Early warning sign for babies at risk of autism

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Some babies are at risk for autism because they have an older sibling that has the disorder. To find new ways to detect Autism Spectrum Disorder (ASD) earlier in life, researchers are exploring the subtleties of babies' interactions with others and how they relate to the possibility and severity of future symptoms.

A new study helps us to understand the connection between early joint attention before one year and later ASD symptoms. Joint attention is an early form of communication that develops toward the end of the first year. It's the act of making eye contact with another person to share an experience.

Previous studies have shown that low levels of initiating joint attention are linked to later autism symptoms in high-risk siblings. The current study reveals that joint attention without a positive affective component (a smile) in the first year is particularly important to this relationship.

"The ability to coordinate attention with another person without a smile, without an emotional component, seems to be particularly important for high-risk siblings in the development of ASD symptoms," says Devon Gangi, Ph.D. student in the UM College of Arts and Sciences and first author of the study. "The detection of markers associated with autism early in life, before a child can be diagnosed with autism, is important to help identify children at the greatest need for early interventions."

The findings show that early joint attention initiation without

smiling—matter-of-fact looking at an examiner to communicate interest in a toy—was negatively associated with ASD symptoms. According to the study, the less joint attention without smiling at 8 months in a high-risk sibling, the more likely they were to have elevated ASD symptoms by 30 months. Impairments in joint attention are a core deficit in ASD. Now we know that less early initiating joint attention without smiling is a particularly important skill for high-risk siblings.

Not all smiles are the same. Children who were at risk for autism (both those who did and did not later develop symptoms of autism) had lower levels of anticipatory smiles than children who were not at risk for ASD. That is, when an infant first looks at an object, smiles, and then turns that smile towards a social partner, as if the smile anticipates the gaze. On the other hand, a reactive smile occurs when an infant first gazes at a partner, then smiles. Children at risk for ASD did not show differences from low-risk siblings in reactive smiling.

"High-risk siblings seem to have particular difficulty in sharing their preexisting positive affect with another person, which is what happens during an anticipatory smile," says Daniel Messinger, professor of psychology in the UM College of Arts and Sciences and principal investigator of the study. "This difficulty may be indicative of a broader deficit autism trait among most high-risk siblings."

The study is titled "Joint attention initiation with and without positive affect: Risk group differences and associations with ASD symptoms." It was recently published in the *Journal of Autism and Developmental Disorders*. Lisa V. Ibañez, who received her Ph.D. working with Dr. Messinger at UM, is co-author of the study.

The researchers primarily predicted the children's symptom level. Symptoms vary in at-risk siblings, some of whom have an ASD outcome and some of whom do not. They did not look at whether the younger

sibling eventually received an ASD diagnosis. In the future, the researchers would like to examine whether these early behaviors also predict who will have autism.

Provided by University of Miami

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