The relationship between sensory subtypes and adaptive behavior in autistic children 6-18 years old

Sabrina Kabakov, OTD/PhD Student
About me

Sabrina Kabakov
OTD/PhD student at the University of Wisconsin at Madison

Research interest:

• Ways to classify the impact of sensory processing

• How sensory can impact participation in neurodevelopmental disorders

• Interested in expanding research into other populations like cancer
Acknowledgements

Dr. Brittany Travers, PhD, University of Wisconsin at Madison

Dr. Karla Ausderau, PhD, OTR, FAOTA University of Wisconsin at Madison

Dr. John Sideris, PhD University of Southern California

The Motor and Brain Development Lab
Waisman Center, University of Wisconsin-Madison

Funding:
Hartwell Foundation’s Individual Biomedical Award, NICHD/NIMH R01 HD094715, Brain and Behavior Research Foundations’ NARSAD Young Investigator Award, the Eunice Kennedy Shriver National Institute of Child Health and Human Development
Adaptive behavior is defined as the skills required for participation in everyday environments that include but are not limited to communication, daily living skills, and social skills (Tassé et al., 2012).
Background

54-97% of autistic children have differences in sensory processing (Dellapiazza et al., 2018; Jussila et al., 2020; Kirby et al., 2020; Ahmed et al., 2021; Daly et al., 2022; Dellapiazza et al., 2020; Kirby et al., 2019; Neufeld et al., 2021).

Lower adaptive behavior skills

(Dellapiazza et al., 2018; Jussila et al., 2020; Kirby et al., 2022)
Background

- Sensory processing can be categorized into sensory patterns

  Hyper-responsiveness
  Hypo-responsiveness
  Sensory interests, repetitions, and seeking behaviors (SIRS)
  Enhanced perception

(Ausderau et al., 2014b)
Background

Hyper-responsiveness

Hypo-responsiveness

Sensory interests, repetitions, and seeking behaviors (SIRS)

Enhanced perception

(Ausderau et al., 2014b; Kuiper et al., 2019; Scheerer et al., 2021).
Background

Background information (Ausderau et al., 2014a).
The goal of this study was to better understand how the **four sensory subtypes** were associated with **adaptive behavior** influencing daily participation.
Methods

• Data from 119 autistic children 6-18 years (mean=10.6) was used in a secondary analysis

• Inclusion criteria
  • Prior diagnosis of autism
  • Speak and understand English
  • IQ score greater than 60
  • Needed to be able to complete an MRI for the larger study
Methods

- Measures:
  - Sensory subtyping:
    - Sensory Experience Questionnaire, version 3 (Baranek, 2009)
    - Social Responsiveness Scale, 2nd edition (Constantino & Gruber, 2012)
  - Adaptive behavior
    - Vineland Adaptive Behavior Scales, Version 2 (Sparrow et al., 2005)

- Statistics: Non-parametric Kruskal Wallis Test with post hoc tests (p-value <0.05)
## Results - Demographics

<table>
<thead>
<tr>
<th>Category</th>
<th>Number (n)</th>
<th>Males Percentage</th>
<th>White, non-Hispanic Percentage</th>
<th>Age Mean ± Standard Deviation</th>
<th>IQ Score Mean ± Standard Deviation</th>
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</thead>
<tbody>
<tr>
<td><strong>Mild (n= 54)</strong></td>
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<tr>
<td>Males:</td>
<td>46 (85.2%)</td>
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<td>White, non-Hispanic:</td>
<td>47 (87.0%)</td>
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<tr>
<td>IQ score:</td>
<td>101.8 ± 17.6</td>
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<tr>
<td>Age:</td>
<td>11.3 ± 3.44 years old</td>
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<td><strong>Sensitive-Distressed (n= 45)</strong></td>
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<td>Males:</td>
<td>37 (82.2%)</td>
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<tr>
<td>White, non-Hispanic:</td>
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<tr>
<td>IQ score:</td>
<td>98.9 ± 16.4</td>
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<td>Age:</td>
<td>10.7 ± 3.25 years old</td>
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<td><strong>Attenuated-Preoccupied (n= 9)</strong></td>
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<td>IQ score:</td>
<td>102.9 ± 23.1</td>
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<tr>
<td>Age:</td>
<td>7.5 ± 1.24 years old</td>
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<tr>
<td><strong>Extreme-Mixed (n=11)</strong></td>
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Results

Sensory Subtypes
- Mild (n=42)
- Sensitive-Distressed (n=32)
- Attenuated-Preoccupied (n=7)
- Extreme-mixed (n=9)
Results

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## Discussion

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Discussion

• Between sensory subtyping methodology a mild subtype is consistently found (Ausderau et al., 2016; Kadlaskar et al., 2022; Lane et al., 2010; Tillmann et al., 2020; Tomchek et al., 2018)

• Identifying children in the extreme-mixed subtype and providing supports to target adaptive behavior can increase their participation
Implications for OS

- Understanding the co-occurring sensory pattern is one method to support participation in meaningful occupations

- The ultimate vision of the future of Occupational Science is ensuring all individuals regardless of sensory processing differences can participate in meaningful occupations
1. What are ways to identify the link between sensory subtypes and childhood occupational performance?

2. How might sensory subtypes support clinicians in understanding sensory differences in autistic children that are strengths?

3. How might capturing co-occurring sensory patterns be applied to other areas of occupational performance in children?
References


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- Sensitive-Distressed (n=38)
- Attenuated-Preoccupied (n=8)
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