

Researchers find an early behavioral marker for autism

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For the study, researchers looked at how 15-month-old babies react when they are briefly separated and then reunited with a parent. Credit: University of Miami

In the first study of its kind, University of Miami researchers have found a strong behavioral signal to indicate which infants who have an older sibling with an autism spectrum disorder (ASD) will themselves be

diagnosed with ASD as they grow older.

The researchers found that such high-risk [infants](#) who exhibit an early social difficulty, specifically an insecure-resistant attachment to a parent, are more than nine times more likely to receive an ASD diagnosis by age 3 than high-risk infants with secure attachments.

Early recognition of an insecure-resistant attachment—measured by how 15-month-old babies react when they are briefly separated then reunited with a parent—won't prevent a future ASD diagnosis. But, the researchers said, it could lead to interventions that help infants who will develop an ASD form more secure social relationships, which is often difficult for people with the neurodevelopmental disorder.

"Insecure attachment patterns are generally associated with less optimal behavioral and emotional developmental outcomes later in life than secure attachments. And, there are critical interventions designed around attachment security—but not for infants at high risk for ASD," said Katherine Martin, the lead author, who initiated the research as a Ph.D. candidate under the guidance of psychology professor Daniel Messinger.

"This new study," Martin continued, "suggests the need for interventions for high-risk infants that specifically focus on sensitizing parents to social and emotional communication behaviors in infants identified as having insecure-resistant attachments. This would hopefully be a means to decreasing resistant attachment behaviors and lowering the obstacles to acquiring social competencies, which are already impaired in children with autism."

Many babies cry or show other signs of distress when a parent departs and they are left behind with a stranger. But secure babies are soothed when the parent returns. That, however, is not the case with babies classified with insecure-resistant attachments.

"They not only cry when the parent leaves, but they never really settle down when the parent returns, which indicates that the infants are not confident in their ability to be calmed," said Messinger, who has been studying the infant siblings of older children diagnosed with ASD for 15 years.

Recently published in the journal *Developmental Science*, the new study on how attachment security differs in babies who are later diagnosed with an ASD builds on Messinger's previous research. In one prior study, he and his collaborators found that about one in five infants of siblings with an ASD also will be diagnosed with an ASD, which is why they are considered high risk.

But with the goal of understanding the relationship between infant attachment security—the preeminent measure of the infant-parent relationship—and later ASD outcomes, Messinger and his students also investigated whether high-risk infants were more likely to be classified as insecurely attached to a parent than infant siblings of typically developing children.

And, they were not. "Although children may demonstrate resistant attachment patterns, that does not necessarily indicate they are headed towards autism," said John D. Haltigan, a former student of Messinger's and an author on both the previous and the current study. "However, if you're at high risk for autism and you have a resistant attachment, then you are more likely to have an ASD outcome."

Although difficulties with social relationships are key to [autism spectrum disorder](#), no previous study had assessed security attachments in infants with a familial risk for ASD prior to their later ASD diagnosis, which typically occurs after age 3. When Martin, who now works for a psychology-related company, joined Messinger's lab in 2014 to pursue her Ph.D., she set out to change that.

"We know that one of the cornerstone impairments of ASD is this difficulty in forming and maintaining social relationships, and attachment security is the key measure of the infant-parent relationship, so it made sense to look at how attachment security relates to ASD diagnoses," she explained. "That hadn't been looked at prospectively, so this is the first time we looked at it prior to ASD diagnoses."

For the new study, Martin, Messinger, Haltigan, and two other students analyzed the attachment security of 95 infants who were classified by trained coders into four different attachment classifications when they were 15 months old. Then the researchers looked for a correlation between each infant's attachment classification and their ASD diagnosis, or absence of one, when the child turned 3 years old.

As it turned out, 16 of the 95 infants were high-risk infants who eventually developed ASD; 40 were high-risk infants who did not develop ASD; and 39 were low-risk infants who likewise didn't develop ASD.

Recruited from one of Messinger's larger, long-term studies, all 95 infants and one of their parents were initially assessed with the Strange Situation Procedure. Long considered the gold-standard, laboratory-based approach for measuring attachment security in infants, the procedure involves briefly separating infants from their mother or father on two occasions and assessing how they react during their parent's absence and upon their return.

Secure babies typically explore their surroundings in their parent's presence, and then seek to be close to the parent after an absence. Those classified with insecure resistant attachments explore less and are not often comforted by the parent's return or soothing overtures. By matching the classification for each of the 95 children with their diagnoses at age 3, the researchers determined that high-risk infants with

insecure-resistant attachments were more than nine times more likely to receive an ASD diagnosis than high-risk infants with secure attachments.

"There are a lot of questions about when early indications of autism emerge, and this is a pretty strong risk signal at 15 months among infants who have an older sibling with ASD," Messinger said. "And while we can't stop future ASD diagnoses, this suggests we should also consider attachment-related interventions for high-risk infants who show insecurity. We don't do that at all right now."

In addition to Messinger, Martin, and Haltigan, who is now at the University of Toronto, co-authors of the study included Messinger's former post-doctoral student, Naomi Ekas, now at Texas Christian University, and Emily Prince, his current graduate student.

More information: Katherine B. Martin et al, Attachment security differs by later autism spectrum disorder: A prospective study, *Developmental Science* (2020). [DOI: 10.1111/desc.12953](https://doi.org/10.1111/desc.12953)

Provided by University of Miami

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