

Does hot weather affect human fertility?

Hot weather can worsen reproductive health and decrease later birth rates

Keywords: fertility, birth rates, temperature, climate change

ELEVATOR PITCH

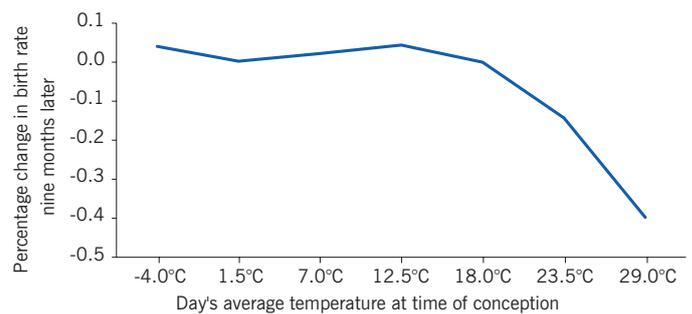
Research finds that hot weather causes a fall in birth rates nine months later. Evidence suggests that this decline in births is due to hot weather harming reproductive health around the time of conception. Birth rates only partially rebound after the initial decline. Moreover, the rebound shifts births toward summer months, harming infant health by increasing third trimester exposure to hot weather. Worse infant health raises health care costs in the short term as well as reducing labor productivity in the longer term, possibly due to lasting physiological harm from the early life injury.

KEY FINDINGS

Pros

- + Hot weather reduces birth rates eight to ten months later, with the largest reduction occurring at nine months.
- + Decline in births related to high temperatures is likely due to worse reproductive health at conception, not reduced sexual activity.
- + A modest rebound effect in birth rates occurs 11–13 months after high temperatures, partially offsetting the initial decline in fertility.
- + Air conditioning may help offset some of the negative effects of hot weather, though it may also exacerbate climate change.

Effect of daily temperature on birth rates, US, 1931–2010



Note: Changes calculated in reference to an 18°C day, e.g. one more day at 29°C = 0.4% fewer births 9 months later.

Source: Author's own compilation based on [1], Figure 4.

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Cons

- The impact of hot weather on fertility is less clear in developing countries, where birth rates are typically higher and public health resources are limited.
- More research with humans is needed to determine whether the impact on reproductive health is larger for males than females, as is suggested by animal studies.
- The rebound in birth rates shifts births to summer months where children will be exposed to dangerous hot weather during the third trimester.
- Compared with birth control policy or female labor market participation, temperature is less important for predicting historical changes in fertility or differences in fertility across countries.

AUTHOR'S MAIN MESSAGE

Relatively little attention has been paid to how temperature shocks might affect prime-aged adults, especially via their reproductive health. Non-experimental studies find that birth rates fall nine months after the occurrence of hot weather. There is suggestive evidence that the fall in births is due to worse reproductive health and not diminished sexual activity. Providing the public with information regarding this negative link might help people better adapt. Increased use of air conditioning might be one concrete step for adapting, though this response will potentially increase greenhouse gas emissions and climate change.