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THE SYMPTOMS OF CLIMATE CHANGE

ADDRESSING HEALTH RISKS IN A WARMING WORLD

Estimated read time: 10 min

ON THE GREEN AGENDA

KEY TAKEAWAYS

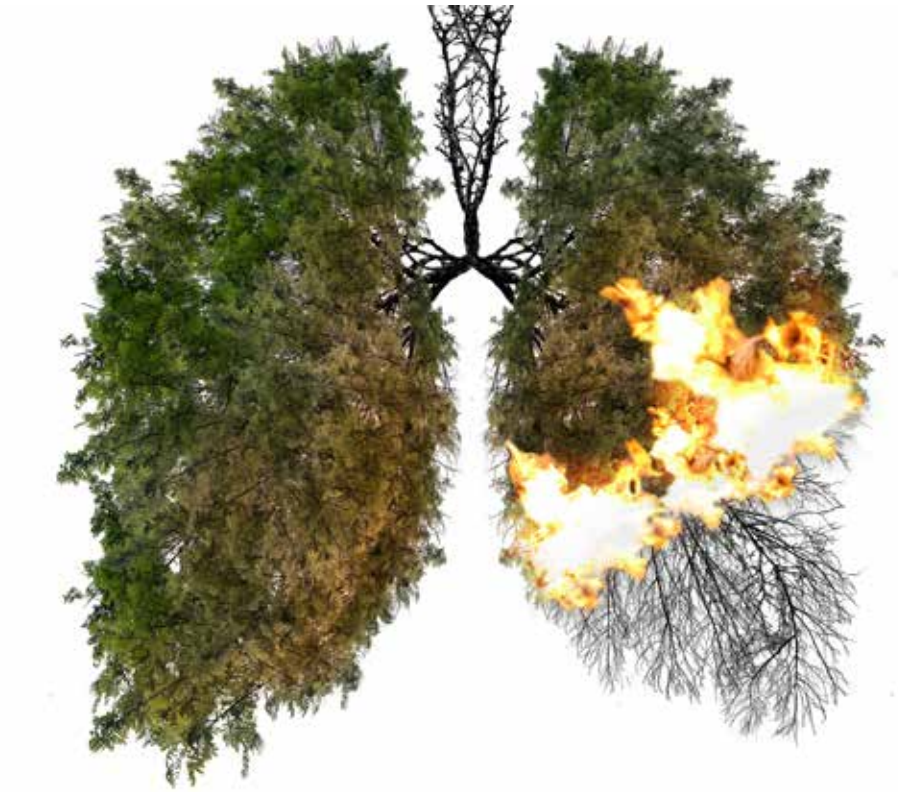
Climate change poses significant risks to human health, causing heat-related illness, shifting the geographical frontiers of infectious diseases, introducing nutritional risks and contributing to mental health disorders.

Humans must be aware of the risks and learn to adapt their behaviours, consumption practices, activity patterns and environments accordingly.

In 2012, a Harvard researcher presented a paper with some disturbing statistics. Comparing two possible scenarios for the future, he calculated that between 2010 and 2099, the United States will register 35,000 more murders, 216,000 more rape cases, 409,000 more robberies and 1.6 million more aggravated assaults in one scenario versus the other.[1] The differentiating variable in the higher-crime scenario? Increased temperatures due to climate change.

Though we reflexively think of heat-related illness when considering the impact of climate change on human health and well-being, the scope of impact is in truth far greater. Climate change is shifting the geographical frontiers of infectious diseases, introducing nutritional risks, and has even been linked to mental health disorders and heightened propensity to commit crime.

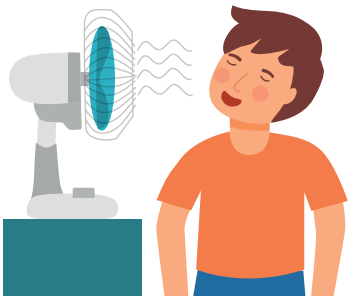
SO, HOW EXACTLY IS CLIMATE CHANGE INTERFERING WITH OUR HEALTH, AND WHAT CAN WE DO ABOUT IT?

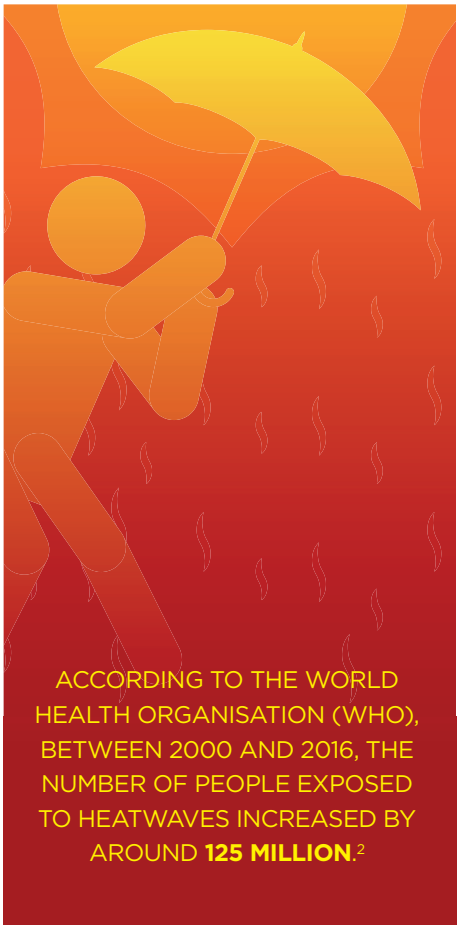


[1] https://www.hks.harvard.edu/sites/default/files/centers/mrcbg/files/ranson_2012-8.FINAL.pdf

HEAT AND HEALTH

In recent years, record-high temperatures have given us undeniable evidence that our climate is changing. Countries around the world have been experiencing punishingly hot days, with deadly heatwaves increasing in frequency and intensity.





ACCORDING TO THE WORLD HEALTH ORGANISATION (WHO), BETWEEN 2000 AND 2016, THE NUMBER OF PEOPLE EXPOSED TO HEATWAVES INCREASED BY AROUND **125 MILLION**.[2]

MEANWHILE, UNICEF ESTIMATES THAT BY 2050, **ALL 2.02 BILLION CHILDREN GLOBALLY** WILL BE EXPOSED TO HIGH HEATWAVE FREQUENCY, REGARDLESS OF WHETHER THE WORLD ACHIEVES A 'LOW GREENHOUSE GAS EMISSION SCENARIO' OR NOT.[3]

What this means is that the incidence of heat-related illnesses will increase. Heat stroke is particularly dangerous — it occurs when the body heats up quickly and the sweating mechanism fails, inhibiting the body's ability to cool itself down.[4] Heat can also cause severe dehydration and acute cerebrovascular accidents and contribute to blood clots.[5]

In addition to its direct impact on the body, extreme heat can indirectly contribute to respiratory distress and associated ailments by supporting the accumulation of more particulate matter in the air.

Hotter, drier conditions fuel wildfires and dust storms, and ground-level ozone, often called smog, forms easier in hot, stagnant air.[6]

Alarmingly, according to the United Nations Environment Programme (UNEP):

*"In 2019, **99%** of the world population was living in places where the WHO's strictest 2021 air quality guideline levels were not met."*[7]

Rising temperatures and further falling air quality will exacerbate these conditions and increase humanity's risk of developing lung, heart, brain and other disorders linked to breathing contaminated air.[8]

[2]https://www.who.int/health-topics/heatwaves#tab=tab_1
[3]https://www.unicef.org/press-releases/heatwaves-report
[4]https://www.cdc.gov/climateandhealth/pubs/extreme-heat-final_508.pdf
[5]https://www.who.int/health-topics/heatwaves#tab=tab_2
[6]https://www.lung.org/clean-air/climate-change/climate-change-air-pollution#:~:text=Ground%2Dlevel%20Ozone%20Pollution,tailpipes%20mix%20in%20the%20air.
[7]https://www.unep.org/interactive/air-pollution-note/?gclid=CjwKCAjwzuqgBhAcEiwAdj5dRll8oQMAwakC-7-crFDL0nVCoe7HWKsQ-ywSsYMMA59FV40hb6dfVBoCGVwQAvD_BwE
[8]Ibid

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MITIGATING IMPACT

Given these heightened risks, extra precautions must be taken to protect the body during periods of extreme heat.

STAY INFORMED
Monitor weather reports to know when temperatures are dangerously high. Learn about the signs of heat stress so you can identify if you or others are experiencing symptoms.

HYDRATE
Replenish fluids and electrolytes lost through sweating by drinking regularly. Avoid very sugary or alcoholic drinks as they can cause you to lose more fluids.

EAT AND EXERCISE WISELY
Avoid heavy and hot meals, which can add heat to your body. Avoid strenuous exercise and schedule any outdoor activity for the coolest times of day.

FIND WAYS TO KEEP COOL
Stay indoors when possible to limit direct sun exposure and intake of contaminated air.

KEEP COOL:
Air-conditioning can help regulate body temperatures, as can cold drinks or fruit and showers. Fans are useful too, but bear in mind that above a certain temperature threshold, they will not prevent heat-related illness.

PROTECT YOUR SKIN
Sunburn affects your body's ability to cool down and can make you dehydrated. Wear wide-brimmed hats and broad-spectrum sunscreen to protect your skin.

WEAR APPROPRIATE CLOTHES
Wear loose-fitting, lightweight clothing made of breathable fabrics when possible.

Tips courtesy the Centers for Disease Control and Prevention:
https://www.cdc.gov/disasters/extremeheat/heattips.html

The symptoms of climate change — addressing health risks in a warming world | CONTINUED

HUNGER AND MALNUTRITION

Addressing food and nutrition insecurity is one of the major challenges facing development practitioners today.

According to the World Food Programme (WFP), humanity is more than twice as hungry today as three years ago, with ***over 345 million people*** *facing high levels of food insecurity in 2023.*[9]

While there are multiple factors contributing to global hunger, climate change is a primary driver. Increasingly frequent and more intense droughts and flooding events put pressure on agricultural systems and often lead to crop failure. These events not only reduce the quantity of food that makes it to market, but drive prices sharply up.

For example, after severe flooding in Trinidad and Tobago in late 2022, the cost of produce skyrocketed — wholesale prices of tomatoes increased by 266 per cent, cauliflower by 108 per cent, and lettuce by 33.3 per cent.[10] This forced many consumers to forgo certain vegetables or purchase less. Elsewhere in the world, extreme heat has been impacting yield growth for wheat, maize and other crops. By some estimates, without appropriate interventions, global yields could decline by up to 30 percent by 2050, making those crops more expensive.[11]

As many families around the world struggle to regain their economic footing following the pandemic, surges in food prices can compound their challenges and accentuate food insecurity. Undernourishment and malnutrition can ensue, in turn spawning many health concerns.

To make matters worse, while climate change can affect the quantity of food available, the high levels of carbon dioxide which are fuelling it can affect the quality of that food as well. One Harvard research team found that when food crops such as wheat, corn, rice and soy are exposed to carbon dioxide at the levels projected for 2050, those plants lose as much as 10% of their zinc, 5% of their iron, and 8% of their protein content.[12] This increases the risk of consumers developing micronutrient deficiencies which can cause a range of medical complications, including birth defects, undeveloped cognitive ability and reduced productivity, among many others.[13]

MITIGATING IMPACT

At the level of the state, greater investment is needed to drive research and development in agriculture to build crop and farm resilience. In some instances, use of early warning systems and technology ahead of extreme weather events can help protect against some crop loss.

On a personal level, to insulate one's household from the effects of climate change on food supply, quality and prices, the following measures can be taken:

Plant a vegetable garden
Kitchen gardens can boost household food supply, and once properly positioned and tended, can be easier protected against severe weather events than larger-scale farms.

Reduce food waste
Buying and cooking only what you need, making early use of all perishable produce so that none is wasted and freezing leftovers can all help reduce your food bill and boost food security.

Shop and eat wisely
Research and purchase foods that have high nutrition density, so that daily dietary requirements can be met even if small quantities are consumed. If necessary and feasible, use multivitamins to supplement your diet.

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[9]https://www.wfp.org/global-hunger-crisis#:~:text=Conflict%2C%20economic%20shocks%2C%20climate%20extremes,next%20meal%20is%20coming%20from.
[10]https://www.guardian.co.tt/news/consumers-buy-less-walk-away-from-highpriced-vegetables-6.2.1581294.80fa02b0a9
[11]https://unfoundation.org/blog/post/climate-change-and-the-future-of-food/
[12]https://www.hsph.harvard.edu/c-change/subtopics/climate-change-nutrition/
[13]https://www.cdc.gov/nutrition/micronutrient-malnutrition/index.html#:~:text=Vitamins%20and%20minerals%2C%20also%20called,cognitive%20ability%2C%20and%20reduced%20productivity.

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VECTORS AND PATHOGENS

As we learned from the pandemic, the smallest pathogen can have devastating effects on health and society. While some pathogens are transmitted through contaminated food, fluids or air, others require vectors such as mosquitoes to ferry them between hosts.

One of the concerning consequences of a warming planet is that environments that were once inhospitable for mosquitoes to breed are becoming more accommodating as temperatures increase.

An Imperial College study found that between 1950-2000, the world became 1.5% per decade 'more suitable' for the Aedes aegypti mosquito — carrier of dengue, zika and yellow fever — to breed.[14]

Future predictions show this could increase to between 3.2% and 4.4% per decade by 2050, and that disease-carrying mosquitoes could establish themselves in Europe by as early as 2030.[15]

Another study estimated that under the current warming trajectory, the advance of mosquitoes could put more than two billion additional people at risk for dengue in 2080 compared with 2015.[16]

Then there are other diseases that result from changing settlement patterns of wildlife. As climate change and human activities contribute to habitat loss, many species are forced to migrate, with greater incursions into human habitats. This creates opportunities for unfamiliar pathogens to find new hosts and make their way into human food chains and settlements.

The COVID-19 virus, which is thought to have originated in animals sold at a market in China, could potentially be a mere preview of the health risk associated with species displacement.

MITIGATING IMPACT

To address these risks, we need to simultaneously manage those threats that are already at our doorstep and work to limit the growth of others.

Mosquito management
Awareness campaigns around mosquito breeding and biting habits can teach the public — particularly in new breeding zones — how to eliminate potential breeding sites and what precautions to take to avoid being bitten. Vaccination drives can provide an additional layer of protection among vulnerable groups.

Habitat conservation
Halting and reversing habitat loss can reduce opportunities for infectious diseases to spread from animals to humans. Reforestation, sustainable land use and agricultural practices, as well as legally protected nature reserves, can all help safeguard and restore habitats.

Conscious consumption and good hygiene
Humans can limit their exposure to dangerous pathogens by exercising discretionary consumption of wild meats, at the very least ensuring they are properly prepared and thoroughly cooked. Frequent handwashing, social distancing and overall good hygiene can help counter the spread of some pathogens.

[14]https://www.imperial.ac.uk/news/197333/disease-carrying-mosquitoes-could-common-europe-2030/
[15]Ibid
[16]https://www.nytimes.com/interactive/2019/06/10/climate/dengue-mosquito-spread-map.html

MENTAL HEALTH AND BEHAVIOURAL IMPACTS

As we have seen, climate change can affect our bodies in many ways, but it can also engender mental health concerns.

Among populations bearing the brunt of impact from changing weather patterns — for whom the risk of property damage or even loss of life and livelihood are increasingly high — climate change can be a major mental and psychosocial stressor.

The Intergovernmental Panel on Climate Change (IPCC) revealed that the prospect and manifestations of global warming can induce emotional distress, anxiety, depression, grief, and even suicidal behaviour.[17]

Moreover, heat stress on the body can trigger psychological disturbances, as discomfort from overheating increases likelihood of agitation, frustration and even aggression.[18]

Several studies have found positive correlations between elevated temperatures and antisocial behaviours, including violence to self and others.[19]

ONE BODY OF RESEARCH FOUND A **2.2% INCREASE** IN MENTAL HEALTH-RELATED MORTALITY PER 1°C RISE IN TEMPERATURE.[20]

MITIGATING IMPACT

Mental health needs to be given more attention at the policy level, and associated stigmas need to be dismantled. The WHO has recommended that governments address the mental health impacts of climate change by:

- **Integrating climate considerations with mental health programmes;**
- **Integrating mental health support with climate action;**
- **Building upon global commitments;**
- **Developing community-based approaches to reduce vulnerabilities; and**
- **Closing the large funding gap that exists for mental health and psychosocial support.[21]**

[17]https://www.who.int/news/item/03-06-2022-why-mental-health-is-a-priority-for-action-on-climate-change
[18]https://theconversation.com/heatwaves-worsen-mental-health-conditions-186759
[19]https://link.springer.com/article/10.1007/s40641-019-00121-2
[20]https://www.sciencedirect.com/science/article/pii/S0160412021001586
[21]https://www.who.int/news/item/03-06-2022-why-mental-health-is-a-priority-for-action-on-climate-change

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FOR INDIVIDUALS GRAPPLING WITH MENTAL HEALTH ISSUES, IT IS IMPORTANT TO:

Seek help when it is needed, whether from family, friends or professionals.

Find outlets for stress such as exercise, meditation, a hobby or any relaxing activity that can help defuse tension and feelings of anger or frustration.

Acknowledge that there is a problem to be fixed in the first place — this can sometimes be the most important step.

CONCLUSION

Even as we work in earnest to keep rising global temperatures in check, a degree of adaptation will be necessary, as we cannot outrun the fallout of damage already done. From a health perspective, this means understanding how our health is threatened and what measures we can take to mitigate the impact. To the extent that we can prevent escalation of those risks through more aggressive climate action, we need to fight to make that happen. Our lives could depend on it. ■