

Climate Change's Impact on the Health of Children: A Brief Look at Some Evidence

Craig Chalquist, PhD
Chalquist.com

On September 23rd, 2019, Greta Thunberg and fifteen other young people went to New York City to put a formal complaint before the United Nations: that by doing nothing to mitigate climate change, five countries were contravening the U. N. Convention on the Rights of the Child. I was asked to provide a statement in support of this complaint in my capacity as an ecopsychological educator.

Context:

This brief report touches on recent research on how climate change impacts the physical and mental health of children.

It should be noted, however, that requiring this kind of evidence from those trying to protect children from the impacts of climate change shifts the burden of proof from where it belongs: on unsustainable energy and food industries degrading Earth's ecosystems, and on governments which subsidize increasingly apocalyptic operations. Youth have had to rise up and protest because regulatory authorities have allowed gigantic organizations of stupendous wealth and influence to extinguish ecological health, local sovereignty, and social justice all over the world. There are no safe places to grow up anymore.

Evidence of climate change accumulating since the 1950s has been augmented by a wave of studies since 2015 focusing on how industry-driven climate change jeopardizes human health. Children are especially at risk. The list below is a small and partial sample of a rapidly growing body of research.

Conclusion:

To state the conclusion highlighted by current research:

Climate change injures, sometimes irreparably, the physical and mental health of children in ways both obvious and subtle, short- and long-term.

Examples of harmful ecological stresses directly attributable to climate change:

Multiplying heat waves and steadily rising temperatures, enlarging and lengthening regional droughts, heat-related outbreaks of violence, air pollution, population displacements, failures of overwhelmed cooling systems where they exist at all, proliferating mold, longer pollen seasons, spread of infectious diseases, reduced nutrition in languishing crops, wildfire smoke exposure,

ozone formation, forced evacuations, depletion and toxification of freshwater, food scarcity, wars to guard fossil fuel supply lines, and severe storms of increasing power and frequency.

Traumatic impact on children:

A wide range of harmful consequences to children's health ranging from anxiety about the future on a warming world, depression after extreme weather, post-traumatic stress, helplessness, sleeplessness, obesity, and chronic rage to thirst, hunger, loss of education due to evacuation, loss of housing and basic shelter and safety, refugee dangers, separation from parents and families, loss of parents (e.g., swept away in floods; suicide by farmers), neglect and abuse from overwhelmed caregivers, sudden or prolonged poverty, war injuries, heat-related vascular disease, diarrheal diseases from floods, heart disease, high blood pressure, air-pollution asthma, diminished lung function, birth defects, infant mortality because of heat, death from numerous causes, and too many other serious and long-term medical problems to list here. Lack of financial and community resources increases the trauma.

Examples of Recent (2002-present) Evidence:

“Climate change poses threats to human health, safety, and security. Children are uniquely vulnerable to these threats. The effects of climate change on child health include physical and psychological sequelae of weather disasters, increased heat stress, decreased air quality, altered disease patterns of some climate-sensitive infections, and food, water, and nutrient insecurity in vulnerable regions.” From Adhoot, S. et al. “Global climate change and children's health.” American Academy of Pediatrics.

<https://pediatrics.aappublications.org/content/pediatrics/136/5/e1468.full.pdf>

“Climate change–induced extreme weather, changing weather patterns, damaged food and water resources, and polluted air impact human mental health. Increased levels of stress and distress from these factors can also put strains on social relationships and even have impacts on physical health, such as memory loss, sleep disorders, immune suppression, and changes in digestion.” Other factors include spread of infections (including those causing in utero brain damage), cognitive and behavioral impairments from air pollution, PTSD from extreme weather (50% of child survivors in the case of Hurricane Katrina), and eco-anxiety. Clayton, S., Manning, C., Krygsmann, K., & Speiser, M. (2017). “Mental health and our changing climate: Impacts, implications, and guidance” [PDF]. American Psychological Association, Climate for Health, and ecoAmerica. <https://ecoamerica.org/wp-content/uploads/2017/03/ea-apa-psych-report-web.pdf>

“Both the direct and flow-on effects of climate change place children at risk of mental health consequences including PTSD, depression, anxiety, phobias, sleep disorders, attachment disorders, and substance abuse. These in turn can lead to problems with emotion regulation, cognition, learning, behavior, language development, and academic performance. Together, these create predispositions to adverse adult mental health outcomes.” Burke, S., Sanson, A., & Van Hoorn, J. “The psychological effects of climate change on children.” U.S. National Library of Medicine; National Institutes of Health. <https://www.ncbi.nlm.nih.gov/pubmed/29637319>

“These data demonstrate a county-level temporal and geographic increase in the rate of inflicted TBI [traumatic brain injury caused by child abuse] following a natural disaster [Hurricane Floyd]. While the rate of inflicted injuries rose and then returned to baseline, the rate of non-inflicted injuries rose even more dramatically and remained moderately above baseline at >6 months post-flooding, possibly reflecting increased injury risk due to prolonged stress.” Keenan, H. et al. “Increased incidents of inflicted traumatic brain injury in children after a natural disaster.” *American Journal of Preventive Medicine*. [https://www.ajpmonline.org/article/S0749-3797\(03\)00333-7/fulltext](https://www.ajpmonline.org/article/S0749-3797(03)00333-7/fulltext)

“First, environmental changes associated with anthropogenic greenhouse gases can lead to respiratory diseases, sunburn, melanoma, and immunosuppression. Second, climate change may directly cause heat stroke, drowning, gastrointestinal diseases, and psychosocial maldevelopment. Third, ecologic alterations triggered by climate change can increase rates of malnutrition, allergies and exposure to mycotoxins, vector-borne diseases (malaria, dengue, encephalitides, Lyme disease), and emerging infectious diseases.” Supinda B. et al. “The impact of climate change on child health.” *Ambulatory Pediatrics*. <https://www.sciencedirect.com/science/article/abs/pii/S1530156705602237>

“Vulnerable populations such as children and those with low resource levels suffer disproportionately high levels of psychopathology after such events [extreme weather]. For example, research has shown that anxiety, aggression, and behavior problems are more likely to be observed in children than in adults after exposure to a disaster.” Simpson, D. M., Weissbecker, I., & Sephton, S. E. Extreme weather-related events: Implications for mental health and well-being. In I. Weissbecker (Ed.) *Climate Change and Human Well-Being: Global Challenges and Opportunities* (pp. 57–78). <https://psycnet.apa.org/record/2011-19559-004>

“Up to 54% of adults and 45% of children suffer depression after a natural disaster. Forty-nine percent of the survivors of Hurricane Katrina developed an anxiety or mood disorder, and 1 in 6 developed PTSD. Suicide and suicidal ideation more than doubled.” “Making the connection: Climate changes mental health.” American Public Health Association. https://www.apha.org/~media/files/pdf/topics/climate/climate_changes_mental_health.ashx

“Over a half of the children surveyed are worried about not having enough water. Just over four in ten (44%) are nervous about the future impact of climate change and 43% of children are worried about air and water pollution... A quarter of children are so troubled about the state of the world that they honestly believe it will come to an end before they get older...” Results from a national representative sample of 600 children and young people between 10-14 years old across Australia. Tucci, J., Mitchell, J., & Goddard, C. “Children’s fears, hopes and heroes” [PDF]. Australian Childhood Foundation, Monash University, and Quantum Market Research. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.590.5217&rep=rep1&type=pdf>

“Results for 160 samples of disaster victims were coded as to sample type, disaster type, disaster location, outcomes and risk factors observed, and overall severity of impairment. In order of frequency, outcomes included specific psychological problems, nonspecific distress, health problems, chronic problems in living, resource loss, and problems specific to youth. Regression analyses showed that samples were more likely to be impaired if they were composed of youth

rather than adults...” Norris, F. H., Friedman, M. J., & Watson, P. J. “60,000 disaster victims speak: Part II. Summary and implications of the disaster mental health research.” *Psychiatry*.
<https://www.ncbi.nlm.nih.gov/pubmed/12405079>

“Five hundred twenty-three juvenile survivors of the tsunami [of 2004 in Tamil Nadu] were studied to determine the prevalence of PTSD.... Our study revealed a prevalence of 70.7% for acute PTSD and 10.9% for delayed onset PTSD.” Prashantham, J. et al. “The prevalence of posttraumatic stress disorder among children and adolescents affected by tsunami disaster in Tamil Nadu.” *Disaster Management & Response*.
<https://www.sciencedirect.com/science/article/pii/S1540248706000927>

More and more reports are available from scientists and scholars on the impact of climate change on children’s health. For example:

“We can measure and communicate the effects of the threat of global environmental destruction on the current mental health of our children.... Our children and grandchildren will react to expanding knowledge of climate change with despair.” Kefford, R. “Medical heat for climate change.” *Medical Journal of Australia*.
https://www.mja.com.au/system/files/issues/184_11_050606/kef10410_fm.pdf

“The existing literature indicates that very young children, especially children under one year of age, are particularly vulnerable to heat-related deaths. Hot and cold temperatures mainly affect cases of infectious diseases among children, including gastrointestinal diseases, malaria, hand, foot and mouse disease, and respiratory diseases. Pediatric allergic diseases, like eczema, are also sensitive to temperature extremes. During heat waves, the incidences of renal disease, fever and electrolyte imbalance among children increase significantly.” Zhiwei, X et al. “Impact of ambient temperature on children’s health: A systematic review.” *Environmental Research*.
<https://www.sciencedirect.com/science/article/pii/S0013935112001983>

“We know that climate change is making heatwaves hotter and longer, and more heat means more kids aren’t able to go outside and play. This is a critical issue because the number one health challenge facing our children today is obesity. More heat also makes more ozone, an air pollutant that’s harmful to our lungs, and especially the lungs of kids with asthma. Ozone can also harm pregnant women and their growing fetuses as air pollution is associated with early birth and small babies, which can lead to lifelong health problems.” Bernstein, A. “How climate change affects children’s health.” Harvard School of Public Health.
<https://www.hsph.harvard.edu/news/features/how-climate-change-affects-childrens-health/>

Additionally, in 2019, nearly 80 scientists and physicians and 15 health organizations submitted an amicus brief to the Ninth Circuit Court of Appeals in Oregon to educate them about how the government’s failure to address climate change imperiled young lives not in the distant future, but right now, through a variety of risks like rising air pollution and intense heat waves.
<http://clinics.law.harvard.edu/environment/files/2019/03/Juliana-Public-Health-Experts-Brief-with-Paper-Copy-Certificate.pdf>

Allowing these appalling conditions to exist, let alone worsen, across the world directly violates Part I of the United Nations Convention on the Rights of the Child. Doing so constitutes a clear case of **planetary child abuse**. No nation, whether a signatory or not, should be allowed to so jeopardize those least able to protect themselves from such preventable trauma.