Lexical Processing by Toddlers with ASD

Participant Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>TD (n=31; 15 females)</th>
<th>ASD (n=30; 6 females)</th>
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<tbody>
<tr>
<td>Age (months)</td>
<td>21.1 ± 4.9</td>
<td>30.6 ± 3.4</td>
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<tr>
<td>Bayley - Raw Score</td>
<td>60.4 ± 9.6</td>
<td>58.6 ± 10.1</td>
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<tr>
<td>Bayley - Composite Score</td>
<td>106.8 ± 11.8</td>
<td>80.8 ± 14.0</td>
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<tr>
<td>CDI – Words Understood</td>
<td>278.3 ± 90.7</td>
<td>140.2 ± 107.1</td>
</tr>
<tr>
<td>ADOS Autism Severity</td>
<td>8.4 ± 1.9</td>
<td>14.0 ± 1.9</td>
</tr>
<tr>
<td>Maternal Education (yrs)</td>
<td>18.1 ± 2.9</td>
<td>14.0 ± 1.9</td>
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RESULTS

Baseline Condition

“Look at the shoe.”

Semantically Related Condition

“Look at the apple.”

Perceptually Related Condition

“See the cake.”

Figure 1

• Results were analyzed using growth curve analysis (Mirman, 2014); the outcome was log odds of looking to target.

• Two models were constructed; each contained: condition, linear, quadratic, and cubic time terms as fixed effects, and participant and participant by condition random effects.

• The first model revealed that the TD group looked to the target significantly more than the ASD group overall (Figure 1).

• A condition effect was also found such that lexical processing accuracy was significantly better in the baseline condition (unrelated images) than the perceptually similar or semantically similar conditions.

• There were no significant group by condition interactions.

Figure 2

• A second model of the ASD group alone revealed a significant three-way interaction. As vocabulary size decreased, children’s processing speed (i.e., linear slope) was more disrupted by perceptually-similar distracters as compared to the other conditions (illustrated as a median split in vocabulary level in Figure 2).

• Although toddlers with ASD had lower accuracy than the cognition-matched TD toddlers, lexical processing in both groups was affected by the cognitive and perceptual similarity of distracter images.

• Toddlers with ASD who had smaller receptive vocabularies were more disrupted by distracter images that looked similar to the target than images that were semantically related or unrelated.

• Overall group comparisons failed to provide evidence for the weak central coherence hypothesis. However, within-group analyses provide partial support for weak central coherence for toddlers with ASD who have small vocabularies.

REFERENCES


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