**Abstract**

The Covid-19 pandemic has laid bare the vast amount of economic inequality in the U.S. Yet will the pandemic increase advocacy for equality, and if so, what psychological factors might explain this increase? With a pre-registered two-wave longitudinal survey (*N*=1015), the current research provides evidence that Americans who experienced more personal harm from the Covid-19 pandemic (e.g., contracted Covid-19, lost their job, psychological distress) were more likely to advocate for equality five months later (e.g., support universal health care). Furthermore, we find that this increase in advocacy for equality is explained, in part, by people’s greater endorsement of how external factors (e.g., bad luck, discrimination, etc.) contribute to inequality. Our work provides evidence that simply being exposed to large-scale exogenous shocks is not sufficient to shift people’s attitudes towards and advocacy for equality—instead, people must also be personally affected by the shock.

**Keywords:** covid-19, inequality, personal harm, attributions

**Statement of Relevance**

The Covid-19 pandemic has been an unprecedented shock across the globe. It has illuminated and amplified the harsh reality of economic inequality in the U.S. Will the pandemic increase Americans’ advocacy for equality? To answer this question, we surveyed American adults at two time points during the pandemic across a period of five months (i.e., May 2020 and October 2020). Results demonstrate that Americans who experienced higher (as opposed to lower) amounts of personal harm due to the pandemic (e.g., contracted Covid-19, lost their job due to Covid-19, etc.) were more likely to advocate for greater equality in the U.S. The increase in advocacy for equality was explained, in part, by people’s greater endorsement of how external factors (e.g., bad luck, discrimination, etc.) contribute to inequality. Our research provides evidence that the experience of personal harm from the Covid-19 pandemic increases Americans’ advocacy for equality over time.

**Personal Harm from the Covid-19 Pandemic Increases Advocacy for Equality**

The Covid-19 pandemic has illuminated and amplified the harsh reality of economic inequality in the U.S. Throughout the pandemic, lower- (vs. higher-) income populations have been exposed to greater health risks, have been more likely to lose their jobs, and have shown a greater decline in their psychological well-being (Brown & Ravallion, 2020; Perry et al., 2021). During the same time period, the wealth of America’s billionaires has grown (Collins, 2021).

While the pandemic has perhaps made people more aware of long-standing inequalities (Wiwad et al., 2020), we do not yet know whether the pandemic will increase Americans’ *advocacy* for reducing these inequalities. On the one hand, simply observing the exogenous shock of the Covid-19 pandemic may be sufficient to lead people to attribute inequality to forces outside of an individual’s control (i.e., external forces). This newfound understanding of the sources of inequality may ultimately increase people’s support for structural policies that promote equality (e.g., universal healthcare or basic income).

On the other hand, merely observing the exogenous shock of the Covid-19 pandemic may *not* be sufficient to lead Americans to advocate for greater equality (Deaton, 2021; Furceri et al., 2020). This may be the case because, while the Covid-19 pandemic has caused widespread harm, there is significant variation in how much *personal harm* people have experienced. If individuals have experienced little to no personal harm during the pandemic, then their attributions for inequality may not change. That is, they may not gain the personal experience that could enable them to understand how forces outside of an individual’s control can fuel inequality. In turn, their support for structural policies that promote equality may not increase.

In the current research, we provide theoretical and empirical evidence to elucidate the conditions under which large-scale exogenous shocks like the Covid-19 pandemic may increase advocacy for equality over time. We propose that the degree of personal harm that people directly experience from the external shock of the pandemic will increase advocacy for equality. Furthermore, we propose that people’s greater endorsement of external attributions for inequality will help to explain this shift.

**Attributions and Advocacy for Equality**

Psychologists have grappled with the question of why Americans generally support existing levels of inequality in U.S. society and fail to do more to advocate for equality (Bartels, 2005; Davidai, 2018; Norton & Ariely, 2011; Putnam, 2015). One pervasive psychological process that shapes advocacy for equality is whether people see the source of inequality as a product of individuals (e.g., differences in work ethic) or as a product of larger structural or external factors (e.g., different educational opportunities).

Americans tend to explain people’s life outcomes as free from the constraints of history, other people, and social systems. Instead, life outcomes are seen as a product of individuals’ personal preferences, choices, or enduring characteristics (Gilbert & Malone, 1995; Markus, 2017; Markus & Kitayama, 2010). Therefore, important life outcomes, such as poverty or wealth, are often explained in terms of *internal* attributions (Adeola, 2005; Bénabou & Tirole, 2006; Cozzarelli et al., 2001; Gudrais, 2008; Kluegel & Smith, 1986; Stephens et al., 2013; Stephens & Levine, 2011; Stuber, 2006). For instance, inequality is frequently seen as the “natural” or deserved result of differences in individuals’ merit or ambition.

Although the dominant ideology within the U.S is one in which the individual has control over forces like wealth or poverty, previous research finds that it is possible for Americans to shift their attributions and recognize how *external* factors (e.g., societal opportunity) shape inequality. For instance, increasing awareness of inequality (e.g., via a poverty simulation or working in under-served schools) can increase people’s endorsement of external attributions for inequality (Conn et al., 2021; Piff et al., 2020; Wiwad et al., 2020). Indeed, Wiwad and colleagues (2020) surveyed participants before and during the pandemic and found that when participants were more aware of how the pandemic negatively impacted people in poverty, they were more likely to endorse the belief that poverty was due to external forces (Wiwad et al., 2020).

Importantly, Americans who endorse the belief that externalfeatures shape life outcomes are more likely to recognize the need for structural policies that promote equality (Kluegel & Smith, 1986; Mo & Conn, 2018; Piff et al., 2020; Wiwad et al., 2020). By understanding how features in the environment—history, other people, and social systems—shape and constrain individuals’ outcomes, people are more likely to see inequality as undeserved and in need of remedy (i.e., believe in the importance of structural policies that promote equality; Kluegel & Smith, 1986). Together, this research suggests that increasing people’s endorsement of external attributions for inequality may be critical for increasing people’s advocacy for equality.

**Personal Harm and Advocacy for Equality**

When might the pandemic increase people’s endorsement of external attributions for inequality? Previous research has already examined one important factor—i.e., the extent to which the pandemic increases awareness of poverty. In the present research, we focus on people’s *own* experiences during the pandemic. That is, we hypothesize that, above and beyond awareness of inequality, the degree of personal harm from the Covid-19 pandemic that people experience will increase their advocacy for equality. The relationship between personal harm and increased advocacy will be explained, in part, by people’s greater endorsement of external attributions for inequality.

Supporting our theory, research in cultural psychology suggests that people’s own enduring experiences of hardship—such as a lack of choice or control, lower power in society, and greater external constraints—relate to their attributions for inequality. For instance, historically lower-power groups (e.g., people in lower social class contexts) are more likely to endorse external attributions for inequality and support structural policies that promote equality compared to historically higher-power groups (e.g., people in higher social class contexts; Kluegel & Smith, 1986; Kraus et al., 2009; Newman et al., 2015; Schlesinger & Heldman, 2001). Researchers have theorized, but not tested, the idea that these types of group differences emerge, in part, because people in historically lower-power groups have more personal experiences that make salient the many external forces that shape and constrain their lives (e.g., lack of access to healthcare; Kluegel & Smith, 1986). Building on and extending this prior work, the current research aims to test whether personal harm does indeed increase advocacy for equality.

**The Current Research**

In our pre-registered, two-wave longitudinal study (*N*=1015), we test the theory that degree of personal harm predicts greater advocacy for equality by increasing people’s endorsement of external attributions for inequality. We also make two additional theoretical contributions. We extend prior research by providing evidence for a novel antecedent of external attributions for inequality: degree of personal harm. Further, we test whether the effect of personal harm on advocacy for equality persists over time. We investigate the following three key hypotheses:

1. Experiencing greater amounts of personal harm from the pandemic will predict an increase in advocacy for equality.
2. Experiencing greater amounts of personal harm from the pandemic will predict greater endorsement of external attributions for inequality.
3. External attributions for inequality will serve as a mechanism linking personal harm from the pandemic to advocacy for equality.

We pre-registered the first two hypotheses on OSF [Time 1: <https://bit.ly/3uEAOlN> and Time 2: <https://bit.ly/2Q3N7ZO>]. The third hypothesis, while not pre-registered, is drawn from previous work examining the link between attributions for poverty and attitudes toward inequality (Wiwad et al., 2020).[[1]](#footnote-1)

**Methods**

**Participants**

In May 2020 (Time 1), we recruited participants via Prolific Academic, an online survey platform, to participate in a 25-minute study in exchange for $3.50. This survey was part of a larger study of the effects of the Covid-19 pandemic over time. We recruited U.S. citizens between the ages of 18-70 who were not currently students. Furthermore, we recruited a balanced sample in terms of gender and education level (i.e., those with less than a four-year college degree vs. those with a four-year degree or more).

For the Time 1 survey, we determined a target sample size of *N* = 1043 by conducting an *a priori* power analysis based on the smallest effect size obtained in a pilot version of the same study (f = 0.10) at 90% power. We oversampled and recruited 1573 participants. Based on our pre-registration, which indicated that we would exclude participants who failed the embedded attention checks (*n* = 74), current students (*n* = 68), and participants who did not indicate their current level of education (*n* = 5), we were left with a final Time 1 sample of *N* = 1473.[[2]](#footnote-2)

In October 2020 (Time 2), we invited all the participants from the Time 1 survey who indicated interest in future studies (*N* = 1465) to complete a second 25-minute study in exchange for $4.50. Of those invited to participate, 1061 completed the Time 2 survey for a retention rate of 72%. Participants who completed both waves of the survey (vs. those who did not) differed significantly in terms of personal harm, as well as in education, income, age, gender, and race. Specifically, participants who completed both waves of the survey reported lower levels of personal harm (*M* = 2.0, *SD* = 2.1) than those who only completed the Time 1 survey (*M* = 2.3, *SD* = 2.3). Given that our analyses include only those who completed both waves of the survey, and thus reported lower levels of personal harm, the data provide a conservative test of our hypotheses. Additionally, the following groups were more likely to complete both waves: those who did not have a 4-year college degree and who had lower personal incomes, as well as older participants, women, and White participants. As such, all analyses control for education, income, age, gender and race.

As with Time 1, we excluded participants who failed to correctly answer attention checks (*n* = 24) and current students or those who did not provide their student status (*n* = 38), for a final Time 2 sample of *N* = 1015.[[3]](#footnote-3) As such, our usable dataset for our longitudinal analyses comprised the 1015 participants who completed both survey waves at Time 1 and Time 2. We used demographic information (specified below) reported at Time 1 as controls. A post-hoc sensitivity analysis indicated we were 90% powered to detect a small effect of *f2* = .01.

The final sample consisted of 542 women, 471 men, and two gender non-conforming individuals (*M*age = 40.41 years, *SD* = 12.96). People with less than a 4-year college degree comprised 53.1% of the sample, and people with a college education comprised 46.9%. The sample was 7% Black, 6% Asian, 4% Latinx, 74% White, <1% Native, <1% Arab, 1% unspecified racial identity and 7% multiracial. Stanford University Institutional Review Board reviewed and approved the study before data collection (protocol: 53892). The data are available at <https://bit.ly/3hcWRMr>.

**Measures**

A full list of items for each measure in both waves of the survey can be found in the Supplemental Materials Section I(A).

***Personal Harm from Covid-19***

In both waves of the survey, we asked participants to report whether they experienced indicators of *personal harm* resulting from the Covid-19 pandemic using a binary response scale (i.e., yes =1, no = 0). Drawing on previous psychological methods used to study adverse life experiences (Croft et al., 2014; Felitti et al., 1998; Seery et al., 2010), these items were designed to capture a range of forms of personal harm that people may have experienced during the pandemic. At Time 1, we asked participants to reflect on whether they experienced any of 14 forms of personal harm since the Covid-19 pandemic began. Sample items include: “I contracted Covid-19”, “I experienced an episode of poor mental health or mental illness” and “I experienced significant financial difficulties.” At Time 2, we asked participants to reflect on whether they experienced any of the same forms of personal harm since they completed the Time 1 survey (i.e., in mid-May). At Time 2, we added an additional experience of personal harm that had become more well-known in the time between the Time 1 and Time 2 survey: “I have had long-term and persistent symptoms after contracting Covid-19.”

Consistent with previous research (Seery et al., 2010), we summed the number of items for which respondents answered “yes” at each time point to represent the overall degree of personal harm people experienced from the Covid-19 pandemic (Time 1: *M* = 1.99, *SD* = 2.12; Time 2: *M* = 1.92, *SD* = 2.11). We focused on overall personal harm across various forms of harm (e.g., financial, psychological) because previous research on life adversity has documented that various types of adversity shape each other, such that any given form of adversity often has a spillover effect on other types of adversity (e.g., financial difficulties can affect psychological well-being; Green et al., 2010; McMahon, 2015). Accordingly, by summing responses to this checklist, we were best able to capture the overall experience of personal harm that each participant had experienced from the Covid-19 pandemic.

We used the Time 1 measure of personal harm from Covid-19 as our predictor given that this measure captures participants’ retrospective experiences of personal harm (i.e., from the start of the pandemic to the time of the survey), which we theorize will predict subsequent outcomes (i.e., external attributions for inequality and advocacy for equality).

***Advocacy for Equality***

We included both an attitudinal and a behavioral measure of advocacy for equality. In both waves of the survey, we asked about participants’ attitudinal advocacy for equality. In the second wave of the survey only, we added a measure of participants’ behavioral advocacy for equality. In our analyses, we conducted separate regression models: one with attitudinal advocacy for equality as the dependent measure, and the other with behavioral advocacy for equality as the dependent measure. Examining each of these dependent measures separately enabled us to determine whether personal harm predicts two distinct forms of advocacy for equality: *attitudinal* advocacy for equality and *behavioral* advocacy for equality.

In addition to these two measures, both waves of the survey included other related attitudinal measures related to advocacy for equality (e.g., preference for a more equal distribution of wealth, increased salary for low wage workers, etc.). Though these measures showed equivalent patterns of results to the advocacy measures reported in the main text, to reduce redundancy, we report these measures and results in the Supplemental Materials Section I(B).

**Advocacy for Equality: Attitudes.** To assess participants’ attitudinaladvocacy for equality, we asked participants in both waves of the survey to respond to items adapted from previous research (Piff et al., 2020) on a scale from 1 (*strongly disagree)* to 7 (*strongly agree*). At Time 1, participants responded to the following three items: “The minimum wage in the US should be increased”; “There should be universal basic income” and “There should be universal healthcare” (*M* = 5.55, *SD* = 1.64; α = .88).

At Time 2, participants responded to the exact items from Time 1 and an additional four items: “The government should provide stimulus checks to help people meet their basic needs”; “The government should provide support for peoples’ welfare during hard times”; “Covid-19 testing should be available at no cost to anyone who wants to get tested” and “Covid-19 treatment should be free.” The seven-item measure was highly reliable (*M* = 5.87, *SD* = 1.25; α = .91).

**Advocacy for Equality: Behavior.**To assess participants’ behavioral advocacy for equality, we asked participants only at Time 2 to reflect on whether they had done any of the following behaviors: “Contacted a public official to express support for reducing social or economic inequality”; “Contributed money to a group or organization that focuses on reducing social or economic inequality”; “Posted or shared content on social networking sites related to reducing social or economic inequality.” We counted each item participants marked as 1 and each unmarked item as 0. We totaled the number to represent the amount of action they took to advocate for greater equality (*M* = 0.60, *SD* = 0.82).

We used the Time 2 measures of attitudinal and behavioral advocacy for equality as our outcomes of interest because these measures capture participants’ attitudes at least five months after they answered the Time 1 measure of personal harm.

***External Attributions for Inequality***

To assess attributions for inequality, in both waves of the survey, we asked participants “How much do you think that economic inequality is due to the following factors?” (Cozzarelli et al., 2001; Kraus et al., 2009; Piff et al., 2020). Using a scale from 1 (*not at all)* to 5 (*a great deal),* participants were asked to read a few possible factors and indicate to what extent these factors played a role. To capture participants’ *external attributions for inequality*—our hypothesized mediator—we averaged the following two items: “situational and environmental factors (e.g., quality of schools, job opportunities)”; “discrimination (e.g., prejudice and bias),” (*M* = 3.58, *SD* = 0.99; *r*(1013) = .49.)

Although our pre-registration only predicted that harm would impact external—and not internal—attributions, this attribution measure also included two items that represent participants’ internal attributions for inequality: “differences in individual work ethic” and “genetics and biology (e.g., innate differences in intelligence)” (*M* = 2.46, *SD* = 1.01; *r*(1013) = .49.) Exploratory analyses showed that personal harm did not influence internal attributions (see Supplemental Materials Section II(H)).

We used participants’ Time 1 external attributions for inequality as our mediator of interest because it reflects participants’ attitudes after their experiences of personal harm (retrospectively reported at Time 1), but before their advocacy for equality (measured at Time 2). Although personal harm was measured at Time 1, the questions asked participants to retrospectively report on personal harm that they experienced before they responded to the survey (i.e., their experiences from the start of the pandemic to May 2020).

**Control Variables**

Our analyses included several control variables. While these variables were measured at both Time 1 and Time 2, we included the Time 1 measures as our covariates because they are reported at the same time as our predictor variable (i.e., personal harm). These controls included measures of individual differences that are relevant for attrition (i.e., age, gender, race, personal income, education level) as well as participants’ political orientation and awareness of inequality, which has been previously shown to relate to attitudes toward equality (Wiwad et al., 2020). Throughout our analyses below, we refer to these controls as our “standard set of control variables.” We included these controls in our analyses to ensure that our results were robust to their inclusion. However, results without these control variables showed similar patterns but were even stronger (see the Supplemental Materials Section II(A)).

***Age***

Participants indicated their age in years (*M* = 40.41, *SD* = 12.96).

***Gender***

Participants indicated their gender identity as female, male, or non-binary/other. Given that the non-binary sample was too small (*n* = 2) to control for as a separate category, we only controlled for whether participants’ gender was male or female.

***Race***

Participants checked all races and ethnicities that applied to them from the following list: African American or Black, Asian/Asian American, Hispanic/Latino, White/Caucasian, Native American, Arab/Middle Eastern, and Other. Participants who only selected one race or ethnicity were coded with the single race or ethnicity they checked, and participants who selected more than one race or ethnicity were coded as multiracial. Consistent with previous research (Fairlie, 2020; Kantamneni, 2020; Tessler et al., 2020; Webb Hopper et al., 2020) on how the Covid-19 pandemic has differentially affected People of Color (e.g., disproportionate losses among minority-owned businesses compared to White-owned businesses) we controlled for participant race using a binary White (i.e., monoracial White individuals, coded 0; 74.6%) vs. People of Color (i.e., all non-White, including multiracial, individuals coded 1; 25.4%) measure.

***Political Orientation***

Participants indicated their political orientation on a scale from 1 (*very liberal*) to 7 (*very conservative*) (*M* = 3.22, *SD* = 1.65).

***Personal Income***

Participants reported their current annual personal income on an 8-point scale: 1 = $9,999 or less; 2 = $10,000-$19,999; 3 = $20,00-$29,999; 4 = $30,00-$49,900; 5 = $50,000-$74,999; 6 = $75,000-$99,999; 7 = $100,000-$200,000; or 8 = greater than $200,000 (*M* = 3.34, *SD* = 1.83). If recently unemployed due to the pandemic, participants reported their personal income prior to unemployment This variable was meant to capture participants’ typical level of resources before the pandemic, and in the case of the unemployed, was used as a substitute for the current personal income variable.

We used this variable as a substitute for the current personal income variable for two reasons. First, methodologically, we did not want participants who recently became unemployed due to the pandemic (i.e., who had recently dropped to zero income) to skew the income variable. Second, theoretically, we did not want to include a control variable that captured financial harm during the pandemic (i.e., a current income of zero due to job loss), because our measure of personal harm captures participants’ experiences of financial harm during the pandemic (e.g., losing a job).

***Education Level***

Participants reported the highest level of education they had completed on a 6-point scale: 1 = Some high school or less, 2 = High school diploma, 3 = Some college (1 year to less than 4 years), 4 = Two-year college degree (A.A.), 5 = Four-year college degree (B.A. or B.S.), 6 = MA/PhD, MD, MBA, Law Degree. Education was used as a continuous variable in our analyses (*M* = 4.02, *SD* = 1.39).

***Awareness of Economic Inequality***

At Time 1, participants indicated their awareness of economic inequality with the following three items on a scale from 1 (*strongly disagree)* to 7 (*strongly agree*): “The Covid-19 pandemic has made me more aware of economic inequality”; “The Covid-19 pandemic has made me more aware of the importance of low-wage workers (e.g., grocery workers, teachers)” and “Differences in income in America are too large” (*M* = 5.59, *SD* = 1.33; α = .78). At Time 2, participants responded to an additional item: “People in poverty or those with fewer resources have experienced an unequal amount of adversity from the coronavirus pandemic” (*M* = 5.58, *SD* = 1.25; α = .81).

**Analytic Approach**

To best reflect the temporal ordering of our measures and theorizing about the process through which personal harm affects advocacy for equality (i.e., our hypothesized mediation model), we drew our predictor (i.e., personal harm) and mediator variable (i.e., external attributions) from Time 1, and our outcome variables (i.e., advocacy for equality) from Time 2. As noted previously in the measures section, this is because personal harm from the Covid-19 pandemic, the predictor, captures experiences prior to Time 1. External attributions for inequality, our mediator, reflects attitudes reported at Time 1. Advocacy for equality, our outcome, reflects attitudes and behaviors measured at Time 2. Figure 1 provides a conceptual illustration of the timeline of our study and the period at which each of our key variables were measured.

 

*Figure 1. Timeline of Key Measures.*

To test our first hypothesis (H1) that the degree of personal harm from the pandemic will predict greater advocacy for equality five months later, we conducted two separate regressions. First, we regressed attitudinal advocacy for equality (measured at Time 2) on personal harm (measured at Time 1). In this analysis, we included both our standard set of control variables (described above) as well as Time 1 attitudinal advocacy for equality to better represent the causal consequences of personal harm on advocacy for equality. As additional analyses, we conducted latent change scores and obtained equivalent results (results of these analyses are reported in Supplemental Materials Section II(D)). Second, we regressed behavioral advocacy for equality (measured at Time 2) on personal harm (measured at Time 1). In this analysis we included our standard set of control variables (described above).[[4]](#footnote-4)

To test our second hypothesis (H2) that the degree of personal harm will predict

greater external attributions for inequality, we regressed external attributions for inequality (measured at Time 1) on personal harm (measured at Time 1). We again included the standard set of controls. As a secondary analysis, we conducted latent change score models and obtained equivalent results (results reported in Supplemental Materials Section II(D)).

Finally, to test our third hypothesis (H3) that greater amounts of personal harm will predict greater advocacy for equality via increased external attributions for inequality, we conducted two separate mediation analyses (with 5000 bootstrapped samples). We utilized participants’ external attributions for inequality (measured at Time 1) as the mediator linking personal harm from the Covid-19 pandemic (measured at Time 1) to attitudinal and behavioral advocacy for equality outcome variables (measured at Time 2) and included our standard set of controls. As in our analyses examining H1, in the model with attitudinal advocacy for equality as our dependent measure, we also controlled for Time 1 attitudinal advocacy for equality.

**Results**

**Advocacy for Equality**

Supporting Hypothesis 1, we found that greater personal harm from the pandemic predicted increased advocacy for equality. Specifically, personal harm predicted an increase in attitudinal advocacy for equality (*B* = 0.03*, SE =* 0.01*, p =* .01, 95% CI [0.01, 0.04]) and behavioral advocacy for equality (*B* = 0.05*, SE =* 0.01*, p <* .001, 95% CI [0.02, 0.07]).

**External Attributions for Inequality**

Supporting Hypothesis 2, we found that personal harm predicted an increase in external attributions for inequality (*B* = 0.03, *SE* = 0.01, *p* =.009, 95% CI [0.01, 0.06]).

**Mediation**

Supporting Hypothesis 3, we found that external attributions for inequality mediated the relationship between personal harm and advocacy for equality for both attitudinal and behavioral measures: attitudinal advocacy for equality (*B* = 0.003*,* 95% CI = [0.001, 0.01] and behavioral advocacy for equality (*B* = 0.004*, SE =* 0.002, 95% CI = [0.001, 0.009]. These analyses yielded 95% CIs that did not include zero, suggesting that the indirect effects of personal harm on advocacy for equality through external attributions of inequality were significant. Such results suggest that personal harm from the Covid-19 pandemic increased both attitudinal and behavioral advocacy for equality five months later, in part, by increasing people’s external attributions for inequality.

**Discussion**

The Covid-19 pandemic has unveiled the vast amount of inequality in the United States, but did it increase Americans’ *advocacy* for equality? The results of our pre-registered, longitudinal study suggest that the pandemic led Americans to advocate for equality when they experienced greater amounts of personal harm from the pandemic.

Our research makes several important theoretical contributions. First, our research provides empirical evidence for a novel antecedent to Americans’ understanding of the sources of inequality and their willingness to advocate for equality: personal harm. Previous research has theorized that historically lower- (vs. higher-) power groups tend to endorse external attributions more strongly because they are more frequently exposed to external factors that shape their lives. Yet, this proposition has not been empirically tested. In the current research, we leverage the exogenous shock of the Covid-19 pandemic to empirically demonstrate that the degree to which people are harmed by exogenous factors increases endorsement of external attributions for inequality and, in turn, advocacy for equality. Importantly, these effects are not moderated by individual differences like education level and political orientation (see Section Supplemental Materials Section II(E)), and they hold even when controlling for such individual differences.

Second, our work demonstrates that the effects of personal harm do not quickly fade, but instead persist over time – i.e., for a span of at least five months. Specifically, in the first months of the pandemic, the experience of more personal harm shaped people’s attitudes toward and advocacy for equality five months later. This suggests that the effects of an external large-scale shock may be relatively long-lasting, laying the groundwork for future larger-scale efforts to promote equality in the U.S.

Finally, our research delineates the conditions under which negative external shocks can shift attitudes towards and advocacy for equality – *degree* of personal harm. Indeed, our research suggests that the pandemic is not sufficient to increase people’s advocacy for equality; people must be personallyimpacted. This finding can help us understand why other large-scale negative events (e.g., natural disasters) may not influence people’s attitudes (e.g., environmental concerns; Bergquist et al., 2019; Ray et al., 2017). Furthermore, it suggests a key mechanism for understanding large-scale culture change; external shocks may only change societal-level ideologies insofar as people are personally affected by such shocks.

Despite these important contributions, we note several limitations and outstanding questions for future research. First, we only surveyed individuals after the pandemic began and therefore, we cannot definitively demonstrate whether there was a shift in participants’ attitudes from *prior* to the pandemic to *during* the pandemic. However, our analyses begin to demonstrate change by controlling for participants’ attitudinal advocacy for equality at Time 1. Furthermore, by conducting latent change score analyses, which measure within-participant change over time, we provide evidence that participants’ attitudes did change over the course of our study as a function of the personal harm that they experienced. Nonetheless, future research should compare attitudes before the onset of an exogenous shock to those that occur during these shocks.

Second, while we have clear evidence that our effects persisted across five months of the pandemic, at the time of the Wave 2 survey, the pandemic was still ongoing. It remains unclear whether the effects will endure when the pandemic has lessened. To better understand the exact time course and endurance of our effects, future research should examine whether our observed effects persist beyond the pandemic itself.

Finally, our work examined shifting attitudes about inequality with a relatively large sample of over 1000 U.S. participants. Yet, despite this large sample, we were unable to examine whether the dominant ideology in the U.S. has shifted more broadly. Research conducted in the years following the pandemic will hopefully seek to systematically answer this important question.

Overall, our research provides a possible silver lining of the Covid-19 pandemic for those who hope to increase advocacy for equality in the U.S. on a broad scale. We find that—under certain conditions—enduring an exogenous shock like the pandemic has the potential to meaningfully shift people’s attitudes towards and advocacy for equality. Indeed, the large number of people experiencing personal harm from the pandemic may serve as a first step toward producing broad, long-term cultural change toward a more equitable society.

**References**

Adeola, F. O. (2005). Racial and Class Divergence in Public Attitudes and Perceptions About Poverty in Usa: an Empirical Study. *Race, Gender & Class*, *12*(2), 53–66, 68–73, 75–80.

Bartels, L. M. (2005). Homer Gets a Tax Cut: Inequality and Public Policy in the American

Mind. *Perspectives on Politics*, *3*(1), 15-31. doi:10.1017/S1537592705050036

Bénabou, R., & Tirole, J. (2006). Belief in a just world and redistributive politics. *Quarterly Journal of Economics*, *121*(2), 699–746. https://doi.org/10.1162/qjec.2006.121.2.699

Bergquist, M., Nilsson, A., & Schultz, P. W. (2019). Experiencing a Severe Weather Event Increases Concern About Climate Change. *Frontiers in Psychology*, *10*, 220. https://doi.org/10.3389/fpsyg.2019.00220

Brown, C. S., & Ravallion, M. (2020). *Inequality and the coronavirus: Socioeconomic covariates of behavioral responses and viral outcomes across US counties* (No. 27549). https://doi.org/10.3386/w27549

Collins, C. (2021). *Updates: Billionaire Wealth, U.S. Job Losses and Pandemic Profiteers*. Inequality.Org. https://inequality.org/great-divide/updates-billionaire-pandemic/#:~:text=February 24%2C 2021 Update%3A US,trillion Since Mid-March 2020.&text=After 11 months of pandemic,an increase of 44 percent.

Conn, K. M., Lovison, V. S., & Mo, C. H. (2021). *The Effect of Teaching in Underserved Schools on Beliefs About Education Inequality and Reform: Evidence from Teach For America*. Berkeley Institute for Young Americans.

Cozzarelli, C., Wilkinson, A. V., & Tagler, M. J. (2001). Attitudes toward the poor and attributions for poverty. *Journal of Social Issues*, *57*(2), 207–227. https://doi.org/10.1111/0022-4537.00209

Croft, A., Dunn, E. W., & Quoidbach, J. (2014). From Tribulations to Appreciation: Experiencing Adversity in the Past Predicts Greater Savoring in the Present. *Social Psychological and Personality Science*, 5(5), 511–516. https://doi.org/10.1177/1948550613512510

Davidai, S. (2018). Why do Americans believe in economic mobility? Economic inequality, external attributions of wealth and poverty, and the belief in economic mobility. *Journal of Experimental Social Psychology*, *79*, 138–148. https://doi.org/10.1016/j.jesp.2018.07.012

Deaton, A. (2021). *COVID-19 and Global Income Inequality* (NBER Working Paper No. 28392). https://www.nber.org/system/files/working\_papers/w28392/w28392.pdf

Fairlie, R. (2020). *The Impact of COVID-19 on Small Business Owners: Continued Losses and the Partial Rebound in May 2020*. National Bureau of Economic Rsesearch. https://www.nber.org/system/files/working\_papers/w27462/w27462.pdf

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., Koss, M. P., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The adverse childhood experiences (ACE) study. *American Journal of Preventive Medicine*, *14*(4), 245–258. https://doi.org/10.1016/S0749-3797(98)00017-8

Furceri, D., Loungani, P., Ostry, J., & Pizzuto, P. (2020). Financial Globalization, Fiscal Policies and the Distribution of Income. *Comparative Economic Studies*, *62*(2), 185–199. https://doi.org/10.1057/s41294-020-00113-4

Gilbert, D. T., & Malone, P. S. (1995). The correspondence bias. *Psychological Bulletin*, *117*(1), 21–38. https://doi.org/10.1037/0033-2909.117.1.21

Green, J. G., McLaughlin, K. A., Berglund, P. A., Gruber, M. J., Sampson, N. A., Zaslavsky, A. M., & Kessler, R. C. (2010). Childhood adversities and adult psychiatric disorders in the national comorbidity survey replication I: Associations with first onset of DSM-IV disorders. *Archives of General Psychiatry*, *67*(2), 113–123. https://doi.org/10.1001/archgenpsychiatry.2009.186

Gudrais, E. (2008). Unequal America: Causes and consequences of the wide--and growing--gap between the rich and poor. *Harvard Magazine*.

Kantamneni, N. (2020). The impact of the COVID-19 pandemic on marginalized populations in the United States: A research agenda. *Journal of Vocational Behavior*, 119(2020) Article 103439. Academic Press Inc. https://doi.org/10.1016/j.jvb.2020.103439

Kluegel, J. R., & Smith, E. R. (1986). *Beliefs about Inequality: Americans’ Views of what is and what ought to be*. Routledge.

Kraus, M. W., Piff, P. K., & Keltner, D. (2009). Social class, sense of control, and social explanation. *Journal of Personality and Social Psychology*, *97*, 992–1004. https://doi.org/10.1037/a0016357

Markus, H. R. (2017). American = Independent? *Perspectives on Psychological Science*, *12*(5), 855–866. https://doi.org/10.1177/1745691617718799

Markus, H. R., & Kitayama, S. (2010). Cultures and selves: A cycle of mutual constitution. *Perspectives on Psychological Science*, *5*(4), 420–430. https://doi.org/10.1177/1745691610375557

McMahon, J. (2015). Behavioral economics as neoliberalism: Producing and governing homo economicus. *Contemporary Political Theory*, *14*(2), 137–158. https://doi.org/10.1057/cpt.2014.14

Mo, C. H., & Conn, K. M. (2018). When Do the Advantaged See the Disadvantages of Others? A Quasi-Experimental Study of National Service. *American Political Science Review*, *112*(4), 1016–1035. https://doi.org/10.1017/S0003055418000412

Newman, B. J., Johnston, C. D., & Lown, P. L. (2015). False Consciousness or Class Awareness? Local Income Inequality, Personal Economic Position, and Belief in American Meritocracy. *American Journal of Political Science*, *59*(2), 326–340. https://doi.org/10.1111/ajps.12153

Norton, M. I., & Ariely, D. (2011). Building a better America-one wealth quintile at a time. *Perspectives on Psychological Science*. https://doi.org/10.1177/1745691610393524

Perry, B. L., Aronson, B., & Pescosolido, B. A. (2021). Pandemic precarity: COVID-19 is exposing and exacerbating inequalities in the American heartland. *Proceedings of the National Academy of Sciences of the United States of America*, *118*(8), 1–6. https://doi.org/10.1073/pnas.2020685118

Piff, P. K., Wiwad, D., Robinson, A. R., Aknin, L. B., Mercier, B., & Shariff, A. (2020). Shifting attributions for poverty motivates opposition to inequality and enhances egalitarianism. *Nature Human Behaviour*, *4*(5), 496–505. https://doi.org/10.1038/s41562-020-0835-8

Putnam, R. D. (2015). *Our Kids: The American Dream in Crisis*. Simon and Schuster.

Ray, A., Hughes, L., Konisky, D. M., & Kaylor, C. (2017). Extreme weather exposure and support for climate change adaptation. *Global Environmental Change*, *46*, 104–113. https://doi.org/10.1016/j.gloenvcha.2017.07.002

Schlesinger, M., & Heldman, C. (2001). Gender Gap or Gender Gaps? New Perspectives on Support for Government Action and Policies. *The Journal of Politics*, *63*(1), 59–92. https://doi.org/10.1111/0022-3816.00059

Seery, M. D., Holman, E. A., & Silver, R. C. (2010). Whatever Does Not Kill Us: Cumulative Lifetime Adversity, Vulnerability, and Resilience. *Journal of Personality and Social Psychology*, *99*(6), 1025–1041. https://doi.org/10.1037/a0021344

Stephens, N. M., Fryberg, S. A., Markus, H. R., & Hamedani, M. Y. G. (2013). Who Explains Hurricane Katrina and the Chilean Earthquake as an Act of God? The Experience of Extreme Hardship Predicts Religious Meaning-Making. *Journal of Cross-Cultural Psychology*, *44*(4), 606–619. https://doi.org/10.1177/0022022112454330

Stephens, N. M., & Levine, C. S. (2011). Opting out or denying discrimination? How the framework of free choice in American society influences perceptions of gender inequality. *Psychological Science*, *22*(10), 1231–1236. https://doi.org/10.1177/0956797611417260

Stuber, J. M. (2006). Talk of Class The Discursive Repertoires of White Working-and Upper-Middle-Class College Students. *Journal of Contemporary Ethnography, 35*(3), 285-318). https://doi.org/10.1177/0891241605283569

Tessler, H., Choi, M., & Kao, G. (2020). The Anxiety of Being Asian American: Hate Crimes and Negative Biases During the COVID-19 Pandemic. *American Journal of Criminal Justice*, *45*(4), 636–646. https://doi.org/10.1007/s12103-020-09541-5

Webb Hopper, M., Nápoles, A. M., & Pérez-Stable, E. (2020). COVID-19 and Racial/Ethnic Disparities. *JAMA*, *323*(24), 2466–2467. https://doi.org/10.1001/jama.2020.8598

Wiwad, D., Mercier, B., Piff, P. K., Shariff, A., & Aknin, L. B. (2020). Recognizing the Impact of COVID-19 on the Poor Alters Attitudes Towards Poverty and Inequality. *Journal of Experimental Social Psychology*, *93*, 104083. https://doi.org/10.1016/j.jesp.2020.104083

1. We also pre-registered the prediction that personal harm from the Covid-19 pandemic will predict more awareness of inequality. We found support for this prediction. However, because we instead use awareness of inequality as a control variable in our models, results of these analyses are reported in the Supplemental Materials Section II(G). [↑](#footnote-ref-1)
2. Effects of personal harm (measured at Time 1) on external attributions for equality (measured at Time 1) remain significant if we use this larger sample (see the Supplemental Materials Section II(B) for results). [↑](#footnote-ref-2)
3. Effects of personal harm (measured at Time 1) on the two measures of advocacy for equality remain significant if we use this larger sample (see the Supplemental Materials Section II(B) for results). [↑](#footnote-ref-3)
4. We could not control for Time 1 behavioral advocacy for equality because this measure was not included at Time 1. We therefore could not conduct latent change analyses for this measure. [↑](#footnote-ref-4)