

Researchers still don't know if cold weather makes COVID more likely

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The arrival of summer in the Northern Hemisphere has caused increased interest, from both the research community and the public at large, about the possibility that warmer weather might slow the spread of COVID-19.

In a new analysis, forthcoming in *Environmental and Resource Economics*, researchers from the University of Oxford highlight key limitations of available epidemiological data, concluding that it is currently impossible to know whether more people contract COVID-19 in hot or [cold weather](#).

"Our study found several problems with trying to understand the influence of [weather](#) using existing data on confirmed COVID-19 cases," explains Dr. Cohen, study lead author and senior researcher at Oxford's Smith School of Enterprise and the Environment. "The existing data can't reliably tell us whether [warmer weather](#) slows down the spread of COVID-19, as some earlier studies have tried to assess, so we urge both policy makers and the public to act with caution."

There are a number of potential problems with the data, the researchers maintain. The main issue, according to the study, is that the weather itself could be influencing the number of tests carried out and who gets tested. For example, patients suffering from pre-existing diseases could develop COVID-19 unrelated symptoms due to the prevailing weather conditions and hence be selected for COVID-19 testing more frequently than other population groups. Such influences make it impossible to statistically separate this effect from any influence of the weather on the actual spread of the virus.

In addition, the available data is patchy. During the first months of the pandemic, testing was insufficient everywhere and, when tests were conducted, the reliability of some tests was questionable. Other potential issues include the need for the limited available tests to be used for anyone with symptoms of COVID-19, including all those that did not have the virus but another seasonal respiratory illness—potentially increasing false positives during cold weather.

"Although we still don't know the influence of weather on the spread of

COVID-19, we are sure of one thing: the virus has been able to spread everywhere, including in very warm areas of the globe, such as Ecuador, Brazil and India," says Dr. Anant Jani, study author and Oxford Martin Fellow at the University of Oxford. "It continues to spread even in warmer states in the United States like Florida, California and Texas. Good weather is no excuse to take risks with a disease that has already killed hundreds of thousands of people."

Although some existing analyses rely on confirmed COVID-19 case data, the report highlights that its current limitations might prevent any meaningful conclusions from being made about the impact of warm weather on the spread of virus, and urges the research community to consider these issues in future work.

"Our findings also have implications for other statistical analysis using COVID-19 confirmed case count data. In the medium and long term, more reliable data should be gathered, and more attention should be given to how epidemiological data is recorded and used during exceptional epidemics," says Yangsiyu Lu, researcher at the Oxford Institute for New Economic Thinking.

Over time, the study concludes, strong improvements in testing capacity may compensate for these problems and provide a better picture of the influence of the weather on the spread of COVID-19.

More information: Francois Cohen et al. The Challenge of Using Epidemiological Case Count Data: The Example of Confirmed COVID-19 Cases and the Weather, (2020). [DOI: 10.1101/2020.05.21.20108803](https://doi.org/10.1101/2020.05.21.20108803)

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