

The Impacts of Climate Change on Mental Health: Adaptation Strategies for Sustainability in Africa

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Abstract

The impacts and risks of climate change have far-reaching environmental, social, agricultural, and economic effects and are ultimately harmful to our health and well-being. Climate change has been discovered to not only affect our physical health but can also harm our mental health. The impacts of climate change are profoundly felt on the mental health of affected individuals which can in turn affect their communities and institutions negatively. Mitigation and adaptation strategies are therefore necessary for effective management of the impacts of climate change on mental health for sustainable development and economic growth in Africa. Everyone is at risk, but not everyone is affected equally. Groups that are especially vulnerable to the mental health impacts of climate change include children, the elderly, and women. Also at risk are disadvantaged groups, those with existing mental illness, and those with close ties to the land and vulnerable to land disputes, including farmers and tribal communities. This study recommends that interventions to address climate change and mental health need to be well coordinated in order to tackle the problem in a holistic manner. It also explores innovative solutions to the impacts of climate change on the mental health of vulnerable groups which includes the use of poetry as therapeutics. It concludes with recommendations to conduct further research in this field of study to enhance adequate knowledge and appropriate adaptation and mitigation to climate change and mental health in Africa.

Keywords: Africa; Climate Change; Education; Mental Health; Poetry; Sustainability

Introduction

Climate change is no longer a looming threat but rather a destructive reality with dire predictions for the future. It is well understood that climate change augments existing inequalities, rendering those most marginalized at greater peril to the health consequences of a changing climate. Infact, the first key message from the Lancet's Countdown on Climate Change and Health report emphasizes the disproportionate impact climate change has on the world's most marginalized people and the consequential impacts this has on these populations if social and environment justice concerns are not addressed [1]. Globally, the number of reported weather-related natural disasters has more than tripled since the 1960s. Every year, these disasters result in over 60,000 deaths, mainly in developing countries. The expanding research literature on climate change and mental health includes increasing evidence that extreme weather events-which are more frequent, intense and complex under a changing climate-can trigger post-traumatic stress disorder (PTSD), major depressive disorder (MDD), anxiety, depression, complicated grief, survivor guilt, vicarious trauma, recovery fatigue, substance abuse, and suicidal ideation [1]. Measuring the mental health effects from climate change can only be very approximate. Nevertheless, a World Health Organization (WHO) assessment, taking into account only a subset of the possible health impacts, and assuming continued economic growth and health progress concluded that climate change is expected to cause approximately 250,000 additional deaths per year between 2030 and 2050; 38,000 due to heat exposure in elderly people, 48,000 due to diarrhea, 60,000 due to malaria, and 95 000 due to childhood under nutrition [2]. Flooding is one of the direct impacts of climate change and has a profound effect on the mental health of many of the victims in Africa. The impacts of flooding which is as a result of climate change are felt profoundly on Africa's health sector which imply

that due considerations to health issues as part of climate change mitigation and adaptation efforts has become a pressing issue. 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 flooding are far-reaching and include 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 [3,4].

Understanding climate change and mental health

Mental health encompasses emotional, psychological, behavioral and social wellbeing of an individual. It determines how people cope with the normal stress of life and function within their community [2]. Mental Health refers not just to mental illness, mental problems and mental disorders but also includes states of mental wellness, emotional resilience and psycho-social wellbeing. Indirect health implications that are increasingly recognized in global reports on climate change and health include illness related to food and water safety, under-nutrition related to food insecurity, malignant melanoma from UV exposure, and chronic kidney disease from dehydration [2]. Climate change adaptation refers to interventions that respond to the effects of climate change by adjusting, moderating, and coping with the risks and impacts of climate change. Adaptation is ultimately affected by the capacity to adapt, which is the ability and willingness to respond to climate change mediated by individual and collective agency. Adaptive capacity is determined by things like: governance, economics, infrastructure, technology, information and skills, institutions, and equity. Examples of adaptation interventions that address climate change and health include: surveillance and monitoring of disease burdens related to climate change and health; education (e.g. public health promotion of the risks of vector-borne illness), and capacity building (e.g. psychological first-aid, and surge capacities at hospitals and health care facilities); preparing for extreme weather events; and re-locating entire communities to geographic areas where sea-level rise and frequent extreme weather events are less-likely to occur [5].

Climate change mitigation refers to overarching efforts to reduce greenhouse gas emissions and enhance carbon sinks to slow the speed, scale, and magnitude of climate change. Key climate change mitigation priorities include reducing energy demand (through reduced consumption and increased energy efficiency); a swift and equitable transition from the use of fossil fuels to renewable energy; reducing emissions from agriculture and forestry and strengthening land-based emissions sequestration [5]. An updated overview of recent evidence on the mental health implications of climate change is timely given the ongoing, rapid expansion of research in the broad field of health and climate change as well as increasing public concern about climate change trends and risks. Since 2007, media reports on climate change and health have increased by 78% and the academic literatures on climate and health issues have tripled. There is also increasing public and academic recognition of the extent to which rising global temperatures threaten planetary and human health. All populations will be affected by climate change, but some are more vulnerable than others. People living in small island developing states and other coastal regions, megacities, and mountainous and polar regions are particularly vulnerable. Children - in particular, children living in poor countries - are among the most vulnerable to the resulting health risks and will be exposed longer to the health consequences [2]. The health effects are also expected to be more severe for elderly people and people with infirmities or pre-existing medical conditions. Areas with weak health infrastructure - mostly in developing countries - will be the least able to cope without assistance to prepare and respond. A large number of people exposed to climate or weather-related natural disasters experience stress and serious mental health consequences. These mental health consequences can also affect them psychologically thereby leading to anxiety, depression, fear, etc [1]. Some natural disasters are possibly going to be more frequent because of climate change which could lead to extreme events that involve life disruption, such as loss of life, resources, social support and social networks, or extensive relocation, post-traumatic stress disorder (PTSD), depression, and general anxiety, increased substance use or misuse, and suicidal thoughts.

Climate change is a global problem, and it requires solutions on a global scale. Appropriate and urgent actions must be taken both by individuals, institutions and the government to deal with climate change issues in order to ensure a sustainable future for her citizens in Nigeria and in the continent of Africa [6]. Climate change education has a great role to play towards achieving the United Nations Sus-

tainable Development Goals (SDGs) in Nigeria and in Africa [7]. It is a known fact that climate change is altering the weather and climate globally, which invariably affects human life. It is therefore important to remark that anything that affects our lives on earth will be of great concern to us [8]. Poetry with its therapeutic ability has been discovered as valuable tool which can be used to help students and teachers in the various Universities in Africa and beyond to understand the impacts of climate change and to learn the adaptation and mitigation strategies for sustainability [9]. Poetry which has therapeutic benefits when used in teaching and learning climate change can also help to enhance the emotional, mental and physical health of the youths in Africa [7]. The United Nations Framework Convention on Climate Change (UNFCCC) in its article 6 recognizes the importance of education in climate change mitigation as it creates awareness of the problem and encourages behavioural changes which are crucial for successful adaptation and mitigation strategies [10]. 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 [11,12]. Climate change education can also help the youths to understand and address the issue of global warming and encourage changes in their attitudes and values toward the natural environment [13]. Climate change education can also be a strategic and meaningful way for promoting the principles and practice of sustainable development [14].

Impacts of climate change on mental health

The following are the various impacts of climate change which also have adverse effects on mental health globally:

- **Heat waves:** Heat waves are spikes of high temperatures lasting some days that range outside the normal temperature for a specific season. This phenomenon is connected with climate change as they have increased in frequency and intensity. Moreover, the frequency and intensity of heat waves are considered extreme events linked to climate change with a regional effect. Global warming will lead to Climate Change-Related Water Disasters (CCRWDs) such as an increase in both intensity and global number of tropical cyclones, frequency and severity of hurricanes and flooding.
- **Floods:** Floods are an overflow of water, usually from the ocean, submerging land areas. Flooding is one of the most frequent types of major disaster, leading to 53,000 deaths in the past decade. CCRWDs generate flooding in urban areas on the coasts, like those in Asian deltas rivers. These events could potentially have a negative effect on the mental health of vulnerable populations.
- **Air:** Tornadoes, hurricanes, and storms have all increased in intensity, frequency, and duration over recent decades. Data on tornadoes and mental health issues came from the latest kind of these disasters, such as hurricane Katrina in Florida and Louisiana in 2005 and Sandy in 2012 in Cuba, Jamaica and Haiti.
- **Drought:** Historically, a natural drought lasts about a decade. Due to climate change, there will be droughts lasting around three decades, also known as “mega droughts”. From a current historical frequency of 12%, these events may increase up to 60% due to possible changes in future anthropogenic greenhouse gas emissions and atmospheric concentrations measured in CO₂-equivalents.
- **Wildfires:** The term “wildfire” refers to large-scale fires, generally occurring in forests and jungles. These phenomena have involved Siberia, Central Africa, Australia and the Amazon in the present times. The areas affected by the wildfire may be sparsely populated or nearby the city boundaries.

These devastating impacts of climate change have also been discovered to have a profound effect on mental health in communities and institutions across Africa. Thus, there is great need for adaptation and mitigation strategies to stem the tide!

Adaptation and mitigation strategies to address climate change and mental health issues in Africa

Acting on the health consequences of climate change requires actions rooted in both mitigation and adaptation at all levels—from global to local—and from all sectors and individuals. There is a need, however, to harness health and mental health related synergies amongst these global agreements like the Paris Agreement, etc. since none of these in and of themselves will likely be sufficient to address the future risks and impacts of climate change.

Adaptation measures

Adaptation measures that address the psycho-social and mental health impacts of climate change come in a variety of forms, i.e. policies, practices, behavioral interventions, community-based interventions, specific training, and pharmacotherapeutics. More broadly, emotional resiliency may be sustained by engaging with art, literature, and spirituality.

Psychological adaptation

Psychological adaptation requires a set of responses. It requires an acknowledgement of the grave threats posed by climate change and the profoundly consequential global crisis. It requires coping strategies to manage the feelings and thoughts that arise so that people can face up to and come to terms with these threats and consequences rather than avoiding the creeping problem of climate change.

In addition to the above, the list below contains some specific priority adaptation mechanisms that ought to be considered to support population-level mental health in a changing climate:

- Policy responses: Improving access and funding to mental health care;
- Surveillance and monitoring: Administering epidemiological surveys after extreme weather events, and monitoring emergency department visits during heat waves and following extreme weather events;
- Practice: The application of a stepped-care approach to mental health that is often used in disaster mental health to support different levels of interventions depending on the timing of the disaster and the level of distress.
- Preparation and response: Climate change adaptation/resilience planning in the mental health system;
- Community-based interventions: Climate change resilience plans that address psychosocial wellbeing; and,
- Special training for mental health care providers and first responders: e.g. psychological first aid.
- Inculcating the calming effects of music and poetry in education and sensitization of the masses on the impacts of climate change on mental health. The music and poetry can be used to sensitize patients, communities and institutions on the amazing preventive measures including healthy lifestyles and wellbeing.

The therapeutic use of poetry in climate change and mental health education in Africa

Poetry with its therapeutic ability has been discovered as valuable tool which can be used to help students and teachers in the various Universities in Africa and beyond to understand the impacts of climate change and to learn the adaptation and mitigation strategies for sustainability [9]. Top universities around the world are beginning to discover the science of poetry and its psychological benefits as a valuable tool for global sustainability [15]. This reiterates the key role poetry can play in educating communities, cities and countries in Africa on climate change adaptation and mitigation for sustainable development. We must therefore be very aggressive yet innovative

in our quest to beat air, plastic and land pollution which is a climate change adaptation and mitigation strategy for our sustainability. Furthermore, our survival and the survival of other species in the sea and the environment depends largely on our actions and inactions. Poetry with its therapeutic benefits has been discovered as a valuable tool which can be used in climate change education for sustainable development in Africa [16]. Poetry has a unique way of expressing emotions, ideas and experiences which is so appealing and attractive to the human mind. It turns out that there are some important psychological, therapeutic and developmental benefits of poetry [17]. Poetry helps in language development, creative language skills, writing skills, self-expression, and in the development of natural rhythms. Poetry is important for children, and poetry is good for adults as well [17]. Through poetry, we can express the beauty and wonders of nature, and the need to preserve our globe from environmental pollution and global warming. There is so much to be done both locally and globally to ensure that our generation and future generations can benefit from the climate and mental health education using the tool of poetry [16]. Poetry can be used as a valuable tool to convey the message of climate change and mental health in schools, universities and institutions in Africa in a very profound way. Poetry has a unique way of communicating to the listeners and readers the message of hope, beauty and love that enables them to seek creatively ways to preserve our planet from environmental degradation and global warming. Poetry for climate change education with its healing and therapeutic benefits can be used with mothers, fathers, children, and adolescents; battered women, the elderly, the depressed, the suicidal; those living with terminal illness, the bereaved, those with HIV, the mentally ill, and even hurricane victims and soldiers returning from war who suffer post-traumatic stress. Poetry can give students a healthy outlet for surging emotions [17]. Reading original poetry on climate change aloud in class can foster trust and empathy in the classroom community while also emphasizing speaking and listening skills that are often neglected in high school literature classes [17]. Climate change poetry can help in language development, creative language skills, writing skills, self-expression, and in the development of natural rhythms while helping to educate the community on climate change adaptation and mitigation. Poetry is fun and exciting and beautiful and can be used effectively for climate change education for global sustainability. Inclusion of climate change poetry and anthologies into Africa's educational system which includes the primary schools, secondary schools, vocational institutions and universities will make it easy for youths to learn about climate change impacts and how to adapt and mitigate effectively [16].

The Benjy poetry and music global concepts

The Benjy Poetry and Music Global Concepts is one of the new companies in Nigeria (one of the countries in Africa) which among other things is very passionate about climate change education, adaptation and mitigation for global sustainability. This passion to see the environment kept clean and green has led to a lot of study and research work on climate change education, adaptation and mitigation. This has also engineered the writing of climate change poems to help promote the right attitudes and behaviors needed to safe-guard our environment. According to Victor Pinchuk, a Ukrainian businessman and philanthropist, "Art, freedom and creativity will change society faster than politics". Through the Project Green educational blog: www.projectgreeninitiative.wordpress.com which features articles and poems on climate change adaptation and mitigation for global sustainability, the Benjy Poetry and Music Global Concepts seeks to educate communities and institutions on strategies for climate change adaptation and mitigation for global sustainability. Here's one of the recent climate change poems advanced by the Benjy Poetry and Music Global Concepts which further helps to illustrate how poetry can be used in climate change and mental health education for sustainability in Africa:

Poem: Our climate, our health

Climate change is real

Its impacts we can feel

Our climate, our health

Our health affects our wealth.

Great and untapped wealth we possess
Nature's gift to be judiciously harnessed
These vast potentials we begin to maximize
When we choose to live healthy and wise.
Dirtiness will tamper and hinder
The health of the planet we desire
Reduce waste, recycle and make some gains
Save our planet from climate plight and pains.
Help make the world a better place
Earth's pollution we must efface
By going green and keeping clean
With determination, diligence and discipline.
Improve our health systems' resilience capacity
Adopting the use of eco-friendly technology
Better choices will lead to a healthy people and planet
Deal with adverse climate change effects.
Think beyond the erosion and pollution
Think beyond the flooding and deforestation
Think change, Take action
Live within climate adaptation and mitigation.
Climate change is real
Its impacts we can feel
Our climate, Our health
Deal with adverse climate change effects [18].

Recommendation

Coordinated, collaborative efforts to address the mental health implications of climate change not only require policy frameworks but also concrete actions on behalf of mental health practitioners. Such concrete actions may include:

1. Communicating about climate change and mental health in a way that helps people to see that it is relevant and salient to them.
2. Advocacy for greenhouse gas reductions in health care facilities and engagement in efforts to reduce the environmental footprint of the health care sector; and
3. Engaging in adaptation and mitigation measures like preparing for and responding to extreme Natural disaster and climate change events [19-21].

Conclusion

There is a great need for further research in this field of study to enhance adequate knowledge and appropriate adaptation and mitigation to climate change and mental health. Funds should be made readily available to researchers by the government and other multilateral agencies for this purpose. Furthermore, Poetry should also be innovatively to communicate to institutions and communities across Africa on the impacts of climate change on mental health for sustainable economic growth and development in our continent. Poetry certainly helps to make the message of climate change adaptation and mitigation easily accessible and memorable to the young and old alike. Poetry provides entertainment, employment, education and emotional healing to many of our youths in Africa. It is good to know that climate education, mitigation and adaptation has the capacity to provide employment for the teeming unemployed and underemployed youths in Africa and thus helping to achieve the United Nations Sustainable Development Goals. This study therefore concludes that poetry is a valuable tool with psychological benefits which can be used in climate change and mental health education in communities and institutions across Africa. This study recommends poetry as a valuable and powerful tool to help in climate change education, mitigation and adaptation in Africa.

Bibliography

1. Michael AJ., *et al.* "Climate change and human health: present and future risks". *Lancet* 3679513 (2006): 859-869.
2. World Health Organization (WHO). Mental health (2017).
3. Lu JLDP. "Impact of climate change on human health". *Acta Medica Philippina* (2016).
4. PAHO. Health, Environment and Sustainable Development: Towards the Future We Want A collection of texts based on the PAHO Seminar Series towards Rio+20 that occurred in the period between 8 February and. Washington, DC (2013).
5. IPCC. Climate Change 2007: Impacts, Adaptation and Vulnerability. Working Group II Contribution to the Fourth Assessment Report. Cambridge University Press, Cambridge (2007b).
6. Anabaraonye B., *et al.* "Green Entrepreneurial Opportunities in Climate Change Adaptation and Mitigation for Sustainable Development in Nigeria". *Journal of Environmental and Pollution Management* 2 (2019): 102.
7. Anabaraonye B. "Climate change education for sustainable development in Nigeria". *Review of Education, Institute of Education Journal, University of Nigeria, Nsukka* 28 (2017): 403-414.
8. Okeke FN., *et al.* "Survey on climate change and possible causes". *International Journal of Climate Change Studies, University of Nigeria, Nsukka* 1 (2018): 63-69.
9. Nabulya E. "A poetic of Climate Change: Apocalyptic Rhetoric in Selected Poems from East Africa". *Transnational Literature* 102 (2018).
10. UNFCCC. What is action for climate empowerment? (1992).
11. Stevenson RB., *et al.* "What is climate change education?" *Curriculum Perspectives* 37.1 (2017): 67-71.
12. Fuertes MÁ., *et al.* "Climate Change Education: A proposal of a Category-Based Tool for Curriculum Analysis to Achieve the Climate Competence". *Education in the Knowledge Society* 21 (2020): 8-13.

13. UNESCO. "Climate Change Education for Sustainable Development. 2-19". *Paris France* (2010).
14. Mochizuki Y and Bryan A. "Climate change education in the context of education for sustainable development: Rationale and principles". *Journal of Education for Sustainable Development* 9.1 (2015): 4-26.
15. Carnwath JD and Brown AS. "Understanding the value and impacts of cultural experiences: A Literature Review". Arts Council England. California USA (2014): 156.
16. Anabaraonye B., *et al.* "Poetry as a valuable tool for climate change education for global sustainability". *International Journal of Scientific and Engineering Research* 9.9 (2018): 81-85.
17. Klein P and Longo P. *The Therapeutic Benefit of Poetry* (2018).
18. Anabaraonye B. *Our climate, Our health* (2020).
19. Butler CD., *et al.* "Mental health, cognition and the challenge of climate change". *Clim Change Glob Health* 26 (2014): 251.
20. Willox AC., *et al.* "Climate change and mental health: an exploratory case study from Rigolet, Nunatsiavut, Canada". *Climate Change* 121.2 (2013): 255-270.
21. Willox AC., *et al.* "Examining relationships between climate change and mental health in the Circumpolar North". *Regional Environmental Change* (2015).

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