Author/s:
Gao, CX;Fava, N;Browne, V;Patrick, R;Gunasiri, H;Menssink, JM

Title:
Climate Change and Youth: Fast-Tracking Mental Health Solutions

Date:
2025-01-01

Citation:
Gao, C. X., Fava, N., Browne, V., Patrick, R., Gunasiri, H. & Menssink, J. M. (2025). Climate Change and Youth: Fast-Tracking Mental Health Solutions. Journal of Applied Youth Studies, pp.1-12. https://doi.org/10.1007/s43151-025-00174-1.

Persistent Link:
https://hdl.handle.net/11343/362271

Journal of Applied Youth Studies
https://doi.org/10.1007/s43151-025-00174-1

COMMENTARY

Climate Change and Youth: Fast-Tracking Mental Health Solutions

Caroline X. Gao[1,2,3] · Nicholas Fava[2] · Vivienne Browne[2] · Rebecca Patrick[4] · Hasini Gunasiri[1,2,4] · Jana M. Menssink[1,2]

Received: 10 March 2025 / Revised: 10 March 2025 / Accepted: 26 March 2025

Abstract

Worldwide, we are facing escalating mental health impacts related to climate change. Young people are disproportionately affected by climate-related extreme weather events such as severe heatwaves and floods. As climate change accelerates, increased frequency and severity of these weather events, along with awareness of the global environmental crisis, contribute to rising levels of hopelessness, anxiety, and distress among young people. This emotional burden is compounded by young people's exclusion from decision-making processes. Interventions targeting the mental health impacts of climate change are still in their infancy. We call for innovative research designs, such as adaptive platform trials, to rapidly evaluate and implement youth-specific mental health interventions in the context of climate change. We highlight the importance of a whole-of-society approach, involving collaboration between young people, researchers, clinicians, educators, and communities to develop tailored interventions. Governments and research bodies should prioritise dedicated funding for climate change and mental health research at local, national, and global levels. Moreover, it is essential to integrate youth perspectives into policymaking and strengthen climate action to mitigate mental health impacts.

Keywords Climate change · Mental health · Youth · Extreme weather events · Interventions · Policymaking

✉ Caroline X. Gao
carolineg@unimelb.edu.au

✉ Jana M. Menssink
jana.menssink@unimelb.edu.au

[1] Centre for Youth Mental Health, The University of Melbourne, Parkville, VIC, Australia

[2] Orygen, Parkville, VIC, Australia

[3] Department of Epidemiology and Preventative Medicine, School of Public Health and Preventive Medicine, Monash University, Melbourne, VIC, Australia

[4] Melbourne School of Population and Global Health, The University of Melbourne, Parkville, VIC, Australia

Published online: 07 April 2025

Commentary

Climate change is accelerating, evidenced by recent record-breaking temperatures, unprecedented heat, droughts, bushfires, and floods across the globe (IPCC 2023). The resulting health impacts are intensifying worldwide, affecting billions of people (Romanello et al. 2023). Climate change not only negatively affects physical health, but a growing body of research also suggests that it is worsening people's mental health and emotional well-being (Burrows et al. 2024; Charlson et al. 2021; Cianconi et al. 2020). Climate-related extreme weather events and disasters (e.g., heatwaves, storms, bushfires, floods, and droughts) as well as awareness of the threat of climate change can lead to a range of negative emotions, such as anxiety, distress, worry about the future, trauma, feelings of hopelessness, powerlessness, ecological grief, and anger stemming from injustice and perceived inaction from governments, industry, and other key stakeholders (Clayton 2020; Crandon et al. 2022; Gunasiri and Haddock 2023; Gunasiri, Wang, et al., 2022; Hickman et al. 2021; Patrick et al. 2022). Other indirect effects of climate change, such as physical ill-health, housing instability and displacement, water and food insecurity, social fragmentation, and conflicts, are all stressors for poor mental health (Berry et al. 2010).

Young people bear the greatest psychological burden associated with the impacts of climate change (see reviews by Koder et al. 2023; Patrick et al. 2022; White et al. 2023). According to an international survey of youth aged 16 to 25 ($N = 10{,}000$), almost half described how they felt about climate change impacting their functioning on a daily basis, and three-quarters felt scared about the future (Hickman et al. 2021). This disproportionate impact is partly due to young people's critical developmental stage, where heightened emotional sensitivity and identity formation can be easily disrupted by climate change and related events, leading to stress, anxiety, trauma, uncertainty, and a pessimistic outlook on the future (McGorry et al. 2025; Teo et al. 2024). This is compounded by their exclusion from policymaking and global actions, leaving them feeling powerless despite being advocates for change. Research has linked climate anxiety to perceived government inaction, with young people experiencing frustration, mistrust, and betrayal due to tokenistic participation, criticism of youth activism, and political and corporate inaction (Bowman and Pickard 2021; Hickman et al. 2021; Pickard 2022). Systemic and intergenerational inequities further exacerbate this burden, as marginalised youth face compounding stressors like displacement and financial difficulties, while inheriting the consequences of insufficient action by previous generations, deepening their sense of injustice and hopelessness (White et al. 2023; Hickman et al. 2021).

While these emotional responses are in line with expected sociocultural norms in the context of climate change being a global threat, a rapidly growing body of evidence highlights that these emotions play critical roles in affecting young people's mental health and well-being (Boluda-Verdú et al. 2022; Clayton 2020; Crandon et al. 2022; Fava et al. 2023a, 2023b; Gago et al. 2024; Gunasiri and Haddock 2023; Gunasiri et al. 2022a, b; Gunasiri, Wang, et al., 2022; Sciberras

and Fernando 2022; Teo et al. 2024). These negative emotions are also increasingly compounded by exposure to more severe and frequent climate-related disasters resulting in more intense and complex mental health outcomes (Climate Council 2023; Gao et al. 2024; Gunasiri et al. 2022a, b; Hrabok et al. 2020; O'Donohue et al. 2022). Since the COVID-19 pandemic, there has been a rapid decline in the mental health of young people worldwide (Botha et al. 2023; Thiagarajan and Newson 2023). While various social and environmental factors have contributed to the current mental health crisis, climate change also plays an important role (Kirkbride et al. 2024; McGorry et al. 2025). Given the profound impacts of climate change on mental health among young people, urgent action is needed to address these challenges and build psychological resilience.

The Challenges and Opportunities

There is a pressing need to understand and mitigate the direct and indirect impacts of climate change on youth mental health, not only for improving individual health outcomes but also for ensuring the resilience of communities and the broader health system in the face of ongoing environmental challenges (Seth et al. 2023). While there is increased awareness of the mental health issues related to climate change among young people, effective mitigation strategies are lacking (Ramadan et al. 2023). Research focused on interventions is still in its infancy. A recent literature review suggested the vast majority of available interventions were published in grey literature, with very little youth focus and no evidence of efficacy and effectiveness (Xue et al. 2024). Strikingly, across multiple clinical trial registries globally,[1] only four interventions targeted at youth have been identified. Although many novel intervention approaches are emerging (Xue et al. 2024), the efficiency of knowledge translation within the existing research system is very low. It is estimated that only 14% of research findings are translated into care (Grimshaw et al. 2012; Morris et al. 2011), with an average lag of 17 years (Kessler & Glasgow 2011). This inefficiency puts young people at increasing risk of escalating mental health issues related to climate change.

The discrepancy between the urgent needs and the slow process of research translation into care highlights the necessity for innovative study design to fast-track the development and evaluation of interventions (Ryan et al. 2024). For instance, a stepped wedge cluster randomised trial design, which sequentially rolls out interventions to different clusters (e.g., schools) across time, can be employed to simultaneously implement the intervention and establish evidence of effectiveness (Hemming et al. 2015). The traditional two-arm trial design, which can only evaluate the effectiveness of a single intervention, can be replaced with more advanced designs that allow multiple interventions to be tested simultaneously within a single overarching trial structure. The most flexible of these designs is an adaptive platform trial, which allows interventions to continually

[1] https://trialsearch.who.int and https://clinicaltrials.gov/ searched on 30th August 2024.

enter or leave the platform, leading to faster and more robust conclusions about the effectiveness of multiple interventions (Angus et al. 2019; Berry et al. 2015). Such innovative designs have transformed evidence translation in physical health fields, such as COVID-19 treatment (Angus et al. 2020), and hold significant potential for accelerating the development of interventions for the mental health impacts of climate change.

Another challenge in developing interventions for the mental health impact of climate change is that there is no one-size-fits-all approach. Young people may present with different levels and types of impacts, ranging from mild climate distress to trauma- and stressor-related disorders secondary to climate disasters; therefore, the level of needs may differ depending on the characteristics and experiences of young people, intervention settings (e.g., schools, healthcare providers), and geographical location (Corvalan et al. 2022; Fava et al. 2023a). This requires a whole-of-society approach to promote innovation and collaboration between researchers, education sectors, environmental organisations, local communities, charity organisations, clinical services as well as other key stakeholders (Fava et al. 2023a). These initiatives may range from incorporating resilience and coping skills workshops into education on climate change in schools (Newberry Le Vay et al. 2023) to green social prescribing (Baudon and Jachens 2021).

The current mental health services and traditional therapeutic approaches do not consider the unique triggers and stressors brought about by climate change and related societal contexts (Seth et al. 2023; Xue et al. 2024). For example, although disaster psychiatry offers established interventions for post-traumatic climate disaster exposure, existing interventions often do not take climate change into account (Xue et al. 2024). Unfortunately, locations that have been impacted by climate-related disasters, such as bushfires or flooding, are often at increased risk of repeated events. Thus, individuals may experience repeated stressors, such as environmental destruction, loss of property, and deaths in their community, and greater mental and physical health impacts (Carroll et al. 2022). This highlights the need for better tailored clinical approaches to support those multiply at risk.

Another outstanding issue with the current limited interventions in climate mental health is the absence of a theoretical framework and evidence to support the mechanisms of change (Xue et al. 2024). There is increasing knowledge regarding potential mechanisms for effective interventions, such as validating emotional experiences, supporting social connection, increasing adaptive coping skills, and actively involving the community (Flies et al. 2023; Mah et al. 2020; Patrick et al. 2022; Patrick et al. 2023; Pitt et al. 2024). Emerging evidence suggests these approaches can reduce climate change-related negative emotions, support emotional and functional recovery from climate disaster impacts, and increase resilience against future disaster exposure (Block et al. 2019; Gibbs et al. 2021; Longman et al. 2023; Marinkovic Chavez et al. 2023). However, more research and theoretical development are needed. When designing and evaluating interventions, it is important for researchers to establish and evaluate potential key mechanisms for effectiveness. Importantly, negative emotions regarding climate change, such as worry and climate distress, are valid responses to a real threat (Bhullar et al. 2022). Responses to the mental health impact of climate change should not aim to reduce climate concern (Koder et al.

2023), but instead aim to support youth experiencing adverse impacts on wellbeing and functioning.

To effectively design and evaluate psychosocial interventions, there is also a critical need to develop appropriate and reliable measurement scales for both outcomes and mechanisms of change. Although diverse instruments measuring the mental health impact of climate change have been created, the validity of these tools remains poorly understood (Martin et al. 2023), with many carrying a pathological lens (e.g., Climate Anxiety scales) (Massazza et al. 2022) that tend to overlook those with mild-to-moderate impacts (Martin et al. 2023). Additionally, there is a lack of evaluation in the climate sector of positive mental health states (Massazza et al. 2022). Although various resilience and wellbeing measures exist (Kern et al. 2016; Liebenberg et al. 2011), they fail to encapsulate crucial climate-related aspects (e.g., perseverance, optimism, and connectedness), which are vital for targeted interventions (Massazza et al. 2022).

An important consideration in shaping the future landscape of psychosocial interventions in the context of climate change is the need to engage with the broader community and consumers, particularly those with Lived experience (of emotional impacts due to climate change and/or climate-related disasters), Loved experience (through the role as a caregiver), Laboured experience (of working in a mental health support role), and Learned experience (experience as a researcher), (4L, Killackey 2023). It is important to ensure that youth experiencing intersectional oppression, who are more likely to experience disproportionate impacts of climate change, are included in initiatives (Bessant et al. 2023; Vogel et al. 2022). A recent major global effort is the Connecting Climate Minds project, which has established a global research and action agenda based on the experiences and expertise of people with lived experience of mental health issues and of communities most affected by climate change across the world (Lawrance et al. 2024). However, more efforts are needed to establish 4L experience networks (both locally and globally) that can support the co-development of the most appropriate, fit-for-purpose, easy-to-implement interventions.

Working with young people in the context of climate change involves more than just consultation; it is about actively engaging them in decision-making processes, educational programs, and co-designing initiatives. Through these channels, young people can directly influence climate policies and mental health initiatives, ensuring that their voices are heard and their ideas integrated into decision-making. This engagement fosters a sense of agency, self-efficacy, and wellbeing, which are essential for their mental wellbeing (Berry 2021; Crowley and Moxon 2017; Hohenhaus et al. 2023). Peer-led advocacy and support systems play a crucial role, allowing young people to lead campaigns, raise awareness, and support their peers (Mark and Lewis 2020; Psychology for a Safe Climate 2023). Safe spaces, both physical and online, are necessary to allow young people to express their concerns, share experiences, and access mental health support, which can reduce isolation and build a sense of community (e.g., Museums Victoria 2024).

In these spaces, young people are framed as active contributors with innovative ideas, valuable perspectives, and the potential to drive change in both climate action and mental health. They are recognised as a priority population for climate

adaptation policies due to their heightened vulnerabilities and are seen as leaders in building resilience. Their involvement in decision-making processes not only contributes to shaping a sustainable future but also provides them with a sense of purpose and belonging, which is crucial for their mental health and overall wellbeing.

Policy Implications

Solutions are available to address the mental health impacts of climate change, requiring promptness to reflect its increasing threat and disproportionate impact on young people's mental health. Given the need for interventions, the limited evidence-based interventions available and the extended time required to translate research to practice, there is a need for research funding bodies to develop dedicated funding calls for climate change and mental health projects. Funding rounds should:

- Focus on young people as a priority population;
- Promote research innovations and support translation, such as adaptive platform trials, co-designed interventions with lived experience stakeholders, identify key mechanisms for effectiveness of interventions, and develop reliable measurement scales; as well as
- Promote collaboration between researchers, clinical services, educational settings and community organisations.

While the evidence base for psychosocial interventions continues to grow, there are several key activities at a policy level that the government should consider. Young people have identified that government climate inaction is a key driver impacting their mental health (Hickman et al. 2021) and that seeing the government take strong climate action would be the most helpful solution for young people's climate distress (Fava et al. 2023b).

Young people, a priority population in the context of climate change, have the right to be actively involved in decision-making processes at both local and international levels. Establishing youth advisory groups and integrating co-design elements in climate-related programs can foster meaningful climate action and address climate-related mental health issues by ensuring that young people's perspectives and voices are central to the development and implementation of policies.

To better support research and practice innovations addressing the impact of climate change on young people, a supportive national and global policy environment is essential. For example, developing integrated health and climate strategies requires policymakers to take actions based on the best available evidence (CDC/ATSDR, 2022; Department of Health and Aged Care 2023). Governments are also responsible for monitoring and reporting progress towards emissions targets, climate change policy and their impact (e.g., the Annual Climate Change Statement in Australia). There is a valuable opportunity to enhance these reports by including information on the impacts of climate change on young people and their mental health. This could be informed by health impact assessments on all future climate and energy-related policies that assess the impact that potential policies and projects

have on the health and wellbeing of young people and future generations. Additionally, an adapted Youth Annual Climate Change Statement and dissemination plan could be developed to ensure that young people are informed about government action on climate change. These actions ensure that young people's health and wellbeing are considered across all climate-related policy and that young people remain regularly informed about government action on climate change.

Conclusion

The health and economic burden related to climate-related extreme events is predicted to increase significantly over the next decade (IPCC 2023). While awareness of health impacts related to climate change is increasing, with emerging enquiries and initiatives (e.g., Royal Commission into National Natural Disaster Arrangements; Commonwealth of Australia 2020), investment into efforts to develop climate-related psychosocial interventions is lacking. This paper highlights why climate-specific mental health interventions are needed and the importance of developing youth-specific programs.

Author Contribution CG and JM led and conceptualised the commentary. RP and HG led sections on youth engagement and advocacy. NF and VB led the policy implications section. All authors wrote, revised, and approved the final manuscript.

Funding Open Access funding enabled and organized by CAUL and its Member Institutions. VB, NF, and CG are funded via Orygen, the National Centre of Excellence in Youth Mental Health, supported by the Australian Government Department of Health and Aged Care to provide research, technical advice, and policy direction on several youth mental health topics. JM is funded by two NHMRC projects (ID 2039730 and 2024853) focusing on climate change, mental health, and social inclusion. RP is funded by the Melbourne School of Population and Global Health, The University of Melbourne, World Health Organisation, Wellcome Trust, and NHMRC project grants. HG declares that no financial support was received for the research, authorship, and/or publication of this article.

Declarations

Ethics Approval and Consent to Participate Ethical approval was not required for this paper as it is a commentary.

Conflict of Interest The authors declare no competing interests.

References

Angus DC, Alexander BM, Berry S, Buxton M, Lewis R, Paoloni M, Webb SAR, Arnold S, Barker A, Berry DA, Bonten MJM, Brophy M, Butler C, Cloughesy TF, Derde LPG, Esserman LJ, Ferguson R, Fiore L, Gaffey SC, Gaziano JM, Giusti K, Goossens H, Heritier S, Hyman B, Krams M, Larholt K, LaVange LM, Lavori P, Lo AW, London AJ, Manax V, McArthur C, O'Neill G, Parmigiani G, Perlmutter J, Petzold EA, Ritchie C, Rowan KM, Seymour CW, Shapiro NI, Simeone DM, Smith B, Spellberg B, Stern AD, Trippa L, Trusheim M, Viele K, Wen PY, Woodcock J, The Adaptive Platform Trials C (2019) Adaptive platform trials: definition, design, conduct and reporting considerations. Nat Rev Drug Discov 18(10):797–807. https://doi.org/10.1038/s41573-019-0034-3

Angus DC, Berry S, Lewis RJ, Al-Beidh F, Arabi Y, van Bentum-Puijk W, Bhimani Z, Bonten M, Broglio K, Brunkhorst F (2020) The REMAP-CAP (randomized embedded multifactorial adaptive platform for community-acquired pneumonia) study. Rationale and design. Ann Am Thorac Soc 17(7):879–891. https://doi.org/10.1513/AnnalsATS.202003-192SD

Baudon P, Jachens L (2021) A scoping review of interventions for the treatment of eco-anxiety. Int J Environ Res Publ Health 18(18). https://doi.org/10.3390/ijerph18189636.

Berry HL (2021) Enabling a youth-and mental health-sensitive greener post-pandemic recovery. World Psychiatry 20(2):152. https://doi.org/10.1002/wps.20843

Berry HL, Bowen K, Kjellstrom T (2010) Climate change and mental health: a causal pathways framework. Int J Publ Health 55(2):123–132. https://doi.org/10.1007/s00038-009-0112-0

Berry SM, Connor JT, Lewis RJ (2015) The platform trial: an efficient strategy for evaluating multiple treatments. JAMA 313(16):1619–1620. https://doi.org/10.1001/jama.2015.2316

Bessant J, Collin P, Watts R (2023) 'Blah, blah, blah…[not] business as usual': politics through the lens of young female climate leaders. Aust J Polit Sci 58(4):477–493

Bhullar N, Davis M, Kumar R, Nunn P, Rickwood D (2022) Climate anxiety does not need a diagnosis of a mental health disorder. Lancet Planet Health 6(5):e383. https://doi.org/10.1016/S2542-5196(22)00072-9

Block K, Molyneaux R, Gibbs L, Alkemade N, Baker E, MacDougall C, Ireton G, Forbes D (2019) The role of the natural environment in disaster recovery: "we live here because we love the bush." Health Place 57:61–69. https://doi.org/10.1016/j.healthplace.2019.03.007

Boluda-Verdú I, Senent-Valero M, Casas-Escolano M, Matijasevich A, Pastor-Valero M (2022) Fear for the future: eco-anxiety and health implications, a systematic review. J Environ Psychol 84:101904. https://doi.org/10.1016/j.jenvp.2022.101904

Botha F, Morris RW, Butterworth P, Glozier N (2023) Generational differences in mental health trends in the twenty-first century. Proc National Acad Sci 120(49):e2303781120. https://doi.org/10.1073/pnas.2303781120

Bowman B, Pickard S (2021) Peace, protest and precarity: making conceptual sense of young people's non-violent dissent in a period of intersecting crises. J Appl Youth Stud 4(5):493–510. https://doi.org/10.1007/s43151-021-00067-z

Burrows K, Denckla CA, Hahn J, Schiff JE, Okuzono SS, Randriamady H, Mita C, Kubzansky LD, Koenen KC, Lowe SR (2024) A systematic review of the effects of chronic, slow-onset climate change on mental health. Nat Mental Health 2(2):228–243

Carroll M, Campbell TCH, Smith CL, Ga CX, Maybery D, Berger E, Brown D, Allgood S, Broder JC, Ikin J, McFarlane A, Sim MR, Walker J, Abramson MJ (2022) An exploration of the trajectory of psychological distress associated with exposure to smoke during the 2014 Hazelwood coal mine fire. Int J Hyg Environ Health 241:113946. https://doi.org/10.1016/j.ijheh.2022.113946

CDC/ATSDR (2022) Climate and health strategic framework. https://www.cdc.gov/climate-health/media/pdfs/2024/06/Agency-Climate-Health-External-Strategic-Framework-508.pdf.*Accessed 22 Jan 2025*

Charlson F, Ali S, Benmarhnia T, Pearl M, Massazza A, Augustinavicius J, Scott JG (2021) Climate change and mental health: a scoping review. Int J Environ Res Public Health 18(9). https://doi.org/10.3390/ijerph18094486

Cianconi P, Betrò S, Janiri L (2020) The impact of climate change on mental health: a systematic descriptive review. Front Psychiatry 11. https://doi.org/10.3389/fpsyt.2020.00074

Clayton S (2020) Climate anxiety: psychological responses to climate change. J Anxiety Disord 74:102263

Commonwealth of Australia. (2020) Royal commission into national natural disaster arrangements. https://www.royalcommission.gov.au/system/files/2020-12/Royal%20Commission%20into%20National%20Natural%20Disaster%20Arrangements%20-%20Report%20%20%5Baccessible%5D.pdf

Corvalan C, Gray B, Villalobos Prats E, Sena A, Hanna F, Campbell-Lendrum D (2022) Mental health and the global climate crisis. Epidemiol Psychiatr Sci 31:e86. https://doi.org/10.1017/S2045796022000361

Climate Council. (2023) Climate trauma: the growing toll of climate change on the mental health of Australians. https://www.climatecouncil.org.au/wp-content/uploads/2023/02/Report-Climate-Change-and-Mental-Health.pdf

Crandon TJ, Scott JG, Charlson FJ, Thomas HJ (2022) A social–ecological perspective on climate anxiety in children and adolescents. Nat Clim Chang 12(2):123–131. https://doi.org/10.1038/s41558-021-01251-y

Crowley A, Moxon D (2017) New and innovative forms of youth participation in decision-making processes. Council of Europe Strasbourg, Council of Europe, France, pp 15–18. https://youngvoicesheard.org.uk/wp-content/uploads/2020/10/New_and_innovative_forms_of_youth_participation_in_decision-making_processes_2017.pdf.pdf

Department of Health and Aged Care (2023) National health and climate strategy. National Health, Sustainability and Climate Unit, Canberra. https://www.health.gov.au/sites/default/files/2023-12/national-health-and-climate-strategy.pdf

Fava N, Gao C, Baker D (2023a) Climate of distress: responding to the youth mental health impacts of climate change. Orygen, Melbourne

Fava N, Gao C, Baker D (2023b) Youth mental health and climate distress: results from a national Orygen and YouGov poll. Orygen, Melbourne. https://www.orygen.org.au/getmedia/ebb8b76f-68a7-424e-b454-b056c1c87985/Climate-of-distress-Survey-results-2023.aspx?ext=.pdf. Accessed 22 Jan 2025

Flies EJ, Pryor A, Henderson-Wilson C, Turner M, Roydhouse J, Patrick R, O'Shea M, Norris K, Martin A, Marsh P, Bartlett L, Azghadi MR, Neil A (2023) Bridging the evidence gap: a review and research protocol for outdoor mental health therapies for young Australians. J Outdoor Environ Educ. https://doi.org/10.1007/s42322-023-00143-3

Gago T, Sargisson RJ, Milfont TL (2024) A meta-analysis on the relationship between climate anxiety and wellbeing. J Environ Psychol 94:102230. https://doi.org/10.1016/j.jenvp.2024.102230

Gao CX, Boon B, Ziou M, Gan DZQ, Teo SM, Fava N, Menssink J, Brennan N, Filia K (2024) Impact of extreme weather events on young people: findings from the 2023 mission Australia youth survey. Orygen, VIC and Mission Australia, Melbourne, Sydney

Gibbs L, Marinkovic K, Nursey JLAT, Tekin E, Ulubasoglu M, Callard N, Cowlishaw S, VEC, (2021) Child and adolescent psychosocial support programs following natural disasters—a scoping review of emerging evidence. Curr Psychiatr Rep 23(12):82. https://doi.org/10.1007/s11920-021-01293-1

Grimshaw JM, Eccles MP, Lavis JN, Hill SJ, Squires JE (2012) Knowledge translation of research findings. Implement Sci 7(1):50. https://doi.org/10.1186/1748-5908-7-50

Gunasiri H, Patrick R, Snell T, Garad R, Enticott J, Meadows G, Henderson-Wilson C (2022a) Young people's mental health in a changing climate. Lancet Planet Health 6:S1. https://doi.org/10.1016/S2542-5196(22)00263-7

Gunasiri H, Wang Y, Watkins E-M, Capetola T, Henderson-Wilson C, Patrick R (2022) Hope, coping and eco-anxiety: young people's mental health in a climate-impacted Australia. Int J Environ Res Publ Health 19(9):5528. https://doi.org/10.3390/ijerph19095528

Gunasiri H, Haddock R (2023) Promoting mental health in a changing climate: children and young people as a priority population group. Deeble issues brief 51. Deeble Institute for Health Policy Research, Australian Healthcare and Hospitals Association, Canberra. https://apo.org.au/sites/default/files/resource-files/2023-07/apo-nid323572.pdf

Hemming K, Haines TP, Chilton PJ, Girling AJ, Lilford RJ (2015) The stepped wedge cluster randomised trial: rationale, design, analysis, and reporting. BMJ Br Med J 350:h391. https://doi.org/10.1136/bmj.h391

Hickman C, Marks E, Pihkala P, Clayton S, Lewandowski RE, Mayall EE, 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. Lancet Planet Health 5(12):e863–e873. https://doi.org/10.1016/S2542-5196(21)00278-3

Hohenhaus M, Boddy J, Rutherford S, Roiko A, Hennessey N (2023) Engaging young people in climate change action: a scoping review of sustainability programs. Sustainability 15(5):4259. https://doi.org/10.3390/su15054259

Hrabok M, Delorme A, Agyapong VIO (2020) Threats to mental health and well-being associated with climate change. J Anxiety Disord 76:102295. https://doi.org/10.1016/j.janxdis.2020.102295

IPCC (2023) Summary for policymakers. In: Core Writing Team, Lee H, Romero J (eds) Climate change 2023: synthesis report. Contribution of working groups I, II and III to the sixth assessment report of the intergovernmental panel on climate change issue. IPCC, Geneva, Switzerland, pp 1–34. https://doi.org/10.59327/IPCC/AR6-9789291691647.001

Kern ML, Benson L, Steinberg EA, Steinberg L (2016) The EPOCH measure of adolescent well-being. Psychol Assess 28(5):586–597. https://doi.org/10.1037/pas0000201

Kessler R, Glasgow RE (2011) A proposal to speed translation of healthcare research into practice: dramatic change is needed. Am J Prev Med 40(6):637–644. https://doi.org/10.1016/j.amepre.2011.02.023

Killackey E (2023) Lived, loved, laboured, and learned: experience in youth mental health research. Lancet Psychiatry 10(12):916–918. https://doi.org/10.1016/s2215-0366(23)00270-5

Kirkbride JB, Anglin DM, Colman I, Dykxhoorn J, Jones PB, Patalay P, Pitman A, Soneson E, Steare T, Wright T, Griffiths SL (2024) The social determinants of mental health and disorder: evidence, prevention and recommendations. World Psychiatry 23(1):58–90. https://doi.org/10.1002/wps.21160

Koder J, Dunk J, Rhodes P (2023) Climate distress: a review of current psychological research and practice. Sustainability 15(10):8115. https://www.mdpi.com/2071-1050/15/10/8115

Lawrance E, Newberry Le Vay J, Amankona A (2024) Global research and action agenda for climate change and mental health. https://nbswmzwquzluimyqnfsf.supabase.co/storage/v1/object/public/documents/Global%20Research%20and%20Action%20Agenda%20for%20Climate%20Change%20and%20Mental%20Health.pdf?t=2024-07-22T20%3A46%3A26.528Z

Liebenberg L, Ungar M, Vijver FV, d. (2011) Validation of the child and youth resilience measure-28 (CYRM-28) among Canadian youth. Res Soc Work Pract 22(2):219–226. https://doi.org/10.1177/1049731511428619

Longman J, Patrick R, Bernays S, Charlson F (2023) Three reasons why expecting 'recovery' in the context of the mental health impacts of climate change is problematic. Int J Environ Res Publ Health 20(10):5882

Mah AYJ, Chapman DA, Markowitz EM, Lickel B (2020) Coping with climate change: three insights for research, intervention, and communication to promote adaptive coping to climate change. J Anxiety Disord 75:102282. https://doi.org/10.1016/j.janxdis.2020.102282

Marinkovic Chavez K, Quinn P, Gibbs L, Block K, Leppold C, Stanley J, Vella-Brodrick D (2023) Growing up in Victoria, Australia, in the midst of the climate emergency. Int J Behav Dev 48(2):125–131. https://doi.org/10.1177/01650254231205239

Martin G, Cosma A, Roswell T, Anderson M, Treble M, Leslie K, Card KG, Closson K, Kennedy A, Gislason M (2023) Measuring negative emotional responses to climate change among young people in survey research: a systematic review. Soc Sci Med 329:116008. https://doi.org/10.1016/j.socscimed.2023.116008

Mark B, Lewis J (2020) Group interventions for climate change distress. Psychiatric Times, Cranbury. https://www.psychiatrictimes.com/view/group-interventions-climate-change-distress. Accessed 22 Jan 2025

Massazza A, Teyton A, Charlson F, Benmarhnia T, Augustinavicius JL (2022) Quantitative methods for climate change and mental health research: current trends and future directions. Lancet Planetary Health 6(7):e613–e627. https://doi.org/10.1016/S2542-5196(22)00120-6

McGorry P, Gunasiri H, Mei C, Rice S, Gao CX (2025) The youth mental health crisis: analysis and solutions [review]. Front Psychiatry 15. https://doi.org/10.3389/fpsyt.2024.1517533

Morris ZS, Wooding S, Grant J (2011) The answer is 17 years, what is the question: understanding time lags in translational research. J R Soc Med 104(12):510–520. https://doi.org/10.1258/jrsm.2011.110180

Museums Victoria. (2024). Museums Victoria and Orygen join forces to address climate distress among young people https://museumsvictoria.com.au/media-releases/museums-victoria-and-orygen-join-forces-to-address-climate-distress-among-young-people/

Newberry Le Vay J, Cunningham A, Soul L, Dave H, Hoath L, Lawrance EL (2023) Integrating mental health into climate change education to inspire climate action while safeguarding mental health. Front Psychol 14:1298623. https://doi.org/10.3389/fpsyg.2023.1298623

O'Donohue KA, Berger E, McLean L, Gao CX, Broder JC, Abramson MJ, Sim MR, Ikin J, Brown D, Dimitriadis C, Walker J, Carroll M (2022) The psychological impacts of a smoke event on young adults compared to other aged adults in Victoria Australia. Int J Disaster Risk Reduction 70:102727. https://doi.org/10.1016/j.ijdrr.2021.102727

Patrick R, Henderson-Wilson C, Ebden M (2022) Exploring the co-benefits of environmental volunteering for human and planetary health promotion. Health Promot J Australia 33(1):57–67. https://doi.org/10.1002/hpja.460

Patrick R, Snell T, Gunasiri H, Garad R, Meadows G, Enticott J (2022) Prevalence and determinants of mental health related to climate change in Australia. Aust New Z J Psychiatr 57(5):710–724. https://doi.org/10.1177/00048674221107872

Patrick R, Noy S, Henderson-Wilson C, Hayward J, Allender S, Gunasiri H, Bruges N, Snell T, Capetola T (2023) Minding our futures: understanding climate-related mental wellbeing using systems science. Health Place 84:103134. https://doi.org/10.1016/j.healthplace.2023.103134

Pickard S (2022) Young environmental activists and do-it-ourselves (DIO) politics: collective engagement, generational agency, efficacy, belonging and hope. J Youth Stud 25(6):730–750

Pitt C, Norris K, Pecl G (2024) Informing future directions for climate anxiety interventions: a mixed-method study of professional perspectives. J Outdoor Environ Educ. https://doi.org/10.1007/s42322-023-00156-y

Psychology for a Safe Climate. (2023). Supporting people emotionally in facing the climate reality. Retrieved Retrieved January 22nd 2025, from https://www.psychologyforasafeclimate.org/wp-content/uploads/2023/03/About_Psychology-for-a-Safe-Climate_2023.pdf

Ramadan R, Randell A, Lavoie S, Gao CX, Manrique PC, Anderson R, McDowell C, Zbukvic I (2023) Empirical evidence for climate concerns, negative emotions and climate-related mental ill-health in young people: a scoping review. Early Intervention in Psychiatry n/a(n/a):537–563. https://doi.org/10.1111/eip.13374

Romanello M, Napoli Cd, Green C, Kennard H, Lampard P, Scamman D, Walawender M, Ali Z, Ameli N, Ayeb-Karlsson S, Beggs PJ, Belesova K, Berrang Ford L, Bowen K, Cai W, Callaghan M, Campbell-Lendrum D, Chambers J, Cross TJ, van Daalen KR, Dalin C, Dasandi N, Dasgupta S, Davies M, Dominguez-Salas P, Dubrow R, Ebi KL, Eckelman M, Ekins P, Freyberg C, Gasparyan O, Gordon-Strachan G, Graham H, Gunther SH, Hamilton I, Hang Y, Hänninen R, Hartinger S, He K, Heidecke J, Hess JJ, Hsu S-C, Jamart L, Jankin S, Jay O, Kelman I, Kiesewetter G, Kinney P, Kniveton D, Kouznetsov R, Larosa F, Lee JKW, Lemke B, Liu Y, Liu Z, Lott M, Lotto Batista M, Lowe R, OdhiamboSewe M, Martinez-Urtaza J, Maslin M, McAllister L, McMichael C, Mi Z, Milner J, Minor K, Minx JC, Mohajeri N, Momen NC, Moradi-Lakeh M, Morrissey K, Munzert S, Murray KA, Neville T, Nilsson M, Obradovich N, O'Hare MB, Oliveira C, Oreszczyn T, Otto M, Owfi F, Pearman O, Pega F, Pershing A, Rabbaniha M, Rickman J, Robinson EJZ, Rocklöv J, Salas RN, Semenza JC, Sherman JD, Shumake-Guillemot J, Silbert G, Sofiev M, Springmann M, Stowell JD, Tabatabaei M, Taylor J, Thompson R, Tonne C, Treskova M, Trinanes JA, Wagner F, Warnecke L, Whitcombe H, Winning M, Wyns A, Yglesias-González M, Zhang S, Zhang Y, Zhu Q, Gong P, Montgomery H, Costello A (2023) The 2023 report of the Lancet countdown on health and climate change: the imperative for a health-centred response in a world facing irreversible harms. Lancet 402(10419):2346–2394. https://doi.org/10.1016/S0140-6736(23)01859-7

Ryan EG, Gao CX, Grantham KL, Thao LTP, Charles-Nelson A, Bowden R, Herschtal A, Lee KJ, Forbes AB, HeritierPhillipou A, Wolfe R (2024) Advancing randomized controlled trial methodologies: the place of innovative trial design in eating disorders research. Int J Eat Disord 57(6):1337–1349. https://doi.org/10.1002/eat.24187

Sciberras E, Fernando JW (2022) Climate change-related worry among Australian adolescents: an eight-year longitudinal study. Child Adolesc Mental Health 27(1):22–29. https://doi.org/10.1111/camh.12521

Seth A, Maxwell J, Dey C, Le Feuvre C, Patrick R (2023. Understanding and managing psychological distress due to climate change. Aust J Gen Pract 52:263–268. https://www1.racgp.org.au/ajgp/2023/may/understanding-and-managing-psychological-distress

Teo SM, Gao CX, Brennan N, Fava N, Simmons MB, Baker D, Zbukvic I, Rickwood DJ, Brown E, Smith CL, Watson AE, Browne V, Cotton S, McGorry P, Killackey E, Freeburn T, Filia KM (2024) Climate change concerns impact on young Australians' psychological distress and outlook for the future. J Environ Psychol 93:102209. https://doi.org/10.1016/j.jenvp.2023.102209

Thiagarajan T, Newson J (2023) The mental state of the world in 2022. Mental Health Million Project: Sapien Labs. https://mentalstateoftheworld.report/wpcontent/uploads/2023/02/Mental-State-of-the-World-2022.pdf

Vogel C, Nkrumah B, Kosciulek D, Lebea D, Booth T, Brown M (2022) 'Empowering youth as change agents for climate change in South Africa': challenges, caveats and course corrections. J Youth Stud 25(6):812–832. https://doi.org/10.1080/13676261.2022.2046259

White BP, Breakey S, Brown MJ, Smith JR, Tarbet A, Nicholas PK, Ros AMV (2023) Mental health impacts of climate change among vulnerable populations globally: an integrative review. Ann Glob Health 89(1):2023. https://doi.org/10.5334/aogh.4105.eCollection

Xue S, Massazza A, Akhter-Khan SC, Wray B, Husain MI, Lawrance EL (2024) Mental health and psychosocial interventions in the context of climate change: a scoping review. Npj Mental Health Res 3(1):10. https://doi.org/10.1038/s44184-024-00054-1