

Understanding the Relationship Between Theory of Mind and Anxiety in Autistic and Typically Developing Children

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Introduction

Theory of Mind (ToM) is the ability to understand the emotions, intentions, and beliefs of another individual.

Prior research has found that socially anxious individuals perform worse on ToM tasks.¹ This relationship has not been studied in a sample of autistic children.

Additional research shows that children with autism spectrum disorder (ASD) score higher on anxiety tests, but findings are mixed regarding whether they perform any different on ToM tasks compared to their typically developing (TD) peers.^{2,3}

Research Questions:

- Is there a significant correlation between ToM and anxiety in TD and ASD groups of children?
- Do children with ASD score differently on ToM and anxiety measures compared to their TD peers?

Participants

Diagnosis	n	Mean Age	Age Range	Males	Females	Mean IQ	IQ Range
ASD	22	12.04 ± 1.79	8.25 - 14.75	19	3	115.59 ± 12.72	82 - 134
TD	22	11.82 ± 1.59	8.25 - 14.25	19	3	113.14 ± 10.78	93 - 131

Methods

Measuring ToM Accuracy: participants completed the Strange Stories assessment, answering questions about characters' mental states.

Example...

Peter loves his aunt very much, but today she is wearing a new hat; a new hat which Peter thinks is very ugly indeed... But when Aunt Jane asks Peter, "How do you like my new hat?," Peter says, "Oh, its very nice."

Q: Why does he say that?
 2 points—reference to wanting to spare feelings
 1 point—reference to trait (he's nice), motivational (so she won't shout at him) with no reference to aunt's thoughts or feelings
 0 points—irrelevant or incorrect facts/feelings

Measuring Anxiety: parent completed the Screening for Child Anxiety Related Disorders (SCARED) questionnaire.* Scored 0-2, where 0 is never, 1 is sometimes, and 2 is often.

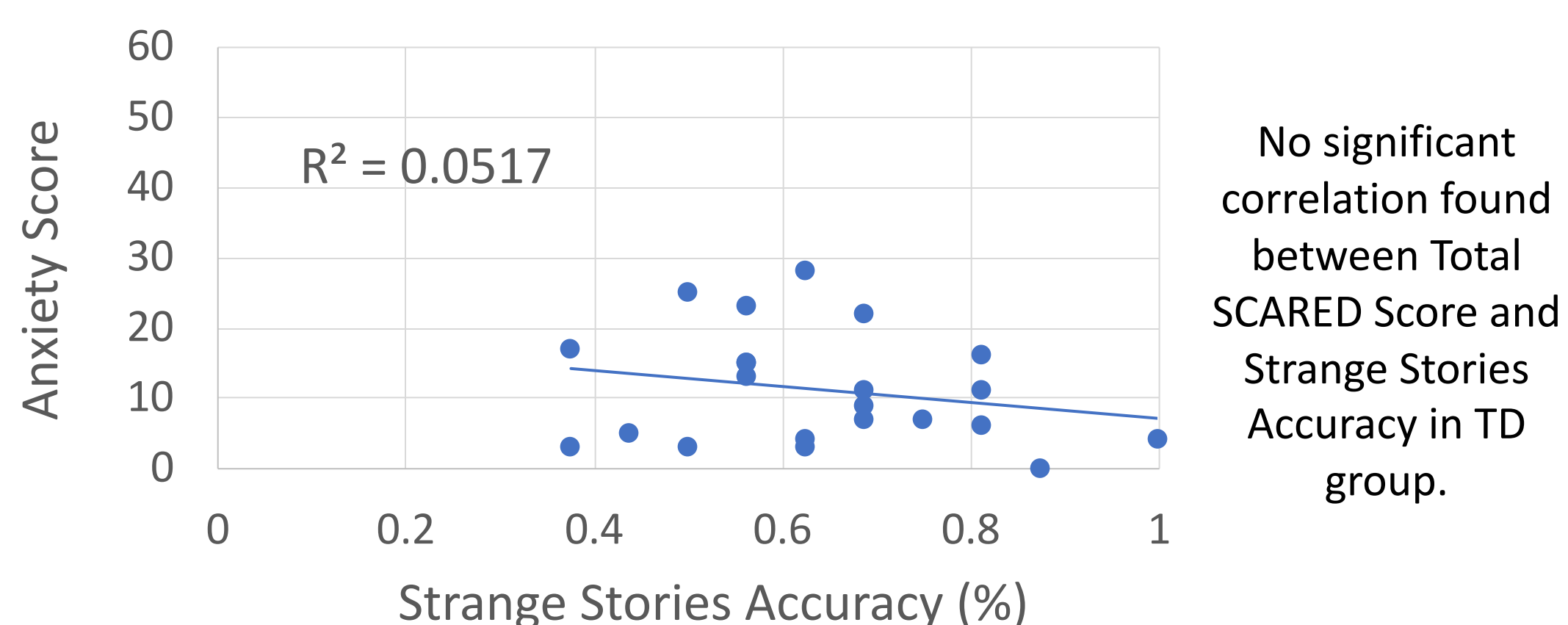
Example...

*"My child worries about being as good as other kids."
 "It's hard for my child to talk to people he/she doesn't know well."*

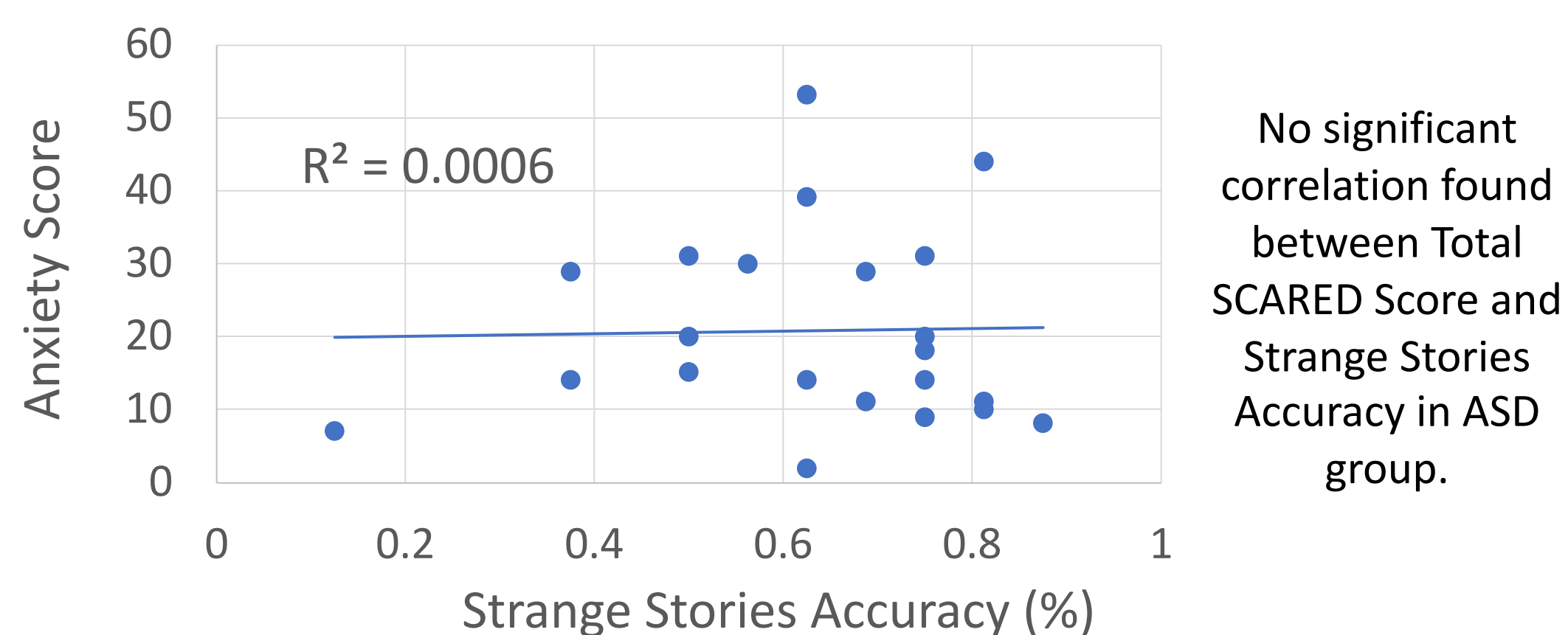
*Parent version was used as opposed to the child self-reported version because children with ASD sometimes have difficulty understanding and verbalizing their feelings.⁴

Results

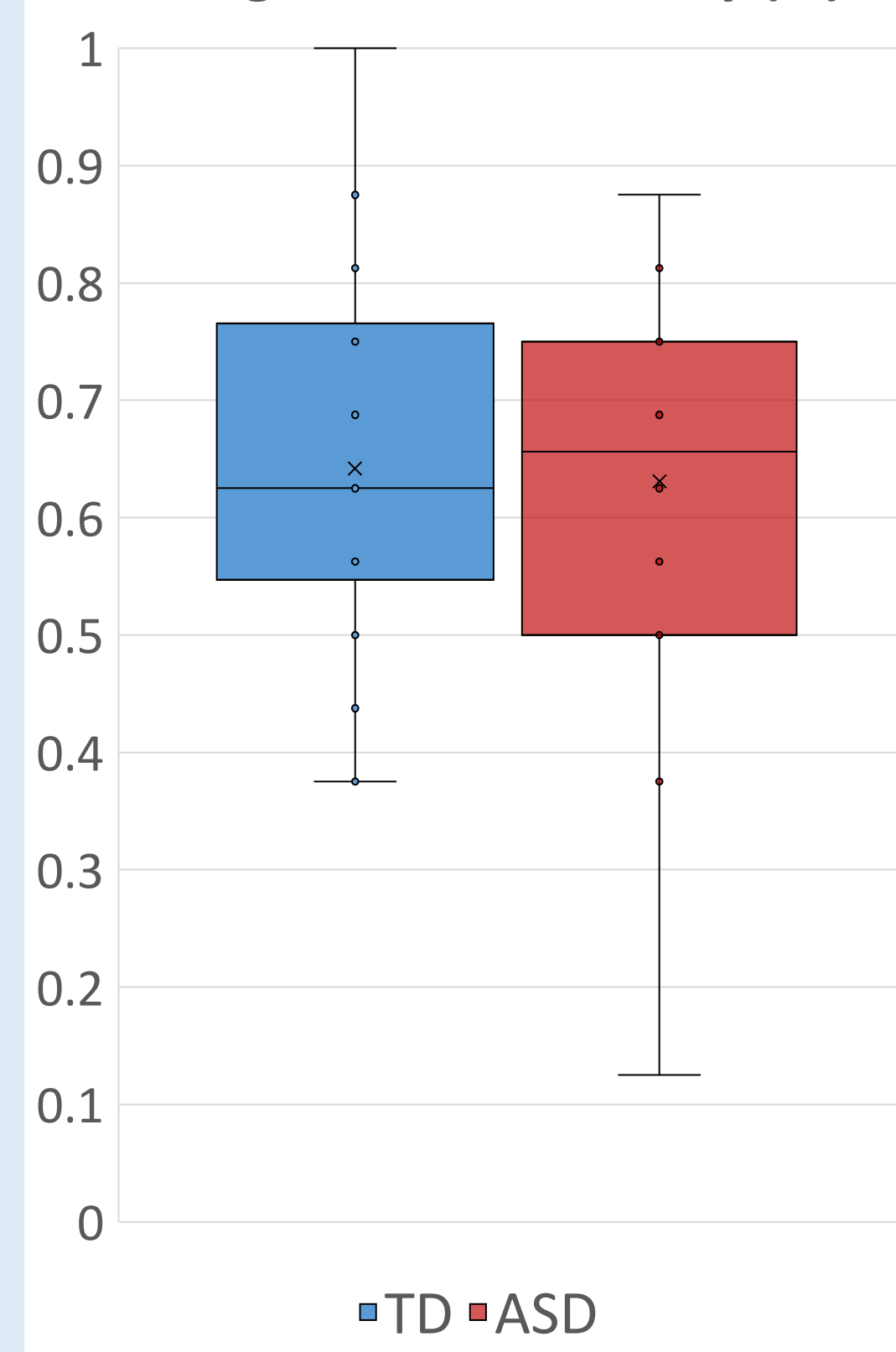
Anxiety Score vs. Strange Stories Accuracy for TD Group



Anxiety Score vs. Strange Stories Accuracy for ASD Group

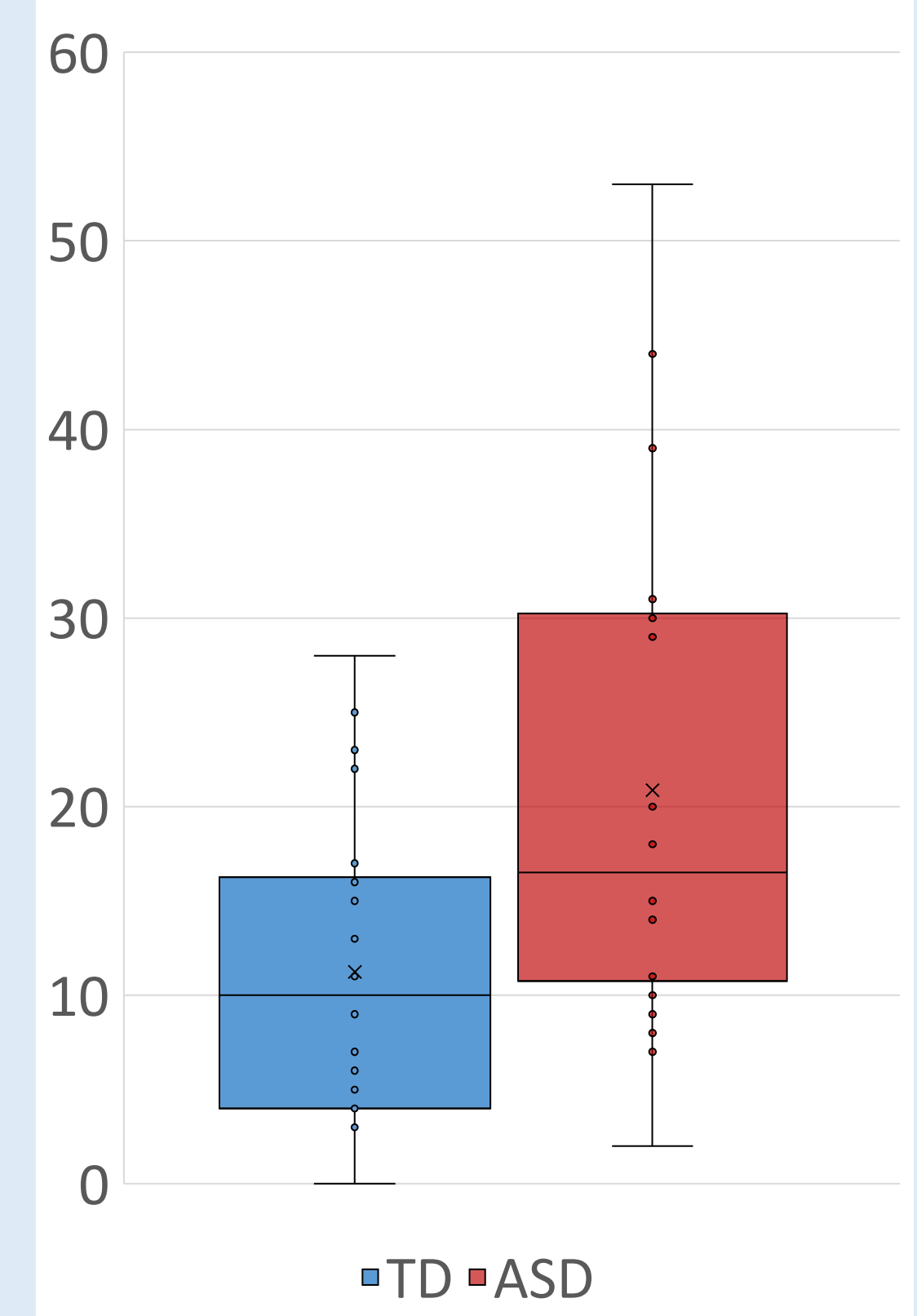


Strange Stories Accuracy (%)



No significant difference in Strange Stories Accuracy between groups.

Total SCARED Score



ASD group scored significantly higher on SCARED questionnaire (t = -2.922, p = 0.006).

Discussion

No significant correlation is observed between ToM and anxiety in either group.

The ASD group scored significantly higher on the anxiety questionnaire by approximately 9 points. There was no significant difference in Strange Stories Accuracy between groups.

Better understanding the relationship between ToM and anxiety could have clinical implications in managing treatment strategies for child anxiety, especially with ASD.

Future directions include looking at this relationship using the specific SCARED subsections, such as social or school anxiety. Another possibility is using ToM tasks that investigate emotion as opposed to belief and intention.

References

1. Hezel, D. M. & McNally, R. J. (2014). Theory of Mind Impairments in Social Anxiety Disorder. *Behavior Therapy*, 45(4), 530-540.
2. Gillott, A., Furniss, F., & Walter, A. (2001). Anxiety in High-Functioning Children with Autism. *Autism*, 5(3), 277-286.
3. Scheeren, A. M., de Rosnay, M., Koot, H. M., & Begeer, S. (2013). Rethinking Theory of Mind in High-Functioning Autism Spectrum Disorder. *Journal of Child Psychology and Psychiatry*, 54(6), 628-635.
4. Blakely-Smith, A., Reaven, J., Ridge, K., & Hepburn, S. (2010). Parent-Child Agreement of Anxiety Symptoms in Youth with Autism Spectrum Disorders. *Research in Autism Spectrum Disorders*, 6, 707-716.

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