

INTRODUCTION

- Narrative comprehension involves the construction of a “situation model”, a mental representation of the story [1]
- Situation models often rely on inference-making abilities
- Research has shown that individuals with autism spectrum disorder (ASD) have difficulties with drawing inferences [2-3]
- Previous research relied on verbal and linguistic material to study inference generation [2-4]
- No studies have used a visual modality

KEY TERMS

AQ = Autism Quotient
VLF = Visual Language Fluency Index

OBJECTIVE

To investigate potential differences in inference-making abilities in adults across the autism spectrum using comics

EXPERIMENT 1: Deletion Recognition Paradigm

Participants

- N=101, mean age = 40.9 years
- AQ score mean (range) = 18.7 (3-35)
- VLF score mean (range) = 20.8 (2.5-49)

Stimuli and Procedure

- Online survey
- A panel was removed from either the beginning (Initial), story climax (Peak), or end (Release)

Outcome Measures

- Panel selection reaction time (s)
- Panel selection accuracy (%)

Analytic Plan

- ANOVAs to compare AQ (total score and subscales) and VLF with outcome variables
- Linear regressions for AQ subscale scores

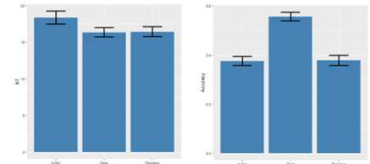
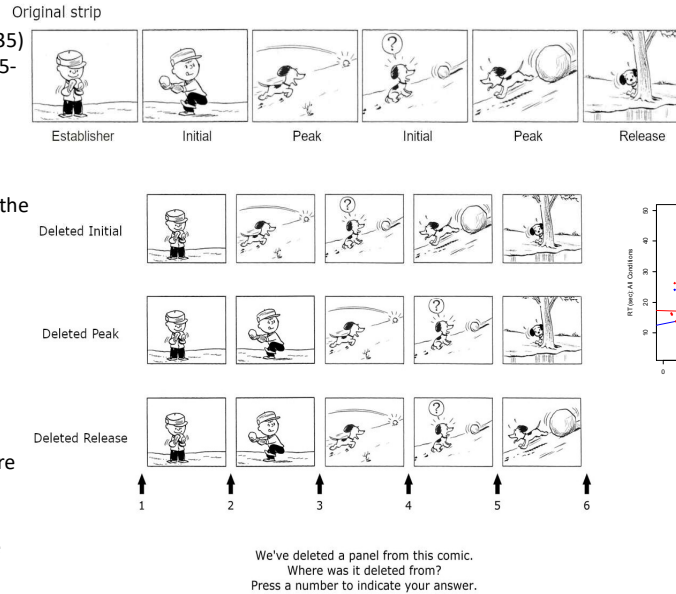


Figure 1: Initial conditions elicited the longest RTs (left); Peak conditions elicited the highest accuracy (right).

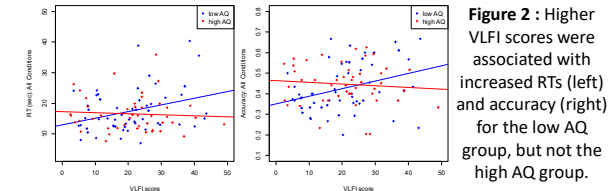
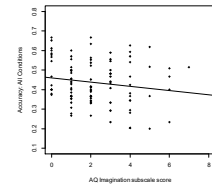


Figure 2: Higher VLF scores were associated with increased RTs (left) and accuracy (right) for the low AQ group, but not the high AQ group.

Figure 3: Higher scores on the AQ Imagination subscale (indicating increased difficulties with imagination) were associated with lower accuracy for panel detection across all conditions.



EXPERIMENT 2: Self-Paced Viewing Paradigm

Participants

- N=48, mean age = 27.44 years
- AQ score mean (range) = 11.83 (3-41)
- VLF score mean (range) = 8.4 (0.1-32)

Stimuli and Procedure

- Comic strips were manipulated to form three conditions (normal, violation, inference)
- Comprehension questions on 40% of trials

Outcome Measures

- Self-paced viewing times (RT) for Peak and Target panels (ms)
- Comprehension question viewing time (ms) and accuracy (%)

Analytic Plan

- ANOVAs to compare AQ (total score and subscales) and VLF with outcome variables
- Linear regressions for AQ subscale scores

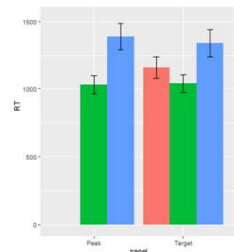
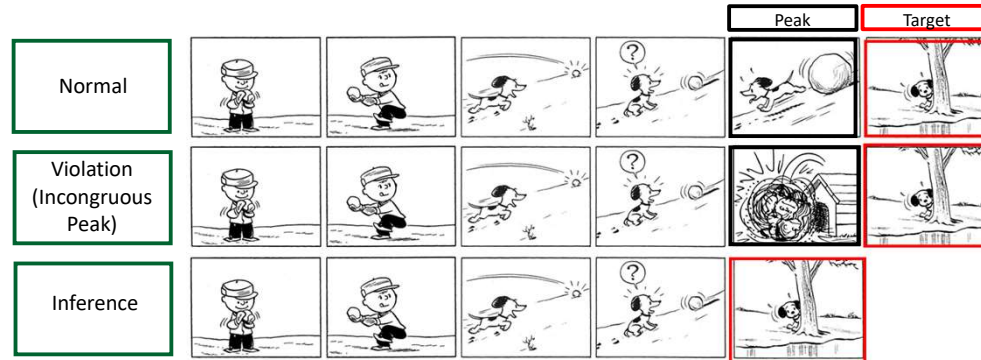


Figure 4: Violation conditions elicited the longest viewing times at both Peak and Target panels, followed by inference conditions (Target panel only) and normal conditions. AQ score did not interact with condition.

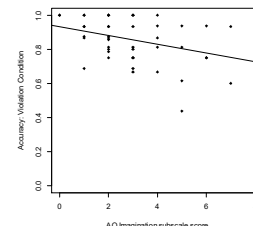


Figure 5: Higher scores on the AQ Imagination subscale (indicating increased difficulties with imagination) were associated with lower accuracy for the comprehension questions in the violation condition.

DISCUSSION

- Visual language fluency appears to be associated with AQ scores; higher VLF scores were associated with increased RTs and accuracy for those in the low AQ group (Exp. 1)
- Increased difficulties with imagination were associated with lower accuracy in panel location detection across all conditions (Exp. 1) and the violation condition for comprehension questions (Exp. 2)

Main Finding:

Difficulties with inferencing may be related to difficulties with imagination in individuals across the autism spectrum

REFERENCES

¹Zwaan, R. A., & Radvansky, G. A. (1998). Situation models in language comprehension and memory. *Psychological Bulletin*, 123(2), 162-185. <https://doi.org/10.1037/0033-2909.123.2.162>

²Jolliffe, T., & Baron-Cohen, S. (2000). Linguistic processing in high-functioning adults with autism or Asperger's syndrome. Is global coherence impaired? *Psychological Medicine*, 30(5), 1169-1187. <https://doi.org/10.1017/S003329179900241X>

³Nuske, H. J., & Bavin, E. L. (2010). Narrative comprehension in 4-7-year-old children with autism: Testing the Weak Central Coherence account. *International Journal of Language & Communication Disorders*, 45(1), 108-124. <https://doi.org/10.1080/13682822.2010.484847>

⁴Saldanha, D., & Frith, U. (2007). Do readers with autism make bridging inferences from world knowledge? *Journal of Experimental Child Psychology*, 96(4), 310-319. <https://doi.org/10.1016/j.jecp.2006.11.002>