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Global warming already responsible for one in three heat-related deaths

An international study coordinated by the University of Bern and the London School of Hygiene & Tropical Medicine shows for the first time the actual contribution of man-made climate change in increasing mortality risks due to heat: between 1991 and 2018, more than a third of all deaths in which heat played a role were attributable to global warming. The study, the largest of this kind, used data from 732 cities in 43 countries around the world and has just been published in the "Nature Climate Change" journal.

Global warming is affecting our health in several ways, and a direct pathway is represented by the increase in mortality and morbidity associated with heat. Scenarios of future climate conditions predict a substantial rise in average temperatures and in the occurrence of extreme events such as heatwaves, leading to future increases in the related health burden. However, so far, no study has evaluated if and to which extent these impacts have already been experienced in the recent decades. The international study, "The burden of heat-related mortality attributable to recent human-induced climate change," coordinated by the University of Bern in Switzerland and the London School of Hygiene & Tropical Medicine (LSHTM) in the UK, now provides evidence on this topic, showing that 37 percent of heat-related deaths between 1991 and 2018 can be attributed to changes in climate related to human activities.

The more global warming, the more deaths

More precisely, the epidemiological investigation focused on *man-made* global warming, in a so-called "detection & attribution" study that identifies and attributes observed phenomena to changes in climate and weather. Specifically, the researchers examined past weather conditions projected under scenarios with and without anthropogenic emissions, therefore being able to separate the warming and related health impact linked with human activities from natural trends. "We expect the proportion of heat-related deaths to continue to grow if we don't do something about climate change or adapt," says Dr Ana Vicedo-Cabrera, first author of the study at the Institute of Social and Preventive Medicine and Oeschger Centre for Climate Change Research at the University of Bern. "So far, the average global temperature has only increased by about 1°C, which is a fraction of what we could face if emissions continue to grow unchecked."

Regional differences in heat-related health risks

While on average over a third of heat-related deaths are due to human-induced climate change, impact varies substantially across regions. The number of climate-related heat casualties ranges from a few dozen to several hundred deaths each year, depending on the local changes in climate in each area and the vulnerability of its population. Interestingly, populations living in low and middle-income countries, which are responsible for a minor part of anthropogenic emissions in the past, are those most affected, with the proportion of human-induced heat-related mortality higher in Central and South America and South-East Asia. "This is the largest detection & attribution study on current health risks of climate change," says Prof Antonio Gasparrini, the senior author of the article. "The message is clear: climate change will not just have devastating impacts in the future, but we are already experiencing the dire consequences of human activities on our planet".

One in three heat-related deaths in Switzerland is due to climate change

Even in Switzerland, with comparatively small differences in living conditions and still moderate temperatures, heat risks "should not be underestimated", as Ana Vicedo-Cabrera says. For example, one out of three deaths due to heat can be attributed to climate change, as the country specific estimate was around 30%.

Research on climate change and health is one of the main subjects at the Oeschger Centre for Climate Change Research. A corresponding research group was founded in 2019 together with the Institute of Social and Preventive Medicine (ISPM) at the University of Bern. It is led by Dr. Ana M. Vicedo-Cabrera, first author of the just published international study on heat mortality and climate change.

Please find more information and contact details on the following page.

Oeschger Centre for Climate Change Research

The Oeschger Centre for Climate Change Research (OCCR) is one of the strategic centers of the University of Bern. It brings together researchers from 14 institutes and four faculties. The OCCR conducts interdisciplinary research right on the frontline of climate change research. The Oeschger Centre was founded in 2007 and bears the name of Hans Oeschger (1927-1998), a pioneer of modern climate research, who worked in Bern.

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Institute of Social and Preventive Medicine (ISPM)

Since 1971, for 50 years, the Institute of Social and Preventive Medicine (ISPM) at the University of Bern has been devoted to the improvement of health and wellbeing of individuals and populations. Through high quality research in the fields of prevention, social medicine, epidemiology, biostatistics and public health and together with numerous national and international partners ISPM stands for health for all.

Besides top-quality research, ISPM is devoted to training the next generation of epidemiologists, public health researchers, and medical doctors, among others. ISPM actively participates in University teaching programs for students of medicine, pharmacology, biomedical engineering and biomedicine.

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