

Masculine features linked to autism

26 September 2017, by Teresa Belcher, Particle

We can now log on to our iPhones using 3-D facial features. scanning, but 3-D scanning also has some very vital medical benefits.

One of which may be early detection of disorders such as [autism](#).

A couple of years ago, UWA research associate Syed Zulqarnain Gilani and his team developed a [technique](#) where 3-D photogrammetry—the science of making measurements from photographs—could score a face to be male or female, based on 11 facial features.

A computer algorithm was designed and used to generate a 'gender score' along a scale ranging from very masculine to very feminine.

Zulqarnain says results from the mathematical model matched very closely to the scores that humans rated the same subjects.

Armed with those correlations, the team decided to compare the faces of [autistic kids](#) to non-autistic kids.

Testosterone, male features and autism

Autism spectrum disorder (ASD) is a behavioural disorder diagnosed from a person's behaviour.

"It's easier to diagnose in adults because their behaviour is really evident," says Zulqarnain.

"In young children, this is a lot harder, but it would be very beneficial to diagnose it early on."

[ASD has also been linked to the male hormone testosterone.](#)

"There is some evidence that testosterone might play an important part."

Zulqarnain says a paper published [in 2015](#) also found adults (both men and women) with higher prenatal testosterone had more masculine facial

With this knowledge, the researchers decided to see if there was a link between having a more masculine face and having autism.

The study tested a total of 113 girls and 102 boys who were not autistic and 20 girls and 54 boys who were autistic, aged between 3 and 12.

"First, we looked for features that distinguished between male and female," Zulqarnain says.

"Using the same features, we found the autistic boys and girls had significantly more masculine gender scores than the non-autistic subjects."

The study also found the more masculine the face, the more social communication difficulties the children in the ASD group had.

Future hopes for earlier detection

Zulqarnain says clinical studies of linking [testosterone](#) and autism are a work in progress.

"The work that we have done is not an alternative to clinical tests—it's a cheap and easy possible method to detect autism."

"You can use a 3-D scan anywhere, for example, in schools, and run everyone through it."

"It could raise a red flag if the child is one of those kids suspected to be autistic, then they could go to a clinic for further assessment."

He says the goal now is to try to go down in age and even use CT scans of children in their mother's womb.

"So far, diagnosis under age 3 is highly unlikely, so if we could raise a red flag even before the age of 3 then the clinicians can give a better opinion," Zulqarnain says.

Zulqarnain adds this is a highly multidisciplinary field, and work is only possible when collaboration occurs between different fields of science. Research on this particular problem was led in collaboration with Diana Tan from UWA School of Psychology.

This article first appeared on [Particle](#), a science news website based at Scitech, Perth, Australia. Read the [original article](#).

Provided by Particle

APA citation: Masculine features linked to autism (2017, September 26) retrieved 5 May 2021 from <https://medicalxpress.com/news/2017-09-masculine-features-linked-autism.html>

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