

# The Role of Emotions in Generating and Sustaining Climate Action for Youth Climate Champions: An Exploratory Study in Northern Ontario

Aynsley Klassen<sup>1</sup> and Lindsay P. Galway<sup>2\*</sup>

1. Department of Health Sciences, Lakehead University, Thunder Bay, Canada
2. Department of Health Sciences, Lakehead University, Thunder Bay, Canada

---

## ABSTRACT

*Young people are frequently positioned at the forefront of the climate movement while also often being considered vulnerable to the mental and emotional impacts of climate change. While climate emotions research is rapidly increasing, little is known about young peoples' lived emotional experiences of climate change and climate action. This research, grounded in social constructivism, aimed to explore the emotions, supports, and experiences that are generative and supportive of climate action for youth climate champions in Northern Ontario, Canada. In the spring of 2022, 12 youth climate champions (ages 15-24) participated in semi-structured interviews and asynchronous letter writing. This paper describes two thematic networks that were derived using thematic network analysis. The first network, climate emotions, is characterized by five organizing themes: 1) ecoanxiety, 2) emerging loss and grief, 3) triggers, 4) coping strategies, and 5) impacts on living and life. The second network, motivations and support for youth climate action, is described through three organizing themes: 1) action is unique to person and place, 2) intersections of emotion and action, and 3) key relationships and supports. Reflecting on this research, we offer two insights relevant to those engaging in health and education spaces with youth. First, there is a need to establish accessible, safe spaces for young people to collectively recognize, explore, and process complex climate emotions. Second, education systems across rural and remote regions are strategically positioned to support the health and wellbeing of young people through the implementation of holistic climate education that includes opportunities for engaging in collective climate action.*

**Keywords:** *Climate emotions; Climate anxiety; Climate action; Youth; Interviews*

---

\*Correspondence: [lgalway@lakeheadu.ca](mailto:lgalway@lakeheadu.ca)

© The Author(s) 2023. Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>. The Creative Commons Public Domain Dedication waiver (<http://creativecommons.org/publicdomain/zero/1.0/>) applies to the data made available in this article, unless otherwise stated in a credit line to the data.

## INTRODUCTION

Anthropogenic climate change is a wicked problem (Levin et al., 2012) resulting in complex and compounding health impacts across multiple scales and timelines (Cianconi et al., 2020; Romanello et al., 2021). Building on the mounting evidence of the physical health impacts of climate change, scholarship has paid increasing attention to the mental and emotional health dimensions of the climate crisis over the past decade. One domain of ongoing research and discussion is working to create and advance conceptual understandings of climate emotions. Climate emotions refers to affective phenomena, including feelings, emotions, and moods related to climate change and climate injustice (Galway & Field, 2023; Pihkala, 2022). Within climate emotions research, ecoanxiety is one concept that has garnered increasing attention. While multiple terms and definitions for ecoanxiety appear in the literature, ecoanxiety is understood here as a complex emotional experience characterized by challenging, future-oriented, and interconnected emotions including worry, fear, sadness, and powerlessness related to climate change and intersecting environmental crises (Baudon & Jachens, 2021; Clayton, 2020; Pihkala, 2020).

Despite contributing little to rising greenhouse gas emissions, young people are disproportionately impacted by the climate crisis and are at heightened risk of experiencing mental and emotional impacts (Burke et al., 2018; Coffey et al., 2021; Watts et al., 2019). Globally, young people are reporting high levels of distressing climate-related emotions, including worry, sadness, and fear, as well as functional impairments in response to climate change (Hickman et al., 2021; Léger-Goodes et al., 2022; Reyes et al., 2021; Sciberras & Fernando, 2022). Feelings of care, empathy, and compassion may be closely entwined with ecoanxiety (Ágoston et al., 2022; Hickman, 2020; Ogunbode et al., 2021) and may be at the root of other climate emotions, including climate anger, grief, guilt, and worry (Léger-Goodes et al., 2022; Pihkala, 2022). A recent survey of Canadian youth (aged 16-25) found that 80% of participants reported that climate change impacted their overall mental health, 48% reported feeling 'very' or 'extremely' worried, and nearly 40% reported at least moderate impacts on their daily life (Galway & Field, 2023). These findings echo the global survey conducted by Hickman et al. (2021) which found that 60% of respondents (aged 16-25) across 10 countries were 'very' or 'extremely' worried about climate change and 45% of respondents experienced disruption to their daily lives and functioning because of climate emotions. These studies also highlight that challenging climate emotions and distress are associated with perceptions of government inaction in relation to the climate crisis (Galway & Field, 2023; Hickman et al., 2021).

While many factors coalesce to shape climate action, there is growing evidence that some climate emotions, including anger (Curnow et al., 2020; Stanley et al., 2021), worry (Galway et al., 2021), ecoanxiety (Clayton, 2020; Cunsolo et al., 2020; Stanley et al., 2021), and hope (Budziszewska & Głød, 2021; Cattell, 2021; Nairn, 2019) may help to generate climate action. Across the globe, young people are frequently positioned at the forefront of climate action and have been leading a strong climate movement unique in its global and local reach and engagement (Kleres & Wettergren, 2017; Wahlström et al., 2019). In the province of Ontario, the Fridays for Future movement has recorded more than 700 youth-led climate strikes (Fridays for Future, 2022) and seven young activists launched a lawsuit against the provincial government in 2019 (Feasby et al., 2020). Between 2021-2022, four Ontario universities committed to partial or full fossil-fuel divestment because of student-led campaigns (Divest Canada Coalition, n.d.). In addition to 'traditional activism', including political activism, young people across the province are also engaging in individual climate actions including moving toward plant-based diets and focusing on ethical consumer choices (Firinci Orman, 2022). Understanding the intersections of climate

emotions and climate action is critical if we are to address the climate action gap and limit global temperature rise to 1.5°C above pre-industrial levels (Galway et al., 2021).

This study explored the emotions, supports, and experiences that are generative and supportive of climate action for youth climate champions across Northern Ontario using semi-structured interviews and letter writing. Specifically, this research aimed to: (1) describe how youth climate champions in Northern Ontario are experiencing the mental, emotional, and spiritual dimensions of climate change, (2) explore the emotions, supports, and experiences that motivate participants to engage in climate action, and (3) identify opportunities to support ongoing youth engagement in climate action. Drawing on our findings and existing research, we suggest two opportunities to support the mental and emotional wellbeing of young people within health and education spaces.

While research focused on the mental and emotional dimensions of climate change experienced by young people is rapidly expanding (Galway & Field, 2023; Hickman et al., 2021; Léger-Goodes et al., 2022), qualitative research exploring the lived experiences of climate emotions among youth across diverse places is urgently needed (Galway & Field, 2023; Ojala et al., 2021). This study helps to address this need by providing in-depth understanding into the lived experiences of young people in a rural and remote context while also providing preliminary insight into the types of supports young people desire in the face of climate emotions and action. This research also contributes to the gap of knowledge and understanding at the intersections of climate action and climate emotions.

## METHODS

Considering that youth climate action is a socially situated experience and that social norms influence emotions, this research is grounded in a social constructivist epistemology (Budziszewska & Głód, 2021; Weber, 2012). The authors recognize that researcher positionality shapes the ways in which research is carried out and data are understood and interpreted and thus posit to make their positions explicit. AK is a recent graduate of the Master of Health Sciences program at Lakehead University. As a mother and climate justice activist, AK navigates her work as an able-bodied, cis-gendered woman of mixed German Mennonite and Métis ancestry. LPG is a mother of three young children who engages in this research from the position of an able-bodied, heterosexual, racially white, settler female living in Thunder Bay (Ontario) and working as a professor in the Department of Health Sciences at Lakehead University. As an interdisciplinary scholar, educator, and activist, LPG focuses her research on the interconnections among land, water, health, and climate change with a strong orientation to place-based and place-responsive work and diverse ways of knowing and learning.

### Research Setting

This research took place in Northern Ontario, Canada, a region characterized by low population density, an economy rooted in resource extraction, rural and remote communities and regional centers, and expansive wilderness. Northern Ontario faces unique economic and political challenges that result in heightened vulnerability to climate impacts and unique challenges to implementing and sustaining climate action. Between 1948-2016, the annual mean temperature in the province of Ontario has increased by 1.3°C and additional warming between 1.5°C to 2.3°C by 2050 is projected; warming is more advanced in the Northern region of the province (Bush & Lemmen, 2019). In 2018, the newly elected centre-right conservative political party canceled the provincial cap-and-trade program and, in 2023, the province remains off-track to reach its weak 2030 emissions reduction target (Environmental Defence, 2022).

Pre-pandemic, mental health trends among youth in Canada showed an increase in the prevalence of self-reported poor and fair mental health status and diagnosed mood and anxiety disorders (Wiens et al., 2020). Through the pandemic, young people across Canada reported deterioration in their mental health status (Cost et al., 2021). As stressors from concurrent crises continue to compound, symptoms of poor mental health are likely to be exacerbated for young people (Lawrence et al., 2022) and the demand on previously stretched mental health care services will continue to increase (Wiens et al., 2020). The provision of mental health care services is limited in Northwestern Ontario and children and youth in this region access significantly less mental health care services than in other areas of the province (MHASEF Research Team, 2017).

**Data Collection and Analysis**

Youth climate champions were recruited using a purposive sampling strategy through the distribution of flyers at local climate events, contacting local and regional climate action groups through their social media pages and emails, and via previously established contacts throughout the region. One participant was recruited via snowball sampling. To participate in the study, respondents were required to meet three inclusion criteria: (1) living in Northern Ontario, (2) 15-24 years of age, and (3) self-identify as being ‘involved in climate action’, which was defined as ‘dedicated to idea and knowledge sharing, relationship building, and innovative action in response to climate change’ (Gislason et al., 2021; Philip, 2014). A total of 12 participants from six communities across Northern Ontario took part in the study. Through ongoing conversations, the co-authors agreed that the rich data elicited by these 12 participants yielded sufficient data to answer the research questions (and saturation). Participant profiles, including self-reported demographic information and a narrative description outlining involvement in climate action (constructed by the lead author drawing on interview data), are presented in **Table 1**. Pseudonyms were selected by participants except when the participant requested that the lead author assign a pseudonym.

**Table 1.** Participant Profiles

Pseudonym	Race	Age	Gender	Size of Community	Narrative Description
Evelyn	White	20	Woman	> 75,000	Evelyn has completed her first year of undergraduate studies and has been in a leadership role in the school’s sustainability committee for the past year.
Catherine	White / South Asian	19	Woman	< 75,000	Catherine has completed her first year of undergraduate studies and was previously engaged in her high school eco-club. She hopes to be more involved in collective climate action again in the future. She is not aware of any environmental club or group at her university.
James	White	22	Man	>75,000	James pursued climate-related research during his undergraduate degree, which he has recently completed. He has engaged in diverse forms of collective climate action for several years.
Elizabeth	White	21	Woman	< 75,000	Elizabeth has completed her second year of undergraduate studies. She is passionate about living a ‘green’ lifestyle, works to engage others in everyday environmentalism, and struggles to create and/or find more organized climate action in her community.

Pseudonym	Race	Age	Gender	Size of Community	Narrative Description
Reese	White / Métis	20	Woman	>75,000	Reese has completed her first year of undergraduate studies and is dedicated to recycling and litter clean-up. She is unaware of any collective climate action in her community.
Omar	Latinx	24	Man	>75,000	Omar is pursuing graduate research related to climate solutions. He has volunteered for an environmental organization for the past five years and supported tree planting in the land surrounding his home community.
Leanne	First Nations	18	Woman	>75,000	In her last year of high school, Leanne has recently begun to learn about and speak publicly about climate change. She is interested in addressing the climate crisis through art and is contemplating changing career paths to focus more on environmental issues and Indigenous culture.
Sophia	First Nations / White	19	Woman	>75,000	Sophia has been actively involved in collective climate action, including traditional activism, for several years. She is pursuing an undergraduate degree in environmental science and is dedicated to a career and life path in response to climate change. She credits her Anishinaabe culture for influencing her understanding of the environment and climate change.
Rachel	White	15	Woman	<10,000	When she was in grade 8, Rachel worked with a friend to organize a school climate strike in her community. Now in grade 10, she wishes there was an organized climate or environmental group in her school or community that she could join to support her in continuing to take collective climate action.
Chelsea	White	16	Woman	< 20,000	Chelsea, influenced by her mother who works in climate advocacy, has participated in collective climate action from a young age. Despite her busy high school schedule, she would continue to engage in collective action if there were an organized climate action group in her community.
Kristen	White	16	Woman	< 20,000	Through her high school, Kristen has been part of an eco-club and other environmental and climate-focused activities. She appreciates climate education and meeting others involved in climate action.
Arwen	First Nations	23	Woman	<10,000	A recent college graduate, Arwen lives and works in a First Nations community that is actively pursuing climate solutions. Through her work, Arwen is engaged in a variety of environmental and climate-related projects.

All 12 participants participated in a one-on-one semi-structured interview and submitted a written letter between April and June 2022. Interviews were used because they are methodologically congruent with social constructivism and appropriate for addressing the research objectives. To ensure

consistency, all interviews were conducted by the lead author. Interviews were conducted and recorded (with permission) using Zoom video conferencing and lasted 40-90 minutes. An interview guide was developed collaboratively by the authors and piloted by the lead author on two occasions to improve clarity. The interview guide consisted of five sections: (1) introductory and contextual questions to build rapport and understand the community and context in which the participant lives, (2) the participants' perspectives and direct experiences of climate change, (3) how the participant experiences and responds to the mental, emotional, and spiritual dimensions of climate change, (4) the role of climate action in shaping their mental, emotional, and spiritual dimensions of climate change, and (5) basic socio-demographic questions. The semi-structured approach allowed for a guided conversation while creating space for flexibility and the emergence of unexpected ideas.

Asynchronous letter writing was used to complement the interview process because of the sensitive nature of climate emotions and because the researchers have an interest in creative and innovative methods for collecting qualitative data. Increasingly valued by social scientists, letter writing has been shown to be an effective tool for conducting research related to emotions (Burt, 2021) and is recognized for eliciting honest responses about sensitive topics (McAuliffe, 2003; Pithouse-Morgan et al., 2012). Recent studies suggest that research connected to emotions is well suited to letter writing, with participants noting it is often easier to write about emotions than to speak about them (Burt, 2021). One week following their interview, participants were emailed letter writing instructions asking them to write an email or postal letter responding to the prompt "*Write a letter describing how you are feeling about climate change and your involvement in climate action work.*" The one-week time delay allowed participants the opportunity to reflect more deeply on the interview, process their emotions, and offer a thoughtful response at a time and in a place of their choosing (James, 2016; McAuliffe, 2003). All participants submitted a letter within one month of their interview.

This research project received approval from the Lakehead University Research Ethics Board prior to recruitment or data collection. All participants were informed of the potential risks and benefits of participating and their rights as a research participant. Consent to be recorded was obtained prior to data collection. Given the sensitive nature of climate emotions, participants were provided with information about general psychological supports in the event they experienced distress resulting from the interview or letter writing process. Data storage and management followed processes approved by the Research Ethics Board and in accordance with university policy.

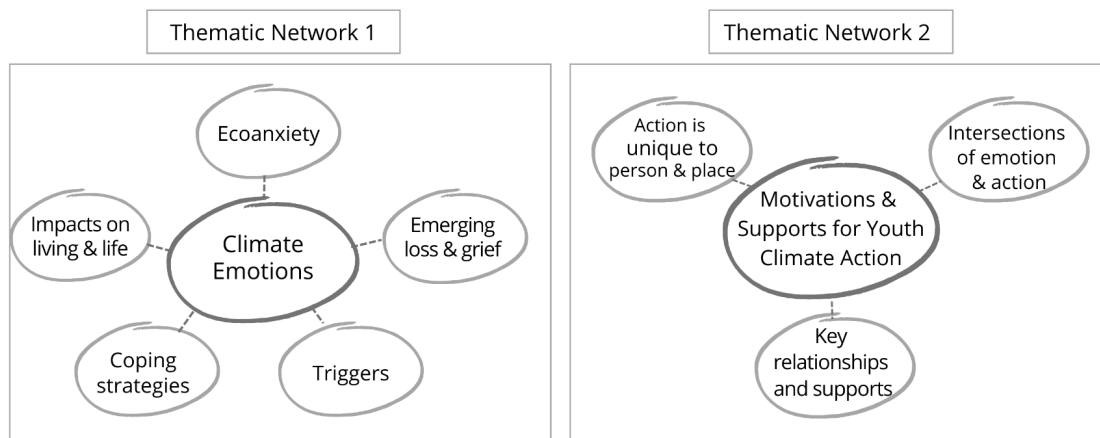
Data analysis was conducted primarily by the lead author with ongoing consultation with the second author. The lead author transcribed the interviews verbatim while removing any identifying information and read the complete transcripts to check for accuracy and increase familiarization with the data. All letters were read, and handwritten letters were transferred to electronic format by the lead author. Participants were provided with the opportunity to review their interview transcripts for accuracy and comfort with the transcriptions. Interview transcripts and letters were then uploaded to NVivo software (QSR International, 2022) to aid in organization and analysis, and all data were analyzed as a single data set. Data analysis was guided by Attride-Stirling's (2001) thematic network analysis process whereby an iterative analysis process is used to identify basic, organizing, and global themes, and a visual representation is created "to facilitate the structure and depiction of these themes." (Attride-Stirling, 2001, p.388). First, inductive coding was used to reduce the data to meaningful segments from which salient themes were identified and refined. Next, *basic themes* were grouped into larger *organizing themes* based on "shared issues" (Attride-Stirling, 2001) and high-level *global themes* were deduced to provide a main organizing structure. Network visuals were created to illustrate the global and organizing themes and are presented in Figure 1. Following the construction of the thematic networks, the primary author undertook an iterative process of exploring and describing the networks

while interpreting patterns that were identified. Ongoing consultation with the second author helped to guide and refine this process while enhancing reliability of the findings.

## RESULTS

This paper explores the mental and emotional dimensions of climate change and the intersections with climate action experienced by youth climate champions in Northern Ontario. The findings are derived from the data collected from 12 youth who participated in both a semi-structured interview and submitted a written letter. Two global themes, *climate emotions* and *motivations and supports for youth climate action*, are presented along with their organizing themes in **Figure 1**. Direct quotes, tables, and visuals are used to illustrate and support findings. Unless indicated as “Letter” all direct quotes are from the interviews.

**Figure 1:** Thematic Networks



### Climate Emotions

All participants reported experiencing and responding to a diversity of interconnected, complex emotions in relation to the climate crisis. Five organizing themes emerged around the global theme of climate emotions including: (1) ecoanxiety, (2) the beginnings of loss and grief, (3) triggers, (4) coping strategies, and (5) impacts on living and life.

### Ecoanxiety

Myriad complex, interconnecting emotions consistent with the existing scholarly understanding of ecoanxiety emerged from the interviews and letters. **Table 2** provides direct quotes illustrating the emotions conveyed by participants most frequently. Participant descriptions revealed that their climate emotions were vast, deeply entangled, often fluid and “constantly shifting” (James), and that they compounded with other stressors including both global (e.g., the COVID-19 pandemic) and personal (e.g., school or friends) issues.

Emotions of powerlessness, fear, anger, and sadness, increasingly understood as core characteristics of ecoanxiety, were commonly expressed. When given the prompt “*When I think about the future, I feel...*” five participants responded with the word “scared”. When probed about their fears, responses included “*the rapid changes*” (Arwen) and “*thinking about what’s to come*” (Kristen). Anger

expressed by participants was always on the macro scale (e.g., not personalized) and was predominantly related to climate injustices. Expressions of care and empathy were also common and were directed toward future generations, the more-than-human world, and those experiencing unequal and inequitable impacts of the climate crisis.

**Table 2.** Emotions Conveyed by Participants (presented in order of the most commonly discussed emotions)

Emotion	Illustrative Quote
Powerlessness	<p><i>"I feel so small. What can I possibly do? I have no political influence. I don't have an absurd amount of money. Does using reusable bags at the grocery store really help?" (Omar, Letter)</i></p> <p><i>"I'm just one person, there's not much I can do. So...most of the time I just have to sit there and watch it happen. No matter what I do, it feels like the big corporations are doing most of the damage...if I change my habits, how much is that going to do?" (Catherine)</i></p>
Fear	<p><i>"To me, climate change is scary, and I get somewhat nervous thinking of all its environmental effects, mainly the severe weather pattern changes and behaviours in our animals over the last couple of years. I often think about how drastic things will change in the future. How will people grow up in these conditions? How can we adapt to a forever changing environment?" (Arwen)</i></p> <p><i>"I think it's fear of, like, not having a future. Not even just for me, though. For people I care about...fear that those that come next won't have good lives. It really scares me." (Sophia)</i></p>
Anger	<p><i>"Anger, because people don't realize the connection they have to mother Earth. And when they look at it, they only think about themselves and not really the future, the bigger picture. Because this is going to affect our children and our grandchildren and other generations in the future." (Leanne)</i></p> <p><i>"It's all of those feelings. Anger, disappointment, frustration. Pretty much anything around the feeling of having the party that is supposed to be, or the government that is supposed to be representing you and refusing to do so despite them knowing that is what their people want, that is what their constituents want." (James)</i></p>
Sadness	<p><i>"I think it kind of comes back to that feeling of sadness, like when we go to places that I've been as a child,...we went on a hike to a trail where we usually went and they had bulldozed a big chunk of it down for a parking lot...there's that bit of sadness of losing something that you're not going to get back now due to progress." (Evelyn)</i></p> <p><i>"I'm really sad. Especially when things are, like, irreversibly damaged." (Rachel)</i></p>



Hopelessness	<p><i>"Seeing other power structures and systematic influences, like the impact they're having on proliferating this fight...I think those, seeing those groups and how they are responding to the situation, or not responding to the situation, have also contributed to some of the pessimism or hopelessness that I have felt around it." (James)</i></p> <p><i>"...there is a sense of hopelessness as a human that lives on Earth and is worried about the safety of other species and people here and about the land itself. And then there is a hopelessness that comes with knowing that what we currently have in Canada isn't working and that it needs to be changed in a very significant way but not a way that I understand." (Sophia)</i></p>
Anxiety	<p><i>"Anxiety is definitely a big one, when you get all the articles about, you know, the fires and the plastic that they're pulling out of the ocean, and oh, this species went extinct and this went extinct and then, oh God, and then I find that there are a lot of countdowns...like this is the deadline, this is the year." (Evelyn)</i></p> <p><i>"I get overwhelmed at times when I see news stories about unusual heatwaves and increased natural disasters. It is a source of anxiety, always waiting in the back of my mind." (Catherine, Letter)</i></p>
Worry	<p><i>"Climate change has made it difficult to think about my future...I struggle to imagine a home safe from the impacts of climate change. I worry what that will look like for the safety of my parents and grandparents, for my sister and my partner, and for the future children of our families. I also worry about environmental job availability in the north, wanting to stay in my home community and not have my life uprooted..." (Sophia)</i></p> <p><i>"With the fires and stuff that happened last year, there was a lot in Northern Ontario. I had quite a few friends who were [firefighting] in MNR, and I was always like, 'I hope you're safe'." (Arwen)</i></p>

Experiences of ecoanxiety were reported to be persistent and looming, and four participants described experiences of rumination whereby they perceived signals about climate change throughout their day. For example, *"Climate anxiety is something that comes back to gnaw at the forefront of my brain during most of my daily excursions"* (Elizabeth, Letter) and *"it looms in the back of my mind"* (Catherine). Other participants suggested they regularly caught themselves contemplating how everyday activities contributed to climate change. Notably, ecoanxiety was predominantly experienced alone and in isolation. As Rachel confessed, *"I'm kind of embarrassed to bring it up with my friends because they don't really care as much and I don't want to be annoying."* However, when asked, *'what kinds of supports, programs, or resources do (or would) help you cope with your feelings around climate change?'* eight participants highlighted the importance of talking with friends and family, peers, and therapists.

### Emerging grief and loss

Although more subtle than expressions of ecoanxiety, participants consistently expressed an emerging sense of grief. Experiences of participants illustrated both tangible and intangible loss and grief. Participants described a tangible type of ecological grief, “the grief felt in relation to experienced or anticipated ecological losses” (Cunsolo & Ellis, 2018, p.275). This grief was expressed through direct and specific statements of witnessed or anticipated loss and suffering of humans and the beyond-human world. For instance, Catherine wrote,

*Dear Earth,  
I'm going to miss you the way you were. I'm going to miss the animals thriving in the natural habitats you provide them with and all the natural beauty you bring to this world.  
I feel as though this beauty will soon be gone.*

Leanne expressed her grief in the following way:

*“A lot of species that we have on Earth are probably going to go extinct. Like, there won't be much biodiversity to maintain our system.”*

Participants also expressed a type of intangible loss and grief typically related to the decrease of existential security (an intergenerational perspective of the survival of humanity) (Sears, 2020), feelings of betrayal by government and big business, or the sense that the world was failing them. These sentiments often appeared as profound questions of an uncertain future, including “*are there still trees...is most of the wildlife extinct?*” (Reese, Letter), “*How will people grow up in these conditions?*” (Arwen, Letter), “*I don't want a life, that, like, just seems not amazing*” (Kristen), and “*don't you care about future generations?*” (Catherine, Letter). Sensing that something is amiss in the world, participants expressed a sense of loss and emerging grief for something largely unnameable, unknown, intangible, and unrecognized by society.

### Triggers

Climate emotions and ecoanxiety experienced by participants were triggered through four main pathways: *collective inaction*, *systems of oppression*, *tangible reminders*, and *climate information and messaging*. Witnessing the collective inaction of governments, big business, and peers led to feelings of disappointment, frustration, anger, and worry in many participants. Rachel explained,

*Sometimes [I feel] kind of angry because they [government] have the power to be doing more. And obviously I know there are limits...but I definitely think they could be doing more. Especially pipelines, too. Pipelines make me really mad.*

James felt frustrated at the inaction of his peers, articulating, “*If I can do it [take action], I feel like they can do it...They know the problems, but I feel like they're not really doing anything about it.*”

Many participants referenced oppressive systems as an emotional trigger. Elizabeth expressed, “*We know how things can get better but the people in charge don't want things to get better because it's not profitable*”. In her letter, Leanne wrote,

*I have no hope for the future of life on Earth...The structure of our society involves white supremacy, racism, cis-heteropatriarchy, post-colonialism, and capitalism, all of which contribute to hierarchy, a power system, and climate change. At this point, it seems inevitable that war is the only answer. Getting people to step down from their roles within power and*

*giving that power to marginalized groups of people is like trying to convince a fish to fly to the moon.*

Half of participants spoke of seeing litter as an activator of climate emotions. Referring to the sight of litter, for instance, Leanne asked, “*why aren’t people caring?*” Other triggering reminders included observing or experiencing extreme events in the region (e.g., wildfires, floods), driving gas powered vehicles, or witnessing over-consumption. Finally, climate information and messaging encountered through active media and/or formal education was also a common emotional trigger discussed by participants. Evelyn spoke of struggling with the disparity between the size of the problem and the size of the solutions she was learning about in school. She explained,

*Anxiety is definitely a big one, when you get all the articles about the fires and the plastic that they’re pulling out of the ocean, and oh, this species went extinct, and this went extinct and then, oh god, and then I find that there are a lot of countdowns...Like this is the deadline, this is the year. So, a lot of anxiety and apprehension when you see things like that.*

### *Coping Strategies*

Four predominant pathways for coping were identified in the data. First, participants activated empowering thoughts and emotions through reframing their perspectives. For example, Arwen was able to positively reframe the climate emergency, writing the following in her letter: “*Although human and non-human suffering could be seen as the end product of climate change, it can also be the starting point for resistance and change.*” The data also illustrate that orienting towards solutions, both by seeking examples of others working to make positive change and by engaging directly in collective climate action themselves, enabled coping with challenging emotions. Witnessing and working toward climate solutions inspired feelings of hope in participants. Relatedly, connecting with community provided emotional support and inspired hope in those participants who engaged in collective climate action. Sophia explained in her letter,

*The feelings of hopelessness, powerlessness, fear, anxiety, and numbness brought on by climate change have been overwhelming at times. But even existing within the realm of those feelings, hope can be found through community and action. Being involved in climate action means being involved in community...It provides support systems for grief and anxiety spawned by climate change. It allows us to envision a future that is so much more than what we have now.*

Finally, eight participants engaged in activities like singing, walking, creating art, or listening to music to distance and/or distract themselves from their experiences of distressing climate emotions. The data also illustrated that participants shifted between coping strategies as their emotions, triggers, and circumstances changed.

### *Impacts on Living and Life*

While participants shared examples of a variety of coping strategies, they also spoke about the ways in which climate emotions impacted their life decisions and daily functioning. All participants reported ways in which their life and/or lifestyle choices had been influenced by climate change and the mental and emotional dimensions of the crisis. Four participants pursued post-secondary education and career paths because of their concern for the climate crisis and six participants reported lifestyle choices including vegetarianism, avoiding air travel, and conscious consumerism, in response to the climate crisis.

Functional impairments related to sleep and concentration were also commonly reported. Five participants reported that their ability to concentrate was occasionally diminished because of their climate emotions. For example, Sophia shared that she struggled to pay attention in school because she was distracted by climate advocacy work, which she felt was more interesting and applicable to real life. Six participants reported that difficult or racing thoughts related to the climate crisis caused occasional difficulties falling asleep. Two participants also reported disturbing dreams and one participant reported experiencing interrupted sleep patterns on a regular basis. Finally, one participant had sought treatment for serious depression related to environmental concerns and another sometimes struggled to get out of bed because of climate worry.

### Motivations and Supports for Youth Climate Action

As a result of self-identification, types of participant engagement in climate action varied from leadership and participation in collective action to engaging solely in individual actions. The following subsections will explore the ways in which the identities of people and places shaped participants' responses to climate change, the junctures at which action and emotion intersected, and key relationships that were identified to support generating and sustaining youth climate action in Northern Ontario.

#### *Action is Unique to Person and Place*

The ways in which participants conceived of and participated in climate action were rooted in their social location, individual identities, and the places in which they live, learn, and play. Five participants also identified that their socioeconomic status, including their ability to attend post-secondary education, influenced their sense of responsibility to actively respond to the climate crisis. Two participants felt they had to speak louder and more passionately about climate change because they were young and female. For example, Arwen felt that her age was perceived to make her “just sort of hyper” and her gender identity was perceived by others to mean she “might be overreacting.” Two participants felt that their Indigenous culture played a significant role in shaping their understanding of climate change and their responsibility to act. Sophia suggested,

*It goes back to the roots of spirituality for me...I have obligations to the land and I have obligations to the people here and I have a responsibility to protect that and take care of that...It's inseparable for me from trying to protect Indigenous creed and culture. To me, if the land is lost everything is lost.*

Participants' responses to climate change were also shaped by the places they live. Most participants living in communities with a population size less than 75,000 reported feeling “disconnected from the action” (Rachel). Chelsea expressed this as follows:

*I live in such a small town. It would be nice to have something that actually made me feel like I was doing something. Like some kind of group that actually made me feel like I was making a difference...But it is a small town and there is not a lot of stuff like that here.*

#### *Intersections of Climate Action and Emotions*

Participants' emotional experiences intersected with climate action in two main ways. First, feelings of care, empathy, and reverence for nature were identified as motivations for engaging in and/or intentions to engage in climate action. Human-centered expressions of care and empathy were often on a macro scale, including empathy for “the people who live in other places” (Chelsea) and “future

*generations*” (Catherine). Many participants spoke of a close relationship with the natural world, often describing their cherished places, favorite nature-related activities (e.g., hiking, gardening), and a sense of wonder for ecological cycles. References to water and trees/forest were common. For example, Rachel shared that she had initiated a climate strike in her community because, *“I really care about the environment and animals and especially when things are unfair...It makes me passionate about it.”* When probed about her motivations to act, Evelyn replied, *“Being in nature. Appreciating the nature we do have. I think the trees are so pretty...seeing them, it’s like a motivation to be, like, ‘let’s keep our earth this way.’”*

Second, those participants who were actively engaged in collective climate action reported that their experiences of powerlessness and hopelessness decreased as they engaged in climate action, particularly as their sense of community increased. James explained,

*...before I joined these groups, I was more upset about these things...feeling that I was the only one worried about it, and that I, as an individual, didn’t have much power over what happened. But since joining those groups, I feel like having that sense of community around the problem has really made me feel better about it.*

Those participants who rarely or never engaged in collective climate action did not elucidate a shift or transformation of powerlessness and hopelessness.

### *Key Relationships and Supports for Youth Climate Action*

Participants identified four types of support that were or would be helpful for generating and sustaining youth climate action in Northern Ontario. First, adult allies, primarily educators and mothers, were key to inviting young people into action, providing support, and acting as role models. Kristen spoke of her mother, *“I can see her trying to make that change, and I see change happen. So then I know that it’s possible.”* Second, existing environmental clubs or groups, often in schools, provided an entryway for participants to join and build confidence and skills related to climate action. Five participants wished for a club or organized group in their school or community, reporting that they would be involved if they knew how to connect. Third, friends, family, and peer communities both within and beyond climate movement spaces were found to be important supports for youth engaging in climate action. James explained,

*...if I’m feeling busy or disenfranchised, just actively being a member of those groups and getting communications from them and seeing their planning and stuff can help me get back into it if I’m not necessarily feeling it all the time.*

Sophia also shared,

*I think community sustains. Also, family, friends, people close to me. Not necessarily ones that are really devout environmentalists or anything, just being around people that you love and that love you is very nurturing and can bring some much-needed rest.*

Finally, two participants suggested that connecting with land and nature was foundational to inspiring others to engage in climate action.

### Limitations

This research is not without its limitations. Although we connected with a diverse population of youth climate champions across the region, this study is limited by its small sample size and the findings cannot be generalized. The majority of participants identified as women and the voices of other genders were lacking. In future research, a gender-based analysis would be useful to understand both the experiences of climate emotions and the specific needs and strategies to support young people of diverse genders. While this study contributes unique methods of combining interviews and letter writing in climate emotions research, additional research is needed to better understand this approach. Analyzing the interview data separate from the letter writing data would provide greater insight into the value of letter writing and the utility of this combined approach. Finally, it is important to note that the lived experiences of youth captured in this study have been collected, analyzed, interpreted, and re-storied by two adult researchers.

## DISCUSSION

The overall purpose of this research was to explore the emotions, supports, and experiences that are generative and supportive of climate action for youth climate champions in Northern Ontario. Our findings elucidate that youth across the region are grappling with challenging, inter-connected climate emotions that are often experienced alone and in isolation. Participants articulated the importance of relationships and community, including peers, friends, family, therapists, allied adults, and environmental groups for support to cope with climate emotions and/or for generating and sustaining engagement with climate action. Engagement in collective climate action was identified as a pathway for building a sense of community and increasing feelings of agency and hope in youth people. This study adds to the rapidly growing field of climate emotions research by providing a qualitative exploration into the lived experiences of youth climate champions in rural, remote, and mid-sized communities. The results of this study are not intended to be generalizable across broader populations (Carminati, 2018), though the findings and insights may prove relevant to similar populations in rural and remote regions.

Youth climate champions across Northern Ontario are experiencing a “constellation” (Galway & Beery, 2022) of complex climate emotions, including *ecoanxiety* and *loss and grief*. Conceptualizing climate emotions as a ‘constellation’ highlights the entanglement of diverse emotions, shifts away from characterizing emotions through a positive/negative dichotomy, and recognizes the appropriateness and generative potential of challenging emotions in the face of the climate crisis (Galway & Beery, 2022). Prominent emotions expressed by participants include powerlessness, fear, anger, sadness, hopelessness, anxiety, and worry. Over half of participants reported at least occasional impairments to their daily functioning, including occasional difficulties concentrating and/or falling asleep. In addition, Sophia reported struggling to get out of bed because of climate emotions and Omar told of suffering from climate related existential depression. These findings align with larger quantitative studies illustrating that climate emotions and ecoanxiety increase the burden of mental and emotional health on young people and can be problematic for some. A recent survey found that 78% of young people across Canada reported climate-related mental health impacts and that 37% of young Canadians reported at least moderate negative impacts on their daily functioning (Galway & Field, 2023). Globally, more than 45% of young people reported that climate emotions caused disruption to their daily lives (Hickman et al., 2021) and a significant positive correlation between challenging climate emotions and insomnia has been found in 18 out of 25 countries (Ogunbode et al., 2021). While the American

Psychological Association outlines that strong climate emotions and ecoanxiety do not imply mental illness (Clayton et al., 2017), our findings suggest that climate emotions can be problematic for some young people and we posit that these emotions are both an appropriate response to the crisis *and* that they warrant serious consideration to protect the overall health of young people (Clayton et al., 2017; Cunsolo et al., 2020; Galway & Field, 2023).

The findings of this study indicate that young climate champions across Northern Ontario are feeling isolated and alone in their emotional experiences related to climate change and that they rarely share their climate emotions with others. These participants are not alone. In 2023, more than one third of young people across Canada reported that they do not talk about climate change with other people (Galway & Field, 2023). This silence may be attributable to the fact that young people often feel dismissed, patronized, or ignored when they try to talk with others about climate change and their experiences with climate change (Galway & Field, 2023; Hickman, 2020; Hickman et al., 2021). Participants in this study identified talking with others, including friends, family, and therapists as an important coping strategy that they desired but were often unable to access. These findings emphasize a need for accessible, safe, and supportive spaces where youth can share, feel heard, and explore their experiences of and responses to the climate crisis (Galway & Field, 2023; Hickman, 2020). Given that many adults are seeking guidance and resources about how to communicate with young people about climate change and climate emotions, we suggest policy and funding support to increase education and training opportunities for mental health professionals, educators, and allied adults about climate change generally and climate emotions specifically (Gislason et al., 2021). Additionally, safe spaces for collective dialogue on climate emotions should acknowledge and respect the unique intersectional identities of young people and should be developed and implemented through meaningful collaboration with the populations they intend to serve (Galway & Field, 2023; Gislason et al., 2021; Hickman et al., 2021). To better understand the role and influence of accessible safe spaces for climate dialogue, further research is needed to identify and evaluate existing practices and programs and work to build knowledge and evidence regarding best practices moving forward.

Participants reported that engaging in collective climate action helped them to build a sense of community and orient towards solutions, which in turn helped them to activate empowering thoughts and emotions. As a result of engaging in collective action, participants reported decreased feelings of powerlessness and hopelessness while a sense of agency and hope increased. While these findings must be considered in light of the cross-sectional nature of this study which relied heavily on participant recall, other scholars have also reported similar potential for movement spaces to create opportunities for emotion management and coping, including the transformation of anger and the generation of increased agency and power (Curnow et al., 2020; Haugestad et al., 2021), Laughter and fun have also been noted within youth climate activism spaces (Bowman, 2019; Curnow et al., 2020). Taken together, these findings suggest that opportunities to engage in collective climate action may be an important pathway to supporting the mental and emotional wellbeing of young people in the face of the climate crisis. However, any emphasis on climate action must be conscientious of the potential for psychological strain and burnout among young people who are balancing the demands of school, life, and other commitments alongside climate action (Budziszewska & Głød, 2021; Nairn, 2019; Sanson & Bellemo, 2021).

Furthermore, research participants living in small and mid-sized communities (i.e., communities of less than 75,000 residents) reported fewer opportunities to engage in collective climate action and did not report an increase in agency and hope associated with engaging in climate action. While this finding is based on a small sample, it suggests that additional research is needed to better understand the opportunities for, and outcomes of, climate action in a diversity of urban and rural spaces.

Regardless of community size, participants indicated the importance of creating and supporting pathways to collective climate action in rural and remote regions. Drawing on these findings and emerging literature, we argue that education systems across rural and remote regions are strategically positioned to create pathways to climate action through holistic climate change education that engages the head, heart, hands, and spirits of students (Galway & Field, 2023). In addition to teaching the cognitive dimensions of climate change (e.g., climate science), scholars of climate change education are increasingly recommending practices that engage the affective and behavioral dimensions of learning through critical reflection, dialogue, and opportunities for collaborative community action (Trott, 2022). Young people across Canada are also asking for increased inclusion of, and emphasis on, social and emotional dimensions within climate education, including the provision of emotional supports and opportunities for engaging in collective climate action (Galway & Field, 2023). Wholistic climate change education in which young people find safe spaces to recognize, share, and process their emotions *and* engage in meaningful, collaborative community-based action is critical to supporting the overall health of young people (Trott, 2022) *especially* in small and rural communities.

Drawing on our experiences conducting this research, our findings, and existing research, we recommend three key pathways for future research. Overall, longitudinal research with young people on the lived experiences of climate emotions, coping strategies, and the influence of collective climate action is needed to better understand the complex and dynamic nature of climate emotions experienced over time and the potential of collective and community-based action as a strategy to support the mental and emotional wellbeing of young people in the face of climate change and climate injustice. To better understand the role and influence of accessible safe spaces for climate dialogue, further research is needed to identify and evaluate existing practices and work to build knowledge and evidence regarding best practices. Finally, innovative methodologies and methods are needed in climate emotions research. Research conducted *with* youth, in ways that acknowledge young people as experts on their own experiences, is important to uncovering unseen and unheard perspectives of climate emotions and climate action. Participatory action research and asynchronous methods could be explored as strategies to build trust and create opportunities in which young people feel safe to explore vulnerable emotions, feel listened to, and feel heard.

## CONCLUSION

The participants of this study have shared intimate stories of the ways in which they are seeing and experiencing our rapidly changing world and how many are striving to see and act from a more expansive perspective. Young climate champions across Northern Ontario are poised to create new ways of living and being in this world, and the findings of this research suggest that intergenerational allyship and action is an important path forward if we are, in fact, to move more toward creativity and connection. Moving in this direction, however, requires the courage to engage with the “heart, gut and spirit stuff” (Hancock, 2019). While we must continue to push for immediate climate mitigation and adaptation actions and longer-term systemic change, we must simultaneously begin to collectively and courageously engage with our anxieties, our grief, our fear, our care, our empathy, and our hope.



## DECLARATIONS

### ACKNOWLEDGEMENTS

The authors would like to thank the youth climate champions that participated in this research and to Northern Ontario – a unique, beautiful, and inspiring place. We also acknowledge Helle Møeller and Thomas Beery for their thoughtful contributions to this work.

### FUNDING

This work has been supported by the Ontario Graduate Scholarship program, the Social Sciences and Humanities Research Council, and the Canada Research Chair Program.

### AVAILABILITY OF DATA AND MATERIALS

Please contact the authors for information about access to data and materials.

### ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This research received approval from the Lakehead University Research Ethics Board prior to recruitment or data collection. All participants were informed of the potential risks and benefits of participating and their rights as a research participant. Consent was obtained prior to recruitment or data collection.

### CONSENT FOR PUBLICATION

Not applicable.

### COMPETING INTERESTS

The Authors declare they have no competing interests.

### PUBLICATION DATES

**Received:** 24 May 2023

**Accepted:** 05 September 2023

**Published:** 01 October 2023

## REFERENCES

- Ágoston, C., Csaba, B., Nagy, B., Kóváry, Dúll, A., Rác, J., & Demetrovics. (2022). Identifying types of eco-anxiety, eco-guilt, eco-grief, and eco-coping in a climate-sensitive population: A qualitative study. *International Journal of Environmental Research and Public Health*, 19, 2462. <https://doi.org/10.3390/ijerph1904261>
- Attride-Stirling, J. (2001). Thematic networks: An analytic tool for qualitative research. *Qualitative Research*, 1(3), 385-405.
- Baudon, P., & Jachens, L. (2021). A scoping review of interventions for the treatment of eco-Anxiety. *International Journal of Environmental Research and Public Health*, 18(18), 9636.
- Bowman, B. (2019). Imagining future worlds alongside young climate activists: A new framework for research. *Fennia - International Journal of Geography*, 197(2), 295–305. <https://doi.org/10.11143/fennia.85151>
- Budziszewska, M., & Głód, Z. (2021). “These are the very small things that lead us to that goal”: Youth climate strike organizers talk about activism empowering and taxing experiences. *Sustainability*, 13(19), 11119. <https://doi.org/10.3390/su131911119>
- Burke, S. E. L., Sanson, A. V., & Van Hoorn, J. (2018). The psychological effects of climate change on children. *Current Psychiatry Reports*, 20(5), 35. <https://doi.org/10.1007/s11920-018-0896-9>
- Burt, E. (2021). When access is denied: Conducting an interview through letter writing. *Qualitative Research*, 21(6), 813-828. <https://doi.org/10.1177/1468794120936123>
- Bush, E., & Lemmen, D. S. (Eds.) (2019). *Canada's changing climate report*. Ottawa, Canada: Government of Canada.
- Carminati, L. (2018). Generalizability in qualitative research: A tale of two traditions. *Qualitative Health Research*, 18(13), 2094-2101.
- Cattell, J. (2021). “Change is coming”: Imagined futures, optimism and pessimism among youth climate protesters. *Canadian Journal of Family and Youth*, 13(1), 1-17.
- Cianconi, P., Betrò, S., & Janiri, L. (2020). The impact of climate change on mental health: A Systematic Descriptive Review. *Frontiers in Psychiatry*, 11, 74. <https://doi.org/10.3389/fpsy.2020.00074>
- Clayton, S. (2020). Climate anxiety: Psychological responses to climate change. *Journal of Anxiety*

- Disorders, 74, 102263.  
<https://doi.org/10.1016/j.janxdis.2020.102263>
- Clayton, S., Manning, C. M., Krygsman, K., & Speiser, M. (2017). *Mental health and our changing climate: Impacts, implications, and guidance*. Washington, D.C.: American Psychological Association.
- Coffey, Y., Bhullar, N., Durkin, J., Islam, M. S., & Usher, K. (2021). Understanding eco-anxiety: A systematic scoping review of current literature and identified knowledge gaps. *The Journal of Climate Change and Health*, 3, 100047.  
<https://doi.org/10.1016/j.joclim.2021.100047>
- Cost, K. T., Crosbie, J., Anagnostou, E., Birken, C. S., Charach, A., Monga, S., Kelley, E., Nicolson, R., Maguire, J. L., Burton, C. L., Schachar, R. J., Arnold, P. D., & Korczak, D. J. (2022). Mostly worse, occasionally better: Impact of COVID-19 pandemic on the mental health of Canadian children and adolescents. *European Child & Adolescent Psychiatry*, 31(4), 671–684.
- Cunsolo, A., & Ellis, N. R. (2018). Ecological grief as a mental health response to climate change-related loss. *Nature Climate Change*, 8(4), 275–281.
- Cunsolo, A., Harper, S. L., Minor, K., Hayes, K., Williams, K. G., & Howard, C. (2020). Ecological grief and anxiety: The start of a healthy response to climate change? *The Lancet. Planetary Health*, 4(7), e261–e263.
- Curnow, J., Fernandes, T., Dunphy, S., & Asher, L. (2020). Pedagogies of snark: Learning through righteous, riotous rage in the youth climate movement. *Gender and Education*, 0(0), 1–17.
- Divest Canada Coalition. (No date). *Divestment Successes at Canadian Universities*.  
<https://www.divestcanada.ca/successes/>
- Environmental Defence. (2022). *Hot hot air...and other gasses: A review of the past four years of Ontario's climate change (in)action*.  
<https://environmentaldefence.ca/wp-content/uploads/2022/05/Environmental-Defence-Report-Ontario-Climate-Change-2018-to-2022.pdf>
- Feasby, C., deVlieger, D., & Huys, M. (2020). Climate change and the right to a healthy environment in the Canadian constitution. *Alberta Law Review*, 58(2), 213.
- Firinci Orman, T. (2022). Youth's everyday environmental citizenship: An analytical framework for studying interpretive agency. *Childhood*, 29(4), 495-511.
- Fridays for Future. (2022). *Strike statistics*.  
<https://fridaysforfuture.org/what-we-do/strike-statistics/>
- Galway, L.P., & Beery, T. (2022). Exploring climate emotions in Canada's provincial north. *Frontiers in Psychology*, 13, 920313.  
<https://doi.org/10.3389/fpsyg.2022.920313>
- Galway, L.P., & Field, E. (2023). Climate emotions and anxiety among young people in Canada: A national survey and call to action. *The Journal of Climate Change and Health*, 9,100204.  
<https://doi.org/10.1016/j.joclim.2023.100204>
- Galway, L. P., Beery, T., Buse, C., & Gislason, M. K. (2021). What drives climate action in Canada's Provincial North? Exploring the role of connectedness to nature, climate worry, and talking with friends and family. *Climate*, 9(10), 146. <https://doi.org/10.3390/cli9100146>
- Gislason, M.K., Kennedy, A.M., & Witham, S.M. (2021). The interplay between social and ecological determinants of mental health for children and youth in the climate crisis. *International Journal and Environmental Research and Public Health*, 18, 4573.
- Hancock, T. (2019). Beyond science and technology: Creating planetary health not just 'head stuff', but social engagement and 'heart, gut and spirit' stuff. *Challenges*, 10(31), 1-28.
- Haugestad, C. A. P., Skauge, A. D., Kunst, J. R., & Power, S. A. (2021). Why do youth participate in climate activism? A mixed-methods investigation of the #FridaysForFuture climate protests. *Journal of Environmental Psychology*, 76, 101647.
- Hickman, C. (2020). We need to (find a way to) talk about ... eco-anxiety. *Journal of Social Work Practice*, 34(4), 411–424.  
<https://doi.org/10.1080/02650533.2020.1844166>

- Hickman, C., Marks, E., Pihkala, P., Clayton, S., Lewandowski, R. E., Mayall, E. E., Wray, B., Mellor, C., & van Susteren, L. (2021). Climate anxiety in children and young people and their beliefs about government responses to climate change: A global survey. *The Lancet Planetary Health*, 5(12), e863–e873.
- James, N. (2016). Using email interviews in qualitative educational research: Creating space to think and time to talk. *International Journal of Qualitative Studies in Education*, 29(2), 150–163.
- Kleres, J., & Wettergren, A. (2017). Fear, hope, anger, and guilt in climate activism. *Social Movement Studies*, 16(5), 507–519.
- Lawrence, E.L., Jennings, N., Kioupi, V., Thompson, R., Diffey, J., Vercammen, A. (2022). Psychological responses, mental health, and sense of agency for the dual challenges of climate change and the COVID-19 pandemic in young people in the UK: An online survey study. *Lancet Planetary Health*, 6, 726–738.
- Léger-Goodes, T., Malboeuf-Hurtubise, C., Mastine, T., Gagnéux, M., Paradis, P., & Camden, C. (2022). *Frontiers in Psychology*, 13, 872544.
- Leiserowitz, A., Maibach, E., Rosenthal, S., Kotcher, J., Carman, J., Neyens, L., Marlong, J., Lacroix, K., & Goldberg, M. (2021). Climate change in the American mind. Yale Program on Climate Change Communication. <https://climatecommunication.yale.edu/wp-content/uploads/2021/11/climate-change-american-mind-september-2021.pdf>
- Levin, K., Cashore, B., Bernstein, S., & Auld, G. (2012). Overcoming the tragedy of super wicked problems: Constraining our future selves to ameliorate global climate change. *Policy Sciences*, 45(2), 123–152. <https://doi.org/10.1007/s11077-012-9151-0>
- McAuliffe, D. (2003). Challenging methodological traditions: Research by Email. *The Qualitative Report*, 8(1), 57–69. [https://go-gale-com.ezproxy.lakeheadu.ca/ps/i.do?&id=GALE|A172525607&v=2.1&u=ocul\\_lakehead&it=r&p=AONE&sw=w](https://go-gale-com.ezproxy.lakeheadu.ca/ps/i.do?&id=GALE|A172525607&v=2.1&u=ocul_lakehead&it=r&p=AONE&sw=w)
- MHASEF Research Team. (2017). The mental health of children and youth in Ontario: 2017 scorecard. Toronto, ON: Institute for Clinical Evaluative Sciences.
- Nairn, K. (2019). Learning from young people engaged in climate activism: The potential of collectivizing despair and hope. *YOUNG*, 27(5), 435–450. <https://doi.org/10.1177/1103308818817603>
- Ogunbode, C. A., Pallesen, S., Böhm, G., Doran, R., Bhullar, N., Aquino, S., Marot, T., Schermer, J. A., Wlodarczyk, A., Lu, S., Jiang, F., Salmela-Aro, K., Hanss, D., Maran, D. A., Ardi, R., Chegeni, R., Tahir, H., Ghanbarian, E., Park, J., ... Lomas, M. J. (2021). Negative emotions about climate change are related to insomnia symptoms and mental health: Cross-sectional evidence from 25 countries. *Current Psychology*. <https://doi.org/10.1007/s12144-021-01385-4>
- Ojala, M., Cunsolo, Al., Ogunbode, C.A., & Middleton, J. (2021). Anxiety, worry, and grief in a time of environmental and climate crisis: A narrative review. *Annual Review of Environment and Resources*, 46, 35–58.
- Pihkala, P. (2020). Anxiety and the ecological crisis: An analysis of eco-anxiety and climate anxiety. *Sustainability*, 12(19), 7836. <https://doi.org/10.3390/su12197836>
- Pihkala, P. (2022). Toward a taxonomy of climate emotions. *Frontiers in climate*, 3. <https://doi.org/10.3389/fclim.2021.738154>
- Pithouse-Morgan, K., Khau, M., Masinga, L., & Van de Ruit, C. (2012). Letters to those who dare feel: Using reflective letter-writing to explore the emotionality of research. *International Journal of Qualitative Methods*, 11(1), 40–56. <https://doi.org/10.1177/160940691201100104>
- QSR International. (2022, October 14). NVivo. <https://www.qsrinternational.com/nvivo-qualitative-data-analysis-software/home>
- Reyes, M. E. S., Carmen, B. P. B., Luminarias, M. E. P., Mangulabnan, S. A. N. B., & Ogunbode, C. A. (2021). An investigation into the relationship between climate change anxiety and mental

- health among Gen Z Filipinos. *Current Psychology*.
- Romanello, M., McGushin, A., Di Napoli, C., Drummond, P., Hughes, N., Jamart, L., Kennard, H., Lampard, P., Solano Rodriguez, B., Arnell, N., Ayeb-Karlsson, S., Belesova, K., Cai, W., Campbell-Lendrum, D., Capstick, S., Chambers, J., Chu, L., Ciampi, L., Dalin, C., ... Hamilton, I. (2021). The 2021 report of the Lancet Countdown on health and climate change: Code red for a healthy future. *The Lancet*, 398(10311), 1619–1662.
- Sanson, A., & Bellemo, M. (2021). Children and youth in the climate crisis. *BJPsych Bulletin*, 45(4), 205–209.
- Sciberras, E., & Fernando, J.W. (2022). Climate change worry among Australian adolescents: An eight-year longitudinal study. *Child and Adolescent Mental Health*, 27(1), 22-29.
- Stanley, S. K., Hogg, T. L., Leviston, Z., & Walker, I. (2021). From anger to action: Differential impacts of eco-anxiety, eco-depression, and eco-anger on climate action and wellbeing. *The Journal of Climate Change and Health*, 1, 100003.
- Trott, C.D. (2022). Climate change education for transformation: Exploring the affective and attitudinal dimensions of children's learning and action. *Environmental Education Research*, 28(7), 1023-1042.
- Watts, N., Amann, M., Arnell, N., Ayeb-Karlsson, S., Belesova, K., Boykoff, M., Byass, P., Cai, W., Campbell-Lendrum, D., Capstick, S., Chambers, J., Dalin, C., Daly, M., Dasandi, N., Davies, M., Drummond, P., Dubrow, R., Ebi, K. L., Eckelman, M., ... Montgomery, H. (2019). The 2019 report of The Lancet Countdown on health and climate change: Ensuring that the health of a child born today is not defined by a changing climate. *The Lancet (British Edition)*, 394(10211), 1836–1878.
- Wahlström, M., Kocyba, P., De Vydt, M., & de Moor, J. (Eds). (2019). *Protest for a future: Composition, mobilization and motives of the participants in Fridays For Future climate protests on 15 March, 2019 in 13 European cities*. Retrieved from: [https://eprints.keele.ac.uk/6571/7/20190709\\_Protest%20for%20a%20future\\_GCS%20Descriptive%20Report.pdf](https://eprints.keele.ac.uk/6571/7/20190709_Protest%20for%20a%20future_GCS%20Descriptive%20Report.pdf)
- Weber, H. (2012). What is social in a social-constructionist view on emotion? *Emotion Review*, 4(3), 234-235.
- Wiens, K., Bhattarai, A., Pedram, P., Dores, A., Williams, J., Bulloch, A., & Patten, S. (2020). A growing need for youth mental health services in Canada: Examining trends in youth mental health from 2011 to 2018. *Epidemiology and Psychiatric Sciences*, 29, e115.