

Understanding the Impact of Climate Change on Oral Health in Lower Middle-Income Countries

Climate change refers to long-term changes in temperature, precipitation patterns, and other environmental factors caused by human activities, particularly the emission of greenhouse gases. People are constantly exposed to weather patterns that alter ecosystems, human settlements, the economy, and the quality of food, water, and air.¹ This results in health issues and makes it harder to adjust to climate change. Even though there may not be a direct correlation between climate change and dental health, it has a substantial impact on human health in general, including oral health, particularly in lower middle-income nations when natural disasters like floods and droughts strike.² Following are some of the means by which climate change may affect oral health.

Dental problems may become more prevalent because of poor dental hygiene and sanitation brought on by erratic supply of water imposed upon by climatic imbalance.³

Severe weather events, such as floods, can contaminate water supplies and interfere with sanitation, which may transmit diseases. Climate change affects fungi, hosts, and ecosystems, leading to the emergence of novel species that pose a risk to food security, human health, and biodiversity.⁴

Disasters and climate changes can result in dental trauma, including tooth fractures and avulsions. Dentists receive medical and surgical training during their pre-doctoral schooling both in India and overseas, which makes them handy in crisis-management circumstances.⁵ Additionally, they are educated to handle medical crises in dental clinics and hospitals, including minor surgery, medication delivery, injections, and anaesthesia administration.⁵

Global health and food security are at risk due to climate change, particularly in lower-income countries like Pakistan that have little ability to adapt. The low Human Development Index of the country highlights the instability within society brought about by poverty and hunger. Due to social, geographic, and political circumstances, marginalised populations have discrepancies in oral health and are more vulnerable to vitamin deficiencies and malnutrition.

Due to climate change, one of the greatest threats to public health worldwide is the emergence and re-emergence of vector-borne diseases. Oral health complications could occur in countries with significant vector-borne disease prevalence.

It is critical that we establish efficient measures for climate-resilient healthcare, including dental care, considering the substantial

consequences of climate change on human health. The dental profession requires specific regulations for disaster risk reduction, regardless of the existence of measures, such as national climate policy and disaster management plans. Dental professionals may contribute until such policies are developed by implementing sustainable practices such as reducing waste, conserving energy and water, and raising public awareness of climate-resilient health through seminars and educational programmes to become prepared for the challenges triggered on by climate change in the field of healthcare.

DISCLAIMER:

The views expressed in the paper represent the author's opinion not of their organisations.

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REFERENCES

1. Khanna S. Climate change & oral health: Current challenges & future scope. *Int J Environ Sci Develop* 2010; **1(2)**:190-2. doi:10.7763/IJESD.2010.V1.35.
2. Hackley DM. Climate change and oral health. *Int Dent J* 2021; **71(3)**:173-7. doi: 10.1111/idj.12628.
3. UNDP. Somalia Drought Impact & Needs Assessment. 2014.
4. Nnadi NE, Carter DA. Climate change and the emergence of fungal pathogens. *PLoS Pathogens* 2021; **17(4)**:e1009503. doi: 10.1371/journal.ppat.1009503.
5. Dutta SR, Singh P, Passi D, Varghese D, Sharma S. The role of dentistry in disaster management and victim identification: An overview of challenges in Indo-Nepal scenario. *J Maxillofac Oral Surg* 2016; **15(4)**:442-8. doi: 10.1007/s12663-016-0896-4.

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