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Effects of Climate Changes on Oral Health

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Editorial

Climate change has been shown to have an impact on human health, particularly dental health, making this an urgent and current issue. Global mean surface air temperature (SAT) increased by 1°C above pre-industrial levels in 2015, and is expected to rise fast to 1.5°C by the 2030s and 2°C by the 2050s. This rate of global warming and rising global mean SAT are linked to increasing chances of today's measured unfavourable health outcomes.

In 2010, billions of individuals were impacted by oral problems, with neglected dental caries being one of the most common non-communicable disease (NCD) and periodontal disease ranking sixth. Oral cancer is one of the most frequent cancers worldwide. Widely used technique strategies to tackling NCDs emphasize on major factors notably sugar consumption, smoking and alcohol use, anxiety, accidents, and inadequate and improper cleanliness. Every efficient and effective health promotion approach should therefore incorporate larger social determinants of health, such as economics, social policies, education, and inequitable resource distribution, as well as larger disease risk factors, such as climate change and pollution. There are no documented statistics on the influence of climate change on dental health currently.

Medical practitioners are responsible for safeguarding their patients' health as well as building climate-resilient healthcare systems that could really survive the challenges posed by natural disasters. In the provider-patient-climate trio, oral healthcare professionals play a crucial role. In addition to providing patient treatment, dental care delivery systems must demonstrate robustness in the face of extreme weather and, as the COVID-19 pandemic has demonstrated, pandemics. Furthermore, because climatic emergencies and pollutants disproportionately impact vulnerable groups, the dentistry professionals has a chance to close the ever-widening gap in public health by reducing environmental impact through better dental waste management.

The sun's heat warms the earth, and though much of it goes back into space, some is trapped by greenhouse gases (GHG). GHG emissions have risen in the last century as a result of human activity, resulting in higher average global temperatures, more extreme weather events, increasing sea levels, and severe precipitation difficulties (droughts and flooding). These are few climatic factors that have major health risks:

- Poor air quality
- Food/water insecurity
- Social factors.

Poor air quality

Asthma rates have risen considerably, and are linked to, among other things, more intense wildfire seasons, longer/intense pollen seasons, increased air pollution, and higher ground-level ozone. Antihistamines (Benadryl™), which include sucrose, and bronchodilators (albuterol), which can cause dry mouth, are commonly used to treat asthma. Dental caries is caused by both sugar exposure and dry mouth. Asthma is linked to an increased risk of tooth decay, gingival inflammation, and pH6 changes in the saliva. Chronic lung disease is highly linked to periodontal disease and is linked to climate change through the same mechanisms that affect air quality.

Furthermore, poor air quality and rising temperatures deplete the ozone layer, which absorbs UV energy from the sun. Lip and skin cancers of the face, head, and neck are increased by exposure to UV light. Furthermore, oral clefts are linked to heat and sunlight.

This emphasises the significance of taking a complete medical history, evaluating the patient's medications on a regular basis, and performing comprehensive intra- and extra-oral examinations to look for (pre-) cancerous lesions, periodontal disorders, caries, and abnormal salivary flow. Oral health practitioners must be prepared to perform preventive measures as well as provide therapeutic care when necessary.

Food/water insecurity

Variable rainfall is poorly handled in many emerging economies, and non-renewable groundwater sources are depleting globally. Water shortage and heat limit animal and crop development, as well as lowering food nutritional value, contributing to food poverty. Oral hygiene activities may become less important or difficult without potable water, resulting in increased incidence of oral illness and poor oral health quality of life. Furthermore, the gastrointestinal illnesses such as diarrhoea, vomiting, and malnutrition often are caused by contaminated water and poor sanitation.

Malnutrition is more likely to occur in groups that rely largely on farming and fishing, are located outside of temperate climate zones, and are located in developing countries. Gingivitis and ulcerative periodontal lesions are early indications of NOMA, which are linked to malnutrition. Enamel hypoplasia, dental cavities, and delayed tooth eruption are all linked to malnutrition.

Social factors

Weather catastrophes, food and water scarcity, and the economic effects of lost livelihoods will continue to drive large numbers of urbanisation regions, and eventually across boundaries from developing countries to developed countries. Migrant communities lack access to healthcare, putting them at risk for a variety of preventable sicknesses, such as tooth decay disease. They are also vulnerable to individual or collective violence, which could result in more devastating mouth injuries. Migrants may also face dietary shifts or nutritional deficits, which can lead to dental problems. Furthermore, nutritional deficits, persistent illnesses, and stressful situations have all been linked to mental illness.

Global migration is in full swing. Millions of people have been displaced as a result of climate change, and the number is growing. Oral health experts in afflicted developing countries' cities, as well as those in neighbouring affluent countries, may face a surge in immigrant populations in need of immediate care. This will put a strain on already-stressed infrastructure and services. To address the issues due to global warming and urbanisation, dental public health solutions are required.

COVID-19 considerations

Extreme weather conditions jeopardise efforts to stop the spread of the coronavirus. For those who are mass sheltering, facing forced relocation, or seeking care for climate-related disease or injury in hospitals flooded with

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COVID-19 patients, social distance and hand hygiene are almost impossible. Climate exposure pathways, poor air quality, respiratory illnesses, and severe COVID-19 provide greater health hazards to vulnerable populations.

In even the most asymptomatic people, loss of taste is an early sign of COVID-19. Oral health professionals are in a unique position to check for taste loss and respiratory problems, which could help uncover undiagnosed COVID-19 cases and facilitate referral for screening. Early detection reduces the risk of infection and improves results, particularly in vulnerable populations. Due to the airborne transmission of coronavirus, dental practitioners worldwide should seek to reduce infection thru aerosol formation by using nonsurgical treatments and re-configuring air circulation/ventilation schemes in dental offices.

Oral medical practitioners do have potential to promote climate-friendly practices as clinic management and global citizens by undertaking office energy consumption and greenhouse waste inspections and altering their operations accordingly. While adhering to WHO, CDC, and state rules for disposing medical waste is critical, particularly in the context of COVID-19, PPE should indeed be dealt with in accordance with ecologically friendly waste management practises. As in best - case scenario, it's time to rethink use of such environmentally destructive oral health products because they contribute to biodiversity loss, deteriorated health, health disparity, and global warming.

Climate change has an impact on people's health, especially their dental health. Recognizing and managing environmental changes and their impact on people and communities requires awareness. For achieving health care system security and navigating unfavourable climatic events to guarantee beneficial results, practise readiness is crucial. Dental healthcare system can be reorganised to ensure that the most disadvantaged people have adequate access to treatment and that services are delivered in a coordinated manner.

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