Overactive brain keeps autistic teens from adjusting to social situations

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(Medical Xpress)—A new University of Michigan study finds that an overactive part of the brain hinders autistic teens from coping in unfamiliar social settings, leaving them feeling overwhelmed and

anxious.

Seeing the same faces repeatedly can negatively affect autistic children, especially in social situations. If a teen looks away or does not pay attention, this is often interpreted as someone who isn't interested in other people, says U-M researcher Christopher Monk.

"The present findings along with other work suggest that for many kids with ASD, it may not be just a lack of interest," said Monk, an associate professor in the Department of Psychology and a research associate professor at the Center for Human Growth and Development.

"They may find it distressing to look at and interact with other people. If kids find it distressing to watch and engage in social situations from an early age, they will disengage from them and miss many opportunities to learn about the social world."

Data were analyzed from 32 children and adolescents with autism spectrum disorders and 56 typically developing youth. They underwent functional MRI scanning while performing a gender identification task for faces that were fearful, happy, sad or neutral.

The researchers were particularly interested in a structure called the amygdala, which indexes anxiety. Whereas youth without autism rapidly habituated or showed decreased activation over time to the faces, those with ASD showed sustained amygdale activity over time when they saw sad and neutral faces.

Habituation was tested by examining if amygdala activation to faces decreased by the end of the session. In healthy people, the amygdala responds to faces at the beginning of the scanning session but lessens to repeated presentation of faces. If that doesn't happen, it could lead to overarousal, Monk said.

"This process is similar to becoming habituated to a ticking clock in a room so we don't notice it anymore," said U-M researcher Johnna Swartz and the study's lead author. "We could imagine how distressing failure to habituate would be in that case. Amygdala habituation helps us become accustomed to familiar social situations so we're not always on alert. This study is one of the first to show that this process is altered in teens with autism spectrum disorders."

Researchers also discovered that reduced habituation to neutral faces may be related to more severe ASD symptoms. Monk said early intervention could include increasing emotion recognition or reducing overarousal to faces through training and exposure.

The findings appear in the current *Journal of the American Academy of Child and Adolescent Psychiatry*: www.sciencedirect.com/science/journal/08908567

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