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A vertical blue line is positioned to the left of the main title.

# Climate Impacts on Mental Health

*A short report on a two-day summit with experts and stakeholders*



## About This Report

In February 2021, the BC Centre for Excellence in HIV/AIDS (BC-CfE) Comparative Outcomes and Service Utilization Trends (COAST) team, in collaboration with Simon Fraser University (SFU), and the Pacific Institute of Climate Solutions (PICS) hosted an event to discuss how climate change can impact mental health and wellness. The event was generously funded by PICS. This report details some background information on how climate can impact mental health and the main aims of the event, summaries of both days of the event, and how we plan to move forward with the ideas and partnerships that were generated.

## About MHCCA

This report was drafted by the Mental Health and Climate Change Alliance (MHCCA) team, consisting of Dr. Robert Hogg (PhD), SFU Distinguished Professor and Associate Dean of Research and Senior Research Scientist at the BC-CfE, Dr. Kiffer Card (PhD), an adjunct SFU professor, Andreea Bratu (MSc) and Niloufar Aran (Honors BSc) both research coordinators at the BC-CfE, and Carly Marshall (MSc), a research assistant at the BC-CfE.

## Acknowledgements

We would like to acknowledge the collaboration for this event from Break the Divide, Memorial University, the University of Victoria; the participants who took time to join our conversation; and our four extraordinary panelists:



Elder Valerie Nicholson  
*Peer Indigenous Research Associate*



Ashlee Cunsolo  
*Interim Dean, School of Arctic & Subarctic Studies, Labrador Institute, Memorial University of Newfoundland*



Maya Gislason  
*Associate professor at Simon Fraser University and Michael Smith Health Research Fellow*



Abhayjeet Singh Sachal  
*Co-Founder and Executive Director at Break The Divide Foundation*



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## Background

Climate change is one of today's greatest public health threats. It is linked to extreme heat, severe weather events, vector-borne diseases, rising sea levels, and wide-spread fear, anxiety, worry, aggression, post-traumatic stress, depression, and even suicide.<sup>1,2</sup> Recognizing these challenges, the Lancet Countdown on Health and Climate Change, the Canadian Medical Association, and the Canadian Public Health Association jointly recommended an increase in funding to "study the mental health impacts of climate change",<sup>3</sup> specifically noting that "mental health impacts from changed landscapes" have the potential to negatively impact Canadians.

Globally, there is increasing interest in the important relationship between mental health, community wellbeing, and climate change and some researchers have advocated for the inclusion of mental health indicators in environmental assessments tracking climate impacts.<sup>4,5</sup>

Presently, the British Columbia Ministry of Environment's indicators for climate change (last updated in 2016) do not include any measures related to mental health and wellness.<sup>6</sup> With rising temperatures across Canada (1.8-6.3 °C by 2050) expected to exacerbate the problems posed by climate change, it has never been more important to include mental health as a key indicator for monitoring and surveillance.<sup>7</sup> This is especially true as we seek to understand the impacts of

climate change among underserved groups – including Indigenous communities, people with disabilities, and people without homes – who will be most affected by these worsening conditions.<sup>8</sup>

To catalyze collective action on these concerns, we organized a two-day event aimed at fostering collaboration on the development of sustainable and effective research and adaptation strategies for addressing mental health in the context of the climate crisis. We also sought to explicitly consider the concerns of marginalized people proportional to the burden that they will face as a result of the climate crisis.<sup>9,10</sup>

## Day 1. Café Scientifique

On February 1st, 2021, our team hosted an exciting virtual Café Scientifique attended by more than 120 stakeholders and community members. The event aimed to raise awareness and facilitate community engagement on the topic of climate change and mental health and the pathways by which mental health and wellness and climate change influence each other. Through presentations and an interactive question and answer period, we heard from Dr. Ashlee Cunsolo and Dr. Maya Gislason. The event was opened with a beautiful traditional land opening by Elder Valerie Nicholson, who shared words from her grandfather, that *"new knowledge is old knowledge to new people."* Mr. Abhay Sachal then stepped into the spotlight to give a brief overview of how he became involved in youth

climate activism. Abhay talked about how important yet tough it is to be resilient in the face of the climate crisis but *"believe[s] optimism with action will allow us to be the sustainable leaders that we need, will allow young people to continue fighting the climate crisis, and will allow us all to mobilize and take the action that is absolutely needed"* to fight climate change.

Following Abhay's introduction, Dr. Ashlee Cunsolo gave her talk, titled *"Mourning Nature: Hope at the Heart of Ecological Grief and Loss."* Dr. Cunsolo lives in Labrador, and through her work she aims to understand the pain that comes from environmental loss and how that can impact individuals and communities. She talked about how her work with Inuit communities in Northern Canada stresses how impactful climate change is on people and communities that rely heavily on the land, as even subtle changes in climate and environment can cause shifts in mental and emotional wellbeing. Dr. Cunsolo categorizes the ways in which climate can impact mental health, into acute events, slower cumulative events (ex. long term drought, sea ice loss), vicarious and anticipatory experiences, disruptions to other determinants of health (ex. Impacts on physical health or food security) and changing place attachment while describing the mental health outcomes that people experience from these various changes. One outcome that Dr. Cunsolo investigates in her work is ecological grief and anxiety—she emphasized how these feelings of grief are not only a very reasonable response, but that *"grief is an incredible gift if we are open to it... instead of [grief] being debilitating, it can actually be something that*

*we mobilize and harness into a motivating force where we come together and ask ourselves what our collective responsibility is. Not only for other humans, but also to those who we share this planet with."*

Dr. Maya Gislason then gave her presentation titled *"Children, Mental Health and Intergenerational Climate Justice: Moving Grounded Hope into Action,"* Dr. Gislason began her talk explaining how her young daughter's art project portraying a reflection of the earth today and in 2050; this sparked her interest in children's experiences of climate change. She explained that most children know of climate change because *"it's on social media, it's on TV, it's on the radio and it's in our conversations and so [children] are experiencing information about climate change in ways that we may not be aware,"* and this way that children are learning about climate change is creating a lot of worry about the impact on their futures. Dr. Gislason talked about how the failure of governments to act on climate change is a significant and ongoing inter-generational human rights violation. Specific to mental health, children and youth feel a lack of control in their lives—more so than ever—and report feeling stressed, depressed, anxious, and grief stricken about climate change, particularly Indigenous children and youth. In terms of solutions for parents, educators, and care providers, Dr. Gislason emphasized the importance of acknowledging our own contribution to the problem and altering our behaviours so that we can remain present to help children/youth navigate their feelings and learnings. She closed her talk with the importance of age-appropriate resources and adjusting the way

climate change is taught within the educational system by moving away from a deficit-based approach and towards helping foster a sense of place to community, as well as teaching activism as a basic skill.

Following the two presentations, the event transitioned into the moderated question-and-answer session where questions from the audience were welcomed and encouraged. Tough questions such as *"How do we keep kids safe but still educate them? How do we empower young people and educate them about the scale of the crisis and the scale of action that is needed? How can we teach young people that we will be able to make a change,"* and *"is it possible to develop PTSD from watching governments not act on climate change,"* were asked.


The event ended with closing remarks from Abhay followed by a traditional land closing by Elder Valerie, who emphasized the importance of sitting in nature, as her grandmother told her *"You need to sit in nature for 20 minutes a day. Unless you are busy. Then you need to sit in nature for 60 minutes a day."* Over 90% of attendees rated the event very good or excellent. Over 95% reported that they learned something new and 86% reported that they were encouraged to learn more or become more engaged in work on the topic of climate change and mental health.

## Day 2. Conference

On February 2<sup>nd</sup>, 2021, 15 individuals joined our team for an invite only mini conference. With representatives of academia/research, government, community-based research groups, and activists with a variety of areas of expertise within the field of climate change and mental health, individuals were placed in three groups to discuss four questions in breakout rooms. The discussions are summarized below, and an overview of all topics discussed can be found in Figure 1.

### ***How can mental health and wellness be impacted by climate change?***

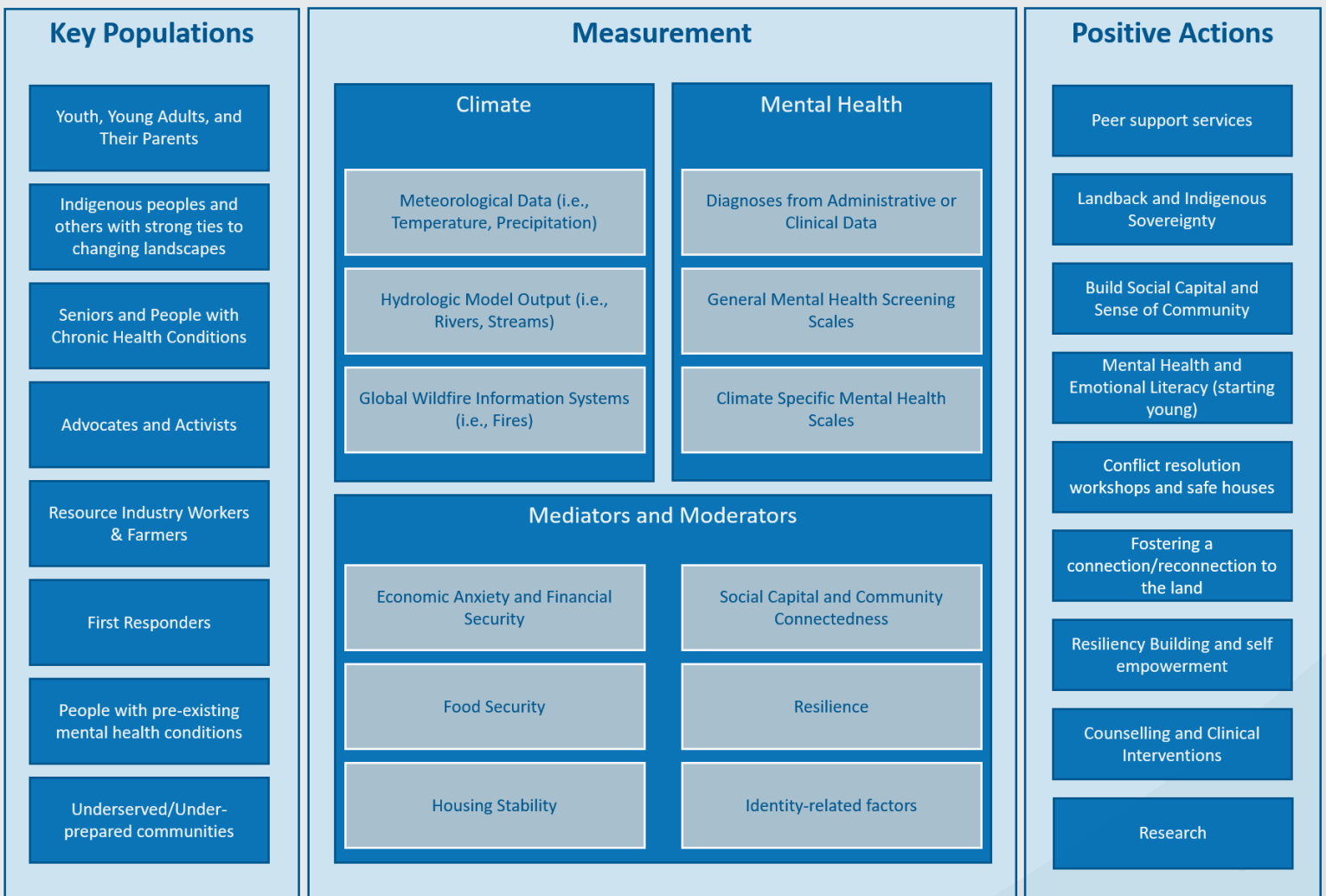
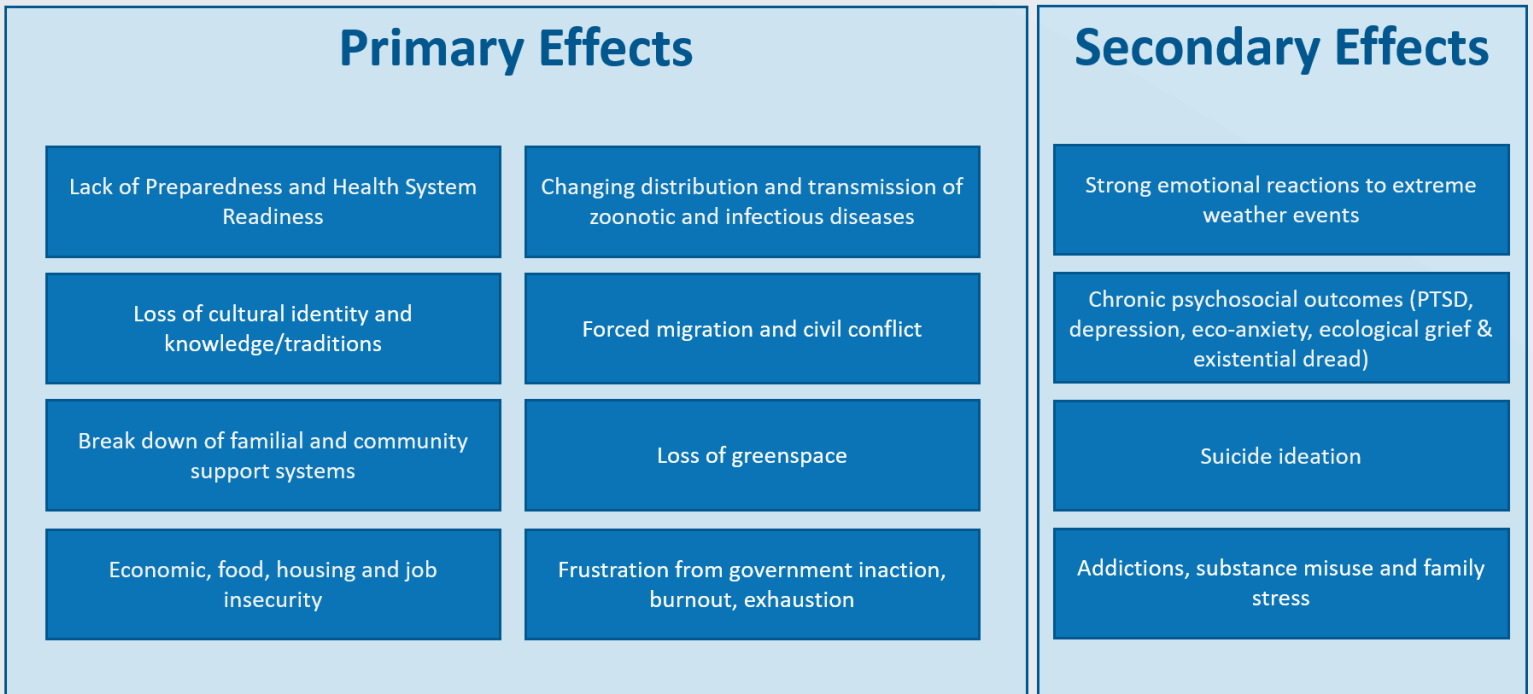
There are a variety of ways to categorize different mental health impacts of climate change, including those that arise from acute events, slower cumulative events, anticipatory events (perceived impacts), through vicarious experiences, from emergency responses (especially in the context of intersectional and equity-informed work) and from disruptions to other determinants of health. The mental health outcomes that were discussed are summarized in Figure 2. We have categorized these outcomes into primary and secondary effects; however, it is important to also note the cumulative impacts of climate change, and how they can compound each other particularly among marginalized and socio-economically disadvantaged populations. Additionally, a few key things to consider in regard to this question were raised. One point was the terminology we use and ensuring we are clear on our definitions. For example, how we will frame/define mental health and wellness, and the importance of including a variety of voices, such as people who are racialized, chronically ill, or disabled.



A recording of the Café Scientifique event can be found at [www.mhcca.ca](http://www.mhcca.ca)

Figure 1

# Overview



Ensuring we differentiate between weather and climate (change) is also important. As is the timing of when mental health impacts occur and are measured, particularly in response to extreme weather events, and how it is key to mitigating and alleviating stress and anxiety resulting from these events.

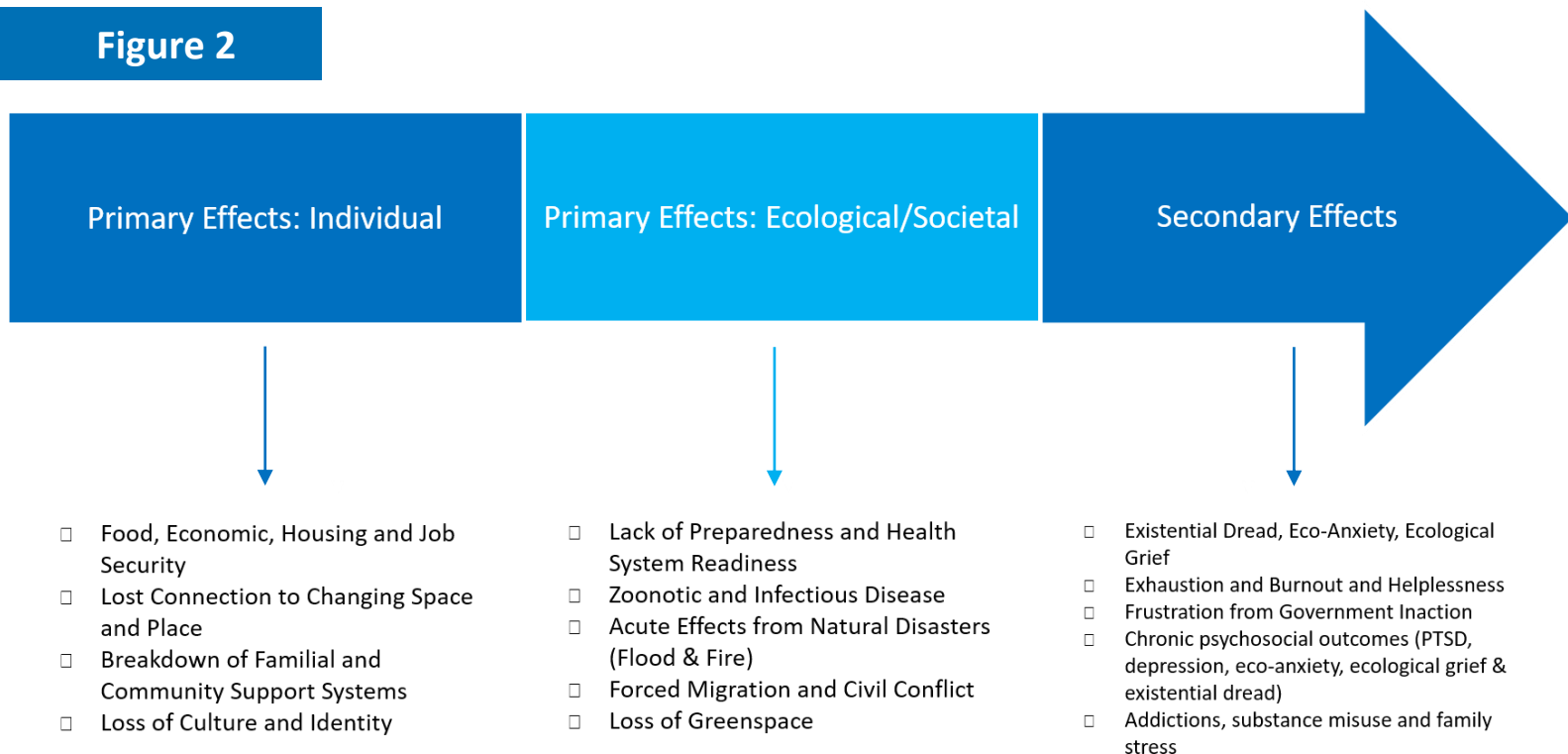
**What populations are disproportionately impacted by climate change?**

Our groups identified many populations at disproportionate risk of adverse impacts of climate change, as outlined in Figure 1; the following is a summary of these populations and the conversations surrounding each group. Climate change affects individuals at different stages of life differently. Children and young people, especially those dedicated to climate activism, and at the other end of the spectrum, Elders and older adults are impacted by varying climate change outcomes. Gender is also relevant, as those who identify as female/women—especially those in caregiver roles and pregnant mothers—face increased roles and

responsibilities that are impacted by climate change and made difficult through mental health complications. As well, gender fluid individuals face layers of discrimination and overall possess higher rates of mental health complications when compared to cisgender and heterosexual individuals. Also, individuals living in environmentally sensitive areas prone to flood, drought, wildfire, Northern regions, and Coastal areas all face a heightened sense of climate change related natural disasters.

Those who are dependent on the land for cultural, monetary, and means to provide sustenance—including Indigenous peoples, farmers, agricultural communities, fisher people—are subject to rapid and large-scale changes in the environment and land on a yearly basis. People living with chronic physical and mental health complications and underlying health problems face a huge burden in relation to climate change;

**Figure 2**



The term **positive action** in this document has been used in place of the term intervention. We recognize that interventions have historically not always had their intended effect and have even caused harm and/or distress. In order to shift the focus to a more strengths-based approach, we have decided to use the term positive actions.

especially if these chronic illnesses are related to weather (e.g. Chronic Obstructive Pulmonary Disease) and if pre-existing mental health complications are exacerbated by climate anxiety. People with fewer resources who are of lower socio-demographic status and as a result exercise less flexibility in urban areas—including people without secure housing—may experience exacerbated challenges concerning localized flooding, poor air quality, and the like. Finally, emergency responders on the front lines directly involved in natural disaster support services are at very high risk of developing mental health complications and experiencing ongoing climate anxiety.

The group stressed the importance of a micro-level approach to identifying populations more at risk depending on their environment. The perspective that populations should not just be defined by a particular identity, but by how the government can respond to specific needs and provide relevant positive actions to support people was mentioned. This way, the categorization of people will be for the

purpose of actionable strategies and approaches for change. Importantly, these strategies will call for support for comprehensive and widely utilizable support such as robust health and social systems and response mechanisms, including firefighters, emergency teams, physicians, and mental health support workers.

***What are the positive actions, mitigation strategies, community adaptation strategies and policies that can be used to address these impacts?***

Participants were quick to note that there are no one size fits all approach for positive actions. Mitigation and community adaptation strategies must not only be based on the context and desire of specific communities and populations, but they must also be culturally relevant and sensitive in order to be effective. Additionally, identifying specific high-risk populations and situations is critical to inform positive actions. Integrating intersectionality with epidemiology and social epidemiology and taking a strength-based approach when designing research questions is crucial.

Is it essential to include solution seekers and relevant stakeholders from the very beginning to help develop relevant, and contextually aligned positive actions, policies, mitigation and community adaption strategies that effectively allow for participatory community efforts. These may include various community subgroups such as religious and cultural leaders, government officials, and/or youth. Positive actions, mitigation and community adaptation strategies can by categorized into



information based, clinical, and community based. Specific positive actions that were discussed are summarized in Figure 3.

***What data sources and measures are there to evaluate health impacts and environmental exposures?***

Data sources such as the Canadian index of wellbeing were mentioned as a potential tool/source of data. As well, the PCIC climate data including data portal daily gridded meteorological data, station data, and PRISM climatology were mentioned. Several analysis tools were mentioned, including PCIC climate explorer, Plan2Adapt and seasonal climate anomaly maps. This data includes both the average as well as frequency and intensity of extreme weather events, specifically for temperature and precipitation. PCIC also uses historic and current data to produce climate projections for coming years, which is of great value to research teams who can utilize this and other data sources to quantify measurable climate impacts. Approaches that were mentioned included participatory action research with community leadership that includes listening, storytelling, and utilizing community-based research methodologies. As well, mixed-method approaches focused on identifying the correct measures and methodologies to explore this topic in a community informed way were discussed.

A collaboration with the Climate Action Secretariat (CAS) was suggested to add intersectionality in this work as it includes data related to health equity, eco-social and equity perspectives in climate change. CAS also has been developing a project focused on climate change and mental health specifically. The

development of more mental health and climate change vulnerability indices was also mentioned, such as the published and validated climate anxiety scale developed by Dr. Susan Clayton. Several important mediators and moderators were discussed, as outlined in Figure 1.

**Figure 3**



## Conclusion

Our two-day virtual event aimed to facilitate community and stakeholder engagement on the topic of climate change and mental health. On the first day, through insightful presentations by Dr. Ashlee Cunsolo and Dr. Maya Gislason, members of the public were provided overviews on the various ways in which mental health can be impacted by climate change, who is most affected, and possible collective actions we can take to rally together and better support our own mental health and wellness during this time of climate uncertainty. The second day event brought together stakeholders from a variety of disciplines with different perspectives and areas of expertise. The group was split up to discuss key questions with the hopes of identifying knowledge gaps in the existing research, or areas of interest for future work in this area. By bringing together experts from across Canada and the USA, key introductions (and reconnections) were made, and set the stage for what we believe will be fruitful and long-lasting collaborations moving forward.

In order to keep the momentum going and facilitate these collaborations we have launched the Mental Health and Climate Change Alliance (MHCCA), a multidisciplinary community of practice including researchers, solution seekers and other relevant stakeholders.

While this community of practice is just getting started, our eventual goal is to work with a multidisciplinary team to continue our work and secure funding focused on mental

health and climate change. We hope to use the findings of this event to inform these grants. In order to gain even more insight and direction for our prospective work, we are also planning to distribute a preliminary survey throughout the province of British Columbia through social media platforms in order to gauge the public's awareness and levels of climate anxiety in the province. If you are interested in collaborating on these projects, please contact our study team.

Visit [www.mhcca.ca](http://www.mhcca.ca) for more information about our community of practice and to keep up to date on new and upcoming initiatives related to our work.

 [www.mhcca.ca](http://www.mhcca.ca)  
 [@MHCCAlliance](https://twitter.com/MHCCAlliance)  
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## References

1. World Health Organization. Climate Change and Health- WHO calls for urgent action to protect health from climate change. <https://www.who.int/globalchange/global-campaign/cop21/en>. Updated 2019. Accessed October 15, 2019.
2. American Public Health Association. Adaptation in Action: Part II. [https://www.apha.org/-/media/files/pdf/topics/climate/adaptation\\_in\\_action\\_part\\_2.ashx?la=en&hash=87A791182153A590EE7C5C97AE94EEC2691EFD6E](https://www.apha.org/-/media/files/pdf/topics/climate/adaptation_in_action_part_2.ashx?la=en&hash=87A791182153A590EE7C5C97AE94EEC2691EFD6E). Published 2018. Accessed October 17, 2019.
3. Lancet Countdown, "Lancet Countdown 2018 Report: Briefing for Canadian Policy Makers," Nov. 2018.
4. K. Hayes and B. Poland, "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*, vol. 15, no. 9, Sep. 2018, doi: 10.3390/ijerph15091806.
5. "The unseen impacts of climate change on mental health | British Columbia Medical Journal." [Online]. Available: <https://www.bcmj.org/cohp/unseen-impacts-climate-change-mental-health>. [Accessed: 18-Mar-2020].
6. Ministry of Environment, "Indicators of Climate Change for British Columbia 2016 Update," Government of British Columbia, 2016.
7. Canada G of. Changes in temperature. <https://www.canada.ca/en/environment-climate-change/services/climate-change/canadian-centre-climate-services/basics/trends-projections/changes-temperature.html>. Published 2019. Accessed October 20, 2019.
8. Smith KR, Woodward A, Campbell-Lendrum D, et al. Human health: Impacts, adaptation, and co-benefits. In: *Climate Change 2014 Impacts, Adaptation and Vulnerability: Part A: Global and Sectoral Aspects;* 2015. doi:10.1017/CBO9781107415379.016
9. Berry HL, Waite TD, Dear KBG, Capon AG, Murray V. The case for systems thinking about climate change and mental health. *Nat Clim Chang*. 2018. doi:10.1038/s41558-018-0102-4
10. Ostry A, Ogborn M, Takaro T, et al. Pacific Institute for Climate Solutions. Climate Change and Health in British Columbia. [https://pics.uvic.ca/sites/default/files/uploads/publications/WP\\_Health\\_November2008.pdf](https://pics.uvic.ca/sites/default/files/uploads/publications/WP_Health_November2008.pdf). Published 2018. Accessed October 20, 2019.