



Climate Change & Children's Physical & Mental Health

"Almost all the world's children are facing at least one environmental risk, whether air pollution, heatwaves, floods, cyclones, disease or drought".
UNICEF

1. Introduction

Climate change is increasingly seen as an emergency issue in the context of children's rights, as they are uniquely vulnerable to climate change. It significantly impacts children, making them disproportionately vulnerable to its effects due to their unique physiological and developmental needs. Children face increased risks of illness, malnutrition, and displacement, and their access to education and essential resources is threatened.¹ While climate change affects everyone, those who have contributed the least to the crisis – children, those in poverty, and future generations – are the most affected. Nearly 710 million children are currently living in countries at the highest risk of suffering the impact of climate change.²

2. Multidimensional Vulnerability

Young children depend on adults for their safety and well-being. This dependence can put children at greater risk during extreme events.³ Changing climate and development pressures have profound implications for children's health, nutrition, education, emotional and social well-being.⁴ Children are at particular risk of climate change events because of their rapidly developing brains and bodies, vulnerability to disease, need for nurturing care and limited capacity to avoid threats and impacts.⁵

Research conducted by Health Systems Trust found that "children are disproportionately vulnerable to the impacts of climate change. The specific nature of their vulnerability is multidimensional, shaped largely by the physical, social, and emotional changes that take place over the course of childhood. These changes are intensified by children's

heightened sensitivity to negative or high-impact events during the early stages of development and by their general lack of agency and voice".⁶

The Journal of Global Health published research in 2024 setting out a comprehensive agenda for the health and well-being of children across the six domains of health and well-being including physical and mental health; responsive relations and family well-being and connectedness; nutrition; safety and security; and learning opportunities.⁷ It found that "the world's changing climate affects the fundamental rights of children to survive, thrive and reach their full potential. Exposure to climate change-related events during childhood can have long-lasting effects throughout their lifetime".⁸

Research conducted by Save the Children found that half the world's children – over one billion – are at extreme risk from climate-related events, while children born in 2020 will face on average two to seven times more extreme weather and climate events than their grandparents.⁹ According to the American Academy of Paediatrics, children under five may bear as much as 88 per cent of the global burden of disease from climate change. "Children's optimal development occurs with stable families, schools, neighbourhoods and communities. Climate change threatens these foundations of children's mental and physical health and well-being, which places children at risk for long-term physical and mental health issues."¹⁰

3. Increased Disease Risk

Children's immune systems are still developing, leaving their rapidly growing bodies more

sensitive to disease and pollution. Children are more susceptible to diseases like malaria, dengue fever and diarrhoea due to climate-sensitive vectors and waterborne bacteria or other microorganisms. Rising temperatures and changing rainfall patterns expand the habitats of disease-carrying insects, increasing exposure. *Escherichia coli* (*E. coli*) could increase with warmer and more humid climate conditions.¹¹ These contaminants can impact drinking water supplies and recreational waters. Untreated, contaminated water can cause gastrointestinal illnesses to which children are particularly vulnerable.¹²

4. Malnutrition and Food Insecurity

Save the Children estimates that by 2040 one in four children will be living in areas with extreme water shortages. Almost 160 million children are exposed to increasingly severe and prolonged droughts.¹³ Climate change exacerbates food insecurity, leading to nutritional deficiencies in children, especially in vulnerable communities. Extreme weather events can disrupt food production and distribution, impacting children's access to adequate nutrition. Proper nutrition is essential for children's physical and mental growth. Extreme events, such as wildfires, floods, heat waves, and droughts may disrupt food production and distribution, increase costs, and limit availability. These impacts could make it harder for children to obtain healthy food.¹⁴ Diseases, pests and water shortages can also affect crop productivity and quality. Even when treated successfully, severe acute malnutrition can prevent a child from fully developing physically and mentally. It remains one of the biggest killers of children under age five around the world.¹⁵

UNICEF reported in June 2024 that around 11 million Nigerian children were experiencing severe food poverty.¹⁶ Research conducted in Northeastern Nigeria, which has faced rising temperatures, recurrent droughts, and one of the highest burdens of food insecurity and conflict in Africa found that "rising temperatures don't immediately trigger violence. Instead, they set off a chain reaction: heat stress on the planet over time stresses food systems. As crops fail and household incomes fall, the youngest and most vulnerable are often the first to show signs of distress and become malnourished".¹⁷ The researchers explain that they "mapped the

indirect role of malnutrition through a method that helps identify how one factor (climate stress) affects another (conflict) through an intermediate pathway (malnutrition), while also taking other factors into account. This enabled us to calculate the contribution of malnutrition to climate related conflict".¹⁸ These extreme weather disasters can also lead to competition and tensions related to resources such as food, land and water.¹⁹

Similarly, research conducted in Southern Africa found that it is one of the regions most affected by climate variability and change. "The changing climate intensifies socioeconomic problems. These include water scarcity, already precarious livelihoods and food insecurity, poverty, and weak governance. When the climate changes, and these problems get worse, this can create social tensions between and within communities."²⁰

5. Respiratory Illnesses and Heat Stress

Air pollution from wildfires, exacerbated by climate change, poses serious health risks, particularly for children with respiratory conditions like asthma. Climate change has the potential to increase outdoor air pollutants, such as dust from droughts and smoke from wildfires. In addition, the burning of fossil fuels contributes to ozone at ground level, which is a harmful air pollutant. Ground-level ozone and particulate matter are associated with increases in asthma and other respiratory conditions in children. Climate change can also increase pollen levels and prolong the allergy season.²¹

UNICEF explains that children are more vulnerable to heat stress and its related health impacts, which include sleep disruption and cognitive development issues.²² Extreme heat events are expected to last longer and to become more frequent and intense as the climate changes. Pregnant women are also particularly vulnerable. Increases in average and extreme temperatures are expected to lead to more heat illnesses and deaths among vulnerable groups, including children.²³ Extreme temperatures leave many families living in poverty with less food, less clean water, lower incomes and worsening health. In informal settlements the materials used to build shacks make such dwellings extremely hot in summer and extremely cold in winter. Many such homes are dependant on fossil fuels for cooking and heating, contributing to air pollution.

6. Displacement and Loss of Homes

Extreme weather events displace children and families, disrupting their access to education, healthcare, and social support systems. Extreme events can destroy homes, schools, childcare centres and infrastructure critical to children's well-being. Droughts and flooding can destroy crops and cut access to clean water. The UN warns that many families will have to choose between starvation and migration. By 2050, there could be 143 million more migrants due to the climate crisis.²⁴ According to Save the Children, the effects of the climate crisis cause families and children to leave their homes in search of food, water and survival. Journeys can often be dangerous and lead to children becoming separated – putting them in grave danger of trafficking and physical violence. The displacement of large numbers of people can lead to competition for resources like water and land within local communities, sometimes resulting in conflict, or escalating existing conflict.²⁵

7. Mental Health Impacts

Climate-related disasters and climate change are directly and indirectly influencing the mental health of children, leading to depression, anxiety, and other emotional distress. Children are particularly vulnerable due to their developmental stage and dependence on adults for support and protection. Children who go through a natural disaster or extreme weather event may have anxiety, depression, trouble sleeping, phobias, and post-traumatic stress. Traumatic weather events such as the recent floods in Kwa Zulu Natal and the Eastern Cape result in the loss of homes and community displacement. This has a powerful impact on the mental health of children and may result in Post Traumatic Stress Disorder (PTSD) among adults who have experienced an extreme weather event before the age five. Climate change is compounded by other development challenges including poverty, poor infrastructure, poor urban planning and inadequate sanitation. Children's ability to cope with these events depends on many factors, including their living situation and support systems. Moreover, mental health impacts may last into adulthood, especially if left untreated.²⁶

There is a growing body of thought indicating that children are experiencing eco-anxiety, which is described as any significant emotional

response to the awareness of climate change, including anxiety, guilt, or hopelessness. Children are growing up in an uncertain world where messages about the harm caused by climate change often dominate the public discourse and media. In Australia, a survey of 600 children between 10 and 14 years old revealed that “44% of children are worried about the future impact of climate change” and “one quarter of children worry that the world will end before they get older”.²⁷

8. Threat to Education

KwaZulu-Natal suffered a major blow after floods ripped through several areas in 2022 and earlier this year. The disasters left thousands homeless and destroyed public infrastructure, including roads, bridges, schools and healthcare facilities.²⁸ School uniforms, books and birth certificates were damaged or entirely washed away by flood waters. Such extreme weather events disrupt children's education and limit their future opportunities. According to Save the Children, the education of around 38 million children is disrupted each year by the climate crisis.²⁹ Reduced years of schooling contribute to an increased risk of enduring poverty and unemployment. The Department of Basic Education (DBE) has taken steps to mitigate the impact of climate change on learning and teaching. Furthermore, it is seeking to integrating climate change education into formal education systems as this “is crucial for ensuring that future generations are equipped to address the challenges of a changing climate”.³⁰

9. Increased Risk of Child Marriage and Child Labour

Climate change exacerbates existing inequalities, disproportionately affecting children in poor and marginalized communities. Research by Save the Children found that the economic and social changes wrought by climate change render children more vulnerable to child marriage and labour, particularly in marginalized communities. Environmental crises worsen known drivers of child marriage.³¹ Save the Children reports that nine million girls are facing the dual threat of climate disaster and child marriage every year.³² Those countries with the highest number of child brides are not only disproportionately affected by increasingly severe and frequent extreme weather events,

but in many cases also by conflict, high levels of poverty, gender inequality and hunger.³³ Early marriage has devastating consequences for a girl's life. Girls married young are far less likely to stay in school, with lifelong economic impacts. It was estimated that by 2025, climate change will cause at least 12.5 million girls in 30 low- and lower-middle income countries to leave school.³⁴ One-and-a-half million girls in Malawi are at risk of child marriage due to extreme weather events caused by climate change.³⁵

Extreme weather events such as droughts, floods, and crop failures can disrupt livelihoods and force families to rely on child labour to cope with economic hardship. A 2023 report published by the Food and Agriculture Organization of the United Nations (FAO) has put a spotlight for the first time on the link between climate change and the scourge of child labour, which affects roughly 160 million children globally, with African agriculture at the epicentre. The report found that the increasing frequency and intensity of extreme weather events is forcing some children to work at greater intensity and duration. These children engaged in child labour are the unseen victims of climate change.³⁶

10. Prioritizing Children's Needs

While there is a great deal of uncertainty surrounding climate change in South Africa, two things are known: that change is a certainty and that action is required to develop policy decisions that support children and households in adapting to these changes successfully and sustainably. The projected effects of climate change in South Africa, as well as the global literature on the impacts of climate change on children, indicate

the need for focused planning for preventive and responsive measures to enhance child well-being. The Health Systems Trust emphasizes that "shortfalls in basic service provisions, inequities in service access, household poverty, poor housing, protection risks and income vulnerabilities are some of the challenges that millions of children in South Africa face every day. These challenges undermine their capacity to adapt to possible environmental shocks. Better planning and resourcing within national, provincial and local governments could enable children and their families to cope better with climate change impacts as they arise in the short and medium run. Recognizing children's unique vulnerabilities and integrating their needs into climate action plans is essential to ensure their survival and thriving".³⁷

11. Conclusion

Young children depend on adults for their safety and well-being. This dependence can put children at greater risk during extreme events.³⁸ Implementing community-based adaptation strategies can help build resilience and reduce vulnerability to climate-related impacts. Nuanced, community-led, qualitative research can show which groups are most affected, how and when. This includes cumulative and life-long impacts of and on livelihoods, migration, poverty, child labour and child marriage. Children are facing more extreme weather in an increasingly unequal world,³⁹ and "the heightened risk of children to injury, abuse and neglect in the wake of disasters, linked to climate change, requires that corresponding laws and policies be more child focused".⁴⁰

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¹ <https://www.unicef.org/stories/3-ways-climate-change-threatens-childrens-lives>

² <https://www.savethechildren.org/us/what-we-do/emergency-response/climate-change>

³ <https://www.epa.gov/climateimpacts/climate-change-and-childrens-health>

⁴ https://www.hst.org.za/publications/NonHST%20Publications/SAF_resources_climatechange.pdf

⁵ <https://pmc.ncbi.nlm.nih.gov/articles/PMC11115477/>

⁶ https://www.hst.org.za/publications/NonHST%20Publications/SAF_resources_climatechange.pdf

⁷ <https://pmc.ncbi.nlm.nih.gov/articles/PMC11115477/>

- ⁸ <https://pmc.ncbi.nlm.nih.gov/articles/PMC11115477/>
- ⁹ <https://www.savethechildren.net/stories/how-climate-crisis-impacting-children>
- ¹⁰ <https://www.aap.org/en/patient-care/environmental-health/promoting-healthy-environments-for-children/climate-change/>
- ¹¹ <https://www.epa.gov/climateimpacts/climate-change-and-childrens-health>
- ¹² <https://www.epa.gov/climateimpacts/climate-change-and-childrens-health>
- ¹³ <https://www.savethechildren.org/us/what-we-do/emergency-response/climate-change>
- ¹⁴ <https://www.epa.gov/climateimpacts/climate-change-and-childrens-health>
- ¹⁵ <https://www.savethechildren.org/us/what-we-do/emergency-response/horn-of-africa-climate-crisis>
- ¹⁶ 11 million Nigerian children are going hungry: how this hurts their health and what needs to be done
- ¹⁷ The Lake Chad Basin is a security nightmare. 5 guidelines for finding solutions
- ¹⁸ <https://theconversation.com/child-malnutrition-is-a-sign-of-conflict-to-come-nigerian-study-links-climate-change-food-and-violence-262359>
- ¹⁹ Extreme weather is disrupting lives in southern Africa: new policies are needed to keep the peace
- ²⁰ Extreme weather is disrupting lives in southern Africa: new policies are needed to keep the peace
- ²¹ <https://www.epa.gov/climateimpacts/climate-change-and-childrens-health>
- ²² <https://www.unicef.org/reports/threat-to-progress>
- ²³ <https://www.epa.gov/climateimpacts/climate-change-and-childrens-health>
- ²⁴ <https://www.savethechildren.org/us/what-we-do/emergency-response/climate-change>
- ²⁵ <https://www.savethechildren.org/us/what-we-do/emergency-response/horn-of-africa-climate-crisis>
- ²⁶ <https://www.epa.gov/climateimpacts/climate-change-and-childrens-health>
- ²⁷ <https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2022.872544/full>
- ²⁸ Over R500m set aside to build at least 1,000 permanent homes for KZN flood victims
- ²⁹ <https://www.savethechildren.org/us/what-we-do/emergency-response/climate-change>
- ³⁰ <https://www.education.gov.za/ArchivedDocuments/ArchivedArticles/Addressing-the-impact-of-climate-change-in-schools-0524.aspx>
- ³¹ https://www.girlsnotbrides.org/documents/2379/CRANK_Research_Meeting_Climate_change_Notes.pdf
- ³² <https://www.savethechildren.net/stories/how-climate-crisis-impacting-children#group-section-The-effects-of-climate-change-on-children-cbqBixLO2X>
- ³³ <https://www.savethechildren.net/news/one-third-more-girls-set-face-double-blow-climate-change-and-child-marriage-2050-study>
- ³⁴ https://www.girlsnotbrides.org/documents/2379/CRANK_Research_Meeting_Climate_change_Notes.pdf
- ³⁵ https://www.girlsnotbrides.org/documents/2379/CRANK_Research_Meeting_Climate_change_Notes.pdf
- ³⁶ <https://www.fao.org/africa/news-stories/news-detail/Child-labourers-are-the-unseen-victims-of-climate-change/-en>
- ³⁷ https://www.hst.org.za/publications/NonHST%20Publications/SAF_resources_climatechange.pdf
- ³⁸ <https://www.epa.gov/climateimpacts/climate-change-and-childrens-health>
- ³⁹ <https://www.savethechildren.net/stories/how-climate-crisis-impacting-children>
- ⁴⁰ https://www.hst.org.za/publications/NonHST%20Publications/SAF_resources_climatechange.pdf