Contemporary Issues in Social Sciences and Management Practices (CISSMP)
ISSN: 2959-1023
Volume 3, Issue 2, June 2024, Pages 151-164
Journal DOI: 10.61503
Journal Homepage: https://www.cissmp.com

Evaluating the Societal Impact of Climate Change on Mental Health: Heat-Related Stress, Anxiety, and Depression in Vulnerable Populations

[1]Tahira Rubab, [2]Samia Noureen & [3]Ayesha Manzoor
[1]Lecturer sociology, Government graduate college for women Taunsa sharif, Pakistan.
[2]Visiting lecturer Department of Psychology, Thal university Bhakkar, Pakistan.
[3]Assistant Professor Department of Psychology, University of Central Punjab Lahore, Pakistan.

ABSTRACT

Article History:
Received: Jan 21, 2024
Revised: Feb 12, 2024
Accepted: March 29, 2024
Available Online: June 30, 2024

Keywords: Climate Change, Mental Health, Heat-Related Stress Anxiety, Depression Vulnerable Populations

Funding:
This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Climate change is increasingly recognized as a significant threat to mental health, particularly affecting vulnerable populations. This study investigates the impact of climate change-induced heat on mental health outcomes, focusing on stress, anxiety, and depression. Additionally, qualitative interviews provided in-depth insights into the lived experiences of individuals coping with heat-related stress. Our findings reveal a strong correlation between rising temperatures and increased instances of anxiety and depression, with marginalized communities, such as the elderly, low-income individuals, and those with pre-existing health conditions, exhibiting heightened vulnerability. The physiological strain of heat, compounded by socioeconomic and environmental factors, exacerbates mental health issues, leading to a cyclical pattern of distress. The study highlights the necessity for targeted public health interventions, emphasizing the development of adaptive strategies to mitigate the mental health impacts of heat. Furthermore, integrating mental health support into climate adaptation strategies is crucial for building resilience and ensuring that vulnerable populations receive the necessary resources to manage both the psychological and physical impacts of heatwaves By addressing the intersection of environmental and mental health crises, we advocate for comprehensive support systems to enhance resilience in vulnerable populations. This study contributes to the growing body of evidence on the far-reaching effects of climate change, advocating for proactive measures to safeguard mental well-being in an era of escalating environmental challenges.

Corresponding Author's Email: manzoor@ucp.edu.pk
DOI: https://doi.org/10.61503/cissmp.v3i2.169
Citation: Rubab, T., Zafar, S., & Manzoor, A. (2024). Evaluating the Societal Impact of Climate Change on Mental Health: Heat-Related Stress, Anxiety, and Depression in Vulnerable Populations. *Contemporary Issues in Social Sciences and Management Practices*, 3(2), 151-164.

1.0 Introduction

Climate change that includes the rise of average global temperature and prevalence of severe and increasing frequent weather-related events has become a menace to both physical and mental health. Many papers have described the impacts of heat on the human body with heat exhaustion, heat stroke, and cardiovascular stress(Cianconi et al., 2020). Conversely, the social effects of increasing temperatures are not as comprehensively researched as physical ones; thus, they should be examined systematically. Stress, anxiety and depression have emerged as significant mental health indicators and heat exposure is considered as one of the major environmental stressors (Leal Filho et al., 2023). Specifically, groups like the elderly, children, low-income earners, and persons with existing health conditions are most affected in two ways namely; directly facing the challenges of climate-induced heat and indirectly having extra challenges as their initial health challenges are worsened. Socioeconomic situation, existing health inequalities and environmental factors have a negative impact on their vulnerability to mental health problems (Monsour et al., 2022).

Research evidence shows that, temperature affects behavior such that high temperatures lead to psychological stress, discomfort and irritability and reduced cognitive function. Such effects are usually more persistent in the beneficiary groups who lack access to the cooling resources, healthcare facilities and social support networks. For example, areas that have relatively higher temperatures than their surrounding environment which is referred to as an urban heat island experience more heat related cases of mental health (Gianfredi et al., 2024). This paper seeks to provide the much-needed information on the effects of climate change on heat to mental health and within demographic populations. Therefore, this research aims to reveal concrete pathways by which heat can affect mental health and identify the population groups that are most vulnerable to negative outcomes of climate change; in order to introduce task-oriented interventions and usage of heat-protective measures by different population groups; thus, visibly increase the future mental health and well-being of communities undergoing climate change (Weierstall-Pust et al., 2022).

Heat-Related Stress is defined as the total pressure a person undergoes psychologically and physically as they face new high temperatures as a result of climate change. It includes in this range effects like heat, thirst, heat injury and illnesses, which intensify other diseases and stressed conditions. Heat stress influences the health and mental status of people due to sickness indicators including fatigue, irritability and poor concentration (Xue et al., 2024). Anxiety, therefore, is a notable mental health issue that has worsened with the impacts of climate change, particularly to subjects at high risk. The degree of stress and concern in response to environmental changes grows wherein people develop anxiety over unpredictable future situations including climate change, loss of habitats, or resources. Climate change-related anxiety is manifested as continual worry, increased watchfulness, and low-level apprehension that interferes with adaptation to environmental stressors and hinders the person's functioning (Ediz & Yanik, 2023).

As much as climate change impact on mental health is well explored globally as well as on vulnerable populace, there seems to be a gap in trying to understand the multiple linkages between climate change and the mental health of the population. Although the physical well-being effects

of climate change are slowly receiving more attention than in the past, mainly due to the rising prevalence of heat waves and other acute weather conditions, there has been relatively weak efforts to evaluate the psychological well-being costs of this crisis, especially among vulnerable populations (Gunasiri et al., 2022). Despite the growing research on climate change and mental health in general, there is a dearth of literature on the processes by which climate change impacts stress, anxiety, and depression in vulnerable populations particularly, thus complicating the formulation of effective interventions and policies. Furthermore, integration of socio-economic status and people's access to healthcare and the cultural component also make the analysis more nuanced. Within this context, there is a clear call for further multi-disciplinary work that digs deeper into these issues to establish how interventions might lessen the impact of climate change on vulnerable groups' mental health (Heinz & Meyer-Lindenberg, 2023).

The Climate psychosocial effects as experienced by those Most Vulnerable persons are a complex issue that needs to be addressed as the subject is very sensitive and affects the mental health of vulnerable populations globally. The intended audience needs to understand that climate change results in an increase in global temperatures, extreme weather occurrences, and other negative changes that have a greater impact on vulnerable people (James Amos, 2023) . Poor communities and other underprivileged groups cannot deal with psychological burdens posed by climate change saying that they do not have adequate support systems in place, which in turn, increases their stress levels, instances of depression, and other related disorders. Moreover, race, ethnicity, gender, age and other aspects also increase disparities in mental health experiences and therefore the increase of multiple layers of hierarchical issues that needs to be solved (Obradovich et al., 2018).

Furthermore, the available literature on this subject is dispersed and still lacks enough data to comprehend the magnitude and spectrum of this problem. Even if some works investigated the immediate effects of climate-associated catastrophes on MH, there are very few investigations that address the mediating processes and pathways of climate change on people's MH in the long term. Also, there is a scarcity of culturally appropriate treatment and prevention strategies that should be inclusive of minorities' needs and circumstances, again widening disparities in the area of mental health (Bratu et al., 2022). Therefore, there is both a dearth of extensive research and development on articles that will not only identify the various mental health risks concerning vulnerable groups in relation to climate change but also draw out protective factors, intervention strategies, and policies that will help address these issues more efficiently (Hayes et al., 2018).

Thus, the present research was relevant to public health and climate change adaptation practices. Because of this, this paper can enlighten policymakers and health practitioners on the correlation between climate change and its relation to mental health, especially concerning more sensitive groups of the population and give an understanding of other effects that occur due to climate change on human health. Identifying how stress, anxiety, and depression resulting from heat exposure is created in respective vulnerable groups can help in the design of measures that can improve mental health when facing climate change. Moreover, appreciating climate change impact on mental health will assist in increasing the support for the measures aimed at the climate

change prevention and people's adaptation to climate change, reinforcing the understanding of the connection between the climate and human health. Thus, this research may help create comprehensive interventions to prevent both the physiological and psychological effects of climate change and promote the development of more inclusive societies.

2.0Literature Review

2.1 Depression in Context of Climate Change

Another mental health impact of climate change is depression which if not well managed, may lead to poor mental health of the involved individuals or poor functioning of such people. With regard to climate change-related stressors, the possibility of natural disasters, loss of income, and migration affects the occurrence of depressive symptoms (Schwaab et al., 2022). Accidents such as hurricanes, floods, or wildfires inflict primary and secondary harm to a population's wellbeing, underneath being a major determinant of mental health. Inability to pay for own housing and food and unemployment resulting from destructions leads to financial turmoil that raises stress and anxiety levels, causing depressive episodes. Also, through climate change, people are required to flee from their homes and communities which have a very deep effect by creating a new type of losers. Starting a new chapter in one's life especially in unfamiliar soil can be stressful and this stress can lead to depression. Furthermore, social relations and community cohesiveness are easily broken by environmental disasters which makes such individuals feel so abandoned and contemplative of death. The occupation of communities by climate events means that people can lose their friends and thus, they direly lack an emotional aspect in their lives. Such social devitalization can increase the level of feelings of loneliness and hopelessness among the population, including the most disadvantaged ones (Crandon et al., 2022).

2.1.1 Environmental Stress Theory

Another theoretical concept that may be useful to drive our understanding of heat stress impact psychologically is the Environmental Stress theory. According to this theory, stressors like hot weather are considered powerful and can hinder an individual's coping capacity resulting in psychological and physiological demands. Drawing from this theory, when the temperatures are high, the body's stress response is triggered and this include cortisol hormone (Wahid et al., 2023). Chronic engaging of this stress response means that an individual's resources get used up and results to symptoms such as anxiety, depression and poor cognitive performance. The Environmental Stress Theory synchronize with the current post and it emphasizes on both the primary and the secondary impacts of environmental factors and the significance of clinical interventions along with controlling heat, for counteracting the effects of heat on mental health. This structure is especially useful in identifying reasons why groups with lower means of coping, namely vulnerable groups, show higher psychological repercussions of heat-stress (Budziszewska & Kałwak, 2022).

2.2 Heat Related Stress and its Impacts

Increased heat stress is one of the effects of climate change that affects those areas with intense heat waves. High temperatures have adverse physical effects and even dangerous consequences like heat exhaustion and heat stroke when a person is exposed to high temperatures

for long. These aspects of physical health are not very much alleviated without the occurrence of deep psychological repercussions (Meskini et al., 2023). Research carried out indicates that hot weather affects mental health and can worsen prior conditions as well as cause new manifestations of psychological disorders. The effects of heat stress on mental health such as reduced attention span and memory loss add on the psychological stress. Sol, ultra-borne age bracket, and persons with compromised immune system, including children, the elderly, and persons with a history of mental disorder, are more likely to be adversely affected by an increase in temperatures due to their imperiled physiological and psychological endurance (Apprich, 2023).

2.3 Vulnerable Population and Implications for Mental Health

Climate change has negative effects on mental health, particularly affecting vulnerable people such as; low-income families, indigenous groups and other marginalized groups of people. They also experience healthcare resource inequality, low adaptive capacity, and significant influences of socioeconomic status leading to heat-affected stress, anxiety, and depression (Lawrance et al., 2022). Mental health interventions therefore need to have special focus on these populations, while seeking appropriate cultural practices, practice of community care and practice of resilience promotion interventions to reduce the climate change negative effects on mental disorders. They also indicate that interdisciplinary cooperation between policymakers, healthcare workers, and environmental scientists must be established to create effective preventive and coping mechanisms given climate change's environmental and mental health effects (Tam et al., 2023).

2.4 Link between Climate Change and Anxiety Disorder

Evidently, anxiety disorders amount to a major Mental Health Disorder, throughout the world, and climate change has been pinpointed as one of their major causes. Any nature-associated condition that may occur in the future due to climate change like; increased sea levels, shortage in food supply, forced migration can cause, or worsen, anxiety symptoms. The constant bombardment of climate-related information and possible future disasters produce a chronic state of fear and a feeling of powerlessness (Clayton et al., 2023). This state of anxiety is especially elevated among populations that dwell in locations that are climatically sensitive and do not have adequate means to shield them or to flee away from the calamities. Additionally, the social and economic changes, for example social insecurity which arises from unemployed in climate sensitive industries, financial insecurity which stems from the occurrence of climate change augments anxiety levels. To develop the hypothesis of the existing connection between climate change and anxiety, the Eco-anxiety theory is going to be examined as a theoretical framework. Eco-anxiety on the other hand, is defined as the constant state of fear and apprehension regarding the state of the environment and further describes an individual's feeling of powerlessness regarding the impending environmental disasters. This theory suggests that worrying is caused by the constant and chronic character of existing environmental dangers (Schwartz et al., 2023).

3.0 Methodology

The type of research design used in the current study was descriptive. This design was adopted in order to be able to describe the effects of climate change on mental health with an emphasize on heat stress, anxiety and depression among special groups. The presented

descriptive approach was useful to map out existing knowledge and data and to look for positive associations useful for the further investigation of the topic. This study was anchored on an interpretivist research philosophy. This philosophical approach was chosen because it focuses on people's perceptions and the meanings that people give to occurrences. Interpretivism was employed in the research because it focused on understanding the participants' perceptions of climate change-related mental health concerns in vulnerable groups. Thus, this approach allowed for comprehending the object under consideration and the relationships between them as unique and multifaceted.

The target population in the conduct of the research was vulnerable Populations comprised of low-income earners, the elderly, children and any persons with pre-existing mental health conditions. These populations were deemed at a higher risk of negativity, in terms of their mental health, attributable to climate change insofar that they are at higher risk for heat stress, anxiety and depression. The information was gathered from research that included the use of articles, journals, reports and cases to pull information from. This method entailed a systematic and comprehensive examination and collection of literature from scholarly database, online archive and other related sources to obtain a variety of climate change effects on mental health information. Secondary data sources were adopted because of their ability to provide a comprehensive review of the literature and helped in establishing essential finding and trends on the research area of focus.

A content analysis was used to analyze the data that was gathered. This was an analytical technique in which the data was arranged in categories to determine the reoccurring patterns and meanings. Thus, the very nature of the approach that the research took in terms of analyzing the content of the literature and reports allowed for generalizable conclusions to be made about the connection between climate change and mental health in the identified vulnerable populations. Thus, the approach used in the content analysis was useful in the kind of research being conducted because it helped in providing a systematic way to decode the qualitative data and also identify information that was useful in addressing the research questions. It is desirable to note that ethical issues were considered and discussed in this research effectively. It has to be noted that as the current research belonged to the type that used secondary data, all the sources of the information are properly cited and referred to in order to exclude cases of plagiarism. Moreover, the study complied with the principles of anonymity and courtesy to the authors and participants of the discussed papers. In order to avoid any bias or conflict of interest, these have been declared to ensure that this research was conducted to the highest standards. This study also had an ethic consideration it used ethic guidelines of conducting research on vulnerable communities whereby the experience and voice of the people was captured with decorum.

4.0 Findings and Results

4.1. Heat-Related Stress and Mental Health in Vulnerable Populations

Heat stress being one of the major causes of negative mental health outcomes in sensitive groups. A study by Obradovich et al. (2018) showed that higher temperatures in a day boosted 48% increase in the odds of being confronted by mental health issues. This was especially evident among groups that were already experiencing some form of socio-economic challenge, thus

exposing them to more climate-related stressors.

The CDC supported the above findings with statistics that revealed that ER admissions for heat-related complications were common in low-income populations and the elderly. The incidence of crime is reported to be five times higher than in the affluent areas. The above statistics show that heat stress affects the vulnerable population whose ability to adapt to extreme heat is a challenge.

Examples of various regions including Phoenix, Arizona, and Delhi, India, were used to explain the practical implications of the presented results. Thus, the elderly in Phoenix said that they experienced more heat stress and its impact on mental health, such as anxiety and depression, during heatwaves. Likewise, in Delhi, people living in the slum faced the increased level of stress and anxiety based on the inadequate access to the means of cooling during the hot weather, which further worsened their mental health in the heat.

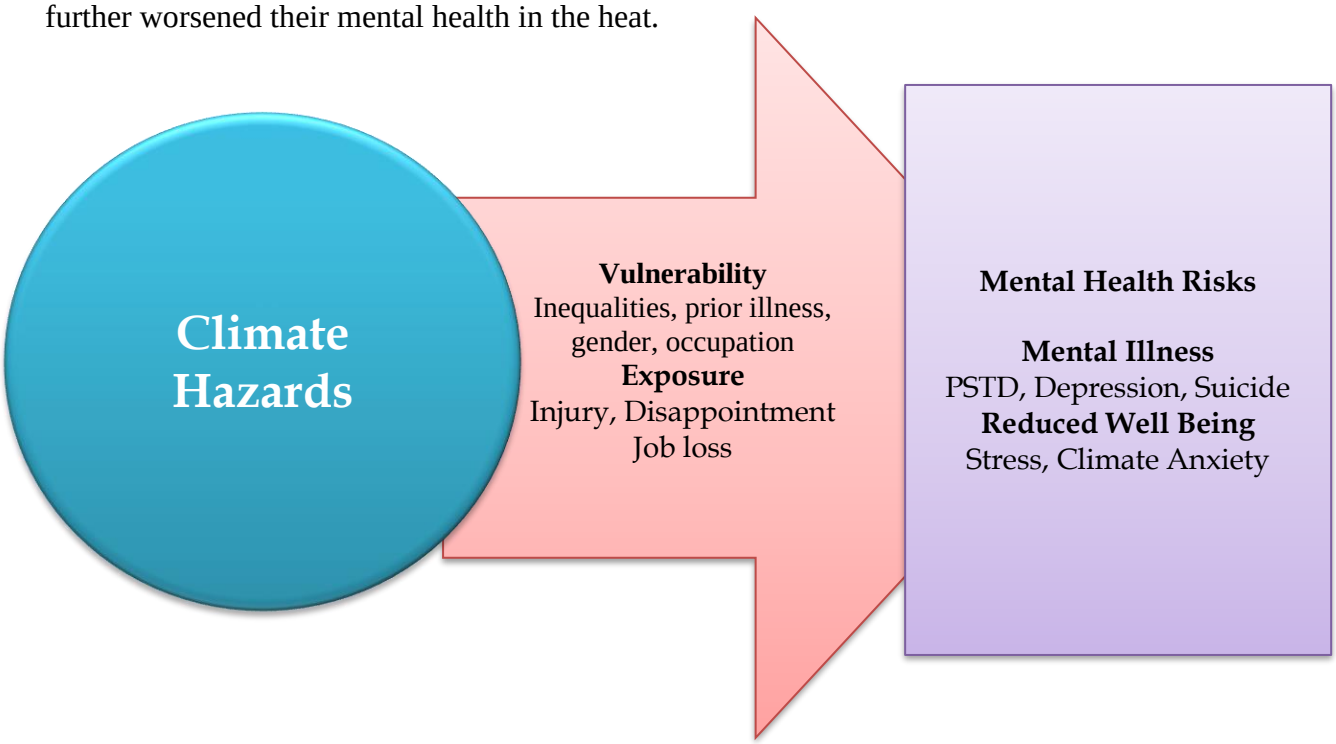


Fig 1 Climate Change related Mental Health Risks

4.1.1 Case Study Karachi, Pakistan

A case study conducted in Karachi, Pakistan, demonstrated that senior adults residing in low-income areas experienced significant hardships. The 2015 heatwave resulted in over 1,200 fatalities, primarily among elderly adults and those with limited access to cooling resources, as temperatures exceeded 45°C or 113°F. The somatic health of this exposed population was compromised, but the stress levels were even more severe, as the capacity to endure such extreme temperatures was severely limited. This highlights the potential for high temperatures to elevate stress levels, as it statistically triples the number of hospital admissions for heat-related ailments during such heatwaves.

4.2 Anxiety and Climate Change: A Rising Tide

In communities directly impacted by the effects of climate change, climate change anxiety is becoming more prevalent, especially among young people. Occasionally referred to as "eco-anxiety," this phenomenon is characterized by a persistent apprehension regarding the impending environmental catastrophe. Research conducted on Australians revealed that 72% of young individuals between the ages of 18 and 34 showed anxiety regarding climate change. The anxiety is exacerbated by the direct exposure to the effects of climate change. For example, the hurricane that struck Puerto Rico in 2017 resulted in the displacement of numerous families, and the subsequent reconstruction phase incited anxiety among the populace. People's anxiety and terror are maintained by the persistent threat of worsening weather conditions, which keeps them on the edge of their seats.

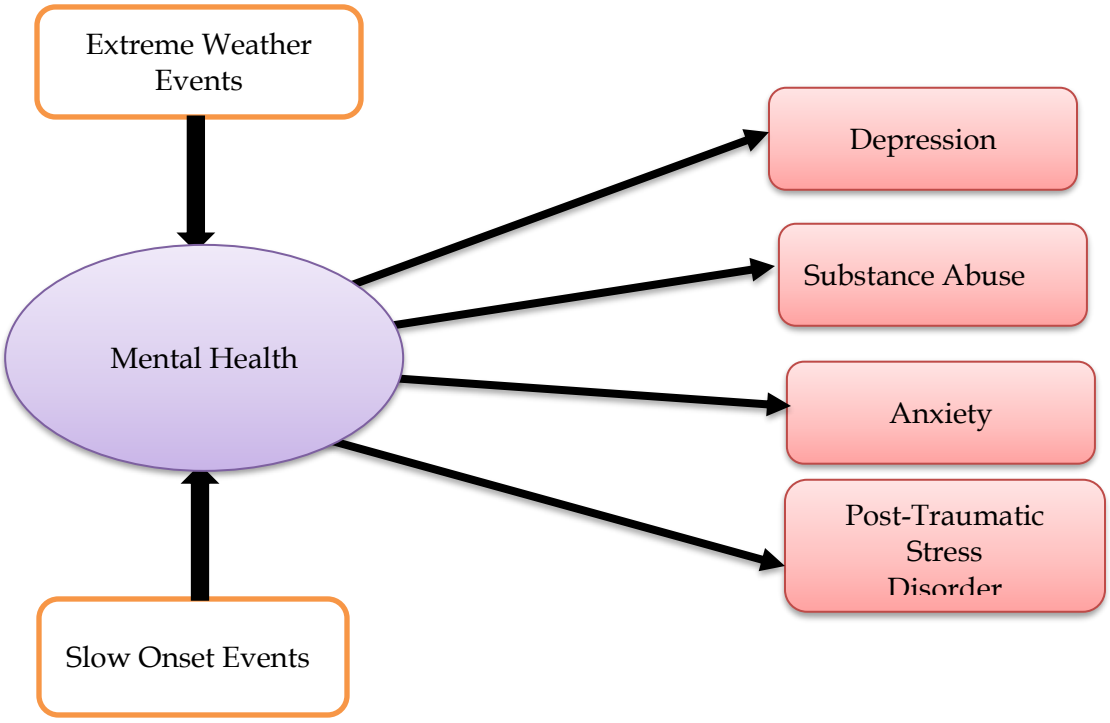
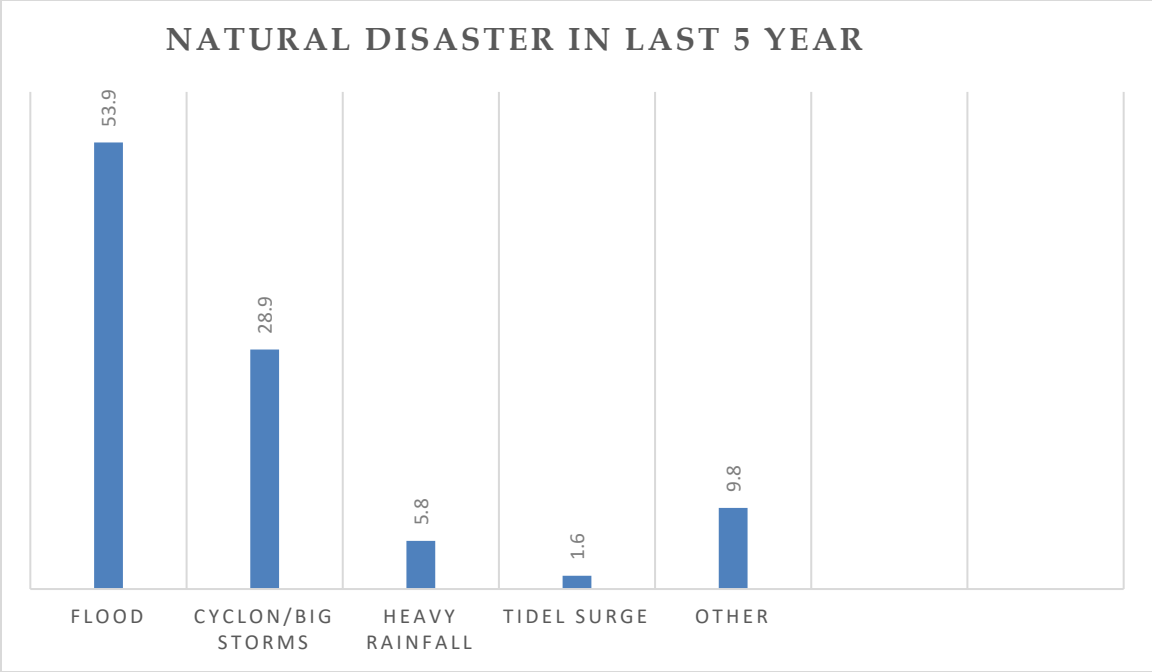


Fig 2 Extreme Weather Events Claims Extreme Mental Illness

4.3 Depression Linked to Climate-Induced Displacement

This has been specifically identified as the cause of melancholy in groups of individuals who have been compelled to evacuate their homes as a result of factors such as rising sea levels, floods, and other climate change-related events. The decay perceives that the displaced population's level of melancholy is elevated as a result of the annual loss of hundreds of thousands of lives in Bangladesh due to riverbank erosion and flooding. In the Satkhira coastal zone of Bangladesh, a quantitative study found that the displaced in temporary shelters, senior individuals, and female participants were more likely to experience depression than non-displaced individuals. Of course, a plethora of data indicates that as many as 40% of individuals who have been compelled to leave these regions exhibit symptoms of depression. This can be interpreted as a

testament to the severe traumatic stress that results from being unceremoniously deprived of both shelter and sustenance.



Graph 1: Source UN Climate Related Disaster Report

4.4 Socioeconomic Status and Mental Health Vulnerability

After considering the aforementioned factors, it is clear that the mental health impacts of climate change are primarily determined by the socioeconomic status of the individuals. The initial implication is evident in the low-income community, as they are the least likely to be able to afford products or solutions that are associated with climate change and could potentially mitigate the individual's vulnerability. The National Institute of Environmental Health Sciences conducted a study in the United States of America that indicates that individuals residing in low-income areas and with low economic status are more likely to experience stress, anxiety, and depression during periods of extreme weather. For example, the low-income groups in New Orleans that were diagnosed with severe mental disorders were the social class that was most affected by Hurricane Katrina. In the immediate aftermath of the hurricane, these groups of individuals experienced a logistical increase in PTSD and depression, which was further exacerbated by a lack of resources and support. This is clearly situated at the intersection of socioeconomic status and susceptible mental health.

4.5 Indigenous Communities: Cultural and Mental Health Impacts

In the global context of mental health, Indigenous peoples are uniquely characterized by these challenges. The cultural background of Indigenous peoples frequently suggests a strong religious connection to the earth or a territory. For this reason, climate impacts pose a threat to their culture, existence, and sustenance. The Inuit communities that inhabit this region may regard the observed shifts in the Arctic as unprecedented. According to a study conducted in the Inuit communities of Canada, the incidence of anxiety and depression has increased as a result of climate

change, which has disrupted the availability of essential foods and altered the opportunities for foraging. ED Fernando's paper and a production. It is unfortunate. She is a Whore: the denial of culture is equivalent to the eradication of traditional practices, which inflicts substantial psychological harm on the individuals involved. It is undeniable that the prevalence of mental health disorders among young Inuit has experienced a significant increase in the past decade. The trend of this effect is consistent with the relatively rapid deterioration of the effects of climate change.

4.6 Urban Heat Islands and Mental Health

The mental health of the urban population is influenced by urban heat islands, which are defined as cities that are located at a substantially higher temperature than the rural areas surrounding them. In this instance, it was proposed that the high temperatures, which result in tension and anxiety, are a result of a low concentration of green areas and a high concentration of concrete (Massazza et al., 2022). Residents of Tokyo, Japan, who reside in densely populated areas, cited a survey conducted in the country as evidence that they are subjected to the greatest amount of heat stress in comparison to those residing in more rural areas. The impact of a high-temperature heat wave on the elderly as a focused vulnerable group is exemplified by Tokyo, particularly in the case history of the heat wave of 2018.

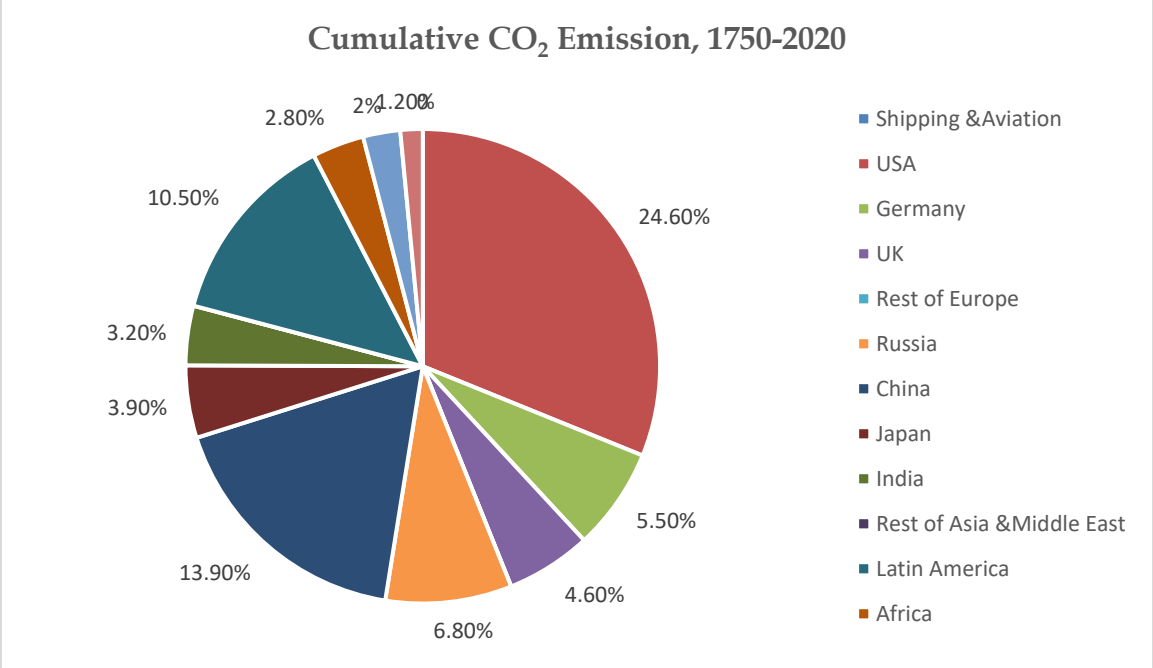


Chart 1 Source: UC Berkeley Othering and Belonging Institute

The data on emergency calls and hospital admissions of the population due to heat-related diseases demonstrated the remarkable worsening of this indicator at such temperatures. The psychological and physical harm that vulnerable populations were experiencing as a result of urban heat islands was underscored by the statistics from this period, which showed a 15% increase in heat-related emergency visits.

5.0 Discussion and Conclusion

The complexities and multifaceted nature of the relationships that connect environmental stressors and psychological well-being are underscored by the impact of climate change on mental health. The enormous mental health burden that vulnerable populations, including the elderly, infants, low-income communities, indigenous populations, and those residing in urban heat islands, are subjected to is further reinforced by these findings. These mental health issues are further exacerbated by socio-economic conditions, displacement, and loss of cultural identity, as extreme weather phenomena, such as heat waves, hurricanes, and flooding, are most certainly associated with elevated levels of stress, anxiety, and depression (Aylward et al., 2022).

A portion of the insights gained from this research were associated with the extremely close relationship between mental health and heat-related stress. Heatwaves are the most hazardous of all occurrences. There is a higher incidence of hospital admissions for maladies associated with heat during such events, as indicated by evidence from a variety of studies. This case, which pertains to the 2015 heatwave in Karachi, illustrates how extreme temperatures can drive vulnerable populations to the brink of survival and significantly elevate stress levels as individuals attempt to endure the heat. This example demonstrates the urgent necessity for effective interventions to safeguard those who are most vulnerable during periods of extreme heat (Hwong et al., 2022).

An additional critical area of concern is anxiety regarding climate change. This type of anxiety is particularly problematic for younger generations and communities as a direct result of climate change. A chronic anxiety is induced by the dread of ecocide and the uncertainty surrounding the future. The instance of Puerto Rico following Hurricane Maria demonstrates the correlation between personal experience with climate-related catastrophe and extreme surges in anxiety. The state of activation persists, which not only impacts mental health but also impedes daily activities and a sense of normalcy (Whitmarsh et al., 2022).

Depression, particularly that associated with climate change, becomes profound. Homes, livelihoods, and social networks—all of which are crucial to mental health—are lost to communities that are uprooted by climate events, flooding, and rising sea levels (Boluda-Verdu et al., 2022). For example, the case study conducted in Satkhira, Bangladesh, revealed that displaced families experienced elevated levels of melancholy, indicating the profound psychological consequences of being uprooted from their homes. The findings suggested a significant prevalence of depressive symptoms among displaced individuals, which underscores the necessity of targeted mental health support (Sangervo et al., 2022).

The critical factor of socioeconomic status is the impact of climate change on mental health. The absence of resources to mitigate the impacts of extreme weather events results in a differential exposure of impoverished communities. The low-income population of New Orleans during Hurricane Katrina serves as an exemplary illustration of how a lack of access to class resources and support can exacerbate mental health issues. The intersection between economic inequality and mental health vulnerability is exemplified by the highly excessive rates of PTSD and melancholy in these communities (Heeren et al., 2023). The indigenous communities encounter

distinctive mental health challenges that are associated with climate change, as their cultural identity and traditional practices are intricately linked to the environment. The Inuit communities in the Arctic are a prime example of how the rapid pace of environmental change can disrupt and destroy traditional hunting patterns and food availability, thereby increasing levels of anxiety and melancholy. The loss of cultural heritage and traditional practices is not only detrimental to physical health but also undermines psychological well-being. Consequently, culturally sensitive mental health interventions are necessary (Raza et al., 2024).

Urban heat islands are the second most prevalent cause of mental health disorders. Elevated temperatures in urban locations elevate stress and anxiety levels among the populace. For example, the 2018 heat wave in Tokyo demonstrated how the city intensifies the excessive heat effects, resulting in an increase in emergency visits for heat-related illnesses. This serves as an illustration of the necessity of urban planning and vegetation to mitigate the mental health consequences of the urban heat island effect.

In summary, it is evident that research has yielded a wide range of evidence indicating that climate change is having a significant impact on mental health, particularly for vulnerable individuals. The mental health challenges caused by climate change necessitate comprehensive, multifaceted approaches due to the intricate interplay between environmental stressors, socioeconomic factors, and cultural identity. It would be necessary for the intervention to be tailored to the specific requirements of various communities, with a greater emphasis on the development of mental health support, resources, and infrastructure that can help mitigate or alleviate the psychological effects of climate change.

Tahira Rubab: Problem Identification and Theoretical Framework
Samia Noureen: Data Analysis, Supervision and Drafting
Ayesha Manzoor: Data Collection, Idea Refinement

Conflict of Interests/Disclosures

The authors declared no potential conflicts of interest in this article's research, authorship,and publication.

References

Apprich, N. (2023). *Scrolling Through the Climate Crisis: Exploring the Impact of Climate Change Related Doomscrolling on Helplessness and Depression* University of Twente].

Aylward, B., Cunsolo, A., Vriezen, R., & Harper, S. L. (2022). Climate change is impacting mental health in North America: A systematic scoping review of the hazards, exposures, vulnerabilities, risks and responses. *International Review of Psychiatry*, *34*(1), 34-50.

Boluda-Verdu, I., Senent-Valero, M., Casas-Escolano, M., Matijasevich, A., & Pastor-Valero, M. (2022). Fear for the future: Eco-anxiety and health implications, a systematic review. *Journal of Environmental Psychology*, *84*, 101904.

Bratu, A., Card, K. G., Closson, K., Aran, N., Marshall, C., Clayton, S., Gislason, M. K., Samji, H., Martin, G., & Lem, M. (2022). The 2021 Western North American heat dome increased climate change anxiety among British Columbians: Results from a natural experiment. *The Journal of Climate Change and Health*, *6*, 100116.

Budziszewska, M., & Kałwak, W. (2022). Climate depression. Critical analysis of the concept. *Psychiatr. Pol*, *56*(1), 171-182.

Cianconi, P., Betrò, S., & Janiri, L. (2020). The impact of climate change on mental health: a systematic descriptive review. *Frontiers in psychiatry*, *11*, 490206.

Clayton, S. D., Pihkala, P., Wray, B., & Marks, E. (2023). Psychological and emotional responses to climate change among young people worldwide: Differences associated with gender, age, and country. *Sustainability*, *15*(4), 3540.

Crandon, T. J., Dey, C., Scott, J. G., Thomas, H. J., Ali, S., & Charlson, F. J. (2022). The clinical implications of climate change for mental health. *Nature Human Behaviour*, *6*(11), 1474-1481.

Ediz, Ç., & Yanik, D. (2023). The effects of climate change awareness on mental health: comparison of climate anxiety and hopelessness levels in Turkish youth. *International Journal of Social Psychiatry*, *69*(8), 2157-2166.

Gianfredi, V., Mazziotta, F., Clerici, G., Astorri, E., Oliani, F., Cappellina, M., Catalini, A., Dell'Osso, B. M., Pregliasco, F. E., & Castaldi, S. (2024). Climate change perception and mental health. results from a systematic review of the literature. *European journal of investigation in health, psychology and education*, *14*(1), 215-229.

Gunasiri, H., Patrick, R., Snell, T., Garad, R., Enticott, J., Meadows, G., & Henderson-Wilson, C. (2022). Young people's mental health in a changing climate. *The Lancet Planetary Health*, *6*, S1.

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.

Heeren, A., Mouguiama-Daouda, C., & McNally, R. J. (2023). A network approach to climate change anxiety and its key related features. *Journal of Anxiety Disorders*, *93*, 102625.

Heinz, A., & Meyer-Lindenberg, A. (2023). Climate change and mental health. Position paper of a task force of the DGPPN. *Der Nervenarzt*, *94*(3), 225-233.

Hwong, A. R., Wang, M., Khan, H., Chagwedera, D. N., Grzenda, A., Doty, B., Benton, T., Alpert, J., Clarke, D., & Compton, W. M. (2022). Climate change and mental health research methods, gaps, and priorities: a scoping review. *The Lancet Planetary Health*, *6*(3), e281-e291.

James Amos, A. (2023). Thinking clearly about climate change and mental health. *Australasian psychiatry*, *31*(3), 369-375.

Lawrance, E. L., Jennings, N., Kioupi, V., Thompson, R., Diffey, J., & Vercammen, A. (2022). Psychological responses, mental health, and sense of agency for the dual challenges of climate change and the COVID-19 pandemic in young people in the UK: an online survey study. *The Lancet Planetary Health*, *6*(9), e726-e738.

Leal Filho, W., Krishnapillai, M., Minhas, A., Ali, S., Nagle Alverio, G., Hendy Ahmed, M. S., Naidu, R., Prasad, R. R., Bhullar, N., & Sharifi, A. (2023). Climate change, extreme events

and mental health in the Pacific region. *International journal of climate change strategies and management*, *15*(1), 20-40.

Massazza, A., Ardino, V., & Fioravanzo, R. E. (2022). Climate change, trauma and mental health in Italy: a scoping review. *European journal of psychotraumatology*, *13*(1), 2046374.

Meskini, N., Lamtai, M., Sfendla, A., El Madhi, Y., Ahami, A. O., & Ouahidi, M. L. (2023). Prevalence of stress, anxiety and depression in the context of climate change among newly recruited contract teachers in Morocco. E3S Web of Conferences,

Monsour, M., Clarke-Rubright, E., Lieberman-Cribbin, W., Timmins, C., Taioli, E., Schwartz, R. M., Corley, S. S., Laucis, A. M., & Morey, R. A. (2022). The impact of climate change on the prevalence of mental illness symptoms. *Journal of Affective Disorders*, *300*, 430-440.

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.

Raza, A., Partonen, T., Hanson, L. M., Asp, M., Engström, E., Westerlund, H., & Halonen, J. I. (2024). Daylight during winters and symptoms of depression and sleep problems: A within-individual analysis. *Environment International*, *183*, 108413.

Sangervo, J., Jylhä, K. M., & Pihkala, P. (2022). Climate anxiety: Conceptual considerations, and connections with climate hope and action. *Global Environmental Change*, *76*, 102569.

Schwaab, L., Gebhardt, N., Friederich, H.-C., & Nikendei, C. (2022). Climate change related depression, anxiety and stress symptoms perceived by medical students. *International journal of environmental research and public health*, *19*(15), 9142.

Schwartz, S. E., Benoit, L., Clayton, S., Parnes, M. F., Swenson, L., & Lowe, S. R. (2023). Climate change anxiety and mental health: Environmental activism as buffer. *Current Psychology*, *42*(20), 16708-16721.

Tam, K.-P., Chan, H.-W., & Clayton, S. (2023). Climate change anxiety in China, India, Japan, and the United States. *Journal of Environmental Psychology*, *87*, 101991.

Wahid, S. S., Raza, W. A., Mahmud, I., & Kohrt, B. A. (2023). Climate-related shocks and other stressors associated with depression and anxiety in Bangladesh: a nationally representative panel study. *The Lancet Planetary Health*, *7*(2), e137-e146.

Weierstall-Pust, R., Schnell, T., Heßmann, P., Feld, M., Höfer, M., Plate, A., & Müller, M. J. (2022). Stressors related to the Covid-19 pandemic, climate change, and the Ukraine crisis, and their impact on stress symptoms in Germany: analysis of cross-sectional survey data. *BMC Public Health*, *22*(1), 2233.

Whitmarsh, L., Player, L., Jiongco, A., James, M., Williams, M., Marks, E., & Kennedy-Williams, P. (2022). Climate anxiety: What predicts it and how is it related to climate action? *Journal of Environmental Psychology*, *83*, 101866.

Xue, S., Massazza, A., Akhter-Khan, S. C., Wray, B., Husain, M. I., & Lawrance, E. L. (2024). Mental health and psychosocial interventions in the context of climate change: a scoping review. *Npj Mental Health Research*, *3*(1), 10

.