

SUMMARY AGENDA

Climate and Mental Health Regional Research & Action Agenda

Northern Africa & Western 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 North Africa and Western Asia (NAWA) – a region also often referred to as the Middle East and Northern Africa region (MENA) and referred to throughout this document as NAWA/MENA; the full agenda¹ has been published separately and is available [here](#).

The CCM project identified a number of priority research themes for the MENA region covering the following areas:

- **Exploring impacts of climate change on mental health and pathways by which these impacts occur:** Research should analyse the nature and severity of the impacts of climate change on mental health outcomes. It is important to explore the biopsychosocial pathways linking climate change to mental health challenges, including those most prevalent in the MENA region.
- **Identifying the most affected groups:** Research should identify the groups that are most vulnerable to the mental health impacts of climate change. For MENA, this includes studying the effects on children, people with disabilities, women and other vulnerable populations.
- **Understanding MENA-specific impacts:** Research should explore the specific regional impacts of climate change on mental health. This includes studying the unique challenges faced by different countries, geographies (e.g., coastal or urban communities) and populations and identifying region-specific interventions to address these challenges that account for local cultural needs.
- **Exploring synergies between climate change and mental health policies, particularly for vulnerable populations:** Research should focus on the integration of mental health considerations into climate change policies and strategies and vice versa. This includes evaluating the effectiveness of policy interventions in protecting mental health and promoting resilience in the face of climate change.
- **Understanding the mental health benefits of climate actions and interventions:** Research should explore the co-benefits of climate adaptation and mitigation actions for mental health (e.g., investing in renewable energy sources and green infrastructure projects).
- **Assessing the accessibility of mental health services:** Research should examine the accessibility of mental health services during climate-related crises. This includes evaluating the availability of psychological first-aid training for healthcare workers and assessing the preparedness of healthcare facilities to address mental health needs during climate-related events.

Realising demonstrable progress requires dedicated leadership, resources and political will alongside sustained, inclusive participation from all sectors of society. This document seeks to inspire by demonstrating the possibilities if we collectively leverage knowledge, technology, policy and community strengths to address the mental health impacts of climate change. The path forward entails surmounting complex obstacles and system transformations requiring persistent effort. By taking ambitious first steps grounded in compassionate optimism, we can move towards a future where the health of both people and the planet is valued and viewed as interconnected.

Introduction

Climate hazards in the Middle East and Northern Africa region

The North Africa and Western Asia/Middle East and Northern Africa (NAWA/MENA) region 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):^{i,2,ii}

- **Extreme heat** across the region, with Libya and Egypt, in particular, experiencing an increase of up to more than 20 additional hot days per year (high confidence);ⁱⁱⁱ
- **Droughts and wildfires** in the Mediterranean region and northern Africa (low to medium confidence);
- **Heavy precipitation events and flooding**, including extreme precipitation in Egypt, Sudan, Sahel, Sahara and the Arabian Peninsula (high confidence); pluvial flooding over Sahel, Sahara (high confidence) and the Arabian Peninsula (medium confidence); and coastal flooding across the region (high confidence); and
- **Sea level rise** around Africa, contributing to an increase in the frequency and severity of coastal flooding in low-lying areas and to coastal erosion along most sandy coasts (high confidence).

Climate change and mental health in the NAWA/MENA region

Existing research

There is currently insufficient research on the impacts of climate change on mental health in the NAWA/MENA region, particularly concerning how climate change hazards, such as heatwaves, affect vital sectors like food and water security, and how these impacts may affect the mental health of already vulnerable groups. A brief summary of the current literature 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.

ⁱⁱ 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.

ⁱⁱⁱ 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?

Dialogue participants shared a spectrum of mental health challenges arising from climate change, expressed as the mental health symptoms listed below:

- **“Fear and panic during climate events,”** akin to an acute stress disorder, feeling overwhelmed by the immediate threats and long-term implications. This was compounded by “exhaustion from daily change, heat, drought,” akin to chronic stress, impacting not just mental health but also tangible aspects of life like food availability and prices, which in turn may increase stressors on mental health.
- **“Powerlessness,”** with individuals feeling “hopeless and fearful about the future” due to the scale of environmental challenges and a lack of control over climate-related events, with the reported impacts on their lives often reflecting symptoms of depression.
- **Climate anxiety**, resembling generalised anxiety disorder in described symptoms, manifests as a paralysing force and can lead to feelings of futility in daily activities and long-term goals. Notably, concerns about “food security due to extreme weather conditions” and “fear for future income and where to live” painted a picture of the pervasive anxiety that extends to various facets of life, prompting a psychological response that is both a reflection of and reaction to the anticipated impacts of climate change on society and future generations. However, it was also noted that for some, this anxiety could transform into “a positive motivator,” similar to the concept of post-traumatic growth, spurring action and engagement with climate solutions.

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

Coastal communities vulnerable to sea level rise, erosion and flooding

Elderly people and children

Rural/agricultural communities

Displaced populations and migrants

Individuals with pre-existing mental health conditions

Socially marginalised groups with limited resources or support systems

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

Participants identified several critical pathways and mechanisms linking climate hazards to mental health outcomes which include:

- **Impact on livelihoods:** Desertification and rising temperatures undermine the financial stability of workers and farmers, catalysing distress.
- **Food and water insecurity:** Food insecurity and water scarcity can impact mental health, especially in agricultural communities, due to the stress and physical strain associated with water collection and the subsequent threats to nutrition
- **Displacement:** The movement of populations due to climate change-related events and their aftermath exacerbates mental health challenges such as distress and depression.
- **Social isolation from extreme heat:** The confinement of individuals to their homes and social isolation due to extreme heat significantly increases the prevalence of heat-related stress, anxiety and other mental health challenges.
- **Climate awareness:** Increased consciousness about climate change, including anxiety over future climate events, signifies how anticipatory stress and concern for climate-related disasters lying ahead can directly impact mental health.

Research agenda

Priority research themes

This research agenda presents an aligned vision to guide the climate and mental health field in the NAWA/MENA region. 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 the literature (see appendix for further details). The priority research themes represent areas where targeted research investment could create a full picture of impacts, mechanisms and solutions across mental health and climate actions.

RESEARCH CATEGORY

Impacts, risks and vulnerable groups

Priority research themes:

Exploring the nature and prevalence of mental health challenges faced by populations in NAWA/MENA due to the effects of extreme temperatures, including reaching temperatures of 50 degrees Celsius, or heatwaves and evaluating strategies to address these challenges in the short term.

Identifying the mental health consequences experienced by populations in NAWA/MENA due to the compounding impacts of climate-related hazards (e.g., the combination of increased droughts, electricity shortages and extreme temperatures).

Exploring the potential long-term mental health consequences of climate change-related hazards' effects on determinants of mental health – such as loss of livelihoods or increased social inequalities – on marginalised populations in NAWA/MENA countries over the next 10 years.

Understanding how chosen migration driven by climate change-related factors within and between countries in the NAWA/MENA region impacts mental health challenges and mental wellbeing for individuals and communities and whether there are enduring psychological consequences of this migration.

Understanding how exposure to heatwaves and extreme temperatures impacts the mental health of vulnerable populations, such as the elderly, children and individuals with pre-existing mental health conditions, and what interventions can address these challenges in affected communities.

Understanding the extent to which climate change (e.g., via more frequent flooding) is likely to increase the prevalence of post-traumatic stress disorder (PTSD) among children and adolescents in inland areas of the NAWA/MENA region and designing strategies to respond to this increase.

Understanding how climate-induced displacement and forced migration contribute to mental health challenges among affected populations in the NAWA/MENA region.

Exploring how climate change impacts the mental health of individuals reliant on agriculture in the NAWA/MENA region, particularly through changes in crop yields, food security and livelihoods.

Understanding the projected impact of climate change on the mental health of coastal communities in NAWA/MENA countries, considering the increased risk of flooding and sea-level rise over the next 10 years.

Pathways and mechanisms

Priority research themes:

Understanding the distinct cultural understandings of depression (as well as other mental health challenges) in the NAWA/MENA region compared to Western perspectives, and how these interpretations relate to mental health challenges in the context of climate change. Guided by these understandings, identifying which culturally-sensitive interventions best support mental health in the face of climate hazards.

Outlining the mechanisms by which prolonged droughts and water scarcity lead to mental health challenges for individuals and communities in the NAWA/MENA region and identifying mental health interventions, as well as innovative water management techniques, to mitigate these impacts.

Mapping other possible biopsychosocial pathways by which climate change affects mental health in the NAWA/MENA region, exploring their validity and identifying targets in these pathways for intervention.

Understanding whether loss of identity and cultural disconnection affect the relationship between desertification/land degradation and worsened mental health among Indigenous communities.

Exploring the confinement of individuals to their homes due to extreme heat and the resulting social isolation and disruption to outdoor activities (e.g., exercise) as potential pathways by which extreme heat worsens mental health outcomes in the NAWA/MENA region.

Understanding the pathways and mechanisms by which increased awareness about climate change may influence mental health outcomes (for instance, by increasing anxiety, concern and anticipatory stress over future climate events and climate-related disasters). This includes discerning whether particular aspects of 'climate anxiety' are another manifestation of generalised anxiety disorder or whether climate anxiety has aspects that are specific and novel experiences.

Mental health benefits of climate action (adaptation and mitigation)

Priority research themes:

Understanding the economic, social and mental health co-benefits of investing in renewable energy sources and green infrastructure projects in the NAWA/MENA region and how these co-benefits can be optimised to improve mental health outcomes, especially in marginalised communities.

Understanding the role of traditional knowledge and Indigenous practices in climate mitigation and adaptation interventions that have mental health co-benefits, and how to integrate these practices in the development of culturally sensitive approaches to mental health promotion strategies for diverse communities in the NAWA/MENA region.

Identifying the most effective interventions to simultaneously mitigate climate change impacts and enhance mental health outcomes across settings, considering factors such as urban/rural divide, socioeconomic status and cultural differences.

Exploring how different stakeholders – including policymakers, healthcare providers and local communities – view the integration of climate adaptation and mitigation strategies and mental health initiatives in the NAWA/MENA region and understanding how to address these perceptions to facilitate effective integration.

Identifying the most effective and evidence-based 'best buy' interventions for addressing both climate change and mental health challenges in the NAWA/MENA region. Evaluating how policy frameworks and governance structures influence the implementation and scalability of these interventions and determining policy recommendations that promote the integration of these interventions into national agendas.

Mental health interventions/solutions in the context of climate change

Priority research themes:

Developing, implementing and evaluating community-based interventions to address the mental health needs of individuals affected by climate change-related hazards, such as extreme weather events or food insecurity, in NAWA/MENA countries within the next five years.

Understanding how culturally tailored interventions build mental health resilience and facilitate climate change adaptation strategies among vulnerable populations in NAWA/MENA countries and identifying the key factors determining the success of these interventions

Assessing targeted mental health interventions and climate action initiatives to alleviate the mental health burdens of those facing displacement due to climate-related factors.

Identifying the most effective training and capacity-building programs for the mental health workforce to address the mental health impacts of climate change and exploring how to scale and replicate these practices.

Understanding how to integrate traditional and Indigenous healing practices into training programs for mental health professionals in the NAWA/MENA region, enhancing their cultural competence and enabling them to effectively support communities dealing with climate-related mental health challenges.

Assessing strategies and policies to enhance the collaboration between relevant disciplines and sectors – such as mental health professionals, environmental scientists, community leaders and policymakers – to effectively address climate-related mental health challenges in the NAWA/MENA region.

Understanding the role of community-based organisations and non-governmental agencies in enhancing the mental health workforce capacity to respond to climate-related mental health challenges in the NAWA/MENA region and how to effectively coordinate these efforts with governmental initiatives.

Understanding the extent to which community-based interventions reduce mental health disparities and enhance capacities to adapt to a changing climate among demographic subgroups (e.g., youth, elderly, women) in diverse NAWA/MENA settings, and identifying the underlying mechanisms of their effectiveness.

Exploring ways to harness innovative digital technologies and social media platforms to enhance the reach and effectiveness of interventions addressing both climate change and mental health, particularly among youth populations in urban areas of the NAWA/MENA region.

Identifying the gaps in mental health workforce capacity to address climate-related mental health challenges in the NAWA/MENA region.

Understanding how educational institutions in the NAWA/MENA region can incorporate climate-related mental health challenges in curricula and training programs for mental health professionals and whether graduates are adequately prepared to address these climate-related mental health challenges.

Evaluating strategies to recruit, train and retain a mental health workforce – such as psychiatrists, psychologists and social workers – to respond to climate-related mental health impacts on diverse communities in the NAWA/MENA region.

Evaluating 1) how digital technologies and telehealth interventions contribute to workforce capacity building to provide mental health services in remote and vulnerable areas affected by climate change in the NAWA/MENA region, and 2) assessing the challenges and opportunities associated with their development and implementation.

Action agenda

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

Our vision is a NAWA/MENA region where the interconnections between climate change and mental health are widely understood and incorporated into policy and practice. Communities facing climate threats in NAWA/MENA will have access to resources and support systems protecting their mental health and psychological wellbeing and fostering resilience.

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 region-specific metrics**
- **Limited resources and funding** aligned with regions' vulnerabilities
- **Stigma** around mental health
- **Lack of awareness** among professionals and the public of the issue of climate change and mental health
- **Lack of updated datasets**
- **Political issues and intricacies** influencing research and interfering with implementation
- **Cultural and ideological resistance to change**
- **Lack of harmonising perspectives** between collaborators

Opportunities and enablers:

- **Building awareness of** the climate and mental health nexus and need for research in this field at regional and global levels
- **Sustaining the CCM Regional Community of Practice** to inform and enable future research
- **Collaborating with universities** to integrate climate and mental health into curricula

Relevant potential partners:

- **A diverse array of research partners spanning multiple disciplines:**
 - Climate science
 - Environmental science
 - Epidemiology
 - Policy and governance
 - Psychology and psychiatry
 - Public health
 - Social sciences
- **International organisations**, such as UNICEF and the WHO
- **Local stakeholders and organisations**
 - Adolescents and youth
 - Local community leaders
 - Schools/universities
 - Women's groups
 - Youth
- **National stakeholders and organisations**, including government ministries

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

Challenges:

- **Lack of coordination across sectors**
- **Limited funding** for implementation-focused research
- **Climate change scepticism**, which hinders political will
- **Mental health stigma**, which obstructs open dialogue and help-seeking behaviours
- **Lack of public awareness** of the interlinkages between climate change and mental health to draw policymakers' attention and prompt action
- **Overburdened health systems** with little capacity to integrate additional considerations
- **Burnout among practitioners** working with distressed communities

Opportunities and enablers:

- **Strong civil society networks** providing infrastructure for grassroots action and social support
- **Youth increasingly vocalising climate-mental health concerns**, building momentum for change
- **Expanding access to technology and digital mental health solutions**, offering scalable interventions
- **Regional commitments** like Iraq's Sanadi framework, which demonstrate receptiveness to progress
- **Ongoing disasters, which while tragic, provide impetus for transformation while rebuilding**

Relevant potential partners:

- **Government ministries**, including health, environment and education
- **Health systems**
- **Intergovernmental agencies**, including regional WHO and UN offices

- **Media organisations**, particularly those that broadcast in multiple languages across countries
- **NGOs**, such as Red Crescent Societies
- **Private corporations**
- **Universities and academic institutes**

Priority next steps/recommendations to investors and actors

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

Enacting this research agenda will require transdisciplinary approaches with collaboration across stakeholders. The priority next steps for investors and actors in the region include:

- **Establishing and sustaining a regional climate and mental health network:** Utilise CCM as a foundational platform to bring together experts, stakeholders and communities. This network would facilitate the exchange of knowledge and capacity-building efforts, streamline access to funding opportunities for the identified research and action priorities, share best practices and develop regional strategies tailored to the unique challenges and opportunities within the NAWA/MENA region.
- **Securing commitment from key stakeholders:** Engage national actors, international organisations and government ministries to commit to a unified strategy that prioritises mental health in the context of climate change. This involves formalising partnerships and securing funding for research and intervention programs.
- **Developing research and policy interventions and projects that address the climate-mental health nexus:** Invest in capacity-building efforts to empower individuals and organisations with the knowledge and skills to design interventions that address climate and mental health. Initiate pilot projects that exemplify the integrated approach to climate change and mental health. These projects should focus on critical areas, such as enhancing community resilience, developing culturally sensitive mental health interventions and implementing sustainable environmental policies.

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

Policymakers should:

- Recognise and integrate the interlinkages between mental health and climate change identified by the CCM regional research and action agenda within national health and environmental policies.
- Regularly assess climate vulnerabilities including climate-related mental health impacts.

Funding bodies should:

- Allocate resources for implementation research and metrics development on climate change and mental health.
- Invest in workforce education and training for scaling up interventions that respond to the mental health impacts of climate change.

Research and academic institutions should:

- Conduct research to identify service provision gaps.
- Foster platforms for cross-sectoral partnerships and knowledge exchange.

Community stakeholders and organisations should:

- Develop campaigns to address climate scepticism and mental health stigma and raise awareness of the significant interlinkages between climate change and mental health in the region.
- Collaborate with schools and universities to integrate climate change and mental health education into curricula.
- Provide climate and mental health awareness and capacity-building to parents and families.

Conclusion

This research and action agenda represents a critical initial step in advancing approaches to address escalating climate-related mental health challenges across the NAWA/MENA region. It provides a foundation and starting point for strategic collaboration among stakeholders working towards the realisation of a holistic vision of mental health and climate resilience, with targeted evidence generation by transdisciplinary research. However, realising demonstrable progress requires dedicated leadership, resources and political will alongside sustained, inclusive participation from all sectors of society. This document seeks to inspire by demonstrating the possibilities if we collectively leverage knowledge, technology, policy and community strengths. The path forward entails surmounting complex obstacles and system transformations requiring persistent effort. By taking ambitious first steps grounded in compassionate optimism, despite limitations, we can move towards a future where the health of both people and the planet are valued as interconnected.



Who produced this report

Authorship team

The authorship team for this project includes a diverse group of professionals, each contributing their unique expertise to the development and completion of the work. Dr. Yaroup Ajlouni served as the project manager and regional conveyor, orchestrating the team and liaising with professionals across the NAWA/MENA region. Dr. Duha Omari took on the role of main coordinator, overseeing the distribution of tasks, compiling the work, and leading the content creation and research agenda drafting. Dr. Ashraf Al-Qudah was responsible for reviewing and overseeing the research analysis, in addition to proofreading and reviewing the final agenda. Dr Nabaz Al Mirani and his team from the DAMA Organization acted as regional co-conveyors, enhancing the dialogues, and contributing to the regional scoping, and context understanding. Dr. Tariq Al Jarrah facilitated the dialogues and assisted in recording lived experiences. Mo'nes Qudah and Dr. Tala Dabbas played key roles in communication, drafting the agenda, and facilitating discussions, while Baraa Haikal was instrumental in facilitating dialogues and translating content. This team's collaborative effort was pivotal in shaping the project's direction and outcomes. Adding to this team, Alaa Abdelgawad, our Youth Ambassador, was crucial in engaging the youth community and amplifying broader voices, significantly contributing to the facilitation, note-taking, and dissemination of project content across the region.

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

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- Amer Mohammad, Dialogue 1, Dialogue 2
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- Merna Elboghdady, Dialogue 1, Dialogue 2
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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 the NAWA/MENA region, 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.	Jordan Health Aid Society International, Jordan <ul style="list-style-type: none">• Dr. Yaroup Ajlouni• Dr. Duha Al Omari• Dr. Tala Dabbas• Mo'nes Al-Qudah
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">• Dr. Rouba Katrina, psychiatrist, Syria• Dr. Nabaz Mirani, Doctors Aid for Medical Activities (DAMA) Org, Iraq• Mazen Malkawi, Regional Advisor on Environmental Health, at the World Health Organization (WHO), Eastern Mediterranean Region Office (EMRO), Regional Center for Environmental Health Action (CEHA), Jordan
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">• Ashraf F. ALqudah, Clinical Psychology Associate Professor, Jordan• Dr Hamad Al Ghafri, Consultant Public Health Physician, UAE• Maryam Al Shamlan, Qatar MoH, Qatar• Shatha Bani Sakhr, Researcher/psychologist, Jordan• Karam Saad Salman, MHPSS Advisor, Iraq

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"> Alaa AbdelGawad, Climate Change and Health activist, Egypt

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 reviews³⁻¹² 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 Method¹³ – 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 50 participants attended Dialogue 1 and 31 participants attended Dialogue 2. The tables below provide a breakdown of participant characteristics.

Geographical spread:

	Dialogue 1		Dialogue 2	
Country	Number	Percentage	Number	Percentage
Egypt	7	16%	4	17%
France	0	0%	1	4%
Iraq	8	19%	5	22%
Jordan	14	33%	5	22%
Lebanon	1	2%	0	0%
Morocco	2	5%	2	9%
Qatar	1	2%	0	0%
Saudi Arabia	2	5%	1	4%
State of Palestine	1	2%	0	0%
Tunisia	3	7%	3	13%
United Arab Emirates	2	5%	1	4%
United Kingdom of Great Britain and Ireland	2	5%	1	4%

Expertise:

	Dialogue 1		Dialogue 2	
Expertise	Number	Percentage	Number	Percentage
Climate change	23	33%	13	35%
Mental health	17	24%	10	27%
Healthcare	22	31%	11	30%
Other	8	11%	3	8%
I do not know/ Prefer not to say	0	0%	0	0%

Discipline:

	Dialogue 1		Dialogue 2	
Discipline	Number	Percentage	Number	Percentage
Activism	15	12%	6	7%
Community	15	12%	13	16%
Education	17	13%	8	10%
Expert through my own lived experience	8	6%	5	6%
Funding	3	2%	2	2%
Healthcare	16	12%	10	12%
Non-governmental organisation	15	12%	13	16%
Policy	11	8%	8	10%
Research	27	21%	15	18%
Other	3	2%	2	2%

Gender:

	Dialogue 1		Dialogue 2	
Gender	Number	Percentage	Number	Percentage
Men	6	24%	2	13%
Women	17	68%	12	75%
Non-binary	2	8%	2	13%

Survey participants: ^v

Pre-dialogue survey: 68

Post-dialogue survey: 24

^v 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 Research 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 were carried out using the online platform Qualtrics. Data was stored and managed by Imperial College London using a secure server. Jordan Health Aid Society International was a Joint Data Controller for the data provided to this project for the NAWA/MENA region and was responsible for securely storing and sharing data with Imperial College London and 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 NAWA/MENA

The intersection of climate change and mental health in the NAWA/MENA region presents a complex challenge, as rising climate impacts and environmental stressors compound pre-existing vulnerabilities for individuals and communities. The Regional Community Convenor could not identify studies from countries in the region that highlight the multifaceted ways in which climate change exacerbates mental health issues in this region, stressing the need for further targeted research and adaptive interventions. Studies have shown that NAWA/MENA is particularly vulnerable to water scarcity and food insecurity exacerbated by climate events such as increased temperatures.^{15,16} These stressors pose a risk to mental health outcomes in NAWA/MENA, underscoring the dire need for comprehensive strategies to research and address these challenges. Furthermore, the exacerbation of political instability due to climate stresses is another risk for the NAWA/MENA region.¹⁷ This may also increase mental health burdens, as uncertainty, social unrest, and certainly armed conflict can contribute to psychological distress and increase the prevalence of mental health challenges.¹⁸ The indirect effects of climate change, such as economic downturns and forced migrations due to environmental degradation, may also play a critical role in shaping mental health outcomes, highlighting the intersectionality of environmental and social determinants of health in the NAWA/MENA context.

Addressing mental health in the face of climate change within the NAWA/MENA region requires a nuanced understanding of these interlinkages, largely missing from the current literature. There is a clear imperative for interventions that not only address the immediate mental health needs but also consider the broader environmental and social policies to mitigate the long-term impacts of climate change on mental health and wellbeing. There is an urgent need for integrated mental health and climate resilience strategies that are tailored to the unique challenges faced by communities in the NAWA/MENA region, ensuring that mental health support systems are robust, accessible, and capable of addressing the compounded effects of climate change.

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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