

SUMMARY AGENDA

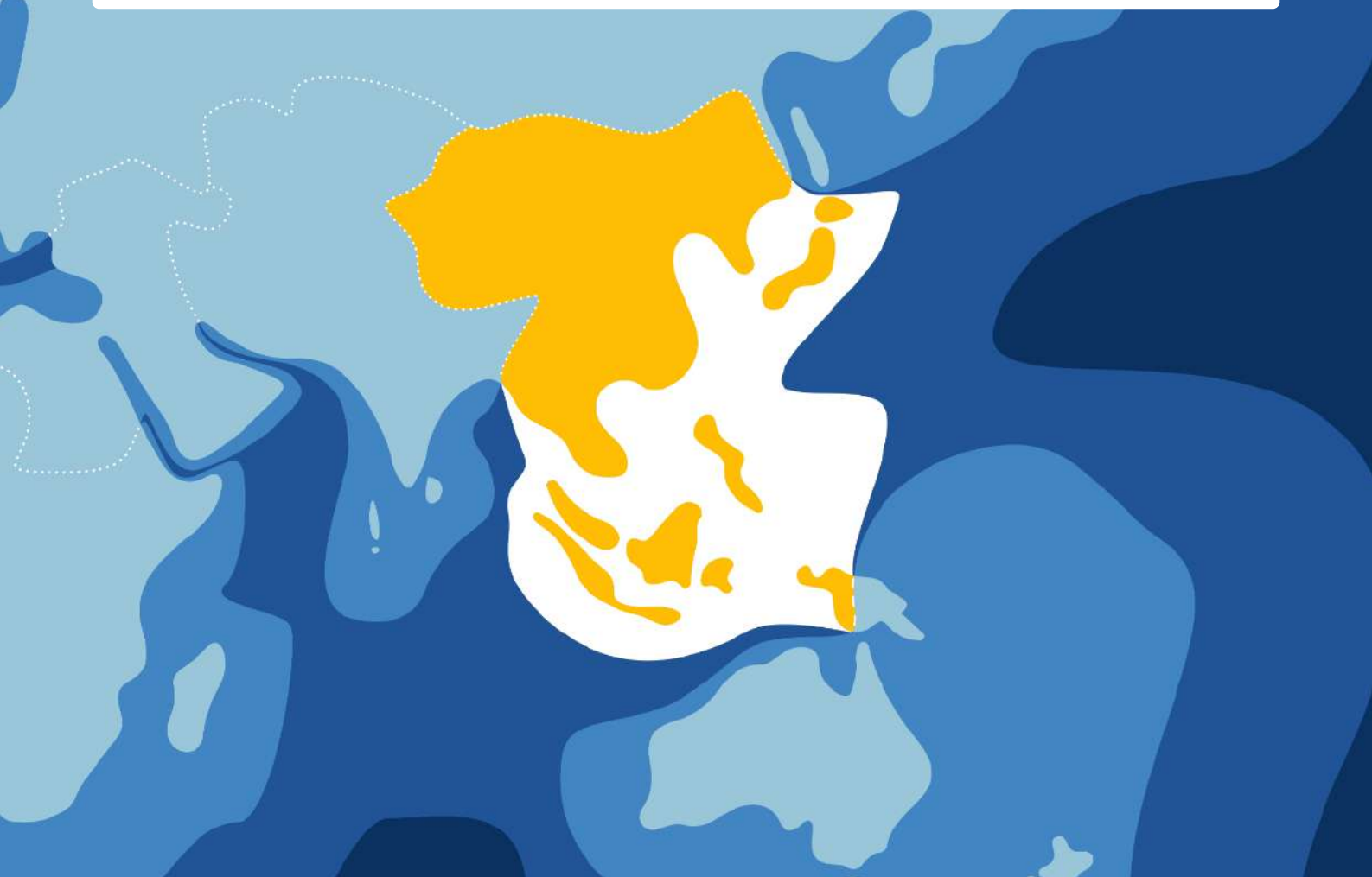
Climate and Mental Health Regional Research & Action Agenda

Eastern & South- Eastern Asia



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REGIONAL AGENDA LEADS:



Executive summary

Connecting Climate Minds (CCM) is a Wellcome-funded initiative which aims to cultivate a collaborative, transdisciplinary climate change and mental health field with a clear and aligned vision. Over the last year, we have convened experts across disciplines, sectors and countries to develop regional and global research and action agendas. These agendas set out 1) research priorities to understand and address the needs of people experiencing the mental health burden of the climate crisis, and 2) priorities to enable this research and translate evidence into action in policy and practice. This report summarises the research and action agenda for climate change and mental health in Eastern and South-Eastern Asia (ESEA); the full agenda¹ has been published separately and is available [here](#).

A total of 30 priority research themes emerged across the four key research categories of the project:

- **Impacts, risk, and vulnerable groups:** These themes explore: which mental health impacts (e.g., anxiety, depression, trauma and stress) arise from climate change events common in ESEA, including extreme typhoons, flooding, increasing heat, bushfire, drought, etc.; how they manifest; and who is disproportionately affected (e.g., farmers, fisher peoples, low-income communities, children and youth, the elderly, people with disabilities, those with existing health and mental health problems, etc.).
- **Pathways and mechanisms:** These themes tackle how mental health outcomes driven by climate change arise as well as the proximal, intermediate and distal factors that explain the link between climate change and mental health (e.g., socioeconomic and health inequities, gender-based inequalities and violence, stigma, disrupted spiritual connection to land, etc.).
- **Mental health benefits of climate action:** These themes explore how climate mitigation and adaptation actions generate positive mental health outcomes (e.g., improved mental health through individual and community engagement in climate action, sustainable urbanisation, creation of climate-resilient and sustainable healthcare systems, integration of mental health and climate change policies, etc.).
- **Mental health interventions in the context of climate change:** These themes analyse existing and novel mental health prevention and curative approaches applicable to climate change-affected situations (e.g., preventive solutions for mental health caused by abrupt and slow-onset climate events, strengthening mental health and psychological support for climate-related disasters, community-based and culturally sensitive climate-mental health interventions, climate change and mental health education as an intervention).

Our regional vision is an ESEA where citizens and communities enjoy the highest attainable level of mental health, living in harmonious balance, resilience, equity and justice, even in the face of a changing climate.

To advance the climate change and mental health agenda in the region, we have identified a number of priority actions. To create an enabling environment for research, this includes: enhanced funding support for climate change and mental health research; engaging people and communities outside academia; and advocating for more climate change and mental health research within academic institutions.

Additionally, it is essential to effectively translate the growing evidence base into action so that the region can better respond to the mental health impacts of climate change. Opportunities to do so include: encouraging meaningful collaboration between researchers from different disciplines, policymakers and affected communities to create evidence-based and culturally appropriate interventions and policies; and leveraging the increasing awareness of the public and government leaders to advocate for better policies and interventions that simultaneously address climate change and promote mental health.

Introduction

Climate hazards in the Eastern and South-Eastern Asia

The region of Eastern and South-Eastern Asia (ESEA) is facing an increase in the frequency and severity of a range of climate hazards, including the following, modelled to approximately 2030 as compared to historical baseline (generally 1986-2005);^{2,3,i}

- **Extreme temperatures**, with up to 40 additional days above 35 C per year in Thailand, Indonesia and parts of China (high confidence);³
- **Droughts** across the region (low confidence);
- **Wildfires** in northern expanses of the region (low-to-medium confidence);
- **Heavy precipitation**, including an increase in extreme precipitation events and average precipitation across the region (high confidence);
- **Flooding** in Northern Asian regions and prolonged inundation in the Mekong Delta (high confidence);
- **Sea level rise** associated with coastal area loss, shoreline retreat and coastal flooding (high confidence); and
- **Tropical cyclones**, with an increase in frequency (approximately 6%), yet a decrease in intensity of Category 4-5 tropical cyclones in this region (low confidence).

Climate change and mental health in ESEA

Existing research

Overall, there is a scarcity of research on the climate-mental health nexus in ESEA, especially research conducted by scholars and practitioners from the region. A brief summary of these findings can be found in the appendix.

Findings from the Connecting Climate Minds project

The following sections present findings from the Connecting Climate Minds (CCM) project – including pre-dialogue scoping, two dialogues, two surveys and expert consultations (refer to the appendix for details on methods) – to explore: perceptions of mental health risks associated with climate exposures; whose mental health may be most at risk; and the pathways through which climate exposures might produce or exacerbate existing mental health challenges. Please note that the summaries in the following sections are reports or perceptions from diverse experts, including those with lived experience, rather than drawing from published evidence.

ⁱ Future projections are based on the middle of the road emissions scenario (SSP2-4.5 Shared Socio-economic Pathway) from the CMIP6 multi-model ensemble provided in the IPCC, 2021.

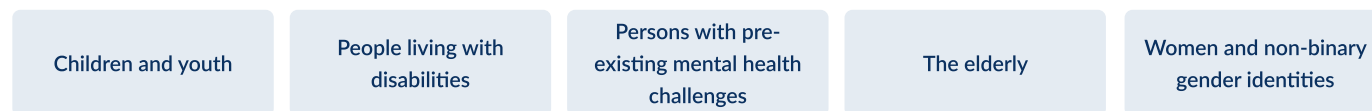
ⁱⁱ Confidence levels listed after projections are a measure of researcher confidence that model's results are true and not due to chance.

What mental health outcomes appear to be impacted?

The mental health impacts of climate change repeatedly identified during the dialogues, surveys and consultations with lived experience experts include depression, anxiety, PTSD and suicidal ideation. Other mental health outcomes that were sparsely mentioned include substance abuse, bipolar disorder and schizophrenia.

Who appears to be particularly affected by the mental health impacts of climate change?

Disadvantaged demographic groups:



Hazard-exposed occupational groups:



Disadvantaged demographic groups:



People in institutionalised settings :



Hazard-exposed occupational groups:



What appear to be the pathways and mechanisms linking these climate hazards to mental health outcomes?

Participants identified several potential explanations regarding how climate change leads impacts mental health outcomes in vulnerable groups, as listed below (detailed explanations can be found in the full version of the agenda):

1. **Repeated experience** of climate-change related events increases susceptibility to PTSD and anxiety;
2. **Gender inequities** exacerbated during disasters lead to increased violence and discrimination, which may result in depression and anxiety;
3. Schools are converted into evacuation centres during disasters, **disrupting education among school children**;
4. The **inability to recover from the economic loss, destruction of properties and disruption of livelihoods** leads to depression and anxiety; this, coupled with the limited access to basic needs following disasters, contributes to depression and anxiety in disaster survivors;
5. **Increased cost of living** due to climate impacts and the inability to access climate adaptation technologies to mitigate climate-related stressors (e.g., air conditioners and air purifiers) can lead to depression and anxiety;
6. **Economic losses due to a decrease in the quality and quantity of crops, livestock and fish** catch may lead to depression and anxiety among farmers and fisher peoples whose livelihoods depend on the environment; worst cases may also lead to suicide or suicidal ideation; and
7. **Indigenous people who have a strong connection to nature and their land** may experience depression and anxiety as the environment is affected by climate change.

Research agenda

Priority research themes

This research agenda presents an aligned vision to guide the climate and mental health field in ESEA. Research priorities have been generated through consultation with experts across disciplines, sectors and geographies in the region and iterated with experts regionally and globally; they are presented within four overarching research categories that were identified as areas of critical need for further work globally, based on an initial review of global literature (see appendix for further details). The priority research themes represent areas where targeted research investment could create a full picture of impacts, their mechanisms and solutions across both mental health and climate actions.

RESEARCH CATEGORY

Impacts, risks and vulnerable groups

Priority research themes:

Understanding what mental health challenges (e.g., anxiety, depression, PTSD, suicide, etc.) people in the region experience when affected by extreme weather events (such as typhoons, flooding, bushfires, landslides and drought) and slow-onset climate events (such as sea level rise and increasing ambient temperature), how many people are affected and how affected populations cope and adapt to these challenges.

Through a health equity lens, investigating how specific groups are affected by worsening mental health symptoms and conditions as a result of both extreme weather and slow-onset events brought about by climate change.

Identifying and evaluating existing assessment tools and developing new measures and tests (unique to the mental health responses to climate change) to screen, assess and diagnose the various mental health symptoms and conditions resulting from climate change-related extreme weather and slow-onset events, both in the general population and in highly vulnerable populations.

Through a health equity lens, unravelling geographic (e.g., inter-country) and cross-population (e.g., between Indigenous and other populations) differences in the magnitude and manifestation of climate-related mental health symptoms and conditions and the factors driving these differences.

RESEARCH CATEGORY

Pathways and mechanisms

Environmental priority research themes:

Understanding the proximal and intermediary factors in the climate hazard-human health pathway that increase or decrease people's vulnerability to mental health symptoms and conditions such as irritability, loss of hope, loss of concentration, anxiety and depression.

Understanding how urbanisation (including associated air pollution) and ecosystem destruction interact with climate change to produce psychological reactions such as ecological grief, solastalgia and climate anxiety, and how these reactions lead to mental health challenges.

Pathways and mechanisms

Societal priority research themes:

Understanding how socioeconomic inequities, worsened by climate change, and their accompanying access problems (in relation to basic needs, healthcare, climate adaptation technologies, etc.) affect the magnitude and intensity of mental health challenges.

Understanding how climate change-related extreme weather and slow-onset events interact with gender-based inequalities to affect mental health outcomes, and what other social, economic and cultural factors influence these relationships.

Exploring how climate education/awareness/literacy impacts mental health, especially in young people, and how such education can improve mental health and drive climate action.

Identifying the demographic and socioeconomic factors that enhance the psychological resilience of individuals and communities against the mental health impacts of climate change.

Understanding how stigma impacts mental health outcomes and help-seeking behaviour among populations affected by climate change, whether this limits their access to mental health services during and after climate change-related disaster, and how such stigma can be addressed.

Understanding how the disruption of education during climate change-related disasters and slow-onset events results in or contributes to mental health symptoms and conditions such as anxiety and depression among children and young people.

Psychological priority research themes:

Understanding how the experience of climate change interacts with exposure to social media, including climate change-related content, in influencing the mental health of children and young people.

Understanding how the experience of climate change interacts with generational trauma experienced by children and young people in influencing their mental health.

Identifying which pre-existing mental health conditions are more likely to be affected by climate change-related events and how.

Biological priority research themes:

Understanding the extent to which various climate hazards (and the alterations they create in proximal factors) influence neurological (including brain development), endocrine, aging, chronic disease, psychological or genetic (i.e., epigenetics) processes that may lead to adverse mental health outcomes.

Exploring how climate change-related impacts on diets and food systems (i.e., food quality, food scarcity, etc.) affect mental health outcomes.

Mental health benefits of climate action (adaptation and mitigation)

Priority research themes:

Measuring the mental health benefits of climate mitigation and adaptation efforts at both the individual and population levels.

Understanding how being part of climate-resilient communities and local climate mitigation and adaptation efforts impacts mental health symptoms and status.

Exploring how different stakeholders (including governments, civil society, academia, private sector and communities with lived experiences) and disciplines can meaningfully collaborate to advance joint learning, data sharing, research, policy and intervention at the climate change-mental health nexus at local and national levels.

Measuring the mental health benefits of exposure to greener and bluer environments resulting from climate mitigation/adaptation efforts and how they can drive positive climate action.

Understanding whether and how climate-resilient and environmentally sustainable healthcare systems could improve mental healthcare access and reduce mental health challenges.

Analysing the development, integration and implementation of climate change and mental health policies and programs at local, national and regional levels.

Mental health interventions/solutions in the context of climate change

Priority research themes:

Exploring how to strengthen mental health and psychological support (MHPSS), especially at primary care level, to address mental health impacts of climate-related disasters and slow-onset events.

Identifying and evaluating community-based mental health interventions to address future mental health impacts of climate-related disasters and slow-onset events, particularly in climate-vulnerable and climate-affected areas. In particular, understanding how these interventions can be improved and tailored for climate change-affected communities.

Exploring how collective actions and a greater sense of community affect climate change-induced mental health impacts and/or promote emotional coping and adaptation to climate awareness and experiences.

Exploring strengths-based approaches (e.g., positive psychology and positive education) to alleviate mental health challenges driven by climate hazards.

Exploring how to incorporate cultural beliefs and practices from various faith communities and Indigenous populations in the region, including spirituality, into mental health interventions addressing climate change-driven mental health impacts, in accordance with a context-based and decolonised approach to mental health.

Exploring how to effectively communicate climate change and mental health to people across the region – via formal education, different forms of media and other forms of awareness and prevention programs – to raise climate awareness, encourage climate action and promote mental health.

Exploring digital mental health solutions that can be deployed to climate-vulnerable and resource-limited settings.

Action agenda

This action agenda sets out a shared vision as a rallying focus of the mental health and climate change field in ESEA. It sets out the challenges which must be addressed, opportunities that can be harnessed and priority actions to work towards a thriving climate and mental health field.



Regional vision for mental health in a changing climate

Overall, our vision is an Eastern and South-Eastern region where people live and thrive, not only physically but also mentally and emotionally, in spite of the climate crisis - while also harnessing their personal and community resilience to drive action to tackle the climate crisis. An important component to achieve this vision is to establish and strengthen collective understanding of the interconnection between climate change and mental health. Doing so requires meaningful insights that are profoundly informed and enriched by accounts of people's lived experiences of climate hazards and their mental health consequences, and through consultations, dialogues, research and advocacy that brings stakeholders from across geographies, sectors, disciplines and generations.

This regional vision centres the diverse knowledge and experiences of various communities and puts them at the heart of collaborative research and collective action. The vision is also committed to not only diagnosing problems but driving solutions that benefit people's lives, especially the vulnerable and the marginalised. Central to achieving this vision is the growth, expansion and sustainability of the Regional Community of Practice that emerged from this project, which will advance the climate and mental health field and actively advocate for safeguarding the mental health of vulnerable communities across the region under a changing climate.

Creating an enabling environment for research and translating a growing evidence base into action

Creating an enabling environment for research at the intersection of climate change and mental health

Challenges:

- **Lack of education and awareness** of the relationship between climate change and mental health
- **Limited funding**
- **Limited/inaccessible data**
- **Limited attention on this nexus among researchers/in academia**
- **Diversity of cultures/contexts**, which limits the applicability of findings across the region
- **Lack of support** from leaders and decision makers

Opportunities and enablers:

- **Increasing public awareness** of climate-mental health issues
- **Leveraging collaboration** between researchers across disciplines
- **Encouraging community participation** in research

Relevant potential partners:

- Community members, particularly people with lived experience and those from vulnerable groups
- Experts from multiple disciplines, including psychology, public health, climate science, economics, business and neuroscience
- Funders, including philanthropists
- NGOs/civil society organisations
- Policymakers and government decision makers
- Private business
- Social enterprise organisations
- Universities/academic institutions

Translating a growing evidence base into action that can respond to the interconnections between climate change and mental health

Challenges:

- **Lack of awareness** among policymakers and governments on climate-mental health issues
- **Limited/inaccessible data**
- **Limited funding and prioritisation** of climate-mental health issues
- **Politicisation** of climate-mental health issues
- **Diversity of cultures/contexts** preventing inter-country collaboration
- **Limited collaboration/silos** across relevant sectors

Opportunities and enablers:

- **Increasing public awareness** between researchers, government leaders, policymakers and implementers
- Deep, respectful **collaboration with communities**
- **Increasing awareness among government leaders** of climate-mental health issues

Relevant potential partners:

- Community members, particularly people with lived experience and those from vulnerable groups
- Government policymakers, decision makers and implementers involved in climate change (e.g., ministries of environment, climate change policy bodies) and mental health (e.g., ministries of health, national public health institutes)
- Media/journalists
- NGOs/civil society organisations
- Universities/academic institutions

Priority next steps/recommendations to investors and actors

Creating an enabling environment for research at the intersection of climate change and mental health

As an overall strategy to support research, participants have called to:

- **'Decolonise' the concepts of climate change and mental health in the region**, making research frameworks, methods and approaches more culturally-appropriate to the needs and experiences of our communities.
- **Use clear language that is accessible to the communities and vulnerable groups** who will act as research partners; scientific inquiry should be understandable to all.
- **Create capacity building opportunities for current and future researchers** to build an academic community that values leadership and growth; this is critical for sustaining climate change and mental health research in the long term. This strategy includes incorporating climate change and mental health into the research agendas of educational institutions, including departments of various disciplines, to help increase awareness of these issues and encourage more collaboration for research.
- **Advocate for greater diversity in methods and research designs** in climate change and mental health research.

Translating a growing evidence base into action that can respond to the mental health impacts of climate change

To effectively translate evidence into action, we need to:

- **Strengthen the links between researchers and policymakers** by creating avenues where they can openly discuss issues and develop solutions to climate change and mental health problems.
- **Empower communities and increase public awareness**, especially among professionals and policymakers, on climate change and mental health to encourage open discussion and generate support for these issues.
- **Evaluate the effectiveness of current policies** to address the needs of populations in terms of climate change, mental health and their intersection.
- **Conduct training and capacity building workshops for both researchers and policymakers** to improve communication of evidence and solutions between these groups and to broader audiences.

Conclusion

Overall, our vision is an ESEA region where people live and thrive, not only physically but also mentally and emotionally, in spite of the climate crisis – while also harnessing their personal and community resilience to drive action to tackle the climate crisis. To achieve this vision, we need transdisciplinary, cross-sectoral, international and multigenerational collaborative research – anchored in equity and justice. We further need a deep commitment to applying research findings and lessons learned to inform policies and practices that will promote and protect the region's collective mental health in the era of a warming planet.



Who produced this report

Authorship team

This development of this report and the conduct of this project were led by the Planetary and Global Health Program (PGHP) of the St. Luke's Medical Center College of Medicine - William H. Quasha Memorial in the Philippines - the Eastern and South-Eastern Asia regional community convener (RCC) of Connecting Climate Minds. This report was written under the overall direction and leadership of Renzo R. Guinto, director of the PGHP and lead of the Eastern and South-Eastern Asia RCC. John Jamir Benzon R. Aruta led the analysis of dialogue outcomes, pre-dialogue scoping, and drafting of major sections of this report, with support from Kent Tristan Esteban and Jun Angelo Sunglao. Gail S. Co coordinated the different activities of the project - especially the two dialogues - that generated findings for the report. Dianne J. Cunanan and Alfredo Lorenzo R. Sablay both supported the implementation of the dialogues. All team members of the PGHP contributed different portions of the report and participated in various aspects of the dialogue as organisers and facilitators. Colleagues from one of the co-conveners, Health and Global Policy Institute in Japan, particularly Joji Sugawara and Niaya Harper Igarashi, also participated in the dialogue as facilitators and contributed inputs to the writing of this report.

This is the independent work of the authors with the support and input of the Connecting Climate Minds team.

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Shaine Therese Aguado (Dialogue 2)
Julius Cesar Alejandro (Dialogue 1, Dialogue 2)
Suhailah Ali (Dialogue 1 Notetaker)
Rowalt Alibudbud (Dialogue 1, Dialogue 2, Post-Dialogue Survey)
Ashwena Apao (Dialogue 1, Pre-Dialogue Survey, Post-Dialogue Survey)
Johannes Reiner Asio (Dialogue 1 Notetaker)
Louella Abigail Asuncion (Dialogue 1 and Dialogue 2 Notetaker)
Emmanuel Benyeogor (Pre-Dialogue Survey)
Marianne Bongcac (Dialogue 1 and Dialogue 2 Notetaker)
Veronica Cabe (Dialogue 1, Dialogue 2, Pre-Dialogue Survey, Lived Experience Advisory Group)
Dr. Pamela Cajilig (Dialogue 1, Dialogue 2, Pre-Dialogue Survey)
Dr. Timothy Hudson David Carandang (Dialogue 1 Notetaker)
Dr. Katrina Ceballos (Dialogue 1 and Dialogue 2 Facilitator)
Dr. Kai-Yuan Cheng (Dialogue 1, Dialogue 2, Pre-Dialogue Survey)
Dr. Gopalasamy Reuben Clements (Dialogue 1, Pre-Dialogue Survey)
Dr. Jake Bryan Cortez (Dialogue 1 Facilitator)
Charlie Choy (Dialogue 1)
Dr. Yel Daravuth (Dialogue 1, Pre-Dialogue Survey)
Silvina Idalina de Jesus (Post-Dialogue Survey)

Laetania Djandam (Dialogue 1 Facilitator, Post-Dialogue Survey, Regional Co-convenor)

Laily Lutfiana Dhia (Dialogue 1, Dialogue 2, Pre-Dialogue Survey, Post-Dialogue Survey, Lived Experience Advisory Group)

Elisa Ximenes dos Santos (Post-Dialogue Survey)

Dr. Kimin Eom (Dialogue 2, Expert Interview)

Maricel Estavillo (Dialogue 2)

Dr. Crystal Estrada (Dialogue 2)

Dr. Gabriela Fernando (Pre-Dialogue Survey)

Caroline Fried (Dialogue 1, Dialogue 2)

Rodne Galicha (Dialogue 1)

Dr. Johnrev Guilaran (Expert Interview)

Dr. Sharina Abdul Halim (Dialogue 1, Dialogue 2)

Iman Fahim Hameed (Dialogue 1, Dialogue 2, Pre-Dialogue Survey)

Dr. Tran Thi Tuyet Hanh (Dialogue 1, Pre-Dialogue Survey)

Charlotte Hicks (Dialogue 1, Post-Dialogue Survey)

Pengsan Huon (Pre-Dialogue Survey)

Yuka Iijima (Dialogue 1, Dialogue 2, Post-Dialogue Survey)

Jasmin Irisha Jim Ilham (Dialogue 1 Facilitator, Youth Ambassador, Post-Dialogue Survey)

Marieanne Ito (Dialogue 1, Dialogue 2, Pre-Dialogue Survey)

Jeta Jiranuntarat (Dialogue 2)

Maria Puspa Kartika (Dialogue 1 Facilitator, Dialogue 2, Pre-Dialogue Survey, Post-Dialogue Survey, Regional Co-convenor)

Audrey Kianjaya (Post-Dialogue Survey)

Dr. Yoonhee Kim (Pre-Dialogue Survey, Expert Interview)

Dr. Ivan Kurnia (Dialogue 1, Pre-Dialogue Survey)

Dr. Honey Libertine Achanzar-Labor (Dialogue 2, Expert Interview)

Alyanna Lagasca (Dialogue 1)

Michelle Lapiz (Dialogue 2 Notetaker)

Aishath Thimna Latheef (Dialogue 1, Dialogue 2, Pre-Dialogue Survey, Post-Dialogue Survey)

Lincoln Lau (Post-Dialogue Survey)

Elaine Clarisse Lim (Dialogue 1, Dialogue 2)

Mathea Melissa Lim (Dialogue 1, Dialogue 2)

Trisha Lim (Pre-Dialogue Survey)

Dr. Mingnan Lin (Dialogue 1, Dialogue 2, Expert Interview)

Syar Shirley Lin (Dialogue 2)

Dr. Muhammad Daniel Azlan Mahadzir (Dialogue 1, Dialogue 2, Pre-Dialogue Survey, Lived Experience Advisory Group)

Dr. Alberto Teodoro "TJ" Malvar (Pre-Dialogue Survey)

Oyungerel Munkhbat (Dialogue 1)

Prof. Keiko Nakamura (Dialogue 1, Connecting Climate Minds Regional Advisory Board)

Kirchelle Ann Mae Nodado (Dialogue 2 Notetaker)

Sheen Orihuela (Dialogue 1 Notetaker)

Adi Palguna (Dialogue 1, Dialogue 2, Pre-Dialogue Survey, Post-Dialogue Survey)

Joonha Park (Dialogue 2)

Shervin Pascual (Dialogue 2 Notetaker)

Jhonatan Yuditay Pratama (Dialogue 1, Dialogue 2, Pre-Dialogue Survey, Lived Experience Advisory Group)

Dr. Madihah Ahmad Puaad (Dialogue 1, Dialogue 2, Pre-Dialogue Survey, Post-Dialogue Survey, Lived Experience Advisory Group)

Dr. Luis Carlos Rodriguez (Dialogue 1, Pre-Dialogue Survey)

Dr. Connie Cai Ru (Dialogue 1, Dialogue 2, Pre-Dialogue Survey)
Sena Salcedo (Dialogue 1, Dialogue 2, Psychosocial Support Adviser)
Dr. Moises Neil Serino (Pre-Dialogue Survey)
Saumya Surbhi (Pre-Dialogue Survey)
Sarah Queblatin (Dialogue 1, Dialogue 2)
Mitzi Tan (Dialogue 2)
Midori Tatsumi (Pre-Dialogue Survey)
Dr. Pauline Tiangco (Dialogue 2 Facilitator)
Bao To (Pre-Dialogue Survey)
Lien To Thi (Dialogue 1, Dialogue 2, Pre-Dialogue Survey, Post-Dialogue Survey, Regional Co-convenor)
Angela Tritto (Dialogue 1, Dialogue 2, Pre-Dialogue Survey, Post-Dialogue Survey)
Naw Aye Chan Wadi (Dialogue 1, Post-Dialogue Survey)
Naw Chit Wai Wai (Pre-Dialogue Survey)
Dr. Grace Wangge (Dialogue 1, Pre-Dialogue Survey)
Johannah Wegerdt (Pre-Dialogue Survey)
Wang Shiou Wu (Post-Dialogue Survey)
Shakila Zen (Dialogue 1, Dialogue 2, Pre-Dialogue Survey)
Yves Zuniga (Dialogue 1)

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Conflicts of interest

The authors have no conflicts of interest to declare.

Appendix

Connecting Climate Minds (CCM) overview

Connecting Climate Minds (CCM) is a Wellcome-funded project launched in 2023 to develop an inclusive agenda for research and action in climate change and mental health. The project has two key, intertwined aims. The first is to develop an aligned and inclusive agenda for research and action that is grounded in the needs of those with lived experience of mental health challenges in the context of climate change, to guide the field over the coming years. The second is to kickstart the development of connected communities of practice for climate change and mental health in seven global regions (designated by the Sustainable Development Goals), equipped to enact this agenda. We aim to combine the strengths of a global perspective and regional focus, and bring together diverse disciplinary perspectives into a shared vision that can ensure research is effective at addressing priority evidence gaps and informing changes in policy and practice at the intersection of climate change and mental health.

Regional Community Team

In ESEA, CCM is led by a Regional Community Team (RCT), responsible for convening diverse expertise across the region and building regional capacity to create and enact the research and action agenda. The structure of the RCT is outlined below.

RCT Structure	Role	Members
Regional Community Convenor (RCC)	Responsible for developing and delivering project activities in the region, including convening and supporting a regional community of diverse expertise.	<u>Planetary and Global Health Program, St. Luke's Medical Center College of Medicine - William H. Quasha Memorial, Philippines</u> <ul style="list-style-type: none"> • Renzo R. Guinto • John Jamir Benzon Aruta • Gail S. Co • Kent Tristan Esteban • Dianne J. Cunanan • Alfredo Lorenzo R. Sablay • Jun Angelo Sunglao
Co-Convenors	Bringing additional breadth of expertise across disciplines and countries, providing technical advice and review, and supporting project delivery.	<u>Living Laudato Si' Philippines</u> <ul style="list-style-type: none"> • Rodne Galicha • John Leo Algo <u>Health and Global Policy Institute, Japan</u> <ul style="list-style-type: none"> • Joji Sugawara • Niaya Harper Igarashi <u>Alam Sehat Lestari, Indonesia</u> <ul style="list-style-type: none"> • Nur Febriani • Maria Puspa Kartika <u>Division of Environment and Sustainability, The Hong Kong University of Science and Technology</u> <ul style="list-style-type: none"> • Laurence L. Delina <u>Health Care Without Harm- Southeast Asia</u> <ul style="list-style-type: none"> • Ramon San Pascual • Laetania Belai Djandam

RCT Structure	Role	Members
Co-Convenors	Bringing additional breadth of expertise across disciplines and countries, providing technical advice and review, and supporting project delivery.	Center for Health Environment Research and Development, Vietnam Lien To
Lived Experience Advisory Group (LEAG)	Advisory board of experts with lived experience of mental health challenges in the context of climate change and/or belonging to vulnerable population groups and living with climate hazards. Drawing on their unique expertise and wisdom, LEAGs provide vital community-centred perspectives and guidance that inform the overarching approach and outputs of the project.	<ul style="list-style-type: none"> • Veronica “Derek” Cabe - Coal and Nuclear-Free Bataan Movement, Philippines • Marinel Ubaldo - Philippines • Laily Lutfiana Dhia - Alam Sehat Lestari, Indonesia • Madiah Ahmad Puaad - Angsana Health, Malaysia • Muhammad Daniel Azlan Mahadzir - Adeante Corporation, Malaysia • Jhonatan Yuditya Pratama - Patamuan Talino Foundation, Indonesia
Youth Ambassador(s) (YAs)	Youth advisors (aged 18-29) with lived experience of mental health challenges in the context of climate change and/or belonging to vulnerable population groups and living with climate hazards. YAs bring unique youth-centred perspectives to the development and implementation of project activities.	<ul style="list-style-type: none"> • Jasmin Irisha Jim Ilham - Malaysia

Methods

We produced this research and action agenda through a robust and inclusive methodology to capture, combine and refine a rich diversity of perspectives while fostering connection across a growing community of practice. Experts across disciplines, sectors and countries were convened in two virtual dialogues and consulted through two online surveys.

The CCM core team developed this methodology at a global level in consultation with the RCT, a Global Advisory Board and Wellcome. Methods and materials were adapted regionally by the RCT to ensure a balance of global standardisation with regional appropriateness and flexibility. Continuous sharing between regions of processes, learnings and challenges facilitated iterative development of the methodology. The process for developing the regional research and action agendas is shown below.

Participants were recruited firstly through the networks of the RCT, CCM core team and Wellcome, with further recruitment through snowball sampling to reach a broad range of experts across disciplines, sectors and geographies.

Full methods can be found [here](#).



Generation of research and action priorities

Priorities for research were generated, refined and finalised through the following process:

- **Developing research categories:** Through a global landscaping exercise of relevant existing climate change and mental health reviews⁴⁻¹³ four broad research categories were identified as areas of critical need for further work globally. This framework was used as the basis for structuring discussions within dialogues to generate research priorities and formed the global coding framework for analysis. These were:
 - **Impacts, risks and vulnerable groups:** improving our understanding of the ways in which mental health is affected by climate change. For example: what mental health outcomes are impacted or at risk; the prevalence, severity, economic and societal costs of these impacts; and who is most vulnerable to these impacts.
 - **Pathways and mechanisms:** improving our understanding of how mental health is affected by climate change and, in particular, whether there are factors specific to climate change that increase mental health risks. This includes considering biological, psychological, societal or environmental pathways and mechanisms.
 - **Mental health benefits of climate action (adaptation and mitigation):** understanding and quantifying when and how climate adaptation and mitigation actions, across sectors, can also have win-win benefits for mental health.
 - **Mental health interventions/solutions in the context of climate change:** identifying the most effective mental health interventions/solutions/actions to support mental health in the context of climate change, across diverse sectors. This encompasses providing support to people already experiencing negative mental health impacts and reducing risk or severity of future negative mental health impacts.
- **Generating priority research themes:** Participants in dialogue 1 were led through a structured discussion to surface their views on 1) emerging and likely mental health consequences of current and future regionally-relevant climate hazards and opportunities for mental health benefits of action in both mental health and climate, and 2) where more research is needed to understand and respond to identified consequences and opportunities.
- **Analysis:** Dialogue data (transcripts of breakout rooms and notes) was analysed using the Framework Method¹⁴ – a matrix-based approach that allows qualitative researchers to undertake deep interrogation of transcripts and written notes.
- **Draft priority research themes:** This matrix was used in combination with data from pre-dialogue scoping (interviews/literature review/pre-dialogue survey) conducted in the region to draft a list of priority research themes. These were refined through consultation with the RCT and triangulation across breakout notes, transcripts, pre-dialogue scoping and expert consultation.
- **Refinement of priority research themes:** Research themes were shared with participants in Dialogue 2 for their feedback. Research themes were refined in response to this feedback and shared with dialogue participants and a wider sample of experts in the post-dialogue survey.
- **Finalisation of priority research themes:** A final list of priority research themes was generated based on incorporation of post-dialogue survey feedback, consultation with the RCT and regional experts, CCM core team, Global Advisory Board and Wellcome.

Priorities for action were generated, refined and finalised through the following process:

- **Developing action categories:** Through consultation with experts across the global CCM team, two high-level categories for priority actions were identified. These were: 1) creating an enabling environment for research at the intersection of climate change and mental health and 2) translating a growing evidence base into action that can respond to the mental health impacts of climate change. Within each, sub-categories were: 1) a desired future state, 2) opportunities and enablers, 3) challenges, and 4) partners and stakeholders.
- **Generating priority actions:** Participants in Dialogue 2 were led through a structured discussion to surface their views on 1) how the research agenda for climate change and mental health research could best be implemented in the region and 2) how a growing evidence base could be translated into action in policy and practice.
- **Analysis:** Dialogue data (transcripts of breakout rooms and notes) was analysed using the Framework Method (as described above).
- **Finalisation of priority actions:** An action agenda summarising insights from Dialogue 2 and outlining identified priority actions was generated based on consultation with the RCT and regional experts, CCM core team, Global Advisory Board and Wellcome.

Participants

Dialogue participants were a diverse group across geographical spread, gender, sector and discipline. All participants were invited to both dialogues, however, in some cases, participants were unable to attend both dialogues.

In total 39 participants attended Dialogue 1 and 32 participants attended Dialogue 2. The tables below provide a breakdown of participant characteristics.

Geographical spread:

	Dialogue 1		Dialogue 2	
Country	Number	Percentage	Number	Percentage
Australia	1	3%	1	5%
Brunei Darussalam	1	3%	1	5%
Cambodia	1	3%	0	0%
Hong Kong	1	3%	0	0%
Indonesia	6	16%	3	14%
Japan	1	3%	1	5%
Malaysia	5	7%	3	14%
Mongolia	1	3%	0	0%
Myanmar	1	3%	0	0%
New Zealand	1	3%	1	5%
Philippines	9	24%	6	27%
Singapore	2	5%	2	9%
Sweden	1	3%	1	5%
Taiwan	1	3%	1	5%
Thailand	1	3%	1	5%
Timor-Leste	1	3%	0	0%
United Kingdom of Great Britain and Northern Ireland	1	3%	1	5%
Viet Nam	2	5%	0	0%

Expertise:

	Dialogue 1		Dialogue 2	
Expertise	Number	Percentage	Number	Percentage
Climate change	23	34%	12	30%
Mental health	13	19%	9	22%
Healthcare	19	28%	11	28%
Other	11	16%	8	20%
I do not know/ Prefer not to say	1	1%	0	0%

Discipline:

	Dialogue 1		Dialogue 2	
Discipline	Number	Percentage	Number	Percentage
Activism	15	11%	9	12%
Community	23	16%	11	15%
Education	17	12%	6	8%
Expert through my own lived experience	13	9%	6	8%
Funding	4	3%	6	8%
Healthcare	10	7%	6	8%
Non-governmental organisation	23	16%	11	15%
Policy	13	9%	5	7%
Research	22	15%	13	18%
Other	3	2%	1	1%

Gender:

	Dialogue 1		Dialogue 2	
Gender	Number	Percentage	Number	Percentage
Men	12	32%	8	36%
Women	24	63%	13	59%
Non-binary	2	5%	1	5%

Survey participantsⁱⁱⁱ:

Pre-dialogue survey: 85

Post-dialogue survey: 30

ⁱⁱⁱPlease note numbers are approximate and do not account for duplicate or incomplete responses.

Ethics, data collection and storage

Ethics

This study has been reviewed and given an ethical favourable opinion by the Imperial College London Ethics Committee (study title: “Global Dialogues to set an actionable research agenda and build a community of practice in climate change and mental health”; study ID number: 6522690).

Data storage and sharing

Dialogues were conducted virtually on Zoom following informed consent from all participants. Dialogues and breakout groups were recorded and transcribed by third party providers (Way with Words and Absolute Translations). Survey distribution and data collection was carried out using the online platform Qualtrics. Data was stored and managed by Imperial College London using a secure server. Planetary and Global Health Program, St. Luke’s Medical Center College of Medicine - William H. Quasha Memorial, Philippines was a Joint Data Controller for the data provided to this project for ESEA and responsible for securely storing and sharing data with Imperial College London and with regional analyst teams. Data will be stored by Imperial College London for 10 years after study completion.

Summary of existing research on climate change and mental health in ESEA

Overall, there is a scarcity of research on the climate-mental health nexus in Eastern and South-Eastern Asia, especially research conducted by scholars and practitioners from the region. However, the slowly emerging scholarship on the mental health consequences of climate change in the region reveals that people who are most affected by climate hazards (e.g., young people, the elderly, disaster survivors, farmers, etc.) experience trauma, depression, anxiety (including the new phenomenon called ‘climate anxiety’) and sleep problems, among others. Countries where there is emerging scholarship on this topic include China, Japan, Philippines, and South Korea.^{15–18}

Meanwhile, based on our pre-dialogue scoping (i.e., rapid review of literature, policies, interventions and programs related to climate change and mental health), national policies and programs related to either climate change or mental health in the countries in the region do not explicitly acknowledge the intersection between climate change and mental health. While efforts to tackle climate change are increasing in the region, the inclusion of mental health aspects in climate policies and programs remains limited. For instance, Hong Kong’s Climate Action Plan 2050 details plans and strategies to increase disaster resilience but psychological and mental resilience amid climate change was not mentioned. Similarly, the conceptualisation of mental health policies and programs in countries throughout the region has yet to recognize the direct and indirect role of climate change in people’s mental health. For example, the Mental Health Act in the Philippines which aims to establish a national mental health policy for enhanced mental health services only mentions the provision of psychosocial support in the context of disasters, but not through the lens of climate change.¹⁹ Nonetheless, existing regional and domestic efforts on disaster risk reduction and management, especially when it comes to emergency response and rehabilitation, already incorporate the provision of psychosocial support to disaster victims;²⁰ expanding this to include a broader climate lens is an important step forward in advancing this new agenda. Moreover, there are a few promising initiatives (e.g., awareness raising, community-building, education, training and pilot research) in various countries in the region that are starting to give a spotlight to the climate-mental health intersection, such as the inclusion of this topic in the Southeast Asia Climate and Health Responder Course offered in 2023 and national conference of the Psychological Association of the Philippines in 2022. More support must be given to these nascent activities in order to enhance the region’s efforts in addressing climate change and its inimical impact on people’s mental health.

Glossary

For a glossary describing relevant concepts and key words for the Connecting Climate Minds research and action agendas, please download from [here](#).

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