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Examining the Impact of Political Identification and Morality on Compliance with COVID-19 Public Health Measures

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Examining the Impact of Political Identification and Morality on Compliance with COVID-19 Public Health Measures

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Abstract

COVID-19 provides a unique opportunity to study the influence of individual and group differences on beliefs and behavior. In the present work, we examine COVID beliefs and behavior as a function of morality, ideology, and emotion. Data were collected in the spring of 2021 and the fall of 2021, allowing for distinct snapshots of an undergraduate sample at two periods of the pandemic. Of primary interest was the relationship between political ideology, moral foundation endorsement, and COVID-19 behaviors and beliefs. The results reveal that ideology drives COVID-19-related beliefs and behaviors. The results from Study 2 suggest that political liberals were more likely to be vaccinated than conservatives. Liberals were also found to report more anxiety and anxiety-motivated behavioral changes. Liberals reported higher levels of uncertainty, threat, and anger regarding the pandemic than conservatives in our sample. There was no statistically significant difference in concern over social and economic impacts of the pandemic. Finally, liberals were found to report more concern about health impacts than conservatives.

Keywords: moral foundations theory, moral conviction, COVID-19, political ideology, emotion

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Americans have reacted to the COVID-19 pandemic in a variety of ways. While some Americans remained cautious since March 2020 when the pandemic started, others continued traveling and meeting with friends and family (Conway III et al., 2020). Vaccine rollouts were met with a blend of enthusiasm from some and suspicion or outright rejection from others. The range of responses in beliefs and behavior leaves many unanswered questions and is a source of consternation and confusion for social scientists and the public alike. Why do some individuals adhere to guidelines while others refuse, and why do some believe the virus is overblown while others believe it is not being taken seriously enough?

COVID-19 provides a unique opportunity to study the influence of individual and group differences on beliefs and behavior. Severe public health threats such as COVID-19 bring renewed urgency to social and behavioral science. The implications of behavioral compliance and attitudinal sensitivity have tangible, real-world effects. The politicization and polarization of COVID-19 responses provides a foundation for the analysis of not only ideological effects, but the interaction of ideology with other factors, such as moral foundations and moral conviction.

One powerful predictor of COVID-19 response is political ideology. Ideological communication surrounding the pandemic has revealed a significant division between conservative and liberal leaders, and this divide has influenced the perspectives of politically identified Americans (Calvillo et al., 2020). Mask-wearing and social distancing quickly became highly politicized issues in the early months of the pandemic. In April of 2020, 49% of liberals surveyed reported wearing a facial covering compared to 26% of conservatives (Gallup, 2020). The divide between the political left and right over the implementation and enforcement of COVID-19 guidelines is clear (Calvillo et al., 2020).

For the purposes of this study, COVID-19-related behaviors are classified as behaviorally compliant/noncompliant, while COVID-19-related beliefs are classified as COVID sensitive/insensitive. In general, past work suggests political conservatives have been less compliant in their behaviors than political liberals (Chan, 2020). Specifically, conservatives have been found to be less behaviorally complaint in target pandemic mitigation behaviors (e.g., social distancing, mask-wearing, and staying home during shutdowns). Further, liberals and conservatives display readily apparent differences in their beliefs, such that liberals have been more COVID sensitive (e.g., perception of COVID-19 as a threat, concern about public health outcomes, and outlook on public health prevention measures; Rosenfeld, 2020). Liberals and conservatives also display different types of pandemic concerns. In May 2020, 61 percent of conservatives feared that state restrictions wouldn't be lifted quickly enough while 91 percent of liberals feared they would be lifted too quickly (Pew Research Center, 2020). Differences in emotional responses to the pandemic between liberals and conservatives persist.

As the pandemic progressed, conservatives were found to be more comfortable dining out and attending indoor events than liberals (Pew Research Center, 2020). Further, in June 2020, 61% conservatives surveyed believed that the worst of the pandemic was over (Pew Research Center, 2020). As vaccine rollouts began in the US, 95% of liberals surveyed in April 2021 reported being willing to receive the COVID-19 vaccine compared to only 53% of conservatives (Gallup Panel, 2021). Vaccine hesitancy and refusal yielded concerns over the Delta and Omicron variants (Karim, 2021).

In the present work, we will examine COVID beliefs and behavior as a function of morality, ideology, and emotion. Moral foundations theory and differential reliance on foundations will be utilized to predict COVID-19 behaviors and beliefs. The role of ideology as a

moderator of foundation endorsement and COVID-19 behaviors and beliefs will also be examined. Moral conviction is relevant because viewing the pandemic and associated behaviors or beliefs towards it as a moral issue rather than a matter of personal preference will predict higher intensity of individuals' beliefs and behaviors. Perceptions of threat and emotions like anxiety, fear, and anger also seem to play a role in COVID-19 response (Peteet, 2021). This study will examine ideological differences in vaccination rates to see if ideological endorsement correlates with vaccination status in our undergraduate sample. A final area of interest relates to ideological awareness. Ideology endorsement and COVID-19 beliefs and behaviors have been found to be strongly correlated (Chan, 2020). Are individuals aware that their ideological identity influences their COVID-19 responses, and if not, are their COVID-19 responses more or less extreme?

Literature Review

Moral Foundations Theory (MFT)

Moral values seem to matter in the context of COVID-19. At an abstract level, cognitions about behavioral responses to stimuli find their roots in personal assessment of one's environment. Moral Foundations Theory (MFT) explains how individuals vary in these assessments, resulting in reliance on five moral foundations. Moral foundations are five psychological systems for making judgements which result in behaviors and beliefs that reflect individual morality. Differential reliance upon these foundations has been found to predict COVID-19 behavioral compliance/noncompliance (Chan, 2020).

Moral Foundations Theory (MFT) is predicated upon the existence of five psychological foundations. The proposed foundations include harm, fairness, loyalty, authority, and purity (Haidt & Graham, 2007). The five foundations provide the basis for human morality (Haidt &

Graham, 2007; Graham et al., 2018). MFT assumes that individuals make implicit and automatic moral evaluations in all contexts, regardless of individual perception of the situation as moral or not (Hatemi et al., 2019; Graham et al., 2013). Thus, reliance on the foundations is not a conscious decision made by individuals. Instead, MFT posits that these psychological systems are innate. Innate in this context does not mean permanently fixed, but rather "organized in advance of experience" (Marcus, 2004).

Reliance on different foundations has been shown to result in differing behaviors (Haidt & Graham, 2007). Moral foundations reliance has been utilized to predict voting behavior, policy stance, and vignettes designed to violate foundations elicit distinct and varying moral judgment behaviors (Franks, 2015; Clifford et al., 2015).

MFT and Political Ideology

Notably, ideological differences are related to patterns of foundation endorsement (Haidt, 2007). Under Haidt's interpretation, MFT explains variation in political ideology (Haidt, 2012). However, other scholars posit that causality runs in the opposite direction, from political ideology to moral foundations reliance (Hatemi et al., 2019). Regardless of directionality, there is robust support for the idea that moral foundations and political ideology are related (Hatemi et al., 2019; Haidt & Graham, 2007; Haidt & Graham et al. 2013). Political liberals are more likely to rely on the harm and fairness foundations than conservatives. Meanwhile, political conservatives are more likely to rely on all five foundations than their liberal counterparts (Haidt & Graham, 2007).

One critical note is that political liberals and conservatives have differing interpretations of the same moral foundations (Haidt, 2013). Liberals and conservatives interpret the same foundations in distinct ways. As a result, endorsing the same moral foundations may evoke

different beliefs and behaviors among liberals than among conservatives (Haidt, 2012). Harm and fairness represent the most relevant distinction in foundation interpretation between political liberals and conservatives. Liberals tend to have a universal approach to these concepts, whereas conservatives are more concerned about harm and fairness as the concepts relate to their in-group. For example, liberals who rely on the harm foundation apply care to strangers and are concerned for the wellbeing of those around them at the grocery store. Conversely, conservatives who rely on the harm foundation tend to restrict their application of harm to those in their in-group and may be less concerned with grocery store strangers' wellbeing than the wellbeing of their immediate family (Haidt, 2013).

As noted above, there is an ongoing debate in the literature surrounding a chicken-and-egg-like problem with moral foundations and political ideology. Haidt and colleagues propose that moral foundations underlie political ideology while others disagree (Haidt, 2009). Still, no conclusive understanding or consensus of directionality has become established, so it remains essential to consider both ideology and moral foundation endorsement in tandem. Further experimental research is needed to establish a gold standard of causality and tease out the true nature of the relationship between these variables. To contribute to the ongoing effort to better understand the relationship of foundation endorsement and ideology, both will be measured and analyzed. Further, taken together, ideology and moral foundations endorsement may predict COVID-19 behaviors and beliefs more accurately than they could independently. Conservative and liberal interpretations of the same foundations differ, and this study seeks to further our understanding as to why this is the case.

Ideological Differences in COVID-19 Response

Throughout the pandemic, political conservatives have been more resistant to COVID-19 health guidelines than political liberals (van Holm et al., 2020). While some conservative elites have shifted towards the center on COVID-19-related issues, many conservatives remain COVID insensitive and noncompliant (Boykin et al., 2021). Higher levels of conservatism predicted delayed responses to stay-at-home orders early in the pandemic, and conservative states have been quicker to reopen and dismiss health recommendations (Rosenfeld, 2020). Behavioral symmetry between liberals and conservatives exists as high levels of political conservatism predict resistance to social distancing guidelines while low levels predict compliance (Graham et al., 2020). Widely varying behavioral responses from liberals and conservatives have been highlighted throughout the pandemic, and these differences have emerged at every stage, from initial shutdowns to current levels of vaccine acceptance (Featherstone et al., 2019).

Vaccine hesitancy now captures the attention and concern of the government officials and medical professionals globally (Pennycook et al., 2021). Political ideology has been identified as the strongest single predictor of willingness to receive the COVID-19 vaccination and subsequent booster shots (Killgore et al., 2021). As of August 2021, 86% of strong liberals had received at least one does of the COVID-19 vaccine compared to 60% of strong conservatives (Pew Research Center, 2021).

Conservatives tend to be more concerned about the social and economic impacts of COVID-19, while liberals tend to focus on associated health threats (Clarke et al., 2021). The differences in degree and type of concern may shed light on the behavioral and attitudinal differences seen between liberals and conservatives. The core question here is whether ideology predicts what individuals find most concerning or, conversely, if type of concern predicts ideology.

COVID Behaviors and Beliefs and Moral Foundations Reliance

Past research has shown that endorsement of moral foundations predicts COVID-19 behaviors and beliefs. Specifically, endorsement of the fairness and harm foundations predicted compliance with recommended health guidelines (i.e., mask-wearing and social distancing). Endorsement of loyalty and purity foundations predicted noncompliance (Chan, 2020). Supporting the purity finding, disgust sensitivity and physiological reactance, both key elements of the purity foundation, predict COVID-19 recommendation noncompliance (Díaz & Cova, 2020). In research conducted during April 2020, endorsement of the authority foundation did not predict behavioral outcomes (Chan, 2020).

Put differently, individuals who, for example, value others' wellbeing and safety (as in the harm foundation) appear to be more likely to comply with social distancing guidelines, potentially because they are concerned about the adverse outcomes noncompliance could cause for others (Haidt, 2007). Conversely, those who feel strongly about protecting their in-group (as in the loyalty foundation) will likely behave in noncompliant ways. One explanation for this behavior is that endorsers feel strongly about their in-group's wellbeing, leading them to seek comfort and enjoyment for their in-group as they did pre-pandemic, forgoing considerations of the effects their actions could have on out-group members. Concern over social rather than health outcomes for in-group members may strengthen this pattern of behavior. Individuals who rely on the fairness foundation may be concerned about the potentially unfair impact of their behavior on others who have abided by the guidelines and, therefore, may be more likely to comply. Others who value authority may be likely to comply out of concern that noncompliance could lead to punitive consequences or adverse social outcomes. Individuals who value purity may find behavioral guidelines to be out of alignment with their preferred behaviors, or they may

view mask-wearing and social isolation as “unnatural” and unhealthy for social functioning, thus leading them to behave in noncompliant ways. Purity may seem likely to motivate pathogen avoidance; however, disgust can also trigger information avoidance for disgust-related objects, leading those who endorse the purity foundation to avoid information and behaviors associated with disease (Clifford & Jerit, 2018). Therefore, reliance on moral foundations should be associated with COVID-19 behaviors and beliefs.

Moral Conviction

Moral foundations and political ideology are not the only variables of interest in the era of COVID-19. Moral conviction, operationalized as the perception of stimuli as morally charged, also matters. Moral conviction research demonstrates that the perception of issues as moral may influence individuals' beliefs and behaviors (Van Bavel et al., 2012). Specifically, moral conviction may influence the extremity of and commitment to beliefs. Skitka’s moral conviction theory posits that individuals perceive situations as moral or not. The perception of a situation as moral increases the intensity of held positions (Skitka & Bauman, 2008; Skitka et al., 2015; Skitka, 2010; Skitka & Morgan, 2014). Individuals on the political left and right experience an increase in belief intensity when they perceive situations as moral (Skitka & Bauman, 2008). Additionally, moral conviction can work in normatively positive and negative ways (Skitka & Mullen, 2002). Moral conviction theory counters MFT’s assumption that individuals implicitly perceive moral relevance and claims that the same situation may be perceived as moral by some and not moral by others.

Emotion

Emotion may work as a mechanism for COVID-19 behaviors of interest as it may strengthen ideological or moral predispositions towards behaviors. As established by Marcus and

colleagues (2007), the higher the level of anxiety one experiences, the more likely they are to engage in additional information search. Under Affective Intelligence Theory (AIT), familiarity breeds reliance on preexisting beliefs (Haas, 2016). According to this perspective, anxiety increases the likelihood of attention to stimuli and the odds that new outlooks may be adopted to deal with the unfamiliar. When it comes to uncertainty, the opposite is typically true; lack of information can result in an uptick in closed-mindedness (McGregor et al., 2010) especially when uncertainty is viewed as threatening (Haas & Cunningham, 2014; Haas, 2016). There is a growing body of work focused on identifying the neural pathways associated with emotion and how emotional experiences can alter information processing (Haas, 2016). Higher levels of anxiety have been found to correlate with more compliant COVID-19 behaviors (Erceg, 2020). Higher levels of anger correlate with lower perceptions of importance when it comes to governmental COVID-19 recommendations and mandates (Peitz et al., 2021). The role of uncertainty remains unclear in the context of COVID-19. Examining uncertainty and threat in a pandemic may be interesting as COVID-19 has presented the world with an inherently threatening and uncertain situation. The different reactions in response to said uncertainty and threat may help improve understanding of social behavior on a broader scale.

Ideological Consciousness

Ideology consciousness represents an exploratory area we seek to investigate. While ideology as a construct informs much of the present work, questions about conscious, ideologically driven behaviors and beliefs remain. Are individuals aware that their behaviors are influenced by their ideology, and if so, does this moderate the relationship between ideology and behavior? If ideological awareness does play a role in behaviors, does it strengthen or weaken the relationship between ideology and behavior?

Overview of the Present Research

Application and Hypotheses: Study 1

The literature demonstrates clear differences in COVID-19-related behaviors and beliefs between liberals and conservatives. The present work will examine the role of political ideology, moral foundations endorsement, moral conviction, emotion, and ideology consciousness and the relationships between these variables and COVID-19 behaviors and beliefs.

Given pre-existing research findings (Graham et al., 2009), self-identified political liberals will be more heavily reliant on the harm and fairness foundations, whereas self-identified political conservatives will be reliant on all five moral foundations.

H1: Self-identified political liberals will be more heavily reliant on the harm and fairness foundations, whereas self-identified political conservatives will be reliant on all five moral foundations.

We hypothesize that endorsement of different moral foundations will predict COVID-19 compliance and attitudinal sensitivity. Particularly, liberals who endorse the care and fairness foundations will be more behaviorally compliant and attitudinally sensitive than those who do not endorse said foundations. We predict that endorsement of the authority foundation will also predict compliance.

We hypothesize that political liberals and conservatives will report different behaviors and degrees of compliance and differing degrees of attitudinal response to COVID-19 recommended and required protocols, including mask-wearing, social distancing, required testing, and vaccine acceptance.

H2: Self-identified political liberals and conservatives will report different behaviors and degrees of compliance and differing degrees of concern in response to COVID-19

recommended and required protocols, including mask-wearing, social distancing, required testing, and vaccine acceptance.

Particularly, political liberals will be more compliant and sensitive than political conservatives. This hypothesis (H2) is a replication of prior work (Chan, 2020).

H3: a. Given pre-existing research on behavioral compliance and moral foundations theory during the COVID-19 pandemic (Chan, 2020), self-identified political conservatives who rely heavily on the purity and loyalty foundations will be more likely than self-identified liberals to hold beliefs and practice behaviors that are in opposition to recommended and required COVID-19 protocols such as mask-wearing, crowd avoidance/social distancing, required testing, and vaccine acceptance.

b. Conservatives who comply with required health protocols will be more reliant upon the authority foundation.

c. Conversely, self-identified political liberals who emphasize harm and fairness foundations will be more likely to conform and comply with recommended and required public health measures listed above than self-identified political conservatives.

Conversely, conservative endorsement of the loyalty and purity foundations will predict behavioral noncompliance and attitudinal insensitivity (H3). Given pre-existing research on behavioral compliance, political ideology, and Moral Foundations Theory during the COVID-19 pandemic (Chan, 2020), we predict ideology and moral foundations will each independently predict COVID-19 beliefs and behaviors. However, taken together, moral foundation endorsement and political ideology will predict COVID-19 beliefs and behaviors above and beyond each other's influence. Beyond previous predictions about moral foundation reliance and

ideology more broadly, these hypotheses seek to explain the differing foundation applications of political liberals and conservatives (H3).

H4: Individuals who perceive the COVID-19 pandemic as a moral issue will report more extreme and robust behaviors and beliefs than individuals who do not perceive the pandemic as a moral issue (Skitka, 2020)

We seek to contribute to the moral psychology literature by applying moral conviction theory to moral foundations reliance (H4). Individuals who perceive the COVID-19 pandemic as a moral issue will report stronger behaviors and beliefs than individuals who do not perceive the pandemic as a moral issue (Skitka, 2020).

H5: Moral conviction will strengthen the relationship between moral foundations scores and reported behaviors and beliefs.

Investigating moral conviction's moderating effect on behavioral and belief outcomes connected to political ideology and moral foundations reliance will enrich and expand the connection between the growing fields of political psychology and moral psychology. Combining moral conviction theory (Skitka, 2008) with Moral Foundations Theory (Haidt & Graham, 2007) will help contribute to the moral psychology literature by demonstrating that both theories can be applied and analyzed in this context (H5).

Application and Hypotheses: Study 2

After conducting preliminary analyses in spring 2021, additional data were collected during fall 2021. Study 2 was designed to replicate some of our findings from Study 1, while also exploring additional hypotheses. To expand on Study 1, Study 2 will examine ideological differences in vaccination status, and we expect that liberals will be more likely to report being vaccinated than conservatives (H6). H7 of Study 2 seeks to examine emotional differences

between liberals and conservatives. We expect that liberals will report more concern over the health impact of COVID while political conservatives will report more concern about social and economic impacts (H8). Additionally, we expect that anxiety will predict concern about health impacts more for liberals while anger will predict concern about social and economic impacts more for conservatives. Finally, as an exploratory hypothesis, we expect that those with more extreme behaviors on either end of the behavioral spectrum to score lower on the ideology consciousness scale (H9).

H1: Self-identified political liberals will be more heavily reliant on the harm and fairness foundations, whereas self-identified political conservatives will be reliant on all five moral foundations. (Replication from Study 1).

H2: Self-identified political liberals and conservatives will report different behaviors and degrees of compliance and differing degrees of concern in response to COVID-19 recommended and required protocols, including mask-wearing, social distancing, required testing, and vaccine acceptance. (Replication from Study 1).

Given current vaccination rates among liberals and conservatives (Pew, 2021) we expect that the sample will follow ideological vaccination trends.

H6: Political liberals will be more likely to report being vaccinated than political conservatives.

Since anxiety has been found to motivate attention to stimuli and an increase in the adoption of new outlooks, we expect that liberals will report more anxiety than conservatives. Considering belief trends from Study 1, we expect that conservatives will report more anger than liberals.

H7: Liberals will report more anxiety and anxiety-motivated behavioral changes than conservatives.

a. Liberals and conservatives will report similar levels of uncertainty and threat.

b. Conservatives will report higher levels of anger than liberals.

Prior work has indicated that conservatives tend to be more concerned about the social and economic impacts of COVID-19, while liberals tend to focus on associated health threats (Clarke et al., 2021). Beyond preferential topic of concern, we expect that emotion will moderate concern type for liberals and conservatives.

H8: Political liberals will report more concern over the health impact of COVID while political conservatives will report more concern about social and economic impacts.

a. Anxiety will predict concern about health impacts more for liberals than for conservatives

b. Anger will predict concern about social and economic impacts more for conservatives than liberals.

Finally, to explore the novel construct of ideology consciousness, we expect that those with more extreme behaviors will be less aware of their ideological identification.

H9: Individuals with more extreme behaviors on either end of the spectrum will tend to score lower on ideology consciousness scales.

Study 1

Method

Participants

347 undergraduate students (53.5% female, 45.06% male, 1.44% other; age range 18-36 M = 20.03, SD = 3.509) completed an online survey administered through the University of

Nebraska's Political Science Experimental Participant Pool (PSEPP) from January 2021-March 2021. The sample was ideologically balanced (M = 3.5, SD = 1.85). The ideology scale ranged from very liberal (1) to very conservative (7).

Procedure

Participants answered items about their COVID-19 beliefs and beliefs, indicated their political ideology, and completed demographic questionnaires via Qualtrics. The study utilized online survey measures to collect data and had a correlational design. Participants first completed Haidt's Moral Foundations questionnaire (Haidt & Graham, 2011). Following that questionnaire, the survey presented question blocks about participant COVID-19 beliefs and behaviors. The COVID-19 question blocks appeared in randomized order to prevent possible order effects. After answering the behavior and belief questions, the survey prompted participants to indicate whether their COVID-19 beliefs and behaviors reflect their core moral beliefs. Finally, participants answered demographic questions and indicated their party identification and ideology. Measures used to operationalize moral foundations, COVID-19 behaviors and beliefs, moral conviction, and political ideology are described in detail below.

Measures

Moral foundations

Participants first responded to the Moral Foundations questionnaire (Haidt & Graham, 2007). Participants indicated on a five-point scale (1- *never relevant*; 5-*always relevant*) how relevant considerations are while they engage in deciding whether something is right or wrong. A series of three to five questions pertaining to each of the five moral foundations were included and presented in random order in this measure. An example of an item that indicated endorsement of the care foundation asked if "Whether or not someone was harmed" is relevant

in participant consideration of a situation as right or wrong (see Appendix A for the full Moral Foundations Questionnaire). For analysis we created composite scores for each of the five moral foundations by averaging across items for each foundation and a difference score composed of the individuating foundations minus the average of the binding foundations where higher scores indicate a higher reliance on individuating foundations rather than binding foundations (harm *M* = 4.052, *SD* =. 868, fairness *M* = 3.920, *SD* = .883, loyalty *M* = 3.481, *SD* = .926, authority *M* = 3.301, *SD* = .956, purity *M* = 3.493, *SD* = .964, difference score *M* = .567, *SD* = .52).

COVID-19 Beliefs

Participants viewed examples indicating COVID-19-related beliefs such as stances on mask wearing, social distancing, vaccination, and testing/reporting. Participants indicated how closely their beliefs aligns with the presented belief using a seven-point Likert scale (1 = *strongly disagree*; 7 =*strongly agree*). The questionnaire included thirty items. Example belief items include, "The COVID-19 vaccine is safe," and "COVID-19 prevention measures like wearing a mask and social distancing work to prevent the spread of COVID-19" (see Appendix A). Belief items were recoded such that all questions matched in directionality, such that higher scores indicated more COVID-sensitive (cautious) beliefs. Subsets of the belief scale were created. The beliefs most relevant to this study masks, social distancing, testing/reporting (Cronbach's α = .93, *M* = 4.772, *SD* =1.686), and vaccination beliefs (Cronbach's α = .84, *M* = 5.082, *SD* = 1.578) were combined into another subset (Cronbach's α = .84, *M* = 4.935, *SD* = 1.355). This composite variable represents all referenced COVID-19 beliefs in subsequent analyses.

COVID-19 Behaviors

Participants viewed behavioral examples indicating COVID-19-related patterns of behavior such as mask wearing, social distancing, vaccination, and testing/reporting. These items

were adapted from items generated for prior COVID-19 behavioral studies (Chan, 2020). Participants indicated how often their behavior aligns with the example behavior using a six-point Likert scale (1 *never*; 6 = *always*). The questionnaire included thirty items. For example, "I will get the vaccine once it is made available to me," and "I wear a mask indoors in public places." Participants were told that there are no right or wrong answers and that they ought to answer based on their past behaviors (see Appendix A). Behavioral items were recoded such that all questions matched in directionality, where higher scores indicated they *always* perform the behavior. Subsets of the behavior scale were created to allow for more specific behavioral analysis. The subsets used in analysis included mask-wearing behavior (Cronbach's α = .76, *M* = 4.05, *SD* = 1.637) social distancing behavior (Cronbach's α = .89, *M* = 4.38, *SD* = 1.39), testing/ reporting behavior (Cronbach's α = .82, *M* = 5.47, *SD* = 1.032) and vaccination intentions (*M* = 4.69, *SD* = 1.77). These items were combined into a composite variable which represents all referenced COVID-19 behaviors in subsequent analyses (Cronbach's α = .79, *M* = 4.648, *SD* = 1.28).

Moral Conviction

Participants indicated in two separate items whether their beliefs and beliefs surrounding COVID-19 reflect their core moral beliefs and convictions. Participants used a 7-point Likert scale (1-*strongly disagree*; 7-*strongly agree*) to respond to the following items, "My behaviors in response to COVID-19 are a reflection of my core moral beliefs and convictions," and "My beliefs regarding COVID-19 are a reflection of my core moral beliefs and convictions." These are used separately for analysis. The moral conviction items used in this study were adapted from past work on moral conviction (Skitka, 2008).

Demographic Information

Participants completed a demographic information questionnaire including age, sex, education, ethnicity, race, and religious identification. They also indicated whether there was currently a mask mandate enforced in their community at the time the study was conducted and whether their community is urban or rural (see Appendix A).

Political Identification and Ideology

Participants indicated both their political ideology and party identification using three separate items (see Appendix A). Specifically, individuals identified their ideology using a 7-point Likert scale (1 = *very liberal*; 7 = *very conservative*). Participants also used a Likert scale to indicate their party identification (1 = *strong Democrat*; 7 = *strong Republican*). Political ideology was used for analysis rather than party identification because ideology is used most often in the moral foundations literature.

Results

To test H1, the relationship between political ideology and moral foundations reliance was modeled using linear regression (harm: b = -.067, SE = .018, t = -3.747, $p < .001$; fairness: b = -.122, SE = .017, t = -6.915, $p < .001$; loyalty: b = .012, SE = .017, t = .693, p = .489; authority: b = .057, SE = .017, t = 3.326, $p < .001$; purity: b = .037, SE = .017, t = 2.087, $p < .001$). Aside from loyalty, these results align with current understandings of the relationships between ideology and foundation endorsement. We expected that conservatives would endorse loyalty more than liberals, but we found no statistically significant difference. As expected, conservatives were more likely to endorse authority and purity while liberals were more likely to endorse harm and fairness. A moral foundations difference score (calculated as the average of the individuating foundations (harm and fairness) – the average of the binding foundations (loyalty, authority, and purity)) regressed with ideology further reveals that liberals were more

likely than conservatives to rely on harm and fairness relative to the other three foundations (b = -.131, SE = .013, t = -9.823, p < .001).

To test H2, the relationship between ideology and COVID-19 beliefs and behaviors, behavior was regressed from ideology, demonstrating that political ideology predicted COVID-19 compliant/ noncompliant behavior. As expected, greater conservatism predicted greater degrees of noncompliance while higher liberalism predicts greater compliance with all included behaviors (b = -.378, SE = .022, t = -16.52, p < .001). In the same way, political ideology predicted belief sensitivity surrounding COVID-19 public health measures as conservatives tended to be less sensitive in their COVID-19 beliefs than their liberal counterparts (b = -.485, SE = .026, t = -18.46, p < .001). For example, conservatives were less likely than liberals to believe that the COVID-19 vaccine is safe. The four beliefs and behaviors of interest, mask-wearing, social distancing, testing/reporting, and vaccination beliefs and behaviors, were also regressed individually from ideology and yielded the same result (behaviors: mask-wearing b = -.438, SE = .033, t = -13.26, p < .001, social distancing b = -.353, SE = .028, t = -12.23, p < .001, testing/ reporting b = -.201, SE = .020, t = -9.73, p < .001, vaccination b = -.511 SE = .043, t = -11.66, p < .001).

To test H3, the relationship between moral foundations endorsement and COVID-19 beliefs / behaviors was assessed using the belief and behavior composite variables and the moral foundations difference scale. The regression of these items demonstrated that liberals endorsed harm and fairness and conservatives endorsed all five, aside from loyalty as occurred above (loyalty: b = -.056, SE = .111, t = -.509, p = .610). Belief sensitivity and behavioral compliance were predicted from the strong endorsement of harm and fairness (harm: b = .256, SE = .112, t = 7.95, p < .001; fairness: b = .693, SE = .108, t = 6.424, p < .001). As expected, endorsement of

authority and purity predicted attitudinal insensitivity and behavioral noncompliance (authority: b = -.323, SE = .114, t = -2.831, p = .0049; purity: b = -.312, SE = .117, t = -2.659, p = .008).

To examine whether the relationship between moral foundations and COVID-19 behavior depends on political ideology, several models were created (See Table 1). Ideology had a much stronger effect on behavior than harm did. The model which includes ideology as a main effect and all five moral foundations indicates that ideology is the driving force behind behavior. There was a main effect of ideology (b = -.345, SE = .027, t = -7.605, p < .001). Ideology had higher predictive reliability than foundation endorsement for all five foundations (See Table 1 and Table 2). There was a statistically significant interaction between ideology and authority for both behaviors and beliefs (behavior – b = -.135, SE = .050, t = -3.456, p < .001; belief – b = -.143, SE = .059, t = -4.356, p < .001). The interactions for were plotted (Figure 2). Contrary to H3, aside from authority endorsement, moral foundation endorsement did not strengthen or qualify the relationship between ideology and COVID-19 related behaviors. The role of authority in the interaction models with ideology, moral foundations, and behavior was assessed for conservatives and liberals separately to examine the effect of authority more closely. For liberals, authority did not predict behavior (liberals: b = -.043, SE = .091, t = -.469, p = .640). For conservatives, authority did not significantly predict behavior, although the effect was a bit stronger than for liberals (b = -.422, SE = .251, t = -1.681, p = .096). In the belief analyses, authority did not predict beliefs for liberals (liberals: b = .087, SE = .102, t = .870, p = .385). Conservatives' beliefs were not significantly predicted by authority endorsement either, but as with behaviors the effect was a bit stronger than it was for liberals (-.474, SE = .288, t = -1.647, p = .103). Since none of the main effects for authority were significant, it seems that the main effect of ideology had the largest impact on behaviors while the main effect of ideology had the

largest impact on conservatives for beliefs. While authority may have been a bit more impactful for conservatives than liberals in influencing behaviors and beliefs, the role of ideology was more powerful than authority endorsement.

For H4, moral conviction items were regressed with both the belief and behavior subsets. In the case of behavior, strong belief that COVID-19-related behaviors reflect one's core moral beliefs and convictions predicted more extreme behaviors (b = .22, SE = .024, t = 9.149, p < .001). Behavioral extremity was calculated by subtracting the midpoint of the scale and then taking the absolute value of behavior scores. Similarly, strong belief that COVID-19-related beliefs reflect one's core moral beliefs predicted more extreme beliefs (b = .26, SE = .031, t = 7.923, p < .001). H4 was supported as individuals who perceived the COVID-19 pandemic as a moral issue reported more extreme behaviors and beliefs than individuals who did not perceive the pandemic as a moral issue.

Finally, to address H5, moral conviction will strengthen the relationship between moral foundations scores and reported behaviors and beliefs, two models were created to assess the interaction of moral conviction and moral foundations scores on behaviors/beliefs. There was a significant main effect of conviction in the behavioral model, and a significant interaction effect for conviction x authority (b = -.060, SE = .079, t = 1.977, p = .048). Fairness and authority maintained significant main effects. For the belief model, there was no significant main effect of conviction, but there was a significant main effect of authority and a significant interaction effect for conviction x authority (b = .156, SE = .079, t = 2.367, p < .001; see Table 3). Plotting these interaction effects revealed that for authority, level of conviction behaved similarly for both compliant and non-compliant behavior. The same pattern was observed when the belief model was plotted (b = .270, SE =.102, t = 4.928, p < .001; see Table 3). The interaction was further

examined and the main effect of conviction and authority for behaviors and beliefs were examined for those high in conviction and those low in conviction independently. For behavior, the effect of authority was stronger for those higher in moral conviction (authority b = -.178, SE = .097, t = -1.833, p = .068) than those lower in moral conviction (authority b = -.364, SE = .364, t = -1.000, p = .325) although neither of these were statistically significant. For beliefs, the effect of authority was stronger for those higher in moral conviction (authority b = -.198, SE = .118, t = -1.674, p = .095) than those lower in moral conviction (authority b = -.491, SE = .459, t = -1.070, p = .293) although neither of these were statistically significant. Given that none of the effects were significant, it does not appear that authority had a strong effect for either high or low moral conviction endorsers.

Study 2

Method

Participants

270 undergraduate students (50.74% female, 47.04% male, 2.22% other; age range 18-32, M = 19.22, SD = 3.406) completed an online survey administered through the University of Nebraska's Political Science Experimental Participant Pool (PSEPP) between October 2021-December 2021. The sample was ideologically balanced (M = 3.42, SD = 1.86). The ideology scale ranged from very liberal (1) to very conservative (7).

Procedure

As in Study 1, participants answered items about their COVID-19 beliefs and behaviors, indicated their political ideology, and completed demographic questionnaires including vaccination status items via Qualtrics. The study utilized only survey measures to collect data and had a correlational design. Participants first completed Haidt's Moral Foundations

questionnaire (Haidt & Graham, 2011). Following that questionnaire, the survey presented question blocks about participant emotions in response to COVID-19. Next, participants answered questions about their beliefs and behaviors pertaining to COVID-19. The COVID-19 question blocks appeared in randomized order to prevent order effects. After answering the behavior and belief questions, the survey prompted participants to indicate whether their COVID-19 beliefs and behaviors reflect their core moral beliefs. Participants then answered demographic questions and indicated their party identification and ideology. Participants also indicated their COVID-19 vaccination status. Finally, participants responded to ideology consciousness items that asked them to indicate the extent to which their COVID-19 beliefs and behaviors reflected their core political values. We will detail the measures utilized to operationalize moral foundations, COVID-19 emotional response, COVID-19 behaviors and beliefs, moral conviction, political ideology, and ideology consciousness below.

Measures

Moral foundations

Participants first responded to Haidt's Moral Foundations questionnaire (Haidt & Graham, 2007) as in Study 1. For analysis we created composite scores for each of the five moral foundations and a difference score composed of the individuating foundations minus the average of the binding foundations where higher scores indicate a higher reliance on individuating foundations rather than binding foundations.

COVID-19 Behaviors

As in Study 1, participants viewed behavioral examples indicating COVID-19-related patterns of behavior such as mask wearing, social distancing, vaccination, and testing/reporting. Behavioral items were recoded in R such that all questions matched in directionality, where

higher scores indicated “always.” Items that initially indicated noncompliant behavior were recoded. Eleven subsets of the behavior scale were created to allow for more specific behavioral analysis. The subsets used in analysis included mask-wearing behavior, social distancing behavior, testing/ reporting behavior, and vaccination intentions. These items were combined into another subset (Cronbach’s $\alpha = .79$). This composite variable represents all referenced COVID-19 behaviors in subsequent analyses.

COVID-19 Beliefs

Participants viewed attitudinal examples indicating COVID-19-related beliefs such as feelings toward mask wearing, social distancing, vaccination, and testing/reporting as in Study 1. The presentation of the behavior and belief block was randomized (see Appendix A). Attitudinal items were recoded in R such that all questions matched in directionality, such that higher scores indicated more COVID-sensitive beliefs. Items that initially indicated COVID-19 insensitive beliefs were recoded. Six subsets of the attitudinal scale were created, including groupings of questions that reveal perspectives on COVID-19 related to perception of the pandemic as emergent, degrees of perceived health threat, and perspectives on governmental response. The beliefs most relevant to this study (masks, social distancing, testing/reporting, and vaccination beliefs) were combined into another subset (Cronbach’s $\alpha = .84$). This composite variable represents all referenced COVID-19 beliefs in subsequent analyses.

COVID-19 Emotion

Participants indicated the way that COVID-19 makes them feel using a seven-point Likert scale (1-*strongly disagree*; 7-*strongly agree*). Anxiety, anger, fear, and beliefs about the social, health, and economic impacts of COVID-19 were measured. Participants responded to items such as “I feel anxious about COVID-19” and “I am concerned about the health impact

COVID-19 has on the health of others or myself" (See Appendix B). Six subsets of the emotion scale were created, including groupings of questions related to anxiety (Cronbach's a = .65), anger, uncertainty and threat (Cronbach's a = .75), social/economic concerns (Cronbach's a = .80), and health concerns (Cronbach's a = .75).

Moral Conviction

We measured moral conviction as in Study 1.

Ideology Consciousness

Participants indicated the degree to which they believed their behaviors and beliefs in response to COVID-19 reflected their core political values or political ideology using a seven-point Likert scale (1-*strongly disagree*; 7-*strongly agree;* see Appendix B). These items were adapted from the moral conviction items.

Demographic Information

Participants completed a demographic information questionnaire including age, gender level of education, ethnicity, race, and religious identification. They indicated whether there was currently a mask mandate enforced in their community at the time the study was conducted and whether their community is urban or rural (see Appendix A).

Vaccination Status

Participants indicated their vaccination status as either fully vaccinated, partially vaccinated, or unvaccinated. At the time of data collection, fully vaccinated meant one dose for the Johnson & Johnson vaccine and two doses for the Pfizer and Moderna vaccines. Partially vaccinated meant one dose for the Pfizer and Moderna vaccine. Booster shots were not considered in this analysis. For the purposes of analysis, vaccination status was recoded as

unvaccinated (0) and vaccinated (1) (11.61% unvaccinated, 88.39% vaccinated). Vaccinated here includes partially vaccinated individuals.

Political Identification and Ideology

Participants indicated both their political ideology and party identification using three separate items (see Appendix A). Specifically, individuals identified their ideology using a seven-point Likert scale (1- *very liberal*; 7- *very conservative*). Participants also used a Likert scale to indicate their party identification (1- *strong Democrat*; 7- s*trong Republican*). Political ideology was used rather than party identification because ideology is used most often in the moral foundation literature.

Results

For H1, as in Study 1, the relationship between political ideology and moral foundations reliance was modeled using linear regression (harm: $b = -.078$, $SE = .023$, $t = -3.321$, $p < .001$; fairness: $b = -.097$, $SE = .023$ $t = -4.35$, $p < .001$; loyalty: $b = .037$, $SE = .024$, $t = 1.343$, $p = .18$; authority: $b = .073$, $SE = .022$, $t = 3.349$, $p < .001$; purity: $b = .045$, $SE = .025$, $t = 2.789$, $p = .07$). Aside from loyalty and purity, these results align with current understandings of the relationships between ideology and foundation endorsement. Conservatives were more likely to endorse authority while liberals were more likely to endorse harm and fairness. A moral foundations difference score regressed with ideology further reveals that liberals were more likely than conservatives to rely on the individuating (harm and fairness) relative to the binding foundations ($b = -.139$, $SE = .016$, $t = -8.489$, $p < .001$).

To test H2, the relationship between ideology and COVID-19 beliefs and behaviors, behavior was regressed from ideology, demonstrating that political ideology predicted COVID-19 compliant/ noncompliant behavior. Specifically, greater conservatism predicted higher

degrees of noncompliance while higher liberalism predicts higher compliance with all included behaviors (b = -.313, SE = .026, t = -11.85, p < .001). In the same way, political ideology predicts belief sensitivity surrounding COVID-19 public health measures. Conservatives tended to be less sensitive in their beliefs than their liberal counterparts (b = -.557, SE = .031, t = -17.73, p < .001).

For H6, to test the relationship between ideology and vaccination status, logistic regression was used given that vaccination status was coded as a dichotomous outcome. Vaccinated status (including vaccinated and partially vaccinated) was coded as (1), and unvaccinated status was coded as (0). Consistent with the research hypothesis, this analysis demonstrated that higher liberalism predicted vaccinated status while higher conservatism predicted unvaccinated status (b = -764, SE = .143, z = 5.327, p < .001, See Figure 1).

To test the relationship between ideology and anxiety and anxiety-driven behavioral change for H7, a composite variable containing anxiety and anxiety-related behavioral change items (Cronbach's a = .65) was regressed from ideology, demonstrating that liberals tended to report higher levels of anxiety and behavioral changes due to anxiety (b = -.430, SE = .04, t = -9.74, p < .001). Anxiety and anxiety-related behavioral change were also regressed separately from ideology as the alpha was a bit lower for the combined anxiety item. The separate regressions yielded the same result (anxiety: b = -.642, SE = .51, t = -12.54, p < .001; anxiety-related behavior: b = -.218, SE = .057, t = -3.81, p < .001).

H8 was tested by regressing uncertainty and threat from ideology. This regression demonstrated that liberals were more likely to report feeling uncertain and threatened than conservatives in relation to COVID-19 (b = -.370, SE = .049, t = -7.617, p < .001). To test the relationship between ideology and anger, anger was regressed from ideology. Liberals were more

likely to report feeling angry about COVID-19 than conservatives (b = -.127, SE = .062, t = -2.03, p < .001).

For H8, to test the relationship between concern about health impacts and ideology, concern about health impact was regressed from ideology, demonstrating that political liberals tended to report more concern over the health impacts of COVID-19 than conservatives (b = -.549, SE = .05, t = -10.89, p < .001). To assess the relationship between concern about social and economic impacts and ideology, concern about social and economic impacts was regressed from ideology, demonstrating that there was no significant difference in concern over social and economic impacts between liberals and conservatives (b = -.074, SE = .047, t = -1.594, p = .112).

To test the hypothesis that anxiety would predict concern about health impacts more for liberals than for conservatives, the relationship between anxiety and health concerns was first examined, demonstrating a strong positive relationship (b = .557, SE = .039, t = 14.216, p < .001). An interaction model was used, revealing that there was an interaction effect between anxiety and ideology for the prediction of health concerns (b = .065, SE = .023. t = 2.80, p = .0043). Figure 3 shows this interaction plotted, revealing that anxiety appears to show a stronger impact for conservatives than liberals. This interaction was further examined, and the main effect of anxiety was assessed for liberals and conservatives separately (liberal anxiety b = .474, SE = .051, t = 9.325, p < .001; conservative anxiety b = .834, SE = .105, t = 7.916, p < .001). Conservatives seem to be driving the interaction seen in Figure 3. Given that conservatives showed a greater effect of anxiety on health concerns, it seems that anxiety was more influential for them at higher levels. Conservatives in this sample begin to look more like liberals in their degree of health concern at higher levels of anxiety. Although this effect was stronger for conservatives, it anxiety also matters for liberals. To test the hypothesis that anger will predict

concern about social and economic impacts more for conservatives than liberals another interaction model was used. This analysis revealed that there was no interaction between anger and ideology for the prediction of social and economic concerns (b = -.002, SE = .0219, t = -.107, p = .915).

Finally, to test the exploratory H9 that individuals with more extreme behaviors on either end of the spectrum would score lower on ideology consciousness scales, ideology consciousness was regressed from the behavioral extremity score. Behavioral extremity was calculated by subtracting the midpoint of the scale and then taking the absolute value of behavior items. This demonstrated that those who reported being aware of the role ideology played in their COVID-19 behaviors reported more extreme COVID-19 behaviors (b = .089, SE = .024, t = 3.706, p = .0002).

General Discussion

We will here briefly summarize the findings from both Study 1 and Study 2 and then relate said findings to the existing literature.

In Study 1 for H1, as expected, conservatives were more likely to endorse authority and purity while liberals were more likely to endorse harm and fairness. H2 found support as greater conservatism predicted greater degrees of noncompliance while higher liberalism predicts greater compliance with all included behaviors. In the same way, political ideology predicted belief sensitivity surrounding COVID-19 public health measures. Conservatives tended to be less sensitive in their beliefs (COVID-19 concerned) than their liberal counterparts. Contrary to H3, aside from authority endorsement, moral foundation endorsement did not strengthen or qualify the relationship between ideology and COVID-19 related behaviors. The same pattern was revealed when the relationship between moral foundations, political ideology, and COVID-19

beliefs was examined. H4 was supported as individuals who perceived the COVID-19 pandemic as a moral issue reported more extreme behaviors and beliefs than individuals who did not perceive the pandemic as a moral issue. Finally, to address H5, moral conviction was found to strengthen the relationship between moral foundations scores and reported behaviors and beliefs for conservatives for authority only.

H1 and H2 were replicated in Study 2, yielding the same results seen in Study 1. In Study 2, H6 found support as higher liberalism predicted vaccinated status while higher conservatism predicted unvaccinated status. H7 was also supported as liberals tended to report higher levels of anxiety and behavioral changes due to anxiety. Contrary to H8, liberals were more likely to report feeling uncertain and threatened than conservatives in relation to COVID-19. Further, contrary to H8, there was no statistically significant difference in concern over social and economic impacts of the pandemic. In alignment with the research hypothesis, liberals were found to report more concern about health impacts than conservatives. Anxiety was found to predict concern about health impacts more for liberals than conservatives while anger was not found to influence concern about social and economic impacts. Finally, the opposite effect was found for H9 as those who reported being aware of the role ideology played in their COVID-19 behaviors reported more extreme COVID-19 behaviors.

Concerning H1 from both studies, the difference in loyalty foundation endorsement between liberals and conservatives from Study 1 and previous research is of interest. In the sample from Study 1, loyalty scores were on average 3.5/5 with 5 indicating highest concern for loyalty in decision making. In Study 2, neither loyalty nor purity aligned with the typical ideology and moral foundation endorsement findings. These differences may be influenced by characteristics that are idiosyncratic to the Midwestern college population we sampled from.

For H2, as expected, conservatives were found to be less behaviorally compliant and less sensitive in their beliefs towards COVID-19. This finding is in alignment with prior research (Chan, 2020). While this finding may seem intuitive, it was important to establish this pattern in the sample before conducting additional analyses.

For H3, contrary to the research hypothesis endorsement of foundations by those of differing ideologies did not influence behavior. As discussed above, when interaction models were run, the effect of moral foundation endorsement disappears with the inclusion of ideology. Authority matters for behaviors and beliefs, but only for conservatives (Figure 2). The finding that ideology influenced behaviors and beliefs above and beyond moral foundation endorsement is in alignment with the idea that ideology underlies moral foundation endorsement rather than the other way around.

Regarding H4, those who perceived the pandemic as a moral issue reported more extreme and robust behaviors and beliefs than individuals who did not perceive the pandemic as a moral issue. This finding aligns with previous work by Skitka and colleagues (Skitka et al., 2008).

For H5, conviction strengthened the relationship between authority endorsement and behaviors and beliefs, but this pattern was not observed in the general manner we hypothesized. The significant interaction with authority indicates that moral conviction may be more salient to those who endorse the authority foundation. While this has not been previously observed in the literature, it makes theoretical sense as those who feel strongly about the role of authority figures, be they political elites or otherwise, may feel morally convicted to obey and trust these sources and, thus, more likely to behave and believe in alignment with said authority figures.

H1 and H2 were replicated in Study 2 and bolstered the generalizability of our findings and interpretations noted above.

The first novel hypothesis from Study 2, H6 found support as liberals were more likely than their conservative counterparts to report being vaccinated. This finding is in alignment with national patterns as reported by Pew Research Center and others (Pew Research Center, 2021).

H7 was supported as liberals were found to be more anxious and reported more anxiety-driven behavioral changes than conservatives. However, contrary to the research hypothesis, liberals were found to be angrier than conservatives about COVID-19. Given the time course of data collection, this anger finding makes sense as many conservatives had begun to move on during fall of 2021, leaving many still concerned liberal individuals exasperated.

Additionally, contrary to the research hypothesis that liberals and conservatives would report similar levels of uncertainty and threat, liberals were found to report more uncertainty and threat. Considered in the broader context of the pandemic, this finding, although not in alignment with prior work, aligns with behavioral patterns from our data collection. Liberals who were more likely to behave and believe in COVID-19 conscious ways may have done so in part due to emotions such as uncertainty and threat. Non-COVID conscious conservative individuals who perceive the pandemic differently may be influenced by less uncertainty and threat. Cognitive processing differences and threat perception here differs from prior work as conservatives are generally more threat averse than liberals.

For H8, contrary to the research hypothesis there was no statistically significant difference in concern over social and economic impacts of the pandemic. This finding is surprising as prior work has demonstrated strong concern preferences towards social and economic impacts for conservatives. One explanation of the pattern observed in our sample may be the time course of our data collection. In the fall of 2021, the economy was improving, especially in comparison to the year prior. Sample characteristics such as socioeconomic status

and status as college students who tend to be middle class may have also influenced this finding. In alignment with the research hypothesis, liberals were found to report more concern about health impacts than conservatives. Anxiety was found to predict concern about health impacts more for liberals than conservatives while anger was not found to influence concern about social and economic impacts. Considering the above finding that liberals were angrier than conservatives, this finding is logical.

Finally, for the exploratory H9, those who reported being aware of the role ideology played in their decision making reported more extreme behaviors. This finding was the reverse of the hypothesized relationship, potentially revealing that the measure of ideological consciousness may have been measuring ideological extremity. Thus, those higher in ideological consciousness may have interpreted the item as a measure of ideological pride or identification, giving another measure of the most strongly identified individuals in the sample.

Limitations

The samples utilized for both studies were samples of convenience drawn from an undergraduate participant pool. While examining the research questions in a college-age sample is interesting, it is important to note that the age group possesses several characteristics that will limit generalizability. For example, there are concerns about the degree to which many individuals in this population may be insulated from the impacts of the pandemic.

Additionally, although this study did not include a measure of socioeconomic status, many college students are middle-upper class and are supported by their families, further insulating them from COVID-19. The experiences and behaviors of college-aged students may differ from that of the general US population. The younger age of the sample is also a limitation

as young adults have been found to be less concerned about the COVID-19 throughout the pandemic compared to older adults (Pew Research Center, 2021).

Despite the lack of SES measure, it is possible that SES influenced the outcome of H8 regarding social and economic concerns. Additionally, this study is associative in nature and no claims to causality may be derived from it as it is a self-report survey-based study.

Future Directions

Future work is necessary to understand the relationship between ideology and moral foundation endorsement. Correlational and descriptive work has helped pave the way for experimental studies that will allow for claims to causality and an enhanced understanding of the direction of this relationship. Future work should also incorporate the role of emotion into moral conviction and perception work. The present work examined the two constructs independent of one another, but there is need for a more nuanced approach.

One interesting characteristic of our study which distinguishes it from others like it include the two data collection points. Although the sample varied from Study 1 one to Study 2, collecting data during both the spring and fall of 2021 allowed for two unique snapshots of life during COVID-19. The replication of H1 and H2 strengthens the reliability of the correlational findings, and future studies ought to pursue longitudinal models with the same participants to observe changes or continuities during an ever-evolving pandemic.

Additional work centered on the role of political elite communication during the beginning months of the pandemic is also necessary. The early politicization of the pandemic may have influenced the behaviors and beliefs participants reported in our sample, but we did not include measures of political communication or participation in either of our studies.

Further analysis of affect and emotion during the pandemic and in relationship to moral foundation endorsement should also be of interest and a target for further work. Our analyses did not focus on the intersection of ideology, emotion, and morality taken together. While the same effect of ideology as a driving force may emerge, the role of emotion may help explain the strength of ideology over moral foundation endorsement during unusual situations such as the COVID-19 pandemic.

Conclusion

COVID-19 provided a unique opportunity to examine the relationship between political ideology, moral foundation endorsement, emotion, and behaviors and beliefs. The present study sought to replicate prior findings and expand the field's understanding of the association between ideology and moral foundation endorsement through the lens of a public health crisis. Although the sample did not perfectly align with prior findings related to ideology and foundation endorsement, ideology was found to be the driving force behind COVID-19-related behaviors and beliefs at both data collection points.

The applications of the present work are two-fold. First, it is essential to recognize that ideology seems to drive COVID-19 behaviors and beliefs. The role of ideology in this context contributes to the political and moral psychology literature and aids in revealing the nature of the relationship between moral foundations and ideology, but this finding also reveals much about the state of our political landscape amid the pandemic. Ideological communication surrounding pandemic mitigation and public health matters. Early politization of COVID-19 by political elites may have influenced public opinion and, more importantly, behaviors and beliefs of individuals. Although this study did not examine partisan communication or message framing, the role of ideology in predicting behavioral outcomes and beliefs indicates that ideology may

overpower moral stances. Secondly, moral conviction, as posited by Skitka, strengthens commitment to behaviors and beliefs. The role of moral conviction and moral perception demands further study, especially in connection to affect and emotion in political psychology. Additionally, the finding that conservatives become increasingly concerned about health outcomes at higher levels of anxiety provides an important target for messaging and framing for future public health crises.

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Table 1. Summary of results from linear regression models in Study 1: Ideology, MF, and COVID-19 Behavior.

	Model 1 (ME)	Model 2 (Interactions)
Intercept		
Ideology	-.345(.027)*	-.475(.176)*
Harm	.172(.091)	-0.147(0.199)
Loyalty	-.066(.091)	-0.223(0.173)
Fairness	.159(.097)	0.231(0.192)
Authority	-.043(.098)	0.366(.180)
Purity	-.042(.095)	-0.131(.182)
Ideo x Harm		.084(.048)
Ideo x Loyalty		.055(.046)
Ideo. x Fairness		-.008(.046)
Ideo x Authority		-.135(.050)**
Ideology x Purity		.024(.050)

Note. *p < .001, p < .01** Values are unstandardized regression coefficients (standard errors in parentheses)

Table 2. Summary of results from linear regression models in Study 1: Ideology, MF, and COVID-19 Beliefs.

	Model 1 (ME)	Model 2 (Interaction)
Intercept		
Political Ideology	-.449(.031)*	-.437(.206)**
Harm	.237(.106)*	0.095(.232)
Loyalty	-.114(.105)	-0.358(.200)
Fairness	.165(.111)	0.237(.224)
Authority	-.020(.110)	0.413(.209)**
Purity	-.065(.111)	-0.131(.208)
Ideo x Harm		.035(.056)
Ideo x Loyalty		.079(.053)
Ideo. x Fairness		-.007(.053)
Ideo x Authority		-.143(.059)*
Ideology x Purity		.022(.056)

Note. $p < .001$* $p < .01$** Values are unstandardized regression coefficients (standard errors in parentheses).

Table 3. Summary of results from linear regression models in Study 1: Moral conviction, foundations, behaviors/ beliefs

Behaviors	Model 1 (MEs only)	Model 2 (ME + interaction)
Intercept		
Conviction	.305(.036)*	.557(.309)
Harm	.217(.102)*	0.521(.461)
Loyalty	-.063(.101)	0.717(.490)
Fairness	.511(.100)*	.300(.443)
Authority	-.253(.104)*	-1.140(.460)**
Purity	-.270(.107)*	.084(.524)
Conviction * Harm		-.059(.083)
Conviction * Loyalty		-.135(.083)
Conviction * Fairness		.039(.079)
Conviction * Authority		.156(.079)*
Conviction * Purity		-.056(.089)

Beliefs	Model 1 (MEs only)	Model 2 (ME + interaction)
Intercept		
Conviction	.316(.046)*	.174(.381)
Harm	.298(.127)**	0.256(.575)
Loyalty	-.122(.126)	0.775(.616)
Fairness	.660(.125)*	0.499(.552)
Authority	-.325(.130)*	-1.864(.594)*
Purity	-.034(.131)*	0.254(.658)
Conviction * Harm		.005(.104)
Conviction * Loyalty		-.156(.105)
Conviction * Fairness		.030(.098)
Conviction * Authority		.270(.102)*
Conviction * Purity		-.101(.112)

Note. $p < .001$* $p < .01$** Values are unstandardized regression coefficients (standard errors in parentheses).

Table 4. Summary of results from linear regression in Study 2: Emotion, Ideology, and COVID response

	Model 1	Model 2
Intercept		
Political Ideology	-.403(.096)*	-.027(.107)*
Anxiety	.368(.092)**	
Ideology x Anxiety	.066(.023)*	
Anger		.306(.089)**
Ideology x Anger		-.002(.022)

Note. p > .001* p < .01** Values are unstandardized regression coefficients (standard errors in parentheses).

Figure 1. The impact of political ideology on vaccination status

0 = very liberal; 6 = very conservative

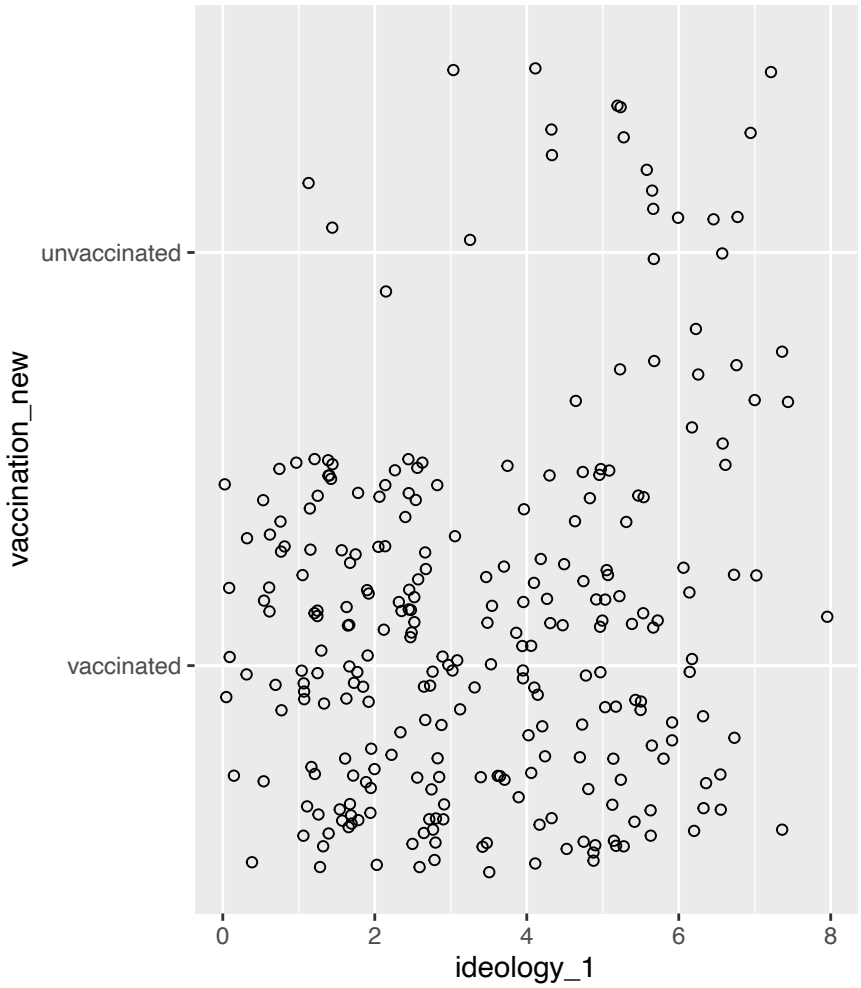


Figure 2a. The impact of authority and ideology on behaviors or beliefs

Behavior x authority x ideology

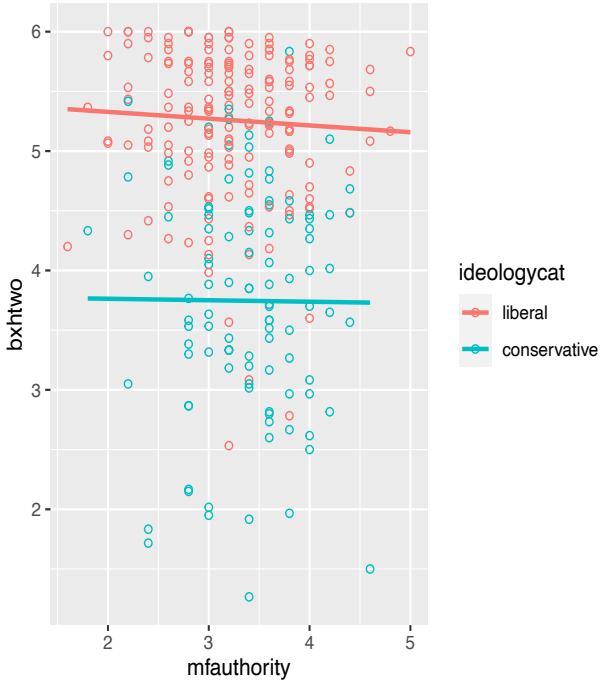


Figure 2b.
Beliefs x authority x ideology

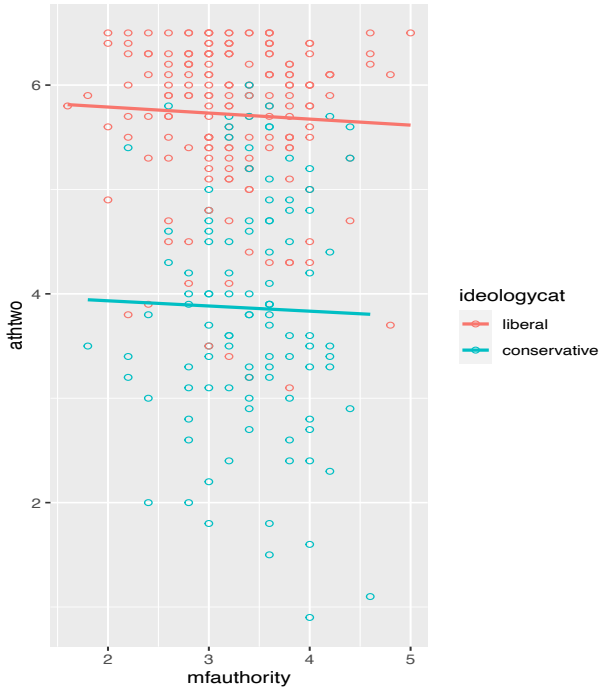
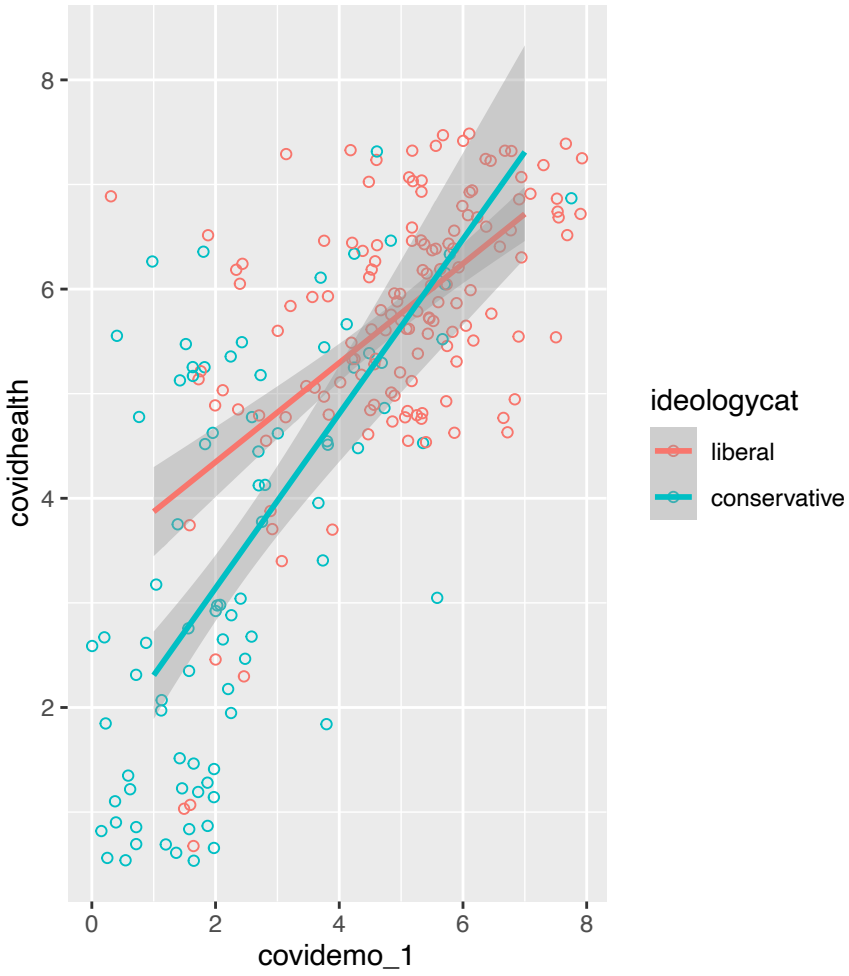


Figure 3. The impact of political ideology and anxiety on COVID-19 health concerns



Appendix

Appendix A

Study 1 Measures

Moral Foundations Questionnaire
When you decide whether something is right or wrong, to what extent are the following considerations relevant to your thinking? Please indicate the extent to which you agree or disagree with each of the following statements by marking the appropriate answer in the space next to that statement (1- never relevant; 5- always relevant). Use the following scale to record your answers. There are no right or wrong answers, please respond honestly. Do not spend too much time on any item.
[Questions appear in random order]
Harm:
- Whether or not someone was harmed
- Whether or not someone suffered emotionally
- Whether or not someone used violence
- Whether or not someone cared for someone weak or vulnerable

Fairness:
- Whether or not someone was denied his or her rights
- Whether or not someone acted unfairly
- Whether or not some people were treated differently than others
- Whether or not someone ended up profiting more than others

Loyalty:
- Whether or not someone showed a lack of loyalty
- Whether or not someone did something to betray his or her group
- Whether or not the action was done by a friend or relative of yours
- Whether or not the action affected your group

Authority:
- Whether or not someone failed to fulfill the duties of his or her role
- Whether or not someone showed a lack of respect for legitimate authority
- Whether or not the people involved were of the same rank or status
- Whether or not an authority failed to protect his/her subordinates

Purity:
- Whether or not someone respected the traditions of society
- Whether or not someone did something unnatural or degrading
- Whether or not someone did something disgusting
- Whether or not someone violated standards of purity and decency
- Whether or not someone acted in a virtuous or uplifting way
- Whether or not someone was able to control his or her desires

COVID-19 Behavior:

Read each of the following behavior examples and decide how frequently you behave in a similar way. It is important for you to realize that there are no “right” or “wrong” responses. Please respond honestly based upon previous behaviors. Please respond to each example using the following 6-point scale (1-never; 6-always):
[Questions appear in random order]

- I wear a mask indoors in public places
- I wash my hands after being in public
- I wear a mask in drive-thrus
- I go through drive-thrus without a mask on
- I practice social distancing in public places
- I avoid large crowds
- I ignore social distancing recommendations in public places
- I spend time around large crowds
- I attend social gatherings with more than ten people
- I would get tested for COVID-19 if I displayed symptoms
- I would tell people that I had been in contact with if I tested positive for COVID-19
- I would stay home for the recommended self-isolation or quarantine period if I had been exposed to or tested positive for COVID-19
- I would avoid getting tested for COVID-19 if I displayed symptoms
- I would avoid telling people I had been in contact with if I tested positive for COVID-19
- I will get the COVID-19 vaccine once it is made available to me
- I travel for essential reasons only
- I comply with UNL’s testing guidelines
- I travel for non-essential reasons
- I comply with posted signage about COVID-19 protocol in commercial and governmental buildings
- I ignore posted signage about COVID-19 protocol in commercial and governmental buildings
- I go to class, work, or social events if I am experiencing COVID-19 symptoms
- I stay home as much as possible if I am experiencing COVID-19 symptoms
- I eat in at restaurants
- I go to the gym
- I tend to order takeout and delivery from restaurants rather than dining in.
- I discuss COVID-19 with peers and family members

COVID- 19 Beliefs:

Read each of the following statements and decide how much you agree with each according to your attitudes, beliefs, and experiences. It is important for you to realize that there are no "right" or "wrong" responses. Please respond honestly to each item using the following 7-point scale: [Questions appear in random order]

- The COVID-19 pandemic is a global emergency that needs to be addressed
- The COVID-19 pandemic has been blown out of proportion
- COVID-19 poses a serious threat to my health
- COVID-19 is not a serious threat to my health
- Everyone should get COVID-19 so we can move on
- We should be as careful as possible to avoid getting and spreading COVID-19
- I am concerned for the health of my family due to COVID-19
- My family would be fine if they contracted COVID-19
- Most people who contract the virus are fine
- Not everyone who contracts the virus is fine
- COVID-19 prevention measures like mask-wearing and social distancing work to stop the spread of the virus
- COVID-19 prevention measures like mask-wearing and social distancing do not work to stop the spread of the virus
- There are more important issues than COVID-19 that the country should be focused on
- COVID-19 is the most important issue that we should focus on
- COVID-19 prevention measures are necessary to slow the spread of the virus
- COVID-19 prevention measures are causing more problems than they are fixing
- I obey COVID-19 requirements because I have to
- I obey COVID-19 requirements because I want to
- I do not think COVID-19 prevention measures work
- Others have told me not to obey COVID-19 protocol
- The COVID-19 vaccine is safe
- The COVID-19 vaccine is not safe
- People should not get vaccinated
- People should get vaccinated
- I am concerned that the government or third parties have bad intentions in distributing the vaccine
- I trust that the government wants to eradicate COVID-19
- I believe protecting myself and those around me from COVID-19 is important
- I do not believe that protecting myself and those around me from COVID-19 is important
- The federal government initially responded well to the COVID-19 pandemic
- The federal government initially responded poorly to the COVID-19 pandemic
- The Nebraska state government responded well to the COVID-19 pandemic
- The Nebraska state government responded poorly to the COVID-19 pandemic
- Others have told me to obey COVID-19 protocol

Moral Conviction:
Read the following statements and decide how much you agree with each according to your beliefs and experiences. There are no “right” or “wrong” answers. Please respond honestly according to the following scale (1- strongly disagree; 7 strongly agree):

- My behaviors in response to COVID-19 are a reflection of my core moral beliefs and convictions
- My beliefs regarding COVID-19 are a reflection of my core moral beliefs and convictions

Demographics:
-What is your sex?
-Answer choices: male, female, non-binary/third gender, prefer not to say, other- prompts fill in the blank
- What is your age?
    -Answer choice: fill in the blank
- What is the highest level of education you have received?
    -Answer choices: Some High School, High School Diploma, Some College No Degree, Associate's Degree, Bachelor's Degree, Some Graduate School, Master's Degree, Doctoral / Professional Degree
- What is your ethnicity?
    -Answer choices: Hispanic/ Latino, not Hispanic/ Latino
- What is your race? Select all that apply.
    -Answer choices: American Indian/Alaska Native, Asian, Black, Native Hawaiian or other Pacific Islander, White, other (prompts fill in the blank)

-Which option best represents your religious beliefs?
    -Answer choices: Protestant, Catholic, Jewish, Muslim, Hindu, Buddhist, Agnostic, Atheist, Other (prompts fill in the blank)

-I live in a community that is considered
    -Answer choices: rural, urban
-There is a mask mandate in my community
    -Answer choices: yes, no
-Restaurants are open for dine-in in my community
    -Answer choices: yes, no

Political Identification

- Please use the following scale to indicate your political ideology (1- very liberal; 4- moderate; 7- very conservative)
- Please use the following scale to indicate your political party identification (1- strong democrat; 4- independent; 7- strong republican)
- Please indicate your political identification using the scale below (1-strongly disagree; 7 strongly agree)

-Question items:

- I identify as Democrat
- I identify as Republican
- I identify as liberal
- I identify as conservative

Appendix B

Study 2 Measures

COVID Emotions
Read each of the following statements and decide how much you agree with each according to your attitudes, beliefs, and experiences. It is important for you to realize that there are no "right" or "wrong" responses. Please respond honestly to each item using the following 7-point scale: (1- strongly disagree; 4- neither agree nor disagree; 7- strongly agree)

- I feel anxious about COVID-19
- I feel afraid when I think about COVID-19
- I am concerned about the impact COVID-19 has on the health of others or myself
- I am concerned about the economic impacts of COVID-19
- I am concerned about the social impacts of COVID-19
- I feel angry when I think about COVID-19
- Thinking about COVID-19 makes me feel tired
- I feel threatened by COVID-19
- I feel uncertain about COVID-19
- My anxiety about COVID-19 has resulted in behavioral changes in my life such as seeing a therapist
- My fear about COVID-19 has resulted in behavioral changes in my life such as seeing a therapist

Vaccination Status

Which option best represents your vaccination status?

- Fully vaccinated
- Partially vaccinated
- Not vaccinated

COVID-19 Ideology Consciousness

Read the following statements and decide how much you agree with each according to your beliefs and experiences. There are no “right” or “wrong” answers. Please respond honestly according to the following scale: (1- strongly disagree; 4- neither agree nor disagree; 7- strongly agree)

- My behaviors and beliefs in response to COVID-19 reflect my core political values
- My behaviors and beliefs in response to COVID-19 reflect my identification with my political ideology