

NEWS

Pandemic pressures may drive young scientists away from autism research

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When universities across the United States shut down in March 2020, **Alycia Halladay**, chief science officer of the Autism Science Foundation (ASF), started to check in with the researchers her organization funds — primarily postdoctoral fellows and new professors, as well as some undergraduate and graduate students.

Getting in touch with grantees gave Halladay an opportunity to reassure them that their funding would be extended. But she also got a glimpse into the challenges many early-career researchers were encountering.

Their experiences were far from uniform, she recalls. “Some [researchers] were saying, ‘Well, things are shut down, but I can still have access to my database from home, so I can do some work.’” Others told her a different story, saying things like: “Literally, I can’t enroll one more subject. So I’m at a halt.”

She noticed that those having an especially tough time tended to be early-career women. Like **women in many other workplaces**, they were struggling to balance the demands of child-rearing with their professional obligations. “Of course, I was experiencing this too,” Halladay says. “We’re completely overwhelmed.”

The more Halladay heard, the more concerned she became. So the ASF convened a committee to

design and distribute a survey, the **results of which** were published this past March in *Autism Research*.

The 150 responses they received don't reflect the full diversity of early-career autism researchers. Only 20 respondents were men; only one was Black; and none were autistic, although Halladay says the team did try to include autistic researchers in their sample.

Nevertheless, those responses send up a warning signal for the field. Early-career autism scientists have had trouble moving their research forward this past year for all the obvious reasons — lockdowns have often stalled data collection, for instance. But the pandemic has also placed many extra demands on their time: a need to adapt to remote teaching, added childcare duties at home, and mental health burdens that disproportionately affect neurodiverse researchers.

The upshot is a cohort of postdocs and young faculty feeling burnt out and unsure of their future in autism research.

"It's been overwhelming," says **Sandra Vanegas**, assistant professor of social work at Texas State University in San Marcos. "It feels like you're just juggling all these things in the air, and it's unclear what's going to stay up and what's going to fall through the cracks."

Rethinking research:

For Vanegas and others who work with study participants in person, lockdowns made it impossible to obtain fresh data. More than 80 percent of the survey respondents said that the pandemic had interfered with their data collection. "We can't go out to people's homes, we can't bring people into the clinic as easily," says **Clare Harrop**, assistant professor of allied health sciences at the University of North Carolina at Chapel Hill, who worked on the ASF survey.

Jessie Greenlee, a postdoctoral fellow at the University of Wisconsin-Madison who typically works with families in their homes, says she mastered new statistical software during this period and got to know her data intimately. But uncertainties about when she can collect new data have made it difficult to do a crucial part of an early-career researcher's job: grant writing.

"It's pretty hard to be able to predict what we can and can't do by the time the money would come in," she says. "So do you propose a study that's all online and assume that's the way it's got to be? Or do you hedge your bets and say we'll be able to do some in person collection? It's really not clear."

Vanegas obtained a grant through the ASF to pivot her in-person research — delivering interventions to low-income and minority autistic children — to a telehealth model. "The families that we're working with, they have limited resources, sometimes limited transportation available, limited schedules," she says. The grant pays for iPads to help families participate in the research

remotely, but it's not clear that that will be enough.

Even for early-career researchers who don't need to see participants in person, the pandemic has disrupted progress. **Donna Werling**, assistant professor of genetics at the University of Wisconsin-Madison, had been in her current position for only half a year when the pandemic hit. Her laboratory technician, whom she had hired to help get her mouse research up and running, started working the same week that her university shut down.

Not only did mouse research become impossible, but bringing a new person into the lab over video conference also proved difficult. "It's hard to get to know a person that you've met only a handful of times in person, and then guide them through a new series of tasks or goals, without physically seeing them," she says.

Despite the challenges, Werling and her tech have recently been able to get the mouse research underway. And in some ways, they were lucky they didn't get started before the university shut down. Because mice need constant attention — their food and water must be refreshed and their bedding changed — there's no easy way to suspend a mouse project. "You can't just start and stop, start and stop," Halladay says. "It's not like a DVR where you just press pause and then keep going to where you were."

For researchers who did have to stop and start their animal work, Halladay says, "it's going to take years to rebuild and to get that momentum going to where it was."

Support systems:

Getting her lab up and running wasn't the only hurdle Werling had to clear as a new faculty member. During the fall semester of 2020, she taught a course she had never taught before and had to navigate both an unfamiliar syllabus and the unfamiliarity of teaching via Zoom. "It felt like a very large time commitment," she says.

About 40 percent of the early-career researchers who responded to the ASF survey said that this remote teaching burden made it more difficult to push research forward during the pandemic.

Greenlee, who wasn't teaching but spoke with colleagues about their experiences, says teachers have taken on more responsibility than just instruction this past year: They have had to support students who are struggling academically, socially and emotionally with distance learning. "It has taken a lot from teachers to be that support system," she says.

Providing support for advisees has also become more difficult, Vanegas says. She has found it challenging to steer lab members who want to pursue careers in science, and to teach them how to do science when so much less science is happening. "I have tried to incorporate them more in terms of helping with writing manuscripts and providing guidance on doing data analysis," she

says. “But it’s not to the same extent that I would like to do.”

Some lab members, like Werling and her tech, have scarcely had the chance to meet in person, which can make collaboration tricky. **Monique Botha** began a research fellowship at the University of Stirling in Scotland this past November and hasn’t yet been to campus. “I’m still down in the southeast of England,” Botha says. “So there’s a lot of disconnect between me and my colleagues.”

Remote work scenarios have also kept early-career scientists from making important connections outside of their labs. “More senior researchers have those networks built already and can rely a little bit more on those,” Greenlee says. “You ask senior scientists, ‘How do you build a research collaboration?’ And most of the time they say it happens naturally. Well, there’s nothing natural about Zoom.”

Almost half of the ASF survey respondents cited another yet support need that has sapped their productivity during the pandemic: childcare. Halladay and her colleagues couldn’t compare these responses by gender because too few men responded. Even before the pandemic, though, childcare issues had a **substantially worse impact** on women’s careers than they did on men, research shows. And the skew in responses itself is illustrative, Halladay says: Perhaps more women scientists were motivated to complete the survey because of the disproportionate challenges they have been up against.

As has been widely **researched** and **reported**, the pandemic has only exacerbated the subordinate position of women in the sciences. In March, the National Academies of Sciences, Engineering and Medicine released a report in which they warned that the **gendered effects of the pandemic** could reduce the number of women in the sciences.

According to a survey of scientists from various fields and career stages, women with childcare responsibilities — and especially those who have young children, as many early-career researchers do — have experienced the **most severe declines** in work hours due to COVID-19.

Werling acknowledges she is in a better position than many, with retired parents who have been able to look after her 2-year-old son. But even with their support, and that of her wife, having a toddler has been a drain on her productivity. “It takes a lot of time to do science, to set up a lab,” she says. “Having my workday restricted by the availability of childcare, even though we had more care than many, was still definitely a point of stress.”

Battling burnout:

In another survey of early-career researchers, some respondents said they **experienced increased productivity** after the start of the pandemic, says **Trish Jackman**, lecturer in sport and exercise psychology at the University of Lincoln in the United Kingdom, who worked on the survey.

But these people universally did not have childcare responsibilities, she says.

That productivity boost for some — perhaps thanks to less time spent on tasks such as commuting — may only compound the stress for parents, Jackman says. “Because they see their colleagues doing more work, that almost creates that sense of, ‘I’m not doing enough; I need to do more,’” she says. “But then, equally, they’re in a situation where they can’t do more, because there aren’t enough hours — they have to get to teaching; they have childcare responsibilities.”

One ASF survey respondent wrote that because of her childcare responsibilities, she was contending with “zero breaks and major burnout for a fraction of the productivity of my childfree colleagues.”

For Halladay, it has been tough to keep afloat amid various stresses and new responsibilities including parenting. “I’m keeping my head above water and then feeling [like] I’m drowning,” she says. “I don’t think that there’s ever a day where I’ve been like, ‘Things are really great.’”

According to the ASF survey, only one in five early-career autism researchers experienced burnout before the pandemic. Now, four in five say they do. And mental health in general appears to be a major concern among this group — almost 40 percent of the survey respondents said it was affecting their research.

For many, the pandemic has brought with it a huge amount of anxiety. Vanegas says that worrying about loved ones with COVID-19 comorbidities has been particularly taxing. And early-career researchers also have to contend with a unique worry: a brutal job market characterized by short-term postings, near-constant moves and uncertain future prospects. As the pandemic recession has **dried up employment opportunities**, those anxieties have become more acute.

This mental health burden may disproportionately affect autistic researchers, says Botha, who is autistic. “Autistic people are more likely to have worse mental health. And then you throw into the mix hundreds of thousands of people dying, including people’s loved ones, the financial stress of this situation ... it’s really hard to justify putting up with the precarious nature of academia, on top of everything else.”

As the academic year draws to a close, Greenlee isn’t where she thought she would be at this point. She had planned on moving on from the University of Wisconsin-Madison, but in lieu of other opportunities, she is staying around for the time being.

“I don’t know how long the funding for that will be available to me,” she says. “Prior to COVID, I was focused on academia and getting an academic research position. And now I feel very, very open to pursuing any sort of job that is research oriented and helps autistic children and their families live full lives.”

The lost generation:

Greenlee is not alone. A third of the ASF survey respondents said that because of the pandemic, they had shifted the focus of their work within autism research. Another third said they had moved outside of autism research — either to another subfield or out of academia entirely.

Autism research already loses a number of promising researchers at the transition from postdoctoral fellow to faculty, Harrop says. She worries that COVID-19 will exacerbate the situation — and that its impacts will be felt unequally.

Botha agrees with that concern. “On a good day, academia is already inaccessible,” Botha says. “And on a good day, being an autistic autism researcher is already hard because a lot of the literature is wildly dehumanizing. The pandemic has been like hundreds of basically bad days in a row.”

Even for early-career faculty, COVID-19 has come with professional uncertainties. Most are scrambling to get as much work done as possible and prove themselves before the ‘tenure clock’ runs out, at which point they either receive permanent appointments or lose their jobs. Some universities have extended those tenure clocks by a year, but that policy is not universal, Vanegas says, and she is still not certain whether her own tenure clock will be extended.

Werling has had her clock extended, and she is grateful. “I feel really reassured that I have that extra time should I need it,” she says. But previous research has shown that such extensions tend to **disproportionately benefit men**, not the young mothers and other professors they are designed to help. If everyone takes those extensions now, researchers who have in fact been more productive during the pandemic will get an extra leg up.

Rather than give all tenure-track researchers an unconditional extension, universities should ask for COVID-19 impact statements, Harrop says. That way, tenure committees can consider the specific obstacles that each researcher has faced.

Funding extensions have been forthcoming from many organizations, including the ASF. But there, too, more specific mechanisms might be needed to help those most affected by the pandemic. Suggestions include allowing scientists to use their grant money for childcare during conferences and earmarking funds for early-career researchers. Greater financial support might also be directed specifically toward young academics “at the intersections with disability, race, class, sexuality, gender,” Botha says.

“I’m really glad to be having a conversation about things like ableism and academia and autism research,” Botha says. “It might be in the context of COVID. But I think it’s a conversation that should exist long after the disruption from COVID settles down.”

Such ongoing conversations could lead to meaningful post-pandemic changes — and might have to. “If we don’t find a way to [support postdocs] in a compassionate manner ... we are going to lose a lot of really, really amazing, talented researchers,” Greenlee says. “And that will be terrible.”