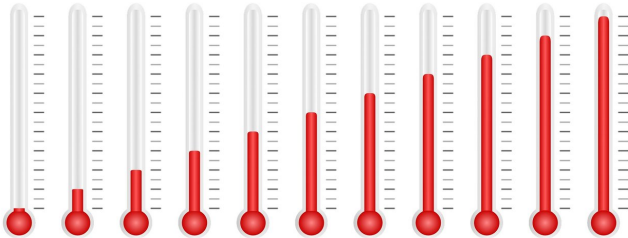


# Climate change will increase temperature-attributable mortality

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Various studies have suggested that global warming will lead to a decrease in cold-attributable mortality and an increase in deaths caused by heat. Now, a new study by the Barcelona Institute for Global Health (ISGlobal) has concluded that if strong mitigation measures are not implemented immediately, overall temperature-related mortality in Europe will increase in the coming decades. According to the new study, published in *The Lancet Planetary Health*, the decline in cold-attributable deaths will not offset the expected rapid increase in heat-related mortality.

After analyzing [mortality](#) and [temperature data](#) recorded in 16 European countries between 1998 and 2012, the researchers concluded that more than 7% of all deaths registered during this period were attributable to temperature. Cold temperatures had a greater impact on mortality than warm temperatures by a factor of 10.

However, projections based on epidemiological modeling indicated that if effective mitigation measures are not introduced immediately, this trend could be reversed by the middle of the century, leading to a sharp increase in heat-attributable mortality.

Using the data from 1998-2012 as a baseline, the team combined four [climate models](#) to make

projections through the end of this century under three different greenhouse gas emission scenarios.

"All of the models show a progressive increase in temperatures and, consequently, a decrease in cold-attributable mortality and an increase in heat-attributable deaths," explained ISGlobal researcher Èrica Martínez, lead author of the study. "The difference between the scenarios lies in the rate at which heat-related deaths increase. The data suggest that the total number of temperature-attributable deaths will stabilize and even decrease in the coming years, but that this will be followed by a very sharp increase, which could occur sometime between the middle and the end of the century, depending on greenhouse gas emissions."

Researcher Marcos Quijal, co-lead author of the study, commented that "in recent decades, warming has occurred at a faster rate in Europe than any other continent. The incidence of this phenomenon is uneven, with Mediterranean countries being more vulnerable than the rest. Our models also project a disproportionate increase in heat-attributable mortality in Mediterranean countries, due to a significant rise in summer temperatures and this greater vulnerability to heat."

The projections indicate a very large increase in deaths due to extreme heat. In fact, under the highest-emission scenario and assuming no adaptation, deaths attributable to extreme heat would outstrip cold-attributable mortality.

"Our findings underscore the urgency of adopting global mitigation measures, since they will not be effective if they are only adopted in specific countries or regions," said ISGlobal researcher Joan Ballester, last author of the study. "Moreover, one decisive factor not included in our models is our capacity to adapt to new scenarios, which is already helping to reduce our vulnerability to temperatures."

The study was carried out within the framework of EARLY-ADAPT, a project funded by the European Research Council (ERC) that analyzes the environmental, socio-economic and demographic factors involved in adaptation to climate change. EARLY-ADAPT aims to improve its projections by analyzing the social factors and inequalities in adaptation to [climate change](#) and incorporating these factors into its climate and epidemiological models.

**More information:** Èrica Martínez-Solanas et al, Projections of temperature-attributable mortality in Europe: a time series analysis of 147 contiguous regions in 16 countries, *The Lancet Planetary Health* (2021). [DOI: 10.1016/S2542-5196\(21\)00150-9](#)

Provided by Barcelona Institute for Global Health

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