Why are conservatives less concerned about the coronavirus (COVID-19) than liberals? Comparing political, experiential, and partisan messaging explanations

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A B S T R A C T

Given research revealing conservatives are more sensitive to disease threat, it is curious that U.S. conservatives were less concerned than liberals with the COVID-19 pandemic. Across four studies that spanned almost ten months throughout the pandemic, we evaluated three potential reasons why conservatives were less concerned: (1) Motivated Political reasons (conservatives held COVID-specific political beliefs that motivated them to reduce concern), (2) Experiential reasons (conservatives were less directly affected by the outbreak than liberals), and (3) Conservative Messaging reasons (differential exposure to/trust in partisan conservative messaging). All four studies consistently showed evidence that political (and not experiential or partisan messaging) reasons more strongly mediated conservatives' lack of concern for COVID-19. Additional analyses further suggested that while they did not serve as strong mediators, experiential factors provided a boundary condition for the conservatism➔perceived threat relationship. These data on over 3000 participants are consistent with a new model of the ideology-disease outbreak interface that can be applied to both the ongoing pandemic and future disease outbreaks.

In the United States, polling has consistently suggested that conservatives are less concerned than liberals about the COVID-19 pandemic (Brownstein, 2020; Malloy & Schwartz, 2020). Conservatives' relative lack of concern towards the pandemic is curious in light of a large body of social psychological research and theory suggesting strong ties between conservative ideology and threat (e.g., Altemeyer, 1996; Duckitt & Sibley, 2010; Feldman, 2003; see Choma & Hanoch, 2017, for discussion) – and *especially* to direct physical threats such as disease (for summaries, see Conway et al., 2019; Crawford, 2017). For example, research shows that disgust sensitivity – one of the psychological mechanisms by which disease threat operates – is associated with more conservative policy positions and voting tendencies (Brenner & Inbar, 2015; Helzer & Pizarro, 2011; Inbar et al., 2012; Liuzza et al., 2018; Oosterhoff et al., 2018; Shook et al., 2017). Indeed, research specifically on COVID-19 revealed that COVID-19-based primes increased conservatism (Karwowski et al., 2020). Complementary work at a socio-ecological level suggests that the presence of more communicable disease is generally associated with higher levels of politically conservative values and beliefs (Beall et al., 2016; Conway, Repke, & Houck, 2017a; Conway, Bongard, et al., 2017; Conway, Repke, & Houck, 2017b; Fincher et al., 2008; Murray et al., 2019; Tybur et al., 2016). In addition to showing culture-level pathogen prevalence's association with traditionally conservative-related beliefs such as authoritarianism and autocratic governments (Conway, Repke, & Houck, 2017a; Conway, Bongard, et al., 2017; Conway, Repke, & Houck, 2017b; Fincher et al., 2008; Tybur et al., 2016), this line of research has also demonstrated more specific conservative ideological shifts based on the prevalence of active disease outbreaks (Beall et al., 2016). Taken together, this set of findings at both the individual and ecological levels has suggested to researchers that pathogen prevalence is associated with more ideological conservatism (see Conway et al., 2019, for a summary).

This presents a psychological puzzle. If conservatives are more sensitive to disease threat, why did American conservatives seem less concerned with a worldwide disease pandemic in which the United States has at points had the highest number of confirmed cases (World Health Organization, 2020)? In the present article, we consider and test

possible explanations for this effect that are relevant to the specific U.S. socio-political context. After replicating the basic findings on a larger sample, we then use these data to suggest an initial theoretical model of the interface between ideology and pandemics that other researchers can apply to both current and future disease outbreaks – in the U.S. and (potentially) beyond.

1. Why should researchers care? Theoretical and practical implications

Understanding how individual differences in ideology influence perceived disease threat is vital for both theoretical and practical reasons. At a theory level, although work evaluating the psychology of disease outbreaks is growing (e.g., Harper et al., 2020; Karwowski et al., 2020; Martin, 2020; Pennycook et al., 2020; Sibley et al., 2020; Zettler et al., 2020), we currently do not have many guiding theories concerning the interface of ideology and disease outbreaks more broadly. Thus, in the present project we aim to use the current data to aid in theory-building in this regard.

Building better theoretical models also has important practical implications as well. Because ideology has a huge impact on how people think, feel, and behave (see, e.g., Jost et al., 2008), understanding how ideology might interface with COVID-19 can importantly advance our knowledge of the practical realities that governments face in potential responses to their policies. While each cultural context is different, and thus understanding the conservatism➔perceived threat link in one context will not necessarily directly translate to another, better understanding the underlying *factors* that mediate a relationship in one context might help build better models that can then be tested in another.

1.1. The present research: Comparing motivated political, experiential, and conservative messaging explanations

To aid in theoretical and practical goals, we here evaluate three reasons why American conservatives might be less prone to view the outbreak as dangerous. First, we consider the possibility that conservatives were simply less directly affected by the pandemic than liberals in the U.S., and thus their reasons for showing less concern were based in an experiential reality. Liberal and conservative groups in the U.S. comprise different portions of the population that not only generally reside in different regions of the country, they also comprise often very different demographic groups within those regions (United States Census Bureau, 2020). It is thus possible that conservatives' relative lack of concern results from (on average) less actual exposure to potential threats from the disease at the points in time our studies occurred (Center for Disease Control, 2020).

Second, it may be that conservatives hold political beliefs relevant to the pandemic that cause them to *want* to dismiss the pandemic as less important. Much research on motivated ideological cognition shows how pre-existing ideological beliefs motivate behavior, shape beliefs, and guide interpretations of events (Choma et al., 2021; Clark & Winegard, 2020; Conway, Zubrod, & Chan, 2020; Ditto et al., 2019; Honeycutt & Jussim, 2020; Jost et al., 2003). Thus, it is possible that conservatives' relative lack of concern comes from the particular way that their pre-existing ideologies might interface with the COVID-19 pandemic. In the present studies, we evaluated five dimensions on which conservatives might differ from liberals in their views of their government's response to the COVID-19 crisis. To the degree that beliefs about what they would prefer the government to do mediate the conservatism➔perceived threat relationship, this suggests that political motives regarding preferred government responses are one of the reasons that conservatives report less concern with the disease.

Third, it may be that conservatives and liberals consume and trust different sources of information. Much prior research reveals the importance of partisan selective exposure (the degree that people only watch news media that supports their own views, e.g., Rodriguez et al., 2017) and informational trust (the degree that people differentially trust messages from specific sources, e.g., Conway, Repke, & Houck, 2017a; Conway, Bongard, et al., 2017; Conway, Repke, & Houck, 2017b) in understanding political phenomena. Thus, it may be that part of the reason why American conservatives and liberals have different views of the pandemic is that they are influenced differently by messaging from Federal leadership and partisan media.

We did not make specific initial hypotheses. Instead, we were interested in our primary research question: Which of these three potential explanations would best account for conservative/liberal differences in concern with the pandemic? To investigate these different potential reasons for conservatives' (relative) lack of concern with the pandemic, we followed standard practices for mediational models used in other personality/individual differences research (e.g., Chang et al., 2020; Freis & Hansen-Brown, 2021; Hilbig et al., 2013). Applied to cross-sectional individual differences measurements, such approaches cannot of course assert temporal causality, but instead are useful for partitioning variance to better understand the best explanatory framework underlying relationships between individual difference variables (e.g., Chang et al., 2020; Freis & Hansen-Brown, 2021; Hilbig et al., 2013). Thus, in manner identical to prior research (e.g., Chang et al., 2020; Freis & Hansen-Brown, 2021), we here applied modern bootstrapping techniques to more fully understand the relationship between ideology and perceived COVID-19 threat in the United States.

Further, we additionally considered the potential boundary conditions of the link between conservative ideology and perceived threat from COVID-19. In particular, in a pooled analyses of Studies 1–3 and a large replication in Study 4, we pursued the degree that conservative identification had a greater effect at lower levels of experience than higher levels. If that is the case, it would help us not only understand what *mediates* the conservatism➔perceived threat relationship, but also *when* ideology is more likely to predict perceived threat. We then used the data from the present studies to construct a model that can be applied moving forward to future disease outbreaks.

We present our data in two sets: Studies 1–3 were collected within a few days during the early part of the pandemic in the U.S. Study 4 was collected across several months that fell much later in the pandemic. This range of times allowed us to better understand the potential stability of the relationships in a shifting pandemic landscape.

1.2. Overview of Studies 1–3

Across three studies collected on March 30, March 31, and April 3 (2020), participants completed measurements related to self-identification with political conservatism, perceived threat of COVID-19, political motives related to governmental action for COVID-19, their experiences/impacts related to COVID-19, and trust in political leadership messaging. Studies took approximately 3–6 hours each to run and thus they did not overlap in time. Across all three studies, our sample had typical Mechanical Turk characteristics for age (overall *mean* = 41, *SD* = 12.9; Study 1 *mean* = 40, *SD* = 12.7; Study 2 *mean* = 43, *SD* = 13.2; Study 3 *mean* = 40, *SD* = 12.9), biological sex assigned at birth (overall = 48% female; Study 1 = 50% female; Study 2 = 51% female; Study 3 = 43% female), and race/ethnicity (for the overall sample, largest groups were White/European-American = 72%, Asian = 9%, and Black/African-American = 7%; Study 1 White/European = 72%; Study 2 White/European = 74%; Study 3 White/European = 71%). We used modern bootstrapping techniques to estimate power for mediation tests (Schoemann et al., 2017). Entering modest expected

effect size parameters (r's = 0.25), power = 0.91 (LCI = 0.87, UCI = 0.94) for n = 275, and thus all studies (study n's > 280) are well-powered for mediation tests.[1,2]

2. Study 1 methods

2.1. Participants

As a part of a larger project, two hundred and seventy-nine Amazon's *Mechanical Turk* (*MTurk*) participants completed a battery of items relevant to the key conceptual variables. *MTurk* has been repeatedly validated for use in U.S. samples for research related to political ideology (see, e.g., Clifford et al., 2015; Conway et al., 2018; Kennedy et al., 2020).

2.2. Independent variable: political conservatism

To measure self-identification with political conservatism, participants completed two standard items on a 1–9 scale anchored by Liberal/Democrat and Conservative/Republican (e.g., Jost et al., 2008). These were averaged into a *Political Conservatism* score (standardized *alpha* = 0.95).

2.3. Dependent variable: perceived coronavirus threat questionnaire

Participants completed six items concerning how threatened or worried they were about COVID-19, for example: "Thinking about the coronavirus (COVID-19) makes me feel threatened." Items were presented with options from 1 to 7 anchored by "1 = not true of me at all" and (7 = "very true of me."). This *Perceived Coronavirus Threat Questionnaire* (*alpha* = 0.90) has been validated with factor analyses both in U.S. samples and in a large sample spanning multiple nations and continents (Conway et al., 2021; Conway, Woodard, & Zubrod, 2020). As expected from polling data, Perceived Coronavirus Threat was negatively related to Political Conservatism, $r = -0.33$, $p < .001$.

2.4. Political beliefs mediators: governmental response to coronavirus questionnaire

Participants completed 30 items concerning their political beliefs about their government's response to the crisis. Items were presented with options from 1 to 7 anchored by "1 = not true of me at all" and (7 = "very true of me."). These 30 items represented 5 dimensions that occurred across 3 different layers of government (Federal, State, City). These 5 dimensions consistently showed the same pattern in our results across all levels of government. As a result, we provide summary scores across levels of government here. These scales showed good factors structures, both in U.S. samples and in a large sample spanning multiple nations and continents (Conway et al., 2021; Conway, Woodard, & Zubrod, 2020). The five dimensions were as follows:

2.4.1. Restriction
Restriction questions (*alpha* = 0.94) measured the degree that participants wanted their Federal, State, and City governments to restrict citizens to help stop the spread of the virus, for example: "I support [Federal/State/City] government measures to restrict the movement of American citizens to curb the spread of Coronavirus (COVID-19)."

2.4.2. Punishment
Punishment questions (*alpha* = 0.93) measured the degree that participants wanted their government to punish citizens who violated social distancing rules, for example: "I want my [Federal/State/City] government to severely punish those who violate orders to stay home."

2.4.3. Reactance
Adapted from prior work (e.g., Conway, Repke, & Houck, 2017a; Conway, Bongard, et al., 2017; Conway, Repke, & Houck, 2017b; Conway & Repke, 2019), *reactance* questions (*alpha* = 0.96) measured the degree that participants felt angry that their government was taking away their freedom during the crisis. A sample question is "I am upset at the thought that my [Federal/State/City] government would force people to stay home against their will."

2.4.4. Research
Research questions (*alpha* = 0.91) measured the degree that participants wanted their government to fund research on the virus, for example: "I think we should spend most of our [Federal/State/City] resources right now towards finding a vaccine (or other medical cure) for Coronavirus (COVID-19)."

2.4.5. Stimulus
Stimulus questions (*alpha* = 0.90) measured the degree that participants wanted their government to give stimulus money back to individual persons to help the economy, for example: "I think it is a good idea for the [Federal/State/City] government to give individual citizens money back during these difficult times to increase spending and keep business going."

2.5. Experiential mediators: coronavirus impacts questionnaire and coronavirus experiences questionnaires

Participants completed 14 items on a 1–7 scale concerning their experiences with, and impacts of, COVID-19. These scales showed good factors structures, both in U.S. samples and in a large sample spanning multiple nations and continents (Conway et al., under review; Conway, Woodard, & Zubrod, 2020). These questionnaires measured their *Personal COVID-19 Symptoms/Diagnoses*, ("I have been diagnosed with coronavirus (COVID-19)"; *alpha* = 0.64), the degree that they might have known *Others with COVID-19* ("I know someone who has had coronavirus-like symptoms in the last two months"; *alpha* = 0.83), how much *COVID-19 News* they had been watching ("I watch a lot of news about the Coronavirus (COVID-19)"; *alpha* = 0.68), and how much they have been *Financially Impacted* (I have lost job-related income due to the Coronavirus (COVID-19)"; *alpha* = 0.70).

2.6. Conservative partisan messaging mediator

Participants also completed two items relevant to their level of trust in the messaging of the current conservative federal government that were adapted from prior work (e.g., Conway, Repke, & Houck, 2017a; Conway, Bongard, et al., 2017; Conway, Repke, & Houck, 2017b; Conway & Repke, 2019). A sample question is "I distrust the information I receive about the Coronavirus (COVID-19) from my Federal government." Items were presented with options from 1 to 7 anchored by "1 = not true of me at all" and (7 = "very true of me."). Items were scored such that higher scores always meant greater trust in the Federal government's messaging and averaged into a *Federal Government Messaging Trust* measure (*alpha* = 0.86).

2.7. Summary scores for mediators

In addition to performing scale-by-scale analyses, for summary purposes we created two additional summary scores to represent our larger conceptual groupings for experiential versus political mediators.

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[1] Conway, Woodard, and Zubrod (2020) report more detail on the properties of these questionnaires using the data from the studies in the present manuscript. However, all findings reported in the present manuscript are novel.

[2] All three studies contained a paragraph-writing prime at the beginning of the study. However, this prime did not affect the key storylines reported here (see online supplement for more details).

For COVID-19-Specific Political Beliefs, we averaged the five Government Responses scales, such that higher scores always indicated a greater desire for government response. For Experiences/Impacts, we averaged the four scales in the Experiences and Impacts Questionnaires, such that higher scores always equaled greater level of experiences/impacts with COVID-19.[3]

3. Study 1 results and discussion

To analyze the degree that experiences, political motives, and partisan messaging accounted for the conservatism➜perceived COVID-19 threat relationship, we performed a series of mediational analyses according to recommended current practices (Darlington & Hayes, 2017; Hayes, 2018) and commonly used to partition variance in cross-sectional individual differences research (e.g., Chang et al., 2020; Freis & Hansen-Brown, 2021). Specifically, in line with recent individual differences research (e.g., Chang et al., 2020; Freis & Hansen-Brown, 2021), we computed bootstrapped indirect effect sizes (using 5000 samples) and confidence intervals (using 5000 samples) that tested the degree that there was an indirect effect in a conservatism➜potential mediator➜perceived COVID-19 threat model, such that conservatism was operating on perceived threat *through* the mediator.[4] All tests reported in Table 1 evaluated only the mediating variable listed in the left-hand column (and thus did not control for the other mediating variables). In each case, however, every test also controlled for age, biological sex assigned at birth, and the population size of their resident city.

As can be seen in Table 1, strong evidence emerged for a motivated

Table 1
Study 1: why are conservatives less concerned about the coronavirus? Testing possible explanations of the conservatism➜perceived coronavirus threat relationship.

Conservatism➜threat Explanatory variable	Indirect Effect	Indirect Effect LCI	Indirect Effect UCI
COVID-19 experience and impacts:			
Personal symptoms	0.00	−0.00	0.02
Contact others with symptoms	0.01	−0.00	0.03
Financial impacts	−0.02	−0.05	0.01
Watch COVID-related news	−0.06*	−0.12	−0.01
Total experience/impact	**−0.02**	**−0.07**	**0.02**
COVID-19 political beliefs:			
Reactance to government orders	−0.11****	−0.18	−0.06
Desire for government to restrict	−0.18****	−0.25	−0.11
Desire for government to punish	−0.16****	−0.23	−0.09
Government research spending	−0.08**	−0.14	−0.03
Government stimulus spending	−0.08**	−0.14	−0.03
Total political beliefs:	−0.21****	−0.29	−0.14
COVID-19 partisan messaging:			
Federal messaging trust	−0.01	−0.04	0.01

Note: Listwise $N = 279$; ****$p < .0001$; ***$p < .001$; **$p < .01$; *$p < .05$; ^$p < .07$. Effect sizes and confidence intervals based on 5000 bootstrapped samples; *p*-values based on Sobel tests; all analyses control for age, biological sex assigned at birth, and population of resident city. Negative indirect effects = one + and one − effect in the indirect path (e.g., conservativism is + related to M and M is negatively related to COVID-19 threat, or conservatism is negatively related to M and M is positively related to COVID-19 threat); positive indirect effects = both effects in the indirect path are the same sign.

political belief model, but little to no evidence was found for an experiential or partisan messaging model. All of the political beliefs were significant mediators, whereas the most direct markers of experience all showed no mediational effect. The only experiential marker that showed an impact was that for watching news about the pandemic – and it was still weaker in magnitude than all of the political beliefs variables. Further, no evidence emerged for a conservative messaging effect.

Study 1 showed initial evidence that conservatives are less threatened by COVID-19 due to motivated political beliefs that intersect with COVID-19 and *not* because of direct experiences they have had with the disease or trust in partisan messaging. Study 2 attempted to replicate this basic effect while adding an additional experiential variable (resource acquisition), an additional conservative messaging variable (consumption of conservative versus liberal news), and two additional covariates. This expansion allowed us to more fully test if experiences and messaging might have an effect through variables not measured in Study 1.

4. Study 2

In Study 2, two hundred and eighty-five Amazon Mechanical Turk (MTurk) participants completed a battery of questionnaires identical to Study 1 questionnaires except for minor differences that did not impact the reported results (see Conway, Woodard, & Zubrod, 2020, for details; all reliability estimates similar to Study 1). To provide an even broader test of the experiential model, Study 2 expanded the Coronavirus Impacts Questionnaire by creating a new *Resource Acquisition* subscale (*alpha* = 0.85) that focused on COVID-19's interference with participants' ability to obtain basic resources. Further, in addition to the political identity messaging variable used in Study 1, we included three items relevant to the consumption of conservative (versus liberal) political messaging: likelihood of watching Fox News, CNN, and MSNBC. We created a single *Conservative News Consumption* variable by subtracting the average of CNN and MSNBC from Fox News.[5] Finally, in addition to the three covariates used in Study 1, in Study 2 we added standard measurements of income and education as covariates in all analyses.

Perceived Coronavirus Threat was again negatively related to Political Conservatism, $r = -0.28$, $p < .001$. As can be seen in Table 2, Study 2 provided a replication of Study 1 concerning *why* this relationship existed. There was little to no mediational impact of any of the experiential or conservative messaging variables. Although the mediational effects of COVID-specific political beliefs were weaker overall than in Study 1, the overall mediational effect for the summary political beliefs variable was still statistically significant.

5. Study 3

In Study 3, four hundred and two Amazon Mechanical Turk (MTurk) participants completed a battery of questionnaires essentially identical to Study 2 questionnaires. We further added a new questionnaire related to political leadership messaging – a six-item scale that measured the

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[3] Data from all four studies will be made publicly available on OSF immediately upon publication of this work.

[4] Hayes et al. (2017) note that Structural Equation Models (SEM) and the Hayes' bootstrapping method should produce nearly identical results given the use of observed variables. Therefore, in the present study, we opted for computing indirect effects using Hayes' model.

[5] Conservatism was positively related to Fox News consumption ($r = 0.50$, $p < .001$) and negatively related to both CNN ($r = -0.28$, $p < .001$) and MSNBC ($r = -0.25$, $p < .001$). While inclusion of CNN in this partisan messaging index is debatable, analyses excluding it yielded an essentially identical set of results. Further, Fox News showed a different pattern of mediation than the other two in Studies 2 and 3, with Fox News (quite surprisingly) actually suppressing the key effect, while the other two weakly (*indirect betas* = −0.02 and − 0.05) mediating it. However, the main point remains the same no matter how the present data are parsed – partisan media consumption did not mediate the key effect as strongly as ideological beliefs.

Table 2

Study 2: why are conservatives less concerned about the coronavirus? Testing possible explanations of the conservatism➜perceived coronavirus threat relationship.

Conservatism➜threat	Indirect	Indirect	Indirect
Explanatory variable	Effect	Effect LCI	Effect UCI
COVID-19 experience and impacts:			
Personal symptoms	−0.00	−0.02	0.01
Contact others with symptoms	−0.01	−0.04	0.01
Financial impacts	−0.01	−0.03	0.00
Resource impacts	−0.01	−0.05	0.02
Watch COVID-related news	−0.02	−0.07	0.01
Total experience/impact	**−0.03**	**−0.07**	**0.01**
COVID-19 political beliefs:			
Reactance to government orders	−0.07**	−0.12	−0.03
Desire for government to restrict	−0.13****	−0.18	−0.08
Desire for government to punish	0.01	−0.03	0.06
Government research spending	−0.01	−0.06	0.03
Government stimulus spending	−0.05**	−0.10	−0.02
Total political beliefs:	**−0.09**	**−0.16**	**−0.03**
COVID-19 partisan messaging:			
Federal messaging trust	0.02	−0.01	0.06
Conservative (versus liberal) news	−0.03	−0.10	0.05
Total messaging:	**0.01**	**−0.08**	**0.12**

Note: Listwise $N = 285$; ****$p < .0001$; ***$p < .001$; **$p < .01$; *$p < .05$; Effect sizes and confidence intervals based on 5000 bootstrapped samples; all analyses control for age, biological sex assigned at birth, education level, income level, and population of resident city. Negative indirect effects = one + and one – effect in the indirect path (e.g., conservativism is + related to M and M is negatively related to COVID-19 threat, or conservatism is negatively related to M and M is positively related to COVID-19 threat); positive indirect effects = both effects in the indirect path are the same sign.

Table 3

Study 3: why are conservatives less concerned about the coronavirus? Testing possible explanations of the conservatism➜ perceived coronavirus threat relationship.

Conservatism➜threat	Indirect	Indirect	Indirect
Explanatory variable	Effect	Effect LCI	Effect UCI
COVID-19 experience and impacts:			
Personal symptoms	0.00	−0.00	0.01
Contact others with symptoms	−0.00	−0.02	0.00
Financial impacts	−0.01	−0.03	0.00
Resource impacts	−0.02	−0.05	0.00
Watch COVID-related news	−0.00	−0.04	0.04
Total experience/impact	**−0.03***	**−0.06**	**−0.00**
COVID-19 political beliefs:			
Reactance to government orders	−0.11****	−0.17	−0.07
Desire for government to restrict	−0.13****	−0.18	−0.08
Desire for government to punish	−0.06*	−0.11	−0.01
Government research spending	−0.03^	−0.06	−0.00
Government stimulus spending	−0.07**	−0.11	−0.03
Total political beliefs:	**−0.16****	**−0.21**	**−0.10**
COVID-19 partisan messaging:			
Federal messaging trust	−0.01	−0.04	0.03
Conservative (versus liberal) news	0.02	−0.05	0.10
Trust in Trump's COVID leadership	−0.07	−0.19	0.06
Total messaging:	**−0.01**	**−0.12**	**0.10**

Note: Listwise $N = 401$; for Trump Trust measure, $N = 243$. ****$p < .0001$; ***$p < .001$; **$p < .01$; *$p < .05$; Effect sizes and confidence intervals based on 5000 bootstrapped samples; all analyses control for age, biological sex assigned at birth, education level, income Level, and population of resident city. Negative indirect effects = one + and one – effect in the indirect path (e.g., conservativism is + related to M and M is negatively related to COVID-19 threat, or conservatism is negatively related to M and M is positively related to COVID-19 threat); positive indirect effects = both effects in the indirect path are the same sign.

degree that participants trusted Donald Trump to navigate the COVID-19 crisis (*alpha* $= 0.96$).[6] This scale captures the degree that the key effect is driven by different levels of trust in Donald Trump's COVID-related message specifically. As expected, this Trump Trust measure was positively correlated with both *Conservative News Consumption* ($r = 0.64$, $p < .001$) and *Federal Messaging Trust* ($r = 0.51$, $p < .01$).

Perceived Coronavirus Threat was again negatively related to Political Conservatism, $r = -0.29$, $p < .001$. As can be seen in Table 3, in explaining this effect, there was once again a much larger mediational effect of political beliefs than either direct experience or partisan messaging.[7]

5.1. Pooled analyses of Studies 1–3

We further performed a pooled analyses of Studies 1–3 with two goals in mind: (1) provide an overarching empirical summary of the mediational impact of Political Beliefs versus Experiences/Impacts or Partisan Messaging across the various measures used in those three studies, and (2) test the boundary conditions of the effect of Conservatism on Perceived COVID-19 Threat. In addition, for pooled analyses, we added an objective measurement of the experiential impact of COVID-19: The state-level CDC incidence report for each state's cumulative incidence of COVID-19 on March 31, 2020 (Center for Disease Control, 2020). For each participant, their state of residence's cumulative

incidence score was entered to create an objective marker of their local COVID-19 experience.

5.2. Pooled summary of indirect effects presented in Studies 1–3

As can be seen in Table 4, pooled mediational analyses were consistent with the results of the individual studies. Political Beliefs about the Government showed a much stronger mediational effect on the Conservatism➜Perceived COVID-19 Threat relationship (Summary Political Beliefs indirect effect standardized *beta* $= -0.15$, LCI $= -0.16$, UCI $= -0.09$, $p < .0001$) than did Experiences/Impacts (summary Experiences/Impact indirect effect standardized *beta* $= -0.03$, LCI $= -0.05$, UCI $= -0.01$, $p = .007$) or Objective Experiences (summary Experiences/Impact indirect effect standardized *beta* $= -0.00$, LCI $= -0.01$, UCI $= 0.00$, $p = .249$). Because Objective Experiences (a) is methodologically less precise and (b) was empirically not relevant to our key relationship, it was dropped for additional analyses reported below. Subsequent comparison of the two significant mediational models (Political Beliefs and Subjective Experiences/Impacts) against each other while holding the covariates constant (Preacher & Hayes, 2008) revealed that Political Beliefs was indeed a statistically stronger mediator than Experiences/Impacts (comparison *beta* $= -0.06$, LCI $= -0.09$, UCI $= -0.04$, $p < .01$).

Further, consistent with the individual study analyses, little effect emerged for partisan messaging variables, suggesting that conservatives' lack of worry about COVID-19 was not driven by their differential levels of exposure to, and trust in, conservative partisan messaging – but rather by how they felt about governmental policy choices. This interpretation was further substantiated by subsequent comparison of the motivated ideological and partisan messaging models against each other while holding the covariates constant (Preacher & Hayes, 2008), a

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[6] Only a subset of participants ($n = 243$) in Study 3 completed this questionnaire due to an initial coding error on Qualtrics. Originally, we viewed this questionnaire as having two separate scales – one devoted to general trust in Trump (4 items) and the other to how seriously Trump was taking COVID-19 (2 items). However, the items from the scales were highly interrelated and the two scales showed the same mediational pattern; thus they were combined.

[7] Across all three studies, participants completed additional measurements not directly relevant to the main mediational storyline presented here. All measurements completed by participants can be found in the online supplement.

Table 4

Pooled analyses of Studies 1–3: why are conservatives less concerned about the coronavirus? Testing possible explanations of the conservatism➔perceived coronavirus threat relationship.

Conservatism➔concern	Indirect	Indirect	Indirect
Explanatory variable	Effect	Effect LCI	Effect UCI
COVID-19 experience and impacts:			
Personal symptoms	0.00	−0.00	0.01
Contact others with symptoms	−0.00	−0.01	0.00
Financial impacts	−0.02*	−0.02	−0.00
Resource impacts	−0.02*	−0.04	−0.00
Watch COVID-related news	−0.02*	−0.05	−0.00
Total exeperience/impact	**−0.03****	**−0.05**	**−0.01**
COVID-19 objective experience:			
State-level CDC incidence	**−0.00**	**−0.01**	**0.00**
COVID-19 political beliefs:			
Reactance to government orders	−0.10****	−0.13	−0.07
Desire for government to restrict	−0.14****	−0.17	−0.10
Desire for government to punish	−0.05**	−0.08	−0.01
Government research spending	−0.04***	−0.06	−0.01
Government stimulus spending	−0.07****	−0.10	−0.04
Total political beliefs:	**−0.15****	**−0.19**	**−0.11**
COVID-19 partisan messaging:			
Federal messaging trust	−0.00	−0.02	0.02
Conservative (versus liberal) news	0.00	−0.05	0.06
Trust in Trump's COVID leadership	−0.07	−0.19	0.06
Total messaging:	**−0.01**	**−0.05**	**0.04**

Note: Listwise $N = 967$; for Resource Impact, $N = 688$; for Conservative (Versus Liberal) News, $N = 680$. ****$p < .0001$; ***$p < .001$; **$p < .01$; *$p < .05$; Effect sizes and confidence intervals based on 5000 bootstrapped samples; all analyses control for age, biological sex assigned at birth, and population of resident city. Negative indirect effects = one + and one – effect in the indirect path (e.g., conservativism is + related to M and M is negatively related to COVID-19 threat, or conservatism is negatively related to M and M is positively related to COVID-19 threat); positive indirect effects = both effects in the indirect path are the same sign.

comparison revealing that Political Beliefs was indeed a statistically stronger mediator (comparison *beta* = −0.09, LCI = −0.11, UCI = −0.07, $p < .01$).[8]

5.3. Does political ideology become less important at higher levels of experience/impact?

Although experience does not show great mediating power in the conservatism➔ perceived threat relationship, it is possible that experience might play a different kind of role. Rather than serving primarily as a mediator, it is possible that instead it serves primarily to *moderate* the effect of conservatism on perceived threat, such that ideology is less predictive of perceived threat as experience grows.

Analyses provided partial support for the interaction hypothesis. As the hypothesis suggests, the effect of conservatism on perceived coronavirus threat was significantly reduced as COVID-19 experiences/impacts increased (Conservatism X Experience/Impacts interaction *beta* [980] = 0.05, $p = .002$). Further, formal tests of moderated mediation (Darlington & Hayes, 2017) suggested some evidence that this directly moderated the mediational effect of political beliefs on the ideology➔perceived threat relationship. This pattern revealed that the mediational effect of political beliefs was greater at lower levels of experience, although this effect closely approached – but did not attain – conventional levels of significance (95% CI moderated mediation index = 0.02,

LCI = −0.0009, UCLI = 0.04; 90% CI moderated mediation index = 0.02, LCI = 0.01, UCLI = 0.03).[9]

These results clearly suggest that the general effect of ideology on concern with COVID-19 is markedly reduced at higher levels of experience with COVID, and, to a lesser degree, that this partially moderates the effect of our primary mediator (Political Beliefs) in explaining the ideology➔threat relationship.

6. Study 4

Studies 1–3 provided initial evidence consistent with an emerging model of pandemic psychology that focuses on the ideology-perceived threat relationship. In particular, data from those studies suggested that (a) the relationship between ideology and COVID-19 threat was more a result of existing political desires for government response than it was experiences, impacts, or partisan messaging. It further suggested that (b) the influence of political beliefs/ideology on threat is reduced at higher levels of experience.

However, it remains important to replicate the implications of the model in a forward-thinking manner. We provided such a replication in Study 4.

6.1. Study 4 methods

In Study 4, two thousand three hundred and thirty participants on Amazon Mechanical Turk (MTurk) completed a battery of questionnaires as a part of a larger project on ideology. Participants completed one of four waves at four different time points: November 2, 2020, November 4, 2020, January 7, 2021, and February 2, 2021. Study 4 had typical Mechanical Turk characteristics that were nearly identical to Studies 1–3 for age (mean = 41, standard deviation = 12.6), biological sex assigned at birth (48% female), and race/ethnicity (largest groups were White/European-American = 73%, Black/African-American = 8%; Asian = 6%). The questionnaire battery contained (in addition to other questionnaires) a set of questionnaires essentially identical to Study 3 questionnaires. The only exceptions were that some of the scales were shortened for the sake of inclusion in a longer battery. (1) First, the short form COVID-19 Threat, Government Response, Impacts, and Experiences scales were used. These short forms perform well in validity tests (see Conway, Woodard, & Zubrod, 2020; Conway et al., 2021, under review). (2) Further, we did not include the stimulus and research subscales on the Government Response Scale, (3) there was no Trump Trust scale, and (4) only a subset of participants ($n = 1228$) completed the measurements of Fox News, CNN, and MSNBC consumption. Otherwise, the scales were identical to those used in Study 3 and were combined and analyzed in a manner identical to that study. As we will see, these minor changes did not affect the results.

6.2. Study 4 results

As in Studies 1–3, Perceived Coronavirus Threat was negatively related to Political Conservatism, $r = −0.31$, $p < .001$. Notably, this relationship remained stable across all four time frames with little variability (r's ranging from −0.30 to −0.34). For ease of presentation, we combine all four time frames into a single dataset for analyses.

As can be seen in Table 5, in explaining the relationship of Coronavirus Threat with Conservatism, there was once again a much larger mediational effect of political beliefs than either direct experience or partisan messaging. All analyses control for age, biological sex assigned at birth, population of resident city, education level, and income.

Political Beliefs about the Government showed a much stronger

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[8] The Hayes Process macro does not provide direct *p*-values for this bootstrapped test. However, we bootstrapped at both 95% and 99% CIs, and the results suggest *p*-values < .01.

[9] Hayes' moderated mediation index does not provide direct *p*-values. However, we bootstrapped at both 95% and 90% CIs, and the results suggest a *p*-value between 0.05 and 0.10 (but closer to 0.05).

Table 5
Study 4: why are conservatives less concerned about the coronavirus? Testing Possible Explanations of the Conservatism→ Perceived Coronavirus Threat Relationship.

Conservatism→concern	Indirect	Indirect	Indirect	
Explanatory variable	Effect	Effect LCI	Effect UCI	
COVID-19 experience and impacts:				
Personal symptoms	0.04****	0.03	0.06	
Contact others with symptoms	0.01**		0.00	0.03
Financial impacts	0.01	−0.01	0.02	
Resource impacts	0.03***	0.01	0.05	
Watch COVID-related news	−0.07****	−0.10	−0.04	
Total exeperience/impact	**0.03****	**0.01**	**0.05**	
COVID-19 political beliefs:				
Reactance to government orders	−0.07****	−0.11	−0.03	
Desire for government to restrict	−0.29****	−0.33	−0.26	
Desire for government to punish	−0.14**	−0.17	−0.14	
Total political beliefs:	**−0.29****	**−0.32**	**−0.26**	
COVID-19 partisan messaging:				
Federal messaging trust	−0.01	−0.02	0.00	
Conservative (versus liberal) news	−0.05**	−0.10	−0.01	
Total messaging:	**−0.01****	**−0.01**	**−0.00**	

Note: Listwise $N = 2292$; for Conservative (Versus Liberal) News, $N = 1224$. ****$p < .0001$; ***$p < .001$; **$p < .01$; *$p < .05$; Effect sizes and confidence intervals based on 5000 bootstrapped samples; all analyses control for age, biological sex assigned at birth, population of resident city, education level, and income. Negative indirect effects = one + and one – effect in the indirect path (e. g., conservativism is + related to M and M is negatively related to COVID-19 threat, or conservatism is negatively related to M and M is positively related to COVID-19 threat); positive indirect effects = both effects in the indirect path are the same sign.

mediational effect on the Conservatism→Perceived COVID-19 Threat relationship than did Experiences/Impacts. (Indeed, as Table 5 reveals, if anything, Experiences/Impacts showed an indirect effect in slightly the opposite direction in Study 4, indicating that it mildly suppressed rather than mediated the effect). Subsequent comparison of these two mediational models against each other while holding the covariates constant (Preacher & Hayes, 2008) revealed that Political Beliefs was indeed a statistically stronger mediator than Experiences (comparison *beta* $= -0.18$, LCI $= -0.21$, UCI $= -0.16$, $p < .01$).

Further, consistent with Studies 1–3, only a small effect emerged for partisan messaging variables, suggesting again that conservatives' lack of worry about COVID-19 was not driven by their differential levels of exposure to, and trust in, partisan messaging – but rather by how they felt about governmental policy choices. This interpretation was further substantiated by subsequent comparison of the motivated ideological and partisan messaging models against each other while holding the covariates constant (Preacher & Hayes, 2008), a comparison revealing that Political Beliefs was indeed a statistically stronger mediator (comparison *beta* $= -0.20$, LCI $= -0.23$, UCI $= -0.17$, $p < .01$).[10],[11]

As in the pooled analyses for Studies 1–3, we again tested the idea that experiences with/impacts of COVID-19 served primarily to *moderate* the effect of conservatism on perceived threat, such that ideology is less predictive of perceived threat as experience grows. Analyses provided strong support for the interaction hypothesis. As the hypothesis suggests, the effect of conservatism on perceived coronavirus threat was

significantly reduced as COVID-19 experiences/impacts increased (Conservatism X Experience/Impacts interaction *beta* [2292] $= 0.05$, $p < .0001$). Further, formal tests of moderated mediation (Darlington & Hayes, 2017) suggested that this directly moderated the mediational effect of political beliefs on the ideology→perceived threat relationship. This pattern revealed that the mediational effect of political beliefs was greater at lower levels of experience/impacts and this effect attained conventional levels of significance at the $p < .01$ level (99% CI moderated mediation index $= 0.04$, LCI $= 0.03$, UCLI $= 0.05$).

These results again reveal that the general effect of ideology on concern with COVID-19 is markedly reduced at higher levels of experience with COVID, and that this partially moderates the effect of our primary mediator (Political Beliefs) in explaining the ideology→threat relationship.[12]

7. General discussion

If American conservatives are more sensitive to physical threats such as disease, why were they less concerned about COVID-19? The present research suggests that it was *not* (for the most part) because conservatives had different levels of experience with the disease at the times of data collection nor is it because conservatives watched and trusted different partisan messaging. Conservatives and liberals *did* differ in their levels of reported experiences/impacts and in the degree they watched and trusted conservative messaging; yet these facts provide very little explanatory power towards understanding why conservatives cared less about COVID-19 overall.

Instead, the present research offers a different explanation – an explanation that is in line with decades of research on motivated political cognition (e.g., Clark & Winegard, 2020; Honeycutt & Jussim, 2020; Jost et al., 2003). Namely, using accepted practices for testing cross-sectional individual differences mediation effects (e.g., Chang et al., 2020; Freis & Hansen-Brown, 2021), these four studies suggest that conservatives cared less (and that liberals cared more) about the disease outbreak because they had political beliefs that intersected with the COVID-19 pandemic.[13] These political beliefs provided motives for both conservatives and liberals to view the pandemic through a lens that would lead them to assign more or less threat to the disease. For conservatives, this means that because they (for example) do not want government restrictions – and the full acknowledgment of the threat might make those restrictions more psychologically plausible – they are motivated to downplay the severity of the threat. Perhaps surprisingly, our data reveal this is not the result of differential exposure to, and trust in, conservative political messaging. Although it might be tempting to suggest that this effect is about conservatives heeding Donald Trump's

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[10] The Hayes Process macro does not provide direct *p*-values for this bootstrapped test. However, we bootstrapped at both 95% and 99% CIs, and the results suggest *p*-values < .01.

[11] Supplementary Tables 1 and 2 in the Online Supplement provide additional information (for Studies 1–4) about the relationships between (a) the IV and each mediator, (b) each mediator with the DV, (c) the IV and the DV, and (c') the IV and the DV while controlling for each mediator. As can be seen there, these descriptive analyses substantiate the indirect effects reported in the main text.

[12] As can be seen in Table 5, unlike in Studies 1–3, Personal Symptoms and Effects showed a slight positive indirect effect, while watching news had a negative effect (as in Studies 1–3). This seems largely attributable to the fact that, predictably, there was a shift in impacts/experiences from Studies 1–3 (collected in March/April 2020 at the beginning of the pandemic in the U.S.) to Study 4 (collected in November 2020 to February 2021): Whereas liberals were significantly more likely to report negative experiences and impacts for Studies 1–3, conservatives were significantly more likely for Study 4. (Since the original epicenter was more-liberal New York, this shift makes some sense). It is noteworthy, however, that in all studies, experiences/impacts were lesser mediators than political beliefs; it is also noteworthy that, in spite of this shift, the *moderating* effect of experiences/impacts remained the same in each study. Why this shift occurred is beyond the scope of our paper, but these results speak to the usefulness of these variables to capture similar findings even in a shifting pandemic.

[13] It would be equally true to discuss this as an attempt to understand *liberal concern* with the disease. We could have titled our paper "Why are liberals more concerned with COVID-19 than conservatives?" and it would have been an equally accurate description. For our purposes, it is the *relative* difference between liberals and conservatives that matters.

sometimes-dismissive message about COVID, our data show it clearly was not about Trump specifically – but rather more fundamentally ideological.

7.1. Perceived Anxiety-Ideology Relationship (PAIR) model

Given that epidemics and pandemics are unpredictable occurrences with uncertain and often transient time courses, it is hardly surprising that there is a dearth of theorizing on the interface of ideology and perceived pandemic threat. Indeed, as discussed in the introduction, most of that research would expect that conservatives would be *more* anxious about COVID-19. The four studies reported here clearly suggest this approach is too simplistic and in need of modification. Indeed, it is noteworthy that in changing pandemic conditions over nearly a year, the present results show the relationship between perceived COVID-19 threat and political ideology was relatively stable.

How, then, are we to understand the fact that conservatives were less concerned about the disease than liberals? To fill in this gap, the present set of data suggests a Perceived Anxiety-Ideology Relationship (PAIR) model. This model of the relationship between disease-based threat/ anxiety and ideology can not only help us understand the American COVID-19 context, it could be more widely applied (1) beyond the variables collected in our studies, (2) beyond the cultural and geographical boundaries of our studies, and (3) beyond the time frames discussed here (and indeed beyond the current outbreak entirely). The PAIR model contains two primary aspects. First, drawing from both the present data and work on motivated political cognition (e.g., Clark & Winegard, 2020; Ditto et al., 2019; Honeycutt & Jussim, 2020; Jost et al., 2003), this model suggests that the *ideological match* between group-level ideologies and the outcomes of a pandemic (or indeed, any culture-wide phenomenon that might cause anxiety) will be crucial in determining public responses to a given crisis. Ideological groups who feel a pandemic will benefit their own ideological ends will be more likely to view it as a threat; ideological groups who feel a pandemic will hurt their own ideological ends will be less likely to view it as a threat. Thus, if conservatives believe a threatening pandemic will hurt their ideological ends, they will be less likely to view it as threatening; and if liberals believe a threatening pandemic will help their ideological ends, they will view it as more threatening. This does not of course preclude other factors that might influence pandemic stress in both groups (e.g., concern for other people), but merely suggests one set of factors that our data reveal will be important. For future researchers, this offers a large arena for discovery – to the degree that this model is accurate, one of the primary tasks of new research ought to be to more directly parse the variables that contribute to perceived ideological match.

Second, drawing both from the present data and from work on how survival concerns often moderate key socio-ecological effects (Sng et al., 2018; Van de Vliert, 2013; Van de Vliert & Conway, 2019; Van de Vliert & Tol, 2014), the PAIR model suggests that the effect of ideological match on how people view a pathogen outbreak will become less pronounced as the direct experiential impact of the pandemic grows. Once people begin to be personally impacted by a disease outbreak in tangible ways – once they catch the disease, or loved ones catch it, or they begin to lose resources on account of it – then pre-existing ideological beliefs likely play less of a role in accounting for perceptions of the disease itself.

This model has implications for additional aspects of conservative and liberal ideology that we did not test in the present set of studies. For example, conservative ideology is more likely to generally oppose foreign outgroups than liberal ideology (see Jost et al., 2003). The PAIR model suggests that such ideological opposition might account for part of conservatives' relative lack of concern during the time periods studied in our work. Indeed, when the disease was viewed as something mostly occurring in foreign countries (and specifically in China), polling suggests that conservatives viewed it as a more serious threat. But as the coronavirus reached the United States, conservative rhetoric shifted

suggesting that COVID-19 concerns were not warranted (Covucci, 2020; Kristian, 2020). Importantly, the present results and corresponding model suggest the lack of concern during the time periods studied in our work likely emerged in part because a dangerous disease *here* in the U.S. is less conducive to conservative ideological ends than a dangerous disease over *there*.

Finally, while "conservatism" as a construct shares some similarities across contexts (Jost et al., 2003), *conservatives* in one geographical locale are often nonetheless quite different from *conservatives* in another locale (Conway et al., 2019), and liberal/conservative constructs vary across cultures in their level of crystallization (see, e.g., Federico et al., 2017). Further, each cultural context is different in its COVID-related beliefs, and many political leaders have responded differently worldwide than current U.S. leadership. These factors have undoubtedly created multiple differences across the context studied here (U.S.) and those contexts. What are we to make of these differences?

The specific effects illustrated in our work are almost certainly are constrained to the unique U.S. political context, and possibly only to the unique election context during which our data were collected. However, our model is not constrained to this unique time and place. Indeed, the resulting PAIR model provides a framework for researchers to better understand pathogen outbreaks in each socio-cultural context separately. For example, conservatives in many locales may not share American conservatives' strong dislike of the specific government interventions discussed in the present work. To the degree that is true, our model makes the important prediction that in those contexts, the specific beliefs outlined here would not affect the relationship between ideology and perceived threat to the same degree. That is because in those contexts, the ideological match would be lower, and our model only suggests mediational effects when ideological match is high and impacts are low. On the other hand, there may be completely different issues in another context wherein desired political outcomes interface with COVID-19 threat beliefs. The present work suggests that researchers should attend to those beliefs to better understand ideologically-tinged individual differences in perceptions of threat in those contexts.[14]

7.2. Limitations of the present work

Like all studies, the present work is not without limitations. The studies were conducted entirely on cross-sectional U.S. samples. Although cross-sectional research is a common feature of mediational studies and is a useful method for drawing inferences (e.g., Choma et al., 2021; Sinclair et al., 2016), it does offer clear limitations. At a broad level, it is possible that different and independent causal paths exist. Indeed, we view it likely that there are reciprocal causal relationships among the variables in our mediational design. Importantly, however, none of those additional possibilities – which are beyond the scope of our present article – invalidate the key mediational effect we found in the present work.[15] We have provided compelling positive evidence for one *particular* mediational effect that we feel is important in better developing theory at the interface of pandemics and ideology. We believe this provides a vital building block for subsequent research.

7.3. Concluding thoughts

An *Atlantic* headline suggested that "Red and blue America aren't experiencing the same pandemic" (Brownstein, 2020). Our data reveal that is indeed true. But the primary point of divergence is not because of

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[14] Relatedly, it would be useful for subsequent researchers to hone in on the effect by including measurements of disgust sensitivity as a covariate.

[15] For Studies 1–3 and Study 4, we further tested the alternative path COVID-19 Threat➔Mediators➔Conservatism. As can be seen in the Online Supplements, these alternative path analyses – although orthogonal to our main question – largely coalesce with the data reported here.

differences in objective experiences or political messaging; rather, our data suggest it is because conservatives and liberals have *ideological beliefs* that predispose them to believe that COVID-19 is differentially threatening. But our data also suggest that these differences are less prominent among people on both sides who report they are impacted by the pandemic directly. These data thus not only suggest explanations for what has happened in the U.S. with respect to COVID-19, but provide ideas for future researchers to apply to this and other disease outbreaks.

CRediT authorship contribution statement

Lucian Gideon Conway, III's roles included writing, conceptualization, methodology, and statistical analyses. Shailee R. Woodard's roles included writing, methodology, data curation, and statistical analyses. Alivia Zubrod's roles included writing, methodology, data curation, and organizing data for analyses. Linus Chan's roles included writing/editing.

Appendix A. Supplementary analyses

Supplementary analyses for this article can be found online at https://doi.org/10.1016/j.paid.2021.111124.

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