

# BARON-COHEN ET AL.

## PSYCHOLOGY BEING INVESTIGATED/BACKGROUND

### THEORY OF MIND

Ability to mentally understand and predict others' behaviour, aka mentalising. Low in autistic people. It involves two stages: determining a person's mental state and its content.

### SOCIAL SENSITIVITY

Ability to understand others' feelings and views during social interactions, with high sensitivity in recognizing cues and appropriate responses.

### AUTISM AND ASPERGER'S SYNDROME

Autism spectrum disorder, previously known as Asperger's syndrome, is a condition characterized by social interactions, communication difficulties, and repetitive behaviour, now known as "high-functioning autism" in the ICD-11.

### AIM

1. To test adults with HFA/AS on the *revised eyes test* if the deficits on the original test were still there.
2. To see if there is a negative correlation between *autism spectrum quotient [AQ]* and *eyes test scores*.
3. To see if females score higher on the eyes test than males.

### METHODOLOGY

Baron-Cohen et al. used experiments [scores from the different groups/genders were compared] and correlations [checked whether there was a correlation between the aq and eye test scores]

### DESIGN AND VARIABLES

IV1: Participant's group, IV2: Participant's sex. DV: eyes test and AQ scores.

Both the IVs were independent measures design.

Co-variables: AQ and eyes test score.

### SAMPLE

Group	Sample	Mean age	Mean IQ	Extra info
1: HFA/AS adults	15 male adults	29.7	115	Volunteer sampling through ads in UK National Autistic Society magazine/support groups. Socioeconomic and education level similar to group 2.
2: General population	122 neurotypical adults	46.5	-	Exeter/public libraries in Cambridge. Broad range of jobs and educational levels.
3: Students	53M, 50FM neurotypical UG students from Cambridge.	20.8	-	High IQ assumed due to Uni.
4: IQ-matched	14 randos from general pop.	28	116	Matched on IQ and age to group 1.

### PROCEDURE

PROBLEMS W THE OG TEST	SOLUTIONS IN THE NEW TEST
Only 2 possible answers to questions; Ps needed 17/25 correct answers which isn't possible.	Increased items from 25-36 and options from 2-4.
Parents with autistic kids scored similarly to those who had HFA.	
The test didn't account for individual differences; ceiling effect.	
More female faces could cause bias.	Equal male/female faces
Some could be guessed by the direction of the eyes	Removed
Some were too basic [eg. Happy, sad, angry]	Only complex mental states
Some people may not understand the words.	Glossary provided
Target and foil were complete opposites, eg happy vs sad.	3 foils were similar to the target word.

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The participants took the test in a quiet room in Exeter or Cambridge. They were asked to select one of 4 emotions that matched a set of eyes. The right answer was called the target and the wrong ones were the foils. Group 1 were also asked to recognise the gender of the person in the picture. The other groups didn't need to do that as they have a ceiling effect. They were given a glossary in case they didn't know the meanings of any words.

## EYE TEST DEVELOPMENT

2 authors created the target and foils and had them reviewed by 8 judges [4M, 4F]. They picked the target word for each item. 5/8 judges had to agree for it to become a target and more than 2 judges couldn't pick the same foil. Groups 2 & 3's data were combined, and for the 225 responses, half needed to select the target and more than 25% couldn't pick the same foil. 4/40 failed to meet these criteria so 36 items were left on the new test.

## RESULTS

- Group 1 performed worse on the eye test than the others.
- Females scored better on the eyes test but not significantly.
- Group 1 scored significantly worse than 3&4 on the AQ test [group 2 didn't take it].
- Males scored higher on the AQ test.
- No correlation between IQ and the eyes test.
- Negative correlation [-0.53] between AQ and the eyes test for all 3 groups.
- Group 3's eyes test score correlated negatively with the social skills category (-0.27) and communication category (-0.25) of the AQ.
- Adults with HFA/AS scored 33 out of 36 or above on the gender recognition test.

## CONCLUSION

The revised eyes test has proven to be a more sensitive measure of adult social intelligence, with neurotypical adults scoring significantly below the ceiling. Although impaired on the test, adults with HFA/AS could still identify the gender of the eyes on the control task.

The AQ and eyes test scores were negatively correlated, suggesting that both can be used to measure the severity of autistic traits.

## ETHICAL ISSUES

The study's ethical weakness is the potential psychological harm to participants with HFA/AS, who may have struggled to comprehend the emotions displayed during the test, potentially leading to distress or embarrassment and potentially lowered self-esteem.

## METHODOLOGICAL ISSUES

### RELIABILITY

#### Standardisation

The revised eyes test has a high level of standardisation, with participants seeing the same 36 pairs of eyes, identical black and white images of the same size, and only one correct answer. This standardization allows researchers to verify the reliability of findings and re-examine non-significant findings, such as gender differences.

### VALIDITY

#### Lack of random allocation

Naturally occurring IVs like HFA/AS diagnosis or male/female prevented random allocation. This could have led to participant variables between groups, especially as some were recruited via volunteer sampling from different parts of the UK. This could reduce the validity of the results, as differences between the results may not have been due to the independent variable.

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## Theory of mind

The study's weakness lies in its inability to accurately measure theory of mind, as it only focused on determining a person's mental state. The eyes test, which cannot measure the reason behind an emotion, may not be a valid measure of theory of mind, as it cannot accurately measure the mental state.

## OBJECTIVITY AND SUBJECTIVITY

### Quantitative data

The study's strength lies in its objective quantitative data, allowing for no researcher interpretation. Participants provided pre-determined correct answers, resulting in no room for bias. This ensured the study's validity, as participants were only required to tick whether they chose the correct target answer or one of the incorrect foils.

## GENERALISATION AND ECOLOGICAL VALIDITY

### Generalising beyond the sample

The small sample size of 15 male adults with HFA/AS, may not be representative of all individuals with the disorder, due to them volunteering because of a specific interest in the research.

### Generalising to everyday life

The eyes test has a weakness as its static stimuli do not accurately reflect real-life emotion processing. People typically use facial movements and verbal cues to detect emotions, reducing the test's realism and reducing the ability to determine another person's mental state accurately.

## LINKS TO DEBATES AND ASSUMPTIONS

Cognitive processing, as demonstrated by the lower eyes test scores in adults with HFA/AS, may be influenced by individual factors, with some individuals better at recognizing emotions and mental states in certain situations and with sufficient processing time.

Individuals with HFA/AS and neurotypical controls showed differences in Eyes Test scores, indicating individual differences in cognitive processing of emotions through facial expressions.

Strengths	Weaknesses
Highly standardised	Lack of random allocation
Used control/experimental conditions	Static eyes; lack of ecological validity

Similarities	Differences
Baron-Cohen & Andrade's participants were in a quiet room.	Baron-Cohen didn't deceive participants, Andrade did.
Baron-Cohen & Pozzulo used independent measures design.	Baron-Cohen compared males and females, Pozzulo compared children and adults.