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Representations of Youth Climate Anxiety: A Framing Analysis of Emotional Responses to the Climate Crisis in International News Media

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ABSTRACT

Reports of children feeling distressed, anxious, or angry about the impacts of climate change have appeared in the international news media with increasing frequency since 2019. There is international evidence that young people are increasingly worried about climate change, and such distress negatively affects their daily lives. The ways that such distress is framed in public discourse vary widely. We conducted a framing analysis of 274 articles from the international news media (published between 2019 and 2021) to explore how the media frames young peoples' emotional reactions to the climate crisis. Our findings revealed three key frames: (1) Climate distress as inevitable "teen angst" fueled by activists and the media. (2) Climate distress as an appropriate response to a genuine threat, and (3) Climate distress as embodied social suffering caused by societal inaction on climate change. These framings of negative emotional responses to climate change have implications for public health responses to youth mental health in a changing climate. Framing distress in terms of social suffering brings about productive possibilities for social change. This framing avoids pathologizing widely felt experiences, builds empathy between generations, and situates young people's mental distress in the context of their present and unfolding social milieu.

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Introduction

Reports of children feeling distressed, anxious, or angry about the impacts of climate change have appeared in the international news media with increasing frequency over the last decade (Spajic et al., 2019; Wu et al., 2020). In 2019, Collins Dictionary named "climate strike" their word of the year after recording a 100-fold increase in usage (Villalobos, 2019). Climate strike refers to "a form of protest in which people absent themselves from education or work in order to join

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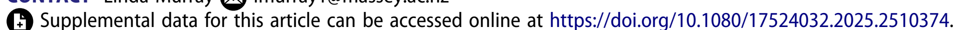
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demonstrations demanding action to counter climate change" (Collins, n.d.) In the years since, environmental events such as ongoing bushfires in Australia causing record property losses (Yu et al., 2020), increasingly severe wildfires in Canada, the US, Siberia and the Mediterranean (The Lancet Planetary Health, 2021), and cyclone damage in Aotearoa New Zealand (Wilson, Broadbent, and Kerr, 2023) have triggered increased media reporting on the emotional impact of such events on young people. Extreme events such as these are increasing in frequency and severity, and inaction on climate change is a societal mega-trend identified as impacting the deterioration of young people's mental health worldwide (McGorry et al., 2024).

The evidence base describing the mental health effects of exposure to a single climate-change-related disaster event for young people is growing (Ma et al., 2022). Research has documented the psychological consequences of directly experiencing such events, including anxiety, depression and post-traumatic stress disorder. The consequences are mediated by dose (severity and duration of the event/s), developmental timing, school resilience, and broader societal and family support systems (Ma et al., 2022; Masten, 2020). One of the few comprehensive studies exploring the emotional impact of climate threats on young people surveyed 10,000 young people from 11 countries (Hickman et al., 2021). The findings revealed that nearly 60% of the young people felt "very" or "extremely" worried about climate change, and over 45% said their feelings about climate change negatively affected their daily lives. Accumulating evidence suggests that young people are experiencing negative emotions in relation to climate change and that these reactions are linked to symptoms of mental distress (Ramadan et al., 2023). As concepts such as "eco-anxiety" and "ecological grief" have arisen in the academic literature in the past two decades (Ojala et al., 2021), it is important to interrogate how such issues are portrayed in the media. A systematic understanding of how young people's climate emotions are represented in the media is a crucial foundation for public health action to increase mental health literacy in the general population so young people can be adequately supported.

Study aims

Media articles are a common source of climate change information for most people (Schäfer & Schlichting, 2014). Framing analysis of media articles identifies how problems are defined, what kinds of causal attributions are made, and what solutions are proposed to remedy the problem. This study aimed to explore the following research questions via a framing analysis of international news media:

- How does international news media frame young people's negative emotional reactions to the climate crisis?
- How is the problem defined and the cause of these emotions understood?
- What moral evaluations are used and what treatments/solutions are proposed?

Conceptualising young people's emotional responses to climate threats

The impact of climate threats on young people's mental health can be conceptualized in different ways. The World Health Organisation describes mental disorders as "characterized by a clinically significant disturbance in an individual's cognition, emotional regulation, or behaviour" (WHO, 2022). Terms such as "eco-anxiety", "eco-distress", and "ecological grief" are used widely in the international news media; however there is currently no consensus on the appropriate use of such terms in the psychiatric, psychological and psychosocial literature (Ojala et al., 2021). Hickman et al. (2021) and Ojala et al. (2021) describe emotional responses to climate change as natural and appropriate reactions to global events and threats to safety, rather than indications of mental disorder. In addition, the experiences labeled by terms such as "eco-anxiety" are not recognized as mental disorders in diagnostic manuals, and many health professionals warn against medicalising

these understandable responses to climate change (Bhullar et al., 2022). Rather, such emotional states are described as "*understandable, congruent, and healthy responses to the threats we face*" and should not be pathologized (Hickman et al., 2021; Pikhaha, 2020).

In a narrative review of existing literature, Ojala et al. (2021) describe eco-anxiety as "*anxiety related to current and predicted environmental damage or loss, particularly from the climate crisis;*" ecological grief as "*grief and sadness felt in response to the loss of beloved places, ecosystems and species*" (p. 37). In addition to eco-anxiety and ecological grief, several other terms relating to emotional responses to the climate crisis frequently appear in popular discourse. These include "pre-traumatic stress" and "anticipatory grief", which both relate to feelings of dread regarding the impending future impacts of climate change. For young people, these terms may relate to worry about what life will be like with more severe and frequent climate effects, and grief around the foreclosure of futures they envisaged being available (e.g having to move from areas that are no longer liveable due to climate threats).

In the emerging academic literature, young peoples' emotional reactions to climate change are generally described as individual experiences that differ according to personal characteristics (Clayton et al., 2023). This is undoubtedly useful for providing a language for young people to express their distress and for mental health professionals treating such distress in clinical settings. However, such individualized framing does not acknowledge the wider environmental context of this distress or the unjust systems that exacerbate both the climate crisis and the mental suffering of young people. The concept of *social suffering* explains how structural oppression of collective groups of people can be felt as embodied suffering by people belonging to these groups (Farmer, 1996; Kleinman et al., 1997). Children and young people are a societal group particularly vulnerable to climate change, as they will disproportionately weather its effects across their lifespan (Planetary Health Alliance, 2021). In addition, the Lancet Psychiatry Commission on Youth Mental Health has identified climate change as an underlying societal megatrend contributing to the rising mental health burden amongst emerging adults (ages 12–25 years) worldwide (McGorry et al., 2024). This recognition of the intersection between climate change and the global decline in young people's mental health could be theorized as an embodied manifestation of societal injustice – i.e social suffering.

Framing young people's climate emotions in the media

Kitzinger (2007) explains how journalists frame a story by selecting the "relevant" facts and deliberately situate "problems" within "appropriate" contexts. Who is interviewed, what questions are asked, and how the nature of an issue is portrayed all contribute to implicit and explicit ideas about the cause of the "problem" and potential solutions. Framing analysis provides a structure for describing how media coverage of an issue includes or excludes certain viewpoints or promotes particular interpretations (Gamson & Modigliani, 1989). Entman (1993, p. 52) states that to frame is to "*select some aspects of a perceived reality and make them more salient in communicating a text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described*". Framing analysis has previously been used to explore media framing of mental health issues such as dementia (Van Gorp & Vercruysse, 2012); "mental health" and stigma (Pavlova & Berkers, 2022), and suicide (Victor et al., 2019). Framing analysis has also been used to understand how the harmful impacts of climate change are framed differently across news media, climate movements, and in local communities (Guenther et al., 2024). As conceptualizations of how climate change affects young people's emotional reactions and mental health are still emerging, framing analysis provides one useful tool for interrogating how these issues are represented in the public sphere.

The news media plays a significant role in framing public perceptions of mental health issues, and the framing used can either constructively educate or perpetuate harmful narratives. Portrayals of those suffering mental distress as dangerous or incompetent may perpetuate inaccurate stereotypes (Oliver et al., 2024). In the case of climate change, childist critique of youth-led activism, as

well as arguments that adults "engender climate anxiety in young people" are some lines of rhetoric used to frame youth climate distress. "Childism" is a form of discrimination against children, which is based on "*the automatic assumption of the superiority of any adult over any child*" (Childism Institute, 2023). In a review of American newspaper articles, Benoit et al. (2022) described narratives that suggest "a movement led by children can't be supported given the age of its advocates". Similarly, Greta Thunberg's activism is often undermined due to her age (Mede & Schroeder, 2024). Childism positions children as not having the capacity to truly understand information about climate change and evaluates the expected behavior of children in terms of "normalcy" (Benoit et al., 2022; Childism Institute, 2023). If children involved in activism are seen as disrupting the norm by "injecting climate awareness into everyday life" (Benoit et al., 2022), they are easier to discount as "rule breakers' or deviant individuals. For example, media discourses that de-legitimize the young protesters in the Fridays for Future (FFF) movement as "absentees', "rebellious truants', "dreamers' and "ignorant zealots' were present in Germany, Australia, and Finland (Bergmann & Ossewaarde, 2020; Huttunen & Albrecht, 2021; Mayes & Hartup, 2022). Graham and De Bell (2021) note that as adults are responsible for packaging and framing press coverage about climate change, children are generally unable to represent themselves. When young people *are* given a voice, it is often still nested within central narratives about the "place" of young people in society. For example, while German media provided young protesters a voice through "apolitical testimonies', the protester's agency was ultimately undermined by overarching media narratives that were disparaging of the protests and dismissed criticism of wider societal systems (Von Zabern & Tulloch, 2021).

The public framing of young people's emotional reactions to climate change has also emerged without strong reference to a psychological evidence base, or consideration of the growing prevalence of poor mental health amongst young people worldwide. This is a missed opportunity, as sympathetic media reporting of mental health issues can improve mental health literacy (knowledge of risk factors, identification of symptoms and avenues for seeking help), and reduce stigma and prejudice (Clement et al., 2013; Curran et al., 2023). Therefore, it is vitally important to explore how young people's climate emotions are reported, and how the framing of such issues might influence lay understandings of the intersection between the effects of climate change and young people's mental health.

Methodology

Positionality statement

The research team was comprised of public health, disaster management, psychology, Māori health and journalism academics. We aimed to be critically reflexive and focus on how young peoples' emotional responses and mental health were discussed in the media. Our analysis is conducted from the position that there is compelling evidence that anthropogenic global warming is a real and unabated threat to human health and wellbeing, and that globally, public health experts acknowledge the health implications of a warming planet (Villalobos, 2019; Baum et al., 2022). As concepts such as "eco-anxiety" and "ecological grief" have only emerged with working definitions in the academic literature in the past two decades (Ojala et al., 2021), it is important to interrogate how such issues are portrayed in the media. When conducting this framing analysis, we worked from a constructivist epistemological standpoint, whereby language is inherent in the social production and reproduction of both meaning and experience, and the reproduction of institutional power (Byrne, 2022).

Search strategy

We searched for newspaper or online news articles about children and young people's emotional reactions to climate change dated between January 2019 and October 2021. The time-period of 2019–2021 was chosen as media coverage of young peoples' emotional responses to climate change

increased markedly after 2019 due to the activism of Greta Thunberg and the School Strike for Climate movement (Mede & Schroeder, 2024; Spajic et al., 2019). The databases Factiva, Web of Science, Embase, EbscoHost and Scopus were searched with the assistance of a university librarian. Additionally, a Google "news" search using the same search terms and period was conducted to ensure that as many news articles as possible were included in the search results. Keywords for the search were drawn from the extant literature on emotional reactions to climate change and children and young people (Albrecht et al., 2007; Hickman et al., 2021; Ojala et al., 2021; Pikhaha, 2020) and included: "eco angst", "eco depression", "eco anger", "eco-grief", "eco-anxiet*" "ecological grief", "ecological anxiet*", "ecological distress* and/or "solastalgia". All of these terms are inherently related to climate change, and enabled a search that identified emotional reactions to climate change specifically, rather than a broad sweeping search about "climate change".

In total, the search resulted in 1936 articles. Once duplicates were removed, 1676 articles remained and were screened by title. After title screening, 540 remained which mentioned children, youth, young people, adolescents or school students. The 1135 articles excluded only discussed climate emotions amongst adults or were articles about irrelevant topics. These 540 articles were retained for further appraisal. After appraisal of the full-text, articles remained included if they clearly discussed both youth, young people, adolescents or school students as well as climate emotions, and articles were excluded if they provided coverage of the climate strikes or youth activism without mention of climate emotions. After full text appraisal, 274 articles remained (See Supplementary Material 1).

The initial search drew from online and print news publications available in English, including local and community newspapers, as well as popular media such as music journalism (e.g Rolling Stone), psychology/mental health (e.g Mental Health Weekly) and financial and business publications (e.g Fortune). The sample included both "popular" media such as the Daily Mail and the Mirror, and "quality" media such as the Guardian and the Telegraph from the UK (Graham & De Bell, 2021), and their equivalents from a range of international settings (Full list of countries available in Supplementary Material 2).

Techniques of analysis

Framing analysis was used to examine how the articles were constructed to frame ecological distress as a particular kind of issue. In this study, framing analysis was based on Entmann's (1993) components of a frame, which have parallels with the framing analysis questions as outlined by Kitzinger (2007) (Figure 1):

Process of analysis

First, the primary author read and re-read all data (the content of all included news articles) to become familiar with the content of the articles and their rhetorical structure. Second, a group of authors (LM, MB, BE, CS, JS, MM, TD) workshopped the data to discuss the analytic categories

Entman's (1993) Components of a Frame	Corresponding questions (Kitzinger 2007, p 157)
Problem definition	How is reality represented?
	How is the problem defined?
Causal attribution	Who is assigned responsibility for this issue?
Moral evaluation	How are key participants portrayed?
Treatment recommendation	What solutions are presented?

Figure 1. Approaches to framing analysis.

and to examine contradictory data examples. After this in-depth engagement with the data, Entman's (1993) components of framing analysis were used to identify the predominant frames used in the dataset. This allowed us to describe how media presentations of the issue (young people's emotional reactions to climate change) promote certain interpretations, or include or exclude certain viewpoints (Booth et al., 2024; Foley et al., 2020). The analysis was inductive; the frames were identified by noting similarities and differences in how the articles framed emotions in relation to climate change and how responsibility was managed. Different frames may overlap in some respects, for example both frame 2 and frame 3 (see Table 1) share an orientation to climate change as a real threat. However, there is an analytic distinction in how the problem is defined, who is responsible, and what should be done. Final descriptions of frames were read by a sub-group of authors (MM, MB, TD, BE) and any interpretation concerns were resolved by consensus.

Findings

Three recurrent "frames" appeared in news media coverage of young people's emotional reactions to climate change between 2019 and 2021. These were (1) Climate "alarmism" by immoral actors (climate activists and the media) causing unnecessary distress, which can be managed by gatekeeping information and individual consumer action; (2) A reasonable response to a genuine threat, with adults being morally required to "equip" young people to be future leaders, and (3.) Embodied social suffering due to the inequitable burden of the effects of climate change, with empathy, education and collective action as appropriate responses. These are presented in Table 1 and described with examples in the text.

Frame 1. Climate alarmism

"Climate alarmism" was used by the media to describe climate change as either a deception or as seriously exaggerated on the part of vested interests. Children were also framed as particularly ill-equipped to understand climate issues. Using this frame, the suggestion that children and young people might have a role in the societal response to climate change was viewed as exploitative and harmful. Instead, the solution was to protect young people from "misinformation" about climate change, as they were not viewed as sufficiently mature to handle or appraise information about global events. Misinformation was explicitly or implicitly described in the articles as exaggerated information about the impact of human activity on the climate and planetary systems.

Problem Definition: This generation's "teen angst"

The problem of negative emotional responses to climate change in young people was viewed as unnecessary climate alarmism. This was portrayed as a distorted reaction to the future that all

Table 1. Climate distress frames using Entman's approach to framing analysis.

Frame	Problem definition	Causal attribution	Moral evaluation	Treatment
1. Climate "Alarmism": A distorted reaction to the future all generations go through	Teen angst	"hysteria" fueled by activists and the media	Alarmism "You're scaring the children"	Gatekeep access to information for young people and individualized solutions
2. A reasonable response to a genuine threat	A "normal response"	Witnessing a genuine threat	Equipping young people to mobilize	Activism as an antidote
3. Embodied social suffering due to climate injustice	Social suffering due to planetary crisis	The structural injustice of the climate crisis	The inequitable effects of climate change	Education, empathy and collective action

generations must go through. Negative emotional reactions were described in terms of climate change as this generation's "teen angst" and comparisons were made to previous generation's anxiety about nuclear war:

> "I grew up in the nuclear era, and I feel like the nuclear threat activated my nervous system at a very young age," … "There are really important parallels: The threats are human-created, and there's a pervasive, visceral anxiety about the future at all times." (First-person opinion piece, Rolling Stone, USA, 27 March 2020)

This framing dismissed young people's concerns; they were no longer viewed as unique or unprecedented, but instead framed as something that every generation of emerging adults experiences in some way. The problem was hence defined as access to too much information about climate change at a particular age, rather than the effects of climate change itself.

Causal Attribution: "Hysteria" fuelled by activists and the media

Using this frame, young people's negative emotional reactions to climate change were understood as "hysteria" fueled by activists and media coverage of climate related disasters. The cause of young people's anxiety was attributed to a distorted understanding of the severity of climate change, misinformation presented by some activists, and the volume of content on climate change in all forms of media. This was framed with the view that children do not have the developmental maturity to be exposed to information about climate change. As was opined in the Daily Telegraph (Australia, 20 September 2019) "*When your brain is not fully developed there is a tendency to catastrophise*". The "Climate alarmism" frame thus claimed that the cause of young people's distress was information-sharing about the climate crisis. For example, another opinion piece stated:

> Campaigners might say this is the only sane reaction to the planet's perilous plight. But it is also the natural consequence of impressionable young minds only ever being fed the worst possible news. (The Telegraph, UK, 27 October 2021)

Moral Evaluation: Alarmism 'You're scaring the children' …

Under this frame, youth-led activism in response to climate change was viewed as "alarmist". This interpretive position implies that it is morally wrong to expose young people to information about the biophysical realities of climate change, as it will unnecessarily distress them. Climate activists and scientists were positioned as immorally damaging young people's mental health by coercing them into agreeing with their arguments or scaring them unnecessarily:

> A new generation is being terrified into agreeing with a specific and fringe eco-lobby. This lobby does not care if it damages the mental health of a generation … it is time we called this what it is: an abuse of children on a massive and unforgivable scale. Something that the generations that will succeed us will look upon with shame. (Mail on Sunday (Daily Mail), UK, 19 January 2020)

Such a position is congruent with a childist framing that suggests young people are not fit to be full and active participants in society, and that adults should be active gatekeepers of their views and decisions. The example below is from another opinion piece in response to Greta Thunberg's appearance at the UN Climate Summit and nomination for a Nobel Peace Prize. Not only does the quote frame young people as not developmentally equipped to participate in climate action, but also undermines the credibility of the adults supporting them, despite these adults being world leaders and eminent scientists.

> We've begun to behave as if young people are special; more virtuous and wiser than adults. It's wrong and it's creepy and we've got to stop it —not for our sake so much as for theirs … even the most sophisticated adults in the world have signed up to the bonkers idea that children can somehow intuit the answers to humanity's existential problems. (The Spectator, UK, 12 October 2019)

Treatment: Gatekeeping access to information, and individual behaviours and treatments

Articles framing young people's distress as developmentally inappropriate "alarmism" offered treatment recommendations such as limiting the information children could access, or ensuring that children were heavily monitored by adults:

> [interviewee- Teacher and Psychoanalyst] warns against banning material but instead recommends researching together – to help children adopt a balanced view. 'That way you can discuss concerns, information, distressing predictions and traumatising video footage, and encourage their response to be less doom-laden and more proactive … (The Mail Online, 29 September 2019)

Many articles using the "alarmism" frame suggested individual actions that young people or their families could take to alleviate their negative emotions about climate change. These often focused on changing consumer choices – such as using less plastic or more energy efficient appliances, or, ironically, consuming more social media that promoted individual action. Suggestions for behavior change were proposed to manage an individual anxiety, rather than to tackle climate change. Such individual actions deflect attention from structural solutions to the climate crisis, and avoid any admission that anxiety may be caused by a genuine threat. The following quote provides a case study of a young woman who learns how to alleviate her anxiety via individual behavioral change:

> While a viral video was the trigger for her stress, it was social media that also offered her a solution. She discovered "zero-waste living" on YouTube where influencers dole out tips on where to buy plastic-free items and how to lead a minimalist life. Now, her parents and friends, too, look for ways to reduce their waste. Action is a great response to anxiety. (The Straits Times, 14 April 2019)

Frame 2. A genuine reaction to a real threat

The second frame viewed emotional reactions as a pervasive response to the genuine threat of the accelerating effects of climate change. When recounting the lived experience of negative reactions to witnessing climate change, young people described a range of experiences such as worry, distress, anger, concern, disappointment, dismay and apprehension, along with physical experiences such as sleep and eating difficulties. In the following article, an interviewee describes her experiences of learning about climate change at university:

> Back then I felt a kind of burning energy in my body, a tightness in my chest and nausea in my stomach … I hid the fact that I sometimes cried in lectures, and I remember that I went home full of anxiety. (Die Welt, 27 January 2020)

This frame presented distress as a reasonable response to reliable information about a genuine existential threat. Young people were framed as absorbing information from the world around them and being able to interpret and respond to this information in appropriate ways.

Problem Definition: A "normal response" to an existential threat

The problem of youth distress was framed as a "normal response" to a genuine global threat. This frame was regularly used in articles presenting commentaries on terms such as "eco-anxiety" or "ecological grief". Within these articles, cognitive and emotional reactions were legitimate, normal and healthy responses rather than diagnosable mental illness. When reporting the advice of a senior psychiatrist, the Toronto Star (8 January) stated:

> Stop labelling existential experiences as sickness and providing unnecessary treatments for what are normal and necessary human responses to life realities … the well-founded worries that many experience when faced with our climate challenge and our less than effective response to it … . (The Toronto Star, 8 January 2020)

This frame clearly described such emotional responses as being caused by the global context of planetary crisis, rather than framing them as an individual mental disorder. Even when mental health professionals described the severity of symptoms for young people with a diagnosed mental illness, knowledge about, or living through climate change was framed as the causal factor:

> We don't want to pathologise a normal response. But eco-anxiety can develop into something unhealthy. If a child already has mental health issues, this may compound some of those worries and anxieties. If a parent sees changes in a child, for example, more withdrawn, not sleeping or eating, it is important they seek help. (The Guardian, UK, 20 November 2020)

The normality of the response was not framed as discounting the distress that young people experience. The response was explained as of symptoms of mental distress, or common mental disorders (depression, anxiety) that need support, even if they are understandable reactions to climate change.

Causal Attribution: Witnessing a genuine threat

The causal attribution aligned with this frame was that negative emotional responses were due to the realization of the gravity of the climate crisis and the impact it would have on their lives. This was described as a reality that will continue into the foreseeable future:

> A profound, widespread despair for the future [has] emerged. … .. As this reality dawns on more people, mental health professionals all over the world find themselves racing to develop strategies to help them deal with the fallout, knowing it's a phenomenon that may someday affect almost everyone. (The Japan Times, Japan, September 17 2021)

Young people's emotional reactions and embodied experiences of witnessing the climate crisis first-hand were also documented. For example, this reported quote from a primary school student: "*My primary school had a bunch of 40-degree days in spring, I thought 'This isn't right' and looked into it. I didn't sleep for a long time. It was the only thing on my mind.*" (Courier Mail, 21 September 2019). Visible reminders of the climate crisis, such as forest fire smoke and hotter-than-average seasons, were described as tangible influences on young people's mental health that may continue throughout their lives:

> Even smoke and particulate matter have mental health effects: not only can it make people feel depressed, but it is a "visible reminder" of what is changing … Trying to accept a new reality with the changing climate could lead people to feel sad in ways they hadn't felt before … What we are seeing is scary … (Toronto Star, Canada, 8 July 2019)

Moral Evaluation: Equipping young people to mobilise

Using this frame, it was seen as morally necessary for adults to equip young people for the future they will inherit. It also framed young people as capable of understanding the biophysical realities they are presented with, and positioned them as future leaders. This frame referred to the imperative to use such feelings for constructive action as the appropriate moral response:

> The real cure for the difficult emotions generated by climate change is to acknowledge them for what they are, a signal that something must be done, and come together in effective action. Indeed, this is the opportunity provided by the climate challenge: we can use this distress signal to unite in ways we never have before. (Toronto Star, Canada, 8 January 2020)

Articles using this frame described young people as emerging adults who need to be "equipped" to take on responsibility. A notable absence from this moral position was a sense of the role that older generations play in taking responsibility for climate change now. Much reporting on the marches and activism events was of those organised by young people themselves, with the media positioning them as "future leaders", when they were already leading climate action.

> They are the future citizens. If we provide them with timely education on climate and how to survive the present challenges and prepare them for future, bigger, challenges then actually they will be able to adapt to the changing climate. (Japan Times, Japan, 27 February 2020)

Treatment: Activism as an antidote to hopelessness

Framing young people's negative emotions as a response to a real threat that needed an "outlet", was aligned with framing the "antidote" to such feelings as climate activism. Such arguments did not generally comment on the effectiveness of the action in terms of the climate crisis itself. Instead, they described it as a necessity for dealing with negative emotional states and physical symptoms of climate change. This frame also focused on collective action so that young people felt they were part of a common cause rather than suffering individually:

> One of the really scary things is feeling like you're on your own, so finding other people, who can suggests ways forward you might not have thought of, it's a really good way of sorting your mind out. (The Chronicle, UK, 22 January 2020)

Frame 3. Ecological grief and anxiety as a form of social suffering

The third frame conceptualized emotional reactions to climate change as social suffering due to planetary crises. Young people's negative emotions were framed as reflecting the systems of structural violence and inaction that have led to the climate crisis. Distress was framed as a product of this moment in environmental history when young people are uniquely vulnerable.

Problem Definition: Social suffering due to planetary crisissuffering

Distress was framed as due to young people having the foundations for human flourishing systematically stripped from them. This included ecological grief as a "loss of innocence" through the realization of the scale of biodiversity loss:

> There's the reality that young people are sensing the loss of a world they are still in the process of trying to figure out and understand — a heartbreaking form of FOMO ("fear of missing out") at a time when the vestiges of another, healthier natural world remain. "I grew up in the Pacific Northwest, and I still live here," says Jamie Margolin, 18-year-old co-founder of Zero Hour … In the park close to where I live, there are signs that say, 'Please don't feed the resting seal pups.' I've never actually seen any seals or wildlife in that park for as long as I've lived here. Ever. (Rolling Stone, USA, 27 March 2020)

Anticipatory grief, where young people gradually come to terms with the fact that such losses would keep occurring, was viewed as one cause of climate distress. Young people's social suffering (embodied experiences of societal injustice) was linked to the inaction of adults and organizations in power who had failed to act, causing an inequitable burden on young people and future generations:

> Children have shown themselves to be baffled by government inaction … This has resulted in feelings of hopelessness about their future and future generations. These feelings are not far off from reality as children are disproportionally impacted by the health effects of climate change. (Toronto Star, Canada, January 21, 2020)

Causal Attribution: The structural injustice of the climate crisis

Young people's eco-anxiety was viewed as stemming from feelings of powerlessness about the injustice of the climate crisis, and the real threats it poses for their future:

> An increasing number of millennials are staying up at night thinking about the bleak future of our planet, while several of them also suffer from symptoms such as unalarmed panic attacks, obsessive thinking and a loss of appetite. Melting glaciers, plastic-choked waterbodies and air engulfed in smog are among the major fear triggers, but what seems to be bothering them the most is the fact that it's not just the human

> race that is going down. "We are taking down an entire ecosystem with along us." (Times of India, India, 17 June 2019)

This emotional response included the realization that the climate crisis did not affect all communities equally. Empathy for others who already suffered disadvantage, and were likely to have these disadvantages compounded by the planetary crisis was voiced by young people when their perspectives were included:

> They didn't want the burden of saving the planet when some of them couldn't even vote … and when they had come to understand that climate change is not simply a matter of science but of classism, racism, capitalism, and the way the global north indiscriminately dumps on the global south. (Rolling Stone, USA, March 27, 2020)

Moral Evaluation: The injustice of climate inequity

The effects of climate change were described as felt unequally between high and low-income countries and communities. Young people from climate-change-affected communities were positioned as motivated to act from their immediate embodied experience. Such reporting included descriptions of how climate change was affecting already disadvantaged communities, such as Indigenous communities in the Arctic Circle (Greenland):

> *We can begin to understand how the inhabitants of the island most people feel is at the heart of the climate crisis, actually feel about the changing world around them and how it impacts their own culture, food security and state of mind … .Perhaps one of the most tragic aspects … is the anxiety over the future of a way of life that has endured for a millennium. (The Guardian, UK, 12 August 2019)*

Some articles reported how the historical inaction of powerful actors such as government agencies inequitably affected young people. This was described as a betrayal of trust and a gap in adult responsibility for inaction, which contributed to their young people's anxiety:

> "Talking to children about climate change gives a fresh perspective on the absurdity of doing so little about the climate emergency and also highlights for young people the troubling disconnect between what politicians say and what they do," … "We all need to do more to listen to young people when they talk about climate change. Through their experiences we'll all learn more about how we should take responsibility for the mess, apologise and start to act." (The Conversation, Australia, September 15, 2019)

Treatment: Education, empathy and collective action

In this frame, the solution to climate emotions was increased education, including empathy and constructive action. Such articles often critiqued the lack of acknowledgement of climate emotions in the science education they received. They described how students sought information and education outside the formal schooling system to meet their needs:

> young people in Quebec are well aware of these issues, and they're worried. Yet, the average student has little opportunity to talk or learn about these concerns through the content they are being taught in our province's schools. The current approach to covering climate and sustainability in the curriculum is insufficient and unsustainable. This shouldn't be the case. (Montreal Gazette, Canada, 21 January 2020)

This frame highlighted how young people sought out education on environmental issues as they had empathy with those in more affected communities, and wanted the skills to undertake collective action more effectively. The quote below is from a lecturer describing how her students wanted more education to be able to collectively act, and tackle the structural violence of climate change in a way that is relevant to a range of communities:

> These young people aren't just motivated by climate change, they are downright traumatised by it. They are freaked out about our planet's future, with an urgency few others have mustered … My Generation Z students care a lot more about humans. They flock to environmental studies out of an awareness that humanity and nature are deeply interconnected, and a genuine love for both. They are increasingly first-generation, non-

> white and motivated to solve their communities' problems by addressing the unequal distribution of environmental costs and benefits … they get that the key to saving the environment is humanity. (Fortune, USA, August 20, 2020)

Discussion and conclusion

This media analysis identified three ways of framing young people's negative emotional responses to climate change presented in international media. As news media affects public understandings of youth mental health, such framings have implications for how young people's emotional reactions to climate change are perceived. Emotional reactions to climate change were framed as (1) This generations existential angst, with children and the adults around them indulging in "alarmism". This frame acknowledged the social and developmental vulnerabilities of children, but suggested the solution was to protect young people from "harmful" information. Such an individualized, and arguably childist framing has the potential to increase stigma around mental health issues. (2) Young people's reactions were framed as a response to a genuine threat that is part of their social and environmental context. This frame resisted pathologising such widely felt experiences as mental illness (Hickman et al., 2021), and hence avoided unnecessary isolation or stigma. (3) Young people's emotional responses were framed as part of an international, systemic form of "social suffering" whereby they are unjustly bearing the brunt of the effects of climate change. This frame was less common, centered the voices of young people themselves, and brings about new possibilities for collective public health action.

In Frame 1. A childist framing was used to undermine the emotional reactions and actions of children as "alarmism". Within this framing, the leadership capabilities of children were framed as "bonkers", despite being recognized by scientists and world leaders. This has been observed in other media analyses (Benoit et al., 2022; Mede & Schroeder, 2024). This framing avoids the substantive arguments put forward by child activists and uses their age alone as evidence of their insufficiency. This potentially stigmatizing frame is echoed in other media analyses where young people are storied as "vulnerable" or overreacting (Jones et al., 2023). Correspondingly, adults who work to support or amplify children's climate activism were portrayed as exploiting or manipulating "young people's impressionable minds' (Benoit et al., 2022). This childist framing generally proposed limiting information, and "treatments" involving changes to individual behaviors or consumer choices (e.g choosing "greener" consumer products). Whilst such suggestions may be useful as part of a suite of actions to alleviate mental distress about climate change, individual behavior change alone is unlikely to be effective. Internationally, youth involved in individual environmental action have reported experiencing low subjective wellbeing, and feelings of futility and despair arise when individuals tackle problems greater than they can solve alone (Ojala, 2016; Williams & Jaftha, 2020). In addition, frame one may be stigmatising toward young people experiencing climate distress, and used to strategically undermine climate policy (e.g the cancelling of scientific grants on public health and climate change topics in the US in 2025).

In Frame 2. Negative emotional reactions to climate change were framed as a reasonable response to a genuine global threat. This framing aligns with the news media framing of the impact of climate change in terms of "global doom", where the impact is urgent and apocalyptic (Guenther et al., 2024). The conceptualization of negative emotional reactions and distress as an appropriate and reasonable response to climate change is congruent with much emerging mental health literature (Baker et al., 2020; Ma et al., 2022). The "treatment" to such responses is therefore seen as taking action. For example, Ettinger et al. (2023) have described how extreme weather events can be responded to as "teachable moments' where distress in relation to climate change can be channelled into constructive action. A small psychological literature has emerged on constructive action as a helpful response to anxiety, hopelessness, grief and despair in relation to the climate crisis. Bright and Eames (2022) noted that in Aotearoa New Zealand, youth climate strike organizers had to navigate apathy, awareness, anxiety and anger and experienced declines in their

emotional wellbeing as they became involved in the movement. However, moving through these emotions was seen an important part of their "journey" as activists.

Frame 2 also positioned young people as "ultimate saviours", which aligns with other media analyses of American newspaper articles (Benoit et al., 2022). However, there is evidence that attributing young people with such responsibility without support may contribute to exacerbating their distress. In an extensive study of 10,000 young people, Hickman et al. (2021) identified that feelings of betrayal by adults and those in power were common amongst those experiencing eco-anxiety and distress. Yalom's (1980) existential psychology of *death anxiety* provides one explanation for this disconnect; positioning younger generations as the heroes responsible for fixing a crisis likely to cause mass death works as a defence mechanism for some adults' own existential dread. Notably, any sophisticated discussion of the role of adults in "equipping young leaders' was absent from much media coverage using this frame. This is echoed by Jones et al. (2023) who observed media storylines framing young people as "inheritors' living in the shadow of climate threat. However, young people were still considered "not quite citizens' and their participation in public life was carefully contained, despite genuine concern for their future "inheritance" (Jones et al., 2023). As Graham and De Bell (2021) observed, well-known adults (politicians and scientists) and adult journalists are often the spokespeople for future generations in media discussion of climate issue. However, discussion of adult's own position and responsibility to support young people is rarely, discussed in the same article.

Finally, this analysis identified a novel frame (frame three) which mirrors the public health scholarship of Paul Farmer (1996) and Arthur Kleinman (Kleinman et al., 1997) describing structural violence and social suffering as useful for conceptualizing such collective social and emotional experiences. Structural violence can be used to illuminate how political and social forces are responsible for untimely and inequitable illness, injury and death, whilst *social suffering* documents how structural violence is felt as embodied suffering within individuals and communities (Farmer, 1996; Kleinman et al., 1997). Together, these concepts can usefully interpret young people's negative emotional and physical responses to climate change as the embodied manifestation of societal injustice (in this case, historical inaction on climate change). Articles that used this frame were furnished with quotes illustrating how young people's emotional states were intertwined with first-hand observations of the climate crisis (bushfire particulate matter, higher than normal temperatures, arctic ice melting, sea levels rising), producing anticipatory dread and grief about the future. Davies (2019) states that accounts of such experiences represent evidence of "slow violence", which provokes us to *us to expand our imaginations of what constitutes harm … from gradually acidifying oceans, to the incremental horrors of climate change*". In the context of the climate crisis, young people rarely have direct access to those in power who can effect change (Ojala, 2016), and many of the anthropogenic processes that have led to the current state of the environment began well before they were born. Climate change has recently been identified as one underlying megatrend affecting the deteriorating mental health of young people over the past two decades, as has socioeconomic injustice, especially between high and low-and middle-income countries (McGorry et al., 2024). In response to this framing, Benoit et al. (2022) note that by building empathy "towards our descendants" and between generations, positive collective action and experiences can take place. In particular, action should be critical of how the impacts of climate change are inequitably felt across generations, countries, and societal contexts.

Limitations

The search strategy yielded a broad range of articles from many contexts, however, more variation of search terms (e.g "climate change" plus negative emotions) may have resulted in a wider set of articles being identified. It was beyond the scope of this study to analyze the frequency of each frame or how frames aligned with media sources with particular political leanings. Such an analysis would be instructive for describing how each frame is used and refuted in distinct ways by different outlets.

In this analysis, some articles used multiple frames but ordered and presented them to promote one and undermine others. Research examining prevalence and source would need to account for the nuance in such reporting to understand the rhetorical context of these arguments. General information on publishers is provided in Supplementary Material 2, however, to demonstrate breadth of source material. In addition, the field of climate psychology is rapidly growing, with media discourse constantly being re-shaped. Hence, the representations of the mental health effects of climate change in these frames are specific to the time – period within which the articles were written.

Conclusion

Whilst this media analysis examined a range of different frames surrounding young people's emotional responses to climate change, there was a notable absence of young people's own voices, and little reflection on the role of adults in supporting young people's wellbeing. Whilst frame 1.) undermined young people's credibility by questioning the legitimacy of their distress, frame two upheld young people as "ultimate saviours" without interrogating the place of adults in addressing the climate crisis. A third frame suggested empathy and collective, intergenerational action as useful possibilities for both tackling climate change and acknowledging young peoples' social suffering in relation to these issues. As young people face a range of global megatrends affecting their mental health, older generations must consider their role in providing solidarity to promote young people's wellbeing. Case studies of programs to support both climate change and mental health are described through global programs such as Connecting Climate Minds (connectingclimateminds.org, 2024). Such programs situate young people's mental distress in the context of their present and unfolding social milieu (Thier & Wu, 2024).

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