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MENTAL HEALTH

Out of the darkness

Depression and related disorders can be devastating, but there are ways to fight them.

Mental illness is widespread in the sciences, and graduate students are particularly vulnerable (*Nature* **556**, 5; 2018). Building a strong support network and separating your sense of self from your job are crucial. Here, in the second of our three-part series on mental health in academia, four researchers share their stories and advice. Next week, we examine lab leadership and and how to improve the health of research groups.

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ELYN SAKS
'Crazy thoughts'

Lawyer and psychoanalyst at the University of Southern California Gould School of Law, Los Angeles

It was 1982, and I was in my first semester as a student at Yale Law School. We had a paper due and I climbed onto a roof, singing, dancing, gesticulating and saying crazy things, like I had killed people with my thoughts. My friends called the student health centre and tried to get me there, but I wouldn't go.

The next morning, I asked for an extension on the paper. I was still saying crazy things, and my professor took me to the emergency department. They committed me. I was hospitalized for five months, restrained, forcibly medicated, given very little privacy and locked up.

If you were withdrawn from Yale for psychiatric reasons, you had to be evaluated for readmission by the head of university health ▶

psychiatry. I looked this person up and found an article he'd written on exactly this topic — the questions that the evaluator should ask, and the answers to look for. I was totally prepared, and it unfolded exactly as he had laid it out.

Still, part of me felt like I would never get back on my feet. The guy advised me to become a cashier for two or three years. I asked myself how much more stressful it would be to stand at a cash register dealing with a long line of people waiting for change from their purchase. So I went back to Yale.

I was eventually diagnosed with schizophrenia, and it took me ten years to become reconciled to staying on medication. Once I did, my life got much better. In a work environment, it also helps if you have people who know what you're going through. But some people will think you're not up to the job or are dangerous or scary. You've got to pick your supporters carefully.

And stigma is a real scourge. When my memoir, *The Center Cannot Hold: My Journey Through Madness*, came out in 2007, an administrator on the staff at the University of Southern California Gould School of Law told me that she was glad she didn't know I had schizophrenia when we started going to dinner together. She said she'd never have gone. I was stunned that a smart, kind, well-meaning person would have such a picture of mental illness that she wouldn't have gone to dinner with me.

I've learnt that my mind is my best friend and my worst enemy. When I'm working, the crazy thoughts recede.

NATHANIEL BORENSTEIN
'My life sucked'

Veteran computer scientist and Internet pioneer in Greenbush, Michigan, who helped to create e-mail and the precursor to PayPal.

When I was in graduate school in the 1980s, studying the theory of computation, my adviser — who had been very encouraging — suddenly started indicating that he didn't understand what I was doing. I got very depressed and almost left the programme. I didn't perceive my reaction as symptomatic of an illness. I just thought that the whole world sucked, that my life sucked and that everything was wrong.

I get depressed a couple of times a decade, and my depressions tend to look the same. I spend a lot of time curled up in bed, not wanting to talk to anyone. Everything looks bad.

I think that the better you know your pattern, the more likely you are, and the quicker you are, to recognize it. When I start to recognize my pattern, it's comforting to know that the world is not completely horrible and that I'm just depressed. I immediately make an appointment with my therapist. I want to be open about this, so that when younger people read this, they can be spared that response. At least if they know it's an illness, when they're curled up in a ball, it's better than thinking that the whole world sucks.

There is a tremendous resistance to taking psychiatric drugs, but I would encourage people who are struggling with depression to consider them. In the early 1990s, I started antidepressants and that was a godsend. Within a couple of hours, I was feeling better. And a few days after that, I met someone I totally clicked with professionally and we founded a new digital company, the predecessor to PayPal.

The times that you might think were my biggest triumphs, when you might have expected me to be dancing around and doing a jig — those are the times I've tended to get extremely depressed. It's because I have accomplished this thing and it was a lot of work — but it was nowhere near what I thought I ought to have accomplished. I choose one path and look at someone who has gone down a different path, and I feel like I've fallen short.

"I choose one path and look at someone who has gone down a different path, and I feel like I've fallen short."

My most recent episode was in January and February of this year. I went to the hospital with constant, extreme abdominal pain, which was making me very depressed, and was diagnosed with colitis. That was the first time I'd thought of suicide as a way to end the pain. Since then, I have got help and the pain is under control.

I've heard that depression is a gift, because it can help us to recognize when we need to change something. But if anyone had told me in 1981 that my depression was a gift, I would not have believed it for an instant. I once came this close to destroying my career.

ANONYMOUS
'Know your limits'

Male molecular biologist in the United States.

I was in graduate school in South America. I was frustrated there and had a period of depression. My principal investigator (PI) suggested I see a psychiatrist, who gave me medication for bipolar disorder, and it helped. I also realized that graduate school would be over soon and that I'd be able to move on to the next thing.

In January 2015, about six months before graduating, I started looking for a postdoc position and researched a lot of labs. I sent my CV to 40 or 50 places, along with detailed cover letters. And I had a really good publication record. But I was not getting any responses. I became despondent, fell into a debilitating depression and began drinking heavily. It was a black hole.

The whole time I was applying, my PI kept saying: "Why don't you write a postdoc fellowship to stay in the lab here with me, in case things fall through?" So I did. And my fellowship application came through with high marks and got funded. But I didn't stop looking for other postdocs, and began applying to a couple of places I didn't tell my PI about.

One didn't ask for a recommendation letter, and when the people there saw my CV, they hired me on the spot. Only later did I discover that my PI had been sabotaging my career.

Academia has structural disadvantages for people with mental-health issues. To a great extent, your career path is decided by factors beyond your control. Confidential letters of recommendation are very important in the hiring process, particularly in science. You're not going to know that someone threw your CV in the garbage because someone else said, "Hey, he's depressed". Those opportunities are lost for ever.

Unless there is a structural change in the system, that bias is not going away. My advice? Know your rights. Carefully document any instances of abuse or misconduct. And try to ensure that a former employer will have nothing to use against you that could affect your future career. This includes keeping your mental-health issues out of the workplace as much as possible, even if you have to keep odd hours in the lab to work around therapy.

Learn to carefully balance the needs of your job against your personal and mental needs. I take a mood stabilizer and can't drink alcohol at all. And I know when I need to leave work. I think, "I've spent enough time here. I think I'll swim in the pool." You have to know your limits.

ANONYMOUS
'You're not alone'

Female bioscientist in Europe.

When I applied to PhD programmes, I was accepted by two in the United States. One offered me funding and the other didn't. But the one that didn't was more prestigious, and I was misled into thinking that I would have no trouble getting teaching-assistant positions to help pay for the programme. So I decided to go there. I made a very big mistake.

I arrived in the summer and got a position as a teaching assistant — but I had to reapply for a new one every couple of months. On top of that, I got accepted as a research assistant in the lab of a famous professor, but he paid nothing. I was also taking a full load of courses and studying for qualifying exams.

The first semester was very difficult. I couldn't focus. I was always lost. I was always sad. I had to drop a course. If only someone

at that time had said: "You have depression and that's why you can't focus."

The next semester, I took a lighter load. I thought it would be easy. But I got a low score. I also wrote an internal grant that got funded, but I never saw the money. At that point, I didn't want to get up or out of bed. I started being absent from the lab. I couldn't bring myself to walk to that place. The worst part is that I ended up with a C. My grade-point average crashed. Then, when exams came, I failed miserably. I worried about my teaching-assistant position and losing that money. I panicked. I was sitting there crying and thinking my world had fallen apart.

I called a counsellor and told them that I was considering self-harm. There is a law in that area that if you try to hurt yourself, they put you in the psychiatric hospital. The police came in and handcuffed me. I was just crying and repeating, over and over, "I got a C. I'm going to get kicked out." In the hospital, I was monitored 24/7. After two days, I was still crying.

Ten days after my first hospitalization, I was handcuffed again and put in the hospital again. Each time I was put in the hospital by the police, I was charged more than US$100 — a huge expense for me. I contacted the other PhD programme to see if the people there would honour their funding offer from the previous year. They said no. I opened a bottle of pain medication and started popping the pills in my mouth. Then I stopped and called my psychologist. After a few weeks off from my PhD studies, another hospitalization and two failed exams, my position in the programme was terminated.

"Reach out for help. Surround yourself with people who will show you, in this darkness, that you will make it."

I started looking for other PhD courses and found one with a renowned scientist in Europe that would pay me enough, so I went there. But you can't just say, "It worked out in the end." For a year, I sat and stared at the wall. Even though the position is well paid, the culture still treats PhDs poorly and values unhealthy competition. I am leaving academia.

Tell the darkness not to take you today — not this moment, not this second. Take time off if you need to. Find the person you were before the darkness came. Reach out for help — surround yourself with people who will show you, in this darkness, that you will make it. As isolating and hopeless as it might seem right now, you are not the only one who has had to pass through this. You are not alone.

INTERVIEWS BY EMILY SOHN

Interviews have been edited for clarity and length.

GETTY

COLUMN

Tell the stories in your science

Use principles of narrative fiction to inspire your research papers, says **Amanda C. Niehaus**.

In the final month of my Australian Research Council fellowship at the University of Queensland in Brisbane, Australia, I published papers about sex-crazed marsupials, wrote grant applications and finished *The Breeding Season*, an as-yet-unpublished novel.

Yes, I wrote a novel — fiction founded on my science research. The story takes what I know about reproductive conflict in wild animals and explores it in humans. It's the hardest and most gratifying thing I have ever done.

I never expected to write about science in this way, mainly because I thought science and art were mutually exclusive. I learnt to avoid bias and passion, and to present my data as if seen through a microscope from a careful distance. Science is objective. Art, by contrast, is all about perspective, subjectivity and the confused experience that is life.

But creative writing can make scientific communication more powerful. We remember stories because our brains are wired to: we find them more interesting and are more likely to retell information if it's presented as narrative rather than exposition. In fact, papers written in a more-narrative style might be published in higher-impact journals and cited more often (A. Hillier *et al. PLoS ONE* **11**, e0167983; 2016).

I've spent the past five years collecting data on ageing in northern quolls (*Dasyurus hallucatus*), small marsupials whose males essentially copulate themselves to death. As a scientist, I analyse, interpret and present the data with objectivity, according to the conventions of my field.

But I don't want to put distance between myself and my work, or between my work and the public. I want to show that the questions these animals face are universal — for example, how much time and energy to expend in making babies, and what that investment means for every other aspect of life. These issues define the choices we make about when and whether to have children, how to balance our careers with our families and how to spend our finite lives.

This is messy stuff. It's complex and complicated in ways not easily explored in a paper.

Last year, I published an essay called 'Pluripotent' (A. C. Niehaus *Creative Nonfiction* **64**, 22–26; 2017), which examines the role of stem cells in the context of my experiences as a mother, researcher and cancer survivor, but also, metaphorically, as a woman in science. Creative writing can bring difficult concepts to life.

For me, compressing science into academic journals simply isn't enough. I'm frustrated by the need to reduce my ideas and experiments to publishable pieces while simultaneously ensuring that they are broadly relevant. I believe that the most exciting things happen at the fringe, the overlap, the moment we look at the same question through a different lens altogether. New ideas happen outside our comfort zone.

My research shows that among northern quolls, males and females lead different lives because of variations in how their bodies balance reproduction and longevity. How would these differences affect a reproductive relationship between humans? Their careers? Their ambitions? Isn't this what many of us really want to know?

In writing quoll biology into my novel and a short story, I discovered that artists and writers seek truth as much as scientists do. They embed facts with experiences to give them context and meaning. And stories deal not only with what is true, but also with what is possible. Through fiction, I may discover something about sex and death that my research did not tell me.

Where to start? Take a workshop in creative writing, curate an online gallery of inspiring images or invite writers to your next symposium. Stories are there in every book, movie and conversation — so notice them, and harness their energy to share your work. ■

Amanda C. Niehaus *is a scientist and writer in Brisbane, Australia.*