

## Podcast transcript: Climate Disasters and Mental Health in Youth

[Theme music]

**Ashley Ahearn:** You're listening to Environmental Health Chat – a show from the National Institute of Environmental Health Sciences that explores the connections between our health and our world.

I'm Ashley Ahearn.

[Music fades out]

Before we jump in, I want to let listeners know this episode mentions suicide. If you or someone you know are experiencing thoughts of suicide, call or text 988. That number again is 988.

As the global climate changes and greenhouse gas concentrations in the atmosphere increase, we are seeing a rise in natural disasters like hurricanes, heat waves, flooding, droughts, and wildfires.

These catastrophic events are affecting our economy, our infrastructure, our environment – and even – our mental health.

But how can researchers quantify those mental health effects?

What we need is a medical geographer!

**Maggie Sugg (MS):** I'm a medical geographer really focusing on climate and health issues.

**AA:** Dr. Maggie Sugg is an associate professor at Appalachian State University in North Carolina. And... a medical geographer, which means she looks at health and environmental issues through a spatial lens and tries to decipher patterns and connections between people and disasters that occur where they live.

Climate-related disasters can affect mental health through many different pathways, Dr. Sugg explains.

**MS:** One of the most common is just trauma and stress. And that's usually through direct exposures to hurricanes, wildfires, floods, or extreme heat. And a lot of these direct exposures have acute stress reactions. So, you're witnessing destruction, loss of loved ones, displacement. And prior to our work, a lot of this [research] had focused on post-traumatic stress disorder. And that's been one of the most commonly studied conditions from these types of climate disasters. But there also can be secondary stressors from climate disasters...

**AA:** Things like relocation or economic loss can contribute to depression, anxiety, and substance use. Some data points to increases in domestic violence following natural disasters. And those outcomes can be especially pronounced among young people, because their brains are still developing, and they often have less experience coping with highly stressful situations and may have less control because they rely on parents or caregivers to make decisions for the family.

**MS:** When you have hurricanes back-to-back or if you have a hurricane within the COVID-19 pandemic, what does this mean to mental health among youth? And youth are already facing an ongoing mental health crisis. The U.S. Surgeon General issued his Advisory in 2021, which was really unprecedented at the time, as a call to action to address mental health among youth.

**AA:** But for researchers, connecting the dots between a climate crisis and the mental health outcomes we might see in the surrounding community has been tricky.

Dr. Sugg and her co-investigator, Dr. Jennifer Runkle of the North Carolina Institute for Climate Studies, have developed a fascinating way to try to do that, with funding from the NIEHS.

They've teamed up with a non-profit organization called Crisis Text Line. The organization provides counseling services, via text, to people who are struggling with mental health challenges. People can text HOME to the number 741741 – again, that's HOME, H-O-M-E, to the number 741741 – anytime and they'll be paired up with a trained counselor.

Since 2013, Crisis Text Line has served more than 80,000 people, the majority under the age of 24, and conducted more than 9 million text conversations with people across the country. That's a lot of data.

**MS:** They code each conversation based off different crisis tags, so there are codes for depression, or abuse, or substance use, suicidal thoughts – which are some of the riskier conversations that will be elevated to a clinical staff member at Crisis Text Line.

**AA:** Through their academic partnership with Crisis Text Line, Dr. Sugg and Dr. Runkle can access that data. The identities of the users are kept private, of course, but there are other valuable data points that are shared.

**MS:** The conversation has a time point, a geolocator. And then for a smaller subset of users for about 25% – which for 9 million conversations is still a lot – we have demographic data.

**AA:** So, as a medical geographer, this is a goldmine for Dr. Sugg. Using the geolocator data, she can map the texts and where they're coming from. For example, when a hurricane hits, or a wildfire, she and her team – which includes undergraduate and graduate students – can look for changes in the use patterns of the Crisis Text Line.

**MS:** We've looked at a couple of disasters, quite a few. Our earlier work looked at high temperatures and crisis text usage. We also looked at [Hurricane] Florence and Harvey, the wildfires in 2020, and Winter Storm Uri in Texas. Hurricane Laura, Hurricane Ian, so we've looked at a lot, but one of our first ones was Hurricane Florence.

**AA:** Hurricane Florence hit the North Carolina coast in 2018, bringing with it a 1 in 1,000-year flooding event for that area. Dr. Sugg and her team were able to compare Crisis Text Line data from before the hurricane with data from the six-week period following the hurricane.

**MS:** We noted a 23% increase in suicidal thoughts for Hurricane Florence. And this occurred over that whole six-week time period. We also noted increases in anxiety and stress, 17%, and then depression, 11%.

**AA:** Sugg and Runkle were then able to cross check, or ground truth, those numbers with administrative data from regional hospitals.

**MS:** And we were able to look at suicide-related, anxiety, and stress-related emergency department visits for the same demographic, so under age 24, and we noted a similar increase.

**AA [on tape]:** What were some, would you say, key learnings or takeaways in terms of what you saw with Florence in the aftermath of that?

**MS:** We're seeing an immediate uptick of severe outcomes – like suicidal thoughts is a very severe outcome – in our data. And that's a high-risk crisis concern, that means someone has thought of suicide, may have intent, or means. And we're seeing an immediate uptick of that. And this is occurring when communities likely don't have some of the resources to address some of these mental health needs. And so, it really speaks to the need and potential the safety net of some of these digital interventions immediately after disasters.

**AA:** Sugg and her team also studied Crisis Text Line data surrounding Winter Storm Uri of 2021, which brought freezing temperatures throughout the country, impacting more than 170 million Americans, and causing power outages that affected almost 10 million people in the U.S. and Mexico.

**MS:** And I like to think of this as kind of a cascading type of disaster, you know, you had really cold temperatures that had a pronounced effect across Texas. But it also resulted in a power crisis and power outages, which made it much more severe and caused lots of infrastructure damage, among other things.

**AA:** In the Crisis Text Line data for the 11 months following the storm, Sugg and her team saw an uptick in suicidal thoughts among young text line users.

As the frequency of climate disasters increases, Sugg is certainly not the first researcher to warn of the environmental justice implications. She refers to the catastrophic events she studies as “threat multipliers.”

**MS:** So, it's taking these already existing health disparities or mental health disparities, and it's amplifying them. So, it's the socially vulnerable who are more likely to bear the brunt of the effects of these disasters. And those can be overburdened communities relating to geography, or poverty, or age, ethnic or cultural groups. They have the least amount of resources to recover and respond, and that has significant mental health implications.

**AA:** Sugg's findings provide valuable information for disaster responders and decision makers. So often, after a catastrophe, the focus is on meeting the immediate physical needs of survivors, but Sugg's research shows that there's also a need for mental health support. The mental health effects can last much longer and be harder to identify – especially among young people. And those traumatic events can have lifelong implications for mental health.

**MS:** One of the big factors for youth is just having a social support system, you know, and those that have a strong social support system are less likely to be impacted by disaster. So, I know that's broad, but as much as possible, trying to support community groups or positive youth development, all these things will help youth, even prior to the disaster, because we're already

dealing with a mental health crisis and disasters can amplify that, particularly with people with pre-existing conditions.

**AA:** Sugg says there are some key ways that parents and caregivers can support young people. After analyzing thousands of text exchanges she and her team have identified some themes:

**MS:** So, within the conversations that we've read, we've noted users – these are young users, so under age 24 – that they really enjoy doing art, music, video games, YouTube, these are things that they've self-identified. Nature-based therapy helps. Access to green space, we are seeing communities with free, accessible green space – even when you adjust for underlying economic and racial structure – these tend to buffer against some mental health conditions. So, I think access to nature and promoting being outdoors can be one technique of many to mitigate some of these conditions.

**AA:** Sugg added that limiting news consumption, especially following a disaster, can help overall mental health. Parental stress is another factor. Stressed parents may struggle to support stressed kids, so as a parent, taking care of your own mental health, as best you can, is important, especially following a disaster.

**MS:** I'm a mother to three young children, a seven-year-old, a five-year-old and a one-year-old, and I still have hope for the future. I think we've made a lot of gains, when we think about climate change. People are interested in the health effects of climate change. And there's been a lot of collective action, a lot of concern. And I think it's really important for us, and we're doing that right now, to use this concern to fuel action, to fuel change. And so, I'm hopeful that it's something that we see across the U.S. and has real potential in the future.

**[Music comes up]**

**AA:** If you or someone you know is experiencing suicidal, substance use, or other mental health crises call or text 988 – that's 988. You can also text HOME to 741741 to connect with a trained crisis counselor via the Crisis Text Line.

I'm Ashley Ahearn. Thanks for listening to Environmental Health Chat.