

Climate change may reduce average life expectancy by half a year, study suggests

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The cost of climate change may take six months off the average human lifespan, according to a study published January 18, 2024, in the open-

access journal *PLOS Climate* by Amit Roy from Shahjalal University of Science and Technology and The New School for Social Research, U.S.

Temperature and rainfall—two telltale signals of [climate change](#)—cause myriad public health concerns, from the acute and direct (e.g., [natural disasters](#) like flooding and [heat waves](#)) to the indirect yet equally devastating (e.g., respiratory and mental illnesses). While impacts like these are observable and well documented, existing research has not established a direct link between [climate](#) change and life expectancy.

To clarify this relationship, the author evaluated average [temperature](#), rainfall, and life expectancy data from 191 countries from 1940–2020, using GDP per capita to control for drastic differences between countries.

In addition to measuring the isolated impacts of temperature and rainfall, the author designed a first-of-its-kind composite climate change index, which combines the two variables to gauge the overarching severity of climate change.

Results indicate that in isolation, a global temperature increase of 1°C is associated with an average human life expectancy decrease of approximately 0.44 years, or about six months and one week. A 10-point increase in the composite climate change index—which accounts for both temperature and rainfall—is expected to decrease the average life expectancy by six months. Women and individuals in developing nations are disproportionately affected.

Beyond the results of this study, Dr. Roy is hopeful that the composite climate change index will standardize the global conversation about climate change; become a usable metric for the nonscientific public; and encourage collaboration and even friendly competition among countries to combat the impacts of climate change.

Mitigating greenhouse gas emissions and adapting to a changing environment are of particular importance, the author says.

To complement this large-scale approach, the author suggests localized future studies that consider specific severe weather events (e.g., wildfires, tsunamis, and floods), the impacts of which cannot be fully captured through analyzing temperature and rainfall alone.

Dr. Roy adds, "The global threat posed by climate change to the well-being of billions underscores the urgent need to address it as a public health crisis, as revealed by this study, emphasizing that mitigation efforts to reduce [greenhouse gas emissions](#) and proactive initiatives are essential to safeguard [life expectancy](#) and protect the health of populations worldwide."

More information: A panel data study on the effect of climate change on life expectancy, *PLOS Climate* (2024). [DOI: 10.1371/journal.pclm.0000339](#)

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