

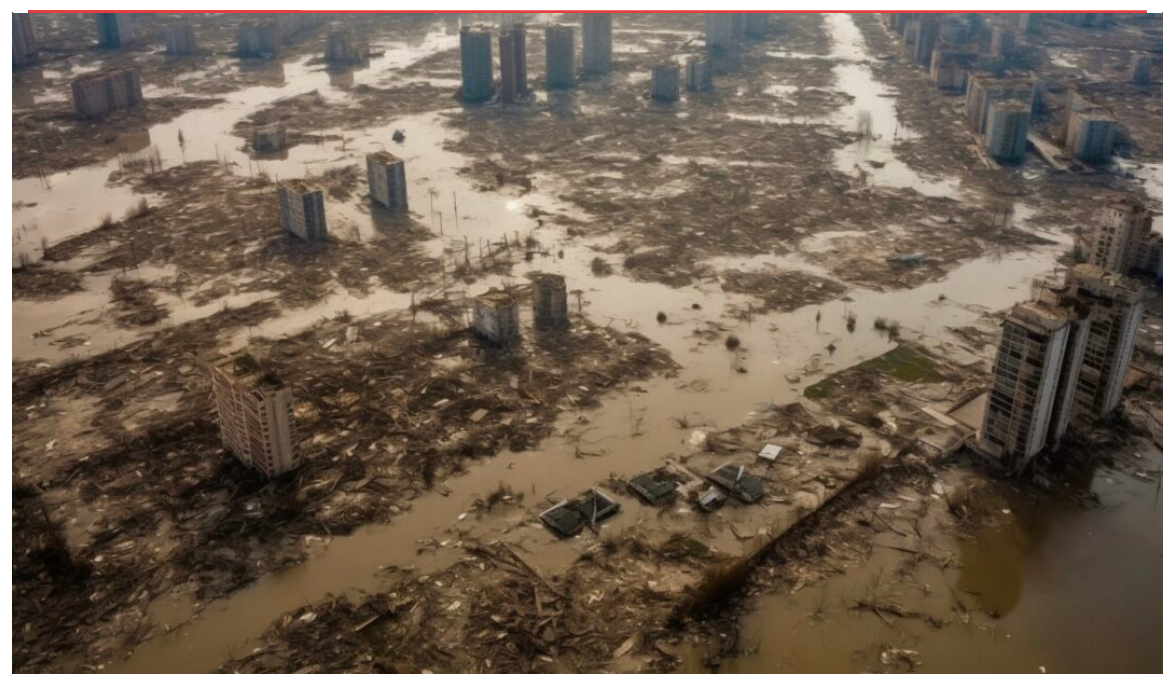


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SINGAPORE NEWS

Study from NTU, City University warns El Niño events can reduce life expectancy even in wealthy Pacific Rim countries

 By Anna Maria Romero

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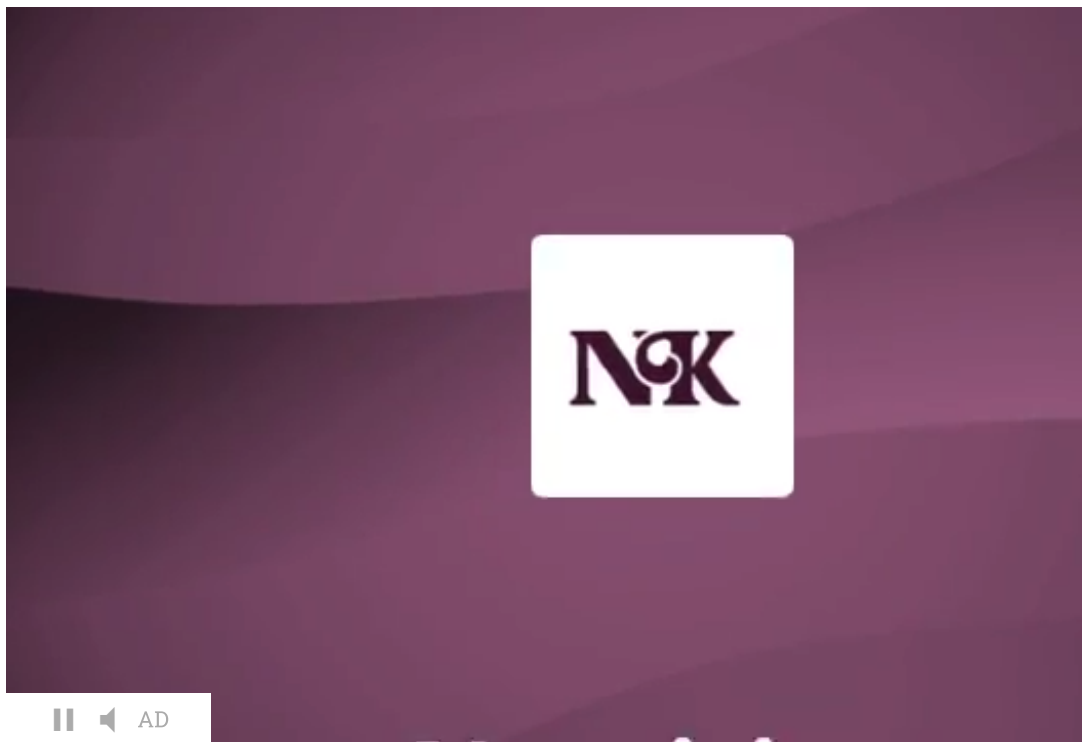
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SINGAPORE: A study jointly led by researchers from Nanyang Technological University and collaborators from the City University of Hong Kong has grim news for future generations, who may find themselves living shorter life spans due to the weather phenomenon known as El Niño.

The research, published in the scientific journal *Nature Climate Change*, is part of NTU's Climate Transformation Programme.

The El Niño-Southern Oscillation (ENSO) is the primary driver of year-to-year climate changes, affecting not only temperature and rainfall but also extreme weather events worldwide. It results in flooding, heatwaves, and air pollution, as well as disruptions to food security. Moreover, the study shows that these changes in climate have an impact on human health and economic growth.

Specifically, the intensifying positive phase of ENSO may substantially shorten life expectancy.

"The intensifying positive phase of ENSO, also known as El Niño events, could significantly reduce life expectancy across high-income Pacific Rim countries resulting in economic losses of up to US\$35 trillion (approx. 10% of global GDP) by the end of the 21st century," **NTU said**.

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"Our study finds that in a warming climate, recurring El Niño events quietly chip away at the health gains that Pacific Rim societies usually achieve over time. Even in relatively wealthy and well-resourced countries and regions, each major El Niño event can slow the improvements in life expectancy that people would otherwise have enjoyed," said NTU's Dr Yanbin Xu, the paper's first author.

It added El Niño is not just a temporary weather anomaly but a "persistent driver of health and economic loss," with particular risks to vulnerable populations.

The health risks affect the young and old members of society, while economic risks mainly fall on the shoulders of middle-aged working adults.

Young people who spend more time outdoors are more exposed to El Niño-driven stressors, such as heat extremes and air pollution, while older people are also affected because of their decreased physiological resilience to environmental stressors.

"While mitigation efforts to curb greenhouse gas emissions remain critical, the researchers say that adaptation measures are essential to reduce long-term losses.

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Future projections under moderate emissions scenarios suggest a cumulative decline of 2.8 years in life expectancy by 2100.

This corresponds to roughly US\$35 trillion in losses, or around 1 per cent of projected economic output for the region, highlighting the importance of incorporating El Niño-related health risks into long-term planning," NTU added.

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The researchers analyzed mortality data from 1960 to 2022, which showed that major El Niño events cause long-run advancements in mortality and life expectancy to slow down. Moreover, these events also slow down improvements to living conditions and healthcare.

While during ENSO-neutral years, mortality across Pacific Rim countries declined by 2.1 percentage points per year for all ages, though five years after an El Niño event, this decreases to -0.6 percentage points, which the researchers say is indicative of deterioration in human mortality linked to increased deaths from climate stresses related to El Niño.

They also estimated that El Niño events from 1982 to 1983 and 1997 to 1998, respectively, reduced life expectancy gains at birth by around 0.5 and 0.4 years, which translates to economic losses of around US\$2.6 trillion (S\$3.351 trillion) and US\$4.7 trillion (S\$6.068 trillion).

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"Our research shows that El Niño events do not just disrupt weather – they silently shorten lives and drain economies. Past events have cost high-income Pacific Rim countries up to half a year of life expectancy and trillions of dollars. Looking ahead, without decisive action, climate change will erode global health and stability for generations. Adaptation is not optional – it's urgent," said City University of Hong Kong's Professor Benjamin Horton, a co-author of the study.

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