

New Study Finds Warming Saves Lives...Cold Temperatures 12 Times More Deadly Than Excess Heat

By Kenneth Richard on 30. March 2026

Because cold temperatures are so much more dangerous to human health than warmth, a modest 0.5°C warming could save over 10,000 lives per year in the US.

A [new study](#) indicates that from 2000 to 2020 there were **6,129** annual deaths attributable to excess summer heat across 1,514 US counties (representing 91% of the United States' adult population).

Heat-related deaths receive the vast majority of media attention due primarily to the assumption that humans can control the temperature of the ocean and surface air by emitting more or less CO₂.

However, the real health risk – even in wealthy countries like the US – is not “global warming,” but exposure to cold temperatures in winter.

This same study reveals there were **72,361** deaths per year attributable to exposure to 21st century cold temperatures in the US.

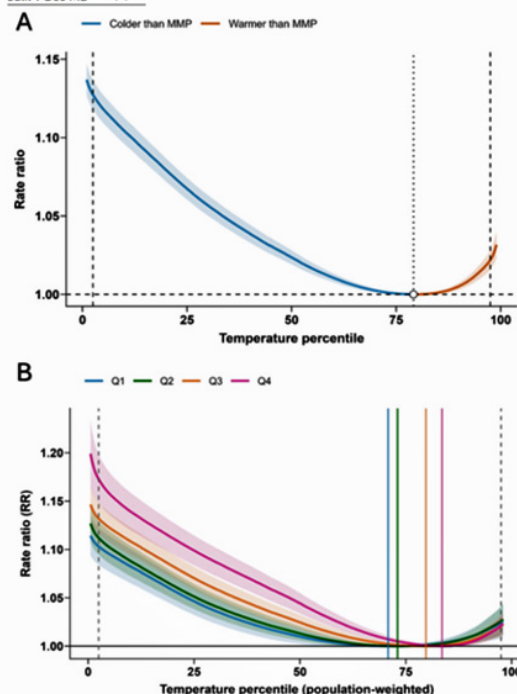
In other words, cold winter temperatures are associated with 12 times more deaths (40.1 deaths per 100,000 person-years) than deaths linked to excessive heat (3.4 deaths per 100,000 person-years).

Because the US has continued to have “extreme winter events” in the 21st century and “unusually cold winter snaps” in the South, the “cold related deaths in the US have increased by 9% per year over the past two decades.”

Non-optimal temperature-related deaths have been increasing, with *cold* non-optimal temperatures far more deadly.

Social vulnerability and mortality attributable to non-optimal temperature in the United States: A county-level ecological analysis

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Ecological time-series analysis from 2000–2020.

Climate change represents one of the greatest public health challenges of the 21st century.¹ Temperature extremes related to climate change have been repeatedly linked with more short-term non-accidental deaths.^{2,3} While the world is generally becoming warmer, climate change has also resulted in extreme winter events in the US with regions in the South experiencing unusually cold winter snaps.^{2,4} In fact, cold related deaths in the US have increased by 9% per year over the past two decades.⁵ While susceptible individuals and vulnerable populations have been appropriately raised as factors that may moderate the impact of temperature anomalies on mortality, the current evidence is insubstantial.⁶ Hence, this study aimed to quantify the current burden of all-cause mortality attributed to extreme temperatures across U.S. counties stratified by their social vulnerability.

Methods

We analyzed 1,514 counties representing 91.2% of the 2010 U.S. adult population (ages 25–84), including 33,395,241 deaths (after imputation: 33,421,054) which were linked to monthly mean temperature. A two-stage modeling framework was used. First, quasi-Poisson models with natural cubic splines estimated county-specific non-linear temperature–mortality associations, with population offsets and spline-based control for seasonality. Second, coefficients and variances were pooled using random-effects multivariate meta-analysis to identify the minimum mortality temperature (MMT) and percentile (MMP). Effect modification was assessed by incorporating Social Vulnerability Index (SVI) quartiles into a multivariate meta-regression. Attributable deaths were estimated using 5,000 Monte Carlo draws and classified as heat-related (above MMT) or cold-related (below MMT); crude rates were expressed per 100,000 person-years.

Results

The pooled MMT was 22.7 °C (95% CI: 22.2–23.2), corresponding to the 78.4th percentile (95% CI: 76.1–80.8). Nationally, an estimated 72,361 (95% CI: 68,837–76,153) cold-attributable and 6,129 (95% CI: 5,309–7,227) heat-attributable deaths occurred annually, equivalent to 40.1 and 3.4 per 100,000 person-years. More socially vulnerable counties had higher MMTs [SVI Q4: 23.9 °C vs Q1: 21.0 °C] and higher heat- (2.0 vs 0.7) and cold-related mortality rates (40.9 vs 28.0).

Conclusions

Cold accounted for most temperature-related deaths in the U.S., and social vulnerability intensified both cold- and heat-related mortality. These findings support geographically targeted, vulnerability-responsive public health strategies.

Image Source: [de Oliveira Salerno et al., 2026](#)

Interestingly, a Google search using the data from this study and a hypothetical 0.5°C increase in mean annual US temperature indicates, per AI, that this modest warming could potentially save “several thousand to over 10,000 lives” per year.

🔍 If there are 72,361 deaths per year attributable to extremely cold temperatures but 6,129 deaths per year attributable to excessive heat, how many lives are saved annually with a 0.5°C mean annual temperature increase in the contiguous USA? Provide a numerical estimate.

🌟 AI Overview

Based on studies indicating that cold-related deaths vastly outnumber heat-related deaths in the United States, a moderate increase in mean annual temperature generally results in a net reduction in temperature-related mortality due to a larger decrease in cold deaths compared to the increase in heat deaths. 🌐 Our World in Data +1

While estimates vary based on the model and the specific dataset (e.g., studies often cite higher numbers for total cold-related mortality, with estimates sometimes reaching over 100,000 annually), studies that analyze moderate temperature increases often estimate a net saving of thousands to tens of thousands of lives annually in the U.S. through reduced cold exposure. 🌐 Our World in Data +3

Using the specific numbers in your query (72,361 cold vs 6,129 heat) as a baseline, a 0.5°C increase would reduce the large 72,361 figure significantly, while increasing the smaller 6,129 figure by a smaller amount, likely resulting in a net saving of **several thousand to over 10,000 lives annually**, depending on the model's assumptions regarding adaptation and the specific regional impacts. 🌐 Our World in Data +1

Image Source: [AI via Google](#)

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