Global Warming Could Be Driving Up Women's Cancer Risk

Increased heat was linked to a rise in rates of breast, ovarian, uterine and cervical cancers.

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Scientists investigating the impact of climate change on women's health have found that increased heat is linked to an increase in rates of breast, ovarian, uterine and cervical cancers. They looked at 17 countries in the Middle East and North Africa, where temperatures are expected to rise by 4 degrees Celsius by 2050, and found that these four cancers became more common and more likely to be fatal with each degree rise in temperature. The increase can't be explained by improved diagnosis or survival rates. The researchers call for the urgent integration of climate change resilience into public health plans.

Scientists have found that global warming in the Middle East and North Africa is making breast, ovarian, uterine, and cervical cancer more common and more deadly. The rise in rates is small but statistically significant, suggesting a notable increase in cancer risk and fatalities over time.

"As temperatures rise, cancer mortality among women also rises — particularly for ovarian and breast cancers," said Dr Wafa Abuelkheir Mataria of the American University in Cairo, first author of the article in Frontiers in Public Health. "Although the increases per degree of temperature rise are modest, their cumulative public health impact is substantial."

An unhealthy environment

Climate change isn't healthy. Rising temperatures, compromised food and water security, and poor air quality all increase the burden of disease and death worldwide. Natural disasters and the strain of unanticipated weather conditions also disrupt infrastructure, including healthcare systems. When it comes to cancer, that can mean people are more exposed to risk factors like environmental toxins and are less likely to receive a prompt diagnosis and treatment. This combination of factors could lead to a major rise in the incidence of serious cancers, but quantifying it is difficult.

To investigate the effects of climate change on women's cancer risk, the researchers selected a sample of 17 Middle Eastern and North African countries: Algeria, Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Saudia Arabia, Syria, Tunisia, United Arab

Emirates, and Palestine. These countries are seriously vulnerable to climate change and are already seeing striking temperature rises. The researchers collected data on the prevalence and mortality of breast cancer, ovarian cancer, cervical cancer, and uterine cancer, and compared this information with changing temperatures between 1998 and 2019.

“Women are physiologically more vulnerable to climate-related health risks, particularly during pregnancy,” said co-author Dr Sungsoo Chun of the American University in Cairo. “This is compounded by inequalities that limit access to healthcare. Marginalized women face a multiplied risk because they are more exposed to environmental hazards and less able to access early screening and treatment services.”

Running the numbers

The prevalence of the different cancers rose by 173 to 280 cases per 100,000 people for every additional degree Celsius: ovarian cancer cases rose the most and breast cancer cases the least. Mortality rose by 171 to 332 deaths per 100,000 people for each degree of temperature rise, with the greatest rise in ovarian cancer and the smallest in cervical cancer.

When the researchers broke this down by country, they found that cancer prevalence and deaths rose in only six countries — Qatar, Bahrain, Jordan, Saudia Arabia, the United Arab Emirates, and Syria. This could be due to particularly extreme summer temperatures in these countries, or other factors which the model couldn’t capture. The rise was not uniform between countries: for instance, the prevalence of breast cancer rose by 560 cases per 100,000 people for each degree Celsius in Qatar, but only 330 in Bahrain.

Although this shows that increased ambient temperature is a probable risk factor for these cancers, it also suggests that temperature has a different effect in different countries - so there are likely to be other factors modifying risk. For instance, increased heat could be associated with higher levels of carcinogenic air pollution in some places.

“Temperature rise likely acts through multiple pathways,” said Chun. “It increases exposure to known carcinogens, disrupts healthcare delivery, and may even influence biological processes at the cellular level. Together, these mechanisms could elevate cancer risk over time.”

Risk factors

Higher prevalence could also reflect improvements in cancer screening. However, better screening would be expected to result in fewer deaths, as early-stage cancer is easier to treat. But both death rates and prevalence rose, suggesting that the driving factor is exposure to risk factors.

“This study cannot establish direct causality,” cautioned Mataria. “While we controlled for GDP per capita, other unmeasured factors could contribute. Nonetheless, the consistent associations observed across multiple countries and cancer types provide compelling grounds for further

investigation.”

This research also underlines the importance of considering climate-related risks in public health planning.

“Strengthening cancer screening programs, building climate-resilient health systems, and reducing exposure to environmental carcinogens are key steps,” said Chun. “Without addressing these underlying vulnerabilities, the cancer burden linked to climate change will continue to grow.”

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