

NEWS

Words say little about cognitive abilities in autism

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Nearly half of children with autism who speak few or no words have cognitive skills that far exceed their verbal abilities, according to the largest study of so-called ‘minimally verbal’ children with autism to date¹. The findings call into question the **widespread assumption** that children with autism who have severe difficulty with speech also have low intelligence.

“What I think is really interesting is that among children who have very limited levels of language, there is more cognitive variability than you might expect,” says lead investigator **Vanessa Bal**, assistant professor of psychiatry at the University of California, San Francisco.

The study, published 30 July in the *Journal of Child Psychology and Psychiatry*, also reveals that the number of children with autism classified as minimally verbal depends on the test used to identify these children.

“It might seem easy to put these kids in a category because they don’t talk, but this paper shows it’s not so straightforward,” says **Isabelle Soulières**, associate professor of psychology at the University of Quebec in Montreal, who was not involved in the study. “Depending on the test you choose, you will get very different answers.”

Bal and her colleagues analyzed data on language skills for 1,470 children ages 6 to 17 from the **Simons Simplex Collection** (SSC), an autism registry funded by the Simons Foundation, *Spectrum*’s parent organization. Through the SSC, the researchers had access to results from five standardized tests that assess language.

Difficult definition:

Two of these tests — the Autism Diagnostic Observation Schedule (ADOS) and the Autism Diagnostic Interview-Revised — classify children as minimally verbal if they use only single words or

simple phrases such as ‘want juice.’

The other three tests use various criteria. One classifies children as minimally verbal if they rely primarily on gestures and single words to communicate. Another puts children in that category if they don’t use phrases or sentences at all. The third uses a vocabulary of 25 or fewer words as its benchmark.

Of the entire SSC group, 18 percent were minimally verbal according to at least one test. The ADOS flagged nearly 93 percent of these minimally verbal children. By contrast, a test called the Vineland Adaptive Behavior Scales captured only 26 percent.

The researchers found only a partial overlap among the children the different tests identified as minimally verbal: 41 percent of minimally verbal children scored as such on three or more tests and 23 percent met the criteria on two tests. The remaining 36 percent qualified as minimally verbal on only one test.

The discrepancies highlight a challenge for researchers who study minimally verbal children with autism, says **Connie Kasari**, professor of human development and psychology at the University of California, Los Angeles, who was not involved in the study. “We’re struggling with how to define who the minimally verbal kids are,” she says.

Intellectual divide:

Inconsistency across measures makes it difficult for researchers to compare results from one study to the next, Bal says.

But no one test can capture all minimally verbal children with autism. “There’s huge variability in this population and no definition is going to capture the full range of kids,” says **Helen Tager-Flusberg**, director of the Center for Autism Research Excellence at Boston University, who was not involved in the work.

Bal and her colleagues also examined results from intelligence tests that contain only some questions that require language. Using these results, the researchers compared the children’s verbal cognitive skills, such as their ability to name objects, with their performance on nonverbal tasks, such as copying line drawings.

They found that regardless of the method used to classify children as minimally verbal, 43 to 52 percent of minimally verbal children have significantly higher nonverbal than verbal intelligence scores. By contrast, typically developing children tend to achieve similar scores on the verbal and nonverbal parts of intelligence tests, Bal says.

The findings suggest language difficulties do not necessarily stem from cognitive problems in

children with autism. “I think we have to look somewhere else,” Soulières says. Some children may have trouble developing language because they have difficulties imitating others or moving parts of their mouth or face, for example.

Minimally verbal children with autism who have relatively strong cognitive skills may benefit from treatments different from those who have lower cognitive ability, Bal says. “Trying to separate those out clinically is important,” she says.

REFERENCES:

1. Bal V.H. *et al. J. Child Psychol. Psychiatry* Epub ahead of print (2016) [PubMed](#)