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Climate Anxiety: The Emotional Impact of Climate Change

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Abstract

Climate change is a global threat with well documented health consequences. Recent research has begun to examine climate change's emotional consequences as well. Climate change disproportionately affects indigenous and low socioeconomic status communities, and the same is true of climate change's emotional consequences. While the mental health effects of direct exposure to effects of climate change have been well explored recent research suggests that climate change can have indirect effects too. These indirect effects are often described as climate anxiety, a form of dread caused by ecological change. The goal of the current review was to provide an in-depth exploration of the mental health effects of climate change and to demonstrate the importance of addressing both the mental and physical consequences of climate change. Low levels of climate anxiety are adaptive but in extremes can be pathological. Low levels of climate anxiety correlate with increased environmental actions but high levels are linked to paralysis. Government actions to mitigate climate change are essential to addressing climate anxiety, however action by mental health practitioners is important as well. Community and nature-based treatment is promising, however systematic change is the only true path forward. It is essential that moving forward both the mental and physical health effects are considered when developing measures to mitigate damage caused by climate change.

Climate Anxiety: The Emotional Impact of Climate Change

Anthropogenic climate change is a well-documented phenomenon with very real health consequences. The physical health consequences such as respiratory and cardiovascular disease have been well explored; however recent research has begun to examine the consequences climate change has on mental health as well. As climate-linked natural disasters increase, and environments change indigenous and lower income populations are disproportionately impacted by the consequences of climate change. To members of the Inuit community at Rigolet, Nunatsiavut, Canada nature is like a person, one who deserves respect (Willox et al., 2013). During the winter of 2009-2010 Rigolet experienced a particularly mild winter which had disastrous effects on the mental health of the residents: they felt depressed, helpless, and worried about the future (Willox et al., 2013). While communities like that at Rigolet and those impacted by natural disasters are among the first to feel more direct effects our changing ecosystem climate change will produce more widespread and indirect effects, too.

In a global survey of 10,000 children and young people 84% were at least moderately worried about climate change and 59% were extremely worried, 50% reported negative emotions, 45% said climate change affected their daily life and functioning, and 75% said the future is frightening (Hickman et al., 2021). While thinking about climate change can cause many emotions such as anger, depression, guilt, or fear; most research has focused on the concept of climate/eco-anxiety. While in the literature the definition of climate anxiety is very ambiguous most point back to Albrecht (2011)'s concept of psychoterratic syndromes. Albrecht (2011) defined climate anxiety as "A form of ecologically induced dread most likely affects many people and leads to their becoming distressed" and that in extremes it could cause people to become apathetic or disengaged with climate change which he called eco-paralysis.

Research shows that some level of climate anxiety is adaptive and can motivate pro-environmental behaviors, however in extremes can prevent ecological action causing “ecoparalysis”. The goal of this paper is to first explore the direct mental health consequences of climate change, then to explore the indirect consequences, and finally to explore possible treatments and future steps to take to address climate anxiety. The purpose of this literature review is to provide an in-depth introduction to the topic of climate anxiety, possible avenues for treatment, and to demonstrate that climate change presents serious risks to mental health which need to be considered and addressed alongside risks to physical health

Literature Review

Mental Health Consequences of Direct Exposure to Climate Events

Nowhere are the mental health impacts of climate change more pronounced than in members of indigenous populations, developing countries, and communities of low socioeconomic status. In a qualitative multi-year community driven study of the Inuit community in Rigolet, Nunatsiavut, Canada Willox et al. (2013) examined the consequences that a rapidly changing environment had on the community. While initially the study planned to focus on the physical as well as mental effects of climate change over the course of their interviews the emotional consequences were especially pronounced, and the interviews shifted to focus on the felt impacts of their changing environment. In Rigolet the winter of 2009-2010 was especially mild and resulted in “bad ice” preventing residents from participating in traditional activities and feeling trapped in their village. The residents found solace in their environment, they felt an emotional connection to the land and connecting with the land helped them cope. When the community could no longer connect with the land it had disastrous effects on the general affect of the community, they felt as if they were losing a part of themselves and reported many

negative emotions such as sad, frustrated, helpless, angry, worried, and more (Wilcox et al., 2013)

The interviews with the community in Rigolet demonstrate the negative emotional consequences of a rapidly changing ecosystem. The Inuit have applied a word ‘uggianaqtuq’ which refers to a friend who is acting in a strange or unpredictable manner to the impact that climate change is having on their environment (Albrecht, 2011). For them the land is a part of them, a friend, or a relative and one which is slowly dying. The authors end with the note that throughout their interview process it was impossible not to become emotionally invested. The interviews with the participants were heartbreaking and even as impartial researchers it is important to acknowledge how powerful their stories were.

It’s clear the emotional impacts off climate change on indigenous populations is very real, however so are the emotional consequences of climate-linked natural disasters. Obradovich et al. (2018) sought to provide empirical evidence for the mental health risks associated with climate change. Prior research has shown that exposure to hurricanes and floods is associated with acute depression and post-traumatic stress disorder, heat and drought amplify the risk of suicide, and that visits to psychiatric hospitals increase during hotter temperatures (Obradovich et al., 2018; La Greca et al., 2010) The authors selected three types of environmental stressors likely to be impacted by climate change: short-run meteorological exposure, multiyear warming, and exposure to natural disasters. Study 1 examined short-term weather events such as heat and precipitation as well as to examine whether vulnerable lower income populations experience a higher-than-average burden of mental health problems. The authors found that increases in monthly temperature and added precipitation days amplified the monthly probability of experiencing mental health issues, and also that the effect on the probability of monthly mental

health problems was larger for low-income respondents. Study 2 examined the impacts of multiyear warming on mental health. The authors regression showed that a 1°C increase in temperature produced a .8% increase in prevalence of mental health issues showing that as global temperatures increase so too will mental health problems. The final study examined the effects of natural disasters by examining Hurricane Katrina and found that exposure to Hurricane Katrina increased the prevalence of mental health issues by 4% compared to non-disaster regions.

Obradovich et al. (2018) demonstrated that climate change has clear implications for mental health and that there is a correlation between environmental change and mental health problems however is not without its limitations. In the multiyear study the authors estimated their regression across all combinations of years in the sample to ensure their estimates were not sensitive to their choice of pre and post periods, however they do not rule out the possibility of historical confounds. As a result, increases in the occurrence of mental health problems could be caused by other historical factors and not necessarily multiyear warming.

Mental Health Consequences of Indirect Exposure to Climate Change

While there is evidence examining the mental health effects of direct exposure to environmental change recent research has begun to examine those indirectly affected as well. Climate anxiety is the emotional impact on those who haven't directly experienced climate change yet still worry about the environment and the future of the planet. Heeren et al. (2022) sought to examine these indirect consequences and their impact on daily life functioning as well as how climate anxiety impacts pro-environmental behaviors. Heeren et al. (2022) found that 11.64% of participants experienced climate anxiety more often than sometimes, and that 20.72% experienced functional impairment as a result of climate change. When examining pro-

environmental behaviors Heeren et al. (2022) noted that climate anxiety correlated significantly more strongly with pro-environmental behaviors in those scoring below the climate anxiety midpoint. Participants reporting high levels of climate anxiety were less likely to engage in pro-environmental behaviors, which the authors link to the idea of Albrecht (2011)'s concept of eco-paralysis where people become so anxious about climate change that it prevents them from acting.

Heeren et al. (2022) showed that climate change has an indirect effect on the mental health of people who have never been exposed to the negative consequences of climate change as well as direct effects on those who have. While replication studies have shown flaws in the Climate Anxiety Scale suggesting it may measure general emotional impairment rather than specifically anxiety there is still an indirect emotional impact (Wullenkord et al., 2021). Climate change has cognitive-emotional as well as daily functional consequences, however when if ever is it pathological? Heeren et al. (2022) found that low levels of climate anxiety increased pro-environmental behavior which suggests that some level of climate anxiety is helpful. When does climate anxiety become eco-paralysis and how can it be treated?

Clayton (2020) examined when climate anxiety becomes pathological. Clayton acknowledged that anxiety can be adaptive and can be a healthy normal response to climate change. Despite the adaptive function anxiety can serve, for some the negative emotions are intense enough to contribute to mental illness. Climate anxiety is especially prevalent in adolescents and young adults. Clayton suggested that while anxiety can motivate some people to make change in others it is paralyzing and prevents environmental actions. Clayton (2020) cited two common strategies for coping with climate anxiety: emotion-focused coping and problem-focused coping. Emotion-focused coping involves denial, and problem-focused coping involves

acting on the problem however both result in a high negative affect. Clayton suggested that problem-focused coping is associated with greater wellbeing in the long run, but since climate change is not an individual problem can ultimately lead to greater distress and hopelessness.

While Clayton (2020) was not an empirical study and no data was gathered, Susan Clayton is well established in the field of climate anxiety and helped to develop the commonly used Climate Anxiety Scale (Clayton & Karazsia, 2020). Clayton (2020) gave a good overview into the problem of when climate anxiety is pathological and how people cope with that anxiety. The idea of problem-focused coping leading to distress and hopelessness echoes the idea of ecoparalysis, feeling anxious about the future but powerless to make a change. For some climate anxiety can be pathological, so how can it be treated?

Treatment

Prior studies have demonstrated the impact of climate anxiety and its emotional consequences, however Heyes et al. (2018) suggested possible actions to reduce that impact. Government action is essential do begin to mitigate the impacts of climate change. In a global study of 10,000 children and young people 59-64% of respondents felt betrayed by their government's inaction regarding climate change (Hickman et al., 2021). Swift international mitigation actions to reduce energy demand and transition to green energy are essential. While policy and systematic change is the only way to address the overall issue, however concrete actions by mental health practitioners are necessary as well. Psychological adaptation requires coping skills, behavioral, and psychological engagement; Hickman et al., suggested that promoting active hope is essential to facilitating psychological adaptation. Hickman et al. (2021) suggested that typical therapeutic approaches may be helpful in addressing the mental health

consequences of climate change, however, also suggested that community focused interventions as well as conservation and nature-based approaches could be beneficial.

The only way to prevent climate anxiety is for governments to act. Practitioners can help reduce the emotional impact that climate change has, but without systematic change those emotions will never go away. Measures to help those most impacted are essential, however don't address the root cause. Engagement in conservation efforts, nature, and community-based programs help to reduce climate anxiety, however it is unclear if it will help those at the most pathological end of the climate anxiety spectrum. Despite engagement in pro-environmental behaviors the knowledge that personal or even community level action won't produce real change as the underlying systems are still in place may worsen the existential feeling of helplessness.

Discussion

Climate change has demonstrable impacts on mental health and disproportionately affects members of indigenous and low socioeconomic communities. These mental health consequences are only expected to worsen over time as climate change progresses. As such swift action to address these consequences is essential. Willox et al. (2013) documented the heartbreaking impact that a changing ecosystem has on an indigenous population, members of the Inuit community at Rigolet feel as if they are losing a part of themselves and their culture. Natural disasters disproportionately impact developing countries and low socioeconomic communities. Obradovich et al. (2018) show that multiyear warming increases the prevalence of mental health problems, however, impacts low-income communities the most. Those directly affected by climate change are not the only ones who experience emotional consequences caused by climate change. People who are only indirectly impacted by climate change show emotional consequences and climate

anxiety as well. Heeren et al. (2022) found that those indirectly affected by climate change can experience climate anxiety which can impact their cognitive emotional health as well as their daily functioning. Heeren et al. (2022) also found that lower levels of climate anxiety correlate with more pro-environmental action however those with high levels of climate anxiety were correlated with lower pro-environmental action. Climate anxiety can motivate environmental action, but in extremes can lead to ecoparalysis. Clayton (2020) suggests that high levels of climate anxiety can be pathological, and that the main ways people cope with that anxiety are denial or engagement in environmental action, however notes that problem-focused coping could lead to increased pathology and helplessness due to the systematic rather than individual scope of climate change. The pathological levels that climate anxiety can reach indicate that action is necessary on the part of both governments and mental health practitioners. Hayes et al. (2018) note that government action is essential, without systematic change the underlying cause of climate anxiety cannot be addressed. While systematic change is the only true path forward, Hayes et al. (2018) also highlight the importance of mental health practitioners in addressing the growing emotional impact of climate change. While community engagement, ecological conservation activities, nature-based therapy, and environmental action can address some of the symptoms of climate anxiety the only meaningful and permanent treatment is systematic change.

The mental health impacts of climate change are still relatively unexplored and as such there are still many directions for research to go. The line between environmental action and paralysis and the role climate anxiety plays is fascinating. Future studies could examine the relationship that climate anxiety has with determining environmental action. Heeren et al. (2022) measured pro-environmental behavior by asking questions about personal practices such as turning off lights. A distinction could be made between personal practice actions and pro-environmental

actions. Changes in eating habits or turning off lights don't produce real change which may lead to Heeren et al. (2022)'s findings that high levels of climate anxiety correlate with low pro-environmental behavior. By differentiating personal practice from environmental action future studies could examine whether environmental action which is more likely to matter may reduce climate anxiety more so than personal practice changes. This would line up with Clayton (2020)'s suggestion that problem-focused coping which relies on personal practice changes can ultimately lead to increased negative affect and feelings of helplessness.

Conclusion

The purpose of this paper was to review the existing literature around the mental health impacts of climate change, both direct and indirect, as well as potential avenues for treatment. Direct exposure to climate events and ecological change has demonstrable negative impacts on mental health, and disproportionately affect indigenous and low socioeconomic status communities. Climate change indirectly affects mental health in the form of climate anxiety. In the extremes climate anxiety can lead to ecoparalysis, preventing environmental action. Mental health practitioners are essential to decrease the impact that climate change has on mental health, but the only solution is systematic change. Climate change effects everyone, and some level of climate anxiety is adaptive and normal. Future research is necessary to elucidate when it becomes pathological, how it can lead to ecoparalysis, how ecoparalysis impacts environmental action, and how to mitigate the emotional consequences of climate change. While some levels of climate anxiety are non-pathological it is clear that in extremes it can cause significant distress. Moving forward it is essential that responses to climate change take into account both the mental and physical health risks to be most effective.

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