Reasoning in social versus non-social domains in relation to autistic traits

Elif Bastan, Roberta McGuinness, Prof Sarah Beck, and Dr Andrew Surtees
exb993@student.bham.ac.uk

INTRODUCTION
Reasoning is an area in which autistic people tend to show preserved or enhanced abilities [1]. Autistic people and those who self-report higher levels of autistic traits are more likely to reason more rationally (objectively and bias-free) than non-autistic people and those who self-report lower levels of autistic traits [2].

We adapted a moral reasoning task [3] to examine:
- whether reasoning differs in social versus non-social domains,
- whether such differences correlate with autistic traits.

METHODOLOGY

<table>
<thead>
<tr>
<th>Experiment 1</th>
<th>Experiment 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>N = 72 (F: 60, M: 12) over Zoom, with the researcher</td>
<td>N = 217 (F: 191, M: 23, NB: 3) online, alone</td>
</tr>
</tbody>
</table>

For both experiments, young adults from the general population:
- first, completed The Adult Autism-Spectrum Quotient [AQ-50] to self-report their levels of autistic traits [4];
- then, completed The Comparison Task which includes several comparisons of scenarios representing social and non-social relationships.

The Comparison Task
Each scenario had three lines of information: (1) the first contained character-based information, (2) the second behaviour-based information, and (3) the third scenario outcome. Scenarios followed either (a) inconsistent or (b) consistent structure.

a. Example inconsistent comparison in social domain.

(1) Lisa is a generous girl who likes to do nice things for people.
(2) She put a lot of salt in her dad’s coffee to see her dad’s reaction.
(3) Her dad frowned after drinking the coffee, which was disgusting.

Which child is worse? Lisa Emma

b. Example consistent comparison in non-social domain.

William has a pair of good quality running shoes.
They felt comfortable after a five-mile run.
He has been running happily for a month without any injuries.

Colin has a pair of low quality running shoes.
He had a blister after a short run.
He has been running happily for a month without any injuries.

Whose running shoes are better? William Colin

Participants made a judgment on which (a) person (e.g., Lisa or Emma) or (b) object (e.g., William’s or Callum’s running shoes) was “better” or “worse”. We calculated the % of behaviour-based responses for these forced-choices.

For Experiment 2, we asked for written justifications for participants’ judgments. We coded those that were exclusively character-based, those that were exclusively behaviour-based, and those based on a mix of both character and behaviour. We calculated the % for each category.

RESULTS
In both experiments, the non-social domain received higher proportion of behaviour-based judgments compared to the social domain, suggestive of more rational responses (Figure 1).

![Figure 1](image)

We found that higher levels of autistic traits correlate with higher reliance on behaviour-based information in social domain (Figure 2), and did not find this correlation in non-social domain. When the experiment was run with a bigger sample, requested justification and completed alone, there was no significant relationship.

![Figure 2](image)

When providing justification for judgments made in the non-social domain, participants were more likely to rely on both character- and behaviour-based information, compared to justifications given in social domain, where participants relied more on character-based information.

There was a surprising significant negative correlation between the level of autistic traits and the proportion of justifications that relied exclusively on behaviour-based information in non-social domain (Figure 3).

![Figure 3](image)

CONCLUSION
There seem to be different patterns people follow when making moral judgments in social versus non-social domains, with more rational judgments made in the latter. That has been replicated by showing that participants relied on behaviour-based information more in the non-social domain.

The relationship between rationality and level of autistic traits is complex. It is not clear whether people who self-report higher levels of autistic traits use different strategies for reasoning or whether the experiment setting and request for justifications influenced our results.

We will further explore the relationship between rationality and autism by recruiting autistic people and non-people for a between group comparison.

Abbreviations
N: Sample size, F: Female, M: Male, NB: Non-binary, M: Mean, SD: Standard deviation


