OPINION

Studies struggle to pin down gender differences in autism

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After decades of describing autism as a disorder of boys, scientists have only begun exploring how it affects girls and women in the past few years. For example, there is some consensus now that females **may need a bigger genetic hit** to develop autism and that the current **diagnostic tests may miss many girls** with the disorder.

Given all that, it comes as a surprise that two new studies, both by reputable research teams, report no detectable differences between boys and girls with autism.

The first, led by **Catherine Lord**, assessed various aspects of development in 234 boys and 54 girls diagnosed with autism. The study design, described 5 September in the *Journal of Autism and Developmental Disorders*, was rigorous: The researchers used multiple standard measures of language, social and communication skills and autism symptoms. They drew from a large

community sample of more than 14,000 children and narrowed the numbers down to a group of preschoolers who had received best-estimate diagnoses of autism. They then compared the final group with an age-matched group of typically developing children in similar numbers.

The researchers expected — **based on the literature** — to find that girls with autism have better verbal skills, poorer nonverbal skills and fewer **repetitive behaviors** than boys with the disorder. But in fact, they **found no significant difference** in any of these aspects. (They did find that girls in the control group have better language skills than boys in that group, which is consistent with what's known about early language development.)

Hide and seek:

The second study, published 13 September in the same journal by **Connie Kasari** and her colleagues, is both smaller and more specific. It **compared play behavior** in 40 girls with autism and 40 boys matched for autism severity, with an average age of 40 months.

Over a 20-minute recorded session, the researchers analyzed how the children played: Did they make a doll 'walk' to a dollhouse, for example, or pretend to be Superman, or did they treat all objects alike? They analyzed two play skills in particular: joint attention, which means attending to the same object as another person; and behavioral requesting, which means eliciting help in getting objects from someone else or responding to such requests. Trouble with these skills can signal autism.

There is some evidence that both typically developing girls and **girls with autism have better play skills** than **boys do**. But once again, Kasari and her colleagues didn't find any significant differences in play type or complexity between the boys and girls in their sample.

These new studies are in good company. Many teams have tried and failed to find gender differences among children with autism of comparable intelligence. As Lord told me at a conference a couple of weeks ago, "I've been looking for the differences for years, but I haven't been able to find them so far."

But that doesn't mean no differences exist.

The numbers of girls with autism in the studies — 54 and 40 — are bigger than usual for this type of research, but they're still woefully small. More to the point, they are probably far too small to drown out the vast amount of noise from the many variables.

For example, Kasari's study did an admirable job of trying to match the children on severity, but more boys were clustered at the lower-functioning end than girls.

There are also external confounds at play. Lord's study drew children from two research centers — one in Michigan and the other in Florida. The Florida center gave children with autism higher scores on some aspects than the Michigan center did, hinting at the bias introduced by the choice of research site.

Intuitively, and from the many small pieces of anecdotal and empirical evidence, it's clear that autism manifests variably in girls and boys. As Lord put it, "I don't think we can say there are no differences; they're just overshadowed by bigger things." To get to those dissimilarities, we obviously need to do better at **recruiting girls with autism** into research studies.