

# Social judgements from faces in autism

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## Background

Judging social attributes from faces is likely to draw strongly on social knowledge and understanding and be vital for social interaction. This is an aspect of social cognition that does not explicitly involve mentalising.

Clearly the social functioning of people with autism spectrum disorders (ASDs) is impaired but the extent to which this kind of social knowledge is available to them is unknown.

## Do people with autism have problems with social abilities that don't involve mentalising?

Adolphs et al. (2001) have previously found that adults with Asperger Syndrome (AS; n=8) judge untrustworthy faces as more trustworthy than controls and hence discriminate more poorly between trustworthy and untrustworthy faces.

## Current study

We replicated Adolphs et al.'s study but with:

- larger AS group
- different ages
- better controlled stimuli
- other social attributes and control conditions
- more rigorous analysis

## Participants

**Adults**  
 24 controls & 16 AS  
 18 to 65 years  
 fsIQ ≥ 85

**Children**  
 18 controls & 14 ASD  
 6 to 11 years  
 nvIQ ≥ 70

### Matched?

- ✓ age
- ✓ vIQ, pIQ, fsIQ
- ✓ 1<sup>st</sup> order false belief
- ✗ 2<sup>nd</sup> order false belief
- ✗ Autism-Spectrum Quotient
- ✗ Benton

✗ = AS or ASD worse on all comparisons, p<0.05

Adult IQ = WAIS; Child nvIQ = Ravens; Child vIQ = BPVS  
 1<sup>st</sup> order tasks include Sally-Anne & Smarties; 2<sup>nd</sup> order tasks include Icecream, Puppy and Coat  
 Autism-Spectrum Quotient (Baron-Cohen et al., 2001)  
 Communication Checklist = 13 item 3-point rating scale (Frith, unpublished)  
 Benton = Benton Facial Recognition Test (Benton et al., 1994)

## Method

**Adults**  
 9 conditions x 48 stimuli  
 1 (low) to 7 (high) scale  
 10 secs max. presentation

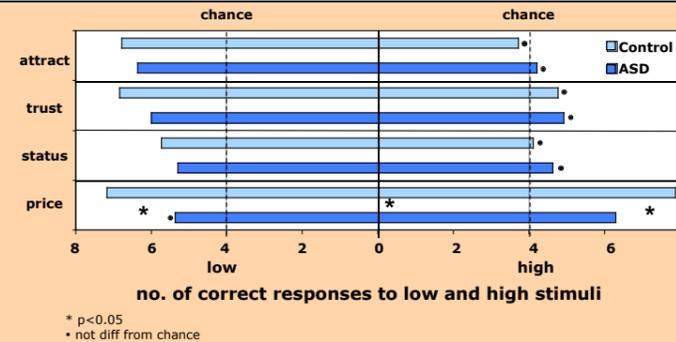
**Children**  
 3 social attributes & price  
 x 16 most extreme stimuli  
 yes/no responses  
 with simplified wording  
 10 secs max. presentation

## Child Results

ASD children only worse at control price judgement  
 • worse at acquiring world knowledge?

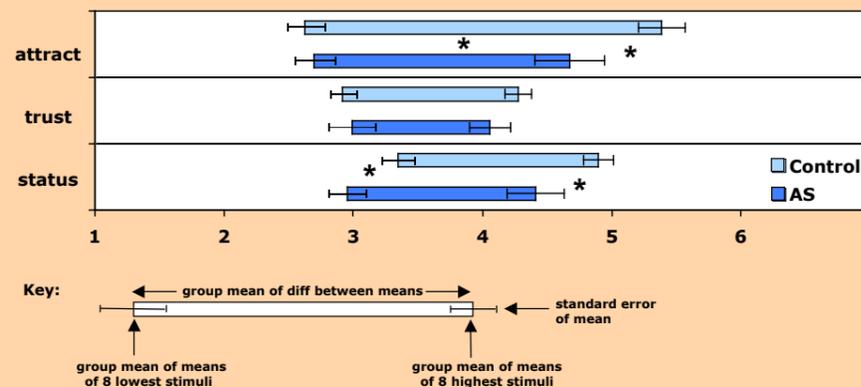
All children find judging social attributes hard  
 • skill that develops later?  
 • do ASD children develop at the same time?

But, simplified wording may have made the children judge social attributes differently to adults, who defined correct responses



## Adult results

Order 48 stimuli by mean ratings from pilot study  
 Scores per person: mean of 8 lowest stimuli  
 mean of 8 highest stimuli  
 difference between means



### Attractiveness

- difference for high ratings and overall difference
- AS adults worse at discriminating attractive from unattractive

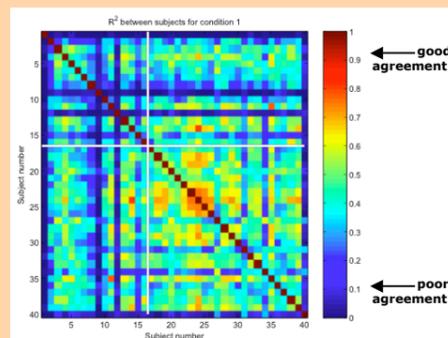
### Status

- differences for low and high ratings but no overall difference
- AS adults can discriminate as well as controls
- just using scale differently / think everyone is slightly lower status

### Control conditions

- no difference on age, price or status from clothes conditions

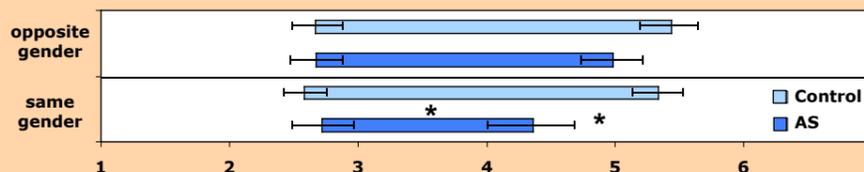
## Do AS adults define attractiveness as different to controls?



- AS adults (top left quadrant) are in less agreement with each other than controls (bottom right quadrant).
- if they do define attractiveness as different to controls, each AS adult finds something different attractive.

## Why attractiveness?

- only stimulus set with both male and female faces
- reanalyse data when participants judge a face of the same or opposite gender



Controls find it as easy to judge someone of the same gender as the opposite gender

AS adults find it harder to judge someone of the same gender

- can still discriminate between high and low stimuli but less accurately

### Why?

- same gender attractiveness judgements may require perspective taking, while all other judgements are egocentric
- need to put yourself into the shoes someone of the opposite gender in order to judge attractiveness of someone of the same gender?

## Stimuli

Attractiveness & Age (O'Doherty et al., 2003)



Trustworthiness & Age (Winston et al., 2002)



Status & Age (also judged from pictures of people with blurred faces)



Price



## Conclusion

- judging social attributes from faces is unimpaired in autism, despite
  - poor mentalising skills
  - poor face processing
- illustrates the specificity of the mentalising impairment
- whether people with autism can apply this knowledge implicitly and appropriately to a social situation is a different issue

## References

Adolphs R, Sears L & Piven J (2001). *Journal of Cognitive Neuroscience* 13: 232-240.  
 O'Doherty J, Winston J, Critchley H, Perrett D, Burt D & Dolan R (2003). *Neuropsychologia* 41: 147-155.  
 Winston J, Strange B, O'Doherty J & Dolan R (2002). *Nature Neuroscience* 5: 277-283.  
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