

People with autism may have large deficits in facial recognition

October 28 2020, by Kristie Auman-Bauer



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The ability to recognize faces varies greatly, but individuals with autism spectrum disorders can especially struggle, having huge implications for social interaction. Penn State researchers, for the first time, recently

analyzed 40 years of autism data to determine deficits in face recognition.

According to Jason Griffin, doctoral candidate in the department of psychology, face recognition is an entry point to [social interaction](#) and must take place before complex social cues can occur.

"Individuals with [autism spectrum disorder](#) (ASD) often struggle with social interactions, which leads to difficulties developing and maintaining friendships and adjusting behavior to [social contexts](#)," said Griffin. "These behaviors could stem, in part, from an inability to recognize people."

Griffin works in the Laboratory of Developmental Neuroscience directed by Suzy Scherf, associate professor of psychology and Social Science Research Institute cofunded faculty member. Griffin, who has a brother with ASD, has focused on understanding social deficits in ASD individuals, including face recognition ability.

"Researchers have theorized about the potential importance of face recognition abilities to ASD for more than 40 years, leading to hundreds of studies with differing findings," he explained. "Our study is the first quantitative meta-analysis of the face identity processing literature comparing ASD and typically developing individuals."

The work appears in *Psychological Bulletin*.

The researchers identified 112 studies representing over 5,000 participants and compared them using meta-analysis, a process that combines and weighs all evidence so it is objective. They found, on average, over 80% of ASD individuals perform worse than typical individuals on tests of face identity processing.

"This impairment likely contributes to ASD-specific difficulties with social interaction, which require the ability to identify social partners as unique individuals," said Scherf.

Griffin and Scherf were surprised to find that there were not meaningful variations across age, sex, or IQ score, suggesting that deficits in face identity processing may represent a core deficit in ASD.

Their findings could have major implications for ASD interventions, said the researchers. "I've been working on targeted interventions for autism since 2009, and there has been a lot of research done trying to figure out how to improve these most basic aspects of social behavior, such as facial recognition," said Scherf.

In the past, interventions have been developed that may temporarily improve behaviors in ASD, but often do not generalize well in real-life situations.

"I'm really curious to see, now that we have this finding, if there are other foundational skills that contribute to these difficulties," Scherf said.

Additionally, this knowledge could inform educators, social workers, and others who interact with individuals with ASD.

"When someone we know doesn't recognize us, it can generate a negative reaction. With this finding about poor face [recognition](#) skills in autism, people can be more understanding and provide autistic individuals with supports to assist in their social interactions," said Scherf.

According to Griffin, the research could also inform ongoing intervention work in the lab. In the Social Games for Autistic

Adolescents (SAGA) program, they developed a video game intervention. "The goal is to learn how to solve problems in the game by paying attention to social cues from avatars. Hopefully, this game will help improve [face recognition](#) skills as well."

More information: Jason W. Griffin et al. A quantitative meta-analysis of face recognition deficits in autism: 40 years of research., *Psychological Bulletin* (2020). [DOI: 10.1037/bul0000310](https://doi.org/10.1037/bul0000310)

Provided by Pennsylvania State University

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