

## How climate change affects mental health



*By Martha Henriques*

From fear and anxiety to hope and healing – a series examining our complex responses to climate change, and how those responses will shape how we act.

There is an aspect of climate change that many of us have been neglecting. Even if you read the news on the myriad ways that climate breakdown has already changed weather patterns, damaged livelihoods and contributed to extinctions, you might have missed it.

It's our emotional response to climate change. For people whose lives are already changing for the worse, climate change takes a heavy mental toll. Even for those much more protected from the immediate effects – typically in rich, developed nations – there are reports of growing numbers of people seeking treatment for climate anxiety.

At first, this might seem a little indulgent. “The world is burning, and you want to talk about feelings?” some may ask.

But as this new BBC Future series explores, the two sides – our emotional responses to climate change and action to stop it – go hand in hand. By dismissing one, it's hard to grasp the other.

### The snowy countries losing their identity

For those who grew up marvelling at snowflakes or hurtling downhill on a sledge, how do you adapt to a world where these joys are growing rarer?

few weeks ago, I woke up to a familiar brightness in my bedroom, and I knew it had finally returned: a parade of fluffy white soldiers, dancing down from the sky and wrapping the barren trees and hills in a brilliant fleece. Snow!

As soon as I got the chance, I headed into the forest, dragging my legs through the snow, which was so heavy it seemed to intensify gravity. I felt like the first astronaut on a new planet, bundled up in layers and making the first impressions on the untouched duvet spread out in front of me. I kept pausing to savour it all: the taste of individual snowflakes on my tongue, their satisfying crunch under my feet. How fabulous the trees looked, clad in white and adorned with icicle pearls as if solemnly attending a winter ball. The way the snow muffled every movement into silence. And for one frozen moment in time, it seemed as if our planet had returned to normal.

When my family moved some 20 years ago from rainy London to the German countryside, I was thrilled to live in a place with what I considered a "proper winter". In January or February, the snow would usually stay with us for a few weeks – sometimes knee-deep and liberating me from school. I'd go sledging, build igloo-like caves, or join my parents throwing snowballs for our dogs and – perhaps unfairly – laugh at their hopeless quests to retrieve them from mounds of snow. But over time, those spectacular winters turned into a mundane drizzle. In recent years, my parents – with whom I usually spend the winter – have rarely seen an inch of snow, and if they did, it quickly turned into slush.

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I'm privileged to be distant from the most dramatic effects of climate change, like forest infernos or devastating hurricanes. Yet the silent transformation of winter's character can also weigh on one's psyche. To me, it's more than just a reminder of the wrenching planetary change we've caused and the hopelessness and anger I associate with it. There is something unique to witnessing the deterioration of this season. Some Nordic countries have words that come close to this feeling, like the Finnish "lumiahdistus", describing an anxiety related to desiring snow or not knowing whether it will come. In English, we might sum it up as "winter grief".

Driving this feeling, of course, is our species' burning of planet-warming fossil fuels and its influence on the sensitive process of snow formation. Snow falls as powder in air around -15C (5F) or slightly cooler. Slightly warmer, air holds more moisture, making snow denser, which could be why some areas are now seeing heavier snowfalls in the winter. Step over the critical threshold of 0C (32F) and you'll get rain. "There are a lot of regions that are very close to this threshold temperature, and that's why you see all these strong changes," climate hydrologist Ryan Teuling of Wageningen University in the Netherlands tells me.

In a 2018 analysis of Europe-wide weather station data, Teuling and his colleagues found that on average, the snow depth across the continent has declined by 12% a decade since 1951. While high altitudes in the Alps are still somewhat shielded from these effects, changes are pronounced at lower elevations, adds Gudrun Mühlbacher, who heads the regional climate office of the German Weather Service in Munich. In some German regions less than 800m (2,600ft) above sea level, the number of days with total snow cover has decreased by as much as half since 1970, Mühlbacher points out.

At just a few hundred metres above sea level, it's no surprise that at my family's home in the country's south-west, snow is becoming increasingly rare. That said, "snow has a very high variability from year to year", Mühlbacher adds. So even in a warming climate, extreme winters – like this year – can occasionally still occur without changing this long-term climatic trend. And, Teuling adds, if snow does fall, there's a larger potential for the particularly heavy and destructive kind that crushes trees and roofs, and damages infrastructure.

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As always, I found this winter's snow homely and reassuring – not least because it revealed tracks left behind by forest hares, which I hadn't seen in years. But being aware that the heavy snowfall was an anomaly, I became anxious. "Was I making the most of it?" I wondered, nibbling some snow as I walked along. I wished I had blown off work and spent more time outside and wondered if I'd have time to take the sledges out of the cellar. I cursed myself for not bringing my camera. If I'm lucky, I hoped, the temperature would dip back below freezing and it would stay for a little longer.

Many animals and plants depend on icy winters. But although we're originally tropical creatures, humans too have formed intimate connections with even the harshest of seasons. Those ties can be existential, like for some indigenous peoples, economical, like for those in the winter sports industry, or cultural or personal. Many of those connections threaten to break. In recent research, for instance, University of Uppsala limnologist Gesa Weyhenmeyer and her colleagues found an association between warming winter temperatures and cancellations of ice-related spiritual and religious ceremonies in Japan and Germany, an outdoor ice-skating race in Sweden, and ice-fishing tournaments in the United States.

We depend on such habits not only for tradition's sake and the obvious benefits of physical activity, but also to psychologically recover from everyday stressors, Terry Hartig, an environmental psychologist at the University of Uppsala in Sweden, tells me. He argues that any severe deviation in weather patterns – whether an unusually cool summer or a warm winter – makes it harder to recover from the demands of everyday life. If the unseasonable weather makes it harder to blow off steam, it contributes to chronic stress and depression.

We are really losing the qualities of the seasons that we value most – Terry Hartig

Hartig's research has linked unusually cool summer temperatures in Sweden to increased antidepressant use – an observation he says he would expect to apply to warmer winter temperatures too, which he suggests may exacerbate the already high incidence of depression during the winter. "We are really losing the qualities of the seasons that we value most," Hartig says.

That effect may be hardest felt by residents of northerly latitudes, where frozen winters tend to be accompanied by blazing sunshine and a relief from the deep winter darkness there. "If you don't have [snow or] ice cover, there are a lot of

possibilities gone," Weyhenmeyer says. But also here in Germany, snowfall represents a gentle tug outside, especially during this pandemic. Why go outside in the gray drizzle to trudge over the soggy ground?"

Yet the disappearing winter is also about something deeper and harder to measure. "I presume that... there is a huge number of people who feel many difficult emotions because the seasons are changing," agrees Panu Pihkala, an expert in climate grief at the University of Helsinki. "But so far, we don't have [much] data on this."

The German writer Bernd Brunner has observed that by drawing nature to a standstill, winter provides an opportunity for withdrawal and reflection – a time to slow down and digest the past and future. With the lack of snow, an ancient cycling of the seasons also threatens to vanish, and with it a sense of order in the world. Now that winter is becoming less of a season than a blur of mild and cold between the fall and spring, I fear we may also lose a shared experience with the natural world – a cyclical sense of change, and a deep cold that makes the summer all the more vibrant. After all, it was only in the depths of winter that French philosopher Albert Camus wrote: "I finally learned that within me, there lay an invincible summer."

As I descended a valley leading back towards home, I'm startled at the sound of water running. Far from frozen over, meltwater was already rushing down a little stream there, revealing brown mud and green algae that spoilt the otherwise pristine whiteness. I dropped a little snowball into the stream and watched it melt as it bobbed along, wondering if my own memories of the snow will fade over time. Already, I find it hard to imagine the amount of snow my older neighbours say used to fall in the village.

I had finished an earlier version of this essay on a note of hope – that someday our planet will cool and Europe's winter wonderlands will return for good. But as the snowflakes on my cheeks began to feel more wet than icy, and the snow under my feet more mushy than crunchy, I realised it wasn't just my feet that felt tired. I'm also exhausted of feeling hopeful that such a powerful trend will reverse. Perhaps sometimes, it's enough to hope for anomalies, and simply enjoy them when they come.