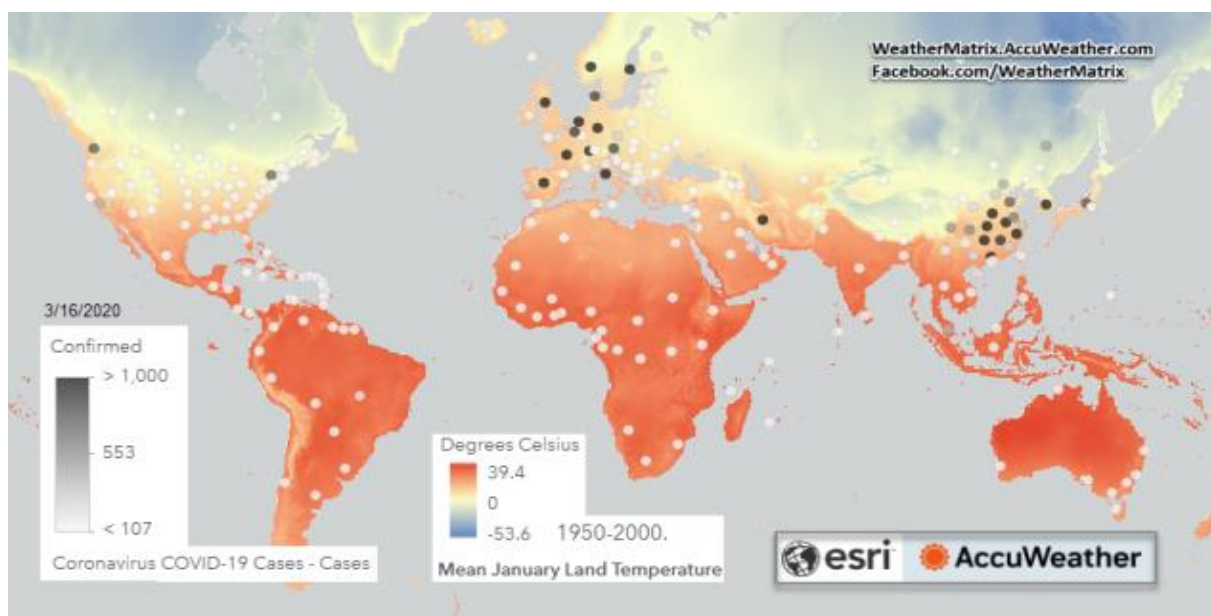


Will High Summer Temperatures Stem Coronavirus' Spread in Pakistan?

Recently Prime Minister Imran Khan in his address emphasized the seriousness of the issue facing the country and urged people to practice social distancing for the next few weeks. By then he hoped that given the hot upcoming summer weather the virus would find it difficult to thrive resulting in lower transmission rates.

To be fair to the Prime Minister, he has a point, one that is backed by an observed inverse correlation between numbers of infections and average temperatures globally. Having said that, experts warn that there is no guarantee that hotter temperature will completely get rid of the virus. Regions such as Brazil and Australia that have higher temperatures in the southern hemisphere, although not being hotspots for the virus have confirmed cases of the virus infections. It is important that we take necessary steps to stop the spread of the virus and not rely entirely on the summer temperatures. Experts warn that even if upcoming summer results in lower transmission rates, the virus will survive and potentially a surge in transmission will ensue once the weather gets milder.

The illustration below¹ depicts the hotspots of infected areas while plotted against mean monthly temperature (January 2020).



¹ <https://www.accuweather.com/en/weather-blogs/weathermatrix/deep-dive-coronavirus-vs-population-and-temperatures/701036>

Most of the large global outbreaks (depicted by dark circles) are in the temperature the cold temperature range. This includes hotspots in China, South Korea, Iran, Western Europe and United States (Washington & New York States). Above this range of temperature, the inverse correlation between average temperature and number of infections declines.

This observed inverse correlation is now being backed by new research that has come out recently. In a Massachusetts Institute of Technology (MIT) study, researchers concluded that transmission rates are higher in a temperature range of 0 to 13 Degrees Celsius. Furthermore, the number of cases in countries with relatively hotter average Jan-Feb-March temperatures (>18 C) accounts for less than 5% of total global cases of COVID-19. ²

In a second study on spread of the SARS-COV-2 virus, researchers studied spread of the virus in its early days within China and observed that high temperature and high humidity significantly reduced the transmission of the virus.³ The researchers in the study had normalized the data by GDP per capita and population density to account for differences in healthcare facilities and population density respectively making their finding all the more relevant. In a nutshell, the researchers concluded that rise in temperature and humidity levels in the northern hemisphere could significantly reduce the rate of transmission. However, the methods and the results of this study are yet to be peer-reviewed.

Despite this observed correlation between higher temperature and low transmission rates, other experts have warned that policymakers should not pin all their hopes on the upcoming summer denting the spread of virus significantly. One such expert is Marc Lipsitch, who is Professor of Epidemiology and Director of Center for Communicable Disease Dynamics at Harvard T.H. Chan School of Public Health. Dr. Lipsitch claims that although we might expect to see a “modest decline in the contagiousness”⁴ of SARS-CoV-2 virus and the disease it causes (COVID-19) in the coming summer months in the northern hemisphere; this alone will not be enough to get rid of the virus.

Having said that, even a modest decline in transmission rates might be enough to buy the government and the healthcare infrastructure in Pakistan the time to mobilize resources and build capacity of the healthcare system. Favorable natural factors such as higher temperatures combined with policies of social distancing and effective quarantining can bring about conditions that can contain the spread of the current coronavirus outbreak in Pakistan.

² https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3556998

³ https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3551767

⁴ <https://ccdd.hsph.harvard.edu/will-covid-19-go-away-on-its-own-in-warmer-weather/>

References

- [1] Dashboard, World Health Organization. *Coronavirus*. Available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>
- [2] Bukhari, Qasim and Jameel, Yusuf, Will Coronavirus Pandemic Diminish by Summer? (March 17, 2020). Available at SSRN: <https://ssrn.com/abstract=3556998>
- [3] Accuweather. Available at: <https://www.accuweather.com/en/weather-blogs/weathermatrix/deep-dive-coronavirus-vs-population-and-temperatures/701036>
- [4] Wang, Jingyuan and Tang, Ke and Feng, Kai and Lv, Weifeng, High Temperature and High Humidity Reduce the Transmission of COVID-19 (March 9, 2020). Available at SSRN: <https://ssrn.com/abstract=3551767>
- [5] Center for Communicable Disease Dynamics. *Seasonality Of SARS-Cov-2: Will COVID-19 Go Away On Its Own In Warmer Weather?* Available at: <https://ccdd.hsph.harvard.edu/will-covid-19-go-away-on-its-own-in-warmer-weather/>

By: Raja Rafiullah, Fellow, PIDE.

Pakistan Institute of Development Economics

Web: www.pide.org.pk, Twitter: @PIDEpk, Facebook: PIDEIslamabad