# Books & arts

# The great rewiring, unplugged

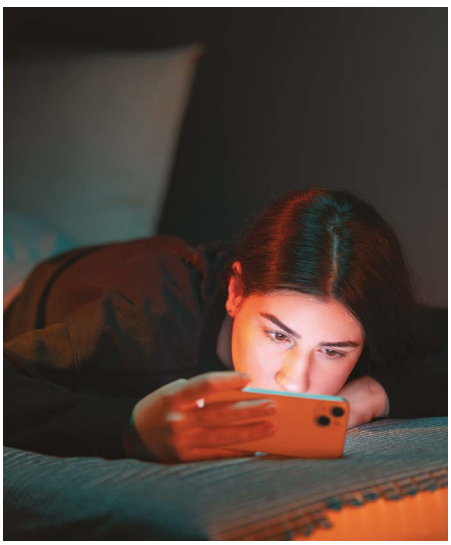
## Is social media really behind an epidemic of teenage mental illness? By Candice L. Odgers

Two things need to be said after reading *The Anxious Generation*. First, this book is going to sell a lot of copies, because Jonathan Haidt is telling a scary story about children's development that many parents are primed to believe. Second, the book's repeated suggestion that digital technologies are rewiring our children's brains and causing an epidemic of mental illness is not supported by science. Worse, the bold proposal that social media is to blame might distract us from effectively responding to the real causes of the current mental-health crisis in young people.

Haidt asserts that the great rewiring of children's brains has taken place by "designing a firehose of addictive content that entered through kids' eyes and ears". And that "by displacing physical play and in-person socializing, these companies have rewired childhood and changed human development on an almost unimaginable scale". Such serious claims require serious evidence.

Haidt supplies graphs throughout the book showing that digital-technology use and adolescent mental-health problems are rising together. On the first day of the graduate statistics class I teach, I draw similar lines on a board that seem to connect two disparate phenomena, and ask the students what they think is happening. Within minutes, the students usually begin telling elaborate stories about how the two phenomena are related, even describing how one could cause the other. The plots presented throughout this book will be useful in teaching my students the fundamentals of causal inference, and how to avoid making up stories by simply looking at trend lines.

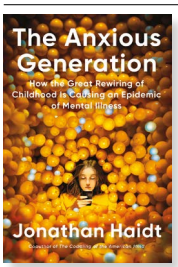
Hundreds of researchers, myself included, have searched for the kind of large effects suggested by Haidt. Our efforts have produced a mix of no, small and mixed associations. Most data are correlative. When associations over time are found, they suggest not that social-media use predicts or causes depression, but that young people who already have mental-health problems use such platforms more often or in different ways from their healthy peers[1].



GETTY

Social-media platforms aren't always social.

These are not just our data or my opinion. Several meta-analyses and systematic reviews converge on the same message[2–5]. An analysis done in 72 countries shows no consistent or measurable associations between well-being and the roll-out of social media globally[6]. Moreover, findings from the Adolescent Brain Cognitive Development study, the largest long-term study of adolescent brain development in the United States, has found no evidence of drastic changes associated with digital-technology use[7]. Haidt, a social psychologist at New York University, is a gifted storyteller, but his tale is currently one searching for evidence.




**The Anxious Generation: How the Great Rewiring of Childhood is Causing an Epidemic of Mental Illness**
Jonathan Haidt
Allen Lane (2024)

Of course, our current understanding is incomplete, and more research is always needed. As a psychologist who has studied children's and adolescents' mental health for the past 20 years and tracked their well-being and digital-technology use, I appreciate the frustration and desire for simple answers. As a parent of adolescents, I would also like to identify a simple source for the sadness and pain that this generation is reporting.

### A complex problem

There are, unfortunately, no simple answers. The onset and development of mental disorders, such as anxiety and depression, are driven by a complex set of genetic and environmental factors. Suicide rates among people in most age groups have been increasing steadily for the past 20 years in the United States. Researchers cite access to guns, exposure to violence, structural discrimination and racism, sexism and sexual abuse, the opioid epidemic, economic hardship and social isolation as leading contributors[8].

The current generation of adolescents was raised in the aftermath of the great recession of 2008. Haidt suggests that the resulting deprivation cannot be a factor, because unemployment has gone down. But analyses of the differential impacts of economic shocks have shown that families in the bottom 20% of the income distribution continue to experience harm[9]. In the United States, close to one in six children live below the poverty line while also growing up at the time of an opioid crisis, school shootings and increasing unrest because of racial and sexual discrimination and violence.

The good news is that more young people are talking openly about their symptoms and mental-health struggles than ever before. The bad news is that insufficient services are available to address their needs. In the United States, there is, on average, one school psychologist for every 1,119 students[10].

Haidt's work on emotion, culture and morality has been influential; and, in fairness, he admits that he is no specialist in clinical psychology, child development or media studies. In previous books, he has used the analogy of an elephant and its rider to argue how our gut reactions (the elephant) can drag along our rational minds (the rider). Subsequent research has shown how easy it is to pick out evidence to support our initial gut reactions to an issue. That we should question assumptions that we think are true carefully is a lesson from Haidt's own work. Everyone used to 'know' that

the world was flat. The falsification of previous assumptions by testing them against data can prevent us from being the rider dragged along by the elephant.

### A generation in crisis

Two things can be independently true about social media. First, that there is no evidence that using these platforms is rewiring children's brains or driving an epidemic of mental illness. Second, that considerable reforms to these platforms are required, given how much time young people spend on them. Many of Haidt's solutions for parents, adolescents, educators and big technology firms are reasonable, including stricter content-moderation policies and requiring companies to take user age into account when designing platforms and algorithms. Others, such as age-based restrictions and bans on mobile devices, are unlikely to be effective in practice – or worse, could backfire given what we know about adolescent behaviour.

> **"Considerable reforms to these platforms are required, given how much time young people spend on them."**

A third truth is that we have a generation in crisis and in desperate need of the best of what science and evidence-based solutions can offer. Unfortunately, our time is being spent telling stories that are unsupported by research and that do little to support young people who need, and deserve, more.

**Candice L. Odgers** is the associate dean for research and a professor of psychological science and informatics at the University of California, Irvine. She also co-leads international networks on child development for both the Canadian Institute for Advanced Research in Toronto and the Jacobs Foundation based in Zurich, Switzerland.
e-mail: codgers@uci.edu

1. Heffer, T., Good, M., Daly, O., MacDonell, E. & Willoughby, T. *Clin. Psychol. Sci.* **7**, 462–470 (2019).
2. Hancock, J., Liu, S. X., Luo, M. & Mieczkowski, H. Preprint at SSRN https://doi.org/10.2139/ssrn.4053961 (2022).
3. Odgers, C. L. & Jensen, M. R. *J. Child Psychol. Psychiatry* **61**, 336–348 (2020).
4. Orben, A. *Soc. Psychiatry Psychiatr. Epidemiol.* **55**, 407–414 (2020).
5. Valkenburg, P. M., Meier, A. & Beyens, I. *Curr. Opin. Psychol.* **44**, 58–68 (2022).
6. Vuorre, M. & Przybylski, A. K. *R. Sci. Open Sci.* **10**, 221451 (2023).
7. Miller, J., Mills, K. L., Vuorre, M., Orben, A. & Przybylski, A. K. *Cortex* **169**, 290–308 (2023).
8. Martínez-Alés, G., Jiang, T., Keyes, K. M. & Gradus, J. L. *Annu. Rev. Publ. Health* **43**, 99–116 (2022).
9. Danziger, S. *Ann. Am. Acad. Pol. Soc. Sci.* **650**, 6–24 (2013).
10. US Department of Education. *State Nonfiscal Public Elementary/Secondary Education Survey 2022–2023* (National Center for Education Statistics, 2024).

# Cosmologist Claudia de Rham on falling for gravity

**The aspiring astronaut turned theoretical physicist talks travelling, the accelerating expansion of the Universe, thinking beyond three dimensions and detecting gravitational waves.**

Swiss cosmologist Claudia de Rham is best known for co-developing a theory of gravity that tweaks Albert Einstein's general theory of relativity. It could help to explain why, for the past several billion years, the Universe has been expanding at an ever faster pace — a 'late-time' acceleration that is usually ascribed to a mysterious force called dark energy.

For de Rham, who also spent more than two decades training to be an astronaut and is now at Imperial College London, gravity is the key to understanding both the Universe and the arc of her own life. In her book, *The Beauty of Falling*, she weaves together physics and memoir in a meditation on gravity as a metaphor for human existence.

De Rham talked to *Nature* about the beauty of failing and how her dream of flying into space led to her research making sense of gravity.

**Why did you want to write this book?**
Part of it is sharing. From an external point of view, what we do as theoretical physicists seems a little bit alien. We often just share our successes, and people have this picture of us as individual geniuses who make out-of-the-blue discoveries. The reality is that it is very much team-based, and fun.

**Claudia de Rham trained as a pilot.**

Every day, I try out an idea and it fails. And there's something beautiful in failing, and falling. The book is about gravity, but it is also about embracing this falling, because it's how we get better — it's how we understand the world. With gravity, failing has an even deeper meaning. The way that we describe gravity at the moment is with Einstein's general theory of relativity, which predicts its own downfall.

**How so?**
If you have a gravitational collapse of matter, the endpoint will be in a black hole, with a singularity at its centre. The singularity means that, if you agree with Einstein's theory, some quantities you can measure would be infinite. What that really means is that the theory has stopped working there, and it gives a prediction that doesn't make any sense. So the theory itself is telling you that you shouldn't trust it any more. And that is not something to be ashamed of. It is an opportunity to learn something more.

**In the book, you describe how, as a child, you had a sudden realization. What was it?**
The "wow!" moment I had as a kid was when my family and I travelled in Peru, first to Iquitos and then the Amazonian forest. I must have been four years old. At some point, we were staying in hammocks, and as I was swinging there, just staring at the stars through the trees — some of which were a thousand years old, and so tall — I almost had a feeling of weightlessness.

My mother always tells me that I said "now I know I want to belong there, I want to be in the sky". It wasn't phrased as "I want to become an astronaut", but in terms of "I want to belong to this greater thing".

CLAUDIA DE RHAM

**This did turn into a dream of becoming an astronaut. This is notoriously difficult, and the European Space Agency (ESA) has held only three recruitments since 1978. How close did you get to being selected?**
For ten years, I waited for the ESA astronaut selection. Then finally, in 2008, the announcement came. There were some pre-selection processes, then different batches of psychological and psychometric tests. You were also tested on how you behave in a team, how you work with others and how you react to stressful situations. More than