Impact of climate change on mentally ill patients: Myth or reality

Sunday E. Obike*, Nweke G. Chigozie & Nkemdilim Anazonwu Department of Social Work, Univesity of Nigeria, Nsukka

Abstract

Climate change is an adverse atmospheric and environmental phenomenon that is causing enormous concern across the globe. The fundamental aim of this study is to explore the impacts of climate change on mentally ill persons at different locations in Southeast Nigeria and the quest for clarity and consideration for the social work profession. Data was collected through In-Depth Interview (IDI) from 24 participants in Psychiatric hospitals. Data collected were analyzed in themes. The findings show that climate change has no impact on mentally ill persons. The study also revealed that the assertion that climate change impacts those with mental illness has not been scientifically proven; rather, it is a mere myth, assumption, misconception and superstitious belief. Also, it was found that multiple factors can trigger mental illness but certainly not climate change. The paper concludes with a discussion of what should be done to tackle the mental health issues consequent upon climate change and recommends priority actions to address the mental health consequences of climate change.

Keywords: Climate change, mentally ill persons, impact, southeast, social work

INTRODUCTION

Climate change has been identified as one of the greatest natural threats to human health in recent times (Sweileh, 2020). Climate change is negatively affecting human lives by changing the quality of air, water, and food supply (Isticato& Ricca, 2016; Applebaum et al., 2016). Climate change is described as a process of global warming, in part attributable to the greenhouse gases generated by human activity (Gukurume, 2013). The impact of climate change constitutes a veritable threat to human health (World Health Organization [WHO], 2015). The problem of climate change has led to excessive use of natural resources- ecological overshoot (Peeters, 2012). Planetary warming as a result of climate change has led to ecological changes such as desertification, floods, droughts, heat waves, rising sea levels and many others. Planetary warming taking place is anthropogenic, that is, it is directly related to human activity. It is envisaged that with planetary warming taking place, the planet Earth might cease to be habitable in the near future. This necessitates that the

impact of climate change, particularly on mentally ill patients, should be investigated.

Globally, studies have shown that climate change is likely to exert negative impacts on human and their well-being (Bartlett et al, 2024; Masson-Delmotte et al., 2021; Schramm et al., 2021). The World Health Organization (WHO, 2014) predicts that there will be a rise of about 250,000 deaths annually as a result of the impacts of climate change between 2030 and 2050 (Watts et al., 2015). This impact is more pronounced on vulnerable populations such as those already with preexisting serious mental illness (Bartlett et al, 2024; Costello et al., 2009). Though this assertion has not been scientifically or empirically proven in literature, it also correlates with people's beliefs and assumptions that people with mental illness behave abnormally and exhibit certain symptoms of mental illness such as being destructive and aggressive during harmattan periods and hot weather. Fryxell (2018) observed that individuals with mental illness often perceived time as an endless, unchanging tunnel without distinct periods, however, the afflictions resulting from mentally-related challenges heightened in unfavorable seasons of the year.

In an attempt to explain important concepts related to the study, the Ecological Systems Theory was adopted for this discourse in assessing and describing the impact of climate change on mentally ill persons. The Ecological Systems Theory was developed in 1979 by Urie Bronfenbrenner (Harkonen, 2007). The theory is concerned with how individuals and the environment achieve an adaptive balance and also why they sometimes fail to achieve the balance (Matinello, 2020). This framework was applied to understand the incident of climate change leading to disasters; and in addition, to also withstand and address climate-change-induced disasters.

Investigating the current state of evidence and knowledge about climate change and its impacts on mental health, this article pays particular attention to the different impacts of climate change on mentally ill persons at different locations within the southeastern region of Nigeria. The study aims to address three important objectives: first, to ascertain the misconceptions and confusions associated with climate change and mental illness; second, to examine the scarce empirical literature in Nigeria concerning the impact of climate change on persons with mental illness; and finally, to explore social work interventions in addressing the impact of climate change on mentally ill persons. Thus, the scarcity of proven literature informs the study. There is also the quest to ascertain how changes in climate impact mentally ill persons in Southeast Nigeria and the role of social workers in ameliorating the impact of climate change on mentally ill persons. Scholars have identified some well-known health implications of climate change including the rise in vector-borne diseases; heat-related morbidity and mortality; injury and illness from extreme weather events; increased cardiovascular disease and increased aeroallergens from poor air quality; and water and food security concerns from water and food-borne illnesses and malnutrition (Meier et al. 2022; Lisinge-Fotabong, et al., 2023; Paz et al., 2024). Despite the above-mentioned effects, WHO (2012) asserts that climate change may be advantageous, particularly with regard to temperate countries where temperature increase may lead to milder winters, thereby reducing the deaths caused by too much cold, much evidence however suggests that in overall, climate change will negatively affect the health of humans.

Furthermore, there are consequences resulting from climate conditions such as hurricanes(Orengo-Aguavo et al., 2019), flooding and wildfires (Fernandez et al., 2015; Bryant et al., 2014), and short-duration heat waves (Basu et al., 2018; Schmeltz& Gamble, 2017). These consequences also consist of increased anxiety and mood disorders, sleep disruption, suicide and suicidal ideation, acute stress reactions and post-traumatic stress disorders, and a declining sense of self and identity from loss of place and grief reactions (Dodgen et al., 2016; Obradovich et al., 2018). These outcomes can linger for months or even years (Schwartz et al., 2017). Some risk factors for developing mental illness in the outcome of such disasters include the degree of the traumatic event, exposure to the injury or death of a loved one, younger age, female gender, less education, minority, lower socioeconomic status, psychiatric history, ethnic status, inadequate social support or family instability (Hayes, et al., 2018; Scaramutti et al., 2019). Residents of low and middle-income countries are especially vulnerable to these outcomes due to their increased exposure to unfavorable weather events, lack of access to services, and high levels of poverty (Schwartz et al., 2017; Ratajet al., 2016; McDermott et al., 2014)

The aftermath of climate change is a significant global threat to human and their environment. Obradovich, et al. (2018) noted that shifting from monthly temperatures between 25^{C} and 30^{C} increases the probability of mental health difficulties by 0.5% points, while 1^{C} of 5-year warming is associated with a 2%point increase in the prevalence of mental health issues. The analyses provide added quantitative support for the conclusion that environmental stressors produced by climate change pose threats to human mental health. Hathaway and Maibach (2018) averred that the perception that climate change is harmful to health appears to be high among health professionals. Among the public, few North Americans can list some health impacts of climate change or who is at risk, but they appear to view climate change as harmful to health.

Also, Korukire et al., (2019) averred that there is a relationship between climate change hazards and mental health. This often results in the collapse of houses,

which makes people homeless, loss of crops, damage of belongings, and deaths might be followed by situations of anxiety, stress and depression among others which may lead to bad health outcomes. Hayes et al. (2018) narrated that climate change affects mental health in a variety of direct, indirect, and overarching pathways. Consequently, the mental health implications of climate change can result in mental problems and illness as well as affirmative psychosocial outcomes. It is then obvious that the timing and triggers associated with climate change and mental health may vary, making it challenging to establish the manifold links between climate change and mental health.

People are not affected by climate change in a uniform way. The variation comes with geographic location, culture, social, economic and political characteristics of societies. These effects of climate change on human health also act in combination with other forces such as adaptive policies, population density and social conditions. To buttress this point, many studies have suggested that climate change has various negative effects on human health, which differs among regions, depending on various factors, such as social infrastructures, and the establishment of countermeasures (Kurane, 2010; Cooley et al., 2023; Celik, 2020; Meierrieks, 2021). The above assertion underscores the fact that the impact of climate change on mentally ill persons has not been scientifically verified but rather a mere conception or belief. Hence, there is a need for a research investigation geared towards ascertaining or clearing confusion and misconceptions about climate change and its impact on mentally ill persons in Nigeria.

Social work is a helping profession with a focus on supporting the most vulnerable, therefore, social workers are uniquely positioned to address the impacts of climate change on individuals and communities (Bonecutter, 2019). This work can include counseling people with mental health issues or connecting community members to support services (Madhanagopal& Nikku, 2022). The primary mission of social work is to help people enhance their wellbeing and meet their basic needs, including physical and mental health care (Barsky, 2017). In the context of climate change, social workers may provide mental health support before and after climate-related events such as floods or wildfires (Mason et al., 2022). Social workers may also educate clients and community members to help them understand environmental factors that affect their health, such as an older adult who may be at risk for dehydration and heatstroke on a summer day (Cooley, 2023; Celik, 2020). Additionally, social workers can refer clients to counseling to help them manage anxiety related to climate change (Mason et al., 2022; Madhanagopal& Nikku, 2022). Clinical social workers who are licensed to diagnose and treat mental health disorders can provide this assistance directly (Mason et al., 2022).

Studies have been conducted on the mental health risks posed by climate change and climate change effects on human health by many scholars (Obradovich et al., 2018; Hayes et al., 2018; Scaramutti et al., 2019). However, literature is scarce on the direct impact of climate change on mentally ill persons. Again, there are limited studies on the confusion and conception held by people regarding climate change and mental illness. More so, it has become essential to investigate the risks posed by climate change to specific psychiatric and neurobehavioral symptoms. To fill this gap in the literature, this study becomes vital as it contributes to the scarce but vital literature on the impact of climate change on human well-being. It is against this background that this study poses the following research questions: (1) What is the impact of climate change on mentally ill persons given different topography in Southeast Nigeria? (2) What is the relationship between the hazards of climate change and mental health? (3) How can social workers come up with measures to ameliorate the impact of climate change on mental health and well-being?

METHODOLOGY

Study area

The study was conducted in two Southeast states. South-east Nigeria consists of five States, namely Abia, Anambra, Ebonyi, Enugu and Imo State, out of which two states (Enugu and Abia State) were chosen for the study. The reason for selecting the two States was because of the presence of the Federal Psychiatric hospitals located therein.

Sampling procedure

The purposive sampling technique was used to select Enugu and Abia because of their proximity to the researchers. Quota sampling was used to allocate 12 participants consisting of three Psychiatric doctors, three Psychiatric nurses, two Social workers, and four caregivers of mentally ill persons in each state. Information concerning the impacts of climate change on mentally ill persons was gathered with the assistance of social workers from selected hospitals. Also, availability sampling was employed in selecting participants who were on call and willing to partake in the study. To be eligible, participants were required to have a minimum of five years of experience working in the hospital. In all, a total of 24 participants comprising (6 Psychiatric Doctors, 6 Psychiatric nurses, 4 Social workers and 8 caregivers participated in the study (We ensure equal representation of gender 12 male and 12 female participants) aged (25 years and above); all in Psychiatric hospitals in Enugu and Abia states respectively.

Data collection

The research assistants were given a day of training on how to conduct interviews. The research instrument was collectively developed by the researchers and pretested to ensure reliability. The instrument was translated into Igbo language and back to the English language to ensure that the questions had appropriate meanings as intended. Twenty-four interview sessions were conducted in the offices of participants for the staff and in the quiet corner of the hospital for caregivers in the English language. Participants gave oral consent and participated willingly. Every interview session lasted for thirty minutes. Based on their consent, the discussions were recorded with a recording device, while a note-taker took notes.

Data analysis

The data transcribed were compared to the recorded interview by the researchers to ensure that the original meaning of what participants said was retained. Thematic analysis was used to arrange the data in themes. Themes were developed after a series of modifications of research questions courtesy of field experiences. The final themes were (a) views held about climate change, (b) Confusions and misconceptions about climate change and mental illness, (c) views held on the impact of climate change on mentally ill persons, (d) views held on the implications of the study findings for social work practice. Verbatim quotes were used in presenting the data.

FINDINGS

Demographic characteristics of participants

The participants were of the Igbo tribe. The ages of participants ranged from 25-60 years. Those 25-30 years were 8.3%, 31-35 years were 12.5%, 36-40 years were 25.0%, 41-45 years were 20.8%, 46-50 years were 12.5%, while 51-55 years were 16.7% and 56-60 years were 4.2%. The data on marital status recorded those that are single were 8.3%, married 87.5% and widowed 4.2%. For educational qualification, those who had SSCE were 12.5%, 25.0% had MBBS, 50.0% had B.Sc.% while 12.5% had M.Sc. On the issue of occupation, 25.0% were Psychiatric doctors, 25.0% were Psychiatric nurses while 16.7% were social workers and 33.3% were caregivers.

Views held about climate change

Most participants who took part in the study were of the opinion that man's activities, deforestation, the emission of greenhouse gases, and industrialization are causes of climate change. The resultant effects include drought, flooding, increase in sun intensity. Most participants were of the opinion that man's activities, deforestation, emission of greenhouse gases and industrialization are causes of climate change, recognizing drought, flooding, and extreme heat as notable outcomes. A psychiatric nurse, aged 38, noted that "mentally ill patients' aggressive and vulnerable nature has absolutely nothing to do with change in weather." Similarly, a 43-year-old psychiatric doctor stated, "Scientifically it has not been proven that climate change impacts persons with mental illness... Since my years as a consultant, there has been no difference in behavior among mentally ill patients during weather changes."

Contrary to the caregivers, psychiatric healthcare professionals—including doctors and nurses—commonly dismissed the idea that climate change directly affects mentally ill patients, emphasizing that no empirical evidence currently supports such a claim. One nurse argued that the aggressive or vulnerable behaviors often exhibited by mentally ill individuals were not weather-dependent but a function of other underlying psychiatric conditions. Similarly, another doctor maintained that any perceived correlation between mental illness and climate is based on misconceptions or superstitions, especially the myth of the moon's influence on mental illness. However, caregivers expressed concerns about the behavioral fluctuations in patients during extreme weather, indicating a lived reality that may require further exploration.

A 45-year-old caregiver shared a different experience, stating,

"Change in weather has great effect on my brother. He becomes vulnerable during hot weather."

This discrepancy between professional opinion and lived experience suggests the need for further research into the potential indirect impacts of climate change on the mentally ill, particularly from a caregiver's

Impact of climate change on mentally ill persons

With the exception of caregivers, all the psychiatric healthcare personnel interviewed were of the opinion that climate change has no effect on mentally ill persons and has not been scientifically proven. A 43 –years-old Doctor said,

"Scientifically it has not been proven that climate change impact on persons with mental illness. People believed that advent of a new moon can trigger mental illness because the word Lunatic has to do with moon, that relationship seems as if mental illness is dependent on the appearance of the moon. It is a mere misconception and myths in psychiatric which has not proven. The weather can affect mental illness if the individual who is predisposed has something dependent on the weather. Since my years as a consultant, there is no difference in behavior among mentally ill patients during weather change".

A 38-year-old nurses has this to say,

"Change in weather does not have any impact or effect on mental illness on both the admitted patients and those not admitted or under medication, it is a mere misconception. Mentally ill patient's aggressive and vulnerable nature has absolutely nothing to do with change of weather."

"Climate change has no impact on persons with mental illness, it is a mere superstitious belief. Hot weather affects every individual not only those with mental illness".

Factors that can trigger mental illness

The confusion surrounding the impact of climate change on mental illness seems rooted in a broader complexity of what factors actually trigger or worsen mental health conditions. The majority of psychiatric professionals emphasized hereditary factors, psycho-social stressors, and substance abuse as primary triggers for mental illness. Other factors that can trigger mental illness can be classified under hereditary, which is called predisposing factors, and precipitating factors. Environment, noise, hunger, use of substances, and viral infections can provoke persons with mental illness. Many participants were quick to attribute mental illness to genetic predisposition, psychoactive substance use, and traumatic life events rather than external environmental factors. Psychiatric care personnel interviewed were of the opinion that multiple factors trigger mental illness in individuals but not changes in climatic conditions. With respect to this, A doctor in Psychiatric hospital in Abia State stated thus,

"Other factors that can trigger mental illness can be classified under hereditary which is called predisposing factor and precipitating factors. Predisposing factors are factors that are in human already while the precipitating factor triggers it. For instance, if someone is mentally ill and gets married, there is a tendency that the person will give birth to an offspring that is mentally ill.

Another Doctor from Enugu Psychiatric hospital concurred,

"Individual's personality and make up has an effect on the development of mental illness if there is a trigger. Also, body make up, individuals coping mechanism, loss of loved ones, bereavement, intake of psychoactive substances like cocaine, heroin etc. can equally trigger mental illness".

A psychiatric Doctor from Abia stated that:

"Environment, noise, loud music, hunger, hallucination, hereditary factors, and use of substance, loss of loved ones, disappointment, and business collapse, infections like typhoid, malaria, thyroid disease, accident, shock and viral infections can provoke persons with mental illness or triggers mental illness not change in climate or weather".

DISCUSSION

Findings from the participants showed that Psychiatric personnel with the exception of caregivers, are knowledgeable about climate change and its causes, but they do not believe it has any resultant effects on mental health and mentally ill persons. The findings of this study contrast with previous research conducted in various regions and countries, which suggests that climate change impacts

individuals with mental illness. For example, Hathaway and Maibach (2018) and Blashki et al. (2018) reported that health professionals widely perceive climate change as a significant threat to health. Their research indicates that climate change affects mental health through multiple pathways—direct, indirect, and overarching—potentially leading to mental health issues and illness while also producing some positive psychosocial outcomes. However, this study takes a different perspective, suggesting that climate change has no effect on mentally ill persons, both those admitted in the psychiatric hospital and those at home. This could be as a result of professional knowledge and experiences over the years in treating persons with mental illness in the Southeast region of Nigeria.

Further findings from the study revealed that the notion people have about the impact of climate change on mental illness is a mere misconception and superstitious belief that has not been scientifically proven. These assumptions have made people believe that the aggressive and vulnerable nature of mentally ill persons has everything to do with a change of weather stemming from climate change. However, the findings of this research proved that change in weather cannot affect a mentally ill person except if the individual is suffering from another ailment that is dependent on the weather like every other person.

Although the study has proven that climate change has no impact on mentally ill persons, there are other factors that can trigger mental illness. From the findings of this study, the reoccurring factor pointed out by psychiatric healthcare personnel can be classified as hereditary (predisposing factor and precipitating factors). Predisposing factors are factors that are in humans already, while the precipitating factor triggers it. For instance, if someone is mentally ill and gets married, the possibility that the person will give birth to an offspring that is mentally ill is possible, coupled with loss of loved ones, bereavement, intake of psycho-active substances like cocaine, heroin, etc. Also, the study revealed that an individual's personality and makeup have effect on the development of mental illness if there is a trigger. In addition, body makeup, individual coping mechanisms, environment, noise, loud music, hunger, hallucination, disappointment, business collapse, infections like typhoid, malaria, thyroid disease, accident, shock, and viral infections can provoke persons with mental illness or triggers mental illness, not climate change. These factors based on the experiences of psychiatric professionals are what they know that trigger mental illness over the years in individuals.

While the findings from this study indicate that climate change has no direct impact on mentally ill persons in Southeast Nigeria, this contrasts with existing literature that suggests climate change can influence mental health. For instance, studies by Berry et al. (2010) and Fritze et al. (2008) highlight how climate-related events, such as extreme weather conditions, are linked with

increased stress, anxiety, and other mental health conditions. Furthermore, climate change-induced disasters like flooding and drought have been linked to post-traumatic stress disorder (PTSD) and depression, particularly in vulnerable populations. The divergence in findings could be attributed to cultural and environmental factors unique to Southeast Nigeria, where traditional beliefs and societal perceptions may play a significant role in shaping the understanding of mental health and illness. As a result, psychiatric professionals in the region might not recognize the subtle yet impactful ways climate change can influence mental well-being due to the prevailing focus on socio-cultural triggers of mental illness in their practice.

Additionally, another critical consideration is that while this study negates climate change as a direct factor affecting mental health, it underscores the significant role of other socio-environmental triggers. This corroborates with different findings in psychiatric research, which emphasize the multifactorial nature of mental illness. Patel et al. (2018) found factors such as economic hardship, substance abuse, and personal loss are generally recognized as common triggers of mental disorders. Trautmann et al. (2016) support the idea that external stressors such as financial instability or the loss of a loved one can precipitate or aggravate mental health conditions. This finding aligns with the experiences of psychiatric professionals in Southeast Nigeria, who pointed to various socio-environmental triggers like noise, hunger, or infection as key contributors to the onset of mental illness, suggesting that while climate change may not be immediately impactful, the broader socio-environmental context must be critically examined when evaluating mental health outcomes.

Social workers have a role in addressing the misunderstandings surrounding the relationship between climate change and mental health, especially in regions where cultural beliefs and superstitions shape public understanding. Psychiatric, clinical and green social work are specialty practice areas of the social work profession that are built upon generic values, ethics, principles, practice methods, and the person-in-environment perspective of the profession which focuses on the assessment, diagnosis and treatment of bio-psycho-socialspiritual dysfunction, disability and impairment, including mental, emotional, behavioral and addictive disorders, developmental disabilities, support and enhance disability on bio-psychosocial-strengths and functioning in individuals, families, and groups. While green and disaster management social workers specialise in environmental matters and strive to tackle environmental degradation, the social organization of relationships between people and the flora and fauna in their physical habitats; and the interactions between socioeconomic and physical environmental crises and interpersonal behaviors that undermine the well-being of human beings and planet earth (Council on Social Work Education [CSWE], 2008; Dominelli, 2012). Both specialties are germane in awareness creation, counseling, sensitization, and enlightenment

programmes in eradicating societal problems affecting multiple persons as well as clearing misconceptions and inconsistencies about people's assumptions, perceptions and beliefs about things. Based on the findings of this study, climate change is one of the most pressing issues of the 21st century as noted by Achstatter (2014), however, social workers have given the problems little attention.

The social work profession should begin to address the emerging concerns regarding climate change's psychosocial impacts on vulnerable populations, particularly mentally ill patients (Gray et al., 2013). This could involve developing awareness campaigns to clear misconceptions about climate change and mental health, as well as advocating for interdisciplinary research that integrates environmental science with mental health care (Hayes et al., 2018). Moreover, social workers should facilitate more targeted support for caregivers, who are often on the front lines of managing these patients' conditions, especially during extreme weather events (Dominelli, 2012). This will ensure a more holistic approach to care and potentially reveal underexplored links between climate stressors and mental illness.

In Southeast Nigeria, as revealed in this study, psychiatric professionals largely dismiss the connection between climate change and mental illness. This reflects a gap in public awareness and an opportunity for social workers to engage communities in education and advocacy. Social workers can work closely with healthcare professionals to bridge the knowledge gap and debunk myths by promoting evidence-based understanding. Findings from Corrigan and Watson (2002) have shown that misinformation about mental health heightens stigma and limits access to proper care. In communities where climate change impacts are often misattributed to superstitions, social workers can facilitate dialogues that reshape public perceptions and encourage preventive mental health strategies based on scientific insights.

In addition to education, social workers are uniquely positioned to integrate climate-related stressors into mental health interventions. While this study reveals that climate change has no direct effect on mentally ill patients, social work practice emphasizes the holistic consideration of environmental, social, and economic factors that affect well-being (Dominelli, 2012). Social workers can acknowledge that while extreme weather events or changing seasons may not directly trigger mental illness, the associated disruptions—such as displacement, loss of livelihoods, or food insecurity—can contribute to mental distress. A trauma-informed approach, which recognizes these indirect influences, would enable social workers to provide more comprehensive support to affected individuals. Such interventions would not only address the immediate mental health concerns but also build resilience within communities to better cope with climate-related stressors (Mason et al., 2021).

Also, social workers can advocate for policy changes that account for the intersection of mental health and climate change. In many low-resource settings, mental health services are underfunded and undervalued, which often leads to an over-reliance on culturally driven interpretations of mental illness. Social workers, through their advocacy efforts, can push for the inclusion of mental health considerations in climate adaptation policies and programs. Engaging local governments and policymakers to support mental health infrastructure and promote public health campaigns that highlight the nuanced effects of climate change on vulnerable populations is crucial (Ma et al., 2022). By addressing both the social and environmental determinants of mental health, social workers can contribute to more equitable and effective public health responses in Southeast Nigeria.

This study is not void of limitations. One of the major limitations of this study is its restriction to psychiatric personnel and mentally ill patient's caregivers and its lack of a comparative view of mentally ill patients in those hospitals and those that are not admitted to the hospital. To this end, this study recommends further studies not only in other states of Nigeria but incorporating views of mentally ill persons both in the psychiatric hospital and at home in Nigeria. Secondly, the proposed states for the study were not easily accessed due to the location of the target population of the study and also, because of the security situation of the Country. Secondly, some participants selected for IDI refused to open up because they felt that the researcher would use the information against people with mental health issues. This problem was resolved by using respondents who understood the reason for the interview was purely for academic purposes. In addition, opinions of persons who are mentally ill with the exception of their leaders were not included in the study due to their inability to answer reasonably.

Based on the findings the following recommendations were proposed: first, social workers and healthcare professionals should collaborate to improve public understanding of the broader impacts of climate change on mental health. This could involve organizing community outreach programs, workshops, and awareness campaigns to educate the public on climate-related stressors and their indirect effects on well-being, particularly among vulnerable groups. Secondly, there is a need for the government and mental health institutions to integrate environmental factors, including climate change, into mental health assessment frameworks. By doing so, they can better identify and address potential external stressors that could exacerbate existing mental health conditions, ensuring a more comprehensive approach to care. Thirdly, educational institutions, from primary to tertiary levels, should incorporate environmental education into their curricula to equip students with the knowledge and skills needed to understand and mitigate the effects of climate

change. This can also inspire future professionals to develop innovative solutions to the emerging environmental and public health challenges facing society. Fourthly, increased funding should be allocated to multidisciplinary research that explores the intersections of climate change, mental health, and socio-economic vulnerabilities. Such research will enable policymakers and practitioners to develop evidence-based strategies that effectively address both the direct and indirect impacts of climate change on public health. Fifthly, the government should leverage the findings of this study to organize seminars, conferences, and workshops on the impact of climate change on mentally ill patients so as to get a better knowledge and perception of climate change as it affects human health. Finally, social workers should be positioned, well equipped and fully incorporated in climate change and environmental management as well as spearhead the management of mentally ill patients.

CONCLUSION

This research has demonstrated that contrary to widely held assumptions and scholarly assertions, changes in climatic conditions do not have a direct impact on mentally ill individuals in Southeast Nigeria. While global literature has established a link between climate change and mental health, particularly through indirect stressors, findings from this study revealed no such effect on psychiatric patients in this region. Findings from the study showed it is important to recognize that climate change does have broader implications for public health in Nigeria, particularly among vulnerable populations. As climate impacts intensify, it is expected that existing health challenges may worsen, underscoring the importance of public awareness and proactive adaptation strategies.

In light of these findings, there is an urgent need to enhance public knowledge and perception of climate change and its broader effects on health. Social workers play a pivotal role in promoting environmental education and awareness, particularly within vulnerable communities, to facilitate the adoption of effective adaptation and mitigation strategies. Regular workshops, seminars, and forums on climate change should be organized across various platforms, including schools, universities, communities, and public spaces. Such initiatives would empower individuals and communities with the necessary tools to reduce the impacts of climate change and promote sustainable living practices. Moreover, there is a need for the Nigerian government and researchers to prioritize the identification of research needs related to climate change, alongside the provision of adequate funding for multidisciplinary studies. Teaching climate-smart lifestyles. and environmentally conscious behavior, and encouraging students to pursue careers that address environmental challenges are crucial steps toward longterm climate resilience. Furthermore, all stakeholders must collaborate to

strengthen regional, national, and local capacities in responding to public health needs during climate-related emergencies.

References

- Applebaum, K. M., Graham, J., Gray, G. M., LaPuma, P., McCormick, S. A., Northcross, A., & Perry, M. J. (2016). An overview of occupational risks from climate change. *Current Environmental Health Reports*, *3*, 13-22.
- Barreca, A., Clay, K., Deschenes, O., Greenstone, M. & Shapiro, J. S. (2016)., Adapting to climate change: The remarkable decline in the US temperature-mortality relationship over the twentieth century. *Journal Political Economy*, 124, 105–159.
- Barsky, A. (2017). Ethics alive! The 2017 NASW code of ethics: What's new. *New Social Worker*.
- Bartlett, V. L., Doernberg, H., Mooghali, M., Gupta, R., Wallach, J. D., Nyhan, K., ... & Ross, J. S. (2024). Published research on the human health implications of climate change between 2012 and 2021: cross-sectional study. *BMJ medicine*, 3(1).
- Basu, R., Gavin, L., Pearson, D., Ebisu, K., & Malig, B. (2018). Examining the association between apparent temperature and mental health-related emergency room visits in California. *American Journal of Epidemiology*, 187(4), 726-735.
- Berry, H. L., Bowen, K., &Kjellstrom, T. (2010). Climate change and mental health: A causal pathways framework. *International Journal of Public Health*, 55(2), 123-132.
- Boetto, H. & McKinnon, J. (2013). Gender and climate change in rural Australia: A review of differences. *Critical Social Work 14*(10), 15-31.
- Bonecutter, F. J. (2019). National Association of Social Workers (NASW). In *Encyclopedia of Couple and Family Therapy* (pp. 2011-2012). Cham: Springer International Publishing.
- Bryant, R. A., Waters, E., Gibbs, L., Gallagher, H. C., Pattison, P., Lusher, D., ... & Forbes, D. (2014). Psychological outcomes following the Victorian Black Saturday bushfires. *Australian & New Zealand Journal of Psychiatry*, 48(7), 634-643.
- Carlowicz, M. (2015b, March 7). Water levels still dropping near São Paulo.EarthObservatory.
- Celik, S. (2020). The effects of climate change on human behaviors. *Environment, climate, plant and vegetation growth*, 577-589.
- Chagutah, T. (2010). Climate Change Vulnerability and Preparedness in Southern Africa: Zimbabwe Country Report. Heinrich BoellStiftung: Cape Town.
- Chaliand, G. & Rageau, J. (1995). *Penguin atlas of diasporas*. New York, NY: Viking Press.
- Corrigan, P. W., & Watson, A. C. (2002). Understanding the impact of stigma on people with mental illness. *World Psychiatry*, 1(1), 16.

- Costello, A., Abbas, M., Allen, A., Ball, S., Bell, S., Bellamy, R. & Patterson, C. (2009). Managing the health effects of climate change: Lancet and University College London Institute for Global Health Commission. *Lancet*, *373*, 1693–1733, doi:10.1016/S0140-6736(09)60935-1.
- Dessler, A. E. and Parsons, E. A. (2009). *The Science and Politics of Climate Change: A Guide* disorders in the national comorbidity survey replication. *Arch Gen Psychiatry*, 62, 593
- Dodgen, D., Donato, D., Kelly, N., La Greca, A., Morganstein, J., Reser, J., ...
 &Ursano, R. (2016). *Ch. 8: Mental health and well-being* (pp. 217-246).
 US Global Change Research Program, Washington, DC.
- Dominelli, L. (2011). Climate change: social workers' roles and contributions to policy debates and interventions. *International Journal of Social Welfare*, 20(4), 430-438.
- Dominelli, L. (2012). GreenSocial Work: From environmental crisis to environmental justice. Cambridge, Polity Press.
- Fernandez, A., Black, J., Jones, M., Wilson, L., Salvador-Carulla, L., Astell-Burt, T., & Black, D. (2015). Flooding and mental health: a systematic mapping review. *PloS one*, 10(4), e0119929.
- Field, C. B., Barros, V., Stocker, T. F., Qin, D., Dokken, D. J., Ebi, K. L.,,
 & Midgley, P. M. (2012). Managing the risks of extreme events and disasters to advance climate change adaptation. A special report of working groups I and II of the intergovernmental panel on climate change. New York: Cambridge University Press
- Food and Agriculture organization (2008). An Introduction to the Basic Concepts of Food Security. Published by the EC -FAO Food Security Programme. www.foodsec.org/docs/concepts_guide.pdf.
- Fritze, J. G., Blashki, G. A., Burke, S., & Wiseman, J. (2008). Hope, despair and transformation: Climate change and the promotion of mental health and wellbeing. *International Journal of Mental Health Systems*, 2(13), doi:10.1186/1752-4458-2-13
- Fryxell, A. R. (2019). Psychopathologies of time: defining mental illness in early 20th-century psychiatry. *History of the Human Sciences*, *32*(2), 3-31.
- Gillis, J. (2014). Panel's warning on climate risk: Worst is yet to come. The New York Times, 31.
- Gray, M., Coates, J., & Hetherington, T. (Eds.). (2013). Environmental social work (pp. 46-61). London: Routledge.
- Gukurume, S. (2013). Climate change, variability and sustainable agriculture in Zimbabwe's rural communities. *Russian Journal of Agricultural and Socio-Economic Sciences*, 2(14), 89-100.
- Hadley, R., Hatch, S. (1980). Community Social Work. London, Routledge
- Harkonen,U. (2007). The Bronfenbenner ecological system theory of human development. *Scientific article of V international Conference, person, color, nature, music, Daugavpils University, Lativia, 4, 1-7*

- Hathaway, J. & Maibach, E. W. (2018). Health implications of climate change: A review of the literature about the perception of the public and health professionals. *Current Environmental Health Reports*, 2018(5), 197–204.
- Hayes, K., Blashki, G., Wiseman, J., Burke, S., & Reifels, L. (2018). Climate change and mental health: risks, impacts and priority actions. *International Journal of Mental Health Systems*, *12*, 1-12.
- IPCC. (2007). Climate change 2007: Impacts, adaptation and vulnerability. Contribution of working group II to the fourth assessment report of the intergovernmental panel on climate change. Cambridge, Cambridge University Press.
- Isticato, R., & Ricca, E. (2016). Spore surface display. *The bacterial spore:* from molecules to systems, 349-366.
- Kemp, S. P., & Palinkas, L. A. (2015). Strengthening the social response to the human impacts of environmental change. Grand Challenge for Social Work Initiative, Working Paper 5,
- Kessler, R. C., et al. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey replication. Arch Gen Psychiatry, 62, 593-602.
- Kolbert, E. (2015). *Field notes from a catastrophe: Man, nature, and climate change*. Bloomsbury Publishing USA.
- Korukire, N., Bozzi, L., Banamwana, G., Birasa, L., Ineza, M. C., Rumagihwa, L.,, Akanbi, M. O. (2019). Climate change and mental health: New model of managing mental health illness resulting from climate change events. Rwanda perspective. *Rwanda Journal of Medicine and Health Sciences*, 2(1), 62-65, doi.org/10.4314/rjmhs.v2i1.11
- Kurane, C. (2010). The effect of global warming on infectious diseases. *Public Health Res Perspect*, 1(1), 4-9, doi:10.1016/j.phrp.2010.12.004
- Lisinge-Fotabong, E. (2023). Health in Climate Change Diplomacy in Africa. In *Health Diplomacy in Africa: Trends, Challenges, and Perspectives* (pp. 167-179). Cham: Springer International Publishing.
- Ma, T., Moore, J., & Cleary, A. (2022). Climate change impacts on the mental health and wellbeing of young people: A scoping review of risk and protective factors. *Social Science & Medicine*, *301*, 114888.
- Madhanagopal, D., & Nikku, B. R. (Eds.). (2022). Social Work and Climate Justice: International Perspectives. Taylor & Francis.
- Madzwamuse, M. (2010). *Climate Governance in Africa: Adaptation Strategies and Institutions.* Heinrich BöllStiftung (HBS)
- Manyatsi, A. M. (2010). Climate variability and change as perceived by rural communities in Swaziland. *Research Journal of Environmental and Earth Sciences*, 2(3), 164-169.
- Martinello, E.(2020). Applying the ecological system theory to better to better understanding and prevent child sexual abuse. *Sexuality and Culture*, *24*, 326-344.

- Mason, L. R., Kemp, S. P., Palinkas, L. A., & Krings, A. (2021). Responses to Environmental Change. *Encyclopedia of Social Work*.
- Mason, L. R., Minnick, D. J., Tercero, S., Melton, C. C., & Greenfield, J. C. (2022). Policy mapping of US congressional proposals on climate change: Informing social work advocacy. *Journal of Policy Practice and Research*, 3(3), 221-240.
- Masson-Delmotte, V., Zhai, P., Pirani, A., Connors, S. L., Péan, C., Berger, S., ... & Zhou, B. (2021). Climate change 2021: the physical science basis. Contribution of working group I to the sixth assessment report of the intergovernmental panel on climate change, 2(1), 2391.
- McDermott, B., Cobham, V., Berry, H., & Kim, B. (2014). Correlates of persisting posttraumatic symptoms in children and adolescents 18 months after a cyclone disaster. *Australian & New Zealand Journal of Psychiatry*, 48(1), 80-86.
- Meier, B. M., Bustreo, F., & Gostin, L. O. (2022). Climate change, public health and human rights. *International Journal of Environmental Research and Public Health*, *19*(21), 13744.
- National Association of Social Workers (2006). Assuring the sufficiency of a frontline workforce: A national study of licensed social workers. https://www.socialworkers.org > inkCl
- National Bureau of Statistics (2011). Annual Abstract of Statistics, 2011.<u>http://istmat.info/files/uploads/53129/annual_abstract_of_statisti</u> cs_2011.pdf
- Ndi, E. N. (2018). *Ecuador Floods Leave 20 people Dead*.<u>https://www.bbc.comon21/04/19</u>.
- Njoku, J. (2012). 2012 year of flood fury: A disaster foretold, but ignored. Retrieved from <u>http://www.vanguardngr.com/2012/10/2012-year-of-flood-</u> fury-a-disaster-foretold-but-ignored/
- O'Donnell, N. (2020). *Climate Change*: What Should Social Workers Be Doing. https://scholarworks.calstate.edu/downloads/0z708x581
- Obradovich, N., Migliorini, R., Paulus, M. P., & Rahwan, I. (2018). Empirical evidence of mental health risks posed by climate change. *Proceedings of the National Academy of Sciences*, *115*(43), 10953-10958.
- Orengo-Aguayo, R., Stewart, R. W., de Arellano, M. A., Suárez-Kindy, J. L., & Young, J. (2019). Disaster exposure and mental health among Puerto Rican youths after Hurricane Maria. *JAMA Network Open*, 2(4), e192619e192619.
- Patel, V., Saxena, S., Lund, C., Thornicroft, G., Baingana, F., Bolton, P., ... &UnÜtzer, J. (2018). The Lancet Commission on global mental health and sustainable development. *The Lancet*, 392(10157), 1553-1598.
- Paz, S., Díaz, J., Negev, M., & Linares, C. (2024). Climate Change and Global Health. In *Handbook of Epidemiology* (pp. 1-35). New York, NY: Springer New York.

- Rataj, E., Kunzweiler, K., &Garthus-Niegel, S. (2016). Extreme weather events in developing countries and related injuries and mental health disorders-a systematic review. *BMC Public Health*, *16*, 1-12.
- Reklev, S. (2014, July 28). Drought hits China food production: Xinhua. Reuters.<u>http://www.reuters.com/article/us---china---drought---agriculture-</u> --iduskbn0fx0ld 20140728
- Reser, J. P. & Swim, J. K. (2011). Adapting to and coping with the threat and impacts of climate change. *American Psychologist*, 66, 277–289, doi:10.1037/a0023412
- Reser, J. P. (2010). A psychological perspective on 'thinking globally and acting locally' in the context of climate change. Keynote address presented to the International Congress of Applied Psychology, Melbourne, Australia.
- Russell, M. (2010). *Independent Climate Change into the Email Review*: The Russell Report. Available at www. cce-review. org.
- Scaramutti, C., Salas-Wright, C. P., Vos, S. R., & Schwartz, S. J. (2019). The mental health impact of hurricane Maria on Puerto Ricans in Puerto Rico and Florida. *Disaster Medicine and Public Health Preparedness*, 13(1), 24-27.
- Schmeltz, M. T., & Gamble, J. L. (2017). Risk characterization of hospitalizations for mental illness and/or behavioral disorders with concurrent heat-related illness. *PLoS One*, *12*(10), e0186509.
- Schramm, P. J., Brown, C. L., Saha, S., Conlon, K. C., Manangan, A. P., Bell, J. E., & Hess, J. J. (2021). A systematic review of the effects of temperature and precipitation on pollen concentrations and season timing, and implications for human health. *International Journal of Biometeorology*, 65, 1615-1628.
- Schwartz, R. M., Gillezeau, C. N., Liu, B., Lieberman-Cribbin, W., &Taioli, E. (2017). Longitudinal impact of Hurricane Sandy exposure on mental health symptoms. *International Journal of Environmental Research and Public Health*, 14(9), 957.
- Sweileh, W. M. (2020). Bibliometric analysis of peer-reviewed literature on climate change and human health with an emphasis on infectious diseases. *Globalization and Health*, *16*(1), 44.
- Thomas, J. & Susan, C. (2011). The psychological Impact of Global Climate Change. *American Psychological Association*, 66(4), 265-275
- Trautmann, S., Rehm, J., & Wittchen, H. U. (2016). The economic costs of mental disorders: Do our societies react appropriately to the burden of mental disorders? *EMBO Reports*, 17(9), 1245-1249.
- Uche, D. O. V. (2013). The environmental effects of flood disaster in Anambra State. *Advances in Applied Science Research*, 4(1), 4999-5055.
- United Nations General Assembly (2009). *Climate change and its possible security implications: Report of the secretary general.* http://www.refworld.org/docid/4ad5e6380.html.

- Weber, E. U., and Stern, P. C. (2011). Public understanding of climate change in the United States. *American Psychologist*, 66, 315–328. doi:10.1037/a0023253
- World Health Organization (2012). WHO calls for urgent action to protect health from climate change sign the call.http://www.who.int/globalchange/global campaign/cop21/en/.
- World Health Organization. (2014). *Quantitative risk assessment of the effects of climate change on selected causes of death, 2030s and 2050s*. World Health Organization. https://iris.who.int/handle/10665/134014