



UK Health
Security
Agency

Climate change and mental health: thematic assessment report

Summary for policymakers



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Headline messages

1. Climate change is impacting mental health

The main messages are that:

- climate change is negatively affecting mental health in the UK today, largely through the effects of extreme weather such as flooding and heat, and an increasing awareness of the long-term impacts of climate change
- there is growing evidence for a wide range of impacts from climate change on mental health, including suicide and conditions such as depression and anxiety
- while additional research is needed to understand the scale of the contribution climate change makes to mental ill-health, these impacts are likely to grow as the climate warms, in the absence of appropriate interventions and adaptations
- mental health impacts of climate change due to concerns about the future are particularly evident in children and young people
- mental health impacts of climate change are not felt equally. Farming, rural communities, those with livelihoods connected to the land and those with pre-existing health issues are at heightened risk

2. There is evidence for interventions to protect population health

The main messages are that:

- individual and community resilience and preparedness such as high-quality early warning systems can minimise the impacts of climate-related hazards on mental health and wellbeing
- cognitive behavioural therapy (CBT), digital tools and group-based interventions can reduce the symptoms of some mental health conditions and improve wellbeing
- participation in environmental action can help to alleviate climate-related mental distress and promote wellbeing
- targeted mental health support for communities affected by adverse weather events has been shown to be beneficial, particularly when interventions are designed to support vulnerable populations

3. There is more that can be done to protect our mental health

The main messages are that:

- action to mitigate mental health impacts of climate change should consider long-term as well as acute health impacts and recognise the need for active public health intervention given low levels of self-referral for mental health support
- a key area for future research and funding is further evaluation of interventions, including the mental health co-benefits realised from supporting affected populations to adapt to the long-term impacts of climate change
- further cost effectiveness analyses for interventions to address climate-related mental health for the UK population are needed
- applicable learnings may also be identified from interventions in sectors outside the scope of this report (such as post-disaster interventions by humanitarian organisations)

Introduction

Mental health is a vital component of our overall health and wellbeing, enabling us to cope with life's stresses. We need to protect and promote good mental health and wellbeing, and provide care for those individuals with mental health conditions, which can range from mental disorders and psychosocial disabilities as well as other mental states associated with significant distress, impairment in functioning, or the risk of self-harm (1). Poor mental health is becoming increasingly prevalent in the UK, with the proportion of 16 to 64 year olds identified with a common mental health condition increasing from 17.6% in 2007, to 18.9% in 2014 and 22.6% in the year 2023 to 2024 (2).

Climate change is impacting the weather that the population experiences in the UK, and this in turn is impacting the physical and mental health of the UK population. The evidence base on the impacts of climate change on health, resulting from adverse weather events, changing patterns of diseases, or the longer-term impacts of changing landscapes and environments, is becoming increasingly clear. However, the impact on mental health is complex, and climate change is likely to be just one of several factors contributing to poor mental health. For example, a survey of young people aged 18 to 24 found that 9% reported feeling anxious due to climate change, compared with 23% feeling anxious because of job insecurity (3). Nonetheless, mental health impacts from climate change are already noticeable in the UK, and are likely to become increasingly widespread, contributing substantially to the direct and indirect health burden due to climate change in the UK.

Climate-related hazards will continue to increase over time until at least mid-century. Scenarios of future climate impacts (not covered in this report) tell us that hazards such as extreme heat and flooding will increase in frequency and severity, with risks accelerating with climate warming (4). These hazards to health will increase regardless of decarbonisation until at least mid-century, even if carbon emissions decrease, due to locked in temperature increases. After this, decarbonisation actions today will determine whether impacts continue to grow, accelerate, or in a best-case scenario, begin to incrementally recover. This is important context alongside this report for two reasons. Firstly, the trajectory of climate warming means that the emerging trends identified in this report reflect only the starting point of how climate change will increasingly become an important determinant of mental health in the UK. Secondly, it is not future generations who will face the mental health implications of climate change but current generations, particularly children and young people, who will face the most severe climate impacts over their lifetime.

Following on from the UK Health Security Agency's (UKHSA) Health Effects of Climate Change in the UK (HECC) report published in 2023 (5), this report is the first in a series of deep dive thematic assessments into the impacts of climate change on health: this first report focuses on mental health. This report is published as part of UKHSA's commitment to the UK Government's third National Adaptation Programme (6) – ensuring the evidence base on the health impacts of climate change in the UK is updated and clearly communicated to UK government departments,

devolved governments, local authorities, other public bodies, civil society and the public, to facilitate action to ensure that the UK population and policymakers can adapt to our changing world. The 'Climate change and mental health: thematic assessment report' provides an update on the evidence base of the mental health impacts from climate change and adverse weather that the UK is currently facing and will likely experience in future. The report does not provide an assessment of the impact of climate change on mental health relative to other factors that impact mental health at the population level, rather it synthesises the evidence in relation to climate change and mental health, with an assessment of confidence in the findings. It also assesses the evidence around potential interventions, that is any organised programme or activity designed to promote mental health or psychosocial wellbeing, or to prevent or reduce negative mental health outcomes in the context of climate change.

This 'Summary for policymakers' summarises the report, referencing relevant key findings statements, and highlights evidence gaps to support evidence-based policy solutions.

1. Climate change is impacting mental health

The impact of climate change on mental health is largely negative, long-lasting and expected to increase over time

Adverse weather events increase levels of psychological distress, depression, anxiety, post-traumatic stress disorder (PTSD), suicide and violence in impacted populations (see statements 1.3 to 1.10) compared to unaffected populations. For example, there is significant evidence for increases in PTSD (see statement 1.3), depression (see statement 1.4) and anxiety (see statement 1.5) after flooding events within the UK. An awareness and anticipation of climate and environmental change is resulting in emotional or psychological responses such as eco-anxiety and solastalgia, that is ‘a form of emotional or existential distress caused by negatively perceived environmental change’. These feelings may influence behavioural changes related to reproductive choices and family planning (see statement 1.2), which can result in associated emotional and psychological impacts.

Populations exposed to climate-related events are at risk of suffering long-lasting impacts on their mental health (see statement 6.1). For example, the mental health impacts from flooding have been shown to last for up to 3 years after the event ([7](#)). This means that as the UK increasingly sees the impacts of climate change, we need to not only protect population health, preventing negative mental health impacts where possible, but also prepare for managing the impacts on services and support.

Extreme weather can increase violent behaviour and domestic violence

Experiencing extreme weather events can increase violent behaviour, which can have indirect mental health impacts for those affected (see statement 1.9). Hot weather and extreme heat can result in more aggressive and hostile behaviour, with studies showing increased aggression in mental health facilities, increased agitated behaviour amongst people with dementia (see statement 5.2) and within the general population following temperature spikes. There is also evidence of higher domestic violence and gender-based violence following wildfires, flooding, temperature spikes and droughts (see statement 1.9). Although wildfires and droughts do not currently have the same impact in the UK as in other countries, understanding the evidence from outside of the UK allows us to prepare for such threats. For example, wildfires have been described as ‘catalysts’ for new or increased relationship violence ([8](#)).

Healthcare services will see increased demand

Healthcare services see significant increases in demand from service users (the general population and older adults) in the event of high heat or adverse weather events. Mental health-related hospital admissions rise as temperatures increase (see statement 1.7), with a 4.5% increase in admissions for every 1°C rise in temperature above 17°C in England ([9](#)) and another study finding a 9.7% higher incidence of hospital attendance or admission for mental health difficulties than non-heatwave periods ([10](#)). Increases in demand for mental health-related GP appointments or increases in prescription medications for anxiety and depression, have been previously seen following flood events (see statement 2.5). Although data is limited, demand for informal support (such as voluntary services or through social connections and communities) is also likely to increase. As mental health professionals and healthcare workers are often involved in assisting populations exposed to adverse weather events, their own mental health can be impacted and therefore may also be an at-risk group (see statement 3.3).

Given the current waiting lists and demand for NHS services, as climate change impacts worsen and increase in frequency, these mental health and wellbeing impacts need to be considered alongside existing service pressures and other predicted changes to health service demand associated with an increasing ageing population, increased multi-morbidity and an already worsening mental health status amongst the population. Additionally, population displacement (see statements 2.1 and 2.9) and disruptions in services (see statement 2.2) are linked to negative mental health and wellbeing impacts, highlighting the importance of ensuring service resilience and continuity to protect population health.

Mental health impacts of climate change are not felt equally across populations, and will exacerbate existing inequalities

Certain groups in the population, including people facing high deprivation or living in areas of high deprivation are at particular risk of mental health impacts from climate change. Following flooding, individuals with lower household income or living in areas of higher deprivation are at greater risk of poor mental health outcomes and increased risk of suicide (see statement 2.6). Food and water insecurity because of climate-related hazards can also negatively impact mental health (see statement 2.8).

A lack of insurance, insufficient insurance or working through claims and disputes with insurance companies following flooding can negatively impact mental health (see statement 2.3). For example, people who experienced severe stress due to insurance-related difficulties had a higher likelihood of PTSD than those who had no such challenges ([11](#)). Having insurance against extreme weather impacts such as flooding, and financial security, are protective factors, yet as insurance companies withdraw from markets, only people and communities with access to resources will be able to take protective actions such as moving. Those facing high

deprivation are less able to take protective actions, exacerbating health inequalities and the unequal impact of the mental health impacts of climate change.

For farmers and agricultural communities, climate change will compound existing mental health challenges

Farmers have been identified as a key risk group from drought (see statement 3.2) and flooding (see statement 3.3) due to their connection to the land for livelihood and associated financial pressures. Farming communities in the UK demonstrate disproportionately high rates of mental health challenges, with only 55% of farmers feeling positive about their mental health ([12](#)). With this population already facing significant exposure to factors that increase their risks, including the ever-increasing costs of living, financial insecurity due to business disruption, social isolation and long working hours, climate change will act as a compound pressure exacerbating existing mental health burden. In studies from Australia, there are strong associations between drought, stress and psychological morbidity ([13](#)). Farmers and their spouses display significantly higher levels of distress in drought-affected areas than the broader national and rural populations ([14](#)).

Climate impacts can be anticipatory, and this is particularly seen among younger generations

Exposure to climate-related hazards among children and young people can affect their ability to achieve their current and future potential with impacts felt throughout the life course, and possibly compounded by intersectional disadvantage such as living in poverty. Mental health impacts are seen not only through weather hazards due to a warming climate, but also through the worry and concern people feel in anticipation of climate impacts (see statement 4.1). The health implications of these impacts can be substantial and are prominent among children and young people, with evidence indicating they are particularly vulnerable to eco-anxiety (see statement 4.1). Eco-anxiety and adjusted life choice among younger generations are referred to as a rational response in some cases but can escalate to have further mental health implications if not managed appropriately. This is because younger generations are aware of the impact that climate change will have in their lifetime, coupled with a sense of age-related powerlessness and a lack (or perceived lack) of ability to carry out actions able to make a difference. For example, a survey of 1,000 children in the UK found that 50% reported either feeling extremely worried or very worried about climate change and 28% reported this impacted their daily lives and functioning ([15](#)).

Climate change will exacerbate existing health inequalities for people with mental illness

People with pre-existing mental health conditions are at increased risk of mortality during heatwaves (see statement 5.1). For example, it has been reported that for every 1°C increase above 24°C, the likelihood of mentally unwell patients dying increased by 5.5%, compared with 1.9% in the general population ([16](#), [17](#)). There is also increased risk of hospital attendance for individuals with schizophrenia or cognitive conditions such as dementia (see statement 5.2), where a 4.5% increase in dementia-related hospital admissions for every 1°C rise in temperature above 17°C has been reported in England ([9](#)). People taking certain medications are at increased risk of death and other health impacts, including heatstroke, temperature regulation issues and dehydration, as the medications affect the body's ability to regulate temperature (see statement 5.5). As a result, those with pre-existing mental health conditions are more likely to be affected by heat exposure, widening pre-existing health inequalities between those with a mental health diagnosis and the general population.

2. There is evidence for interventions to protect population health

Individual and population-level interventions can protect mental health and wellbeing

Evidence indicates that individual and community resilience and preparedness, and population level interventions to reduce vulnerabilities and pre-existing inequalities, can minimise the impact of climate-related hazards on mental health and wellbeing, such as early warning systems for floods and strong coordination of community response (see statement 7.3). However poor communication of warnings, such as providing insufficient time to respond, can lead to negative mental health impacts (see statement 2.4). Whilst improving access to insurance to mitigate the financial implications of property damage or income loss can build mental health and wellbeing resilience, a lack of insurance has a negative impact on population mental health following flooding events (see statement 2.3), with those who report severe stress in relation to insurance issues at higher likelihood of having probable depression, anxiety and PTSD (11). This suggests that interventions to ensure appropriate communication of warnings and adequate and appropriate insurance provision are likely to be protective to mental health, and that without action, deprived communities who are unable to compensate for a lack of appropriate insurance will be at increased risk of the mental health impacts of climate change.

Evidence shows that clinical interventions, such as cognitive behavioural therapy (CBT) and digital interventions, such as web- or app-based programmes, can be an effective method in improving population mental health and wellbeing, with significant reductions in symptoms shown across studies (see statements 1.11 and 1.12). Effective mental health support after acute events such as adverse weather events may limit long-term impacts, and hence healthcare service demand. Any existing approaches to improve population mental health and resilience are likely to be applicable to minimising the impacts of climate change on population health.

Intervention programmes delivered by trained lay people can improve mental health and wellbeing

Preventative and early interventions for at-risk groups are needed to reduce demand on health services. There are initial findings suggesting that intervention programmes delivered by trained lay people can improve mental health and wellbeing, which can help to extend mental health support in areas where more specialist resources are limited (see statement 2.13). Effective recovery after an event is also essential, for example training first responders in mental health first aid and co-designing recovery plans with communities will further minimise negative mental health impacts on populations.

Targeted interventions for specific groups including farmers can reduce distress

There is evidence from Australia for targeted interventions for farmers, where acceptable, feasible and effective digital tools and programmes have been shown to reduce drought-related distress (see statement 3.7). As agricultural communities may be less likely to seek mental health support, public health interventions may need to be active (that is, involve more direct ongoing effort to provide help), rather than passive, highlighting an important factor for success in the delivery of evidence-based interventions for this group.

Additionally, clinical therapy and self-help programmes have been shown to improve mental health outcomes in individuals with pre-existing mental health conditions (see statement 5.6), although this evidence is currently limited.

Interventions for children and young people reduce impacts of climate related events

There is some evidence of effectiveness for CBT-informed interventions for children and young people in school settings to reduce PTSD, anxiety, depression and functional impairment after climate-related events (see statement 4.4), however, use and evaluation of these within the UK setting and cost-effectiveness evaluation is needed. It is important to note the need for climate change education to integrate psychological support when increasing the understanding and awareness of climate change impacts amongst young people, and if we can support children and young people while they are learning, it is likely that they will be able to develop healthy coping mechanisms with increased resilience to the impacts of climate change on mental health. Additionally, support for engagement in community activity to protect the environment against the impacts of climate change, where this facilitates a sense of agency, is important. There is some evidence for clinical interventions to help manage the impacts of eco-anxiety (see statement 1.11), but further evaluation including cost-effectiveness of these interventions is required.

Engagement in environmental action has a positive impact on mental health

We know that engagement in environmental action can help to alleviate climate-related distress and promote wellbeing (see statement 7.1). For example, higher levels of climate distress are associated with positive impacts of taking climate actions and climate activism ([18](#)), which may buffer the symptoms of depression and result in a higher sense of control, community and wellbeing ([19](#)). Cognitive behavioural therapy (CBT), digital tools and group-based interventions are also effective, including for children and young people (see statement 1.11), suggesting that pre-existing interventions for mental health conditions are beneficial for managing the impacts of

climate change on mental health. However, evidence suggests that these interventions have been predominantly tested as part of a response to adverse weather events, and less research has been done as to testing the effectiveness of interventions to support adaptation to the longer-term impacts on mental health because of a changing climate. For example, there is little evidence looking at specific activities focussed on managing the mental health impacts of solastalgia or on how to effectively improve community resilience.

Effectiveness of climate adaptation to prevent mental health harms is unknown

The severity of mental health impacts and feasibility, efficacy, and affordability of interventions will differ at different levels of warming. Whilst support to build resilience, early intervention and treatment for the mental health impacts of climate change are important, there is relatively little research and evidence on the extent to which adaptation interventions can prevent mental health harm before it happens. The ability of farming communities to adapt to rapid warming and frequent catastrophic floods, for example, is unknown. There may be thresholds at which adaptation is no longer feasible due to the magnitude of impacts in different sectors or different adaptation options (such as migration from flood zones) may be necessary to avoid health risks. Similarly, eco-anxiety among younger generations may differ on trajectories of high and rapid warming compared to lower or slower warming scenarios. A key activity to protect population mental health from the impact of climate change thus necessarily includes minimising severity of climate warming and therein severity and pace of impacts, buying time to adapt and minimising harms to health.

3. There is more that can be done to protect our mental health

More research on interventions is needed

The report highlights evidence gaps where further research is needed, particularly for statements where the level of confidence is ‘very low’ due to limited available evidence. These areas include impacts of flooding for inclusion health populations and ethnic minority populations (see statement 2.6), mental health impacts on climate migrant populations (see statement 2.9) and the impact of heat on certain occupations (see statement 3.1).

We need more research on interventions for building resilience to longer term impacts of climate change

Current research on interventions is focussed on providing support to populations in the acute phase after a climate change impact. Although there is evidence that benefits from climate-related mental health support are sustained beyond the short-term (for example, at least 3 to 12 months post-intervention ([7 to 10](#))), studies which follow participants beyond 12 months after the intervention are currently lacking, and it also remains unclear whether there are critical periods when support from interventions is most impactful. Further research is needed on preventative interventions, which are offered early to minimise the mental health impacts of climate change. Additionally, more evidence is needed on interventions that provide support to populations to adapt and build resilience to the longer-term impacts of climate change, particularly focusing on support for children and young people, and at-risk occupational groups. Further exploration of how to effectively build population level resilience will also help to minimise demand on healthcare services.

There is currently little evidence on how to reduce the impact of eco-anxiety or mental health impacts from developing or becoming more severe. Similarly, interventions which address solastalgia and evidence of interventions which consider how to recognise and reduce the impact of domestic violence during adverse weather events is also lacking.

Evidence for how to support at-risk groups is lacking

We do not have adequate evidence on the effectiveness or cost-effectiveness of interventions to support at-risk groups specifically, nor adequate climate change-specific outcome measures for mental health impacts to enable monitoring of impacts amongst different groups. Evidence on the effectiveness of interventions tailored to high-risk occupational groups is limited (see theme 3 of the main report), and most studies do not assess occupational status as a moderator

of intervention effectiveness, highlighting an important gap. As agricultural communities may be less likely to seek mental health support, public health interventions may need to be active rather than passive, and further research into the use and evaluation of already tested tools within the UK farmer population is required.

It is possible that other groups not highlighted in this review are also at higher risk from the mental health impacts of climate change including certain ethnic groups, inclusion health groups (such as asylum seekers, refugees and undocumented migrants), geographical groups such as remote, rural and island communities, coastal communities, and occupational groups such as coal mining communities, fishing communities and those working in fossil fuel-related jobs (such as coal mining or the oil industry) whose jobs may be at risk with the shift towards renewable energy. Evidence on intervention effectiveness for people with multiple or long-term health conditions is currently lacking, and it is also unknown whether pre-existing conditions may shape engagement or adherence to interventions.

Further research is needed on the protective effects of community action

Further research into the protective effects of, and successful mechanisms for, engaging in community action may be warranted, including evaluation of interventions in relation to this. Additionally, further research is needed to understand how to maximise the positive benefits that community cohesion, social relationships and informal resources may be able to offer so that effective interventions for the population can be identified. This should include identifying the importance of increasing capacity and resilience amongst populations ahead of climate change events and maintaining this resilience throughout an event. For example, this may be through ensuring people have appropriate insurance, that climate adaptation and emergency response procedures are designed to minimise mental health impacts, and that at-risk populations are identified and signposted to services early on.

Understanding which intervention options will be appropriate and effective as the climate warms is a priority

There is a paucity of research to support our understanding of how climate change impacts on mental health will play out across the life course for different generations and rates of warming. Younger generations will live through an age of climate change and bear the greatest burden of both impacts and costs of adaptation. The cumulative impact of early life exposure to climate-related adversity on childhood development, and physical and mental health and wellbeing over the life course, particularly when paralleled by changing patterns of technology and social media, and interacting with intersectional vulnerabilities, is a key unknown. Similarly, understanding which intervention options will be appropriate and effective at different levels and

speeds of warming is an important priority. A growing body of climate research is focusing on the concepts of ‘limits to adaptation’ (the point where efforts to reduce climate change impacts becomes insufficient) and ‘residual risk’ (unacceptable risk and resulting harm for which there are no feasible or effective options to avoid). There remains negligible research and evidence on limits to adaptation and residual risk for mental health impacts in general and in the UK in particular, representing an emerging research priority.

Preparedness and guidance should consider mental health

In addition to population groups who are most at-risk to the mental health impacts of climate-related hazards, the report highlights that staff responding to these events (first responders) are at risk from mental health impacts. Response workers are at risk of mental health and wellbeing impacts from flooding, with studies showing PTSD in first responders (see statement 3.3), and there is evidence from outside of the UK showing that PTSD can range in prevalence between 10% and almost 50% in firefighters following wildfires (see statement 3.4). Volunteers may also be at greater risk of negative mental health impacts compared with professional responders, as they have less exposure to traumatic situations, and they may be less likely to receive organisational support after responding to an event (see statement 3.5). As adverse weather events increase in frequency and require greater response efforts, it is important to integrate considerations for protecting mental health into plans. In particular, this should include consideration of at-risk groups of the general population as well as first responders, and ensure that support is embedded before, during and after an event. Evaluation of interventions to support response workers after an event is lacking for the UK, although studies from other countries suggest that support programmes may be beneficial in reducing PTSD symptoms for response workers (see statement 3.6). However, further evaluation is needed.

Positive visions of the future maximise hope and minimise impacts on mental health

This report demonstrates the pathways through which climate change affects mental health. The evidence indicates not only that awareness of the impacts from climate change can affect mental health but also that engagement in climate or public health action can help to maximise hope and minimise impacts on mental health. These results align with a broader lack of evidence articulating what positive and well-adapted future scenarios might look like, with most research and future scenarios focused on negative trajectories and impact. There is significant potential to direct emphasis on the co-benefits for mental health of different climate interventions – such as nature-based solutions – and on developing clear narratives and visions of positive futures for resilient, adaptive, and secure population health.

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