How Magic Changes Our Expectations About Autism

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1. Background

- Individuals with Autism Spectrum Disorder (ASD) are less sensitive to social cues & have superior perception for non-social details compared to Typically Developed (TD) individuals.
- It was therefore predicted that they should be less susceptible to a magic trick, in which the magician’s social cues of head movement and eye gaze play a crucial role in misdirecting people’s attention and expectations.

2. Method

2.1. Materials

- The magic trick of the vanishing ball illusion was shown in a video clip. In this trick a person is seen throwing a ball up in the air twice and catching it, before pretending to throw it up in the air.
- Participants are then asked: Where did you see the ball for the last time? Typically they report seeing a ball leaving the hand on the final throw even though it remains concealed in the hand.
- Thus, people who are fooled by the trick report that the ball was last seen at a higher point than those who are not fooled.

2.2. Participants

- The two groups (n_{ASD} = 15 n_{TD} = 16) were matched for chronological age, verbal IQ, non-verbal IQ and full-scale IQ (all ps>0.2)

<table>
<thead>
<tr>
<th>Group</th>
<th>Age in years</th>
<th>WASI IQ</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Verbal</td>
</tr>
<tr>
<td>ASD</td>
<td>19 (1.6)</td>
<td>98.3 (15.5)</td>
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<tr>
<td>TD</td>
<td>21 (4.1)</td>
<td>97.6 (9.8)</td>
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3. Results

3.1. Behavioural

Markings of the location where the ball was last seen were significantly higher for the ASD than the TD group, t(31) = 2.14, p < .05, d = 0.74, implying that ASD group was more susceptible towards the illusion.

3.2. Eye-Movements

a. No differences in the duration of looking to the magician’s face and eyes (both ts<1).

b. However, the ASD group was significantly slower to fixate the face (M = 267 ms; SD = 73.7) than the TD group (M = 201 ms; SD = 43.5), t(27) = 3.01, p < .01, d = 1.16.

c. Also, the ASD group had difficulty in fixating the fast moving observable ball, t(27) = 2.2, p < .05, d = 0.85.

4. Conclusion

The results indicate difficulties in the rapid allocation of attention towards both people and moving objects.

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