

Climate Change and Its Impact on Health

Khandaker S

Without nature, human being is nothing. In spite of this, humans are destroying the environment and the living creatures that call our planet home at unprecedented rates at our own peril. From increasing the threat of disease to disrupting our global food chain, biodiversity loss across the globe is threatening the very foundation of our future and the well-being of everyone, everywhere. The catastrophic effects of climate change on human health are already on display like famines triggered by once-in-a-century droughts or flooding; death and suffering wrought by some of the strongest hurricanes and heat waves in modern history.¹

Because habitat destruction brings humans and wildlife into closer contact, it dramatically increases our risk of exposure to “zoonotic spillover,” which occurs when pathogens- bacteria or viruses that cause disease jump from animals to humans. In fact, more than 75% of emerging infectious diseases in humans are caused by pathogens that originally circulated in animals, leading to millions of deaths each year. According to some estimates, as many as 1.6 million viruses are contained within mammals and birds across the globe, some of which could be deadly if or when they become transmissible to humans.¹

A 2022 review published in *Nature Climate Change* showed that of 375 infectious diseases studied, 218 (58%) have been aggravated by climate change. Outbreaks of infectious diseases are now being linked directly to global warming, with the risk spreading beyond tropical regions to temperate zones too. 'flesh-eating bacteria' or *Vibrio vulnificus*. edging into cooler waters, erratic weather conditions causing cholera outbreaks. One in two of us are now at risk of dengue, Malaria-spreading mosquitoes are expanding their habitats.²

Climate change is expected to exacerbate health problems that already pose a major burden to vulnerable populations. Climate change will bring new and emerging health issues, including heat waves and other extreme events. Heat stress can make working conditions unbearable and increase the risk of cardiovascular, respiratory and renal diseases. Malnutrition and under nutrition were highlighted as a concern for a number of developing countries in Africa, Asia and Latin America, which discussed the impacts of climate change on food security, particularly in relation to floods and drought.³

Climate change is directly contributing to humanitarian

emergencies from heatwaves, wildfires, floods, tropical storms and hurricanes and they are increasing in scale, frequency and intensity. Research shows that 3.6 billion people already live in areas highly susceptible to climate change. Between 2030 and 2050, climate change is expected to cause approximately 250, 000 additional deaths per year, from under nutrition, malaria, diarrhoea and heat stress alone. The direct damage costs to health (excluding costs in health-determining sectors such as agriculture and water and sanitation) is estimated to be between US\$ 2-4 billion per year by 2030. Areas with weak health infrastructure- mostly in developing countries – will be the least able to cope without assistance to prepare and respond. Climate change is also having an impact on our health workforce and infrastructure, reducing capacity to provide universal health coverage (UHC).⁴

Human health is severely undermined by climate change.⁵ Bangladesh, one of the South Asian countries, has started experiencing major public health impacts of climate change due to its vulnerable geographical location.⁶ The country is facing new challenges including increased incidences of climate sensitive diseases such as dengue, chikungunya, kalazaar, cholera, malnutrition and so on. Disease patterns are aggravating because of changes in both primary (e.g. temperature and rainfall) and secondary elements (drought, salinity intrusion, sea level rise, recurrent flood, flash flood) of climate change.⁷ After floods, cyclones and droughts waterborne diseases are more prevalent. The distribution and frequency of vector-borne diseases are changing due to temperature variations across various regions depending on the spatial and temporal dimensions. During extreme heat and extreme cold deaths and hospital admissions of children are increasing. Healthcare infrastructure and equipment are getting damaged and destroyed with disaster or extreme weather events, which disrupt healthcare services. The World Bank states that about 0.2 million people were killed by natural disasters during 1980-2010 in Bangladesh.⁸ It indicates that about 6,188 people died each year during above-mentioned period due to disasters in the country.⁹ WHO estimates that by 2070 at least 117 million people will be at risk of malaria under a rapid emission reduction scenario, and this might be 147 million under a high emission scenario.¹⁰ Due to climate change around 19.4 million children are at risks in 20 out of 64 districts in Bangladesh.⁵ Currently, people of many Asian countries including Bangladesh, Malaysia, Singapore, Philippines, Cambodia, Laos, Vietnam are suffering from Dengue fever.⁸ From 1 January to 7 August 2023, the Ministry of Health and Family Welfare of Bangladesh reported a total of 69 483 laboratory-confirmed dengue cases and 327 related deaths, with a case fatality rate (CFR) of 0.47%.¹¹

Correspondence to:

Dr. Shumya Khandaker
Assistant Professor, Department of Community Medicine
Diabetic Association Medical College, Faridpur
E-mail: nila.18fmc@gmail.com

Extreme climatic events causing decreased food production and inadequate supply affect health, education, child nutrition and income sources of the households. With rising food prices, dietary diversity, quality, and quantity decline placing vulnerable populations at increased risk of malnutrition. In Bangladesh different studies on nutritional status showed that the percentage of stunted and underweight children in rural areas is significantly higher compared to children in urban areas (45% compared with 36%). At the national level, 51% of children under the age of five years are stunted, 56% underweight and 14.7% are wasted by international standards. Per capita dietary energy supply in Bangladesh shows a declining trend. Approximately 47% of Bangladesh's workforce works in the agriculture sector, which also generates 16% of the nation's gross domestic product (GDP).¹² Agriculture provides a livelihood for many rural communities, but it is facing significant difficulties from climate change.⁷ It has been estimated that by 2050, one in every seven people in Bangladesh will be displaced by climate change. Specifically, with a projected 19.6 inch (50 cm) rise in sea level, Bangladesh may lose approximately 11% of its land by then, and up to 18 million people may have to migrate because of sea-level rise alone. Overwhelmingly, when these migrants move into big cities, they don't find refuge from rural climate challenges, but rather, more and at times worse problems. Thus they will be forced to settle into densely populated urban slums with rudimentary housing conditions, poor sanitation, and limited economic opportunities.^{13,14}

Despite low level of CO₂ emissions (0.3 tonnes per capita according to World Bank, 2009), outdoor air pollution is a major environmental threat to Bangladesh, especially in urban areas. Lead poisoning is likely to be a major public health problem in Bangladesh. The respiratory infections and disease caused by poor air quality, both indoor and urban, may contribute up to 10% of the total burden of disease.¹²

Bangladesh, there is still a lack of research and capacity in this field and its ever-increasing level of vulnerability of the people. Linkage between climate change and the increased incidences of disease, rate of mortality, and availability of safe water has not yet received the proper focus it requires. To avert catastrophic health impacts and prevent millions of climate change-related deaths, the world must limit temperature rise to 1.5°C. Past emissions have already made a certain level of global temperature rise and other changes to the climate inevitable. Global heating of even 1.5°C is not considered safe, however; every additional tenth of a degree of warming will take a serious toll on people's lives and health.

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