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Impacts of climate change on human and environmental health in Nigeria

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Abstract

The impacts of climate change such as flooding, air pollution, drought, erosion, etc. are felt profoundly on human and environmental health in Nigeria. The impacts of climate change on human and environmental health in Nigeria imply that due considerations to health issues as part of climate change mitigation and adaptation efforts has become a pressing issue. Mitigation and adaptation strategies are therefore necessary for effective management of the health sector in Nigeria. This study outlines the strategies for building resilience and reducing vulnerability for environmental health and sustainability in Nigeria. It further identifies the urgent need to educate communities and institutions in Nigeria about the impacts of climate change on human and environmental health and innovative solutions which includes the strategic tree planting activities, eco-friendly green technology and the therapeutic use of poetry for sustainable development in Nigeria. This study is therefore very significant as it explores new opportunities, practices and policies for mitigation and adaptation to the impacts of climate change on human and environmental health in Nigeria.

Keywords: Climate change, education, environmental health, human health, Nigeria

Introduction

Human health defined as the complete state of physical, social, and mental well-being and not merely the absence of illness, disease, or infirmity, is as vital a resource as water, food, or energy [1]. Human health is increasingly threatened by rapid and widespread changes in the environment and climate, including rising temperatures, air and water pollution, disease vector migration, floods, and droughts [2]. Human health is one of the most important factors influencing economic development in any economy. Most important and immediate consequences of environmental degradation in the world take the form of damage to human health [3]. Studies have also discovered the urgent need to educate communities and institutions in Nigeria especially health professionals about the impacts of climate change on Nigeria's health sector and ways to adapt and mitigate for global sustainability [3, 4]. It is pertinent for the expeditious redesign of medical school curricula in Nigeria and beyond to include climate change and health education to recognize, diagnose, and treat the many health conditions exacerbated by climate change as well as understand public health issues [2]. In 2018, an international multidisciplinary Lancet collaboration concluded that climate change poses unacceptable threats to the health of current and future populations worldwide [5]. Climate change refers to any change in climate overtime, which may be due to natural variability or as a result of human activity [6]. Climate change has been described as an existential threat to human well-being. Globally, it affects the social and environmental determinants of health: clean air, safe drinking water, sufficient food and secure shelter. The effects of climate change are far-reaching and include heat waves and severe weather, deteriorated air quality, displacement and migration of vectors resulting in increase of a range of diseases related to water and ecological factors. Increasing incidences of mental health issues are being recorded and identified as a consequence of environmental change [26, 8]. Climate change directly affects five environmental components namely: weather, air, water, oceans and ecosystems [9]. Some researchers have claimed that climate change education should focus on the kind of learning, critical and creative thinking and capacity building that will engage youth with the right information so that they can take appropriate actions to respond to climate change [10, 11]. Climate change is among the greatest public health threats of the 21st century and a defining modifier of the global burden of disease [5]. The World Health Organization (WHO) projects there will be approximately 250,000 deaths annually from climate change worldwide between 2030 and 2050 [12].

Climate change is one of the greatest challenges of our time. Climate change will affect, in profoundly adverse ways, some of the most fundamental determinants of health: food, air, water. In the face of this challenge, we need champions throughout the world who will work to put protecting human health at the centre of the climate change agenda^[13]. There is a growing concern that climate change will seriously affect the ability to meet the food demands of about 10 billion world population come 2050, which is a significant reason why experts are promoting climate-smart agriculture^[14]. Global temperature rise is driven primarily by combustion of fossil fuels and deposition of greenhouse gases in the atmosphere at a rate that exceeds natural processes. Without immediate mitigation efforts by major industrialized nations, the morbidity from rising temperatures will be difficult to prevent. Even small changes in temperature and precipitation result in large changes in disease transmission and serious chronic illnesses^[5]. Children, low-income families, individuals with preexisting conditions, pregnant women, and the elderly are the most susceptible to the health effects of increased heat. Pregnant women are particularly vulnerable to ambient heat, as rising temperatures may have a direct effect on human gestational time, increasing the risk of premature birth and birth defects^[15].

Methodology

Data used for this study is derived from published works including academic journal articles, conference papers, textbooks and internet materials. The researchers gathered a lot of materials for the research but summarized the characteristics of the papers that centered more on the impacts of climate change on human and environmental health in Nigeria. This enabled the researchers to generate the synthesis of various researchers' views on the subject matter.

Results and Discussion

In Nigeria, flooding (which is one of the effects of climate change) has become dangerous to human health in most urban and rural areas because of overcrowded slums, where drainage is poor or does not exist at all^[16]. Flooding has far reaching impacts on people's health and its consequences includes crisis of not having good drinking water along with sanitation problems which spread deadly communicable disease like cholera, malaria, diarrhea, skin and soft-tissue infections with other air-borne infections. Similarly, when health facilities are submerged by heavy flooding, access to health care and drugs becomes an issue of concern to the victims of flooding and the government. Floods apparently are known with water borne diseases^[3]. Thus, many wells and boreholes are contaminated by continuing overflowing sewage and refuse dumps. Again, public water supplies are disrupted by floods which destroy electricity supply and affects water pipes. All these collectively considerably have profound impacts on people's health^[3]. The Brookings Institution^[17] projects that populations in Latin America, Sub-Saharan Africa, and Southeast Asia will generate 143 million more climate migrants by 2050 than they did in 2019. Climate change is also contributing to slower-onset environmental shifts that can force human migration, such as desertification, sea-level rise, ocean acidification, air pollution, rain pattern shifts, and loss of biodiversity. Enlaging refugee camps have high rates of diarrheal

diseases, measles, acute respiratory infections, malaria and other vector-borne diseases, sexually transmitted infections, malnutrition, and chronic disease complications^[18]. Climate change also increases mental health disorders due to weather disasters, forced migration, food insecurity, and extreme heat waves. Posttraumatic stress disorder, depression, domestic abuse, general anxiety, and substance abuse have all been associated with climate change in some^[19].

Understanding Environmental Health

The environment is defined by World Health Organization as all modifiable chemical, physical and biological aspects external to the human host, as well as all the associated behaviours that are essential to creating and sustaining a healthy liveable setting^[20, 21]. "Environmental health is the totality of all factors in man's physical environment which exercise or may exercise, a deleterious effect on his physical development, health or survival. Environmental health therefore takes account of the various aspects of public health (including quality of life) that are determined by physical, chemical, biological, social and psychological factors in the environment". It also denotes the concept and practice of evaluating, modifying, controlling and averting those factors in the environment that may possibly have a negative impact on the health of present-day and forth coming generations^[21]. Most diseases generally have complex etiologies that allow for multiple casual and pathogenic factors including exposure to environmental agents. Scientific and clinical evidence suggest that almost all human diseases may be caused, altered or modified through environmental agents. One of the important elements in improving public health is recognizing and comprehending elementary biological processes that alter the environmental functions that lead to the outbreak of disease processes or disease course to be altered substantially. In essence, the implementation of environmental health practice aids in creating and sustaining an environment that encourages good public health in the community, including safeguarding elementary health requirements such as availability of clean drinking water, clean air and safe food for its citizenry^[23, 21].

Poetry has been discovered as a valuable tool which has immense health and therapeutic benefits and can be used in climate change education for sustainable environmental health and development in Nigeria^[23, 24]. Below is one of the climate change adaptation poems advanced by the Benjy Poetry and Music Global Concepts which can be used to educate communities and institutions on the impacts of climate change on human and environmental health in Nigeria and the solutions for sustainability.

Poem: Keep Clean, Stay Cool

Keep clean, Stay cool
Be disciplined and dutiful
Think positive, think creative
Be passionate and innovative

Keep clean, Stay cool
Make the earth bright and beautiful
Help make the earth a better place
Earth's pollution we must efface

Keep clean, Stay cool
 Be diligent, Be careful
 Pick the trash and keep clean
 Throw the trash into the waste bin

Keep clean, Stay cool
 With poetry as a tool
 Go green, Keep clean
 With a formidable team

Keep clean, Stay cool
 With a heart so grateful
 Enjoy the beauty of nature
 Help create a sustainable future

Keep clean, Stay cool
 Drink freely from wisdom's pool
 Feel the gentle whispering breeze
 Enjoy the sweet fragrance of peace

Keep clean, Stay cool
 Be disciplined and dutiful
 Help make the world a better place
 Put a smile on someone's face ^[25].

Conclusion

Integrated approach to capacity-building at the national level can help foster greater awareness of the importance of addressing climate change impacts on human and environmental health in communities and institutions across Nigeria. There is still need for further research to fill the gaps in knowledge about likely future patterns of exposure to climatic-environmental changes, and about the vulnerability and adaptability of physical, ecological and social systems to such climate change. Furthermore, urgent intervention from the Federal Government and other relevant NGOs and multilateral organizations through appropriate funding to encourage tree planting activities, the use of eco-friendly technology and timely climate change education is needed. Proper climate change and health education from qualified health professionals and educationists will go a long way to stop the spread of diseases, and loss of lives and properties associated with climate change thus helping communities to adapt and mitigate the impacts of climate change on human and environmental health in Nigeria.

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