

Seasonality of COVID-19 confirmed

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As the novel coronavirus has raced around the world, experts have wondered whether it would behave like influenza and other respiratory viruses, spiking in the winter and abating in the summer. Now, more than a year into the pandemic, researchers have enough data to confirm the seasonality of COVID-19 and determine which environmental

factors may be driving it.

Of course, [environmental factors](#) alone cannot fully explain the spread of COVID-19; social and biological factors, such as population density and social distancing policies, also play a role. To isolate the impact of the environment, Choi et al. examined data on COVID-19 prevalence and environmental variables between 1 March 2020 and 13 March 2021 across five countries—Canada, Germany, India, Ethiopia, and Chile—that had relatively consistent social controls throughout the study period.

Previous [studies](#) have linked seasonal spikes of viruses like influenza, which spread by virus-laden droplets, to [low humidity](#). But Choi and colleagues note that this pattern holds only in [temperate regions](#); in the tropics, influenza peaks during the wet season. To account for this disparity, the team also looked at air drying capacity (ADC), defined as the rate of decrease with time of droplet surface area, given [ambient temperature](#) and humidity. Essentially, it predicts the fate of droplets under specific temperature and humidity conditions.

The team compared COVID-19 rates with the daily mean temperature, specific humidity, [ultraviolet radiation](#), and ADC across a wide range of climate zones. Much like influenza, COVID-19 peaked in the winter months in the countries with temperate climates—Canada, Germany, and Chile—when temperature and humidity were at a low. But in the tropical countries, cases peaked during the summer monsoons, when humidity was at a high, suggesting that temperature and humidity considered separately can't explain the seasonality of [respiratory viruses](#) like influenza and COVID-19. The seasonal values of ultraviolet (UV) radiation and ADC, however, were consistent with fluctuations in COVID-19 prevalence across all five countries, with high ADC and UV linked to low prevalence and vice versa.

Understanding the seasonality of the virus will be critical for future efforts to combat its spread, as experts have cautioned that people may need annual booster shots to protect against the virus and its emerging variants.

More information: Yeon-Woo Choi et al, On the Environmental Determinants of COVID-19 Seasonality, *GeoHealth* (2021). [DOI: 10.1029/2021GH000413](https://doi.org/10.1029/2021GH000413)

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