1. Background

- Autism spectrum disorder (ASD) is primarily diagnosed in boys (4:1; [1]).
- ASD girls have been underdiagnosed and excluded from many studies, rendering it urgent to understand this subgroup.
- Few studies have included sufficient numbers of girls to assess sex differences, and even fewer have compared ASD girls to typically-developing (TD) girls.
- This study begins to fill that gap by analyzing speech/pause duration in a large sample of boys and girls with and without ASD.

2. Objective

- Measure effects of sex and diagnosis on quantitatively derived speech/pause patterns in girls and boys with and without ASD during natural conversations

3. Participants

<table>
<thead>
<tr>
<th>ASD (n=45)</th>
<th>TD (n=47)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>11.5 (2.8)</td>
<td>10.1 (2.8)</td>
</tr>
<tr>
<td>Sex</td>
<td>16 F &amp; 29 M</td>
<td>24 F &amp; 23 M</td>
</tr>
<tr>
<td>IQ</td>
<td>105.8 (12.1)</td>
<td>108.6 (12.3)</td>
</tr>
<tr>
<td>ADOS-2 overall</td>
<td>6.4 (2)</td>
<td>1.2 (0.4)</td>
</tr>
</tbody>
</table>

4. Methods

- 5-min "get-to-know-you" conversations with a young adult confederate
- A speech activity detector time-segmented recordings into speech and silence segments.
- Speaker diarization with time-stamped transcripts
- Silence: coded as within-or between-turn silence
- Between-turn silences: coded as Participant-to-Confederate or Participant-Confederate

5. Measurements and analysis

- Total duration of speech time
- Mean speech segment duration
- Mean speech segment rate (segment per minute)
- Mean within-turn or between-turn pause duration
- Within- or between-turn pause rate (per minute)
- Group comparison
- Regression analysis with clinical measurements

6. Results

7. Summary

- Total speech time: ASD girls > all others
- Mean speech segment duration: ASD girls > TD girls
- Speech segment rate: ASD girls > all others
- Within-turn pause rate: ASD girls > ASD boys & TD boys
- Between-turn pause duration: ASD girls < ASD boys
- Between-turn pause rate: ASD girls < ASD boys
- Frequent within-turn pauses: higher adaptive behavior scores and social responsiveness scores for ASD girls.

8. Conclusion

- ASD girls speak differently from ASD boys, but may also differ from TD girls and boys. Their conversational behaviors that conflict with a male-referenced conceptualization of ASD may interact with clinical biases, thus reducing access to ASD-specific supports.

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