

Local perceptions obscure COVID risk during pandemic

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Superspreading events have proven to be the primary mode of infection driving the COVID-19 pandemic, which has led to an inaccurate perception of risk. While more than half a million people in the United States died from COVID-19 during the past year, the public's perception of infection and mortality remain variable. A survey conducted early in

the pandemic found that local perceptions of risk often do not correlate with the national infection rate, leading people to take inappropriate actions. The results are available in the August 16 issue of the journal *Decision*.

"When the [pandemic](#) first began, things seemed scary in the abstract, and for many Americans, the worst of it was not in their own backyards," said Stephen Broomell, associate professor in the Department of Social and Decisional Sciences at Carnegie Mellon University and first author on the study. "It's difficult to fully understand the risk of something that is not visible, and as many people failed to immediately experience the impacts of the pandemic, local experiences colored how serious they believed the problem was and even what kind of actions they were willing to take."

Broomell has spent his career studying how people grapple with risk on topics that exist beyond their perception, like tornadoes, [climate change](#) and now the pandemic. His research examines why it is so challenging to get groups to make collective decisions to mitigate risk. When the pandemic hit, Broomell and his colleague Patrick Bodilly Kane, a post-doctorate research fellow in the biomedical ethics unit at McGill University, applied a cognitive-ecological approach to predict population-level judgment accuracy regarding pandemic risk.

"There is not one pandemic debate but many pandemic debates," said Kane. "It is hard for people to connect their experience locally to a [global phenomenon](#)."

The team examined the variability of an individual's experience with risk by modeling a superspreading progression. Local [infection](#) rates were used to approximate an individual's geographically local perception of the pandemic. The global risk was defined by the national infection rate, which represents the severity of the pandemic. They also conducted a

[national survey](#), consisting of almost 4,000 [survey results](#) obtained between April 24, 2020 and May 11, 2020.

"It's not that people were wholly unaware of the national and international infection rates, but because of the way this particular disease spread within clusters, there was a real chance that an individual might not have encountered anyone who they knew to be infected," said Broomell. "Every community had an equal probability of experiencing a cluster, but for any given community, especially at the beginning, this probability was low."

In the study, global trends are a combination of all local trends. If the local trends are unreliable, they will not correlate with the global data. For this reason, the team used reliability to gage the validity of judgements based on local observations from the survey results.

They found that early in the pandemic decision makers were not accounting for super spreading events as a mechanism for infection. While people were relying on high-level institutions for information, community-level organizations lacked support to help people understand the risk. Their results found that county-level daily infection rates are a significant predictor of judgments of national infection rates, as well as the extreme polarization regarding the perception of risk throughout the pandemic.

"Understanding this interplay between what people see and how disease really spreads will help us as we prepare for similar situations in the future," said Broomell.

The study is based on a survey conducted over 18 days at the beginning of the pandemic. The researchers do not anticipate the results of this survey will be generalizable to perceptions of risk as the pandemic progresses.

"Our work is about COVID-19 but it is so much more than that," said Kane. "The thing that is creating the disaster is affecting all of us but at different times. This dynamic is present in a lot of places where you might not expect it. People cannot see larger trends because they are caught up with what is in front of them."

According to Broomell, this study exemplifies a general framework to predict how citizens will react to global risks. A clear understanding of the sources of collective judgment errors can help future generations to respond more effectively to global threats.

"We've known for a long time that people have been personally experiencing climate change in widely divergent ways, which, much like with COVID, impacts their sense of urgency to take action," said Broomell. "While psychological reactions to global climate change will take decades to fully understand, the pandemic played out much more quickly, showing the world how difficult it can be to get people to agree on risks that ultimately affect everyone."

More information: Broomell et al, "Perceiving a Pandemic: Global-local Incompatibility and COVID-19 Superspreading Events", *Decision* (2021). [DOI: 10.1037/dec0000155](https://doi.org/10.1037/dec0000155)

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