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The Role Of Climate Change On Human Health And Well-Being – An Overview

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Abstract:

Climate change is now widely regarded as one of the most serious challenges the world faces, with consequences that go far beyond its effects on the environment. The effects of climate change on human well-being is challening because both the surrounding environment and the decisions that people make influence health. The focus in this paper is to understand the likely influence of climate change on human well-being. The status of rural native communities is likely to be affected adversely by climate change in a number of ways which reflects the exposure of local communities to environmental change and their reduced adaptive capacity. Training, capacity building and awareness on global changes, health education, sustainable planning and care to reduce climate-related risks are needed to cope with changing climate.

Key words: *Environment, global warming, community health, rural livelihood, climate*

1.Introduction

Climate change endangers human well-being, affecting all sectors of society, both domestically and globally. The environmental consequences of climate change, both those already observed and those that are anticipated, such as rise in temperature and heat waves, changes in precipitation resulting in flooding and drought, more intense hurricanes and storms, and degraded air and water quality will affect human health both openly and incidentally. Addressing the effects of climate change on human health is especially challenging because both the surrounding environment and the decisions that people make influence health and well-being (McMichael, 2004).

2.Climate Change And Environmental Degradation

Climate change is expected to alter the availability of freshwater, the productive capacity of soils, and patterns of human settlement. The direct predictions warn that climate change may greatly increase the risk of violent conflict over increasingly scarce resources, such as freshwater and arable land. Obviously, climate change may bring about more severe and more abrupt forms of environmental change than we have experienced in the past. There is good evidences showing that women and men suffer different negative health consequences following extreme events such as floods, fluctuations in ambient temperture and droughts heatwaves. While this argument is frequently invoked to support dire claims about climate change and conflict, major changes are likely to be the result of smaller changes compounding over a considerable period of time (Raleigh & Urdal, 2008). Factors that are responsible for Environmental and changing climate are as follows:

2.1.Temperature And Humidity

The increase in temperatures is likely to result winter respiratory infections and deaths. However, the majority of impacts associated with elevated temperatures are likely to be negative. Warmer winters would mean fewer deaths, particularly among vulnerable groups like the aged. However, the same groups are also vulnerable to additional heat, and deaths attributable to heatwaves are expected to be approximately five times as great as winter deaths prevented. It is widely believed that warmer climes will encourage migration of disease-bearing insects like mosquitoes and malaria is already appearing in places it.

hasn't been seen before. Increasing temperature and humidity is also likely to impact on the time taken for the pathogens to develop to an infectious stage in the vector host Storms and floods can help in the spread of infectious enteric diseases.

2.2.Precipitation And Storms

Rising global temperatures will lead to an intensification of the hydrological cycle, resulting in dryer dry seasons and wetter rainy seasons, and subsequently heightened risks of more extreme and frequent floods and drought. Changing climate will also have significant impacts on the availability of water, as well as the quality and quantity of water that is available and accessible. Lack of water leads to an increase in crop failures and therefore a decline in food security, especially for staple crops such as rice and wheat. Poorest regions will be the most affected and rates of under-nutrition will begin to increase (Cohen, 2008). The problem of food insecurity is caused by a number of factors including serious disparities in consumption and production of cereals, lack of access to food grains and crop failure.

2.3.Weather And Climate

Weather patterns change from day to day, the climate changes too. This occurs naturally, driven by internal and external factors. However not all changes are due to natural processes, as we humans have also exerted our influence, which is called anthropogenic climate change. Through widespread use of land, use of fossil fuels and the building of cities, we have changed our climate. The major technological and socioeconomic shift of the industrial era with reduced reliance on organic fuel, the accelerated uptake of fossil fuels, and broad scale deforestation, means we have contributed to the natural greenhouse effect. The key areas for concern are those related to variability and extremes, not simply changed average conditions. There is an accumulating body of evidence of observed impacts relating to regional changes, and that these are having fearful effects on the world around us.

2.4.Waste

Waste generated everyday contains readily biodegradable organic matter such as kitchen waste, garden waste and paper, which on average accounts for about 58% of the total weight of waste generated. Most of the generated garbage ends up in dumpsites or in landfills (Alison *et al.,* 2001). When organic waste decomposes, carbon dioxide and

methane gases generated and are called greenhouse gases having a global warming potenial of 1 and 21 respectively; which directly contribute to global warming and climate change. Inorganic waste does not contribute directly to greenhouse gas emissions, unless it is incinerated. However it does represent greenhouse gases emitted previously during the manufacturing process. All manufactured goods use natural resources such as water, fuel, metal, and timber in their production and this result in the emission of greenhouse gases, particularly carbon dioxide and other pollutants emitted to the atmosphere and have contributed to climate change.

3. Climate Change And Human Health

The term "public health" describes the science of preventing disease, prolonging life, and promoting health and its application to society, communities, and groups. The potential consequences of climate change would affect normal human development: 1. Malnutrition -particularly during the prenatal period and early childhood as a result of decreased food supplies, and exposure to toxic contaminants and 2. Biotoxins - resulting from extreme weather events, increased pesticide use for food production, and increases in harmful algal blooms in recreational areas. The relationship between human development and adaptations to climate change, such as agriculture and fisheries changes that may affect food availability, increased pesticide use to control for expanding disease vector ranges, and prevention of leaching from toxic waste sites into floodwaters during extreme weather events (Christopher, 2010).

4. Human Health And Well-Being

4.1.Air Borne –Allegeries

Climate change will affect air quality through several pathways including production and allergenicity of aeroallergens such as pollen and mold spores and increases in regional ambient concentrations of ozone, fine particles, and dust. Some of these pollutants can directly cause respiratory disease or exacerbate respiratory disease in susceptible individuals. Epidemics of weather and climate-sensitive cause's infectious diseases such as malaria and meningitis which have a devastating effect on human health and socio-economic development and severely overburden health systems in many parts of the world.

4.2.Respiratory Disorders

The rate of temperature change, the length of hot periods, and the increase in higher night time temperatures can all contribute to physiological heat stress. Other health problems likely to increase include asthma and respiratory problems associated with an increase in bushfires (caused by higher temperatures) due to higher levels of airborne particulates, as well as the direct health risk of the fire itself. These respiratory diseases can be exacerbated by changing ecosystems that result in vegetation loss and increases in windblown dust.

4.3.Food Borne Diseases

Increase in the spread of several food borne pathogens due to climate change, depending on the pathogens survival, persistence, habitat range, and transmission in a changing environment. Drought has been shown to encourage crop pests such as aphids, locusts, and whiteflies, as well as the spread of the mold *Aspergillus flavus* that produces a flatoxin, a substance that may contribute to the development of liver cancer in people who eat contaminated corn and nuts. Agronomists are also concerned that climate change-based increases in a variety of blasts, rusts, blights, and rots will further devastate already stressed crops, and thereby exacerbate malnutrition, poverty, and the need for human migration. The spread of agricultural pests and weeds may lead to the need of greater use of toxic chemical herbicides, fungicides, and insecticides, resulting in potential immediate hazards to farm workers and their families, as well as longer-term hazards to consumers, particularly children.

4.4.Vector-Borne Diseases

Various diseases transmitted by mosquitoes or ticks are climate-sensitive and can increase due to climate change. Mosquito-borne diseases, for example, malaria, are likely to be affected by various combinations of changing temperatures, humidity and rainfall. With climate change, geographical ranges and survival of species bearing diseases will vary. Warmer, weather zones particularly during breeding seasons could enable malarial mosquitoes to spread their range and survive longer leading to increased rates of dengue fever and schistosmiasis (Battacharya, 2006).

4.5.Cancer

One possible direct impact of climate change is cancer which is due to increases in exposure to toxic chemicals that are known or suspected to cause cancer following heavy rainfall and by increased volatilization of chemicals under conditions of increased temperature. Another direct effect of climate change, depletion of stratospheric ozone, which results in increased ultraviolet (UV) radiation exposure. UV radiation exposure increases the risk of skin cancers and cataracts. Increased UV radiation also could impact the human immune system and alter the body's ability to remove the earliest mutant cells that begin the cancer process.

4.6.Cardiovascular Diseases

Indirect impacts of weather, weather variability, and climate changes on cardiovascular disease are many and varied. Associations between air quality, especially ozone and particulate burdens, and cardiovascular disease appear to be modified by weather and climate. Ozone, whose formation increases with temperature, increases cardiac effort and impairs pulmonary gas exchange. Cardiovascular diseases include hypertension, coronary artery disease, heart attack, or stroke and chronic cardiovascular diseases such as cardiac dysrhythmias (abnormal electrical activity in the heart), deep venous thrombosis (blood clots), and pulmonary embolism (blood clots in the lung) increases (Christopher, 2010).

4.7.Bacterial Infection

Rates of diarrhoea, cholera and other bacterial diseases are set to rise as temperature rise and water quality issues increases. Bacterial infection from contamination water is expected to increase as heavy rainfall and rising temperature leads to pollution of drinking and recreational water. The occurrence of *Salmonella* and *E.coli*, amongst other food poisoning bacteria is further known to be associated with rise in ambient air temperature (Fleury, 2006).

5. Conclusion

Environmental degradation, socio-economic decline, and extreme weather patterns are contributing to changing pattern of morbidity and mortality and posing serious challenge to public health. Training capacity building and awareness on global changes, health education and sustainable planning is one way of supporting them in adapting to climate

change impacts. By giving the managers, planners and policy-makers access to information on coverage, functioning and utilization of the facilities/resources, operation and maintenance, monitoring as a tool guides them in taking important decisions. In a vast country like India, one of the fundamental issues is to provide timely advice on the health status and diagnosis of diseases, particularly in rural areas. With the advent of computers, advances in software, imaging and high-speed communication technologies, there have been a lot of studies globally involving clinicians, health services, researchers, etc. making use of these advances in technologies towards providing health care solutions to the deprived lot, by overcoming what is commonly known as the 'last mile' problem.

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