**Supplemental Information**

**Can Policy Responses to Pandemics Reduce Mass Fear?**

**Data and replication materials are available at the Harvard Dataverse.**

**SI.1: Methods and Measurement**

Sample

We carried out our survey among a quota sample of adults living in the United States from June 8 through June 29, 2020 (N=5,461). The survey was conducted by Respondi, a survey firm operating an opt-in incentive-based Internet survey panel. Respondi maintains managed online-panels that employ a combination of online and offline recruitment methods to ensure that the panels can be used for conducting representative surveys (Respondi 2015). We derived socio-demographic population margins (age, gender, and education) from the 2016 US Current Population Census. Table S1 provides information about the distribution of socio-demographic characteristics in the raw sample, the weighted sample, and the voter population.

Potential participants for our survey were drawn from Respondi’s existing panels. Since the Institutional Review Board at Washington University in St. Louis determined our study exempt from further review (see ethics oversight information below), neither documentation nor waiver of informed consent was required. However, our study still included two distinct layers of consent. Individuals were asked to sign-up and provide their consent to Respondi. Second, when potential study participants were sent our study by Respondi, our survey additionally asked for informed consent. Respondi compensated respondents for their time taking our survey with points that can be redeemed for prizes.

Ethics Oversight

This study was approved by the Institutional Review Board at Washington University in St. Louis and determined exempt from further review (IRB ID 202004256).

Experimental Design

We employed a vignette experiment about a hypothetical, potentially deadly infectious disease designed to mention the key aspects of a policy response. Before the vignette experiment began, respondents were shown a page of introductory text that read: “We will now provide you with several scenarios which describe a set of policies in response to an outbreak of an infectious disease such as the coronavirus. We then ask several questions to better understand what you think about these policies. In total, we will show you 4 scenarios. People have different opinions about this issue, and there are no right or wrong answers. Please read the descriptions carefully.” What followed was a description of the policy response that randomly varied policy features and infection severity. We then asked a set of questions to measure our outcome variables. Each respondent repeated the vignette experiment and answered the outcome variable questions four times. The vignette attribute levels were fully randomized. All outcome variables were measured on a 5-point Likert scale where 1 was strongly disagree and 5 was strongly agree. The four items were:

* Feel Fear: “I feel worried, fearful, or frightened.”
* Lose Control: “I have thoughts of losing control or bad things happening.”
* Concern Worsen: “I am afraid that the situation could worsen.”
* Stock Up: “I feel the need to stock up on essential products (for example, food).”
* Policy Approval: “The state government is handling the situation well.”

Estimation

We estimate all causal effects non-parametrically by regressing whether a respondent agreed with a given statement on indicator variables for each attribute level (using one level as the reference category). We use robust standard errors clustered by respondent. All regressions include sociodemographic covariates that control for four age groups, four education levels, and residence (rural, urban, suburban).

Measurement of socio-demographic, political, and other variables

* Age: “In what year were you born?” Recoded into 18-35, 35-49, 50-64, and 65 and above. Reference level is 18-35.
* Female: “Please indicate whether you are male, female, or other.” Dichotomous variable where 1 is female.
* Education: “What is the highest level of education you have completed? (Did not complete elementary and middle school, completed elementary and middle school, attended high school, high school graduate, some college, Associate's degree, Bachelor's degree, Master's degree, Professional school degree, Doctorate degree).” Recoded into dummy variables for below completing high school, high school, some college or Associate's degree, and Bachelor's degree or higher. Reference level is not completing high school.
* Party Identification: “Generally speaking, do you usually think of yourself as a Democrat, a Republican, an Independent, or what? (Republican, Democrat, Independent, Other).” Dummy variables for Republican, Independent, and Democrat. Reference level is Democrat.
* Income: “Thinking back over the last year, what was your family's annual income? (Less than $10,000, $10,000-19,999, $20,000-29,999, $30,000-39,999, $40,000-49,999, $50,000-59,999, $60,000-69,999, $70,000-79,999, $80,000-89,999, $90,000-99,999, $100,000-119,999, $120,000-149,999, $150,000-199,999, $200,000-249,999, $250,000-349,999, $350,000-499,999, $500,000 or more).” Recoded into low, lower-middle, upper-middle, and high based on percentiles where low is below 25th percentile, lower-middle is 25th to 50th percentile, upper-middle is 50th to 75th percentile, and high is above 75th percentile. Reference level is low.
* Unemployed: “Which of these descriptions best describes your situation (in the last seven days)? (In paid work; In education; Unemployed and actively looking for a job; Unemployed, wanting a job, but not actively looking; Permanently sick or disabled; Retired; In military service; Doing housework; Don't know; None of these).” Dummy variable 1 if unemployed and actively looking for a job and unemployed, wanting a job, but not actively looking for a job and 0 otherwise. Reference level is 0.
* Ethnicity: “What racial or ethnic group best describes you? (White; Black or African American; Hispanic, Latino, or Spanish; Asian; American Indian or Alaska Native; Other).” Dummy variable 1 if not white 0 otherwise. Reference level is 0.
* Political Knowledge: “For how many years is a United States Senator elected --- that is, how many years are there in one full term of office for a U.S. Senator? (type the number)” Dummy variable 1 if answered 6, 0 otherwise. Reference level is 0.
* Coronavirus Knowledge: “Which of the following are common symptoms of COVID-19 (coronavirus)? (Fever, cough, and shortness of breath; Frequent urination, increased thirst, and increased hunger; Heartburn, upper abdominal pain, and nausea).” Dummy variable 1 if answered fever, cough, and shortness of breath 0 otherwise. Reference level is 0.
* “On a scale from 0 to 100, how unlikely or likely do you think it is that you will be infected by coronavirus in the next several months?” 0 (very unlikely), 100 (very likely).
* State: “In which state or territory do you live?”.
* County: “In which county or independent city do you live?” (record FIPS code).
* Fox news consumption: “When you watch national television news, which station do you most often watch?” (ABC, NBC, CBS, PBS, CNN, FOX, MSNBC, One America News Network, I never watch national television news.). Dummy variable where 1 is FOX and One America News Network viewers and 0 otherwise.

Coronavirus Case Information

County and state-level coronavirus case data collected from Johns Hopkins University (JHU) Coronavirus Resource Center from May 24 to June 29, 2020. This data is updated daily at around 2AM the day following new case data. We downloaded daily updates in order to ensure that contemporaneous information was being used, as some case data is updated post hoc. Data is updated based on information from government health departments (county and state).

There are several instances of missing cases wherein the JHU data do not report cases for a given FIPS code that contains a survey respondent. Most of the missing cases are also missing for other coronavirus datasets like that of the New York Times. Missing cases were dropped. Substantively, the impact is quite small other than considering that New York City area cases were completely dropped. Case counts were merged with survey respondent data using the day the respondent took the survey. Survey start times were converted into local time zones to determine the local date when the survey was started. That date was used to merge with the coronavirus case data. Case counts are logged. Instances of joint reporting and missingness were:

* 36005 (Bronx, NY): New York cases reported together in 36061.
* 36047 (Kings, NY): New York cases reported together in 36061.
* 26081 (Queens, NY): New York cases reported together in 36061.
* 36085 (Richmond, NY): New York cases reported together in 36061.
* 72139 (Trujillo Alto, PR): Both NYT and JHU use only one FIPS code for PR. Changing the FIPS code here would make this respondent’s unit of analysis the entire territory instead of just a county.
* 36061 (New York, NY): JHU reports cases in 36061 as Exception type 2, replacing New York County FIPS codes.
* 20203 (Wichita, KS): Missing from both JHU and NYT.
* 49015 (Emery, UT): missing.
* 49033 (Rich, UT): missing.
* 49047 (Uinath, UT): missing.
* 49053 (Washington, UT): missing.
* 49057 (Weber, UT): missing.

**SI.2: The Effects of Policy Response and Infection Severity on Mass Fear: Subgroup Results**

Local exposure to coronavirus may explain the treatment effects we document since individuals living in areas where COVID-19 is more widespread may perceive the threat from an infectious disease as more realistic. We tested this conjecture by re-estimating the causal effects separately for respondents living in counties with high vs. low COVID-19 case counts. The results in Figure S8 indicate that the effects are very similar for these two groups of respondents, suggesting that exposure plays no systematic role in accounting for how the policy outcome affects feelings of fear and anxiety.

Knowledge about the symptoms and associated health risks of COVID-19 could account for the strong sensitivity to policy effectiveness: those who know more about COVID-19 may also be more concerned about the impact of infectious disease which makes them more likely to express feelings of fear and anxiety in response to failed policy interventions. Figure S9 presents the results separately for respondents who are more knowledgeable about the disease by being able to correctly identify three of its major symptoms and those who are less knowledgeable. Our results confirm that more knowledgeable individuals are systematically more likely to report feelings of fear and anxiety if policy interventions remain ineffective than those who know less about coronavirus. That said, the general patterns remain consistent across both groups.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Population | Raw Sample | Weighted Sample |
| Age: 18-24 years | 12.3 | 15.2 | 12.3 |
| Age: 25-44 years | 32.5 | 36.2 | 32.5 |
| Age: 45-64 years | 34.7 | 35.3 | 34.7 |
| Age: 65+ years | 20.5 | 13.3 | 20.5 |
| Gender: Male | 48.2 | 48.1 | 48.2 |
| Gender: Female | 51.8 | 51.9 | 51.8 |
| Education: Less than High School | 9.5 | 9.8 | 9.5 |
| Education: Completed High School | 29.2 | 23.6 | 29.2 |
| Education: Some College | 30.0 | 29.2 | 30.0 |
| Education: BA or higher | 31.2 | 37.4 | 31.3 |

Table S1. Distributions of socio-demographic characteristics in the target population, the raw sample, and the weighted sample. Population margins were obtained from the 2016 Current Population Survey.

|  |  |
| --- | --- |
| Outbreak: Rate of Infections |  |
| Very slowly | *Reference group* |
|  |  |
| At a moderate rate | 0.040\*\*\* |
|  | (0.000) |
| Very quickly | 0.080\*\*\* |
|  | (0.000) |
| Outbreak: Number of Infections |  |
| 10,000 | *Reference group* |
|  |  |
| 100,000 | 0.049\*\*\* |
|  | (0.000) |
| 1,000,000 | 0.091\*\*\* |
|  | (0.000) |
| Policy Response Time: Days |  |
| 60 | *Reference group* |
|  |  |
| 30 | -0.025\*\* |
|  | (0.020) |
| 10 | -0.028\*\*\* |
|  | (0.007) |
| Policy Response: Measure |  |
| Do nothing | *Reference group* |
|  |  |
| Social Distancing | -0.005 |
|  | (1.000) |
| Lockdown | 0.003 |
|  | (1.000) |
| Outcome: Rate of Infections |  |
| Increased a lot | *Reference group* |
|  |  |
| Remained the same | -0.207\*\*\* |
|  | (0.000) |
| Decreased a lot | -0.318\*\*\* |
|  | (0.000) |
| Sociodemographic Controls | Yes |
| Constant | 0.710\*\*\* |
|  | (0.000) |
| Observations | 21,844 |
| R-squared | 0.097 |

**Table S2.** Causal effects of infection severity and policy response on multiple measures of fear (Bonferroni-corrected p-values). Linear regression coefficients shown with Bonferroni-adjusted standard errors to account for multiple comparisons. Sociodemographic control variables are: Gender: Female, Education: Some College, Education: BA or higher; Region: Suburban, Region: Urban, Age: 25-44, Age: 45-64, Age: 65 or more, Income: Lower Middle, Income: Upper Middle, Income: High, Income: Missing.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  | (1) | (2) | (3) |
|  | Republicans | Democrats | Democrat vs Republican |
| Outbreak: Rate of Infections |  |  |  |
| Very slowly | *Reference Group* | | |
|  |  |  |  |
| At a moderate rate | 0.045\*\*\* | 0.034\*\*\* | 0.034\*\*\* |
|  | (0.014) | (0.012) | (0.012) |
| Very quickly | 0.085\*\*\* | 0.069\*\*\* | 0.069\*\*\* |
|  | (0.014) | (0.012) | (0.012) |
| Outbreak: Number of Infections |  |  |  |
| 10,000 | *Reference Group* | | |
|  |  |  |  |
| 100,000 | 0.064\*\*\* | 0.042\*\*\* | 0.042\*\*\* |
|  | (0.014) | (0.012) | (0.012) |
| 1,000,000 | 0.089\*\*\* | 0.096\*\*\* | 0.095\*\*\* |
|  | (0.014) | (0.011) | (0.011) |
| Policy Response Time: Days |  |  |  |
| 60 | *Reference Group* | | |
|  |  |  |  |
| 30 | -0.026\* | -0.019\* | -0.019\* |
|  | (0.014) | (0.012) | (0.012) |
| 10 | -0.033\*\* | -0.035\*\*\* | -0.034\*\*\* |
|  | (0.014) | (0.012) | (0.012) |
| Policy Response: Measure |  |  |  |
| Do nothing | *Reference Group* | | |
|  |  |  |  |
| Social Distancing | -0.001 | -0.009 | -0.008 |
|  | (0.014) | (0.012) | (0.012) |
| Lockdown | 0.020 | -0.004 | -0.004 |
|  | (0.014) | (0.012) | (0.012) |
| Outcome: Rate of Infections |  |  |  |
| Increased a lot | *Reference Group* | | |
|  |  |  |  |
| Remained the same | -0.223\*\*\* | -0.163\*\*\* | -0.163\*\*\* |
|  | (0.014) | (0.011) | (0.011) |
| Decreased a lot | -0.307\*\*\* | -0.315\*\*\* | -0.315\*\*\* |
|  | (0.014) | (0.011) | (0.011) |
| Interactions Terms: Partisan Differences |  |  |  |
| Rate of Infections: Moderate X Republican |  |  | 0.011 |
|  |  |  | (0.019) |
| Rate of Infections: Very quickly X Republican |  |  | 0.016 |
|  |  |  | (0.018) |
| Number of Infections: 100,000 X Republican |  |  | -0.021 |
|  |  |  | (0.019) |
| Number of Infections: 1,000,000 X Republican |  |  | -0.027 |
|  |  |  | (0.018) |
| Response Time: 30 X Republican |  |  | -0.007 |
|  |  |  | (0.018) |
| Response Time: 10 X Republican |  |  | 0.000 |
|  |  |  | (0.018) |
| Measure: Social Distancing X Republican |  |  | 0.006 |
|  |  |  | (0.018) |
| Measure: Lockdown X Republican |  |  | 0.023 |
|  |  |  | (0.018) |
| Outcome Rate: Same X Republican |  |  | -0.059\*\*\* |
|  |  |  | (0.018) |
| Outcome Rate: Decreased a lot X Republican |  |  | 0.009 |
|  |  |  | (0.018) |
| Republican |  |  | -0.164\*\*\* |
|  |  |  | (0.024) |
| Sociodemographic Controls | Yes | Yes | Yes |
| Constant | 0.707\*\*\* | 0.796\*\*\* | 0.829\*\*\* |
|  | (0.035) | (0.029) | (0.024) |
| Observations | 6,724 | 7,728 | 14,452 |
| R-squared | 0.097 | 0.103 | 0.135 |

**Table S3.** Causal effects of infection severity and policy response on fear by partisanship. Linear regression coefficients shown with robust standard errors in parentheses. Sociodemographic control variables are: Gender: Female, Education: Some College, Education: BA or higher; Region: Suburban, Region: Urban, Age: 25-44, Age: 45-64, Age: 65 or more, Income: Lower Middle, Income: Upper Middle, Income: High, Income: Missing.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Additional Analyses and Robustness Checks**



**Figure S1. Causal effects of infection severity and policy response on fear index.** Dots with horizontal lines are point estimates with 95% and 99% confidence intervals from a linear least squares regression of the fear level on randomly assigned infection scenario and policy response attributes. N(scenarios) = 21,844, N(respondents) = 5,461.



**Figure S2. Causal effects of infection severity and policy response on four measures of fear.** Dots with horizontal lines are point estimates with 95% and 99% confidence intervals from a linear least squares regression of a binary agreement indicator on randomly assigned infection scenario and policy response attributes. N(scenarios) = 21,844, N(respondents) = 5,461.



**Figure S3. Causal effects of infection severity and policy response on fear, weighted.** Dots with horizontal lines are point estimates with 95% and 99% confidence intervals from a linear least squares regression of a binary agreement indicator on randomly assigned infection scenario and policy response attributes. N(scenarios) = 21,844, N(respondents) = 5,461. The results are very similar when analyzing each of the underlying items separately, see Figure S4.

|  |  |
| --- | --- |
| **A. Feeling fearful** | **B. Concern: situation could worsen** |
| **C. Lose control** | **D. Stock up** |

**Figure S4. Causal effects of infection severity and policy response on measures of fear by partisanship.** Dots with horizontal lines are point estimates with 95% and 99% respondent-clustered confidence intervals from a linear least squares regression of a binary agreement indicator on randomly assigned policy design and infection scenario attributes. The panels report the results for each outcome variable: (**A**) “I feel worried, fearful, or frightened,” (**B**) “I am afraid that the situation could worsen,” (**C**) “I have thoughts of losing control or bad things happening,” (**D**) “I feel the need to stock up on essential products.” N(scenarios | Democrats)=7,728; N(respondents | Democrats)=1,932; N(scenarios | Independents) = 5,972; N(respondents | Independents) = 1,439; N(scenarios | Republicans) = 6,724; N(respondents | Republicans) = 1,681.

A. Unweighted

B. Weighted



**Figure S5. Causal effects of infection severity and policy response on measures of fear using levels of agreement as dependent variables.** Dots with horizontal lines are point estimates with 95% and 99% confidence intervals from a linear least squares regression of the agree-disagree (five-point scale) variable on randomly assigned infection scenario and policy response attributes. (**A**) Results without survey weights. (**B**) Results with survey weights. N(scenarios) = 21,844, N(respondents) = 5,461.



**Figure S6. Causal effects of infection severity and policy response on measures of fear, weighted.** Dots with horizontal lines are point estimates with 95% and 99% confidence intervals from a linear least squares regression of a binary agreement indicator on randomly assigned infection scenario and policy response attributes. N(scenarios) = 21,844, N(respondents) = 5,461.

**A. Consumers of Fox News or One America News Network**



**B. Media: Other**



**Figure S7. Causal effects of infection severity and policy response on feelings of fear by media consumption.** Dots with horizontal lines are point estimates with 95% and 99% respondent-clustered confidence intervals from a linear least squares regression of a binary agreement indicator on randomly assigned policy design and infection scenario attributes. (**A**) Results for respondents watching Fox News or One America News Network, N(scenarios) = 17,844; N(respondents) = 4,461. (**B**) Results for respondents who do not watch Fox News. N(scenarios) = 4,092; N(respondents) = 1,023.

**A. COVID-19 Exposure: Low**



**B. COVID-19 Exposure: High**



**Figure S8. Causal effects of infection severity and policy response on fear by COVID-19 exposure.** Dots with horizontal lines are point estimates with 95% and 99% respondent-clustered confidence intervals from a linear least squares regression of the agreement indicator variable on randomly assigned policy design and infection scenario attributes. (**A**) Results for respondents living in a county with above-median number of infections, N(scenarios) = 16,728; N(respondents) = 4,182. (**B**) Results for respondents living in a county where the number of infections is equal to or below the median, N(scenarios) = 5,116; N(respondents) = 1,279.

**A. COVID-19 Knowledge: Low**



**B. COVID-19 Knowledge: High**



**Figure S9. Causal effects of infection severity and policy response on feelings of fear by COVID-19 knowledge.** Dots with horizontal lines are point estimates with 95% and 99% respondent-clustered confidence intervals from a linear least squares regression of the agreement indicator variable on randomly assigned policy design and infection scenario attributes. (**A**) Results for respondents with low COVID-19 knowledge, i.e., individuals who were unable to correctly select COVID-19 symptoms, N(scenarios) = 2,696; N(respondents) = 674 and (**B**) respondents with high COVID-19 knowledge. N(scenarios) = 19,148; N(respondents) = 4,787.

**A. Male Respondents**



**B. Female Respondents**



**Figure S10. Causal effects of infection severity and policy response on feelings of fear by gender.** Dots with horizontal lines are point estimates with 95% and 99% confidence intervals from a linear least squares regression of a binary agreement indicator on randomly assigned infection scenario and policy response attributes. (**A**) Results for male respondents, N(scenarios) = 10,504; N(respondents) = 2,626. (**B**) results for male respondents, N(scenarios) = 11,340; N(respondents) = 2,835.

|  |  |
| --- | --- |
| **A. Feeling fearful** | **B. Concern: situation could worsen** |
| **C. Lose control** | **D. Stock up** |

**Figure S11. Causal effects of infection severity and policy response on fear by age groups.** Dots with horizontal lines are point estimates with 95% and 99% confidence intervals from a linear least squares regression of a binary agreement indicator on randomly assigned infection scenario and policy response attributes. The panels report the results for each outcome variable: (**A**) “I feel worried, fearful, or frightened,” (**B**) “I am afraid that the situation could worsen,” (**C**) “I have thoughts of losing control or bad things happening,” (**D**) “I feel the need to stock up on essential products.” N(scenarios|Age: 18-24) = 3,316; N(respondents|Age: 18-24) = 829; N(scenarios|Age: 25-44) = 7,904; N(respondents|Age: 25-44) = 1,976; N(scenarios|Age: 45-64) = 7,716; N(respondents|Age: 45-64) = 1,929; N(scenarios|Age: 65+) = 2,908; N(respondents|Age: 65+) = 727.

|  |  |
| --- | --- |
| **A. Feeling fearful** | **B. Concern: situation could worsen** |
| **C. Lose control** | **D. Stock up** |

**Figure S12. Causal effects of infection severity and policy response on fear by randomly assigned initial rate of infections (growing very slowly, at a moderate rate, very quickly).** Dots with horizontal lines are point estimates with 95% and 99% confidence intervals from a linear least squares regression of a binary agreement indicator on randomly assigned infection scenario and policy response attributes. The panels report the results for each outcome variable: (**A**) “I feel worried, fearful, or frightened,” (**B**) “I am afraid that the situation could worsen,” (**C**) “I have thoughts of losing control or bad things happening,” (**D**) “I feel the need to stock up on essential products.” N(scenarios) = 21,844; N(respondents) = 5,461.

|  |  |
| --- | --- |
| **A. Feeling fearful** | **B. Concern: situation could worsen** |
| **C. Lose control** | **D. Stock up** |

**Figure S13. Causal effects of infection severity and policy response on fear by randomly assigned initial number of infections (10,000; 100,000; 1,000,000).** Dots with horizontal lines are point estimates with 95% and 99% confidence intervals from a linear least squares regression of a binary agreement indicator on randomly assigned infection scenario and policy response attributes. The panels report the results for each outcome variable: (**A**) “I feel worried, fearful, or frightened,” (**B**) “I am afraid that the situation could worsen,” (**C**) “I have thoughts of losing control or bad things happening,” (**D**) “I feel the need to stock up on essential products.” N(scenarios) = 21,844; N(respondents) = 5,461.

|  |  |
| --- | --- |
| **A. Feeling fearful** | **B. Concern: situation could worsen** |
| **C. Lose control** | **D. Stock up** |

**Figure S14. Causal effects of infection severity and policy response on fear by outbreak severity index level (Low, Medium, High).** Dots with horizontal lines are point estimates with 95% and 99% confidence intervals from a linear least squares regression of a binary agreement indicator on randomly assigned infection scenario and policy response attributes. The panels report the results for each outcome variable: (**A**) “I feel worried, fearful, or frightened,” (**B**) “I am afraid that the situation could worsen,” (**C**) “I have thoughts of losing control or bad things happening,” (**D**) “I feel the need to stock up on essential products.” N(scenarios) = 21,844, N(respondents) = 5,461.

|  |  |
| --- | --- |
| **A. Feeling fearful** | **B. Concern: situation could worsen** |
| **C. Lose control** | **D. Stock up** |

**Figure S15. Causal effects of infection severity and policy response on fear by randomly assigned policy response type (do nothing, social distancing, full lockdown).** Dots with horizontal lines are point estimates with 95% and 99% confidence intervals from a linear least squares regression of a binary agreement indicator on randomly assigned infection scenario and policy response attributes. The panels report the results for each outcome variable: (**A**) “I feel worried, fearful, or frightened,” (**B**) “I am afraid that the situation could worsen,” (**C**) “I have thoughts of losing control or bad things happening,” (**D**) “I feel the need to stock up on essential products.” N(scenarios) = 21,844, N(respondents) = 5,461.

**A. Perceived Risk of Infection with COVID-19: Low**



**B. Perceived Risk of Infection with COVID-19: High**



**Figure S16. Causal effects of infection severity and policy response on fear by self-assessed covid-19 infection risk.** Dots with horizontal lines are point estimates with 95% and 99% respondent-clustered confidence intervals from a linear least squares regression of a binary agreement indicator on randomly assigned policy design and infection scenario attributes. (**A**) Results for respondents who report a personal infection risk below or equal to the median (40), N(scenarios) = 11,076; N(respondents) = 2,769. (**B**) Results for respondents who report a personal infection risk above the median, N(scenarios) = 10,768; N(respondents) = 2,692.

**A. Respondent: White**



**B. Respondent: Non-White**



**Figure S17. Causal effects of infection severity and policy response on fear by race.** Dots with horizontal lines are point estimates with 95% and 99% respondent-clustered confidence intervals from a linear least squares regression of a binary agreement indicator on randomly assigned policy design and infection scenario attributes. (**A**) Results for white respondents, N(scenarios) = 16,372; N(respondents) = 4,093. (**B**) Results for non-white respondents, N(scenarios) = 5,472; N(respondents) = 1,368.



**Figure S18. Causal effects of infection severity and policy response on fear by round.** Dots with horizontal lines are point estimates with 95% and 99% respondent-clustered confidence intervals from a linear least squares regression of the agreement indicator variable on randomly assigned policy design and infection scenario attributes. For each round: N(scenarios=respondents) = 5,461.

**A. Pooled**



**B. By Partisanship**



**Figure S19. Causal effects of infection severity and policy response on government approval (overall and by party identification).** Dots with horizontal lines are point estimates with 95% and 99% respondent-clustered confidence intervals from a linear least squares regression of the agreement indicator variable on randomly assigned policy design and infection scenario attributes. (**A**) Pooled results, N(scenarios) = 21,844, N(respondents) = 5,461 and (**B**) estimated by partisan identification. N(scenarios | Democrats)=7,728; N(respondents | Democrats)=1,932; N(scenarios | Independents) = 5,972; N(respondents | Independents) = 1,439; N(scenarios | Republicans) = 6,724; N(respondents | Republicans) = 1,681.

**SI.3: Pre-registration Plan**

This study was pre-registered with EGAP on 5/29/2020.

**Study Information**

1. Title: Public Opinion on Policy Responses to Pandemics
2. Research Questions
   1. What is the level of support for policy responses to pandemics and government performance evaluations (local, state, federal government)?
   2. Does support for policy responses to major public health threats and performance evaluations reflect self-interest and risk exposure, other-regarding concerns, identity, scarcity and time pressure, social norms such as trust and altruism, religious habits, gender relations, protest participation, or political information and ideology?
   3. Do levels of panic, trust in the government, and views on compliance and coping mechanisms reflect pandemic severity, policy response time, policy intervention type, and policy impact?
   4. Do the sensitivities to threat severity, policy response, and policy impact reflect self-interest and risk exposure, other-regarding concerns, identity, scarcity and time pressure, social norms such as trust and altruism, religious habits, gender relations, protest participation, or political information and ideology?
   5. What is the correlation between quasi-behavioral measures of trust and altruism and self-assessed measures?
   6. How does social and anti-social behavior depend on risk exposure, and can this relationship be explained by identity, scarcity, social sanctioning, time pressure, social norms such as trust and altruism, religious habits, gender relations, protest participation, or political information and ideology?

**Study Design and Sampling Plan**

1. Study design

We implement a single wave cross-sectional survey in an online setting to American respondents.

1. Data

As of the date of submission, the data collection has not started. Therefore, none of the data has been quantified, constructed, observed, or reported by any of the researchers.

1. Data collection procedures.

We will field the online survey to a sample of the adult population in the United States. The sampling procedure includes oversampling respondents in rural areas.

1. Sample size

About 7,000 respondents.

1. Sample size rationale

The sample size is mainly driven by power considerations. Since we include experimental items, we would like to make sure to have enough observations in the various treatment conditions (see survey instrument).

1. Stopping rule

We will stop sampling once we have reached at least the targeted number of observations and the sociodemographic quotas.

1. Blinding

Respondents will not know the treatment group to which they have been assigned.

**Survey Instrument follows below.**

**Pandemic Policy Survey**

Questionnaire

# Introduction

We invite you to participate in a research study being conducted by investigators from [University]. The purpose of the study is to examine people’s thoughts about contemporary political and economic issues. All participants who complete the survey will be entered into several prize drawings for an Amazon gift card. The prize drawings will take place in June 2020. If you have questions for the research team, please contact us at [e-mail]. Thank you very much for your consideration of this research study.

Please select one of the following options:

* • [ ] I agree to participate
* • [ ] I do not agree to participate

NEW PAGE

# Quota Questions

What is the highest level of education you have completed?

* Did not complete elementary and middle school (grades 1-8)
* Elementary and middle school completed (grades 1-8)
* Attended high school (grades 9-12, no degree)
* High school graduate (or GED)
* Some college (1-4 years, no degree)
* Associate’s degree (AA, AS, etc)
* Bachelor’s degree (BA, BS, etc)
* Master’s degree (MA, MS, MSW, etc)
* Professional school degree (MD, JD, etc)
* Doctorate degree (PhD, EdD, etc)

NEW PAGE

Please indicate whether you are …

* Male
* Female
* Other

# Age

In what year were you born?

[Text entry]

NEW PAGE

Please indicate which area you live in:  
  
- Urban (50,000 or more people)  
- Suburban (more than 2,500 and less than 50,000 people)   
- Rural

NEW PAGE

# Corona Policy Views

1. In your opinion, has each of the following done a good job or a poor job to contain the spread of the coronavirus outbreak?
2. Federal government: 1 Very poor job,…., 5 very good job
3. State government: 1 Very poor job,…., 5 very good job
4. Local government: 1 Very poor job,…., 5 very good job
5. In response to the coronavirus outbreak, should the federal government:
6. implement stricter or less strict social distancing measures (e.g., closing schools, canceling public events, issuing stay-at-home orders)?

much less strict, less strict, neither/nor, more strict, much more strict

1. increase or decrease spending on medical equipment (e.g., ventilators, face masks) and research (e.g., vaccine development)?

1 decrease by a lot, 2 decrease by a little, 3 neither/nor, 4 increase by a little, 5 increase by a lot

NEW PAGE

1. Do you think that in response to the coronavirus outbreak the federal government should…
2. provide more or less financial assistance to individuals and households?

1 a lot less, 2 a little less, 3 neither/nor, 4 a little more, 5 a lot more

1. provide more or less financial assistance to small businesses?

1 a lot less, 2 a little less, 3 neither/nor, 4 a little more, 5 a lot more

1. provide more or less financial assistance to large businesses and corporations?

1 a lot less, 2 a little less, 3 neither/nor, 4 a little more, 5 a lot more

NEW PAGE

# Corona Affectedness

1. How much do you think the coronavirus outbreak will harm:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | A great deal (4) | A moderate amount (3) | Only a little (2) | Not at all (1) |
| You personally (1) |  |  |  |  |
| Your family (2) |  |  |  |  |
| Your community (3) |  |  |  |  |
| People in the United States (4) |  |  |  |  |
| People in other countries (5) |  |  |  |  |

NEW PAGE

1. On a scale from 0 to 100, how unlikely or likely do you think it is that you will be infected by coronavirus in the next several months?

0 (very unlikely), 100 (very likely)

NEW PAGE

1. And how unlikely or likely do you think it is that a family member or friend will be infected by coronavirus in the next several months?

0 (very unlikely), 100 (very likely)

NEW PAGE

1. Have you been infected by coronavirus?

Yes, No, Don’t know/unsure

1. Do you know anyone who has been infected by coronavirus?

Yes, No, Don’t know/unsure

NEW PAGE

1. How many people have been infected by coronavirus in the United States so far? Many people do not know the exact answer to this question. Please provide your best guess.

OPEN TEXT

1. And how many people have been infected by coronavirus in your county or independent city so far? Many people do not know the exact answer to this question. Please provide your best guess.

OPEN TEXT

NEW PAGE

1. When thinking about the coronavirus outbreak, how strongly do you agree or disagree with the following statements:
   1. There are not enough basic necessities such as food or hygiene products for everyone.

1 strongly agree to 5 strongly disagree

* 1. Acting quickly is the best way to deal with the outbreak.

1 strongly agree to 5 strongly disagree

NEW PAGE

# Dynamic Policy Response Experiment

[Repeat this section 4 times]

We will now provide you with several scenarios which describe a set of policies in response to an outbreak of an infectious disease such as the coronavirus. We then ask several questions to better understand what you think about these policies. In total, we will show you 4 scenarios. People have different opinions about this issue, and there are no right or wrong answers. Please read the descriptions carefully.

NEW PAGE

[DISPLAY PARAGRAPHS SEQUENTIALLY, ONE AT A TIME]

* + *Outbreak phase*: “Suppose there has been an outbreak of an infectious, potentially deadly disease such as the coronavirus. The disease is spreading (**very slowly, at a moderate rate, very quickly**). So far, (**10,000; 100,000; 1,000,000**) individuals have been infected in the U.S.”
* PROCEED BUTTON
  + - *Policy response phase*: “The state government has been monitoring the outbreak for (**10, 30, 60**) days without taking action. It has then decided to implement the following measure: (**do nothing, social distancing order with businesses and schools allowed to remain open (no large gatherings), stay-at-home order with only essential businesses allowed to remain open) order**.”
* PROCEED BUTTON
  + *Outcome phase*: “Two weeks later the number of new cases has (**decreased a lot, remained the same, increased a lot**).”
* PROCEED BUTTON

NEW PAGE

[Summarize all this info on one page.]

* + Thinking about this scenario, how strongly do you agree or disagree with the following statements:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Strongly agree (5) | Somewhat agree (4) | Neither agree nor disagree (3) | Somewhat disagree (2) | Strongly disagree (1) |
| I feel worried, fearful, or frightened. |  |  |  |  |  |
| I have thoughts of losing control or bad things happening. |  |  |  |  |  |
| I am afraid that the situation could worsen. |  |  |  |  |  |
| I feel the need to stock up on essential products (for example, food). |  |  |  |  |  |

NEW PAGE

* + Again, thinking about this scenario, how strongly do you agree or disagree with the following statements:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Strongly agree (5) | Somewhat agree (4) | Neither agree nor disagree (3) | Somewhat disagree (2) | Strongly disagree (1) |
| The state government is handling the situation well. |  |  |  |  |  |
| Most people will comply with these measures. |  |  |  |  |  |
| People should do more to help each other. |  |  |  |  |  |
| People should police each other more to help enforce the policies. |  |  |  |  |  |

NEW PAGE

# Social Norms (should randomly rotate with gender relations block)

[In this section, randomize the order of the 5 sets of questions]

1. Anti-social behavior

To what extent do you agree or disagree with the following statements:

[RANDOMIZE THE ORDER OF ITEMS a-e]

Under some conditions it is justified to…

a. claim government benefits to which you are not entitled

b. avoid paying taxes

c. use violence against other people to obtain justice

d. withhold supplies that the U.S. originally planned to send as aid to other countries

e. withdraw from international agreements that the U.S. had originally signed

5 – Strongly agree

4 – Somewhat agree

3 – Neither agree nor disagree

2 – Somewhat disagree

1 – Strongly disagree

NEW PAGE

1. [Randomize so 50% of respondents receive the first question and 50% of respondents receive the second question.]
   1. Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?

1 - Most people can be trusted,…, 10 - Need to be very careful

* 1. Generally speaking, would you say that you need to be very careful in dealing with people or that most people can be trusted?

1 – Need to be very careful, … , 10- Most people can be trusted

NEW PAGE

1. To what extent do you agree or disagree with the following statements.

[RANDOMIZE THE ORDER OF ITEMS]

a. I help people even if I don’t expect anything in return.

b. It is important for me to give money to charity.

c. It is important for me to do volunteer work for my community.

5 – Strongly agree

4 – Somewhat agree

3 – Neither agree nor disagree

2 – Somewhat disagree

1 – Strongly disagree

NEW PAGE

1. a. Suppose that you cut in line at the grocery store, how likely is it that someone would ask you to return to the back of the line?  
   5 very likely, 1 very unlikely

b. Suppose that you did not wear a face mask at work although it is recommended, how likely is it that someone would ask you to wear one?  
5 very likely, 1 very unlikely

NEW PAGE

1. How strongly do you agree or disagree with the following statement: Being American is important to my sense of what kind of a person I am.

1 strongly disagree to 5 strongly agree

NEW PAGE

[RANDOMIZE ORDER AND EXAMPLES FOR TRUST AND ALTRUISM ITEMS]

1. (Trust) All respondents who complete this question will be entered into a prize drawing for a $100 Amazon gift card. If you win this gift card, you can decide to give a portion of it to another respondent. Any amount that you decide to give will be deducted from your gift card, tripled, and then passed on to the other respondent. The other respondent then has the option of returning any portion of their earnings back to you.

The following table provides an example [RANDOMIZE WHICH TABLE IS SHOWN]:

Treatment condition 1 (low own/low other)

|  |  |  |  |
| --- | --- | --- | --- |
|  | Actions | You have | The other respondent has |
| 1 | You have $100 | $100 | $0 |
| 2 | You give $10 to the other respondent  (which we triple: 3x$10 = $30) | $90 | $30 |
| 3 | The other respondent returns $0 to you | $90 | $30 |

Treatment condition 2 (low own/high other)

|  |  |  |  |
| --- | --- | --- | --- |
|  | Actions | You have | The other respondent has |
| 1 | You have $100 | $100 | $0 |
| 2 | You give $10 to the other respondent  (which we triple: 3x$10 = $30) | $90 | $30 |
| 3 | The other respondent returns $15 to you | $105 | $15 |

Treatment condition 3 (high own/low other)

|  |  |  |  |
| --- | --- | --- | --- |
|  | Actions | You have | The other respondent has |
| 1 | You have $100 | $100 | $0 |
| 2 | You give $90 to the other respondent  (which we triple: 3x$90 = $270) | $10 | $270 |
| 3 | The other respondent returns $0 to you | $10 | $270 |

Treatment condition 4 (high own/high other)

|  |  |  |  |
| --- | --- | --- | --- |
|  | Actions | You have | The other respondent has |
| 1 | You have $100 | $100 | $0 |
| 2 | You give $90 to the other respondent  (which we triple: 3x$90 = $270) | $10 | $270 |
| 3 | The other respondent returns $135 to you | $145 | $135 |

How much would you like to give?

[Text response between 0 and 100]

NEW PAGE

(Strategy method) Now suppose you were the other respondent, that is, the one who receives money from the gift card winner. Please indicate how much you would like to return to the gift card winner if you received the following amount from them?

* $15
* $75
* $150
* $225
* $300

For each: How much would you like to return?

[TAILOR THE RESPONSE OPTONS TO MATCH EACH OF THE FIVE SCENARIOS ABOVE.]

NEW PAGE

# Gender Relations (should randomly rotate with social norms block)

We would now like to ask for your opinion on some social issues. Please indicate the degree to which you agree or disagree with the following statements:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Strongly agree | Somewhat agree | Neither agree/nor disagree | Somewhat disagree | Strongly disagree |
| Fathers should have to provide as much childcare as mothers do. |  |  |  |  |  |
| When jobs are scarce, men should have more right to a job than women. |  |  |  |  |  |
| On the whole, men make better political leaders than women do. |  |  |  |  |  |
| Women often exaggerate normal dispute at home as domestic violence. |  |  |  |  |  |

# Climate Action Experiment

[RANDOMLY SELECT ITEM 1 OR 2 AND RANDOMIZE TEXT IN BRACKETS]

* ITEM 1: Suppose that [**many/few**] individuals will change their energy consumption to reduce climate change. If limiting your own energy use avoids [**most/few**] of the economically and environmentally damaging consequences of climate change, how strongly do you agree or disagree with the following statements?
* ITEM 2: Suppose that [**many/few**] countries will implement policies to reduce climate change. If limiting national energy use avoids [**most/few**] of the economically and environmentally damaging consequences of climate change, how strongly do you agree or disagree with the following statements?

1. I want to reduce my own energy consumption by doing things like buying more energy-efficient appliances, switching off unused appliances, walking for short journeys, or only using heating and air conditioning when really needed.

2. The U.S. government should introduce policies to reduce greenhouse gas emissions, such as increasing fossil-fuel taxes, subsidizing renewable energy, or banning the least energy-efficient appliances.

[*strongly agree, somewhat agree, neither agree/nor disagree, somewhat disagree, strongly disagree*]

NEW PAGE

# Media Consumption

a. When you watch national television news, which station do you most often watch?

Check one (randomize order): ABC, NBC, CBS, PBS, CNN, FOX, MSNBC, One America News Network, I never watch national television news.

b. When you watch local television news from TV stations in your area, which station do you most often watch?

Check one (randomize order): ABC, NBC, CBS, FOX, I never watch local television news.

c. When you read a newspaper, which newspaper do you most often read?

Check one (randomize order): Local newspaper, The New York Times, USA Today, The Wall Street Journal, I never get my news from a newspaper.

NEW PAGE

NEW PAGE

# Protest Support

Here are some different forms of political action that people can take. For each, please tell us whether you approve or disapprove of this type of action:

1. Protests against government action  
2. Demonstrations and marches against government action  
3. Civil disobedience  
  
[Answer scale from 1-strongly approve to 10-strongly disapprove]

# Religious Habits

How often do you pray?

Never, once per week, twice per week, three times or more per week.

NEW PAGE

# Party Identification

Generally speaking, do you usually think of yourself as a Democrat, a Republican, an Independent, or what?

-Republican

-Democrat

-Independent

-Other

NEW PAGE

# Knowledge

The next few questions help us see how much information gets out to the public. Please answer the questions on your own, without asking anyone or looking up the answers. Many people don't know the answers to these questions, but we'd be grateful if you would please answer them, even if you're not sure what the right answer is. You will have 20 seconds to answer each question after it appears on the screen. After 20 seconds, the screen will automatically go on to the next question.

NEW PAGE

a. General Knowledge:

For how many years is a United States Senator elected — that is, how many years are there in one full term of office for a U.S. Senator? (type the number)

b. Specific Knowledge

Which of the following are common symptoms of covid-19 (coronvirus):

[RANDOMIZE ORDER]

- fever, cough, and shortness of breath [correct]  
- frequent urination, increased thirst, and increased hunger [false, this is for diabetes]  
- heartburn, upper abdominal pain, and nausea [false, this is for early stages of stomach cancer]

NEW PAGE

# State of Residence/Zip Code

In which state or territory do you live?

DROP DOWN LIST

In which county or independent city do you live?

DROP DOWN LIST (See FIPS\_CountyCodes.csv for fields)

NEW PAGE

# Race

What racial or ethnic group best describes you?

* White
* Black or African American
* Hispanic, Latino, or Spanish
* Asian
* American Indian or Alaska Native
* Other (please list)

NEW PAGE

# Occupational Status

Which of these descriptions best describes your situation (in the last seven days)?

* In paid work (or away temporarily) (employee, self-employed, working for your family business)
* In education, (not paid for by employer) even if on vacation
* Unemployed and actively looking for a job
* Unemployed, wanting a job but not actively looking for a job
* Permanently sick or disabled
* Retired
* In military service
* Doing housework, looking after children or other persons
* Don’t know
* None of these

# Income

Thinking back over the last year, what was your family’s annual income?

* Less than $10,000
* $10,000 - $19,999
* $20,000 - $29,999
* $30,000 - $39,999
* $40,000 - $49,999
* $50,000 - $59,999
* $60,000 - $69,999
* $70,000 - $79,999
* $80,000 - $89,999
* $90,000 - $99,999
* $100,000 - $119,999
* $120,000 - $149,999
* $150,000 or more (what was your family’s annual income last year? [)
* Prefer not to say

[If previous answer == $150,000 or more] What was your family’s income last year?

* $150,000 - $199,999
* $200,000 – $249,000
* $250,000 - $349,000
* $350,000 – $499,999
* $500,000 or more

NEW PAGE

# Vote Choice

In the presidential election in 2016, for whom did you vote?

* Hillary Clinton
* Donald Trump
* Other (Please specify)
* Did not vote
* Was not eligible to vote

NEW PAGE

Comments

[open text box]

Thank you for participating in this survey.