**Supplementary Information**

**The price of prosociality in pandemic times**

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**This file contains:**

S1. Method. Prosociality instruments**. Moral judgment.** Instrumental Harm dilemmas (IH)

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S3. Method. Dependent SARS-CoV-2 measures. Impact estimation.

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Supplementary References.

**S1. Method**

**Prosociality instruments. Moral judgment. Instrumental Harm dilemmas (IH):** We assessed four histories with utilitarian moral dilemmas **associated with SARS-CoV-2** based on a previous procedure (Kahane et al., 2018)**.** These situations were as follows :

1. A free bed remains in the ICU of a hospital. A physician decides not to assign this bed to an older patient with COVID19. He estimates that his survival probability is low and decides to leave it free for a younger patient with a better prognosis.

2. A young person works serving a food stall. Due to the quarantine, he has not been able to work and has no resources to support his family. In this situation, he decides to break the quarantine and go out to work.

3. An individual decides to ignore the confinement measures claiming that he did it due to financial problems. Another person knows the situation and decides to report it to the police.

4. A physician usually visits his grandmother who lives in a nursing home. His grandmother has a neurological disease that affects her memory and mood. The grandmother, who has no other support, has become depressed and stopped eating. Although the doctor is attending the hospital during the pandemic, he decides to visit her.

**S2. Method**

**Prosociality instruments. Moral judgment. Impartial Beneficence dilemmas (IB):**

Based on the same procedure (Kahane et al., 2018), we developed four histories **associated with SARS-CoV-2** that exposed situations promoting the greater good even at the cost of personal sacrifice. These situations were as follows:

1. A man planned to buy more ethyl alcohol, disinfectant gel, and face masks to have surplus stocks in the quarantine. Given the possibility that these resources could be exhausted for other people, he decides not to follow through with the plan.

2. A man has a leftover face mask of high protection. In his neighborhood, he sees a stranger who has no protection so the man decides to donate one of his face masks.

3. An older woman with a health history knows that she has little chance of surviving COVID-19. As she begins to feel symptomatic, she decides to stay home instead of going to the hospital to free up those resources for potential patients with a better prognosis.

4. A man who earns the country's minimum wage decides to donate 10% of his monthly salary to contribute to social programs for people living on the street during the pandemic.

Following previous studies (Rottman, Kelemen, & Young, 2014; Schein & Gray, 2018), participants answered (a) to what extent they believed this action was wrong, using a scale ranging from -5 (extremely bad) to 5 (extremely good) and (b) to what extent they would behave in the same way as the protagonist of this situation, using a scale ranging from 1 (low) to 10 (high). We averaged responses of two questions in the four IB situations.

**S3. Method. Dependent SARS-CoV-2 measures. Impact estimation:** Participants answered six questions assessing medical (three questions) and social consequences (three questions) of virus-associated risks. These included three medical questions (e.g., to what extent the subject consider he/she/their relatives or individuals from the community will be medically affected by the virus) and three questions on social consequences (e.g., to what extent he/she/they estimate(s) his/her/their social life, the life of close community, and global life will change as a consequence of pandemic (using yes/no answers). A sum of positive answers on a total of six questions was used to build this variable.

**S.4 List of the assessed variables**

1. **Demographic variables**
   1. Gender
   2. Sex
   3. Age
   4. Years of Education
   5. Socioeconomic status
2. **Mental Health measures**
   1. Patient Health Questionnaire: Depression symptoms
   2. Generalized Anxiety Disorder: Anxiety symptoms
3. **Dependent variables**
   1. Risk Perception
   2. Impact Estimation
      1. Medical impact estimation
      2. Social impact estimation
   3. Acceptance of quarantine
4. **Independent factors**
   1. Social measures: Interpersonal Reactivity Index (Empathy)
   2. Social measures: Reading Mind in the eyes (Theory of Mind)
   3. Moral measures: Impartial Beneficence situations
      1. Moral Judgment
      2. Acceptance of behavior
      3. Harm detection
   4. Moral measures: Instrumental harm situations
      1. Moral Judgment
      2. Acceptance of behavior
      3. Harm detection

**S5. Results of sub-measures of impact estimation:** We ran additional regression models using the two sub-measures of impact estimation (medical impact estimation and social impact estimation) as dependent variables.

Medical impact estimation models: The model using social cognitive measures and control variables as predictors was significant [F(11, 412) = 5.51, p < 0.001, R2 = 0.14] and positively predicted by empathic concern (*beta =* 0.11, *t =* 2.07, *p <* 0.05, *η2 = 0.13*) and age (*beta =* 0.30, *t =* 5.81, *p <* 0.001, *η2 = 0.21*). A similar model using the moral behaviors as predictors was significant [F(11, 412) = 5.51, p < 0.001, R2 = 0.14] and positively predicted by harm detection in IH scenarios (*beta =* 0.11, *t =* 2.07, *p <* 0.05, *η2 = 0.13*), age (*beta =* 0.30, *t =* 5.81, *p <* 0.001, *η2 = 0.21*) and depression (*beta =* 0.30, *t =* 5.81, *p <* 0.001, *η2 = 0.21*).

Social impact estimation models: The regression model including social cognitive measures and control variables as predictors was significant [F(11, 412) = 4.76, p < 0.001, R2 = 0.14] and only positively predicted by empathic concern (*beta =* 0.24, *t =* 4.26, *p <* 0.001, *η2 = 0.20*). A similar model using moral measures as predictors was significant [F(11, 412) = 4.35, p < 0.001, R2 = 0.14] and positively predicted by increased moral judgment in IH scenarios (*beta =* 0.31, *t =* 2.79, *p <* 0.001, *η2 = 0.16*), age (*beta =* 0.10, *t =* 2.01, *p <* 0.05, *η2 = 0.11*) and depression (*beta =* 0.15, *t =* 2.25, *p <* 0.05, *η2 = 0.12*).

**S6. Supplementary table 1**. Associations between moral judgments in IH and IB situations and social cognitive skills (empathic and theory of mind skills).

| **Pearson’s correlations between empathy, ToM and moral measures** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Social and moral measures** | | |  | |  | **Pearson’s (r)** | | | | ***p*** | | |
|  |
| Deontological decisions in Instrumental Harm situations | |  |  |  | Deontological decisions in Impartial Beneficence situations | |  | 0.19 |  | < .05 |  |
| Deontological decisions in Instrumental Harm situations | |  | - |  | Empathic concern (IRI) | |  | 0.19 |  | < .05 |  |
| Deontological decisions in Instrumental Harm situations | |  | - |  | RMET | |  | 0.18 |  | < .05 |  |
| Deontological decisions in Impartial Beneficence situations | |  | - |  | Empathic concern (IRI) | |  | 0.22 |  | < .01 |  |
| Deontological decisions in Impartial Beneficence situations | |  | - |  | RMET | |  | 0.20 |  | < .01 |  |
|  |

RMET: Reading mind in the eyes; IRI: Interpersonal Reactivity Index

**S7. Supplementary analyses (Confirmatory factor analyses between measures associated with prosociality).**

Confirmatory factor analyses between Empathy, ToM, and moral judgment measures

We tested the extent to which common factors underlie social and moral measures we used. To this end, we ran confirmatory factor analyses of three models: a one-factor model, a two-factors model, and a three-factors model.

The analyses of the goodness of fit showed that the two-factors model reached better fit indices compared to the one-factor and the three-factors models (see the table presented below)

| **Fit index and information criteria** | | | |  |  |
| --- | --- | --- | --- | --- | --- |
|  | | **One factor**  **model** | | **Two factors model** | |  | **Three factors model** |
| Comparative Fit Index (CFI) |  | 0.721 |  | 0.909 | |  | 0.899 |
| Log-likelihood |  | -8384.893 |  | -7871.091 | |  | -11217.008 |
| Akaike (AIC) |  | 16811.787 |  | 15778.181 | |  | 22492.016 |
| Bayesian (BIC) |  | 16896.279 |  | 15850.603 | |  | 22608.696 |
| Sample-size adjusted Bayesian (SSABIC) |  | 16829.642 |  | 15793.485 | |  | 22516.672 |

Next section presents the results of each model independently.

**The one-factor model:**

| **Factor variances** | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | **95% Confidence Interval** | | | |  | |
| **Factor** | | **Estimate** | | **Std. Error** | | **z-value** | | **p** | | **Lower** | | **Upper** | | **Std. Est. (lv)** | |
| Factor 1 |  | 0.634 |  | 0.080 |  | 7.920 |  | < .001 |  | 0.477 |  | 0.791 |  | 1.000 |  |
|  | | | | | | | | | | | | | | | |

| **Factor** | | | **Indicator** | | **Symbol** | | **Estimate** | | | **Std. Error** | | | **z-value** | | | | | **P value** | | | | **Lower**  **95% Confidence Interval** | | | | **Upper**  **95% Confidence Interval** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Factor 1 |  |
|  |  | | Personal Distress |  | λ11 |  | 1.106 |  | 0.214 | | |  | | | 5.177 | |  | | < .001 | |  | | | 0.688 | |  | 1.525 | | | |  |
|  |  | | Empathic Concern |  | λ12 |  | 2.707 |  | 0.264 | | |  | | | 10.260 | |  | | < .001 | |  | | | 2.190 | |  | 3.224 | | | |  |
|  |  | | Perspective Taking |  | λ13 |  | 1.762 |  | 0.201 | | |  | | | 8.782 | |  | | < .001 | |  | | | 1.369 | |  | 2.156 | | | |  |
|  |  | | Reading Mind in the Eyes |  | λ14 |  | -0.051 |  | 0.124 | | |  | | | -0.412 | |  | | 0.681 | |  | | | -0.293 | |  | 0.192 | | | |  |
|  |  | | Impartial Beneficence (Harm detection) |  | λ16 |  | 1.02 |  | | | 0.10 | | |  | | 10.06 | | |  | < .001 | | |  | | 0.827 | | |  | 1.227 |  | | |
|  |  | | Impartial Beneficence (Moral judgment) |  | λ17 |  | 0.326 |  | | | 0.104 | | |  | | 3.127 | | |  | 0.002 | | |  | | 0.122 | | |  | 0.531 |  | | |
|  |  | | Impartial Beneficence (Behavior acceptance) |  | λ18 |  | 0.558 |  | | | 0.114 | | |  | | 4.905 | | |  | < .001 | | |  | | 0.335 | | |  | 0.781 |  | | |
|  |  | | Instrumental harm (Harm detection) |  | λ21 |  | 0.088 |  | | | 0.095 | | |  | | 0.925 | | |  | 0.355 | | |  | | -0.099 | | |  | 0.275 |  | | |
|  |  | | Instrumental harm (Behavior acceptance) |  | λ22 |  | 1.057 |  | | | 0.059 | | |  | | 17.880 | | |  | < .001 | | |  | | 0.941 | | |  | 1.173 |  | | |
|  |  | | Instrumental harm dilemma (Moral judgment) |  | λ23 |  | 1.512 |  | | | 0.097 | | |  | | 15.581 | | |  | < .001 | | |  | | 1.322 | | |  | 1.702 |  | | |

**The two-factors model:**

| **Factor variances** | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | **95% Confidence Interval** | | | |  | |
| **Factor** | | **Estimate** | | **Std. Error** | | **z-value** | | **p** | | **Lower** | | **Upper** | | **Std. Est. (lv)** | |
| Factor 1 |  | 0.382 |  | 0.066 |  | 5.813 |  | < .001 |  | 0.253 |  | 0.511 |  | 1.000 |  |
| Factor 2 |  | 0.916 |  | 0.111 |  | 8.240 |  | < .001 |  | 0.698 |  | 1.134 |  | 1.000 |  |
|  | | | | | | | | | | | | | | | |

| **Factor** | | **Indicator** | | | **Symbol** | | **Estimate** | | | **Std. Error** | | | **z-value** | | | | | **P value** | | | | **Lower**  **95% Confidence Interval** | | | | **Upper**  **95% Confidence Interval** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Factor 1 |  |
|  |  | Personal Distress | |  | λ11 |  | -0.22 |  | 0.17 | | |  | | | 1.89 | |  | | 0.05 | |  | | | 0.553 | |  | 0.114 | | | |  |
|  |  | Empathic Concern | |  | λ12 |  | 0.52 |  | 0.14 | | |  | | | 3.74 | |  | | < .001 | |  | | | 0.252 | |  | 0.805 | | | |  |
|  |  | Perspective Taking | |  | λ13 |  | 0.45 |  | 0.16 | | |  | | | 2.78 | |  | | 0.005 | |  | | | 0.135 | |  | 0.778 | | | |  |
|  |  | Reading Mind in the Eyes | |  | λ14 |  | 0.36 |  | 0.08 | | |  | | | 4.07 | |  | | < .001 | |  | | | 0.188 | |  | 0.537 | | | |  |
|  |  |
| Factor 2 |  |  |
|  |  | Impartial Beneficence (Harm detection) | |  | λ15 |  | 1.02 |  | | | 0.10 | | |  | | 10.06 | | |  | < .001 | | |  | | 0.827 | | |  | 1.227 |  | | |
|  |  | Impartial Beneficence (Moral judgment) | |  | λ16 |  | 1.55 |  | | | 0.13 | | |  | | 11.50 | | |  | < .001 | | |  | | 1.289 | | |  | 1.817 |  | | |
|  |  | Impartial Beneficence (Behavior acceptance) | |  | λ17 |  | 1.34 |  | | | 0.12 | | |  | | 10.09 | | |  | < .001 | | |  | | 1.191 | | |  | 1.712 |  | | |
|  |  | Instrumental harm (Harm detection) | |  | λ21 |  | 1.072 |  | | | 0.052 | | |  | | 20.480 | | |  | < .001 | | |  | | 0.969 | | |  | 1.175 |  | | |
|  |  | Instrumental harm (Behavior acceptance) | |  | λ22 |  | 1.057 |  | | | 0.059 | | |  | | 17.880 | | |  | < .001 | | |  | | 0.941 | | |  | 1.173 |  | | |
|  |  | Instrumental harm dilemma (Moral judgment) | |  | λ23 |  | 1.512 |  | | | 0.097 | | |  | | 15.581 | | |  | < .001 | | |  | | 1.322 | | |  | 1.702 |  | | |

**The three-factors model:**

| **Factor variances** | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | **95% Confidence Interval** | | | |  | |
| **Factor** | | **Estimate** | | **Std. Error** | | **z-value** | | **p** | | **Lower** | | **Upper** | | **Std. Est. (lv)** | |
| Factor 1 |  | 1.556 |  | 0.201 |  | 7.750 |  | < .001 |  | 1.162 |  | 1.950 |  | 1.000 |  |
| Factor 2 |  | 0.788 |  | 0.072 |  | 10.900 |  | < .001 |  | 0.647 |  | 0.930 |  | 1.000 |  |
| Factor 3 |  | 2.942 |  | 0.254 |  | 11.568 |  | < .001 |  | 2.443 |  | 3.440 |  | 1.000 |  |
|  | | | | | | | | | | | | | | | |

| **Factor** | | | **Indicator** | | | **Symbol** | | **Estimate** | | | **Std. Error** | | | **z-value** | | | | | **P value** | | | | **Lower**  **95% Confidence Interval** | | | | **Upper**  **95% Confidence Interval** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Factor 1 | |  |
|  | |  | Personal Distress | |  | λ11 |  | 0.744 |  | 0.13 | | |  | | | 5.588 | |  | | < .001 | |  | | | 0.483 | |  | 1.005 | | | |  |
|  | |  | Empathic Concern | |  | λ12 |  | 1.801 |  | 0.19 | | |  | | | 9.139 | |  | | < .001 | |  | | | 1.415 | |  | 2.187 | | | |  |
|  | |  | Perspective Taking | |  | λ14 |  | 1.091 |  | 0.13 | | |  | | | 8.409 | |  | | < .001 | |  | | | 0.837 | |  | 1.346 | | | |  |
|  | |  | Reading Mind in the Eyes | |  | λ15 |  | 1.430 |  | 0.15 | | |  | | | 9.323 | |  | | < .001 | |  | | | 1.129 | |  | 1.730 | | | |  |
| Factor 2 | |  |  |
|  | |  | Impartial Beneficence (Harm detection) | |  | λ31 |  | 0.599 |  | | | 0.03 | | |  | | 17.414 | | |  | < .001 | | |  | | 0.532 | | |  | 0.666 |  | | |
|  | |  | Impartial Beneficence (Moral judgment) | |  | λ32 |  | 0.685 |  | | | 0.03 | | |  | | 18.446 | | |  | < .001 | | |  | | 0.612 | | |  | 0.757 |  | | |
|  | |  | Impartial Beneficence (Behavior acceptance) | |  | λ34 |  | 1.410 |  | | | 0.05 | | |  | | 24.884 | | |  | < .001 | | |  | | 1.298 | | |  | 1.521 |  | | |
|  | |  |  | |  |  |  |  |  | | |  | | |  | |  | | |  |  | | |  | |  | | |  |  |  | | |
| Factor 3 | | |
|  |
|  | |  | Instrumental harm (Harm detection) | |  | λ21 |  | 2.389 |  | | | 0.07 | | |  | | 32.167 | | |  | < .001 | | |  | | 2.243 | | |  | 2.534 |  | | |
|  | |  | Instrumental harm (Behavior acceptance) | |  | λ22 |  | 2.198 |  | | | 0.06 | | |  | | 31.736 | | |  | < .001 | | |  | | 2.062 | | |  | 2.334 |  | | |
|  | |  | Instrumental harm dilemma (Moral judgment) | |  | λ23 |  | -1.447 |  | | | 0.12 | | |  | | -11.225 | | |  | < .001 | | |  | | -1.700 | | |  | -1.194 |  | | |

**Supplementary References**

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