Note: In view of the pandemic, the PSA has called for rapid and impactful study proposals on COVID-19, 66 proposals were submitted. Three studies have been selected and will be conducted in a global data collection effort. ZPID's PsychLab supports the PSA in the following countries: Austria, Switzerland, Sweden, Russia, Romania, Japan, South Korea, Mexico, and China. This is the pre-registration plan relating to the project PSA COVID-19 Rapid Project 001 for data collection in South Korea.

1) Data collection. Have any data been collected for this study already?

No, no data have been collected for this study yet.

2) Hypothesis. What's the main question being asked or hypothesis being tested in this study?

Primary hypotheses: We are testing competing hypotheses regarding the effect of message framing on three outcomes: behavioral intentions, policy support, and information seeking. Competing hypotheses are summarized in the table below.

Primary outcomes	**Prediction from negativity bias/loss aversion literature**	**Prediction from health preventive behavior literature**
Behavioral intentions to adhere to policies designed to prevent the spread of COVID-19.	Framing messages as *losses* will increase behavioral intentions compared to framing messages as *gains*.	Framing messages as *gains* will increase behavioral intentions compared to framing messages as *losses*.
Support for policies designed to prevent the spread of COVID-19.	Framing messages as *losses* will increase policy support compared to framing messages as *gains*.	Framing messages as *gains* will increase policy support compared to framing messages as *losses*.
Likelihood that participants seek additional information about policies designed to prevent the spread of COVID-19.	Framing messages as *losses* will increase information seeking compared to framing messages as *gains*.	Framing messages as *gains* will increase information seeking compared to framing messages as *losses*.

Secondary hypothesis: We will also assess the effects of message framing on self-reported experienced anxiety.

3) Dependent variable. Describe the key dependent variable(s) specifying how they will be measured.

DEPENDENT VARIABLE 1: BEHAVIORAL INTENTIONS

- *7-point Likert scale with the following scale points: Extremely unlikely, moderately unlikely, slightly unlikely, neither likely nor unlikely, slightly likely, moderately likely, and extremely likely*
- *Items presented in a randomized order*

1. In the coming two weeks, if there is an order to stay at home at all times except times deemed essential, how likely are you to follow that order?

2. In the coming two weeks, if you are taking care of someone who is sick with COVID-19, how likely are you to wear a mouth and nose covering (such as a mask) in public at all times?

3. In the coming two weeks, if you notice yourself coughing or sneezing, how likely are you to wear a mouth and nose covering (such as a mask) in public at all times?

4. In the coming two weeks, if you think you may have been exposed to COVID-19, how likely are you to completely isolate yourself?

DEPENDENT VARIABLE 2: SUPPORT FOR ANTI-INFECTION POLICIES

- *7-point Likert scale with the following scale points: Strongly disagree, moderately disagree, slightly disagree, neither agree nor disagree, slightly agree, moderately agree, strongly agree*
- *Items presented in a randomized order*
- Items 1-2 reverse scored

1. Government health officials should allow individuals to determine how best to deal with the present COVID-19 pandemic.

2. Individuals, not governments, should decide how best to act during the COVID-19 pandemic.

3. Government health officials should authorize law enforcement to fine anyone who violates restrictions to slow the spread of COVID-19.

4. Government health officials should do everything in their power to address the spread of COVID-19, even if it severely limits daily activities for citizens.

5. Government health officials should decide how long social distancing practices stay in place.

DEPENDENT VARIABLE 3: SELF-REPORTED EXPERIENCED ANXIETY

- *5-point Likert scales with the following scale points: Not at all, a little bit, somewhat, moderately, extremely*
- *Items presented in a randomized order*

1. To what extent do you feel anxious when considering these recommendations?
2. To what extent do you feel afraid when considering these recommendations?
3. To what extent do you feel fearful when considering these recommendations?

DEPENDENT VARIABLE 4: BEHAVIORAL MEASURE OF INFORMATION SEEKING

- *Binary response scale: Yes, No*

At the end of the study today, would you like to learn the latest reliable information about COVID-19?

4) Conditions. How many and which conditions will participants be assigned to?

Participants will be randomly assigned to one of six conditions in a 2 (Frame: loss, gain) x 3 (Version: baseline, health-focus, self-focus) fully between-subjects design.

5) Analyses. Specify exactly which analyses you will conduct to examine the main question/hypothesis.

Primary hypotheses: For our analyses containing all countries, ratings will be nested within country. So, we will fit three separate multilevel models with framing as a factor, random slopes, and random intercepts. For continuous dependent variables (i.e., behavioral intentions and policy support), we will use linear mixed effects modeling. For the binary dependent variable (i.e., information seeking), we will use logistic mixed effects modeling.

If country-specific analyses are requested, we will fit linear regressions with framing as a factor for continuous dependent variables. For the binary dependent variable (i.e., information seeking), we will use logistic regression.

Secondary hypothesis: We will analyze self-reported experienced anxiety using the same linear models specified for the other primary continuous dependent variables.

Exploratory analyses: For both our primary and secondary hypotheses, we will also examine higher-order interactions with: Version (3 levels: baseline, health-focus, Self-focus), Order (2 levels: Current study run first, Current study run second), and Panel (2 levels: Not recruited through panel, Recruited through panel).

6) Outliers and Exclusions. Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations.

At the end of the survey, participants will complete a manipulation check. Participants will be asked which of the following phrases, if any, they recalled reading during the survey. The options will include: (a) There is so much to gain; (b) There is so much to lose; (c) neither. We will exclude participants who do not correctly identify the message they saw in the study. This will allow us to later estimate the "intent-to-treat" impact of being assigned to the gain or loss condition as well as the impact of "treatment on the treated" (using a two-stage least-squares approach) for those who are confirmed to have read the manipulations.

We will conduct our key confirmatory analyses on the intent-to-treat sample (i.e., without exclusions). We will supplement this analysis with treatment on the treated analyses (i.e., with exclusions implemented).

7) Sample Size. How many observations will be collected or what will determine sample size? No need to justify decision, but be precise about <u>exactly</u> how the number will be determined.

Sample size will primarily be determined by the availability of resources amongst members of the Psychological Science Accelerator (PSA). At the time of submitting this pre-registration, 194 research groups from 55 countries speaking 42 languages have signed up to collect data as part of the PSA COVID-19 Rapid Project. Data collection is expected to end on June 15th, 2020. We expect 25,448 participants to complete the current study. Out of these 25,448 participants, 4,050 will be recruited through semi-representative paneling (based on sex, age, and sometimes ethnicity) from the following countries: Egypt, Kenya, Nigeria, South Africa, Mexico, United States, Austria, Romania, Russia, Sweden, Switzerland, United Kingdom, China, Japan, and South Korea (270 participants per country). The remaining participants will mostly be convenience samples recruited by the 194 research groups.

8) Other. Anything else you would like to pre-register?
(e.g., secondary analyses, variables collected for exploratory purposes, unusual analyses planned?)

<u>On low reliability of self-report measures:</u> For the self-report outcomes, we will assess the reliability of the measures before fitting the multilevel models. Behavioral intentions will be measured with four items, policy support will be measured with five items (including two reverse-coded items), and anxiety will be measured with three items. For each of the three outcome variables, if the average inter-item correlation is above .40, we will average scores on the items into a single combined index. If the average inter-item correlation is below .40, we will conduct an exploratory factor analysis with oblique rotation and maintain factors with an eigenvalue above 1.00. If no factors have an eigenvalue above 1, we will report results by item rather than as a composite.

<u>On between-country variability:</u> We intend to include data from several countries in our confirmatory analyses and will report details regarding between-country variability in the manuscript. If country-specific analyses are requested, we are willing to fit separate linear regressions for each country.

On interpretation of null effects: We will likely interpret potential null effects with both frequentist and Bayesian analyses.

On the status of this pre-registration/project: This analysis plan is still under discussion and should be considered tentative. We expect to roughly follow this analysis plan, but will not analyze the data in this study until there is consensus on the details. We will be transparent about all deviations from the current analysis plan.

9) Name. Give a title for this AsPredicted pre-registration
Suggestion: use the name of the project, followed by study description.

PSA COVID-19 Rapid Project 001