

# Climate change and its impact on mental health

## KEY FINDINGS

Climate change has both acute and chronic mental health impacts that cover a range from light to very severe conditions.

Climate change impacts on mental health disproportionately affect those most marginalised, act as a health risk amplifier and reinforce inequalities. This applies between different parts of the world, within countries, regions and between population groups.

Children are vulnerable to climate change health impacts, including mental health impacts, and to promote their mental health and wellbeing it is critical to understand how children and youth perceive, handle and cope with climate change as a potential stressor.

Climate change impacts on mental health is an under-researched area, knowledge needs to be further developed and research in the area prioritised, also in Europe.

## Introduction

Climate change health impacts are experienced through direct and indirect pathways. These can take the form of an increase in the frequency and/or severity of extreme weather events such as heatwaves, droughts, floods, and storms which directly may impact health, resulting in heat-related mortality and morbidity, injury and trauma. Indirectly, climate change may impact health through loss of livelihoods, land and property and through interaction with environmental systems, for example, altering the burden and pattern of distribution of vector-, water- or food-borne infectious diseases. Increasingly, the effects of climate change interact with already vulnerable social systems, for example by threatening the availability of adequate nutrition and safe drinking water. These challenges present an unprecedented threat to human health which, if left un-mitigated, could reverse the last half-century of gains made in public health<sup>1,2</sup>.

There is increasingly solid knowledge of physical illness related to climate change<sup>3</sup>. At global level, physical health has generally been given considerably more attention than mental health, and this is also valid for the health impacts of climate change. The Lancet report on sustainable development and global mental health called mental illness “the most neglected of all human health conditions”<sup>4</sup>. Research on the impact of climate change on mental health has had low priority. The evidence base is therefore still limited to this day. In recent years, however, knowledge has been increasingly in demand and the number of scientific publications in the field has slowly increased. The Lancet Countdown on climate change and health emphasised the need and called mental health impacts the often “unseen” impacts of climate change on



human health<sup>5</sup>. Much of the research on the effects of climate change on mental health, covered in this briefing, is from outside of Europe which reflects the state of research.

## Mental health impacts

The emerging literature in this area deals with different climate change-related mental health outcomes derived directly from impacts of extreme events such as heatwaves, drought, wildfires, floods, and storms and more indirectly related to rising temperatures and sea levels, for example causing forced migration<sup>6</sup>. The research area has some challenges with the specific attribution of mental health outcomes to climate change, but it is concluded that the risk of effects is increasing<sup>7</sup>.

Climate change has acute and chronic mental health impacts in a number of ways. Acute effects include anxiety, depression, post-traumatic stress disorder (PTSD) and substance abuse, all tending to increase after a disaster. The risk of psychological trauma and shock from injury and damage to or loss of homes, land and other property is significant in the aftermath of disasters<sup>8</sup>. While acute effects from shock and trauma may fade away if and when life returns to more normal conditions, and when security is re-established, PTSD may manifest as a chronic disorder. Other chronic impacts reported include higher rates of aggression, violence and a persisting sense of loss of, for example, personally important places<sup>2,9</sup>. More impacts mentioned in literature are survivor guilt, climate and ecological anxiety and grief, exacerbated psychosis, suicidal ideation, and suicide. Amongst those having been exposed to severe disasters, the likelihood of committing suicide is higher. People with pre-existing mental health problems may be disproportionately affected<sup>10,11,12,13,14</sup>.

There are increased risks from heat for patients with mental health disorders. Vulnerable individuals awaiting or under medical care and treatment may be susceptible to relatively small changes in climatic conditions. On hot days, the risk of increased mortality is reported significantly higher in people suffering from depression and other mental health disorders, compared with the risk noted on days with lower temperatures<sup>15,16,17</sup>. Patients with psychosis, dementia and substance abuse have an increased risk of dying from heat<sup>18</sup>. One hypothetical explanation may be medication with diuretics and psychotropic drugs which, at high temperature and especially in the elderly, have been associated with an increased risk of morbidity and mortality<sup>18,19</sup>. A known adverse side effect (hyponatremia) from common drugs, such as antidepressants, can also cause problems in heat<sup>20</sup>. Suicide rates increased 0.7% in US counties and 2.1% in Mexican municipalities, when there was a 1°C increase in monthly average temperature. The effect did not differ much between hot and cool regions<sup>21</sup>.

### Mental health effects include

Post-traumatic stress disorder, anxiety, depression, substance abuse, trauma and shock, aggression and violence, compounded stress, survivor guilt, climate and ecological anxiety and grief, ecological paralysis, solastalgia, suicidal ideation, suicide, phobias, sleep disorders and exacerbated psychosis.

Source: Author's own elaboration – Summary of the results reported from the referenced publications.

According to a systematic mapping of published scientific literature, there is a rather large body of knowledge regarding mental health outcomes after flooding<sup>22</sup>. Even if there are few longitudinal studies and shortcomings in some studies not controlling for confounding factors, a long-term trend of increasing psychological disease from flooding has been confirmed, particularly in poorer socioeconomic conditions<sup>23</sup>. Psychological distress expressed by victims after a severe flooding, remained even after several years<sup>24</sup>. Mental health outcomes such as depression and post-traumatic disorder associated to flooding was reported in a study analysing UK data. If displacement due to flooding happened without warning, the impacts observed showed both higher prevalence and more long-term effects<sup>25</sup>. An increased prescription of antidepressant drugs has been reported after floods<sup>26</sup>. Not only flooding, but prolonged droughts have mental health impacts and have been associated with increased levels of depression, anxiety and PTSD<sup>27</sup>.

People working in the front line in climate-related disasters were reported having higher risk of negative psychological effects<sup>28</sup>.

The slow, more gradual impact by climate change on human and ecological systems may negatively impact the health and wellbeing by increasing the stress on people and communities<sup>7</sup>. The increase in awareness and knowledge about the serious consequences of climate change may have a vicarious and/or existential impact. To worry about what irrevocable impacts of climate change mean for oneself, children and future generations may add significant additional stress<sup>29</sup>. The risks that human mental health and wellbeing are negatively affected are expected to increase, and even more in the future with more apparent climate



change consequences. Eco- or climate anxiety, ecoparalysis and ecological grief are concepts used<sup>6</sup>. Ecological grief has been defined as *"the grief felt in relation to experience of anticipated ecological losses, including the loss of species ecosystems, and meaningful landscapes due to acute or chronic environmental change"*<sup>10</sup>. Solastalgia is a form of mental distress being mentioned in connection with displacement, environmental and climate change. The psychological phenomenon is characterised by a sense of loss, for example experienced after loss of property or land by

wildfires. It can include emotional pain, a feeling of having lost comfort and relaxation previously experienced in the environment<sup>30</sup>.

As much as 88% of the disease burden attributable to climate change occurs in children below five years of age<sup>31</sup>. Even though children represent a vulnerable group they have received less research attention than adults. How climate change affects children's mental health and wellbeing is an under-researched area. However, it is reported that effects from extreme weather events affect children's psychological well-being with risk of developing different mental health consequences, such as depression, anxiety, PTSD, phobias, sleep disorders, attachment disorders, and substance abuse. This may disrupt emotional and cognitive development, and predispose for adult mental disorders<sup>32, 33</sup>. According to studies from different parts of the world, most young people have some knowledge about climate change. Studies suggest that they are more interested in and concerned about climate change<sup>34</sup> and to a greater extent accept the scientific consensus that climate change is man-made compared to adults<sup>35</sup>. Many young people are concerned and express worry for their future lives related to climate change, including fear and anxiety<sup>36</sup>. It is critical to understand how children and youth perceive, handle and cope with climate change as a potential stressor. Different coping strategies have been studied; problem-focused, meaning-focused and emotional-focused coping. The meaning-focused coping was reported to be related to better well-being including active engagement in environmental issues. It included components of trust in science, politicians and collaboration at global level related to hope<sup>37</sup>. There are relatively few studies on parents, parenthood and perceptions and attitudes towards climate change and related risks capturing concern about climate change. However, it is suggested that parents are significantly more worried compared with non-parents<sup>38</sup>.

## Vulnerabilities

Global climate change affects all people, but disproportionately affects the most marginalised and hereby reinforce existing inequities. This applies between different parts of the world, within countries, regions and between population groups. The health impacts are projected to be most heavily concentrated in poorer populations at low latitudes, having the least capacity to adapt. The nature and extent of health risks depend not only on the dangers posed by a changing climate, but also on the sensitivity of people, societies and

natural systems exposed to these dangers. It also depends on the ability of people, communities and health systems to prepare for and deal with the growing risks<sup>39</sup>.

Mental health vulnerabilities may be increased by ageing, pregnancy, pre-existing medical conditions including already existing mental disorders, impacted by geographical location, socioeconomic factors and existing inequalities<sup>2,18,40,41</sup>. Climate change acts as a health risk amplifier compounding existing social injustices<sup>42</sup>.

Children are generally more vulnerable to climate change health impacts and are different from adults psychologically, cognitively, anatomically, immunologically, and physiologically, depending on the phase of development<sup>43</sup>. It has been reported that children can experience "*changes in behaviour, development, memory, executive function, decision-making and scholastic achievement, caused by climate extremes*"<sup>44</sup>.

Indigenous people that are living very close to and depend on the nature for their livelihood and for their way of life are vulnerable to meteorological, seasonal, and climatic changes. Mental health outcomes such as strong emotional responses, suicide, depression, and anxiety have been reported being linked to changes in meteorological factors, seasonality, and exposure to both acute and chronic weather events<sup>45</sup>. In an interview study among Swedish reindeer herding Sami, climate change was perceived as setting the limit for their resilience. They grieved the future and expressed their fear of being the last generation of reindeer herders<sup>46</sup>. Similar fear for the future has been reported from other indigenous populations<sup>10</sup>.

Examples of other populations that depend on nature for their livelihood are farming communities, forest owners and those involved in tourism. They may also be particularly vulnerable to mental health problems caused by climate change effects such as extreme weather events. This was, for example, found in farmers experiencing exacerbated drought mainly through the economic effects from land degradation, and most prominent amongst those whose economic livelihoods depended on environmental conditions. Income insecurity related to drought has been suggested to increase the risk of suicide among farmers<sup>47,48</sup>.

## Conclusions

Climate change will create new health risks and enhance existing public health concerns in Europe, disproportionately affecting those already marginalised. Mental health impacts must be given greater attention in policy, practice and research.

Climate change increasingly impacts the health of people and communities, and hereby challenges the very core of health systems. Strong, well-functioning public health systems are amongst the most important adaptation tools, with mental health care having adequate resources securing access to care for those in need. It is important to contribute to better preparedness by seeking new knowledge through conducting surveys after heat waves and extreme weather events. Vulnerability assessments identifying populations at risk and response plans to meet climate change risks are needed at all levels to reduce climate change related mental health risks and to protect already vulnerable populations. This should include the development of mental health programmes for increased individual psychological and community resilience.

Education, information, and monitoring of changing and emerging national to local health risks are important diagnostic and preventive tools. Education of health sector staff is needed, including ordinary medical care providers and first responders after extreme events. Information about mental health impacts from climate change should target society at large; decision makers, local authorities as well as risk groups and the general public.

There are many vulnerable groups, but children have a lifetime ahead of them where they will have to handle and cope with the health impacts from climate change. Through this, there is a certain responsibility

towards children and youth in supporting climate change mitigation, mental health actions and in building psychosocial resilience.

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