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ON CLIMATE AND  
HEALTH EDUCATION



Santé  
Canada Health  
Canada

# Mental Health in a Changing Climate

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# Disclosure Information

- No disclosures to declare

# Objectives

- Exploration of how environmental disasters resulting from climate change impact the mental health of a population
- Overview of the inequitable burden of climate related mental health disorders
- Approaches to surveillance and monitoring of the mental health effects of climate change
- Overview of the mental health effects of climate-related displacement
- Navigating new climate and mental health terminology
- Exploration of targeted interventions to support mental health and well-being

# Mental and psychosocial health

Defining key terms



# The Mental Health Continuum



**EXCELLING**

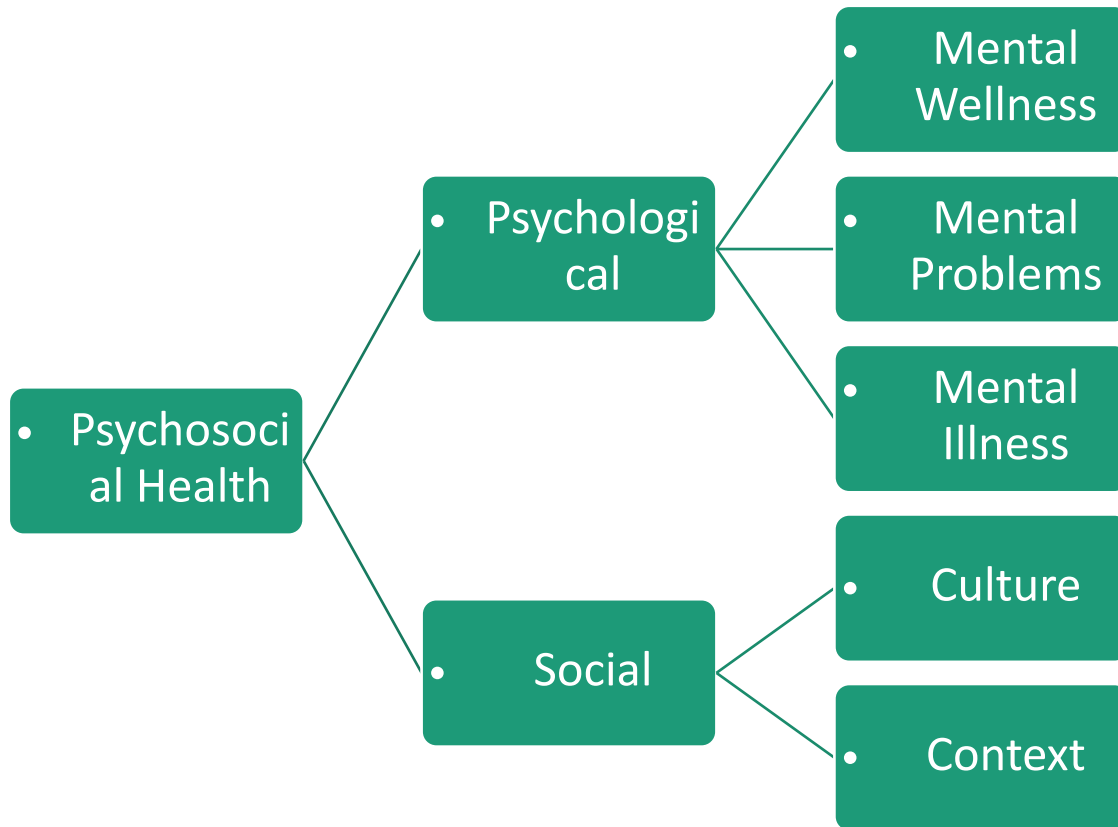
**THRIVING**

**SURVIVING**

**STRUGGLING**

**IN CRISIS**

# Climate Change Affects Psychological and Social Health



Place and culture shape our experiences of health

# Climate change impacts to mental health

An overview of the current evidence

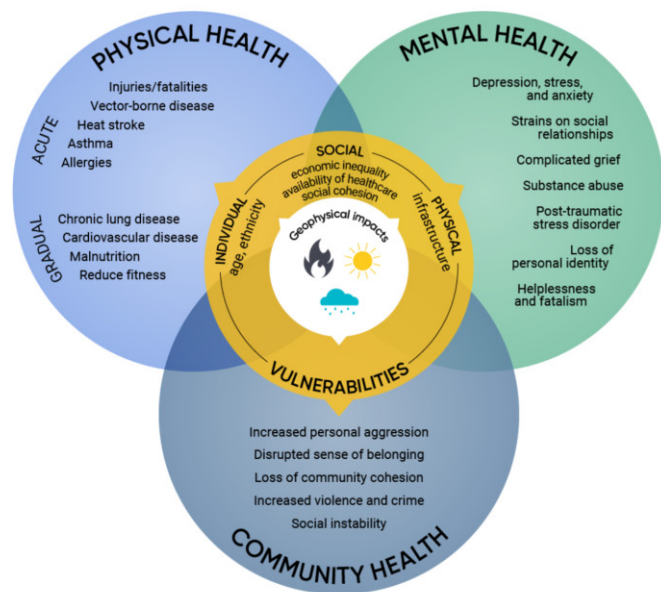
# Mental Health and Well-Being



Key findings in the in the [Mental Health and Well-Being Chapter](#) from the report [Health of Canadians in a Changing Climate: Advancing our Knowledge for Action](#) include:

- Mental health impacts of climate change may include:
  - exacerbation of existing mental illness such as psychosis;
  - new-onset mental illness such as post-traumatic stress disorder;
  - mental health stressors such as grief, worry, anxiety, and vicarious trauma;
  - a lost sense of place, which refers to the perceived or actual detachment from community, environment, or homeland;
  - disruptions to psychosocial well-being and resilience;
  - disruptions to a sense of meaning in a person's life;
  - general distress;
  - higher rates of hospital admissions;
  - increased suicide ideation or suicide; and,
  - increased negative behaviours such as substance misuse, violence, and aggression

## Overview of Climate Change Impacts on Mental Health



HEALTH IMPACT OR HAZARD CATEGORY	CLIMATE-RELATED CAUSES	POSSIBLE HEALTH EFFECTS
Mental health	<ul style="list-style-type: none"> <li>Increased frequency and severity of precipitation (such as hurricanes, flooding, ice storms)</li> <li>Droughts</li> <li>Wildfires</li> <li>Extreme temperatures</li> <li>Decreased food and water security</li> <li>Melting permafrost</li> <li>Sea-level rise</li> <li>Gradual warming</li> </ul>	<ul style="list-style-type: none"> <li>Post-traumatic stress disorder (PTSD)</li> <li>Anxiety</li> <li>Worry and fear</li> <li>Depression</li> <li>Stress</li> <li>Vicarious trauma</li> <li>Recovery fatigue</li> <li>Suicide ideation</li> <li>Weakened social ties</li> <li>Addictions (such as drug and alcohol usage)</li> <li>Aggression including domestic violence</li> <li>Ecoanxiety/climate anxiety</li> <li>Ecogrief/climate grief</li> <li>Solastalgia</li> <li>Post-traumatic growth</li> <li>Impacts on health and social services</li> </ul>

Sources: (image) Clayton, S., Manning, C. M., Krygman, K., & Speiser, M. (2017). *Mental health and our changing climate: Impacts, implications, and guidance*. Washington, DC: American Psychological Association, and ecoAmerica. Retrieved from <<https://www.apa.org/news/press/releases/2017/03/mental-health-climate.pdf>>

(table) Hayes, K., Cunsolo, A., Augustinavicius, J., Stranberg, R., Clayton, S., Malik, M., Donaldson, S., Richards, G., Bedard, A., Archer, L., Munro, T., & Hilario, C. (2022). Mental Health and Well-being. In P. Berry & R. Schnitter (Eds.), *Health of Canadians in a Changing Climate: Advancing our Knowledge for Action*. Ottawa, ON: Government of Canada



# There are indirect mental health effects of exposure to climate hazards

## **People do not need to be directly exposed to a flood to experience poor mental health outcomes.**

A 2017 study showed that psychological effects were highest among respondents directly affected by flooding, with PTSD being the most commonly reported impact (36.2%), followed by anxiety (28.3%), and depression (20.1%).

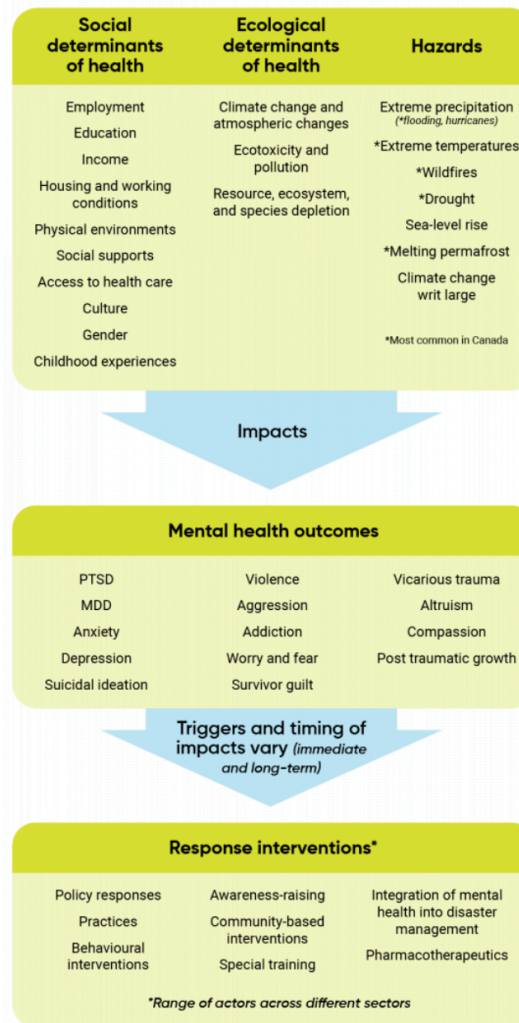
Those who were disrupted by the flood, but who had not directly experienced flooding also experienced PTSD, anxiety, and depression related to the flood event.



# Health Equity

Exploring the inequitable burden of climate related mental health disorders

# Determinants of health and intersectionality



# Some populations are at greater risk to the mental health effects of climate change

- Climate change disproportionately affects the mental health of specific populations, including:
  - Indigenous Peoples,
  - Women,
  - Children and youth,
  - Older adults,
  - People living in low socio-economic conditions, including the homeless,
  - People living with pre-existing physical and mental health conditions,
  - Certain occupational groups such as land-based workers (e.g. farmers, conservationists, foresters, etc.), and first responders.

Evidence suggests that women tend to be more prone to anxiety, worry, and PTSD related to a changing climate. In particular, women tend to be in caregiving roles, which are typically undervalued and underpaid, and, in these roles, women are at greater risk of experiencing compassion fatigue, particularly during periods of exposure to climate hazards

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# Surveillance and monitoring of the mental health effects of climate change

Key considerations



# Surveillance and Monitoring

CLIMATE HAZARD	POPULATIONS OF CONCERN	POTENTIAL MENTAL HEALTH OUTCOMES	INDICATORS AND MEASUREMENT TOOLS
<p><b>Extreme Weather Event (flood, hurricane, drought, mudslides, etc.)</b></p>	<ul style="list-style-type: none"> <li>• Gender (Female)</li> <li>• Sex (Female, particularly pregnant women)</li> <li>• Age (children, infants, older adults)</li> <li>• First Nations, Inuit, Métis</li> <li>• Race and ethnicity (non-Caucasian, non-white)</li> <li>• Immigrants</li> <li>• People with pre-existing health conditions</li> <li>• People with low-socioeconomic status</li> <li>• The under and non-insured (health care and home insurance)</li> <li>• The under-housed and homeless</li> <li>• Outdoor laborers</li> <li>• First responders</li> </ul>	<ul style="list-style-type: none"> <li>• Post-traumatic stress disorder (PTSD)</li> <li>• Depression (including major depressive disorders)</li> <li>• Anxiety</li> <li>• Suicidal ideation</li> <li>• Aggression</li> <li>• Substance misuse</li> <li>• Violence</li> <li>• Survivor guilt</li> <li>• Vicarious trauma</li> <li>• Altruism</li> <li>• Compassion</li> <li>• Post-traumatic growth</li> <li>• Other</li> </ul>	<ul style="list-style-type: none"> <li>• Surveys</li> <li>• Patient Records</li> <li>• Monitor emergency department visits after extreme weather events for an increase in patients reporting mental health problems or illness.</li> <li>• Review of new prescription use for mental health and behavioral disorders after an extreme weather event</li> <li>• Interviews</li> </ul>

<sup>11</sup>Table 1 Adapted from: Hayes K, Poland B. Addressing mental health in a changing climate: Incorporating mental health indicators into climate change and health vulnerability and adaptation assessments. *Int J Environ Res Public Health*. 2018;15(9). doi:10.3390/ijerph15091806

# Key Considerations and Challenges to Data Collection

- attributing environmental hazards to climate change and then attributing mental health outcomes to these hazards;
- isolating the mental health outcomes related to climate change from other compounding life stressors;
- measuring some types of mental health impacts and compounding stressors (e.g., the difficulty of measuring compounding stressors of those experiencing colonialism, intergenerational trauma, and connections to the land, such as many Indigenous Peoples);
- studying and reporting on mental health indicators when mental health can be understood differently among diverse populations; and,
- under- or over-reporting of mental health outcomes related to climate change.

# Climate Displacement

An overview of distress related to displacement from climate-related environmental changes

# Displacement and Distress

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- Displacement related to climate change - 25 million to 1 billion by 2050, however 200 million most frequently cited projection<sup>1</sup>.
- International Organization for Migrations reports displacement from environmental disasters more common now than displacement from violence and conflict<sup>2</sup>
- Gibson et al (2019) coping with climate distress in Tuvalu<sup>3</sup>
  - Distress related to loss of culture
  - Financial hardship
  - Family conflict
  - Impacts to future generations
- Experiences of racism, discrimination<sup>4</sup>
- Trapped populations less able to migrate due to social, political, or economic conditions<sup>5</sup>
- Positive psychosocial outcomes if voluntary, consented, last resort, planned, and improves standard of living<sup>6</sup>

# Displacement due to severe weather events can cause long-lasting mental health impacts

**Displacement related to climate change is an important issue, particularly for Indigenous communities.**

The related psychological and social effects can include: increased emotional trauma, homelessness, substance misuse, disrupted cultural practices, and discrimination.

The 2011 Manitoba flood displaced residents of Lake St. Martin First Nation for over six years (approximately 7% of the evacuees never returned home, reportedly many cases were due to homelessness and suicide).

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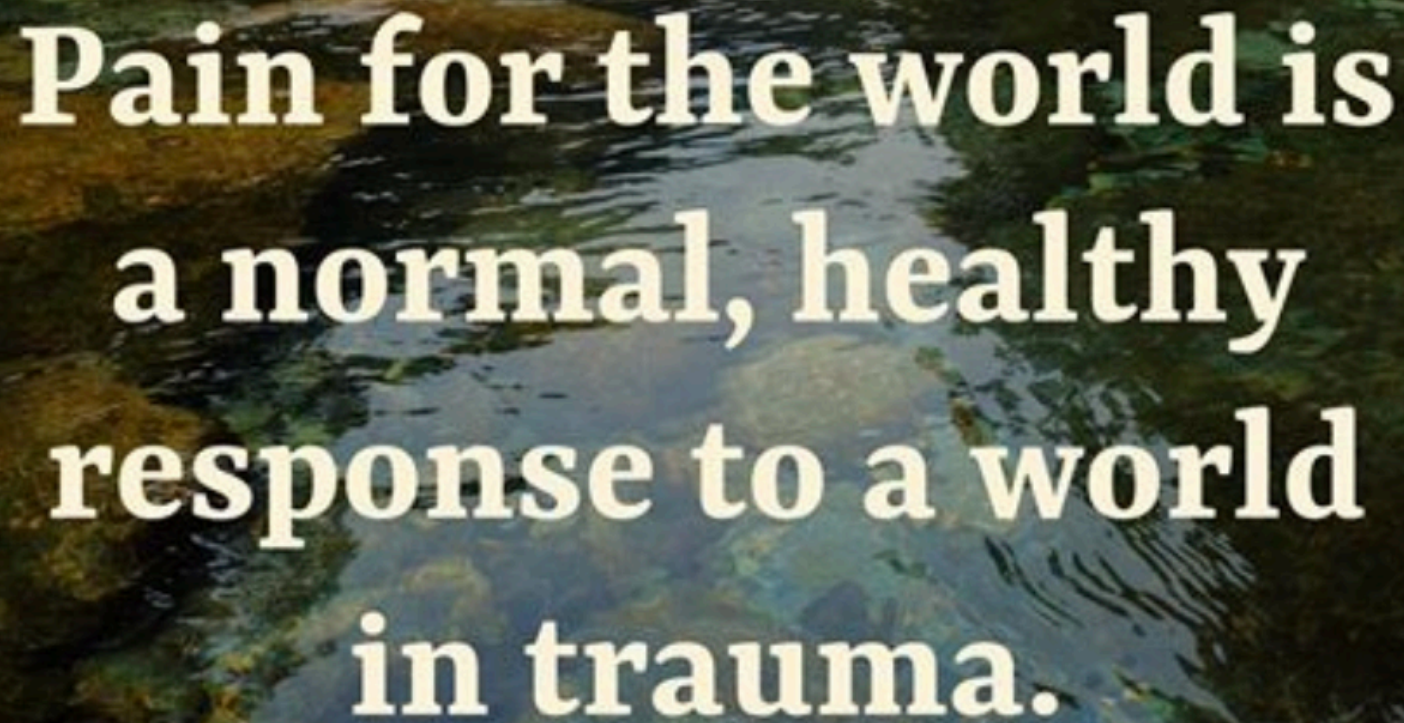
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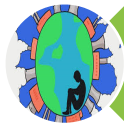
# Navigating new terminology

Common reactions to the climate crisis



**Pain for the world is  
a normal, healthy  
response to a world  
in trauma.**

# Navigating the New Terminology



- Ecoanxiety<sub>7</sub>



- Ecogrief<sub>8</sub>



- Ecoparalysis<sub>7</sub>



- Ecoguilt<sub>7</sub>



- Solastalgia<sub>7</sub>

# Awareness

- Eco-anxiety: “the range of potential sufferers: anyone who knows about climate change – in other words, given the reach of communications technology, almost everyone” (Clayton, 2020<sub>9</sub>)



Is action the  
antidote to  
ecoanxiety?

In short: there's no 'one size fits all'  
approach to addressing our emotional  
responses to climate change



# Ecological grief and anxiety: the start of a healthy response to climate change?

Ashlee Cunsolo, Sherilee L Harper, Kelton Minor, Katie Hayes, Kimberly G Williams, Courtney Howard

Ecological grief and anxiety are *reasonable and functional* responses to climate-related losses

Population-level emotional distress, anxiety, and grief are *increasing*

*Urgent responses* are needed from clinicians, public health practitioners, families, researchers, educators, and policy-makers

Following a health equity approach to resources and responses to build resilient mental health systems



Increasing training for mental health professionals on climate change and health

Focusing on families



Responses that *reduce emotional suffering* associated with climate change can include...



Enhancing clinical assessments and support

Increasing social prescribing of activities that enhance environmental, physical, and mental health



Harnessing already-proven individual and group therapy strategies

## What is needed to *strengthen and support* responses?

Accessible, safe spaces for exploring emotional reactions

Political will to ensure funding for strategies and supports

Ongoing research to promote healing and resilience

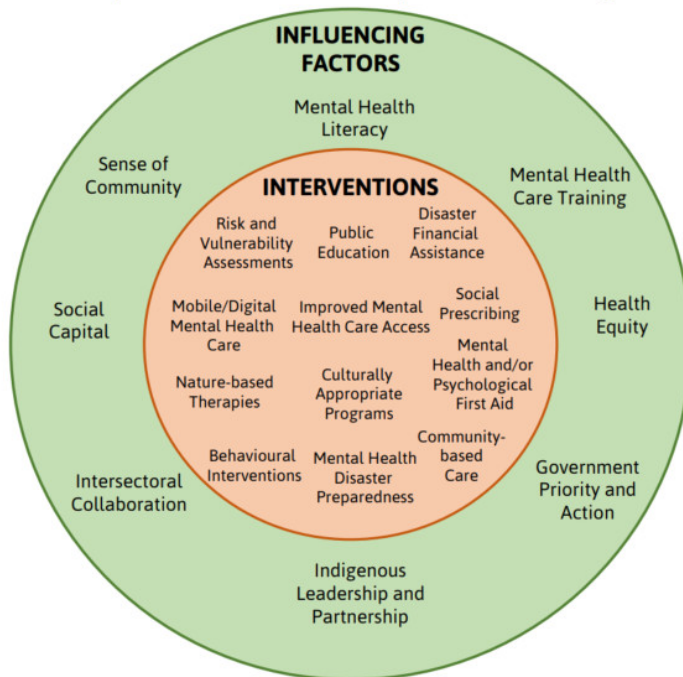
Lancet Planetary Health, 2020

# Coping and Adaptation

Exploration of targeted interventions to support mental health and well-being

# Factors Influencing Adaptation

Adaptation to the Mental Health Impacts of Climate Change



**Social capital and a sense of community protect mental health in a changing climate.**

Social capital refers to the networks and resources of support, and a sense of community refers to feelings of belonging.

Both social capital and a sense of community are of paramount importance in post-disaster recovery, even when compared with economic or other types of assistance.

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## Coping at the individual level

- Sense of agency
- Sense of meaning
- Social connections



# Coping at the community level

## 5 Ways Communities Are Coping With Climate Anxiety



From action-oriented toolkits to talk therapy and meditation, these responses facilitate recovery, hope, and activism.

- Psychological first aid
- Mental health first aid
- Peer-to-peer support

# Policy and Practice Interventions

## HOW TO SUPPORT MENTAL HEALTH AND WELL-BEING FROM CLIMATE IMPACTS

Though there are no one-size fits all options to addressing mental health needs, there are a variety of ways mental health related to climate change impacts can be supported. Such as through:

### POLICIES

- Improved access to, and funding for, mental health care
- Assistance to reduce economic strain from climate hazards



### PRACTICES



- Developing climate resilience plans that address psychological and social well-being
- Conducting climate change and health assessments that examine the mental health effects of climate and adaptation options

### MEDICAL PRACTICES

- Specific therapies, behavioural interventions or medications provided by mental health care professionals
- Distribution of resource guides to the public on the mental health effects of climate change



### INDIVIDUAL PRACTICES



- Spending time in nature
- Connecting with community
- Engaging in active transportation to improve mood and enhance physical health

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# Co-Benefits of GhG Mitigation Activities on Mental Health

**Active transportation can support physical and mental health while reducing greenhouse gas emissions.**

Well designed greenhouse gas mitigation and adaptation actions to address climate change can produce significant health co-benefits, including benefits to mental health.

For example, increasing opportunities in a community for active transportation (e.g., walking, jogging, and biking) have been shown to reduce depression and improve moods.

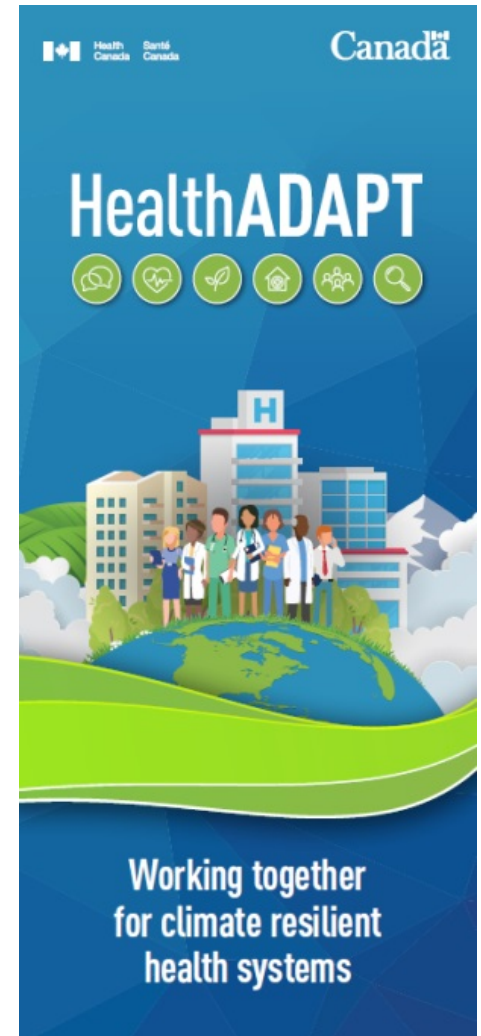
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MENTAL HEALTH & WELL-BEING CHAPTER



# Current Actions in Canada

- Programs that support broader mental health needs that are supportive for people experiencing distress related to climate change:
  - Wellness Together, PocketWell, Hope for Wellness Helpline
- HealthADAPT Program
  - Health Canada is building the capacity of health authorities in Canada to reduce risks from climate change, including those on mental health. For example, the Centre intégré de Santé et de services sociaux (CISSS) de Chaudière-Appalaches is leading a project to assess and support the health systems capacity of 2 CISSS pilot regions (Chaudière-Appalaches and Bas-Saint-Laurent) to prevent the negative impacts on mental health and psychosocial well-being of populations exposed to extreme climate events.
- National Adaptation Strategy
  - In December 2020, the Government of Canada committed to developing Canada's first National Adaptation Strategy and Federal Action Plan. There are five Advisory Tables, including one on Health and Well-being that integrates climate change and mental health considerations.



# International Actions

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- Dedicating chapters on mental health in Government-led National Climate Change and Health Assessments
  - Canada (2022)
  - U.S.A (2016)
- Research leaders (Australia, U.S.A., Canada, UK)
- Professional Psychiatric Networks:
  - Climate Psychiatry Alliance (U.S.A, and Canada), UK Health Alliance on Climate Change
- Policy statements from health organizations:
  - American Association of Public Health policy statements related to climate change and mental health ([Addressing the Impacts of Climate Change on Mental Health and Well-Being \(apha.org\)](#))
- Briefing Papers for Policy Makers:
  - [The impact of climate change on mental health and emotional wellbeing: current evidence and implications for policy and practice](#)
  - [Health in the Climate Crisis: A Guide for Health Leaders](#)
  - [Mental Health and our Changing Climate Impacts, Inequities, Responses](#)

# Novel Approaches

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**Network of Care:** [Climate Psychiatry Alliance](#)

**Training:** [International Transformational Resilience Coalition \(ITRC\) Workshops](#)

**Guidance:** [Emotional resilience toolkit for climate work](#)

**Nature-Based Therapies** Forest Bathing

**Social-Environmental Prescribing:** PaRX [Park prescriptions](#)

**Group-based interventions**

- [sUstain: Transforming climate concerns into Active Hope](#)
- [Climate cafés](#)
- [Good Grief Network](#)
- [Transition Town – Heat and Soul groups](#)

**Spiritually-base interventions**

- [One Earth Sangha](#)
- [The Work that Reconnects \(WTR\)](#)
- [Faith in the common good](#)

**Online forums**

- [Eco-Anxious Stories](#)
- [Project InsideOut](#)
- [GenDread](#)



# Thank you



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# References

1. Institute for Environment and Human Security of the United Nations University in 2015
2. McAuliffe, M., Khadria, B., & Celine Bauloz, M., N. (2020). World migration report 2020. International Organisation for Migration.
3. Gibson, K., Haslam, N., Kaplan, I. (2019). Distressing encounters in the context of climate change: Idioms of distress, determinants, and responses to distress in Tuvalu. *Transcultural Psychiatry*. 56(4) 667-696
4. Gleick PH. Water, Drought, Climate Change, and Conflict in Syria. *Weather Clim Soc*. 2014;6(3):331-340. doi:10.1175/WCAS-D-13-00059.1
5. Bogic M, Njoku A, Priebe S. Long-term mental health of war-refugees: a systematic literature review. *BMC Int Health Hum Rights*. 2015. doi:10.1186/s12914-015-0064-9
6. Schwerdtle P, Bowen K, McMichael C. The health impacts of climate-related migration. *BMC Med*. 2017. doi:10.1186/s12916-017-0981-7
7. Albrecht G. Chronic environmental change: Emerging “psychoterratic” syndromes. In: Weissbecker I, ed. *Climate Change and Human Well-Being*. New York: Springer; 2011.
8. Cunsolo A, Ellis NR. Ecological grief as a mental health response to climate change-related loss. *Nat Clim Chang*. 2018. doi:10.1038/s41558-018-0092-2
9. Clayton, S., (2020). Climate anxiety: Psychological responses to climate change. *Journal of Anxiety Disorders*, 74, 1022263, doi.org/10.1016/j.janxdis.2020.102263