Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Letter to the Editor

Adding to the debate on the influence of temperature on corona virus disease (COVID-19): the case of Brazil

We have read the research article 'Can the summer temperatures reduce COVID-19 cases' by Mandal and Panwar with great interest.[1] The authors use country-level statistics and log-linear models to assess if there was a possible link between environmental temperatures and COVID-19 cases. The authors found a negative relationship between temperature and COVID-19 cases, arguing that cold environments may increase the risk of Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection.

This is, however, not at all what we have seen so far in Brazil. As of June 12, Brazil is the country with the second-most cases in the world. While Brazil's North is close to the equator and thus displays little variability in temperature over time, the Southern part of the country has entered the colder season now. As Fig. 1 shows, temperatures have on average stayed the same in all Northern States and fallen by about −3.26 and −3.02 in the South and Southeast, respectively. Only 536 (9.62%) municipalities showed an increase in temperatures, all located in the North and Northeast regions. Between March and June 2020, the number of cases has increased on average by 1000.11% in Brazil. As Fig. 2 shows, these increases are, on average, substantially larger in the North than the South. Fig. 3 directly shows average changes in new infections (on a logarithmic scale) against absolute change in temperature; the relationship is positive and highly significant, suggesting that, at least in Brazil, average SARS-CoV-2 transmission declines rather than increases with lower temperatures. This result also holds when applying regional fixed effects to the model.

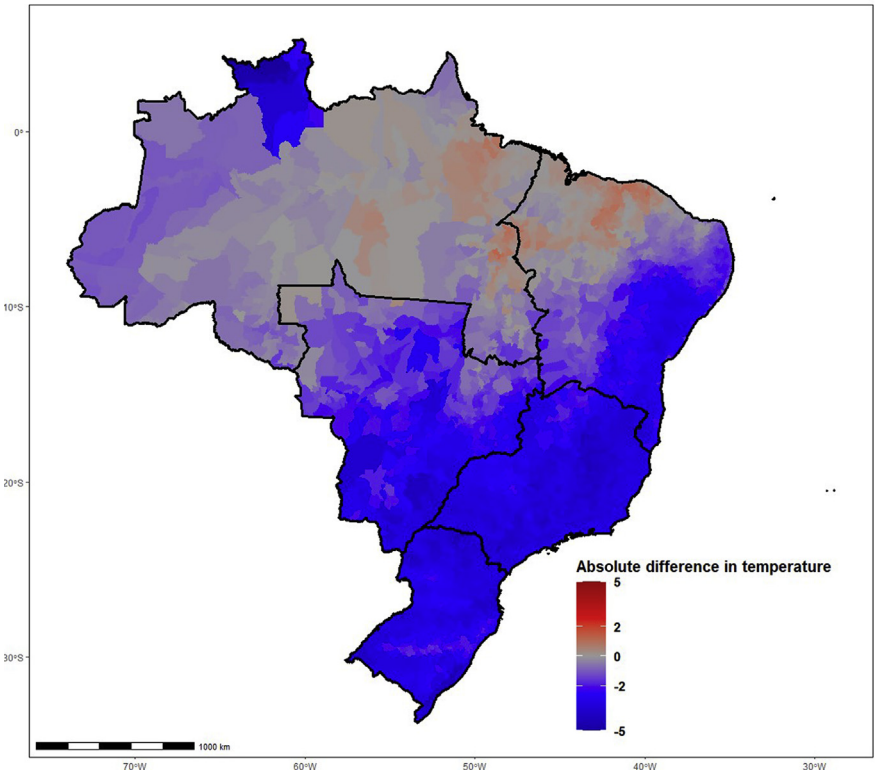

Fig. 1. Absolute difference in temperature between June and April.

https://doi.org/10.1016/j.puhe.2020.07.040

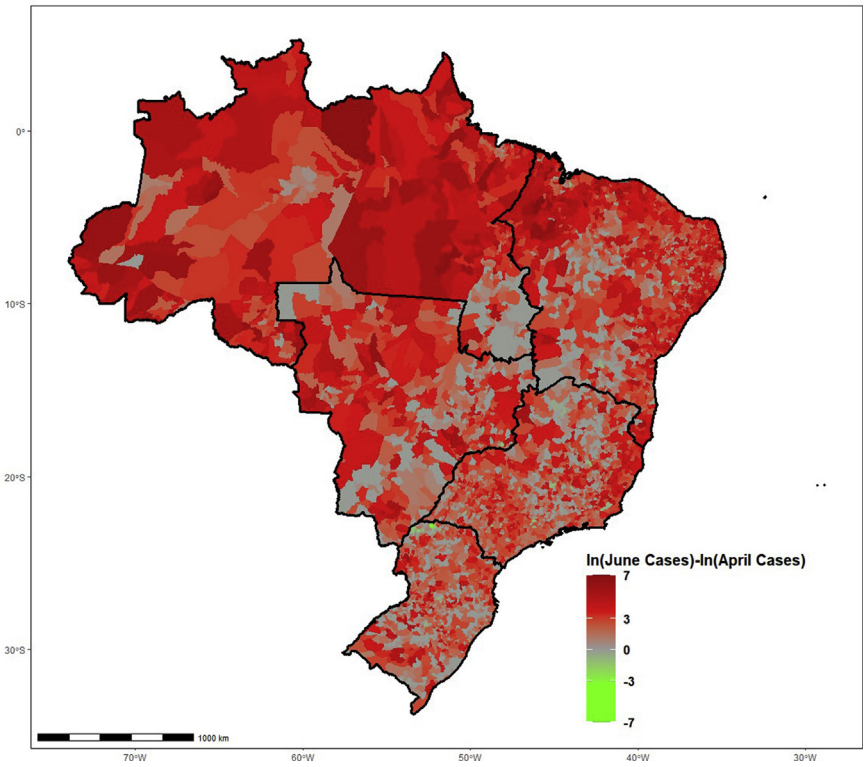

Fig. 2. Absolute difference between the natural logarithm of the number of cases in June and April.

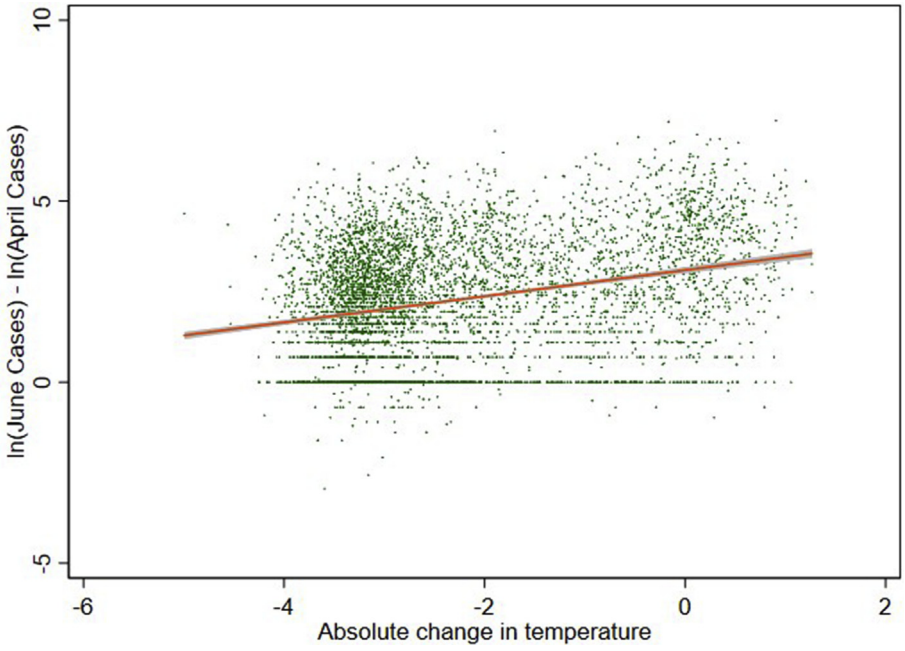

Fig. 3. Scatter plot and linear regression fit plot.

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A. Bigoni*
University of São Paulo, School of Public Health, Department of Epidemiology, São Paulo, Brazil

G. Fink
Swiss Tropical and Public Health Institute and University of Basel, Basel, Switzerland

* Corresponding author. Universidade de São Paulo, Faculdade de Saúde Pública, Departamento de Epidemiologia, Av. Dr. Arnaldo 715, Pacaembu, Sao Paulo, SP, CEP: 01246-904, Brazil. Tel.: +55(11) 30617968.
E-mail address: alebigoni@usp.br (A. Bigoni).

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