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## CLIMATE CHANGE: UNDERSTANDING THE IMPACT OF CLIMATE CHANGE ON MENTAL HEALTH

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### Abstract

Climate change is a global health crisis and that includes mental health. The main objective of the present study is to study the impact of climate change on mental health on the basis of the research done in the last ten years in India and abroad. The analysis of the review revealed the fact that climate change has both direct and indirect effects on mental health. This effect can be for a short time to a long time. Study found that mental problems such as Post-Traumatic Stress Disorder (PTSD), Major Depressive Disorder (MDD), Anxiety, Complicated Grief, Survivor Guilt, Vicarious Trauma, Recovery Fatigue, Substance Abuse and Suicidal Ideation have emerged due do climate change. However, there is still a need for more systematic studies in this direction.

**Key Word:** Climate Change on Mental Health

### Background:

Climate change is a global health crisis, and that includes mental health. According to WHO (2017), mental health refers not just to mental illness, mental problems, and mental disorders, but also includes states of mental wellness, emotional resilience and psychosocial wellbeing Berry P, Clarke K-L, Parker S. (2014) Psychosocial wellbeing is the interplay between social and psychological conditions that shape human welfare; a broad term which encompasses the states of being mentally healthy, experiencing mental problems, and mental illness.

IPCC (2022) stated that there is a very high confidence that climate change has adversely affected mental health. With mental health problems holding back millions of people every day, it's crucial we understand how climate change might affect our mental health.

### Definition of Climate Change:

According to Shaftel, H. (2022), Climate change refers to a long-term significant change in the average patterns of weather across Earth's local, regional and global climates. While natural processes such as El Niño, La Niña, volcanic activity and variations in Earth's orbit can contribute to climate change, most changes occurring since the early 20th century are predominantly caused by human behavior. A key indicator of the overall health of Earth's climate, the global surface temperature, is pivotal in understanding climate change.

The Sixth Assessment Report conducted by the Intergovernmental Panel on Climate Change (2022) found that the globe is warming and it is warming rapidly. While there have been fluctuations between relatively warm and glacial over the past two million years, the shift from the last glacial period to the current interglacial period has produced an overall temperature increase of about 5 °C, which took place over the span of about 5000 years, with the maximum yearly increase in temperature of about 1.5 °C per thousand years. In jarring contrast, Earth has warmed by approximately 1.1 °C since 1850–1900—the last time it was this warm on earth was the previous interglacial period, which took place around 125,000 years ago.

### Climate change and mental health:

An updated overview of recent evidence on the mental health implications of climate change is timely given the ongoing, rapid expansion of research in the broad field of health and climate change as well as increasing public concern about climate change trends and risks.

According to LACNT (2017) , Since 2007, media reports on climate change and health have increased by 78% and the academic literature on climate and health issues has tripled .There is also increasing public and academic recognition of the extent to which rising global temperatures threaten planetary and human health . While public awareness about the health implications of climate change continues to grow, the topic of mental health is frequently absent from this



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discourse. In some ways, this reflects the global discourse, where, in comparison to physical health, mental health *in general* has been neglected.

### Few Highlights of related Review:

Susanta Kumar Padhy, Sidharth Sarkar, Mahima Panigrahi and Surender Paul (2015) studied and said increasing ambient temperatures is likely to increase rates of aggression and violent suicides, while prolonged droughts due to climate change can lead to more number of farmer suicides. Droughts otherwise can lead to impaired mental health and stress. Increased frequency of disasters with climate change can lead to posttraumatic stress disorder, adjustment disorder, and depression. Changes in climate and global warming may require population to migrate, which can lead to acculturation stress. It can also lead to increased rates of physical illnesses, which secondarily would be associated with psychological distress. The possible effects of mitigation measures on mental health are also discussed.

Balaji Mala (2022) reported, Lancet study spanning 10 nations and over 10,000 participants between 16 and 25 years, found that 59% of those surveyed were very or extremely worried about climate change. More than 50% reported emotions such as sadness, anxiety, anger, powerlessness, helplessness, and guilt. Furthermore, nearly 45% of the participants reported that their worries about climate change have a detrimental effect on their daily life functioning. They felt abandoned by their government due to the lack of adequate climate action. Many felt betrayed, ignored and abandoned by politicians and adults. Moreover, four out of ten young adults are afraid to have kids of their own because they are concerned about the kind of future these kids might have, tainted by the catastrophic effects of climate change. These young adults are still in the process of developing psychologically, socially and physically and hence are more prone to be eco-anxious.

Hayes, K., Blashki, G., Wiseman, J. *et al* (2018) provides an overview of the current and projected climate change risks and impacts to mental health and provides recommendations for priority actions to address the mental health consequences of climate change. The authors argue the following three points: firstly, while attribution of mental health outcomes to specific climate change risks remains challenging, there are a number of opportunities available to advance the field of mental health and climate change with more empirical research in this domain; secondly, the risks and impacts of climate change on mental health are already rapidly accelerating, resulting in a number of direct, indirect, and overarching effects that disproportionately affect those who are most marginalized; and, thirdly, interventions to address climate change and mental health need to be coordinated and rooted in active hope in order to tackle the problem in a holistic manner. This discussion paper concludes with recommendations for priority actions to address the mental health consequences of climate change.

Katelin Crane, Linda Li, Pearl Subramanian, Elizabeth Rovit and Jianghong Liu (2022) reported an anthropogenic climate change is an existential threat whose influences continue to increase in severity. It is pivotal to understand the implications of climate change and their effects on mental health. This integrative review aims to summarize the relevant evidence examining the harm climate change may have on mental health, suggest potential mechanisms and discuss implications. Empirical evidence has begun to indicate that negative mental health outcomes are a relevant and notable consequence of climate change. Specifically, these negative outcomes range from increased rates of psychiatric diagnoses such as depression, anxiety and post-traumatic stress disorder to higher measures of suicide, aggression and crime.

Cianconi, P., Betrò, S., & Janiri, L. (2020) referred to as eco-anxiety, climate distress or climate anxiety- anxiety related to the global climate crisis and the threat of environmental disaster. • Symptoms associated with climate anxiety include • panic attacks • insomnia • obsessive thinking • Feelings of climate distress might also compound other daily stressors to negatively affect overall mental health, potentially leading to increases in stress-related problems such as substance use disorders, anxiety Wu, J., Snell, G., & disorders, and depression

Samji, H. (2020) defined the disaster and stated it is severe disruption, ecological and psychosocial, which greatly exceeds the coping capacity of the affected community.



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Sullivan and colleagues (2013) found that 23% of subjects presented with clinically significant depression post-disaster and new-onset depression was markedly more prevalent amongst those with pre-existing mental health problems versus those without (32.1% versus 12.6%, respectively). Depressive symptomatology rates are also reflected after hurricanes. In a study of adults affected by Hurricane Sandy, depressive symptoms were seen in 35.4% of subjects 12–28 months post-disaster .

Singh Varsha ( 2022) *Singh Varsha (2022) NCDC module focused on the mental health effects of climate change on eco-anxiety and climate distress.* While NCDC (National Center for Disease Control) has brought out a training module on climate change and mental health. According to this module, displacement due to extreme weather events, environmental reasons have adverse effects on mental health. Due to which results like increasing despair, increasing suicide rate, increasing inclination towards intoxication have been observed. It has been named eco-anxiety or climate distress. Such people can become victims of panic attacks, insomnia and obsessive thinking. In this module, adverse effects on the mental health of people exposed to intense natural events like Uttarakhand disaster, Gujarat earthquake of 2013 have been recorded.

Singh Varsha (2022) reported the cause of economic, mental and emotional damage to the people of Lohari village is the displacement due to the dam project. The objective of this dam project is to meet the electricity-water related demand of the growing population. For which the entire eco-system around Yamuna River has been changed. It has also affected the local human eco-system.

Amy Novotney (2023) the effects of climate change extend to an individual’s overall well-being, a finding that psychologists continue to elevate. Here are a few effects of climate change on mental health:

1. Gender-based violence
2. Posttraumatic stress disorder (PTSD)
3. Suicide
4. Anxiety

**Objectives:**

- Understand the climate change.
- Understand the effect of climate change on mental health.

**Research Question:**

- 1: What are the various consequences of climate change?
- 2: How mental health is impacted by climate change?

**Materials and Methods:**

The present research is a qualitative research which is based on research review. An integrative review of the literature was performed by using few parameters. Research papers, articles and reports published between 2012 and 2022 were selected for review. Thematic analysis was used to explore consequences of climate change and its effects on mental health.

**Result and Discussion:**

The IPCC study (2022) and other studies suggest that rapid climate change is increasing risks to mental health and psychological well-being, ranging from emotional distress to anxiety, depression, hopelessness and suicidal behavior. Study has been shown that climate change acts on mental health with different timing. The phenomenology of the effects of climate change differs greatly—some mental disorders are common and others more specific in relation to atypical climatic conditions. Moreover, climate change also affects different population groups who are directly exposed and more vulnerable in their geographical conditions, as well as a lack of access to resources, information, and protection. Perhaps it



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is also worth underlining that in some papers the connection between climatic events and mental disorders was described through the introduction of new terms, coined only recently: ecoanxiety, ecoguilt, ecopsychology, ecological grief, solastalgia, biospheric concern, etc.

The prevalence of mental health issues is extremely high even without considering the added mental health consequences of a changing climate. Murray CJ, Vos T, Lozano R, Naghavi M, Flaxman AD, Michaud C, Ezzati M, Shibuya K, Salomon JA, Abdalla S, Aboyans V. (2013) reported basis of a 10-year systematic analysis of global burden of disease from 1990 to 2010.

.Becker AE, Kleinman A. (2013) noted mental and behavioural disorders also account for the greatest global burden of years lived with a disability (YLDs). The failure of global investment in mental health care to address the consequences and impacts of rapidly escalating levels of mental illness has been described as a “global tragedy” reflecting a long “legacy of the neglect and marginalization of mental health”. There is, therefore, a strong case for continuing to explore and communicate research and policy learning about the relationship between climate change and mental health—especially as the topic area pertains to health equity.

### **Consequences of Climate Change and Mental Health:**

#### **Heat Waves**

Heat wave phenomenon is connected with climate change as it has increased in frequency and intensity.

Physical health, mental health, human well-being, and heat waves appear to be specifically interconnected.

Padhy SK, Sarkar S, Panigrahi M, Paul S. (2015) reported heat stress directly caused by heat waves has been associated with mood disorders, anxiety, and related consequences. APA (2017) found that People with mental illness were three times more likely to run the risk of death from a heat wave than those without mental illness. During pregnancy, especially in the second and third trimester, exposure to heat waves has been showed to be related to a lower average birth weight and increase of incidence of premature birth. Effects during childhood and adulthood comprised reduced schooling and economic activity, other than behavioral and motor problems and reduced Intelligent Quotient.

#### **Drought**

Due to climate change, there will be droughts lasting around three decades, also known as mega droughts. A temperature fluctuation is correlated with agricultural loss by affecting crop productivity and yields. S, Dakos V, Scheffer M, Lenton TM. (2018) mentioned this loss is linked to a decrease on economic growth leading to a long-term economic disadvantage and promoting political instability and conflicts. Farmers all over the world are more vulnerable to environment-induced mental health risks carried by drought.

#### **Glacial Melting and Himalayan disasters**

Due to global warming the human population in Himalayas is in constant threat due to rapid melting of Glaciers and consequent dry out of River sources. Also landslide and Avalanches frequency and intensity have increased in recent times. People are highly stressed due to uncertainty of their future in these regions.

#### **Floods**

Floods are an overflow of water, usually from the ocean, submerging land areas. Flooding is one of the most frequent types of major disaster. The principal effect after flooding seems to be located in the mental health area, leading especially to PTSD. Bei B, Bryant C, Gilson KM, Koh J, Gibson P, Komiti A, et al.(2013) found that a direct correlation between the intensity of the disaster and the severity of the mental health effects was noted. Nahar N, Blomstedt Y, Wu B, Kandarina I, Trisnantoro L, Kinsman J.(2014) revealed that After the acute emergency phase, a number of members of the affected populations are subjected to some level of psychological distress and mental health problems.

Nahar N, Blomstedt Y, Wu B, Kandarina I, Trisnantoro L, Kinsman J.(2014) also studied all around the world (i.e. India and Bangladesh)floods bring mourning, displacement, and psychosocial stress due to loss of lives and belongings, as a direct outcome of the disaster or of its consequences. Bandla S, Nappinnai NR, Gopaldasamy S. (2015) found that these



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are risk factors for PTSD, depression, and anxiety . Senthilingam M.( 2017)With specific reference to flood victims, 20% had been diagnosed with depression, 28.3% with anxiety and 36% with PTSD .

### Cloudburst

Cloudbursts are short-duration, intense rainfall events over a small area. In India, Kedarnath Cloudbursts is an example. There were thousands of deaths in the disaster that occurred on 16-17 June 2013. The painful memories of this disaster are still in the minds of the people even after nine years. The appearance of Kedarpuri has completely changed during this period.

### Cyclone

The effects of Cyclone are catastrophic in regular sence. Due to climate change in recent years occurrence of Cyclone has increased in both frequency and intensity.

### Mental Health Issues related to Climate Change

According to APA study (2017), impacts on mental health can occur after or even before an extreme event. Blanc J, Spruill T, Butler M, Casimir G, Girardin JL.(2019) Mental health outcomes of climate change range from minimal stress and distress symptoms to clinical disorders, ranging from anxiety and sleep disturbances to depression, post-traumatic stress, and suicidal thoughts .

Ursano RJ, Morganstein JC, Cooper R. (2017) and WHO (2013) highlighted other consequences might include the effect on individuals and communities in their everyday life, perceptions, and experiences, having to cope, understand, and respond appropriately to climate change and its implications.

U.S Global Change, Research Program (2016) found that a large number of people exposed to climate or weather-related natural disasters experience stress and serious mental health consequences. Some natural disasters are possibly going to be more frequent because of climate change. Notoriously, reactions to extreme events that involve life disruption, such as loss of life, resources, social support and social networks, or extensive relocation, are post-traumatic stress disorder (PTSD), depression, and general anxiety, increased substance use or misuse, and suicidal thoughts .Research has shown that peritraumatic experience is highly related to acute stress during and immediately after a disaster, which is expected to lead to the onset of PTSD.

Hsiang SM, Burke M, Miguel E. (2013) and Acharibasam JW, Anuga SW.( 2018) found that long-term outcomes come in the form of large-scale social and community effects outbreaking into forms of violence, struggle over limited resources, displacement and forced migration , post-disaster adjustment, and chronic environmental stress.

From analysis of review following mental health problem occurred due to climate change:

1. Post-Traumatic Stress Disorder (PTSD)
2. Major Depressive Disorder (MDD)
3. Anxiety
4. Complicated Grief
5. Survivor Guilt
6. Vicarious Trauma
7. Recovery Fatigue
8. Substance Abuse
9. Suicidal Ideation

### Conclusions:

Climate change is a social determinant for mental health. The effects of climate change can be direct or indirect, short-term or long-term. Climate change hurts our mental health. Therefore, in national health and climate change plans, mental health and psychological support has to be included on a large scale.



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