HOW TO COMBAT THE MENTAL-HEALTH CRISIS IN SCIENCE

Universities and institutions across the globe are exploring unique initiatives to help their students and staff cope with the stress of research.

By Shannon Hall

On the first day of her class, Annika Martin asks the assembled researchers at the University of Zurich in Switzerland to roll out their yoga mats and stand with their feet spread wide apart. They place their hands on their hips before swinging their torsos down towards the mat and back up again. The pose, called 'wild goose drinking water' is from Lu Jong, a foundational practice in Tantrayana Buddhism.

Martin, a health psychologist, can sense that some students are sceptical. They are academics at heart, many of whom have never tried yoga, and registered for Martin's course to learn how to deal with the stress associated with academic research. Over the course of a semester, she teaches her students about stress and its impact on the body before giving them the tools to help cope with it — from yoga, meditation and progressive muscle relaxation to journalling.

It is one of many initiatives designed to combat the mental-health crisis that is gripping science and academia more broadly. The problems are particularly acute for students and early-career researchers, who are often paid meagre wages, have to uproot their lives every few years and have few long-term job prospects. But senior researchers face immense pressure as well. Many academics also experience harassment, discrimination, bullying and even sexual assault. The end result is that students and academics are much more likely to experience depression and anxiety than is the general population.

The beginning of a movement

But some universities and institutions are starting to fight back in creative ways.

The University of Zurich now offers academics several popular courses on mental health. Beyond Martin's class, called 'Mindfulness and Meditation', one helps students learn how to build resilience and another provides senior researchers with the tools they need to supervise PhD candidates.

The courses are in high demand. "We have way more registrations than we have actual course spots," says Eric Alms, a programme manager who is responsible for many of the mental-health courses at the University of Zurich. "I'm happy that my courses are so successful. On the other hand, it's a sign of troubling times when these are the most popular courses." Several studies over the past few years have collectively surveyed tens of thousands of researchers and have documented the scope and consequences of science's mental-health crisis.

In 2020, the biomedical research funder Wellcome in London, surveyed more than 4,000 researchers (mostly in the United Kingdom) and found that 70% felt stressed on the average work day (see go.nature.com/3vywu2m). Specifically, survey respondents said that they felt intense pressure to publish — so much so that they work 50–60 hours per week, or more. And they do so for little pay, without a sense of a secure future. Only 41% of mid-career and 31% of early-career researchers said that they were satisfied with their career prospects in research.

A survey designed by Cactus Communications, a science-communication and technology company headquartered in Mumbai, India, analysed the opinions of 13,000 researchers in more than 160 countries (see go.nature.com/2utpnel) in 2020 and found that 37% of scientists experienced discrimination, harassment or bullying in their work environment. This was especially true for researchers from under-represented groups and was the case for 42% of female researchers, 45% of homosexual researchers and 60% of multiracial researchers.

Yet some experts are hopeful that there is change afoot. As well as the University of Zurich, several other institutions have started to offer courses on mental health. Imperial College London, for example, conducts more than two dozen courses, workshops and short webinars on topics as diverse as menstrual health and seasonal depression. Most of these have been running for at least five years, but several were developed in response to the COVID-19 pandemic. "At that time, the true dimension of the mental-health crisis in science was unveiled and potentially exacerbated

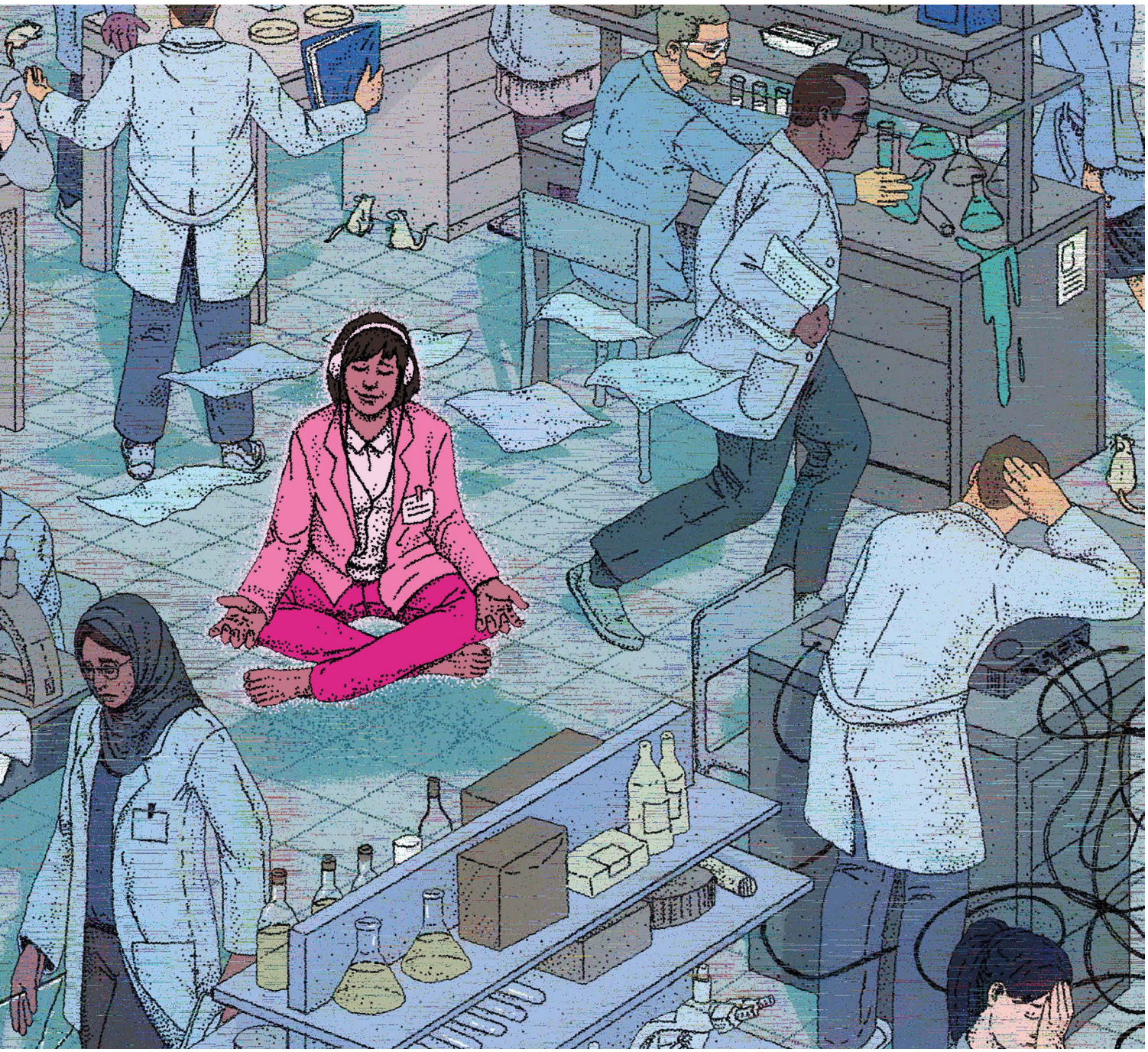

ILLUSTRATION BY PIOTR KOWALCZYK

by the lockdowns," says Ines Perpetuo, a research-development consultant for postdocs and fellows at Imperial College London.

Desiree Dickerson, a clinical psychologist with a PhD in neuroscience who leads workshops at the University of Zurich, Imperial College London and other institutes around the world, says she has a heavier workload than ever before. "Before COVID, this kind of stuff wasn't really in the spotlight," she says. "Now it feels like it is gaining a solid foothold — that we are moving in the right direction."

Some of this change has been initiated by graduate students and postdocs. When Yaniv Yacoby was a graduate student in computer science at Harvard University in Cambridge, Massachusetts, for example, he designed a course to teach the "hidden curriculum of the PhD". The goal was to help students to learn how to succeed in science (often by breaking down preconceived ideas), while creating an inclusive and supportive community. An adapted form of that course is now offered by both Cornell University in Ithaca, New York, and the University of Washington in Seattle. And Yacoby has worked with other universities to develop single-session workshops to jump-start mental-health advocacy and normalize conversations about it in academia.

Similarly, Jessica Noviello, a planetary scientist at NASA's Goddard Space Flight Center in Greenbelt, Maryland, built a workshop series designed to target a key stressor for academics' mental health: job insecurity, or specifically, the ability to find a job that aligns with career plans and life goals. She argues that most advisers lack experience outside academia, "making it hard for them to advise students about other career options", and most institutes don't have the resources to bring in outside speakers. Yet it is a key issue. The 2020 Wellcome survey found that nearly half of the respondents who had left research reported difficulty in finding a job.

So Noviello established the Professional Advancement Workshop Series (PAWS) in August 2021. The programme has run workshops and panel discussions about careers at national laboratories and in science journalism and media communications, science policy, data science, NASA management

and more. And it has hosted two sessions on mental-health topics. "PAWS isn't a programme that specifically set out to improve mental health in the sciences, but by building a community and having conversations with each other, the experts, and ourselves, I think we are giving ourselves tools to make choices that benefit us, and that is where mental health begins," Noviello says.

Beyond the classroom

Although these courses and workshops mark a welcome change, say researchers, many wonder whether they are enough.

Melanie-Anne Atkins, associate director of student experience at the University of Guelph in Canada, who gives talks on mental health at various universities, says that she rarely sees universities follow through after her workshops. "People are moved to tears," she says. "But priorities happen afterward. And even though they made a plan, it never rises to that. Because dollars will always come first."

David Trang, a planetary geologist based in Honolulu, Hawaii, at the Space Science Institute, is currently working towards a licence in mental-health counselling to promote a healthier work environment in the sciences. He agrees with Atkins — arguing that even individual researchers have little incentive to make broad changes. "Caring about mental health, caring about diversity, equity and inclusion is not going to help scientists with their progress in science," he says. Although they might worry about these matters tremendously, Trang argues, mental-health efforts won't help scientists to win a grant or receive tenure. "At the end of the day, they have to care about their own survival in science."

Still, others argue that these workshops are a natural and crucial first step — that people need to de-stigmatize these topics before moving forward. "It is quite a big challenge," Perpetuo says. "But you have to understand what's under your control. You can control your well-being, your reactions to things and you can influence what's around you."

That is especially pertinent to the typical scientist who tends to see their work as a calling and not just a job, argues Nina Effenberger, who is studying computer science at the University of Tübingen in Germany. The Wellcome survey found that scientists are often driven by their own passion — making failure deeply personal. But a solid mental-health toolkit (one that includes the skills taught in many of the new workshops) will help them to separate their work from their identity and understand that a grant denial or a paper rejection is not the end of their career. Nor should it have any bearing on their self-worth, Effenberger argues. It is simply a part of a career in science.

Moreover, Dickerson argues that although systemic change is necessary, individuals will drive much of that change. "My sense is that if I can empower the individual, then that individual can also push back," she says.

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The International Max Planck Research School for Intelligent Systems run bootcamps involving activities such as painting.

Many researchers are starting to do just that through efforts aimed at improving working conditions for early-career researchers, an area of widespread concern. The Cactus survey found that 38% of researchers were dissatisfied with their financial situation. And another survey of 3,500 graduate students by the US National Science Foundation in 2020 (see go.nature.com/3xbokbk) found that more than one-quarter of the respondents experienced food insecurity, housing insecurity or both.

In the United States, efforts to organize unions have won salary increases and other benefits, such as childcare assistance, at the University of California in 2022, Columbia University in New York City in 2023 and the University of Washington in 2023. These wins are part of a surge in union formation. Last year alone, 26 unions representing nearly 50,000 graduate students, postdocs and researchers, formed in the United States.

There has also been collective action in other countries. In 2022, for example, graduate students ran a survey on their finances, and ultimately won an increase in pay at the International Max Planck Research School for Intelligent Systems (IMPRS-IS), an interdisciplinary doctoral programme within the Max Planck Society in Munich, Germany.

Union drives are only part of the changes that are happening beyond the classroom. In the past few years, Imperial College London has revamped its common rooms, lecture halls and other spaces to create more places in which students can congregate. "If they have a space where they can go and chat, it is more conducive to research conversations and even just personal connection, which is one of the key aspects of fostering mental health," Perpetuo says. Imperial also introduced both one-day and three-day voluntary retreats for postdocs and fellows to build personal relationships.

The IMPRS-IS similarly runs 'bootcamps' or retreats for many of its doctoral students and faculty members. Dickerson spoke at the one last year. The programme also mandates annual check-ins at which students can discuss group dynamics and raise any issues with staff. It has initiated thesis advisory committees so that no single academic supervisor has too much power over a student. And it plans to survey its students' mental health twice a year for the next three years to probe the mental health of the institute. The institute has even set various mental-health goals, such as high job satisfaction among PhD students regardless of gender.

Dickerson applauds this change. "One of the biggest problems that I see is a fear of measuring the problem," she says. "Many don't want to ask the questions and I think those that do should be championed because I think without measuring it, we can't show that we are actually changing anything."

She hopes that other universities will follow suit and provide researchers with the resources that they need to improve conditions. Last year, for example, Trang surveyed the planetary-science community and found that imposter syndrome and feeling unappreciated were large issues — giving him a focus for many future workshops. "We're moving slowly to make changes," he says. "But I'm glad we are finally turning the corner from 'if there is a problem' to 'let's start solving the problem.'"

Shannon Hall is a freelance reporter in Colorado.

Correction
This News feature misstated Melanie-Anne Atkins name and speciality.

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