

SUMMARY AGENDA

Climate and Mental Health Regional Research & Action Agenda

Sub-Saharan Africa



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REGIONAL AGENDA LEADS:



Imperial College
London
Projects



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, CCM has 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 sub-Saharan Africa (SSA); the full agenda¹ has been published separately and is available [here](#).

A total of 31 priority research themes emerged covering myriad areas, including:

- **The magnitude of, and mechanisms driving**, climate-related mental health challenges.
- **Measuring climate-related mental health care seeking behaviour and outcomes.**
- **The effects of climate-related mental health stigma** on interventions and access to care.
- **The compounding effects of wars, violence, trauma and epidemics** on climate-related mental health challenges.
- **Understanding lessons from Indigenous communities** on climate change adaptation and mitigation methods that can positively affect mental health.
- **Assessing the possibilities for and efficacy of applying medicines, counselling techniques and practices from Indigenous communities** to address climate-related mental health challenges.
- **Integrating and strengthening climate change and mental health policies, training and awareness initiatives.**
- **Using new models and methods** (e.g., telemedicine, AI, community-based providers) to expand and improve access to treatment for climate-related mental health challenges.
- **Evaluating the role and relationship between international agencies, country specific government agencies, academia, employer groups, unions and NGOs** in effectively supporting climate change and mental health interventions.
- **Assessing the readiness of the mental health workforce and healthcare system** to address climate-related mental health challenges.

Tackling climate change impacts on mental health in SSA necessitates an integrated approach which synthesises mental health considerations into climate change adaptation and mitigation strategies and vice versa. Multilevel interventions are needed, including: developing and implementing climate policies in SSA which prioritise mental health; providing support services for affected individuals and communities; and fostering community resilience to better cope with the mental health challenges associated with a changing climate.

Introduction

Climate hazards in sub-Saharan Africa

Sub-Saharan Africa (SSA) 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}

- **Mean and extreme temperatures**, including more than 40 additional hot days above 35°C for the Horn of Africa, western African Coast and southern Africa (high confidence);ⁱⁱ
- **Droughts and wildfires** in the Southern Africa region, though there remains uncertainty across the range of global climate models (low to medium confidence);
- **Heavy precipitation events and flooding**, with the frequency and intensity increasing almost everywhere in Africa with additional global warming (high confidence);
- **Sea-level rise**, contributing to increases in the frequency and severity of coastal flooding in low-lying areas and to coastal erosion along most sandy coasts (high confidence); and
- **Tropical cyclones**, particularly the proportion of Category 4-5 tropical cyclones in Eastern Africa (low confidence), though the spread (indicating the range of change across models) is wide, with the median increase projected to be around 5%.

Climate change and mental health in Sub-Saharan Africa

Existing research

There is a growing body of literature on climate change and mental health in SSA, though reviewing this fully is beyond the scope of this agenda. The region is already facing numerous challenges, including poverty, political instability and inadequate healthcare; climate change exacerbates these issues, resulting in significant impacts on mental health. A summary of research highlighting the significance for mental health of these compounding challenges in a changing climate is provided 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.

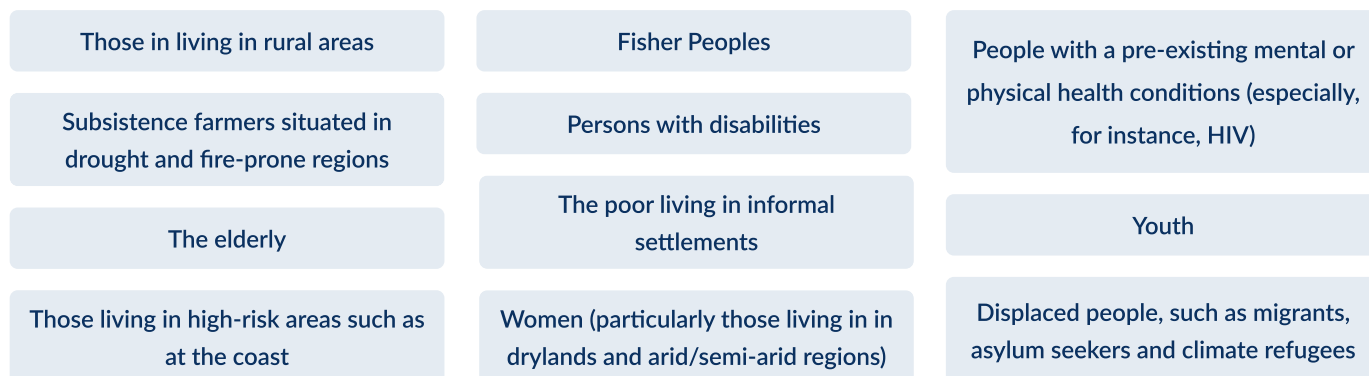
ⁱ Future projections are based on the middle of the road emissions scenario (SSP2-4.5 Shared Socio-economic Pathway) from the CMIP6 multi-model ensemble provided in the IPCC, 2021

ⁱⁱ Within the IPCC and other major sources of climate projections, confidence levels are given on a scale of low, medium, high. The ranking refers to the robustness of the evidence available and the agreement between climate models.

What mental health outcomes appear to be impacted?

Climate-change related mental health issues identified in SSA include anxiety, depression, post-traumatic stress disorder (PTSD) and suicide. More research is however needed to understand the specific mental health challenges arising from climate change in SSA.

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



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

Many sub-Saharan African nations struggle with issues related to mental health care, such as stigma, insufficient funding and poor infrastructure. These issues can be indirectly caused or exacerbated by climate change and can arise from climate-related impoverishment, long-term drying in rural areas, family member loss, injury that renders one unable to work or relocation. Climate change compounds these challenges by introducing additional stresses, threats to livelihoods and disruption to care access and infrastructure. Increases in the frequency and intensity of extreme weather events can lead to displacement, loss of property and economic instability. Changes in climate patterns can negatively affect agriculture, leading to food shortages and malnutrition⁴. In addition to detrimental effects to physical health, food insecurity exacerbates mental health conditions such as anxiety and depression. Climate-related water scarcity can result in the unequal distribution of water resources as well as shifts in patterns of availability. In addition to having an adverse effect on physical health, a lack of access to clean water can also cause or exacerbate mental health challenges.

Research agenda

Priority research themes

This research agenda presents an aligned vision to guide the climate and mental health field in SSA. 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 to inform policy and practice.

Impacts, risks and vulnerable groups

Priority research themes:

Understanding and quantifying the nature and magnitude of the mental health burden in relation to climate change in SSA.

Identifying the vulnerable groups most at risk of climate change-related mental health challenges.

Proposed vulnerable groups for further study include: the poor living in informal settlements, Indigenous populations, those living in rural areas, people with a pre-existing mental or physical health condition, people with disabilities, women (particularly those living in in drylands, arid/semi-arid regions and coastal areas prone to flooding and rising sea levels), youth, the elderly, those living in high-risk areas such as at the coast, (subsistence) farmers situated in drought and fire-prone regions, Fisher Peoples and those displaced such as migrants, asylum seekers and climate refugees.

Understanding how mental health stigma, historical trauma (for example, the long-term mental health impacts of apartheid in South Africa) and inequalities affect access to care within the context of the nexus between mental health and climate change in SSA. In terms of mental health stigma within the SSA context for example, it is important to understand how stigma may influence 1) climate-related mental health outcomes, 2) design of climate-related mental health interventions, and 3) access to climate-related mental health interventions.

Understanding whether vulnerable groups in SSA hold any cultural perceptions or dogmas/taboo with regard to climate-related mental health challenges and, if so, how these impact mental health outcomes and interventions.

Determining the most relevant standardised tools, indicators and methodologies to measure the effects of climate change on mental health within the sociocultural and socioeconomic context of SSA.

Pathways and mechanisms

Priority research themes:

Exploring the syndemic, comorbid and spill-over relationships between climate change-related mental health challenges and other stressors on mental health such as wars, violence, trauma and epidemics (for example, the geopolitical conflicts in Nigeria, HAND, Covid-19 experienced across the region and the Ebola crises in West Africa).

Identifying and understanding the climate change-related mechanisms that increase the risk of mental health challenges within population subgroups in SSA. For example, identifying whether there are any specific risks, triggers and stressors related to climate change that increase the risk of mental health challenges for certain vulnerable groups.

Identifying the indirect causal pathways between climate change and mental health within the sub-Saharan context (for example, if there are any HIV-associated neurocognitive disorders [HAND] symptoms – such as problems with mood, concentration, irritability – that can be exacerbated by extreme heat, or whether and how heat-exacerbated aggression is an indirect pathway affecting mental health outcomes).

Identifying the direct causal pathways between climate change and mental health (for example, if direct experience of extreme heat worsens mental health outcomes) within the sub-Saharan context.

Mental health benefits of climate action (adaptation and mitigation)

Priority research themes:

Assessing the impact of establishing weather warning technology on disaster mitigation in SSA and whether this might improve outcomes for climate-related mental health challenges.

Evaluating whether resettlement plans for climate-related displaced communities enhance their mental health in countries such as Sierra Leone.

Understanding whether accelerating climate action via climate justice can improve climate-related mental health outcomes in SSA.

Understanding whether the advancement of sustainable supply chains (in all domains, both direct and indirect) mitigates the impacts of climate change on mental health in SSA (for example, advancing sustainable practices in food systems in ways that reduce job losses in the agricultural sector and prevent food insecurity, thus diminishing the likelihood of presentations of mental health challenges).

Identifying the existing coping mechanisms and resilience strategies employed by sub-Saharan communities in response to climate-related stressors and their effects on mental health.

Exploring how lived-experience communities can meaningfully co-create effective climate change and mental health policies and support their implementation in sub-Saharan countries.

Assessing the level of political buy-in of governments regarding climate change and its associations with mental health in SSA and how this affects the co-beneficial actions taken by governments.

Understanding which climate adaptation or intervention strategies – such as methods of post-disaster recovery, including pandemic preparedness and response initiatives – can be adapted to also address climate-related mental health challenges within SSA.

Mental health interventions/solutions in the context of climate change

Priority research themes:

Evaluating the efficacy of African Indigenous medicines, counselling techniques or practices in treating climate change-related mental health issues.

Identifying and evaluating strategies to ensure that international agencies, country-specific government agencies, academia, employer groups, unions and NGOs effectively collaborate to support climate change and mental health interventions in SSA.

Assessing the readiness of the mental health workforce and healthcare system to deal with climate change-related mental health challenges in SSA.

Exploring whether drawing on a culture of 'ubuntu' (a collectivistic humanist African world view, meaning 'I am, because you are') can aid psychosocial support and improve climate-related mental health outcomes.

Evaluating the efficacy of implementing a mental health task-shifting approach within the SSA context, given the heightened burden that climate change will impose on the mental health system.

Assessing how mental health system strengthening can be integrated into large climate change adaptation projects in SSA.

Priority research themes continued:

Measuring the prevalence of psychosocial help-seeking for climate distress and climate-specific mental health or wellbeing challenges, (e.g., PTSD and eco-anxiety), in SSA and its relationship with mental health outcomes. Understanding whether those seeking care for mental health challenges (e.g., PTSD) or climate-related distress and wellbeing challenges (e.g., eco-anxiety) have access to care and whether access can be expanded, if necessary.

Assessing the effectiveness of peer support initiatives (for example, a crisis hotline) in supporting mental health in the context of climate change and encouraging the use of appropriate services in SSA.

Evaluating the need to adjust mental health clinical diagnostics (for example, ICD-10 and DSM-5-TR diagnostics systems) and practices to incorporate climate change-related mental health pathologies, such as severe and debilitating climate anxiety, within SSA.

Evaluating strategies to enhance the climate-related mental health resilience of individuals and communities in SSA.

Assessing whether technologies (such as telemedicine/online counselling, gaming, AI products, low technological applications such as messaging apps, offline technologies and low data solutions) can be used to provide effective climate-related mental health support and increase access to care within SSA.

Understanding ways to integrate climate change adaptation strategies within mental health and health services (for example, establishing climate resilient health systems) to enhance resilience in SSA.

Assessing the effectiveness of awareness campaigns (for example, social media awareness) in supporting mental health in the context of climate change and encouraging the use of appropriate services in SSA.

Evaluating and documenting best practices for integrating climate change and mental health curricula into training for healthcare professionals in higher institutions of learning in SSA.

Action agenda

This action agenda sets out a shared vision as a rallying focus of the mental health and climate change field in SSA. 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

We envision a future where mental health is prioritised, resilient communities thrive and individuals can cope effectively with the challenges posed by a changing climate. Our vision is grounded in inclusivity, cultural sensitivity and evidence-based practices, fostering a holistic approach to wellbeing that integrates mental health into climate change adaptation and mitigation strategies.

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:

- Limited funding
- Vested interests/state corruption
- Misinformation concerning mental health
- Data gaps relating to climate-mental health challenges
- Fragmented research efforts
- Capacity and infrastructure deficits
- Lack of integration of climate change and mental health research
- Cultural and linguistic diversity (which may lead to studies which are culturally insensitive)
- African voices not being sufficiently heard on the global stage
- Extractivist research being conducted by the Global North
- Vague causal pathways between climate change and mental health
- Political instability, which can disrupt research activity
- Limited public awareness and education
- Lack of suitably adapted research methodologies

Opportunities and enablers:

- Aligning efforts to address climate change and mental health within the sustainable development goals (SDGs) to provide a framework for comprehensive, integrated intervention
- Promoting the concept of One Health, a multidisciplinary approach that acknowledges that the health of people is closely linked to the health of animals and the environment

Relevant potential partners:

- Africa Centres for Disease Control and Prevention (CDC)
- Community based organisations
- Disaster relief agencies
- Global Mental Health Action Network
- Governments
- International research funders (for example, Wellcome, National Institute of Mental Health (NIMH))
- NGOs
- Research institutions
- United Nations International Children's Emergency Fund (UNICEF)
- World Health Organization (WHO)

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

Challenges:

- Limited mental health infrastructure
- Stigma surrounding mental health
- Potential false reliance on the concept of resilience (defined as the capacity to withstand or to recover quickly from difficulties)
- Lack of awareness and understanding of the connection between climate change and mental health among decision makers and communities
- Gaps in data collection, particularly in remote or under-served areas
- Limited funding
- Lack of inclusion of mental health considerations in broader climate change policies and strategies and vice versa
- Lack of community engagement in the development and implementation of mental health interventions
- Rapid pace of environmental changes outpacing the development and implementation of mental health interventions

Opportunities and enablers:

- Fostering collaborations between mental health professionals, climate scientists, policymakers and community leaders
- Establishing and expanding psychosocial support services
- Fostering collaborations between mental health professionals, climate scientists, policymakers and community leaders
- Strengthening mental health infrastructure by training healthcare professionals and community leaders
- Connecting people with nature
- Establishing early warning systems for extreme weather events and climate-related stressors
- Utilising technology for mental health support to reach remote or underserved populations
- Promoting education about mental health to reduce its stigma
- Leveraging local knowledge and building on traditional coping mechanisms to enhance community resilience to the mental health impacts of climate change
- Integrating mental health considerations into climate action
- Promoting grassroots activism and exploring therapeutics approaches for (preventative) existential trauma

Relevant potential partners:

Community stakeholders, education sector, healthcare providers, investors and donors, policy advocates, policy makers, technology industry, youth representatives

Priority next steps/recommendations to investors and actors

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

Investors need to:

- Allocate funds specifically for transdisciplinary and interdisciplinary research projects that explore the complex interaction between climate change and mental health in SSA;
- Encourage grant programmes that support long-term studies;
- Provide grants for capacity building in research institutions and communities – this includes training researchers, healthcare professionals and community leaders to conduct and utilise research effectively;
- Foster public-private partnerships to leverage resources and expertise, and encourage collaboration between philanthropic organisations, private companies and governmental bodies to support comprehensive research programmes; and
- Invest in technological solutions for data collection, analysis and dissemination, and support the development and implementation of innovative technologies such as mobile health applications and remote sensing tools.

Policy makers need to:

- Advocate for the integration of mental health considerations in national and regional climate change policies and vice versa;
- Invest in developing the climate-mental health evidence base to develop appropriate and effective policies;
- Provide incentives for research institutions and organisations to collaborate in inter/transdisciplinary research in the field;
- Create procedures for converting study results into practical policies; and
- Set up legal frameworks that support moral and culturally aware research.

Researchers need to:

- Actively seek collaborations with diverse disciplines, including climate science, psychology and public health;
- Prioritise participatory research methods that respect local Indigenous knowledge and incorporate the perspectives of those directly affected by climate change and mental health challenges;
- Commit to open data sharing and investing in capacity building for researchers; and
- Encourage transparency in the research process, including informed consent, and ensure that research benefits are communicated to participants.

Community stakeholders need to:

- Advocate for, and participate in, community-based research initiatives;
- Engage in knowledge mobilisation activities to disseminate research findings within communities; and
- Advocate for the participation of community members in research studies.

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

A key theme that emerged in discussions of how to translate the evidence base on climate and mental health into policy and practice action was the need to bolster mental health support systems, to better prevent, prepare and protect people from increasing risks of mental health challenges. Therefore, strengthening the mental health system's capacity to respond to climate hazards and climate-related mental health burdens – including widening the mental health system to include community-based and community-led support – is essential. Some of the actions below apply to mental health in general but are even more pressing in the context of the climate crisis.

Investors should:

- Direct funding toward the implementation of evidence-based mental health intervention programmes;
- Scale up successful interventions;
- Invest in technology-enabled mental health solutions such as telemedicine, mobile apps and online /offline platforms;
- Allocate resources for capacity building in mental health infrastructure; and
- Support long-term studies that contribute to evidence-based practices tailored to the SSA context.

Policy makers need to:

- Integrate mental health considerations into climate change policies and adaptation strategies and vice versa;
- Allocate resources within national budgets for mental health services and programmes; and
- Develop and implement guidelines for mental health training for healthcare providers and community workers.

Healthcare providers should:

- Integrate mental health services into primary healthcare systems;
- Conduct community outreach programmes to raise awareness about mental health issues related to climate change; and
- Collaborate with NGOs to expand mental health services.

Community stakeholders should:

- Empower local communities to lead mental health initiatives;
- Use culturally appropriate communication methods to increase awareness and reduce stigma surrounding mental health;
- Establish and strengthen community support networks; and
- Advocate for the recognition of local knowledge and solutions.

Conclusion

The urgency of addressing climate change and its impact on mental health in SSA cannot be overstated. As the region experiences more frequent and severe climate-related events – from extreme weather to shifting disease patterns – it is critical to move quickly to lessen the effects on mental health and strengthen community resilience. Doing so requires a multifaceted approach which integrates research, policy, community engagement, and international cooperation and funding. By prioritising this issue and implementing evidence-based action, we can mitigate the negative mental health impacts of climate change and build more resilient communities in the region.



Who produced this report

Authorship team

Monika dos Santos drafted the manuscript, acted as a regional co-convenor, recruited expert participants, facilitated two dialogues, sourced local research ethical approval and undertook data analytics and research. Kenneth Yongabi Anchang sourced funding for the project, acted as a regional convenor, undertook project management, recruited expert participants, conducted interviews and data analytics, and drafted content for the report. Emma Lawrance sourced funding for the global project, acted as a principal investigator, facilitated a dialogue, recruited expert participants, provided project oversight and edited the final document. Nomfundo Kwini acted as a dialogue note-taker and facilitator, undertook transcript analytics and edited the document. Iji John Eluwa acted as a dialogue presenter, project manager and proofread the final report. Manasi Kumar acted as a dialogue facilitator and proofread the report. Gustaaf Wolvaardt assisted with local research ethical approval, participated in the dialogues as an expert and proofread the report. Didi Thompson proofread and edited the report.

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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 SSA, 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.	<ul style="list-style-type: none"> • Prof Kenneth Anchang Yongabi, School of Health Sciences, Claretian University, Nigeria
Co-Convenors	Bringing additional breadth of expertise across disciplines and countries, providing technical advice and review, and supporting project delivery.	<ul style="list-style-type: none"> • Prof Monika dos Santos, Department of Psychology, University of South Africa, South Africa • Dr Patience Erick, Department of Environmental Health & Department of Public Health, University of Botswana, Botswana • Prof George Osanjo, Faculty of Health Sciences, University of Nairobi, Kenya
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-centered perspectives and guidance that inform the overarching approach and outputs of the project.	<ul style="list-style-type: none"> • Josephine Ewu, Yenagoa, Nigeria • Dr Tata Elvis, PRF Foundation, Cameroon • Timipre Sunday, Nigeria • Martin Bangura, Sierra Leone • Lisa Mudoya, Zimbabwe

RCT Structure	Role	Members
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-centered perspectives to the development and implementation of project activities.	<ul style="list-style-type: none"> Lindokuhle Sibiya, Eswantini

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 reviews⁵⁻¹⁴ 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 Method¹⁵ – 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 46 participants attended Dialogue 1 and 51 participants attended Dialogue 2. The tables below provide a breakdown of participant characteristics.

Geographical spread:

Country	Dialogue 1		Dialogue 2	
	Number	Percentage	Number	Percentage
Botswana	1	3%		
Cameroon	1	3%	1	3%
Eswatini	1	3%	1	3%
Guinea	1	3%		
Haiti	0	0%	1	3%
Kenya	10	26%	10	35%
Nigeria	6	16%	7	24%
Sierra Leone	3	8%	1	3%
South Africa	6	16%	3	10%
Uganda	3	8%	1	3%
United Kingdom of Great Britain and Northern Ireland	2	5%	3	10%
United Republic of Tanzania	1	3%		
Zimbabwe	3	8%	1	3%

Expertise:

Expertise	Dialogue 1		Dialogue 2	
	Number	Percentage	Number	Percentage
Climate change	23	30%	16	31%
Mental health	18	23%	12	23%
Healthcare	24	31%	15	29%
Other	11	14%	8	15%
I do not know/ Prefer not to say	1	1%	1	2%

Discipline:

Discipline	Dialogue 1		Dialogue 2	
	Number	Percentage	Number	Percentage
Activism	18	13%	13	13%
Community	13	10%	10	10%
Education	19	14%	14	14%
Expert through my own lived experience	13	9.6%	10	10%
Funding	3	2%	3	3%
Healthcare	12	9%	9	9%
Non-governmental organisation	13	10%	10	10%
Policy	12	9%	7	7%
Research	30	22%	20	20%
Other	3	2%	3	3%

Gender:

Gender	Dialogue 1		Dialogue 2	
	Number	Percentage	Number	Percentage
Men	14	37%	11	38%
Women	21	55%	14	48%
Non-binary	1	3%	1	3%
I do not know/ Prefer not to say	1	3%	1	7%
Other	1	3%	1	3%

Survey participants ⁱⁱⁱ:

Pre-dialogue survey: 90

Post-dialogue survey: 18

ⁱⁱⁱ Please 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) and locally by the Foundation for Professional Development Research Ethics Committee (reference number: REC-03711-033-RA).

The study was conducted in accordance with the recommendations for physicians involved in research on human subjects adopted by the 18th World Medical Assembly, Helsinki 1964 and later revisions, as well as in alignment with the South African Protection of Personal Information Act (POPIA) of 2020.

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. Imo State University was a Joint Data Controller for the data provided to this project for SSA 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 SSA

Climate change can have a significant impact on mental health, particularly in vulnerable regions such as SSA. The region is already facing numerous challenges, including poverty, political instability and inadequate healthcare; climate change exacerbates these issues. Based on existing literature, climate change might affect mental health due to:

- **Extreme weather events:** Increased occurrence and severity of extreme weather events – such as storms, droughts and floods – can cause displaced people to lose their means of subsistence as well as create worry and anxiety. This accompanying anxiety and uncertainty may have long-term psychological impacts.¹⁶
- **Food insecurity:** Climate change impacts agriculture, with changes in rainfall patterns and temperature affecting crop yields. This can result in food shortages, malnutrition and heightened stress levels, contributing to poor mental health.¹⁷
- **Water scarcity:** Variations in precipitation can cause water shortages, which impact the water available for agriculture and drinking. Lack of access to clean water can exacerbate illnesses linked to poor sanitation, which can affect physical health and may in turn increase the prevalence of mental illness.¹⁸
- **Vector-borne diseases:** Climate change can influence the distribution of diseases such as malaria and other vector-borne illnesses. The increased prevalence of these diseases can lead to more health concerns and stress for individuals and communities.¹⁹
- **Conflict and migration:** Geopolitical disputes over land, water and other vital resources are a result of climate change and resource shortages. Communities can be upended by migration brought on by climate change, and displaced people may experience mental health issues as a result.²⁰
- **Economic stress:** Climate change can affect economic sectors such as agriculture and fisheries, leading to job loss and economic stress. The resulting economic insecurity can contribute to mental health issues, including depression and anxiety.²¹
- **Inadequate healthcare:** Many countries in SSA already face challenges in providing adequate healthcare. Climate change can strain healthcare systems further, making it difficult for people to access support.²²

Glossary

Climate change, mental health and their intersection are complex and wide-ranging fields. For the purpose of this agenda, we define the scope of these terms as follows.

By **mental health challenges**, we mean thoughts, feelings and behaviours that affect a person's ability to function in one or more areas of life and often involve significant levels of psychological distress. This includes, but is not limited to, anxiety, depression, post-traumatic stress, psychosis, suicidal thoughts and substance misuse.

By **experiences of the effects of climate change**, we mean: 1) experiencing direct impacts of climate hazards, such as more frequent and intense heatwaves, wildfires/bushfires, drought, floods or storms (for example, typhoons, hurricanes, cyclones), and 2) experiencing disruption to the social and environmental determinants of good mental health, such as being forced to move home, not being able to access food or water, losing livelihood or homelands, or disruption to cultural practices as a result of climate change.

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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