CLIMATE CHANGE AND ITS EFFECTS ON HUMAN HEALTH

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Annotation:*This article analysis the connection between climate change and human health, focusing on physical, environmental, and psychological effects.It discusses how increasing global temperatures, air pollution,extreme weather events, and ecosystem disruptions negatively affect human life. The article also explores scientific research and global reports highlighting the urgent need for environmental protection and health adaptation strategies. Finally, it suggests sustainable actions that governments and individuals can take to lessen climate-related health risks.*

Keywords: *Climate change, global warming, public health, diseases, environment, adaptation, sustainability,humanity.*

Climate change has become one of the greatest challenges facing humanity in the 21st century. It refers to long-term shifts in temperature, precipitation, and weather patterns, primarily driven by human activities such as industrialization, deforestation, and the burning of fossil fuels. These processes release big amounts of greenhouse gases (GHGs), which trap heat in the Earth's atmosphere and increase global temperatures. According to the World Health Organization (WHO), climate change is not just an environmental problem—it is also a global health crisis. The WHO estimates that between 2030 and 2050, climate change will lead to around 250,000 additional deaths each year due to malnutrition, malaria, diarrhea, and heat stress. The results of this crisis extend to nearly every aspect of human life: air quality, food security, access to pure water, and mental well-being.

Many researchers have investigated how global warming impacts human health. The Intergovernmental Panel on Climate Change (IPCC, 2022) warns that rising temperatures will go on to disrupt ecosystems and amplify existing health inequalities. People in low-income countries, especially in tropical regions, are more vulnerable due to limited healthcare infrastructure and adaptive capacity. Patz et al. (2014) identified that climate-sensitive diseases such as cholera,malaria and dengue fever are spreading to new places where they were previously unknown.In the same way,The Lancet Countdown (2023) reported that heat exposure has already caused a 68% increase in premature deaths among older adults since the year 2000. Watts et al. (2023) emphasized that climate change acts as a 'risk multiplier,' making preexisting health issues like respiratory and cardiovascular diseases much worse. The literature strongly agrees that the connection between climate and health is complicated and multidimensional, requiring global collaboration and policy reform.

Rising world's temperatures are one of the most direct outcomes of climate change. Heatwaves have become more fast and frequent, particularly in regions such as South Asia, Africa, and Southern Europe. When body temperature rises above 40°C, heatstroke and dehydration can occur, potentially leading to organ failure and death. According to WHO

data, the European heatwave of 2003 resulted in more than 70,000 deaths. Workers in agriculture and construction are especially vulnerable due to prolonged outdoor exposure. Elderly people, children, and those with chronic diseases are also at greater risk.

Air pollution is a crucial byproduct of fossil fuel burning. Greenhouse gases such as carbon dioxide and methane are often accompanied by harmful pollutants like nitrogen oxides and particulate matter (PM2.5). These pollutants irritate the lungs, cause asthma attacks, and increase the prospect of lung cancer and heart disease. The Lancet Planetary Health Report found that air pollution be a factor in more than 7 million deaths annually around the world.Metropolitan areas with traffic congestion and industrial activity—such as Delhi, Beijing, and Los Angeles—are the most impacted.

Climate change alters rainfall patterns, humidity, and temperature—features that affect the habitats of insects like mosquitoes and ticks.Consequently,diseases such as malaria, zika, and dengue are circulating new territories. For instance, Europe and the United States have recently seen outbreaks of dengue fever, a disease once limited to tropical territories.Flooding caused by extreme weather also increases the risk of waterborne diseases such as cholera and typhoid.

Climate change severely affects food manufacture. Droughts, floods, and uncertain rainfall demolish crops and reduce food availability. According to the Food and Agriculture Organization (FAO), by 2050, climate change could reduce global crop fields by up to 25%. In Africa and Asia, millions of people already face hunger and malnourishment due to decreasing agricultural productivity.As well as, warmer temperatures reduce freshwater availability and worsen water pollution, leading to dehydration, diarrhea, and sanitation problems.

The psychological effects of climate change are increasingly recognized. People exposed to natural disasters—such as hurricanes, floods, and wildfires—often face post-traumatic stress disorder (PTSD), depression, and anxiety. The term 'eco-anxiety' has emerged to describe chronic fear of environmental doom, especially among the youth. Climate change also cause migration and displacement, which leads to loss of social ties, penury and mental distress.

Addressing climate-related health threats demands a combination of mitigation (reducing emissions) and adaptation (preparing societies for impacts). The Paris Agreement set the international aim of limiting warming to 1.5°C above pre-industrial levels. Countries are encouraged to shift to renewable energy,advocate sustainable agriculture, and enhance public health infrastructure. Health systems must become climate-resilient. This means hospitals should get ready for extreme weather events, disease outsets, and disruptions to water or power supplies. Education and awareness programs can authorize communities to take preventive steps such as reducing air pollution exposure and improving nutrition. Global cooperation is also important. Developed countries should provide financial and technological help to developing countries to strengthen their adaptation capacities. Local governments must integrate climate risks into urban planning and disaster management systems.

In conclusion, climate change represents a multidimensional threat to human health. Its impacts range from heat stress and respiratory problems to food insecurity and psychological disorders. The proof is obvious:without urgent global action, millions more lives will be endangered in the coming ten years. However, the crisis also ensures an opportunity to build healthier, more sustainable societies. Transitioning to renewable energy, protecting natural ecosystems, and promoting public health education can simultaneously resist climate change and improve human well-being. Ultimately, the health of the planet and the health of humanity are inseparable.Defending one means defending the other.

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