Post-Trial Registration

We have completed all data collection. The information reported in our original pre-registration was not fully detailed, and after the second wave of the survey we uncovered new and valuable findings. This supplementary document provides a fuller description of the study's design and data collection process.

Interventions

1. **Contrasting authoritative narratives**

   We conducted surveys at two key moments when the dominant public narrative around COVID-19 shifted markedly in China: first during the height of the "Zero-COVID" policy in May 2022, and then shortly after its abrupt reversal in December 2022. This temporal variation allows for a quasi-experimental, between-subjects comparison of beliefs across narrative contexts.

2. **Information intervention**

   Participants were presented with two pieces of statistical information about COVID-19 mortality, shown in random order:

   - **Mortality rate:** Using historical mortality data from Shanghai, the story argued that COVID-19 did not cause excess deaths in March and April 2022.
   - **Age distribution:** Reporting that 86.32% of COVID-related deaths occurred among individuals aged 70 or older.

   Half of the participants read this information before reporting their COVID-related beliefs, while the other half read it at the end of the session.

3. **Non-authoritative narrative intervention**

   In the second wave of the survey, we introduced a non-authoritative narrative intervention focusing on the term "asymptomatic carrier." Two common interpretations were presented:

   - Completely asymptomatic
   - No pulmonary symptoms but mild symptoms such as fever

   Participants first reported their initial interpretation of the term, with both explanations available. They then read two narrative passages, each supporting one of the interpretations (in randomized order), rated their agreement with each on a 1–5 scale, and finally reported their views post-intervention.

Primary Outcomes

Primary endpoints

- How information and policy changes affect people's beliefs and opinions on COVID-19.
- How reasoning ability influences responses to shifts in the prevailing authoritative narrative (Zero-COVID → Co-existing with COVID).
- How individuals update beliefs in response to the information intervention, and how this varies depending on whether the information aligns with or contradicts the authoritative narrative.

Key belief measures

- **Belief in COVID Harm:** Agreement (1–5 scale) with the statement, "COVID-19 poses a significant threat to human health."
- **Belief in Virus vs. Lockdown:** Placement on a 10-point scale for the statement, "Do you think the virus itself or strict lockdown measures have a greater impact on your life in the face of a serious outbreak of COVID?" (1 = virus more harmful, 10 = lockdown more harmful).

Primary outcomes explanation

The core research question is whether individuals with higher reasoning ability respond differently to authoritative narrative shifts and update their beliefs differently when presented with information interventions. We explicitly test whether the timing of the information intervention (relative to the narrative context) influences belief updating and policy preferences.

Secondary Outcomes

Secondary endpoints

- The role of reasoning ability in belief polarization and policy preferences.
- How reasoning ability and demographic background are associated with other COVID-related beliefs and opinions.

Other variables of interest

- **Policy preference:** Binary choice between "Zero-COVID" and "Co-living with COVID."
- **Pandemic severity:** Perceived severity of the current pandemic in the respondent's city (0–10 scale).
- **Pandemic impact:** Perceived impact of the pandemic on daily work and life (0–10 scale).

- **Foremost concern:** Single choice among nine possible pandemic impacts (health, economic, and social).

Secondary outcomes explanation

We explore how these secondary measures correlate with reasoning ability and narrative conditions, and examine heterogeneity across demographic groups, particularly education, age, gender, and household income.

Experimental Design

We conducted an anonymous online survey experiment via **Sojump**, a Chinese platform similar to Amazon Mechanical Turk. The survey included:

- Beliefs about the pandemic
- Preferences for COVID-19 policies
- A reasoning ability measure (base-rate neglect test)
- Demographic variables

The design leverages the natural experiment of China's COVID policy shift in 2022, approximating a between-subjects comparison of beliefs under contrasting narrative environments. The first wave (May 2022) was during the "Zero-COVID" narrative; the second (December 2022) was after the policy reversal.

Participants were randomly assigned to receive the information intervention either before or after reporting their COVID-related beliefs, based on their birthdate: odd-numbered → before, even-numbered → after. Additional randomization (e.g., order of information items) was done by computer.

Randomization

- **Method:** Birthdate parity (odd = treatment, even = control) plus computer-generated randomization for item order.
- **Unit:** Individual level.
- **Clustered treatment:** No.

Experiment Characteristics

- **Planned sample size:**
  - 2,500–4,500 participants under the Zero-COVID context
  - 2,500–4,500 participants under the Co-existing with COVID context
- **By treatment arms:** 1,250–2,250 per arm
- **Provinces:** Included as control variables in all analyses

Analysis Plan

- **Main models:** Ordered probit regressions for ordinal belief measures, reporting both coefficients and average marginal effects (AMEs).
- **Additional tests:** Parametric and non-parametric tests to compare distributions across treatments and narrative contexts.
- **Key interactions of interest:**
    1. Reasoning ability × policy wave
    2. Reasoning ability × information treatment
    3. Reasoning ability × policy wave × information treatment
- **Heterogeneity analysis:** Education, age, gender, and urban/rural status

This framework allows us to isolate the role of reasoning ability in shaping responses to both authoritative narrative shifts and information interventions, and to examine whether belief updating differs when narratives and information align or conflict.

Survey Instrument [Translated from Chinese]

Resident Attitude Survey During the Pandemic

Thank you for taking the time to participate in this survey. After carefully completing the questionnaire, you will have a 10% chance of receiving a reward of 10 RMB. In the questionnaire, you can truthfully report your views and subjective attitudes toward COVID-19. There are no right or wrong answers, and your responses do not represent your attitude toward government policies. Your responses are anonymous, and we will not collect your identity information. The survey was initiated by the Center for Economic Research, Shandong University. The data will be used for scientific research and to provide policy recommendations.

Page 1

Q1. How severe is the current COVID-19 situation in your city? Please rate on a scale from 0 to 10. (0 means not at all, 10 means extremely severe)

Not at all 0 1 2 3 4 5 6 7 8 9 10 Extremely severe

Q2. How much do you think the current COVID-19 pandemic is affecting your daily work and life? (0 means no impact at all, 10 means extremely large impact)

No impact at all 0 1 2 3 4 5 6 7 8 9 10 Extremely large impact

Q3. Which aspect of the pandemic's impact concerns you the most? (Single choice)

1. Risk of death
2. Risk of infection
3. Being quarantined
4. Impact on work or study
5. Inconvenience in daily life
6. Impact on travel
7. Impact on household income
8. Impact on necessities such as grocery shopping and meals
9. Access to regular medical care unrelated to COVID-19

Q4. Your age group:

1. Under 18
2. 18–25
3. 26–30
4. 31–40
5. 41–50
6. 51–60
7. Above 60

Q5. Your gender:

1. Male
2. Female

Q6. Do you currently have children under 10 years old or parents over 70 years old?

1. Children under 10
2. Parents over 70
3. Both
4. Neither

Q7. Is your date of birth odd or even?

1. Odd (then Q19 and Q20 will appear on Page 2)
2. Even (then Q19 and Q20 will appear on the last page)

Page 2

Q8. What do you fear most in the face of an outbreak? (Single choice)

1. Being infected with the virus
2. Sudden quarantine
3. Unemployment or an income loss
4. Shortage of food
5. Unable to get regular medical treatment
6. Cannot meet loved ones

Q9. If you were invited as an expert to advise a foreign government on its COVID-19 strategy, which of the following strategies would you prefer to recommend in the public interest? (Options shown in random order)

1. A strategy similar to "Zero-COVID" policy (using massive lockdowns and movement restrictions to completely halt the spread of the virus, mass testing)
2. A strategy similar to "co-living with COVID" (treating COVID as the normal flu and returning economic life to pre-pandemic conditions)

Q10. Do you think the virus itself or strict lockdown measures have a greater impact on your life in the face of a serious outbreak of COVID? Please rate from 1 (the virus itself is more harmful) to 10 (lockdown measures have a greater impact).

1 2 3 4 5 6 7 8 9 10

Q11. What is the approximate annual disposable income of your family?

1. Less than 50,000 yuan
2. 50,000–100,000 yuan
3. 100,000–200,000 yuan
4. 200,000–300,000 yuan
5. 300,000–500,000 yuan
6. 500,000–1 million yuan
7. More than 1 million yuan

Q12. What is your highest educational attainment?

1. Primary school or below
2. Junior secondary
3. Senior secondary school
4. Secondary technical school
5. College degree
6. Bachelor
7. Master's degree
8. Doctoral degree

Q13. To what extent would you agree to an immediate lockdown of the capital of your neighboring province if there were signs of a serious outbreak?

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Q14. What is your current occupation?

1. Professionals (e.g., teachers, doctors, lawyers)
2. Service personnel (e.g., waiters, drivers, sales clerks)
3. Worker (e.g., manufacturing, construction, sanitation)
4. Company staff
5. Businessman
6. Freelancer
7. Civil servant
8. Student
9. Farmer, herdsman, or fisherman
10. Unemployed
11. Other

Page 3

Q15. Suppose the incidence of a certain cancer is 0.1% (1 in 1,000). A test method is 100% positive for patients with this cancer, but for healthy individuals it shows false positives in 5% of cases. If a person tests positive, what do you think is the probability that the person actually has cancer?

1. Lower than 10%

2. 10%–30%
3. 30%–60%
4. 60%–90%
5. Above 90%

Q16. To what extent would you agree to an immediate lockdown of your own area if there were signs of a serious outbreak?

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

Q17. In the following lists, among the three items given, please select which two are most closely related.

1. Doctor – Teacher – Homework
2. Eagle – Sky – Dog
3. Child – Man – Woman
4. Train – Bus – Tracks
5. Carrot – Eggplant – Rabbit
6. Panda – Banana – Monkey

Page 4

Q18. Please indicate how strongly you agree or disagree with each statement (1 = totally disagree, 5 = totally agree).

1. I am usually able to protect my personal interests.
2. I am always full of positive emotions.
3. My success or failure in life is determined by factors beyond my control.
4. COVID-19 poses a significant threat to human health.
5. I often feel anxious these days.
6. I am extremely risk-averse.
7. To be successful, one above all needs to be lucky.
8. Individual interest can be sacrificed for the good of the group.

Page 5

Q19. Someone has made the following calculation: From the outbreak of COVID-19 in Shanghai on March 1 to April 30, approximately 590,000 cases were reported over the two-month period, with a total of 422 reported deaths. In contrast, before the emergence of COVID-19 in 2019, Shanghai's annual natural mortality rate was 0.85%, which means that, based on this rate, there should have been around 836 deaths among 590,000 people over a two-month span. Considering that all the deaths officially reported in Shanghai were attributed to underlying health conditions, this calculation suggests that COVID-19 did not cause any excess mortality. What is your view on this? (Please choose the option that most closely reflects your true opinion.) [Options shown in random order]

1. We shouldn't look only at the data from Shanghai. COVID-19 has caused a lot of deaths in the US and Hong Kong. We still need to be cautious.
2. It turns out that I had overestimated the risk of COVID-19 by ignoring natural death from other causes.
3. Shanghai has good medical conditions. COVID-19 would still cause a large number of deaths if it broke out in other places.
4. I also think so.

Q20. According to CCTV News, Zhao Dandan, Deputy Director of the Shanghai Municipal Health Commission, said that as of April 25, there had been a total of 190 deaths in the city, ranging from 33 to 101 years old, with an average age of 82.52. According to statistics, 86.32% of the total number of deaths occurred in people over 70 years old. Except for one case of sudden cardiac death, the rest of the deaths were caused by underlying diseases. When reading this news, which of the following is closest to your gut feeling? (Options shown in random order)

1. It's scary to be affected by COVID-19 since it causes death.
2. Most of the deaths caused by COVID-19 are among the elderly.
3. All the reported deaths have underlying diseases, indicating that COVID-19 is not scary.
4. The fact that there have been several deaths under the age of 60 shows that COVID-19 is not just hurting the elderly, but the young too.
5. The overall death rate of COVID-19 is not high.

Page 6 *(The following questions were only available in the second wave of the survey)*

Q21. At a press conference on epidemic prevention and control in Guangzhou on December 2, Zhang Yi, Deputy Director and spokesperson of the Guangzhou Municipal Health Commission, stated that in this round of the epidemic, Guangzhou has reported a total of 162,700 confirmed COVID-19 infections, with asymptomatic infections accounting for about 90% of the total number of infections. There are only 4 cases of severe or critical illness, with no deaths reported. What do you think the term "asymptomatic infections" refers to here?

1. Completely asymptomatic but tested positive for COVID-19 through nucleic acid testing.
2. COVID-19 infections without pulmonary symptoms but with symptoms such as fever.
3. None of the above, I think it is: _____

[The order of appearance for Q22 and Q23 is random.]

Q22. A netizen replied: "Normally, when we talk about COVID, we omit the word 'pneumonia,' and the full name is COVID-19 pneumonia. Asymptomatic means there are no pneumonia symptoms, not that there are no symptoms like fever, cough, or sore throat. Just look at how many people have fevers recently to understand." Another netizen believes that in practice, various places generally follow the World Health Organization's eight-category classification, categorizing both level one (truly asymptomatic) and level two (symptoms such as fever, dry cough, and body aches but no clear lung infection) as asymptomatic infections. Therefore, the mention of "asymptomatic" in the Guangzhou press conference refers to the absence of pulmonary symptoms. To what extent do you agree with this netizen's statement? Please express

your level of agreement on a scale from 1 to 5, where 1 = completely disagree and 5 = completely agree.

Completely disagree 1 2 3 4 5 Completely agree

Q23. A netizen pointed out that, according to the ninth edition of the diagnosis and treatment protocol, "asymptomatic" refers to respiratory and other specimens testing positive for the novel coronavirus pathogen, without any related clinical manifestations such as fever, dry cough, sore throat, or other symptoms and signs that can be self-perceived or clinically identified. Many experts have also recently interpreted it this way. Therefore, the "asymptomatic infections" mentioned in the Guangzhou press conference refer to individuals who are COVID-19 positive but have no symptoms at all. To what extent do you agree with this netizen's statement? Please express your level of agreement on a scale from 1 to 5, where 1 = completely disagree and 5 = completely agree.

Completely disagree 1 2 3 4 5 Completely agree

Q24. Combining the above information, please provide your final opinion on what "asymptomatic infections" mentioned at the Guangzhou press conference actually refer to:

1. Absolutely no symptoms
2. No pulmonary symptoms
3. None of the above, I think it is: _____

Q25. Up to now, have you yourself been infected with COVID-19 (including asymptomatic cases)?

1. Yes
2. No

Q26. Up to now, have any of your family members, friends, or acquaintances nearby been infected with COVID-19 (including asymptomatic cases)?

1. Yes
2. No

Q27. How would you rate the severity of symptoms caused by current COVID-19 infections? Please indicate on a scale from 1 to 7, where 1 means the symptoms are very mild and 7 means the symptoms are very severe.

Symptoms are very mild 1 2 3 4 5 6 7 Symptoms are very severe

Q28. If you had to choose between the following two options, which would you prefer? Please indicate your preference on a scale from 1 to 5, where 1 = "One COVID-19 infection per year" and 5 = "Nucleic acid testing every two days plus occasional 5-day restrictions on going out."

1 2 3 4 5