

Do autistic traits relate to different reasoning styles in social versus non-social domains?

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INTRODUCTION

Reasoning is an area in which autistic people tend to show preserved or enhanced abilities [1]. Autistic people differ from non-autistic people in reasoning more rationally (more objective and bias-free) [2].

We adapted a moral reasoning task [3] to examine:

- whether reasoning differs in social versus non-social domains,
- whether such differences relate to autistic traits.

METHODOLOGY

Experiment 1

N = 72 (F: 60, M: 12)
over Zoom, with the researcher

Experiment 2

N = 217 (F: 191, M: 23, NB: 3)
online, alone

For both experiments, young adults from the general population, 1. first, completed **The Adult Autism-Spectrum Quotient** [AQ-50] to self-report their level of autistic traits [4].

2. then, they completed **The Comparison Task** which includes several comparisons of scenarios, representing social and non-social relationships. Participants made a judgement on which (a) person (in social domain) or (b) object (in non-social domain) 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’ judgements. 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.

The Comparison Task

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

a. Example comparison in social domain (inconsistent).

(1) Lisa is a generous girl who likes to do nice things for people.	Emma is an annoying girl who likes to play jokes on other people.
(2) She put a lot of salt in her dad's coffee to see her dad's reaction.	She put a lot of sugar in her dad's coffee as a treat for him.
(3) Her dad frowned after drinking the coffee, which was disgusting.	Her dad frowned after drinking the coffee, which was disgusting.
Which child is worse?	
<input type="radio"/> Lisa	<input type="radio"/> Emma

b. Example comparison in non-social domain (consistent).

William has a pair of good quality running shoes.	Callum has a pair of low quality running shoes.
They felt comfortable after a five-mile run.	He had a blister after a short run.
He has been running happily for a month without any injuries.	He has been running happily for a month without any injuries.
Whose running shoes are better?	
<input type="radio"/> William	<input type="radio"/> Callum

RESULTS

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

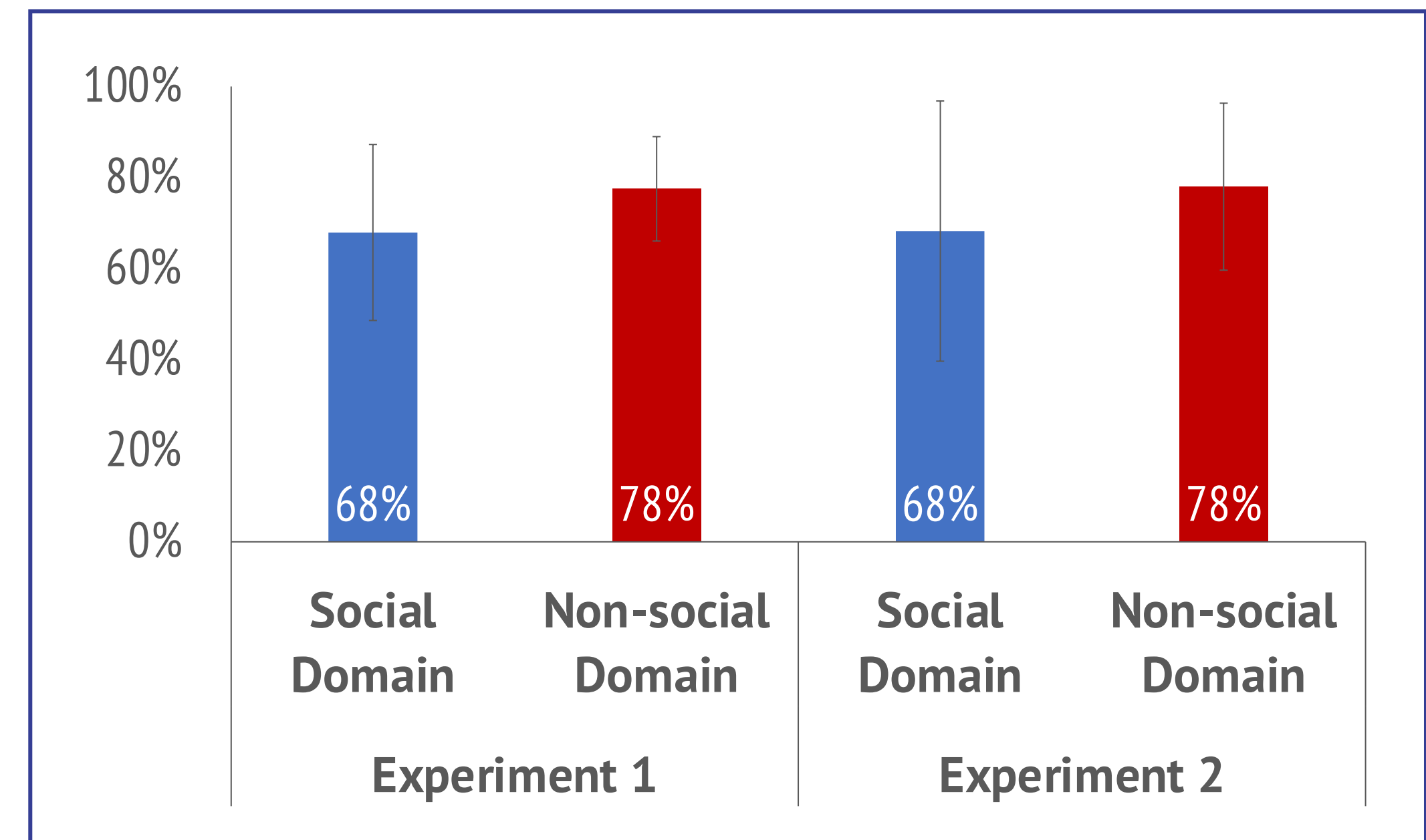


Figure 1. Ms and SDs of the % of behaviour-based judgements for inconsistent scenarios

We, first, found that higher level of autistic traits correlate with higher reliance on behaviour-based information when making judgements about a person but not about an object (Figure 2). However, when the experiment was run with a **bigger sample, asked justification** and completed **alone**, there was no significant relationship.

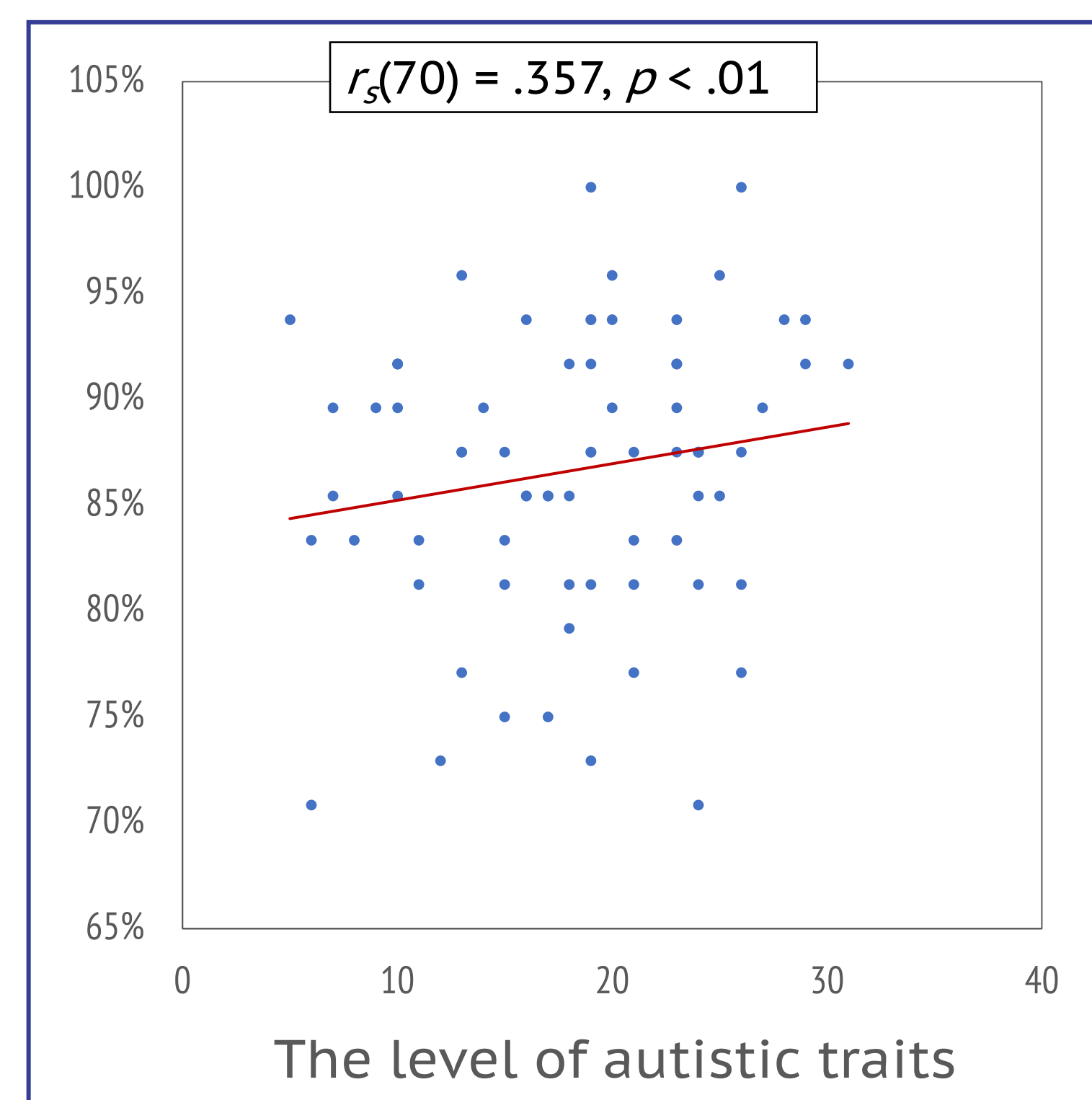


Figure 2. The relationship between the level of autistic traits and the behaviour-based judgements in social domain

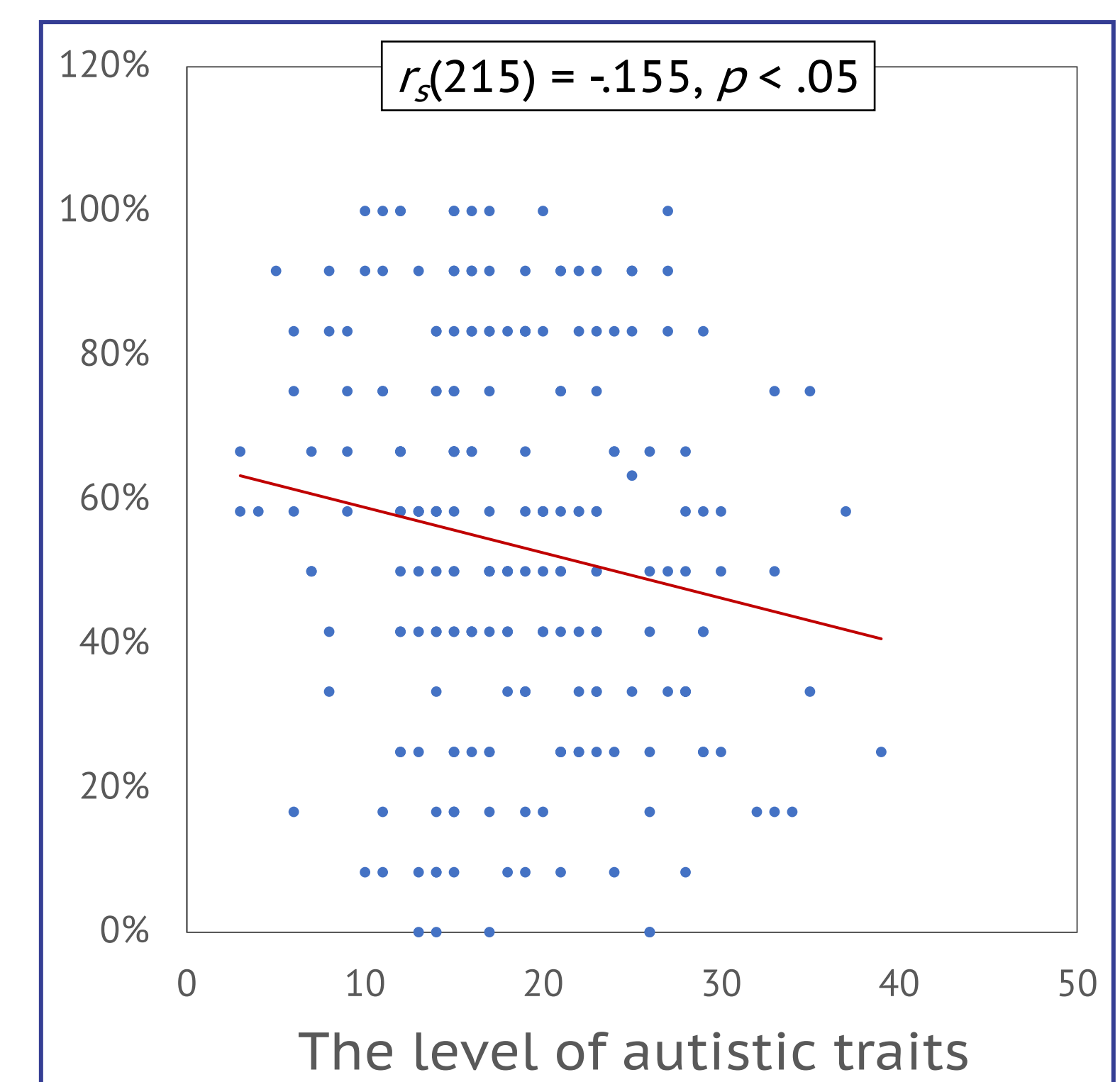


Figure 3. The relationship between the level of autistic traits and only behaviour-based justifications in non-social domain

When providing their justifications, for non-social domain, participants significantly mentioned both characteristics and behaviour of the objects more, For social domain, they mentioned only characteristics of the persons more.

There was, surprisingly, a significant negative correlation between the level of autistic traits and the % of justifications that exclusively mentioned only behaviours of the objects (in non-social domain; Figure 3).

CONCLUSION

There seems to be different patterns that people follow when making moral judgements in social and non-social domains. We found that the relationship between rationality and the level of autistic traits is complex.

RELATED LITERATURE

- [1] Rozenkrantz, L., D'Mello, A. M., & Gabrieli, J. D. E. (2021). Enhanced rationality in autism spectrum disorder. *Trends in Cognitive Sciences*, 25(8), 685–696.
- [2] Brosnan, M., Lewton, M., & Ashwin, C. (2016). Reasoning on the Autism Spectrum: A Dual Process Theory Account. *Journal of Autism and Developmental Disorders*, 46(6), 2115–2125.
- [3] Komeda, H., Osanai, H., Yanaoka, K., Okamoto, Y., Fujioka, T., Arai, S., & Kosaka, H. (2016). Decision making processes based on social conventional rules in early adolescents with and without autism spectrum disorders. *Scientific Reports*, 6(July), 1–9.
- [4] Baron-Cohen, S., Wheelwright, S., Skinner, R., Martin, J., & Clubley, E. (2001). The Autism-Spectrum Quotient (AQ): Evidence from Asperger Syndrome/High-Functioning Autism, Males and Females, Scientists and Mathematicians. *Journal of Autism and Developmental Disorders*, 31(1), 5–17.