

The Relationship Between Sensory Reactivity and Executive Functioning in Autistic Young Adults

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Introduction

Background:

- Sensory processing^{1,2} and executive functioning (EF) challenges³ are common among autistic individuals across the lifespan.
- Sensory Integration Theory suggests higher-order cognitive processes like EF skills are associated with stimulus-driven sensory processing⁴.
- Sensory processing differences predicted EF challenges (i.e., inhibitory control and sustained attention) in autistic children⁵.

Research Gap:

- No research has focused on sensory processing differences and their association to EF challenges in autistic young adults (AYAs)^{2,5}.

Aims:

1. To describe sensory reactivity patterns in AYAs
2. To explore associations between sensory reactivity and EF in AYAs

Methods

Participants:

- 36 autistic young adults
- Ages: 18-29
- 17 females, 15 males
- 4 gender-diverse individuals

Measures:

Adult Sensory Questionnaire (ASQ)⁶

- Self-report
- 26 True/False statements

Behavior Rating Inventory of Executive Function – Adult Version (BRIEF-A)⁷

- Self-report
- Nine clinical scales → Behavioral Regulation Index (BRI) and Metacognition Index (MI)

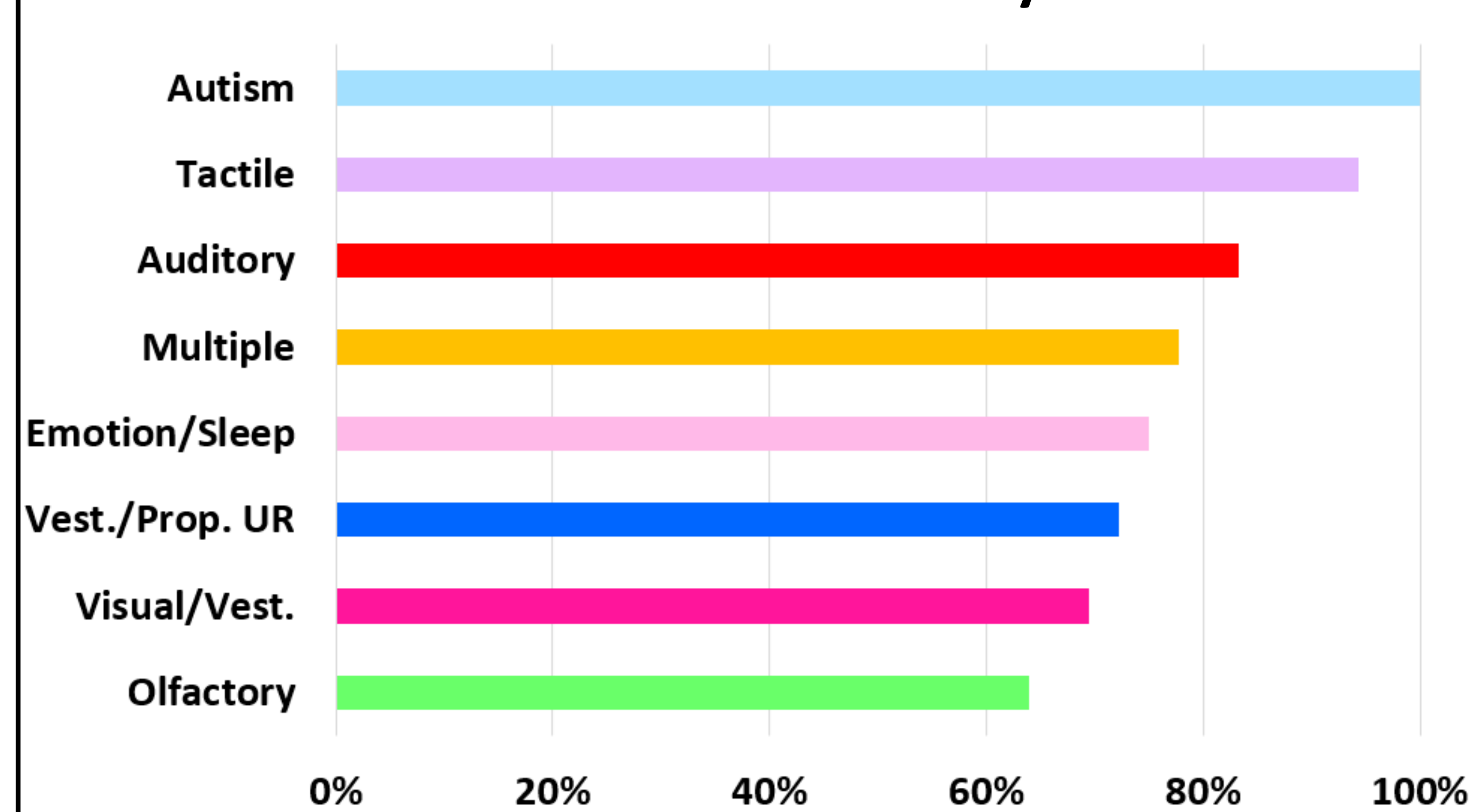
Data Analysis:

- Frequencies of ASQ items to identify most endorsed items
- Pearson correlations between the ASQ and all BRIEF scores
- Ordinary Least Squares multiple regression with BRI, MI, and male gender predicting ASQ total

Results

Aim 1:

Figure 1: ASQ Frequencies of At Least One True Item in Each Sensory Domain



Note. UR = under-responsivity; any other sensory system = over-responsivity.

- **Figure 1:** The top 3 categories with at least one true item reported by AYAs were Autism, Tactile, and Auditory.
- **Table 1:** The most frequently endorsed items represented coping strategies that we conceptualized as associated with autistic traits (e.g., desire for control), auditory sensitivity, and tactile sensitivity.
- The least endorsed items (below 50%) were related to visual and vestibular over-responsivity.

Aim 2:

Table 2: OLS Multiple Regression Results for ASQ Total Score

	B	SE	B (Std.)	p	95% CI	
					LB	UB
$R^2 = .48$						
Constant	0.72	4.05		0.86		
Behavior Regulation Index	0.1	0.09	0.2	0.283	-0.082	0.273
Metacognition Index	0.17	0.07	0.42	0.026	0.022	0.325
Male gender	-3.52	1.55	-0.3	0.03	-6.678	-0.356

- Pearson correlations between the ASQ total score and all BRIEF scores were all significant, with moderate to strong positive correlations ($r = .37$ to $.63$; p 's $< .05$).
- OLS multiple regression: More MI challenges were associated with greater sensory reactivity and male gender was associated with less sensory reactivity

Conclusions

Discussion:

- Findings align with a recent study, which found auditory and tactile over-sensitivity to be among the most commonly experienced sensory reactivity in autistic adults².
- Auditory and tactile overreactivity may be particularly challenging for AYAs. In the contexts of young adulthood (e.g., school or work), AYAs may be especially susceptible to experiencing these sensory differences.
- Metacognitive skills (e.g., planning ahead of time and organizing one's environment) may be particularly important for AYAs as they navigate the impacts of their sensory experiences.
 - This may be especially true in young adulthood, when young adults have opportunities to make decisions more independently.

Implications:

- It is important to ensure that AYAs are getting adequate support and accommodations for their sensory processing needs⁸ and that the role of EF is considered in their sensory processing differences.

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