

Viewpoint: climate change, health and pandemics – a wake-up call from COVID-19

Climate change is a global crisis that is driven mainly by natural events and human-induced global warming (Kinney, 2018). Climate change has contributed to increased global temperatures, erratic weather patterns and a rise in disasters. These events have severe impacts on the health of humans (Lou *et al.*, 2019).

The increased frequencies of extreme events and high temperatures are also associated with higher mortality and morbidity rates (Matthews *et al.*, 2017). Furthermore, heat stress has been causing a decline in crop production, reducing food supplies and promoting malnutrition (Deryng *et al.*, 2014), particularly during periods of droughts and low rainfall.

During intensive rain periods, flooding may promote the spread of water-borne diseases, further compromising the health of affected individuals (Ashbolt, 2019). Furthermore, we experience an increase in the numbers of a variety of insects carrying vector-borne diseases, especially during flooding and high-temperature periods (Franklinos *et al.*, 2019).

Climate change has also been contributing to erratic wind patterns, which often result in the wide dispersion of air pollutants which are responsible for various respiratory and autoimmune diseases (Zhao *et al.*, 2019).

The world is currently facing an unprecedented crisis due to COVID-19. Some links between the climate crisis and the COVID-19 pandemic crises are as follows:

- Both, the COVID-19 pandemic and climate change are parallel global crises of the current human epoch, named “the Anthropocene”, even though the latter occurred over the past few decades.
- Some denialism of the climate crisis is also seen in relation to the COVID-19 pandemic. Indeed, some countries where government leaders have denied the COVID-19 pandemic have become among the most infected ones, which is in line with the more widespread climate change scepticism (Björnberg *et al.*, 2017; Leal Filho *et al.*, 2019).

Unfortunately, the climate crisis is not being treated with the same sense of urgency as the COVID-19 pandemic. Dudman states a difference in how both crises are perceived and the perennial dilemma of communicating uncertainty.

Temporally, the constant talk of deadlines, tipping points and policy targets, and the time lag from emissions to impacts all fatally affix climate change as a problem for the future. Not so with COVID-19, which collapsed space and time, and overnight turned the world just beyond our windows into a hostile and dangerous place (Dudman, 2020).

The COVID-19 pandemic serves as a reminder of the urgent need for changes in economic models and lifestyles. Such changes are also helpful to reduce the impacts of climate change as the parallel global crises. For instance: a more responsible consumption of resources, less greenhouse emitting transportation, and more investments in infrastructure and restoration of ecosystems, to reduce exposure of people and settlements to extreme weather events.



But above all, climate change and COVID-19 are two global crises, whose mutual impacts on human health are not yet well understood. Nevertheless, even though their urgency and scales are not uniform, both crises show that urgent action to handle them is needed. The impacts of COVID-19 and actions to cope with it are fast since it is perceived as a deadly global pandemic. Contrastingly, the impacts of climate change are felt slowly, but its residual effects may last longer. The climate crisis, combined with ecosystems depletion and unleashing of vectors of diseases such as the Coronavirus SARS-CoV-2, unknown to date, can help to turn the world into a more hostile and dangerous place.

A lesson from the COVID-19 pandemic is that denialism could cost human lives, and lead to widespread interrelated systems failures, which may not only affect the health sector, but the financial one, and undermine social cohesion. Hence, there is a perceived need for concerted actions to address and possibly reverse the impacts of climate change and the COVID-19 pandemic. This needs to be done the soonest possible, to avoid the losses of life both crises bring about.

Walter Leal-Filho

*FTZ-ALS, Faculty of Life Sciences, Hamburg University of Applied Sciences,
Hamburg, Germany*

Gustavo J. Nagy

*Instituto de Ecología y Ciencias Ambientales, Facultad de Ciencias,
Universidad de la República, Montevideo, Uruguay, and*

Desalegn Yayeh Ayal

*Center for Food Security Studies, College of Development Studies,
Addis Ababa University, Addis Ababa, Ethiopia*

References

- Ashbolt, N.J. (2019), *Flood and Infectious Disease Risk Assessment Health in Ecological Perspectives in the Anthropocene*, Springer, New York, NY pp. 145-159.
- Björnberg, K.E., Karlsson, M., Gilek, M. and Hansson, S.E. (2017), "Climate and environmental science denial: a review of the scientific literature published in 1990-2015", *Journal of Cleaner Production*, Vol. 167, pp. 229-241.
- Deryng, D., Conway, D., Ramankutty, N., Price, J. and Warren, R. (2014), "Global crop yield response to extreme heat stress under multiple climate change futures", *Environmental Research Letters*, Vol. 9 No. 3, p. 034011.
- Dudman, K. (2020), "If you think Covid-19 is a dress rehearsal, you may be at the wrong play", available at: <https://torch.ox.ac.uk/article/if-you-think-covid-19-is-a-dress-rehearsal-you-may-be-at-the-wrong-play>
- Franklins, L.H., Jones, K.E., Redding, D.W. and Abubakar, I. (2019), "The effect of global change on mosquito-borne disease", *The Lancet Infectious Diseases*, Vol. 19 No. 9.
- Kinney, P.L. (2018), "Interactions of climate change, air pollution, and human health", *Current Environmental Health Reports*, Vol. 5 No. 1, pp. 179-186.
- Leal Filho, W., Mifsud, M., Molthan-Hill, P., Nagy, G.J., Veiga Ávila, L. and Lange Salvia, A. (2019), "Climate change scepticism at universities: a global study", *Sustainability*, Vol. 11 No. 10, pp. 29-81.
- Lou, J., Wu, Y., Liu, P., Kota, S.H. and Huang, L. (2019), "Health effects of climate change through temperature and air pollution", *Current Pollution Reports*, Vol. 5 No. 3, pp. 144-158.

Matthews, T.K., Wilby, R.L. and Murphy, C. (2017), "Communicating the deadly consequences of global warming for human heat stress", *Proceedings of the National Academy of*

Zhao, C.-N., Xu, Z., Wu, G.-C., Mao, Y.-M., Liu, L.-N., Dan, Y.-L., . . . , Fan, Y.-G. (2019), "Emerging role of air pollution in autoimmune diseases", *Autoimmunity Reviews*, Vol. 1.

Corresponding author

Desalegn Yayeh Ayal can be contacted at: desalula@gmail.com