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The Effects of Climate Change on Human Health: A Review

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ABSTRACT

The 21st century presents a serious risk to world health due to climate change. To raise public awareness, this study looked into the effects of climate change on health. This review study reviewed the literature and global research to investigate how climate change affects human health. The findings show that infectious diseases, dehydration, cardiovascular, respiratory, and skin diseases are among the illnesses linked to rising temperatures, heat waves, and climate change. Injuries, respiratory conditions, mental health issues, and dangerous aquatic infections are the main ailments linked to flooding and increasing sea levels. Lyme disease and malaria are two examples of vector-borne illnesses brought on by global warming. Respiratory illnesses and other issues brought on by deteriorating air quality are among the issues brought on by forest fires and psychological disorders. Vulnerable populations are generally more likely to be impacted by climate change, including children, the elderly the disabled, and pregnant women. Climate change has an impact on several areas, including mental health, non-communicable diseases, poisoning, diseases linked to malnutrition and food insecurity, water and foodborne illnesses, and reproductive health care. Because there are many direct and indirect implications of climate change on human health, responsible institutions need to use the media to inform the public and take appropriate action to mitigate these effects.

Keywords: Climate Change, Cardiovascular, Infectious Dissease, Child Health, Globle

INTRODUCTION

In the 21st century, climate change poses a serious risk to human health (Liao et al., 2019). It is among the biggest and most enduring problems we are now facing. Human health is affected by climate change, as are the environment and its ecosystems. The United Nations Framework Convention on Climate Change (UNFCCC) defines climate change as any alteration in the global atmosphere that can be directly or indirectly attributed to human activity. It also includes natural climate variability and can be observed over comparable periods (Dianati et al., 2021). Consideration of the public health impact of climate change is growing (Boland & Temte, 2019).

The World Health Organization estimated in 2014 that between 2030 and 2050, climate change would be responsible for an extra 15000000 fatalities. The decreasing significance of this estimate can be attributed to the growing exposure to urban climate change. Migration, aging, and population growth are not included in this figure (Liao et al., 2019). The Lancet Commission on Climate Change recently dubbed climate change "the greatest global health opportunity of the 21st century," although changes in regional or global climate patterns pose a serious threat to human health. Sustainable human health may result from the variable. Due to an increase in greenhouse gas concentration, climate change has an impact on human growth and development (Liao et al., 2019). Government discussions about health adaptation plans and climate change are frequently scarce worldwide. Climate projections indicate that extreme weather events may become more often and severe in the future and that temperatures may rise and become drier. The environment, land-use change, violence, human conflict, vulnerable populations, and population and refugee migration are the top priority topics for governments in need of additional research on health risk factors. Injuries, non-communicable diseases, mental illness, pesticide poisonings, diseases associated with food insecurity and nutrition, food and waterborne illnesses, and reproductive health care are among the additional areas of focus. Research indicates that while creating adaptation and mitigation plans to deal with climate change, foreign subsidiaries should take "health and climate change in all policies" into account (Liao et al., 2019).

Research indicates that both medical professionals and patients are worried about the effects of climate change on health. Consequently, family doctors have a great chance to inform their patients about the growing concern of climate change and health (Palinkas et al., 2020). The substantial impacts of climate change on the environment and human health, the significance of the problem, and the general lack of understanding among

the public, decision-makers, and communities involved in this field Additionally, as a result of climate change, several other illnesses, including skin, infectious, mental, and cardiovascular conditions, arise; these illnesses primarily affect the elderly and children (Liao et al., 2019).

HEALTH AND CLIMATE CHANGE

Since it disturbs the ecological and social systems that provide basic human needs, climate change puts human health at risk (Maxwell, 2016). In the framework of the Anthropocene, a period during which people are the planet's primary influence Nine planetary boundaries are described by (Steffen et al., 2015).as defining a safe operating environment for humanity. Crucially, these borders indicate a region of growing ambiguity surrounding risk rather than defining tipping points in the planetary system. One area where risk and uncertainty have crossed the planetary barrier is climate change. Climate change, like changes to the biosphere, is a big worry because it raises the possibility of an abrupt and potentially catastrophic shift in the earth's environment. Health is impacted by climate change in many different ways. There are various types of hazards, including those related to conflict and refugee movements, immediate and direct risks, indirect risks, postponed and diffuse risks, and so on.3. Heat waves, severe weather, and alterations in air quality are examples of immediate and direct dangers (Steffen et al., 2015). As the flood in Pakistan in 2010 and the heat wave in Europe in 2003 demonstrated, the increasing severity and frequency of extremes have the potential to surpass adaptation capability and result in significant premature mortality. A variety of factors, including the spread of infectious diseases, crop yields, fish populations, aeroallergens, water quality and flows, and bacterial growth rates, can alter ecosystems and biophysical systems, posing indirect health concerns. There are two basic ways that climate change might affect human health (Michael et al., 2012):

- By changing the frequency of health problems that have been impacted by weather or climate conditions.
- By bringing about unusual or unanticipated health problems in places where there is no track record of performance.

The impact of weather and climate on human health is significant and varied. These include the obvious dangers of extremely high or low temperatures and violent thunderstorms, which may negatively impact mosquito, tick, and rodent survival, circulation, and behavior as potential carriers of diseases including Lyme disease and the West Nile virus. They may also affect the price of food and water in specific areas, endangering human health (Momoh, 2023).

Perspectives of the Society towards Climate Change

Climate change is described in the popular press using the following terms: Global environmental change is occurring at a rapid pace due to human activity. Natural disasters such as heat waves, volcano eruptions, earthquakes, flash floods, droughts, and tsunamis are placing undue strain on the world's cattle, people, and ecosystem. This is having a variety of effects on general health. The notable alterations in the worldwide climate are responsible for these catastrophic calamities. It is believed that: Vector-borne illnesses, nutritional disorders brought on by inadequate nourishment, diarrhea brought on by inadequate hygiene, inadequately pure drinking water, Strokes, heat waves, air contamination, and Effects on the respiratory system Vulnerable nations continue to bear the brunt of the effects of weak economic conditions. But these climatic shifts and their associated disasters also affect other affluent nations (Michael et al., 2012; Islam & Kieu, 2021).

Climate Change's Effect on Human Health

The local climate has a significant impact on the occurrence of some tropical diseases as well as other health hazards. The Intergovernmental Panel on Climate Chang. States that while climate-related disruptions in ecological systems can indirectly affect the prevalence of infectious diseases, severe temperatures can cause deaths. However, warm weather can also lead to more pollution in the air and water, which is bad for human health. Severe weather has the potential to destroy infrastructure related to health and other services, taint water supplies, impair crop and livestock output, and demolish shelters. In the long term, this will make the already high burden of disease and other non-health needs on the population of vulnerable people even worse. The quantity and type of the effects of climate change on human health differ depending on the region, the population groups' relative sensitivity, the length of time that people are exposed to the changes, and the capacity of society to adjust or cope with the changes (Orimoloye et al., 2017; Momoh, 2023).

Climate Change and the Prevalence of Cardiovascular Diseases

Excessive exposure to extreme heat increases the chance of developing certain extreme heat-related conditions, such as heart failure, heat stroke, and the inability to continue engaging in physical activity. The mortality rate from heat-related extremes varies greatly depending on the location and climate zone. According to studies, those who live in colder cities are impacted by rising temperatures, whereas those who live in hotter places are impacted by falling temperatures. Excessive heat has also been linked positively to heart disease mortality, particularly in young persons and the elderly. However thermal qualities vary and can often be dependent on personal experience and can fluctuate from person to person at the same time and space, extreme weather can hurt human health in both hotter and colder cities. Furthermore, persons who already have conditions such as heart attacks, heart failure, and stroke may die from excessive heat. Those who live in cities are more susceptible to this risk than those who live in rural areas (Orimoloye et al., 2017; Akachi & Park, 2009)

Climate Changes and Skin Diseases

The term "cancer" describes a disease that affects the human body when cells divide uncontrollably and improperly, infecting other tissues. Its detrimental effects on health range from physical ineffectiveness to death. There are various types of cancer, and they are typically called after the name of the organ that is impacted, such as prostate, skin, breast, and lung cancers. Cancer ranks among the top causes of death in both industrialized and developing countries, with heart disease accounting for millions of deaths each year. Climate change has the potential to cause both direct and indirect skin malignancies. Variability in the climate can raise the general temperature, which can trigger extreme weather events and alter the exposures that people receive thereafter. Additionally, climate variability is predicted, including temperature increases and extreme weather events that will affect human skin. Prolonged exposure to high heat can cause skin damage (Andersen et al., 2012).

Association between Diarrhea Prevalence and Climate Change

One of the main causes of illness and mortality, especially in underdeveloped countries, is diarrhea. Examined the connection between non-cholera diarrhea and weather-related events, and the findings showed that hospital admissions rise with temperature, particularly in those with poorer social, economic, and hygienic conditions. According to certain research, there are around 4 billion cases of diarrhea worldwide each year, with over 90% of cases occurring in low-income areas. Research has demonstrated that the incidence of diarrhea coincides seasonally with the period of rainfall; nevertheless, the temperature outside may also contribute to the diarrhea's occurrence (Andersen et al., 2012).

Infectious Diseases

Onchocerciasis and malaria are the two vector-borne infectious illnesses that have been chosen for assessment. For the onchocerciasis project, sites representing a variety of habitats have already been chosen from several Western African nations. At these locations, the population of blackflies that carry the disease has been observed for up to eighteen years. Furthermore, stream flow measurements and meteorological data for western Africa are easily accessible. The assessment of onchocerciasis has begun, and research locations in Benin, Togo, Ghana, Senegal, Mali, and Burkina Faso have been chosen. The study design is not based on human patients with the condition, but rather on populations of vector blackflies. The onchocerciasis study aims to identify the vector's climatic limiting variables to estimate future blackfly populations and identify potential changes in the insect's distribution under different global warming scenarios. Given the close relationship between the magnitude of stream flow and the life cycle and reproductive rate of blackflies, one of the key approaches for assessing insect/climate correlations will be a climatic water budget approach that allows for estimates of stream flow. Several water budget techniques can be used directly with GCM data, including the Thornthwaite/Mather water budget (Orimoloye et al., 2017; McMichael et al., 2006; Patz et al., 2005).

CONCLUSION

In conclusion, the intricate relationship between climate change and human health is an urgent and multifaceted challenge that demands immediate attention and comprehensive global efforts. The 21st century has witnessed an alarming escalation in the risks posed by climate change, as underscored by the assessments of reputable organizations such as the United Nations Framework Convention on Climate Change and the World Health Organization. The potential consequences, ranging from extreme weather events to the spread of infectious diseases and the prevalence of cardiovascular diseases, necessitate a paradigm shift in understanding and addressing the impacts of climate change on health. As studies indicate the concerns shared by both medical

professionals and patients regarding the health impacts of climate change, there exists a significant opportunity for the healthcare sector to contribute to a broader societal understanding of this critical issue.

As we grapple with the evolving landscape of climate change, it is imperative for governments, decision-makers, and communities to prioritize research on health risk factors. Comprehensive health adaptation plans, incorporating climate change considerations, should be at the forefront of global agendas. Mitigation and adaptation strategies must extend beyond immediate and direct risks to encompass the broader spectrum of health issues, including mental health, infectious diseases, and reproductive health care.

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