

# Mapping the Moods of COVID-19: Global Study Uses Data Visualization to Track Psychological Responses, Identify Targets for Intervention

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In March 2020, the fast-spreading coronavirus prompted many countries to go into lockdown and to take other behavioral measures to flatten the epidemic curve. People's adherence to these containment guidelines involve acceptance of social norms, trust in authority, and personal sacrifice. Such adherence is challenged by the deprivation of material and psychological needs that such measures entail, along with the resulting accumulation of psychological strain (Brooks et al., 2020). Various psychological influences could also work against effective containment of the virus (Van Bavel et al., 2020). Hence, social science is critical for understanding responses to [COVID-19 and the progression of the pandemic](#), especially in the event of a long-term or recurring virus containment scenario.

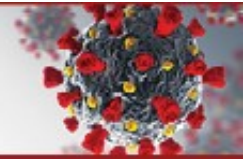
Sensing the urgency of the challenge, a collaboration of 100+ researchers across five continents launched a global study to investigate the psychological implications of this crisis, including the tensions between following government policy and meeting the basic needs of autonomy and social connection. We launched the PsyCorona survey on March 19th, 2020; by the end of May, more than 60,000 participants had completed the initial, 20-minute survey in 30 languages globally, which included 24

nationally representative samples by age and gender.

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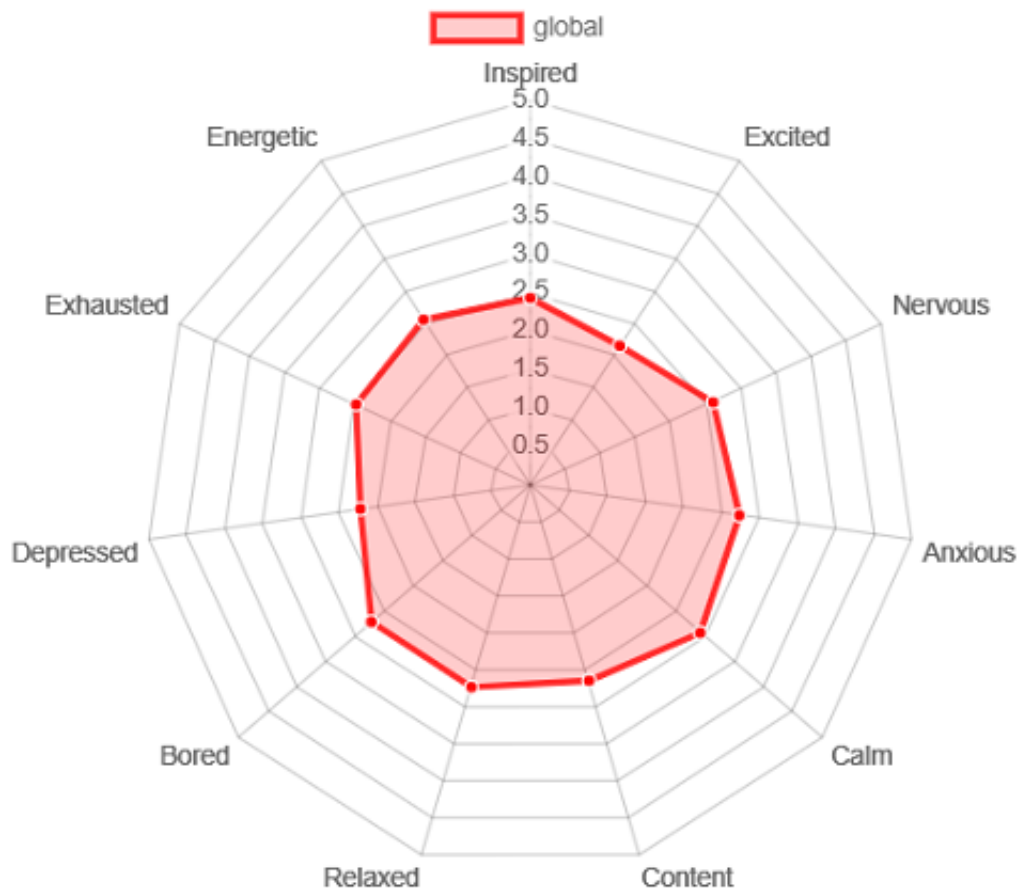


### **Real-Time Country-Level Data**

PsyCorona's rapid implementation and global scale affords us the ability to investigate different psychological processes during this critical moment of [societal crisis and change](#). The ongoing scientific mission is to integrate cross-cultural, longitudinal, and integrative data science methods to:

- Evaluate how COVID-19-relevant beliefs, fears, hopes, motivational states, and cultural norms predict adherence to social distancing and other health guidelines;
- Monitor various psychological pressures building in society over time, including frustration and lockdown fatigue, changes in subjective well-being, and shifts in norms, attitudes, and values; and
- Integrate the psychological data with interdisciplinary databases, and use machine learning models to test how our individual-level psychological variables relate to regional epidemiological, policy, and demographic conditions.

Alongside this scientific mission is a crisis-oriented mission to provide information relevant to the [present pandemic](#). Given that the academic publication process can be slow, we sought to provide a more immediate way to access portions of the data. Thus, we built a secure, anonymous, web-based [data visualization tool](#) where visitors can easily examine descriptive statistics and associations among study variables. While PsyCorona researchers prepare scientific papers for peer review (e.g., Han et al., 2020; Nisa et al., 2020; Romano et al., 2020), visitors are welcome to interact directly with country-level data in a manner consistent with the urgency of the times.



PsyCorona's data visualization capabilities include the prevalence of different emotions respondents felt in the previous week.

The purpose of this data visualization tool is twofold.

First, it gives our respondents immediate access to the research they participated in by allowing them to interact with the summary data (e.g., Van der Krieke et al., 2016); in effect, it serves as a pilot study for how the social sciences can use data visualization for public engagement.

Second, the data visualization tool serves as a resource for researchers, policymakers, and analysts to understand how people are feeling, thinking, and responding to the coronavirus and the extraordinary societal measures taken against it in their country (or across different countries). Such knowledge could help to inform strategies to further contain the pandemic as well as to better coordinate and prepare for future similar events.

As a resource for researchers, policymakers, and analysts, PsyCorona could help to inform strategies to further contain the pandemic as well as to better coordinate and prepare for future similar events.

A version of the tool (currently, an interactive public beta) can be accessed via our project website (<https://psycorona.org/data/>). It focuses exclusively on the cross-sectional and cross-national data. Users can examine mean differences and associations between multiple categories of psychological variables, including virus-relevant beliefs and attitudes, emotions and affect, attitudes towards government and society, and self-reported behaviors. These variables and others can also be plotted

against each other to visualize their relationships. Users can also examine and compare different psychological variables within one country, across multiple countries, or view global averages and trends. In the finalized version (expected late this summer), users will be able to toggle between viewing the full sample or only the nationally representative samples, and will also be able to toggle between examining raw scores or scores that are adjusted for potential cultural response biases (Gelfand et al., 2002).

The functionality of the data visualization tool is enhanced by the Data Science Team at the [University of Groningen's Center of Information and Technology](#). One plan is to monitor effects over time through the integration of our weekly longitudinal follow-up survey data. Resources permitting, we also aim to add state-of-the-art machine learning functions to, for example, identify the strongest psychological predictors of a given outcome variable. A third possibility is to add interdisciplinary database integration functions, so that visitors can explore how regional epidemiological or policy conditions relate to our measured variables.

As with much of the PsyCorona project, the data visualization tool is still in progress and its final outcome remains to be seen. In the meantime, it offers a glimpse into a possible future of social science that is publicly accessible, responsive to public need, and in which scientific data are communicated in a way that lets users ask their own questions.

## References

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