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# Two new studies warn that a hotter world will be a more violent one



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As the planet warms, experts have increasingly sounded the alarm over the potential for [increased climate-driven geopolitical conflict](#). Two new studies underscore how rising temperatures are likely to increase aggression and violent behavior at the individual level as well. They arrive at a similar conclusion using two very different data sets: crime in Los Angeles and terrorist attacks around the world.

The first study, [released last month by the National Bureau of Economic Research](#), examines the relationship between daily high temperatures and incidents of violent crime in Los Angeles between 2010 and 2017.

Criminologists have [known for decades](#) that murder and other violent crimes tend to be [more frequent in the hot summer months](#). Here, for example, is a comparison between monthly homicides and average high temperatures in the city of Chicago.

The charts share the same general outline, peaking in July and then receding toward the winter months. But this simple correlation is complicated by a number of factors. Schools are out in summer, meaning many teens and young adults, [who account for a disproportionate share of violent crime arrests](#), have more free time on their hands.

People also spend more time outdoors when the weather is nice, and having more people in public places means a greater likelihood of social encounters that can go south and turn violent.

On the other hand, there's plenty of reason to suspect higher temperatures are a direct driver of violent behavior. The authors note several previous studies "have found evidence for increases in aggression and violent behavior in controlled settings when study subjects are exposed to high temperatures." One recent laboratory experiment found, rather ominously, that participants demonstrated "an increase in the joy of destruction" when subject to increasing ambient temperatures.

To help suss out cause and effect, the authors analyzed Los Angeles's daily crime data while controlling for two key factors: whether public schools were in session on a given day and overall traffic volume on the region's highways (a proxy for total social activity in the city).

What they found was striking. "On average, overall crime increases by 2.2% and violent crime by 5.7% on days with maximum daily temperatures above 85 degrees Fahrenheit (29.4° C) compared to days below that threshold," they write. Moreover, they find "heat only affects violent crimes while property crimes are not affected by higher temperatures."

That's consistent with the data showing that high temperatures make people more aggressive — you wouldn't expect property crimes like theft and forgery, which tend to be driven by economic desires, to be as affected by the temperature.

The study on terrorist attacks, published recently in the journal Studies in Conflict & Terrorism, similarly finds a "significant" relationship between high temperatures and terrorist attacks and fatalities around the world between 1970 and 2015. They controlled for whether the attacks took place in the summer months, under the assumption that crowds of vacationers might prove to be an attractive terrorism target independent of weather considerations.

They found that not only were terrorist attacks more common on hotter days, but also that the number of fatalities per attack were higher as well. Their research demonstrates "preliminary evidence for the temperature-aggression hypothesis in the context of terrorism," the authors write, "and conceptually replicates previous research demonstrating a relationship between heat and intergroup violence."

The magnitude of the effects they observe is quite large, particularly when you take into account the warming climate. Under the terms of the rosy but highly unlikely Paris accord where the world's countries agreed to keep "global temperature rise this century well below 2 degrees Celsius above preindustrial levels," global terrorist attacks would increase by 14 percent solely as a result of hotter days, according to the study. Total terrorism fatalities would rise by 24 percent.

Taken together, the two new studies are a reminder that all else being equal, a hotter world is destined to become a more violent one.