Moral outrage and social distancing: bad or badly informed citizens?

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Abstract

In response to the Covid-19 pandemic citizens around the globe were urged to practice social distancing. Although many complied, not everyone did. These violations led to sharp moral outrage about the alleged immoral behavior. However, it is an open question whether violators fully realized the severity of the virus threat. We therefore surveyed ($n = 1657$) to what extent people condemned social distancing rules violations, to what extent they respected these rules, and how likely they felt that not respecting the rules would get them and others infected. Results indicated that people who respect social distancing less and find these violations more permissible also believe that the virus is less likely to infect them or others. This implies that violators do not necessarily care less about others; they simply see the virus as less threatening. Therefore, caution is needed when attributing social distancing violations to a lack of moral character.

Introduction

When the Covid-19 pandemic hit the world, governments across the globe resorted to social distancing measures (e.g., keeping minimal distance, bans on gathering, stay-at-home policies) to try to slow the spread of the virus. Although many citizens readily adopted these measures, not everyone did. News reports documented how some individuals still flocked to beaches and parks, hung out with friends or staged house parties (Cummins, 2020; Ryan, 2020). These social distancing violations were met with moral outrage and sharp condemnation in the press and on social media (Coffey, 2020; Helweg-Larsen, 2020; Olle, 2002; O'Sullivan & Patino, 2020). Violators were labeled as selfish, irresponsible, bad citizens whose moral compass is broken (Boag, 2020; Davis, 2020; Head, 2020; Iqbal & Townsend, 2020; Kingwell, 2020).

An implicit assumption underlying much of this so-called “Corona shaming” (Iqbal & Townsend, 2020) is that violators realized the impact of their behavior and knowingly violated the rules. At first sight, this assumption might not seem unreasonable. By early April 2020—the time the current study was run—the pandemic was at its peak in most western countries. Widely publicized daily death rates in Italy, Spain, France, and the United States ran into the hundreds or thousands. People were being bombarded with explicit footage from overwhelmed Intensive Care Units, makeshift morgues in the streets, and soldiers that were called in to transport the death. As one journalist implied, arguing that the public was not informed about the dangers of

Covid-19 would be akin to claiming that citizens living in 2020 would not know that smoking is bad for their health (Ryan, 2020).

At the same time, there are reasons to suspect that not everyone might have fully realized the severity of the threat. At the very least one should acknowledge that the public received mixed messages about the pandemic. In the US, Fox News called the virus a hoax (Stone, 2020) and President Donald Trump repeatedly stressed that the new virus was less threatening than the seasonal flu (Brooks, 2020). In the UK, Prime Minister Boris Johnson initially stated it was fine to shake infected patient's hands (Duncan, 2020). In Belgium, the Secretary of Health publicly denounced renowned virologist Marc Wathelet as a "Drama Queen" when he insisted on taking more stringent measures (Van Horenbeek & Van Garderen, 2020). And it was not just journalists or politicians who downplayed the virus threat. Up until mid-March 2020 eminent psychologists and behavioral scientists such as Gerd Gigerenzer, Paul Slovic, and Cass Sunstein warned in op-eds and columns that people were overreacting and largely overestimated the risk they faced (Richie, 2020). Indeed, even the World Health Organization's expert virologists and epidemiologists admitted their communication long underestimated the virus threat (Debusschere & Van Garderen, 2020; Thuburn, 2020). This lends some credence to the view that some people might have felt less obliged to follow social distancing rules simply because they perceived the virus to be less dangerous. In other words, social distancing violators may not necessarily be bad citizens but rather badly informed citizens. As Mounk (2020) put it, their only sin might be honest ignorance.

The present study was designed to shed light on this issue. We surveyed to what extent people condemned social distancing rules violations, to what extent they respected the rules themselves, and how likely they felt that not respecting the rules would get them and others infected. Our key question was whether the extent to which people condemned social distancing violations and respected the rules was linked to their perceived virus infection likelihood. If the "badly informed citizen" view is correct, we expect that people's behavior and moral condemnation of violations will be positively associated with the estimated infection likelihood. It should be specifically those people who perceive the infection likelihood as being lower, who will be less inclined to condemn violations and respect the rules themselves. However, if the "bad citizen" view is correct, we expect that everyone's threat estimation will be at similar levels and will not be predictive of one's moral evaluation and reported behavior.

In addition to studying people's current evaluations (i.e., near the peak of the pandemic in western countries), we also wanted to explore how their evaluations evolved during the crisis. Therefore, after people had answered the questions about their current beliefs, we also asked them to indicate how they felt about these same issues at the start of the pandemic in their country. Our goal here was to get an indication of how people looked back on their own past opinions and behavior.

We recruited volunteer respondents by publicizing the study in different countries. To get a diverse sample, the survey was translated into 8 different languages (English, French, Italian, Spanish, Polish, Greek, Chinese, and Dutch).

Method

Open data statement

All data and material can be retrieved from our osf page (<https://osf.io/h3egn/>). Our hypothesis and study design were preregistered (<https://osf.io/pf8ws>).

Participants

The study was approved by the ethical committee of the Institute of Psychology, University of Wroclaw. We surveyed a convenience sample of respondents that were recruited by postings on social media, bulletin boards, and email lists. Participation was voluntary and anonymous. The survey was run between April 2 and

April 10, 2020. A total of 1657 respondents completed the survey¹. Of the participants who completed the demographics information, 67% percent was female. The median age bracket was 35-44 years and the median education level was at the Bachelor Degree level. Respondents came from over 40 different countries with a clear dominance of three Western European countries (France n = 403, Belgium n = 280, Italy n = 134). A full overview of the demographics information can be found in Supplementary Tables S1-S6.

Material

The survey started with a short introduction stating:

"In response to the Corona/Covid-19 virus pandemic, many governments across the world enforced social distancing rules (e.g., keeping minimal distance, bans on gathering, stay-at-home measures) to slow the spread of the virus. Please answer the following questions:"

After the introduction people were questioned about their current judgments. The first question asked people to what extent they condemned violations of social distancing rules:

"1. To what extent do you feel that violating social distancing rules is morally condemnable (i.e., how "wrong" is such behavior)?"

Participants responded on a 5-point response scale ranging from "1 - Totally fine to violate social distancing rules" to "5 - Totally unacceptable to violate social distancing rules". The next question asked people how likely it would be for them to get infected if they did not respect social distancing rules:

"2. How likely do you think it is that you will get Corona if you don't respect social distancing rules"

Participants responded on a 7-point scale ranging from "1 - Extremely unlikely" to "7 - Extremely likely". The third question asked about the likelihood that not respecting social distancing would result in infecting somebody else:

"3. How likely do you think it is that you will infect somebody else if you don't respect social distancing rules?"

Participants again responded on a 7-point scale ranging from "1 - Extremely unlikely" to "7 - Extremely likely". The fourth question asked to what extent participants respected social distancing rules themselves:

"4. To what extent do you respect social distancing yourself?"

Participants responded on a 5-point scale ranging from "1 - I never respect social distancing rules" to "5 - I always respect social distancing rules".

Next, we asked participants to report on their past judgments on these same four questions. Given that the start of the outbreak is somewhat hard to define universally, we tried to give responders a common and clearly identifiable time-point that could serve as a general reference point. We took advantage of the fact that during the time the survey was run, practically all governments had legally enforced social distancing rules. We therefore opted to ask people to report on their feelings right before their government enforced social distancing with the following introduction:

¹ Answering was not enforced. Completion implies that participants were presented the full survey (i.e., respondents can have missing data).

“For the next questions we ask you to go back in time to the day before your government enforced social distancing rules (i.e., the day before they became legally enforced). It was not illegal to refrain from respecting social distancing rules at that point. They were still just recommendations.”

Try to remember how you felt and perceived things before social distancing was enforced and answer the following questions:”

After the introduction, participants were presented the same four questions and response scales. The only difference was that the question and options were put in the past tense and asked about social distancing recommendations (instead of rules). A complete reproduction of the survey can be found in the Supplementary Material.

After the eight main questions, a page with demographics questions was presented. Participants were asked to indicate the country they lived in, their gender, age-range bracket (1: < 18, 2: 18-24, 3: 25-34, 4: 35-44, 5: 45-54, 6: 55-64, 7: 65-75, 8: >75), and education level (1: Less than high school degree, 2: High school degree, 3: Bachelor degree, 4: Master degree, 5: Post master degree). After the country question, we also asked whether the specific region they lived in already legally enforced social distancing measures. We included the question to filter for possible regional differences within specific countries. However, 97% of participants who answered the question responded affirmatively. Since the rare negative responses also came from countries that had entered a nation-wide lockdown, we refrained from filtering for this question.

Procedure

After giving their informed consent, participants were presented the eight main survey questions and demographics questions. Participants were not forced to answer any of the questions and could advance to the next question without responding if they wanted to. The eight main survey questions were presented one-by-one on the screen and participants could not go back to a previous question. The demographics questions were presented on one single screen and participants could freely scroll through them.

The survey was translated into 8 different languages (English, French, Italian, Spanish², Polish, Greek, Chinese, and Dutch). All translations started from the English survey and were translated by native speakers of the foreign language who were highly fluent in English.

The survey was run between April 2 and April 10, 2020. We decided to halt the data collection because after an initial surge the daily response rate was down to about a dozen after one week.

All variables were treated as ordinal variables. We used the reported numerical answer option codes to analyze the data.

Results

Descriptive ratings. Figure 1 gives an overview of the results. Current ratings are shown on the left (“Now”), people’s ratings about how they felt closer to the start of the pandemic—before social distancing was enforced—are shown on the right (“Before”). As the figure indicates, people’s current ratings are overall very high. The median moral condemnation rating is at 4/5 (“Very unacceptable to violate social distancing rules”). Median self-reported behavior (i.e., respecting social distancing rules) is at 5/5 (“I always respect social distancing rules”). Likewise, people feel that the likelihood of getting infected or infecting others when they do not respect social distancing is at 6/7 (“Quite likely”). Interestingly, as the right-hand bars show, although people’s retrospective ratings of their past evaluations are still fairly high (i.e., at or above the mid-points of the scales), they are clearly lower than their current ratings. Indeed, for each of the measures, the median rating drops a full-scale point. A Wilcoxon signed-rank test indicated that the decrease was significant for each of the

² After the study launched we noted a typo in one probability statement option in the Spanish version. However, Spanish version results were completed consistent with the English version.

ratings, all $p < .001$, rank biserial correlations between .63-.97³. Hence, as the pandemic evolved, people's perceived infection likelihood increased, they tended to respect social distancing rules more, and violations were perceived as less permissible. A detailed overview of the summary statistics can be found in Supplementary Table S7.

Figure 1. Descriptive ratings. Box plots showing respondents' current ("Now") and retrospective evaluations near the start of the Covid-19 pandemic ("Before"). Thick lines represent the median. Boxes denote the interquartile range.

Correlations. Our key question concerned the association between people's perceived infection likelihood and moral condemnation of social distancing violations and behavior. Table 1 shows the results. If we focus first on people's current evaluations, it is readily clear—perhaps unsurprisingly—that people's moral condemnation of social distancing violations and their (self-reported) behavior are correlated, $r_s = .39$, $p < .001$. The more you respect social distancing yourself, the more you condemn violations. Likewise, people's perceived likelihood of getting infected themselves and infecting others is also highly associated, $r_s = .70$, $p < .001$. Critically, the perceived infection likelihood (self and other) was indeed predictive of people's moral condemnation and own rule respecting behavior, $r_s = .23$ -. $.27$, all $p < .001$.

Moving to people's evaluations of their own past experience—before social distancing rules were enforced—we find the same global pattern. Interestingly, it is noteworthy that correlations between people's past

³ The statistical tests are presented for completeness, we had no a priori hypotheses with respect to the effect.

likelihood estimations and own distancing behavior, $r_s = .39-.34$, both $p < .001$, and moral condemnation, $r_s = .46-.40$, both $p < .001$, almost doubled in size compared to the current ratings. Hence, people who are less likely to perceive the virus as threatening, are also less likely to respect social distancing rules and condemn such violations and this was especially so during the early stages of the pandemic when social distancing was not legally enforced yet. Figure 2 illustrates these trends.

Figure 2. Boxplots illustrating the link between the perceived likelihood of Covid-19 infection (for others and self) and the extent to which participants report to respect social distancing (A. “Behavior”) and condemn violations (B). The thick line represents the median. Boxes denote the interquartile range.

Table 1 also shows the associations between the various ratings and our demographic variables Age, Gender, and Education level. As the table indicates, age tended to be positively associated with all ratings except the likelihood to infect others. Hence, the higher one’s age bracket, the higher one perceived the virus threat and the more one respected social distancing and condemned violations, both before and after social distancing was enforced. The gender variable was dummy coded as 0 (Female) and 1 (Male). There was a clear gender effect with females giving higher ratings on all our measures than males. Education level tended to be negatively associated with perceived virus threat. Hence, people with a higher education level tended to rate the likelihood of getting infected themselves or infecting others as slightly lower. Nevertheless, it should be stressed that the majority of our demographic variable associations were (very) small and should be interpreted with caution.

Table 1
Overview of Spearman Correlations between the different variables

	Moral condemnation	Likely self	Likely other	Behavior	Moral condemnation before	Likely self before	Likely other before	Behavior before	Age	Gender	Education
Moral condemnation	—										
Likely self	0.27***	—									
Likely other	0.24***	0.70***	—								
Behavior	0.39***	0.24***	0.23***	—							
Moral condemnation before	0.46***	0.19***	0.19***	0.27***	—						
Likely self before	0.23***	0.50***	0.43***	0.25***	0.46***	—					
Likely other before	0.19***	0.40***	0.52***	0.20***	0.40***	0.82***	—				
Behavior before	0.31***	0.20***	0.17***	0.40***	0.56***	0.43***	0.39***	—			
Age	0.21***	0.07**	0.00	0.14***	0.17***	0.06*	0.02	0.16***	—		
Gender	-0.08**	-0.14***	-0.13***	-0.12***	-0.05*	-0.13***	-0.11***	-0.10***	0.10***	—	
Education	-0.02	-0.09***	-0.10***	0.04	0.02	-0.05*	-0.06*	0.01	0.04	0.02	—

* $p < .05$, ** $p < .01$, *** $p < .001$

Figure 3. Descriptive ratings country level. Box plots showing respondents' current ("Now") and retrospective evaluation ("Before") for different countries. The thick line represents the median. Boxes denote the interquartile range. Note. BEL =Belgium, CAN = Canada, CHL = Chile, FRA = France, GER = Germany, GRE = Greece, ITA = Italy, POL = Poland, UK = United Kingdom, USA = United States of America.

Country-level analysis. To get some general indication of the robustness of our findings we also explored the data at the individual country level. For the descriptive ratings overview, we restricted the analysis to respondents from the ten most frequently surveyed countries (i.e., France $n = 403$, Belgium $n = 280$, Italy $n = 134$, Greece $n = 94$, Chile $n = 87$, Poland $n = 62$, Germany $n = 59$, UK $n = 43$, USA $n = 41$, and Canada $n = 37$). Figure 3 shows the results. As the figure indicates, the overall pattern is observed in each of the individual countries, with current ratings near ceiling and lower retrospective ratings at the earlier time-point where social distancing was not yet enforced. As a side note, we mention that for each of our questions, the highest overall current ratings were recorded among Italian respondents. Perhaps not surprisingly, at the time when the survey was conducted, Italy was at the center of the pandemic with the highest number of Covid-19 cases and death rate in the world.

To avoid spurious conclusions, we restricted our country-level correlational analysis to the three countries for which we had the biggest sample sizes ($+100$ respondents, i.e., France, Belgium, and Italy). Results showed that the overall pattern was observed in each of these individual countries. Moral condemnation significantly correlated with perceived infection likelihood and this association was stronger earlier on in the pandemic. A full overview of these individual country level correlations can be found in Supplementary Tables S8-S10 and Figure S1.

Taken together, these findings suggest that our findings show some generalizability across different countries and are not driven by one or the other outlying nation.

Discussion

Our results clearly indicate that people's moral condemnation of social distancing violations and their own social distancing behavior are linked to their Covid-19 infection threat perception. Those who feel that the virus is less threatening are less likely to respect social distancing rules and to condemn such violations. This association was observed for people's current evaluations (i.e., at the peak of the pandemic in Europe) but was especially clear when they reported on the early stage of the pandemic when social distancing was not enforced yet. As the pandemic evolved, people's perceived infection likelihood, respecting of social distancing, and condemnation of violations all increased and reached near ceiling levels.

These findings lend some credence to the "badly informed citizens" position. People who respect social distancing less and find these violations more permissible are not necessarily bad citizens who do not care about others. They simply see this behavior as less threatening than others and therefore might see less need to respect the rules. This should give some pause for thought before we brand social distancing violators as "immoral" or "selfish". Instead of shaming people for their lack of moral character, it might be more productive to properly inform them about the threat of the virus.

This conclusion might be relevant when thinking about possible interventions. For example, one recent experimental study (Everett, Colombatto, Chituc, Brady, & Crockett, 2020) found that manipulations that stressed people's moral obligation to adopt social distancing behavior (e.g., "It's your duty!", "Be a good person!") had little impact on participants' social distancing intentions and beliefs. Although speculative, in line with the current suggestions, it might prove to be more effective here to try to directly alter (i.e., boost) people's threat perception.

More generally, we feel that social distancing violations might have received too much attention and sketched too bleak a picture of the public's responsiveness to the Covid-19 pandemic. Indeed, the contrast between people's current and past evaluations in the present study illustrates how people updated their moral opinion and (self-reported) behavior in a matter of weeks. This swift behavioral change also seems to be backed-up by location tracking data that points to a dramatic drop in people's movements since the start of the pandemic (Google Covid-19 Community Mobility Report, 2020; Koks, 2020). In the light of how hard it can be to change people's behavior and beliefs concerning numerous societal challenges (e.g., obesity, climate change, etc.) this is quite remarkable (e.g., Thaler & Sunstein, 2009). Many of these societal challenges have in common that people

need to pay a current cost to avoid far bigger future negative consequences. However, whereas these future consequences are typically only observed years or decades later, in the Covid-19 case, people saw the catastrophe evolve under their eyes. For many, in a mere matter of weeks, the virus went from being perceived as a local problem in a far-away city they had never heard of, to a global threat that wrecked the world economy and wreaked havoc in the streets of Venice, Paris, and New York. We speculate that the short-time scale played an important role in people's updating of their threat and moral permissibility perceptions. Our study was not designed to address this issue, but the observed shift in respondents' evaluations does suggest that citizens' response to the crisis should not be underestimated.

To our knowledge, the present study is the first to examine the link between moral outrage concerning social distancing and Covid-19 threat perception. Clearly, it will be important to look for additional data and validation before drawing strong conclusions. Although we believe that our design choices were sensible, it is important to bear potential study limitations in mind. First, we used a crowdsourcing approach in which we recruited a multinational convenience sample of volunteer respondents. This allowed us to test a diverse, anonymous sample and get some indication of the specificity of the findings at the country level. However, the sample was not randomly selected or nationally representative concerning the underlying demographics. Second, the survey relied on self-reports and retrospective evaluations. Social desirability, reputation concerns, and memory biases might have affected the results. Finally, the study was correlational in nature and does not allow causal claims (e.g., did condemnation of social distancing violations increase because people's threat perception increased, or vice versa?).

One factor that might receive further attention is the precise role of intuitive and deliberate thought processes (De Neys, 2006; Evans, 2008; Kahneman, 2011) in people's infection threat and moral permissibility perception. It has long been established that people tend to make likelihood estimations based on intuitive rules of thumb rather than based on more effortful, deliberate thinking (Kahneman, 2011). For example, we tend to judge the likelihood of an event by the ease with which an example comes to mind. Consequently, more vivid and salient events will be perceived as more probable. We suspect that such intuitive processes played an important role in the high infection likelihood ratings we observed in the current study. Perhaps somewhat ironically given some psychologists' initial claims to the contrary (e.g., DeSteno, 2020; see Ritchie, 2020), people's tendency to rely on intuitive risk assessment processes might have been a blessing rather than a curse from a pandemic-control policy perspective. If this speculative suggestion is correct, it might also cast some grim prospects for the months following the peak of the pandemic and the efforts to prevent a new outbreak. At the point where daily death rates will start to decrease and Intensive Care Units start to empty, people's threat perception will likely also decrease and it might become especially challenging to get people to continue to practice social distancing. Put differently, from a societal point of view, the biggest challenge might not be to get citizens to respect social distancing rules at the point where their threat perception is peaking but to keep people to stick to this behavior when they start to perceive the virus as less threatening.

In general, we believe that psychologists, behavioral, and cognitive scientists have an important role to play in monitoring the public's Covid-19 perceptions and in designing possible interventions to get people to adopt the necessary public health behavior (e.g., Everett et al., 2020; Pennycook, McPhetres, Bago, & Rand, 2020; Van Bavel et al., 2020). Although we should avoid jumping to policy recommendations (Chater, 2020; Ritchie, 2020), we believe such recommendations must be informed by insights into the psychological mechanisms underlying the public's response to the Covid-19 threat. We hope the present study can contribute to this challenge by showing that it might be wise to refrain from readily attributing violations of social distancing measures to a lack of moral character *per se*.

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SUPPLEMENTARY MATERIAL

A. Survey Material

a1. Text used to publicize the study on social media

"We are running a short 5 min survey to get an idea of people's moral opinions and risk perception concerning the Corona Covid-19 virus. We are looking to get as many people as possible to participate. Would be nice if you could spare us 5 min of your time. You're helping to advance science! Here's the link: xxx. Feel free to share. Thanks!"

a2. Informed consent

"In this survey we try to get an idea of people's moral opinions and risk perception concerning the Corona Virus.

The survey takes no longer than 5 minutes and is completely anonymous.

Participation in this survey is voluntary. You may choose not to participate. You can stop at any time without having to justify your choice.

The survey is part of a scientific project run by researchers from the University of Paris - Sorbonne under supervision of Dr. Wim De Neys (www.wdeney.org).

Your individual privacy will be maintained in all published and written data resulting from the project.

By ticking the box below, you certify that you have read this form, and agree to participate in accordance with the above conditions.

I have read this form and agree to participate.

Click on the "->" button below to start."

a3. Survey text

"In response to the Corona/Covid-19 virus pandemic, many governments across the world enforced social distancing rules (e.g., keeping minimal distance, bans on gathering, stay-at-home measures) to slow the spread of the virus.

Please answer the following questions

1. To what extent do you feel that violating social distancing rules is morally condemnable (i.e., how "wrong" is such behavior)?

- 1 Totally fine to violate social distancing rules
- 2 Somewhat unacceptable to violate social distancing rules
- 3 Rather unacceptable to violate social distancing rules
- 4 Very unacceptable to violate social distancing rules

5 Totally unacceptable to violate social distancing rules

2. How likely do you think it is that you will get Corona if you don't respect social distancing rules?

- 1 Extremely unlikely
- 2 Quite unlikely
- 3 Slightly unlikely
- 4 Neither likely nor unlikely
- 5 Slightly likely
- 6 Quite likely
- 7 Extremely likely

3. How likely do you think it is that you will infect somebody else if you don't respect social distancing rules?

- 1 Extremely unlikely
- 2 Quite unlikely
- 3 Slightly unlikely
- 4 Neither likely nor unlikely
- 5 Slightly likely
- 6 Quite likely
- 7 Extremely likely

4. To what extent do you respect social distancing yourself?

- 1 I never respect social distancing rules
- 2 I rarely respect social distancing rules
- 3 I mostly respect social distancing rules
- 4 I almost always respect social distancing rules
- 5 I always respect social distancing rules

For the next questions we ask you to go back in time to the day before your government enforced social distancing rules (i.e., the day before they became legally enforced). It was not illegal to refrain from respecting social distancing rules at that point. They were still just recommendations.

Try to remember how you felt and perceived things before social distancing was enforced and answer the following questions:

5. To what extent did you feel that violating social distancing recommendations was morally condemnable (i.e., how "wrong" did you feel that such behavior was) before they were enforced?

- 1 Totally fine to violate social distancing recommendations
- 2 Somewhat unacceptable to violate social distancing recommendations
- 3 Rather unacceptable to violate social distancing recommendations
- 4 Very unacceptable to violate social distancing recommendations
- 5 Totally unacceptable to violate social distancing recommendations

6. How likely did you think it was that you would get Corona if you did not follow social distancing recommendations before they were enforced?

- 1 Extremely unlikely
- 2 Quite unlikely
- 3 Slightly unlikely
- 4 Neither likely nor unlikely

- 5 Slightly likely
- 6 Quite likely
- 7 Extremely likely

7. How likely did you think it was that you would infect somebody else if you didn't respect social distancing recommendations before they were enforced?

- 1 Extremely unlikely
- 2 Quite unlikely
- 3 Slightly unlikely
- 4 Neither likely nor unlikely
- 5 Slightly likely
- 6 Quite likely
- 7 Extremely likely

8. To what extent did you respect social distancing recommendations before they were enforced?

- 1 I never respected social distancing recommendations
 - 2 I rarely respected social distancing recommendations
 - 3 I mostly respected social distancing recommendations
 - 4 I almost always respected social distancing recommendations
 - 5 I always respected social distancing recommendations
- In which country do you currently live?

Did the country or region where you currently live already enforce social distancing rules?

- Yes
- No

What is your age?

< 18, 18-24, 25-34, 35-44, 45-54, 55-64, 65-75, >75

What is your gender?

- Male
- Female

What is the highest level of education you obtained?

- Less than high school degree
- High school degree
- Bachelor degree
- Master degree
- Post master degree (MD, PhD, MBA, ...)

B. Supplementary Tables and Figure

b1. Demographics data

Table S1. Descriptive Statistics

	Country	Region enforced	Age	Gender	Education
Valid	1417	1650	1651	1647	1636
Missing	240	7	6	10	21
Mean		0.97	4.11	0.32	3.38
Median		1.00	4.00	0.00	3.00
Std. Deviation		0.16	1.53	0.47	1.00
Minimum		0.00	1.00	0.00	1.00
Maximum		1.00	8.00	1.00	5.00

Table S2. Frequencies for Country

Country	Frequency	Percent Valid	Percent Cumulative
Algeria	5	0.30	0.35
Argentina	27	1.63	1.91
Australia	1	0.06	0.07
Belgium	280	16.90	19.76
Bolivia	2	0.12	0.14
Bulgaria	1	0.06	0.07
Canada	37	2.23	2.61
Chile	87	5.25	6.14
China	11	0.66	0.78
Colombia	3	0.18	0.21
Costa Rica	1	0.06	0.07
Denmark	3	0.18	0.21
Finland	3	0.18	0.21
France	403	24.32	28.44
Georgia	1	0.06	0.07
Germany	59	3.56	4.16
Greece	94	5.67	6.63
Hong Kong (S.A.R.)	1	0.06	0.07
Hungary	4	0.24	0.28
India	1	0.06	0.07
Ireland	2	0.12	0.14
Italy	134	8.09	9.46
Kazakhstan	1	0.06	0.07
Madagascar	3	0.18	0.21
Mexico	28	1.69	1.98
Morocco	3	0.18	0.21
Netherlands	28	1.69	1.98
Nigeria	1	0.06	0.07
Paraguay	2	0.12	0.14

Table S2. Frequencies for Country

Country	Frequency	Percent Valid	Percent Cumulative	Percent
Peru	5	0.30	0.35	86.87
Poland	62	3.74	4.38	91.25
Portugal	1	0.06	0.07	91.32
Romania	3	0.18	0.21	91.53
Singapore	1	0.06	0.07	91.60
Spain	24	1.45	1.69	93.30
Sweden	1	0.06	0.07	93.37
Switzerland	6	0.36	0.42	93.79
Tunisia	1	0.06	0.07	93.86
UK	43	2.60	3.03	96.89
USA	41	2.47	2.89	99.79
Uruguay	1	0.06	0.07	99.86
Venezuela, Bolivarian Republic of...	2	0.12	0.14	100.00
Missing	240	14.48		
Total	1657	100.00		

Table S3. Frequencies for Region enforced

Region enforced	Frequency	Percent Valid	Percent Cumulative	Percent
0 Not enforced	46	2.78	2.79	2.79
1 Enforced	1604	96.80	97.21	100.00
Missing	7	0.42		
Total	1657	100.00		

Table S4. Frequencies for Age

Age	Frequency	Percent Valid	Percent Cumulative	Percent
1 <18	5	0.30	0.30	0.30
2 18-24	228	13.76	13.81	14.11
3 25-34	443	26.74	26.83	40.94
4 35-44	372	22.45	22.53	63.48
5 45-54	276	16.66	16.72	80.19
6 55-64	196	11.83	11.87	92.07
7 65-75	97	5.85	5.88	97.94
8 > 75	34	2.05	2.06	100.00
Missing	6	0.36		
Total	1657	100.00		

Table S5. Frequencies for Gender

Gender	Frequency	Percent Valid	Percent Cumulative	Percent
0 Female	1115	67.29	67.70	67.70
1 Male	532	32.11	32.30	100.00
Missing	10	0.60		
Total	1657	100.00		

Table S6. Frequencies for Education

Education	Frequency	Percent Valid	Percent Cumulative	Percent
1 Less than high school degree	45	2.72	2.75	2.75
2 High school degree	283	17.08	17.30	20.05
3 Bachelor degree	513	30.96	31.36	51.41
4 Master degree	592	35.73	36.19	87.59
5 Post master degree (MD, PhD, MBA, ...)	203	12.25	12.41	100.00
Missing	21	1.27		
Total	1657	100.00		

b2. Descriptive Ratings**Table S7. Summary descriptive rating statistics**

	Moral condemnation	Likely self	Likely other	Behavior	Moral condemnation before	Likely self before	Likely other before	Behavior before
Valid	1652	1649	1642	1652	1652	1650	1639	1648
Missing	5	8	15	5	5	7	18	9
Mean	4.08	5.33	5.53	4.56	3.21	4.74	4.77	3.58
Std. Deviation	1.03	1.20	1.22	0.59	1.11	1.41	1.48	1.03
Minimum	1.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00
Maximum	5.00	7.00	7.00	5.00	5.00	7.00	7.00	5.00

b3. Country level association boxplot

Figure S1. Boxplots illustrating the link between the perceived likelihood of Covid-19 infection (for others and self) and the extent to which participants report to respect social distancing (“Behavior”) and condemn violations at Country level. The thick line represents the median. Boxes denote the interquartile range

b4. Country level correlation matrices

Table S8. Correlation matrix France (n = 403)

	Moral condemnation	Likely self	Likely other	Behavior	Moral condemnation before	Likely self before	Likely other before	Behavior before	Age	Gender	Education
Moral condemnation	—										
Likely self	0.290 ***	—									
Likely other	0.279 ***	0.693 ***	—								
Behavior	0.346 ***	0.190 ***	0.182 ***	—							
Moral condemnation before	0.429 ***	0.205 ***	0.170 ***	0.233 ***	—						
Likely self before	0.258 ***	0.495 ***	0.429 ***	0.220 ***	0.436 ***	—					
Likely other before	0.216 ***	0.397 ***	0.538 ***	0.154 **	0.394 ***	0.817 ***	—				
Behavior before	0.342 ***	0.150 **	0.137 **	0.391 ***	0.629 ***	0.392 ***	0.365 ***	—			
Age	0.116 *	0.059	0.054	0.133 **	0.152 **	0.078	0.044	0.174 ***	—		
Gender	-0.139 **	0.163 **	-0.159 **	0.033	-0.063	-0.152 **	-0.145 **	-0.040	0.126 *	—	
Education	0.061	0.049	-0.034	0.114 *	0.097	0.069	0.070	0.138 **	0.098	0.033	—

* p < .05, ** p < .01, *** p < .001

Table S9. Correlation matrix Belgium (n = 280)

	Moral condemnation	Likely self	Likely other	Behavior	Moral condemnation before	Likely self before	Likely other before	Behavior before	Age	Gender	Education
Moral condemnation	—										
Likely self	0.286 ***	—									
Likely other	0.299 ***	0.741 ***	—								
Behavior	0.465 ***	0.245 ***	0.281 ***	—							
Moral condemnation before	0.497 ***	0.151 *	0.137 *	0.375 ***	—						
Likely self before	0.300 ***	0.407 ***	0.384 ***	0.262 ***	0.589 ***	—					
Likely other before	0.266 ***	0.367 ***	0.433 ***	0.264 ***	0.530 ***	0.859 ***	—				
Behavior before	0.364 ***	0.146 *	0.149 *	0.434 ***	0.630 ***	0.511 ***	0.465 ***	—			
Age	0.303 ***	0.087	0.002	0.184 **	0.255 ***	0.126 *	0.131 *	0.219 ***	—		
Gender	-0.087	0.133 *	-0.142 *	0.092	-0.032	-0.122 *	-0.076	-0.137 *	0.205 ***	—	
Education	-0.155 *	0.095	-0.127 *	0.055	-0.098	-0.061	-0.079	-0.047	-0.153 *	0.121 *	—

* p < .05, ** p < .01, *** p < .001

Table S10. Correlation matrix Italy (n = 134)

	Moral condemnation	Likely self	Likely other	Behavior	Moral condemnation before	Likely self before	Likely other before	Behavior before	Age	Gender	Education
Moral condemnation	—										
Likely self	0.188 *	—									
Likely other	0.178 *	0.718 ***	—								
Behavior	0.295 ***	0.008	-0.025	—							
Moral condemnation before	0.425 ***	0.250 **	0.254 **	0.219 *	—						
Likely self before	0.123	0.460 ***	0.445 ***	0.198 *	0.533 ***	—					
Likely other before	0.134	0.418 ***	0.491 ***	0.131	0.493 ***	0.858 ***	—				
Behavior before	0.234 **	-0.020	-0.006	0.274 **	0.555 ***	0.361 ***	0.361 ***	—			
Age	0.209 *	0.094	0.093	0.120	0.306 ***	0.156	0.072	0.292 ***	—		
Gender	-0.057	-0.162	-0.091	0.058	0.104	-0.036	-0.028	-0.000	0.080	—	
Education	-0.071	-0.056	-0.095	0.067	0.010	-0.092	-0.109	-0.020	-0.365 ***	-0.119	—

* p < .05, ** p < .01, *** p < .001