



Perspective/ Opinion

Climate and Health Curriculum Development: Mental Health Impacts and Responses

By David Pollack, MD, and Elizabeth Haase, MD

A number of US academic health programs have been developing climate and health curricula for undergraduate and graduate medical education programs. These organizations represent a broad swath of health care professionals who believe that the education of the health workforce is a critical part of this essential solution to the climate crisis and have organized to act on this commitment.

We are part of a larger group working on defining a comprehensive curriculum which includes pedagogical and faculty development strategies. In this article, we focus on the mental health impacts of and responses to the climate crisis.

Below we describe the broad scope of mental health concerns related to climate change, organized by 1) the neuropsychiatric consequences of exposure to various climate vectors, such as heat, air pollution, and neurotoxicant exposure; 2) the array of anxiety and mood symptoms/conditions that arise from acute disasters and long-term exposure due to repeated climate harms; and 3) the indirect effects of the ever-increasing sense of foreboding, fear, anxiety, and hopelessness that derive from the growing climate awareness within the general population, with special emphasis on the impacts on children and youth. The following is a list of the key content issues that we recommend be included in any climate and mental health related curriculum program.

1. Heat:

- The impact of high temperatures on emotional distress, including violence and suicide, as well as depression and negative emotions
- The relationship between neurotransmitters and heat regulation, as well as why people with mental illness and people who take psychotropic medication are more vulnerable to heat stroke and heat exhaustion
- Safety measures during heat waves at community and individual levels
- Policy measures, such as support for air conditioning, that can be enacted at a community and national level to build social resilience to mounting temperatures

2. Air pollution:

- The impact of air pollution on the brain and body
- The psychiatric impacts of ozone from higher temperatures as well as particulate air pollution, including the cellular impacts, focused on the influence of air pollution on children's developmental cognitive health and on dementia in adults and its contributions to depression and suicide through neuroinflammatory mechanisms
- The relationship between clean air policies, coal plant closures and improved population health as examples of effective advocacy for pro-health climate policy, as well as new solutions that are being enacted for cleaner air at all levels- from new air filtration and car pollution technologies to national policies

3. Habitat Change, Neurobiology:

- The impact of habitat changes on disease vector and nutritional content and availability of food, and water-borne disease
- Emerging infectious diseases with neuropsychiatric impacts and where they are likely to spread
- How nutritional changes such as low zinc and iron due to rapid plant growth are connected to common mental health disorders such as depression, and recommend supplements and foods that can prevent this impact
- Discussion of water-born toxins such as lead that result from changes or diversions of water supply

4. Habitat Change, Psychological Effects:

- General habitat concerns connected to climate change, such as loss of way of life due to animal and plant life changes, and forced migration and their mental health sequelae
- The psychic demands and emotional impacts of habitat change
- The role of the mental health professional as advocate and public health voice, articulating the emotional process of adaptation and benefits of layered collective action, including examples of:
 - Successful actions that have preserved important natural places and resources
 - Focusing on the psychological processes that support the group
 - Highlighting emotional traps that can undermine successful collaboration

5. Existential and General Psychology:

- How climate change typically affects people emotionally
- The importance of normalizing:
 - Existential distress
 - Resistance to change
 - Cognitive biases
 - Disconnects from social reality
 - Denialism

- Diffuse hyper-object nature
- The overwhelming complexity of solutions that make climate change difficult to think about and act upon

6. Eco-Anxiety:

- Thorough descriptions of various types of eco-anxiety
- Psychiatric models for understanding them such as continuous traumatic stress and disrupted attachment theories
- The wide range of biological techniques for managing personal anxiety, with an emphasis on how eco-anxiety is different from clinical anxiety disorders
- The need to transform fear into appropriate protective, collective, and corrective actions at individual and community levels

7. Ecological Grief:

- How it is affecting indigenous communities, young mothers, scientists, and those who live close to and dependently upon the land
- Our larger collective grief and sense of human failure
- The work of planetary mourning and how our love of what we lose can reinvigorate values-based action

8. Behavioral Change for Climate Change:

- Change theory as well as the neurobiology of habits
- Several critical habits of thought that contribute to sluggish climate responsiveness at an individual and societal level
- Re-imagining, telling of new stories, creativity, authenticity, and moral courage highlighted as practices to facilitate sustained change in the face of the harms and risks of ongoing climate change and its inexorable progression

9. Communicating about Climate Change:

- The most effective strategies for educating and motivating health professionals themselves to confront these issues
- The best approaches for health professionals to utilize in clinical encounters, public communications and presentations, and policy discussions
- Emphasis on effective, essential, and age-appropriate methods for communicating with children

10. Group approaches to climate distress:

- Current groups available for processing climate distress, including:
 - Climate Cafes
 - The Good Grief Network
 - The Deep Adaptation and Dark Mountain movements
 - The Work that Reconnects

- The movements that have developed for living sustainably through conscious community and how to embed their practices in everyday life
- The aspects of these groups that conform to best practices of group therapy and social prescribing practices that might empower their use

11. Community approaches to climate resilience:

- What communities can and should do to prepare for the health and mental health impacts of climate change
- Heat waves and air pollution events and how to establish disaster response networks and community resources to ensure that there is adequate treatment and resources are minimally disrupted
- Transformational Resilience derived public health interventions at the community level to promote psychosocial resilience and social cohesion in the face of acute and longer-term climate impacts

12. Climate Disasters:

- The psychological impacts of acute and repeated extreme weather and climate disasters
- How to predict stages of response, and how substance abuse, domestic violence, and child abuse risks increase without adequate attention to their prevention
- Understanding of the mentality of “we are all in or between disasters” that can lead to a more sustained humanitarian response to those in need and a sharing of emotional resources

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