

OPINION

Repetitive behaviors disappear when autism does

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Individuals who shed their autism diagnosis as they grow up don't just overcome their social deficits — they also **cease to show restricted interests and repetitive behaviors**. The findings were published 17 July in the *Journal of Autism and Developmental Disorders*.

The study is the latest in a series focusing on a group of individuals who were diagnosed with autism as preschoolers but whose symptoms have resolved so thoroughly that they no longer meet diagnostic criteria for the disorder.

Deborah Fein and her colleagues first described this so-called 'optimal outcome' group in 2013. They identified 34 individuals from across the U.S. and Canada who were between 8 and 21 years of age and had moved off the autism spectrum.

Autism is usually considered a lifelong condition, but parents, researchers and clinicians had long heard anecdotes about children who 'grew out of' autism as they got older. Last year's report **provides the first rigorous documentation** that it is possible to lose one's autism diagnosis with age, rather than simply having been misdiagnosed earlier in life, for example.

In a study published in the *Journal of Child Psychology and Psychiatry* in May, a second group of researchers independently identified **more children who left the autism spectrum**. Among the 85 children with the disorder they followed from age 2 to 19, they found 8 who no longer met criteria for autism at the end of the study.

Because of their different methodologies — one tracked children over the course of development, while the other looked back at children who shed their autism diagnosis — the two studies bolster

each others' results, says Fein, professor of psychology at the University of Connecticut. She and her colleagues spent five years finding individuals who qualified for their optimal outcome group and assessing their brain scans, behavior and neuropsychological characteristics.

Mysterious outcomes:

There is intense interest in identifying how the optimal outcome group's initial characteristics and treatment history may differ from those of people who remain on the autism spectrum. The hope is that this will help clinicians predict which children will improve over time and how best to improve their chances of achieving this outcome.

So far, the findings suggest that those who shed the autism diagnosis may have had milder social deficits early on than those who retain the diagnosis, and that many of them **received intensive behavioral therapy** in early childhood.

Fein and her colleagues have also probed whether these individuals continue to have subtle deficits even after losing the diagnosis.

For example, compared with controls, individuals in the optimal outcome group seem **more likely to use unusual phrases** or scripted language when narrating a story. Mostly, though, these peculiarities reflect a quirky sense of humor rather than communication deficits, Fein says. And so far at least, which children move off the autism spectrum and why remains a mystery overall.

"We looked at so many variables, we were beating the bushes to find anything different, and there was so little," Fein says.

On 31 July, *The New York Times Magazine* **profiled several members** of Fein's optimal outcome group. The portraits reveal a diverse group of personalities and histories, including musicians and budding computer programmers, almost as heterogeneous as the autism community at large.

In the new analysis focusing on restricted interests and **repetitive behaviors**, the researchers found that those in the optimal outcome group have more routines and rituals around mealtimes and bedtime than controls do. But rituals don't interfere with their everyday lives the way they do for people with the diagnosis.

The researchers also asked parents to recall the behaviors these children displayed early in life. They were surprised to find that the optimal outcome group showed no differences from others who retain the diagnosis. The finding is also striking because other studies have suggested that of all of autism symptoms, repetitive behaviors are the **least likely to improve with age**.

This suggests that individuals who shed their autism diagnosis improve across all the symptom domains of autism — it's not just that they no longer meet diagnostic criteria because they have

learned social skills, for example.

The second study may shed some light on how repetitive behaviors evolve in this group. In that study, **Catherine Lord** and her colleagues found that repetitive behaviors decreased sharply between ages 2 and 3 among the children who later left the autism spectrum.

Fein's group also has unpublished data on how social skills evolve over time in the optimal outcome group. And the group is analyzing structural and functional brain scans to explore whether the brains of those who shed their autism diagnosis look normal or show compensatory activity.

Stories about children who move off the autism spectrum as they grow up often garner a lot of media attention. Ultimately, these are archetypal tales of overcoming adversity. But in science and literature both, it's best to beware of pat endings.

Fein and Lord both note that whether a person moves off the autism spectrum isn't the only way of defining success. A person can retain an autism diagnosis through adulthood and still have a very good outcome indeed.

That means that we need to pay more attention to adults who remain on the spectrum and to their needs, hopes and dreams. What makes a happy and meaningful life is complex — something that can't be neatly summed up by a diagnosis or a label.