

Anxiety facilitates affective theory of mind decoding in adults with typical development but not adults with autism spectrum disorder

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Background

- Theory of mind (ToM) is the social cognitive ability to reason about mental states of others, including beliefs, desires, and intentions.
- ToM predicts social functioning in autism spectrum disorder (ASD), but factors that lead to individual differences in ToM in ASD are unclear.
- Recent research suggests the centrality of affective ToM (inferring other's emotional mental states) in ASD¹ and the relation between anxiety and ToM in anxiety disorders and typical development (TD).²
- The present study examined whether (1) affective ToM decoding and facial recognition are impaired in adults with ASD and (2) anxiety differentially associates with affective ToM and facial recognition.

Method

Participants:

Group	n	Mean Age	Mean IQ
ASD	27	23.13	106.70
TD	27	24.82	113.48

- Diagnostic groups did not significantly differ in age, sex ratio, or IQ ($p > 0.05$).

Anxiety:

- The Beck Anxiety Inventory (BAI) and the State-Trait Anxiety Inventory, State Subscale (STAI-S) assessed trait and state anxiety, respectively.

Facial Recognition:

- The Benton Facial Recognition Task (BFRT) assessed facial recognition ability (see Fig. 1).



Figure 1. BFRT examples.³

Method

Affective ToM Decoding:

- The Reading the Mind in the Eyes Task (RMET) assessed affective ToM (positive, negative, and neutral) decoding ability (see Fig. 2).

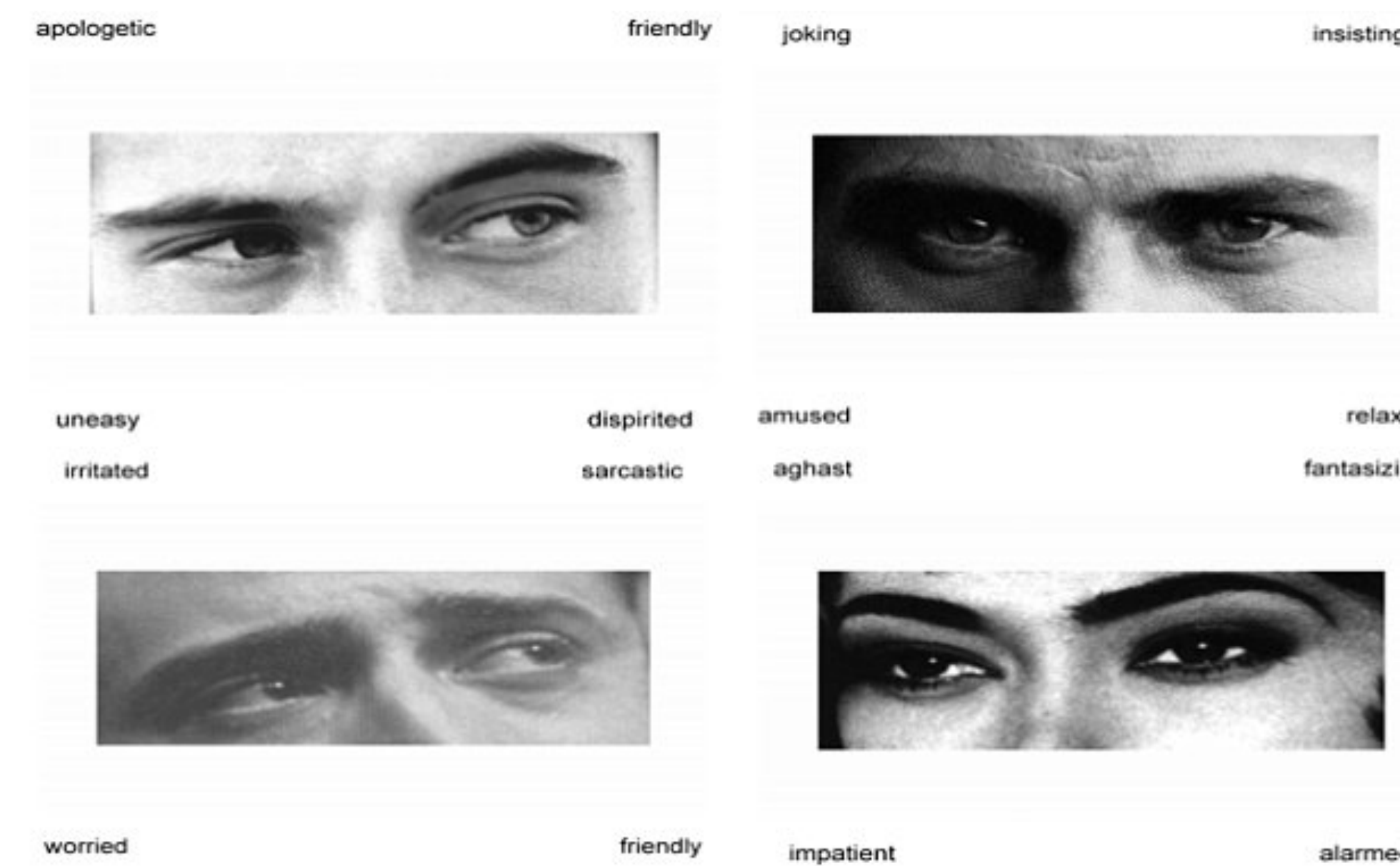


Figure 2. RMET examples.⁴

Results

Do adults with ASD show deficits in affective ToM decoding and facial recognition?

- The ASD group (Mean = 44) had significantly lower facial recognition scores on the BFRT compared to the TD group (Mean = 47; $p < .001$, $t = -3.40$).
- The ASD group had significantly lower affective ToM scores for the RMET positive ($p < .05$, $t = -2.13$) and RMET negative ($p < .05$, $t = -2.40$) subscales compared to the TD group (see Fig. 3).
- The ASD and TD groups did not significantly differ in their RMET neutral scores ($p > .05$; see Fig. 3).

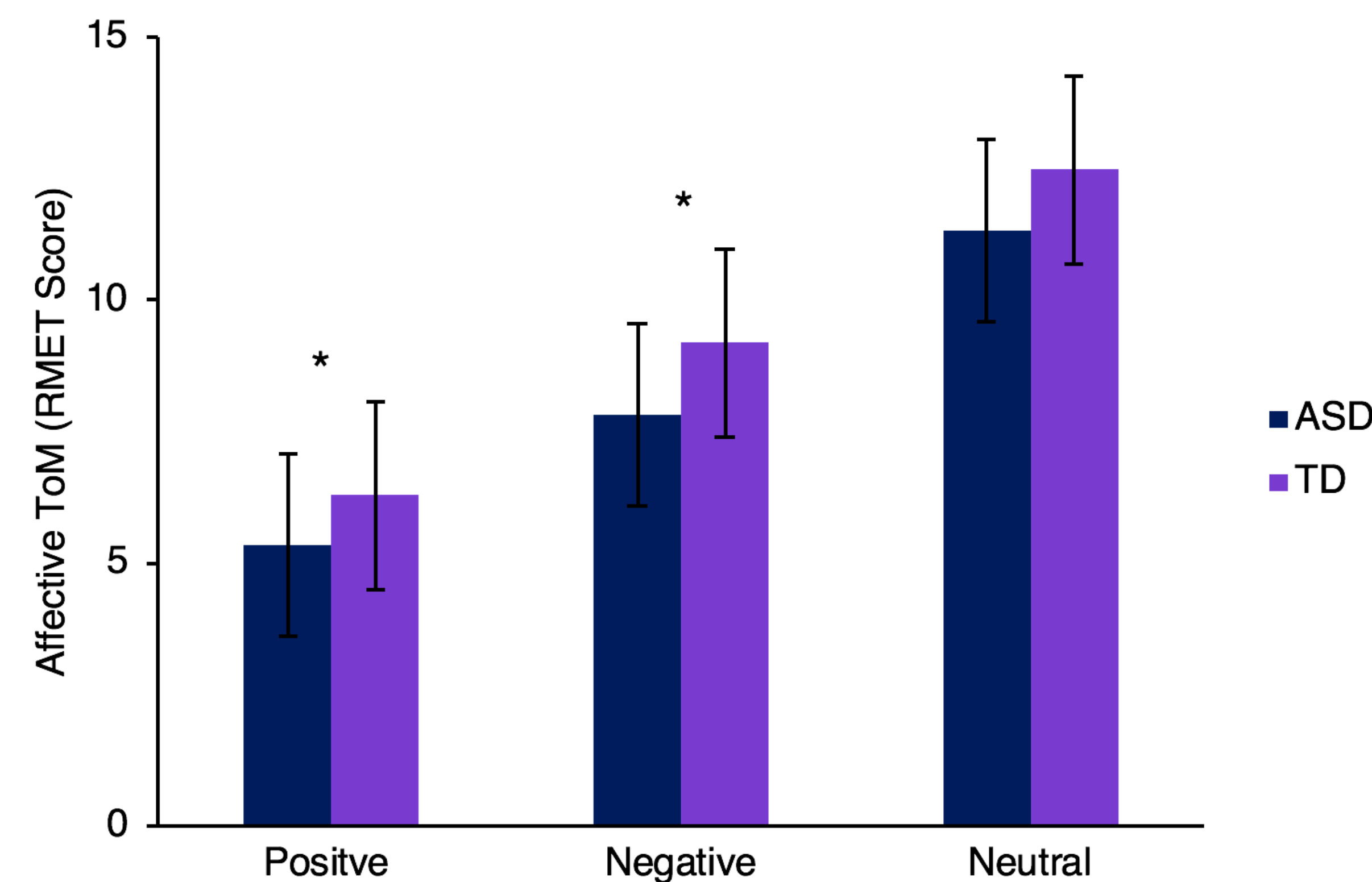


Figure 3. RMET group differences between ASD and TD (* = $p < .05$).

Results

Does anxiety associate with facial recognition and affective ToM decoding in adults with ASD and TD?

- In the TD group, trait anxiety significantly predicted affective ToM decoding of neutral emotions, above and beyond verbal IQ ($p < .05$, $\beta = .55$; see Fig 4).
- In the ASD group, trait anxiety did not significantly predict affective ToM decoding of neutral emotions ($p > .05$; see Fig. 5).

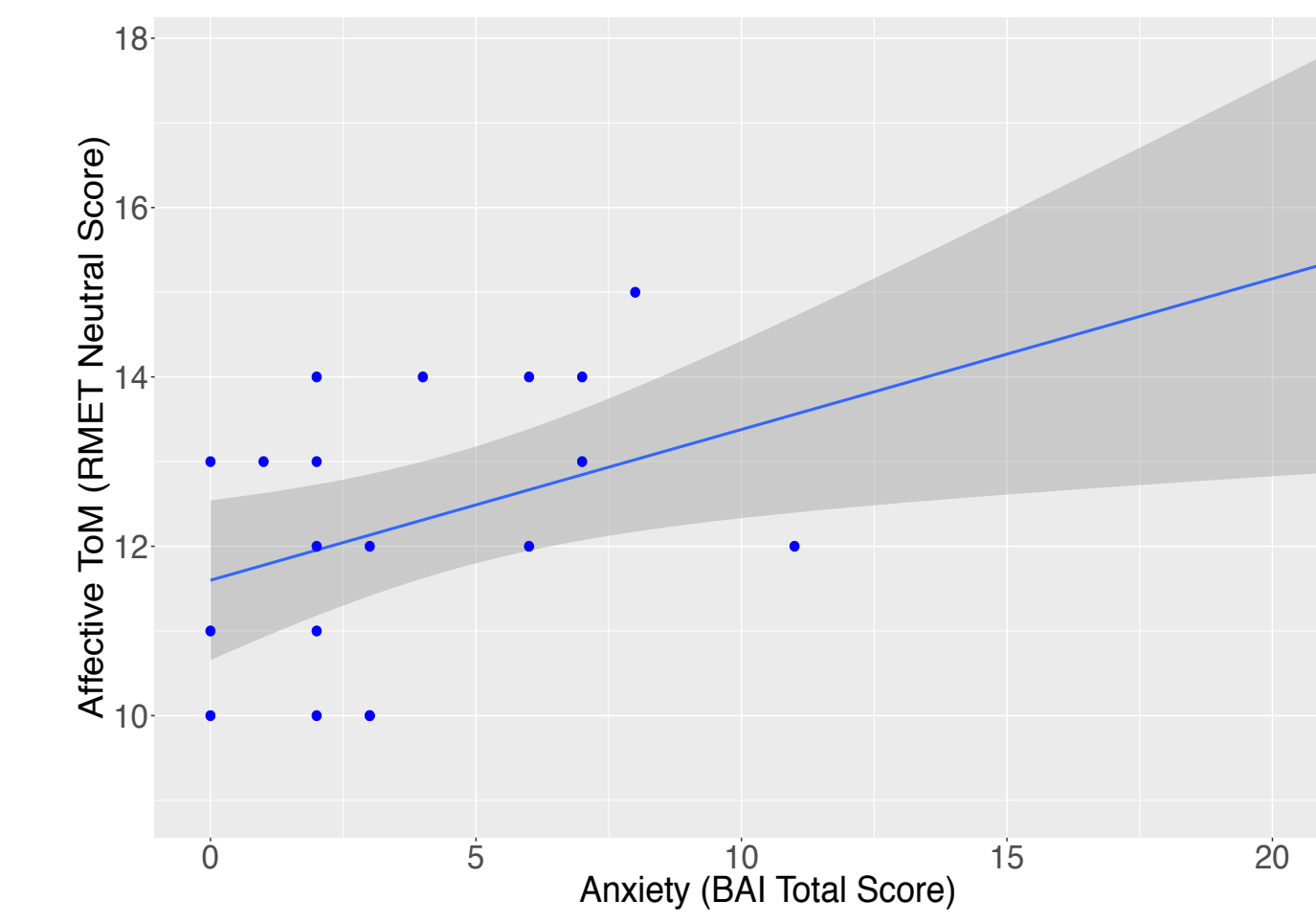


Figure 4. Anxiety and RMET Neutral in TD.

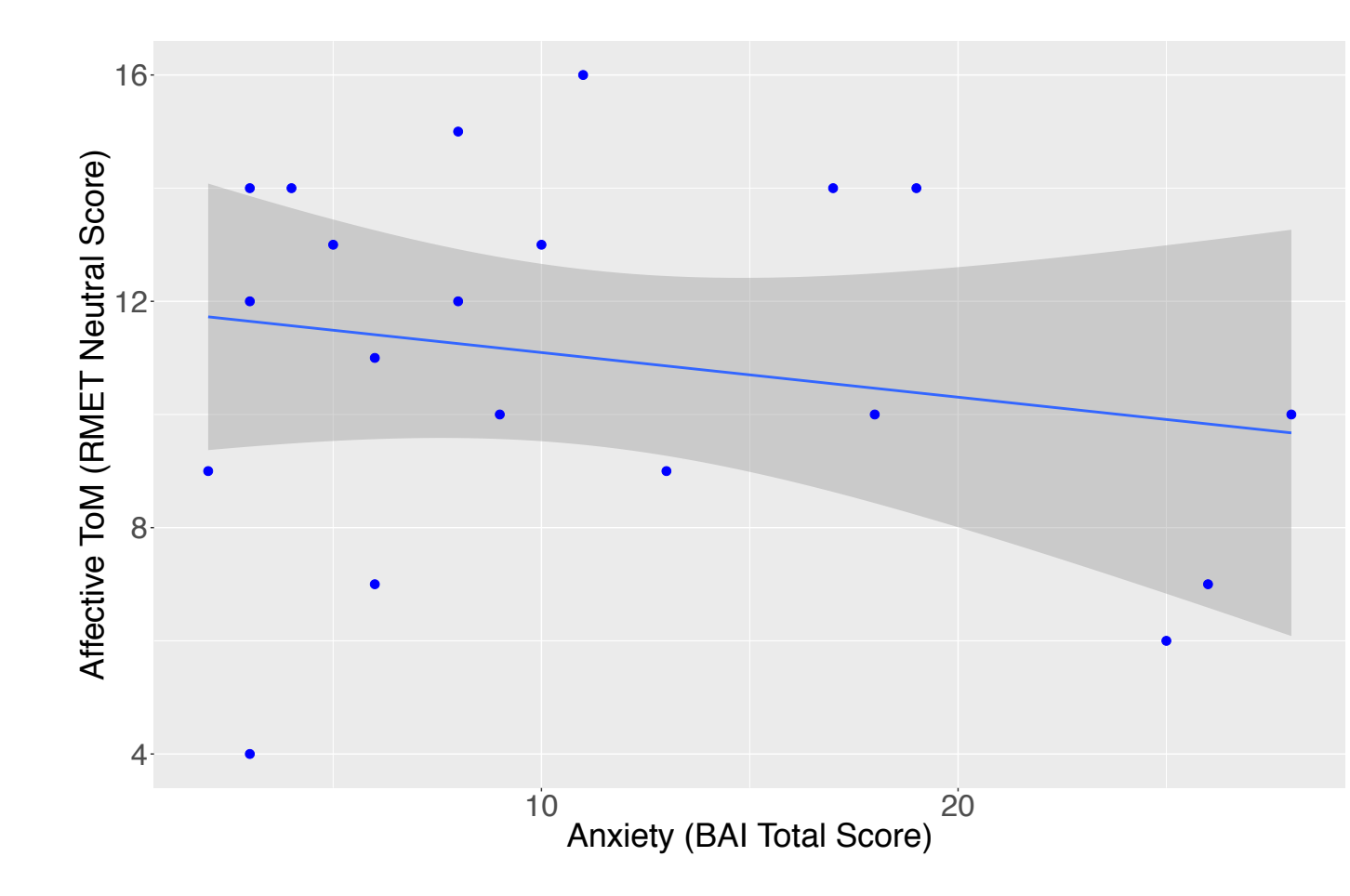


Figure 5. Anxiety and RMET Neutral in ASD.

Conclusions

- Adults with ASD had worse facial recognition and affective ToM decoding of positive and negative emotions than adults with TD.
- Increased trait anxiety was associated with increased affective ToM decoding of neutral emotions in adults with TD but not ASD.
- Anxiety was not associated with facial recognition.
- State anxiety was not associated with facial recognition or affective ToM decoding.
- The present study clarifies the complex nature of affective ToM and facial recognition difficulties in adults with ASD.
- Results suggest that anxiety is adaptive for reasoning about the affective mental states of others in TD but that anxiety in ASD does not have the same facilitatory effect for improving social cognition.

References:

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Funding sources: UL1 RR024139 (McPartland), NIMH R21 MH091309 (McPartland), Autism Speaks Translational Postdoctoral Fellowship (Naples), Waterloo Foundation 1167-1684 (McPartland), Patterson Trust 13-002909 (McPartland), NIMH R01 MH100173 (McPartland), NIMH R01 MH107426 (McPartland, Srihari), ISDP Travel Award: Eunice Kennedy Shriver National Institute of Child Health and Human Development, John Wiley and Sons Publishing, the Sackler Institute, and the Nurture Science Project at Columbia University (Altschuler), Yale Child Study Center Postgraduate Associate Travel Award (Altschuler).

