resulting COVID-19 pandemic created a turbulent environment that fostered the formation of conspiracy theories. The purpose of this study is to use this unique real-world setting to test hypotheses about the situational and dispositional factors that predict endorsement of specific conspiracy theories, and in turn, to examine how these beliefs influence people's appraisals and behavior. To do so, we used data from a large multi-wave project focused on developing and testing a general model of compliance in the context of the COVID-19 pandemic (Fazio et al., 2021a).

As a large-scale crisis that disrupted people's lives in countless ways, the pandemic represents the kind of real-world situation that fosters conspiracy theory beliefs by making people feel anxious, uncertain, and powerless. In this study, we focus on one specific driver of such feelings: the degree to which people have experienced economic consequences as a result of the COVID-19 pandemic. To complement this situational predictor of conspiracy theory beliefs, we also assessed people's level of conspiracist ideation, and examined whether it amplified the effects of suffering negative economic consequences. Though many conspiracy theories about the pandemic have gained popularity, we elected to focus on two accounts that have been the subject of previous research (Imhoff & Lamberty, 2020)—one that focuses on COVID-19 being

intentionally misrepresented as dangerous to mislead the public and the other on COVID-19 being intentionally released for nefarious purposes. We predict that the experience of negative economic consequences will interact with conspiracist ideation to predict endorsement of COVID-19 conspiracy theories: the more people experience negative economic consequences, the more they will believe COVID-19 specific conspiracy theories, and this relation will be all the stronger among those initially higher in conspiracist ideation.

We then turn our attention to examining the downstream effects of this relation between negative economic consequences and belief in COVID-19 conspiracy theories. First, we focus on a potential negative consequence of greater belief in COVID-19 conspiracy theories—less adherence to social distancing recommendations (see Figure 1). The belief that COVID-19 is being misrepresented as dangerous obviously minimizes its seriousness. The thought that COVID-19 was intentionally released may further fuel rejection of science. Consequently, those who more strongly endorse these COVID-19 conspiracy theories should tend to social distance less. Previous research using self-report measures of social distancing has found evidence to support this relation (e.g., Bierwiazzonek et al., 2020; Imhoff & Lambert, 2020). However, self-report measures are susceptible to social desirability concerns and memory biases—a tendency that may be all the more pronounced given the sensitive nature of the issue at hand (Leary & Kowalski, 1990; Ross, 1989). As an alternative to self-reports, Fazio and colleagues (2021a) developed a more behaviorally-oriented measure that assesses social distancing by simulating the kind of situations in which people make decisions about the distance they keep from others in the real world. Specifically, participants see a variety of images that mirror real-world situations, and they are asked to virtually place themselves in relation to other individuals in the visual scenario.

This virtual behavior measure of social distancing has been shown to outperform self-report measures as a longitudinal predictor of contracting COVID-19 (Fazio et al., 2021b).

Figure 1. Conceptual diagram of the conditional process model linking negative economic consequences and conspiracist ideation to belief in COVID-19 conspiracy theories and belief in COVID-19 conspiracy theories to social distancing behavior.

Next, we examine the relation between endorsement of COVID-19 conspiracy theories and people's perceptions of the threat posed by COVID-19. As previously discussed, the literature suggests that psychologically-threatening events are linked to greater belief in conspiracy theories as people turn to these kinds of explanations to restore their sense of understanding, control, and security. That is, belief in conspiracy theories should serve to alleviate feelings of threat. To our knowledge, however, there is no evidence that believing conspiracy theories successfully relieves people's psychological discomfort, and in fact, it has been suggested that it may have an ironic effect in this regard (Douglas et al., 2017). To shed light on the relation between belief in conspiracy theories and people's appraisal of threat, we assessed their beliefs regarding the threat posed by COVID-19 (see Figure 2), and hypothesized

that more endorsement of COVID-19 conspiracy theories would predict greater minimization of the threat.

Figure 2. Conceptual diagram of the conditional process model linking negative economic consequences and conspiracist ideation to belief in COVID-19 conspiracy theories and belief in COVID-19 conspiracy theories to belief that the threat of COVID-19 was exaggerated.

Lastly, we examined whether belief in COVID-19 conspiracy theories predicted general levels of stress (see Figure 3). Might endorsement of conspiracy theories provide psychological relief that extends beyond appraisals of the threat itself? We predict that, controlling for the experience of negative economic consequences, greater belief in COVID-19 conspiracy theories will predict less global stress. Results consistent with these latter hypotheses would begin to explain the allure of conspiracy theories during times of turmoil as they point to beneficial effects of endorsing conspiracy theories for the believer.

Figure 3. Conceptual diagram of the conditional process model linking negative economic consequences and conspiracist ideation to belief in COVID-19 conspiracy theories and belief in COVID-19 conspiracy theories to general stress.

In sum, we predict that belief in COVID-19 conspiracy theories will act as a mediator linking the experience of negative economic consequences due to the pandemic to less social distancing, greater minimization of the threat of COVID-19, and less global stress. Importantly, this indirect effect should be most pronounced for those highest in general conspiracist ideation.

Methods and Materials

The data were collected using the Mechanical Turk (MTurk) platform on June 9, 2020. Given the manner through which the virus is transmitted and the infection rate in the United States of America at the time, online data collection was the only legal and ethical method of conducting the study. That said, using the MTurk platform did provide advantages over alternative methods of data collection, including greater demographic (e.g., Paolacci & Chandler, 2014) and geographic diversity than is found in college student samples often used in psychological research. Despite being more diverse, MTurk samples generally perform similarly to samples drawn from other sources across many tasks (Berinsky et al., 2012). Moreover, relations that have been reported elsewhere in the literature (e.g., between disgust sensitivity and

perceived vulnerability to disease) are successfully replicated in this sample (Fazio et al., 2021a; Granados Samayoa et al., 2021). Given the unique context surrounding this project and evidence of validity of the data, we judged the MTurk sample as providing an appropriate test of our hypotheses.

Among a variety of other instruments (see Fazio et al., 2021a, for a full list), participants completed the virtual behavior measure of social distancing consisting of a number of different scenarios, after which they responded to measures of belief in COVID-19 conspiracy theories, conspiracist ideation, negative economic consequences suffered as a result of the pandemic, belief that the threat of COVID-19 was exaggerated, and general stress, followed by a battery of demographic questions. The Institutional Review Board at [REDACTED] approved all study procedures. All relevant measures, manipulations, and exclusions are reported. Study materials, data, and syntax files can be retrieved online:

https://osf.io/9yrxv/?view_only=2f923ed5423743c0b41dec09c68545d8.

Participants

Five hundred and one MTurk workers provided informed consent and completed a ten-minute survey in exchange for \$1.00. The target sample size was selected to ensure stable estimates of correlation coefficients for the original project and good power to detect interaction effects for subsequent analyses (Fazio et al., 2021a; Schönbrodt & Perugini, 2013). A sensitivity analysis revealed that we were 80% powered to detect a small effect ($f^2 = 0.025$; Faul et al., 2007). Participation was restricted to USA-based workers. To obtain high-quality data, only those workers with 500+ approved HITs and a minimum approval rate of 95% were eligible to participate in the study. As an additional layer of data quality, participants who failed an

attention/comprehension check ($n = 60$) were excluded from the main analyses.¹ The final sample consisted of 441 participants (Gender: 201 female, 238 male, 1 gender identification not listed, 1 preferred not to answer; Age [years]: $M = 37.5$, $SD = 11.9$).

Measures

Negative Economic Consequences

The extent to which participants experienced negative economic consequences due to the COVID-19 pandemic was measured using one item (“To what degree have you and your immediate family personally suffered negative economic/financial consequences [e.g., laid-off, lost wages] because of the COVID-19 / coronavirus restrictions?”), which was rated on a seven-point scale ranging from $1 = \text{Not at all}$ to $7 = \text{Very much}$.

Conspiracist Ideation

Individual differences in conspiracist ideation were assessed using a shortened 10-item version of the Generic Conspiracist Beliefs scale ($\alpha = 0.94$; Brotherton et al., 2013). The two items from each of the five factors of the scale with the highest item-total correlations based on earlier studies were selected for inclusion in the study. Participants rated each item (e.g., “Secret organizations communicate with extraterrestrials, but keep this fact from the public”) on a five-point scale with the endpoints of *Definitely not true* and *Definitely true*.

Belief in COVID-19 Conspiracy Theories

Inspired by Imhoff and Lamberty’s (2020) research on the relation between COVID-19 conspiracy theories and different patterns of pandemic-related behavior, we measured belief in

¹ Inclusion of participants who failed the attention/comprehension check in the analyses does not substantively alter the results.

COVID-19 conspiracy theories by asking participants to indicate the extent to which they believed that (1) the COVID-19 pandemic was a hoax (“COVID-19 is intentionally presented as dangerous in order to mislead the public”) and (2) COVID-19 was deliberately created and released (“COVID-19 was intentionally brought into the world for dark purposes”) using a seven-point scale ranging from $-3 = \textit{Strongly disagree}$ to $+3 = \textit{Strongly agree}$. Because the two measures correlated strongly ($r = 0.80$), and given our interest in creating an index of the degree to which people believed conspiracy theories about the virus and pandemic, we averaged the two ratings to create a composite score.

Social Distancing Behavior

We assessed social distancing behavior through a series of ten graphical scenarios in which participants distanced themselves from others in the scene. In one scenario, participants used a slider to indicate the distance they would leave between themselves and a passer-by on the street. Another scenario asked participants to choose between travelling a circuitous but isolated park path versus a crowded but more direct route. All ten scenarios are available for demonstrations at <http://psychvault.org/social-distancing-measures/>. To account for differences in measurement scales across items, we standardized each item and then averaged the ten scores to index social-distancing behavior.

Belief that the Threat of COVID-19 is Exaggerated

To assess the degree to which people believed that the threat of COVID-19 was exaggerated, we employed a one-item measure (“Do you believe the threat of COVID-19 / the coronavirus has been exaggerated?”) that was rated on a four-point scale anchored by the endpoints $1 = \textit{Yes, I believe the threat has been greatly exaggerated}$ and $4 = \textit{No, I believe the}$

threat has not been conveyed strongly enough. For ease of interpretation, this item was reverse-scored such that higher numbers reflect greater belief that the threat of COVID-19 was exaggerated.

General Stress

The level of general stress experienced by participants was assessed with the item “Please rate how much stress you are currently experiencing in your daily life using the options below,” which was rated on a five-point scale bookended by the response options *No stress* and *An extreme amount of stress*.

Results

All variables were standardized prior to analysis. Our first analysis used Ordinary Least Squares (OLS) regression to test whether experiencing greater negative economic consequences due to the pandemic predicted greater belief in COVID-19 conspiracy theories, and whether this relation varied as a function of people’s conspiracist ideation. We regressed the composite COVID-19 conspiracy belief score on people’s reports of experiencing negative economic consequences, their score on the Generic Conspiracist Beliefs scale, and the interaction term between these two variables. As expected, there were main effects of experiencing negative economic consequences and conspiracist ideation. Greater belief in COVID-19 conspiracy theories was associated with experiencing more severe negative economic consequences, $\beta = 0.16$ (95% CI: 0.09, 0.23), $t(437) = 4.52$, $p < 0.001$, and higher levels of conspiracist ideation, $\beta = 0.64$ (95% CI: 0.57, 0.71), $t(437) = 17.70$, $p < 0.001$. Most importantly, these main effects were qualified by a significant interaction, $\beta = 0.07$ (95% CI: 0.0051, 0.13), $t(437) = 2.12$, $p = 0.035$. Among people relatively low in conspiracist ideation (1 *SD* below the mean), the relation

between experiencing negative economic consequences and belief in COVID-19 conspiracy theories was not statistically significant, $\beta = 0.093$ (95% CI: -0.0041, 0.19), $t(437) = 1.88$, $p = 0.06$. However, among those relatively high in conspiracist ideation (1 *SD* above the mean), experiencing greater negative economic consequences significantly predicted greater belief in COVID-19 conspiracy theories, $\beta = 0.23$ (95% CI: 0.14, 0.33), $t(437) = 4.83$, $p < 0.001$ (see Figure 4).

Figure 4. Belief in COVID-19 conspiracy theories by experience of negative economic consequences, conspiracist ideation, and their interaction. Higher numbers indicate greater belief in COVID-19 conspiracy theories.

We then turned to examining the downstream impact of this relation between negative economic consequences and belief in COVID-19 conspiracy theories. We began by regressing

composite social distancing behavior scores on the experience of negative economic consequences and belief in COVID-19 conspiracy theories. Together, these variables accounted for a significant proportion of variance, $R^2 = 0.12$, $F(2, 438) = 29.71$, $p < 0.001$. Although experiencing negative economic consequences was unrelated to social distancing, $\beta = 0.016$ (95% CI: -0.082, 0.11), $t(438) = 0.32$, $p = 0.75$, greater belief in COVID-19 conspiracy theories significantly predicted less social distancing behavior, $\beta = -0.35$ (95% CI: -0.45, -0.25), $t(438) = -7.08$, $p < 0.001$.

To quantify whether the indirect effect through which belief in COVID-19 conspiracy theories links experiencing negative economic consequences to social distancing behavior was moderated by conspiracist ideation (Figure 1), a moderated mediation model was constructed using the PROCESS macro for SPSS (model 7; Hayes, 2018). Specifically, we constructed bias-corrected bootstrap confidence intervals for the indirect effect (using 50,000 bootstrap samples) at relatively low (-1 *SD* below the mean) and high ($+1$ *SD* above the mean) levels of conspiracist ideation to test whether they were significantly different from each other. Consistent with our hypotheses, the results provided evidence of moderated mediation, index of moderated mediation = -0.025 (95% CI: -0.049, -0.0025). Although the bias-corrected bootstrap confidence interval for the indirect effect (constructed using 50,000 bootstrap samples) did not include zero for those people who were low in conspiracist ideation, indirect effect = -0.033 (95% CI: -0.067, -0.0004), this indirect effect was significantly larger among those relatively high in conspiracist ideation, indirect effect = -0.082 (95% CI: -0.13, -0.042).

Next, we focused on minimization of the threat of COVID-19 as an outcome by regressing this variable on people's experiences of negative economic consequences and belief in COVID-19 conspiracy theories. Once again, the predictors accounted for a significant proportion

of variance, $R^2 = 0.51$, $F(2, 438) = 227.20$, $p < 0.001$. The results revealed a marginally-significant positive relation between experiencing negative economic consequences and minimization of the threat of COVID-19, $\beta = 0.072$ (95% CI: -0.0007, 0.15), $t(438) = 1.94$, $p = 0.052$. Moreover, greater belief in COVID-19 conspiracy theories significantly predicted greater minimization of the threat of COVID-19, $\beta = 0.68$ (95% CI: 0.61, 0.75), $t(438) = 18.28$, $p < 0.001$.

To test for evidence of moderated mediation (Figure 2), we once again constructed bias-corrected bootstrap confidence intervals for the relevant indirect effect (using 50,000 bootstrap samples) at relatively low (-1 *SD* below the mean) and high ($+1$ *SD* above the mean) levels of conspiracist ideation to test whether they were significantly different from each other. The bias-corrected bootstrap confidence interval for the indirect effect did not include zero for those people who were low in conspiracist ideation (-1 *SD* below the mean), indirect effect = 0.063 (95% CI: 0.009, 0.12), yet this indirect effect was significantly larger among those relatively high in conspiracist ideation ($+1$ *SD* above the mean), indirect effect = 0.16 (95% CI: 0.083, 0.24)—providing evidence of moderated mediation, index of moderated mediation = 0.048 (95% CI: 0.0048, 0.093).

Lastly, we turned our attention to people's general level of stress as an outcome. First, we regressed reports of stress on the experience of negative economic consequences and belief in COVID-19 conspiracy theories. As before, these predictors accounted for a significant proportion of variance, $R^2 = 0.089$, $F(2, 438) = 21.41$, $p < 0.001$. As expected, greater negative economic consequences predicted higher levels of stress, $\beta = 0.32$ (95% CI: 0.22, 0.42), $t(438) = 6.40$, $p < 0.001$. This effect attests to the validity of the stress measure. More to the point, greater

belief in COVID-19 conspiracy theories predicted less stress, $\beta = -0.20$ (95% CI: -0.30, -0.10), $t(438) = -3.99$, $p < 0.001$ —providing support for our hypotheses.

We then tested whether the indirect effect through which belief in COVID-19 conspiracy theories links experiencing negative economic consequences to stress was moderated by conspiracist ideation (Figure 3). Once again, the results supported our hypotheses: though the bias-corrected bootstrap confidence interval for the indirect effect (50,000 bootstrap samples) did not include zero for those people who were low in conspiracist ideation, indirect effect = -0.019 (95% CI: -0.043, -0.0002), this indirect effect was significantly larger among those relatively high in conspiracist ideation, indirect effect = -0.047 (95% CI: -0.085, -0.019); index of moderated mediation = -0.014 (95% CI: -0.031, -0.0013).

Discussion

The results of this research provide a unique snapshot of the antecedents and consequences of belief in COVID-19 conspiracy theories. First, reports of experiencing negative economic consequences due to the pandemic and a well-validated measure of conspiracist ideation were used to predict endorsement of popular COVID-19 conspiracy theories. We find evidence that pandemic-triggered negative economic consequences and conspiracist ideation each predict greater endorsement of COVID-19-specific conspiracy theories. Moreover, conspiracist ideation moderated the link between experiencing negative economic consequences and belief in COVID-19 conspiracy theories such that suffering negative economic consequences predicted greater endorsement of conspiracy theories most strongly among those highest in conspiracist ideation. These findings—coupled with research pointing to factors like political ideology, institutional trust, knowledge about the virus and pandemic, and a tendency to disbelieve information disseminated by experts (Uscinski et al., 2020; see van Mulukom et al.,

2020, for a review)—contribute to our understanding of the antecedents of belief in COVID-19 conspiracy theories. Knowing which factors matter in the development of conspiracy theory beliefs in the current context is a key step in developing policies to curb their spread. More broadly, these significant main effects provide a replication of prior work demonstrating that events that threaten people's sense of understanding, control, and security *and* a general tendency to be conspiratorially-minded steer people in the direction of believing specific conspiracy theories (Brotherton et al., 2013; Grzesiak-Feldman, 2013; Klofstad et al., 2019; van Prooijen & Jostmann, 2013; Whitson & Galinsky, 2008)—and do so in an impactful, real-world context. The interactive effect of negative economic consequences and conspiracist ideation reported here adds to the relatively few empirical demonstrations of person-situation interactions reported in the literature (e.g., Gebauer et al., 2016; Nyhan et al., 2016; Uscinski et al., 2016), which underscores that though situational and dispositional variables help understand belief in conspiracy theories as independent predictors, an interactionist lens can provide the clearest picture (but see Nyhan et al., 2016).

Though these findings fit nicely with the extant literature, a skeptic may argue that the measure of negative economic consequences is too subjective, and we should have instead focused on more objectively-defined events that bring on economic hardship such as the loss of employment. However, we regard the broad, subjective nature of this measure as a strength. The pandemic created such widespread economic problems that people could suffer financially in ways that did not involve them losing their jobs (e.g., reduction of hours). Constructing a measure of events with negative economic consequences could therefore be somewhat lengthy and may still not capture all the ways in which people suffer financially because it would not account for the financial safety net available to each person. Thus, we believe that this study used

the most efficient and appropriate option to assess the negative economic consequences suffered as a result of the pandemic. That said, future research may compare how this subjective measure and one that is more objective in nature compare.

Our results also suggest that belief in COVID-19 conspiracy theories has important consequences. Equating for differences in the experience of negative economic consequences, belief in COVID-19 conspiracy theories predicted less social distancing. This finding is consistent with previous research showing that believing conspiracy theories is associated with a general rejection of scientific information and recommendations (Jolley & Douglas, 2014; Lewandowsky et al., 2013; Bogart & Thorburn, 2005; Tomljenovic et al., 2020). In the context of the current pandemic, belief in COVID-19 conspiracy theories has also been linked to reduced social distancing, as assessed by self-report measures (e.g., Biddlestone et al., 2020; Bierwiazek et al., 2020). Our study contributes to the literature by replicating these findings using a virtual behavior measure of social distancing, which has been shown to predict whether people subsequently contract COVID-19 better than self-report measures (Fazio et al., 2021b). Taken together, there is strong evidence that belief in COVID-19 conspiracy theories is linked to patterns of behavior (e.g., decreased social distancing) that increase people's likelihood of contracting and transmitting a deadly disease. Indeed, longitudinal data collected as part of the larger project from which the current paper originates ($n = 73$) revealed that greater endorsement of the very same COVID-19 conspiracy theories used in this study predicted an increased likelihood of testing positive for COVID-19 four months later, $\beta = 0.55$, $SE = 0.12$, Wald = 0.54, $p < 0.001$, odds ratio = 1.73. It is apparent, then, that belief in conspiracy theories can have dangerous consequences for the believer and those around them. Public health campaigns aimed at improving adherence with social distancing directives should consider the role of conspiracy

theories in shaping resistance and employ strategies that have been shown to reduce belief in conspiracy theories such as persuasive inoculation and ridiculing (Jolley & Douglas, 2017; Orosz et al., 2016).

As illustrated by the preceding paragraph, empirical demonstrations of the negative downstream consequences of believing conspiracy theories are relatively abundant. However, it is reasonable to expect that endorsing conspiracy theories would carry psychological benefits for the believer. However, there is a surprising lack of evidence for such beneficial effects (Douglas et al., 2017). Our findings reveal that those who believe in COVID-19 conspiracy theories tend to minimize the threat of COVID-19 to a greater degree. This relation provides valuable evidence that conspiracy theories serve to alleviate the psychological threat people experience in response to some distressing event. Beyond shaping appraisals of specific threats, belief in COVID-19 conspiracy theories was linked to stress. Despite suffering negative economic consequences, greater belief in COVID-19 conspiracy theories predicted less general stress. That is, stress increased as a result of economic difficulties, but it was decreased by the endorsement of specific conspiracy theories regarding COVID-19—particularly among those prone to conspiracist ideation. To our knowledge, this is the first study to provide evidence that believing in conspiracy theories carries a benefit for the believer.

Together, our models suggest that belief in COVID-19 conspiracy theories acts as a mediator linking greater negative economic consequences to less social distancing, greater minimization of the threat of COVID-19, and less stress, and that these relations are all the stronger among those highest in conspiracist ideation. By viewing belief in COVID-19 conspiracy theories in this role, the current research provides important replications and

extensions of prior work, as well as a key insight into a previously unsolved puzzle regarding potential benefits of conspiracy theory beliefs.

References

- Beckett, L. (2020, October 16). QAnon: A timeline of violence linked to the conspiracy theory. Retrieved April 01, 2021, from <https://www.theguardian.com/us-news/2020/oct/15/qanon-violence-crimes-timeline>
- Berinsky, A. J., Huber, G. A., & Lenz, G. S. (2012). "Evaluating online labor markets for experimental research: Amazon.com's Mechanical Turk." *Political Analysis*, 20, 351–368.
- Biddlestone, M., Green, R., & Douglas, K. M. (2020). Cultural orientation, power, belief in conspiracy theories, and intentions to reduce the spread of COVID-19. *British Journal of Social Psychology*, 59(3), 663–673.
- Bierwiazek, K., Kunst, J. R., & Pich, O. (2020). Belief in covid-19 conspiracy Theories reduces social Distancing over time. *Applied Psychology: Health and Well-Being*, 12(4), 1270-1285.
- Bogart, L. M., & Thorburn, S. (2005). Are HIV/AIDS Conspiracy beliefs a barrier to HIV prevention among African Americans? *Journal of Acquired Immune Deficiency Syndromes*, 38(2), 213-218.
- Brotherton, R. (2015). *Suspicious minds: Why we believe conspiracy theories*. Bloomsbury Publishing.
- Brotherton, R., French, C. C., & Pickering, A. D. (2013). Measuring belief in conspiracy theories: The generic conspiracist beliefs scale. *Frontiers in psychology*, 4, 279.
- Center for Disease Control. (2019, April 25). CDC media Statement: Measles cases in the U.S. are highest Since measles was eliminated in 2000. Retrieved April 01, 2021, from

<https://www.cdc.gov/media/releases/2019/s0424-highest-measles-cases-since-elimination.html>

Collins, N. (2018, August 14). Conspiracy theories are more rampant than ever. can they be stopped? Retrieved April 01, 2021, from <https://www.theguardian.com/us-news/2018/aug/14/conspiracy-theories-misconceptions-rampant-politics>

Dando-Collins, S. (2010). *The great fire of Rome: the fall of the Emperor Nero and his city*. Da Capo Press.

Douglas, K. M., Sutton, R. M., & Cichocka, A. (2017). The psychology of conspiracy theories. *Current Directions in Psychological Science*, 26(6), 538-542.

Douglas, K. M., Uscinski, J. E., Sutton, R. M., Cichocka, A., Nefes, T., Ang, C. S., & Deravi, F. (2019). Understanding conspiracy theories. *Political Psychology*, 40, 3-35.

Fazio, R. H., Ruisch, B. C., Moore, C. A., Granados Samayoa, J. A., Boggs, S. T., & Ladanyi, J. T. (2021a). Who is (not) complying with the US social distancing directive and why? Testing a general framework of compliance with virtual measures of social distancing. *PloS one*, 16(2), e0247520.

Fazio, R. H., Ruisch, B. C., Moore, C. A., Samayoa, J. A. G., Boggs, S. T., & Ladanyi, J. T. (2021b). Social distancing decreases an individual's likelihood of contracting COVID-19. *Proceedings of the National Academy of Sciences*, 118(8).

Faul, F., Erdfelder, E., Lang, A-G., & Buchner, A. (2007). "G*Power 3: A flexible statistical power analysis program for the social, behavioural, and biomedical sciences." *Behaviour Research Methods*, 39 (2), 175-191.

Freeman, D., & Bentall, R. P. (2017). The concomitants of conspiracy concerns. *Social Psychiatry and Psychiatric Epidemiology*, 52(5), 595–604.

Furnham, A. (2021). Just world beliefs, personal success and beliefs in conspiracy theories.

Current Psychology, 1-7.

Gebauer, F., Raab, M. H., & Carbon, C.C. (2016). Conspiracy formation is in the detail: On the interaction of conspiratorial predispositions and semantic cues. *Applied Cognitive Psychology*, 30(6), 917–924.

Goertzel, T. (1994). Belief in conspiracy theories. *Political Psychology*, 15(4), 731.

doi:10.2307/3791630

Goldberg, J. (2019, August 13). Column: Jeffrey Epstein's death is designed for our age of conspiracy theories. Retrieved April 01, 2021, from <https://www.latimes.com/opinion/story/2019-08-13/jeffrey-epstein-death-conspiracy-theories>

Granados Samayoa, J. A., Ruisch, B. C., Moore, C. A., Boggs, S. T., Ladanyi, J. T., & Fazio, R. H. (2021). When does knowing better mean doing better? Trust in President Trump and in scientists moderates the relation between COVID-19 knowledge and social distancing. *Journal of Elections, Public Opinion and Parties*, 31(sup1), 218-231.

Grzesiak-Feldman, M. (2013). The effect of high-anxiety situations on conspiracy thinking. *Current Psychology*, 32(1), 100-118.

Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis a regression-based approach*. New York: The Guilford Press.

Hornsey, M. J., Finlayson, M., Chatwood, G., & Begeny, C. T. (2020). Donald Trump and vaccination: The effect of political identity, conspiracist ideation and presidential tweets on vaccine hesitancy. *Journal of Experimental Social Psychology*, 88, 103947.

- Imhoff, R., & Lamberty, P. (2020). A bioweapon or a hoax? The link between distinct conspiracy beliefs about the Coronavirus disease (COVID-19) outbreak and pandemic behavior. *Social Psychological and Personality Science*, *11*(8), 1110-1118.
- Jolley, D., & Douglas, K. M. (2014a). The effects of anti-vaccine conspiracy theories on vaccination intentions. *PLOS ONE*, *9*(2).
- Jolley, D., & Douglas, K. M. (2014b). The social consequences of conspiracism: Exposure to conspiracy theories decreases intentions to engage in politics and to reduce one's carbon footprint. *British Journal of Psychology*, *105*(1), 35-56.
- Jolley, D., & Douglas, K. M. (2017). Prevention is better than cure: Addressing anti-vaccine conspiracy theories. *Journal of Applied Social Psychology*, *47*(8), 459–469.
- Klofstad, C. A., Uscinski, J. E., Connolly, J. M., & West, J. P. (2019). What drives people to believe in Zika conspiracy theories? *Palgrave Communications*, *5*(1).
- Leary, M. R., & Kowalski, R. M. (1990). Impression management: A literature review and two component model. *Psychological Bulletin*, *107*(1), 34–47.
- Lewandowsky, S., Gignac, G. E., & Oberauer, K. (2013). The role of conspiracist ideation and worldviews in predicting rejection of science. *PLOS ONE*, *8*(10).
- Miller, J. M., Saunders, K. L., & Farhart, C. E. (2016). Conspiracy endorsement as motivated reasoning: The moderating roles of political knowledge and trust. *American Journal of Political Science*, *60*(4), 824-844.
- Nyhan, B., Dickinson, F., Dudding, S., Dylgjeri, E., Neiley, E., Pullerits, C., . . . Walmsley, C. (2016). Classified or coverup? The effect of redactions on conspiracy theory beliefs. *Journal of Experimental Political Science*, *3*(2), 109-123.

- Oliver, J. E., & Wood, T. J. (2014). Conspiracy theories and the paranoid style(s) of mass opinion. *American Journal of Political Science*, 58(4), 952-966.
- Orosz, G., Krekó, P., Paskuj, B., Tóth-Király, I., Bóthe, B., & Roland-Lévy, C. (2016). Changing conspiracy beliefs through rationality and ridiculing. *Frontiers in Psychology*, 7.
- Paolacci, G., & Chandler, J. (2014). “Inside the Turk: Understanding mechanical turk as a participant pool.” *Current Directions in Psychological Science*, 23, 184–188.
- Ross, M. (1989). Relation of implicit theories to the construction of personal histories. *Psychological Review*, 96(2), 341–357.
- Schönbrodt, F. D., & Perugini, M. (2013). “At what sample size do correlations stabilize?” *Journal of Research in Personality*, 47, 609–612.
- Swami, V., Barron, D., Weis, L., Voracek, M., Stieger, S., & Furnham, A. (2017). An examination of the factorial and convergent validity of four measures of conspiracist ideation, with recommendations for researchers. *PLOS ONE*, 12(2).
- Tomljenovic, H., Bubic, A., & Erceg, N. (2019). It just doesn’t feel right – the relevance of emotions and intuition for parental vaccine conspiracy beliefs and vaccination uptake. *Psychology & Health*, 35(5), 538-554.
- Uscinski, J. E., Enders, A. M., Klofstad, C., Seelig, M., Funchion, J., Everett, C., . . . Murthi, M. (2020). Why do people believe COVID-19 conspiracy theories? *Harvard Kennedy School Misinformation Review*.
- Uscinski, J. E., Klofstad, C., & Atkinson, M. D. (2016). What drives conspiratorial beliefs? The role of informational cues and predispositions. *Political Research Quarterly*, 69(1), 57-71.

Uscinski, J. E., & Parent, J. M. (2014). *American conspiracy theories*. New York: Oxford University Press.

van Mulukom, V., Pummerer, L., Alper, S., Bai, H., Cavojoja, V., Farias, J. E., ... Zezelj, I. (2020). Antecedents and consequences of COVID-19 conspiracy beliefs: a rapid review of the evidence.

van Prooijen, J., & Douglas, K. M. (2017). Conspiracy theories as part of history: The role of societal crisis situations. *Memory Studies*, 10(3), 323-333.
doi:10.1177/1750698017701615

van Prooijen, J.-W., & Jostmann, N. B. (2013). Belief in conspiracy theories: The influence of uncertainty and perceived morality. *European Journal of Social Psychology*, 43(1), 109–115.

Whitson, J. A., & Galinsky, A. D. (2008). Lacking control increases illusory pattern perception. *Science*, 322(5898), 115-117.