The Use of Paralinguistics in Spontaneous Speech of Adolescents with Williams Syndrome and Typically Developing Adolescents
Researchers/Presenters

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Williams Syndrome

“How is it possible to conceptualize a group of children who test as though retarded, speak as though gifted, behave sometimes as though emotionally disturbed, and function like the learning disabled?” (Semel & Rosner, 2003, p. 1)
Characteristics

• Physical
  - “pixie-like” appearance, shared distinctive features within their disorder group, wide mouth, prominent eyes, and early feeding problems

• Behavior
  - “Cocktail” party personality, outgoing, friendly even with strangers
  - High sensitivity to sounds which can result in unusual fears and anxieties with unfamiliar things

Language Characteristics

- Delayed language growth
- Words develop before nonverbal gestures
- Mispronunciations of multi-syllabic words
- Effective use of prosody
- Relatively strong receptive and expressive skills for their cognitive level
- Good semantic skills and a generally large vocabulary
- Excessive use of circumlocution

Question

• Do adolescents with Williams syndrome (WS) produce significantly more paralinguistic behaviors than do typically developing (TD) adolescents?
Definition of Paralinguistics

The definition of composite paralinguistics (CP) for this study is the combination of:

- **Sound Effects (SE):** The imitation of environmental noises, such as action sounds.

- **Laughter (L):** To show amusement through vocal intonation of utterances in conversation.
Methods

- Participants:
  - 12 adolescents with Williams syndrome between the ages of 10 to 17
  - 12 typically developing adolescents matched for age and gender
  - All participants lived in the upper Midwest
Methods cont’d

• Procedure:
  
  – Transcripts and audiotapes for each adolescent were evaluated for laughter and sound effects.
  
  – The behaviors were tallied individually and entered into SALT.
  
  – The (ratio) percentage of each behavior and the composite score was calculated by dividing the number of behaviors by the total number of utterances that were in the sample.
  
  – Interjudge reliability for coding sound effects and laughter was 100%.
## Results

<table>
<thead>
<tr>
<th>Calculations for Laughter</th>
<th>Williams syndrome participants(%)</th>
<th>Typically developing participants(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>0-35</td>
<td>1-19</td>
</tr>
<tr>
<td>Mean</td>
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<td>9</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>10</td>
<td>8</td>
</tr>
</tbody>
</table>
## Results

<table>
<thead>
<tr>
<th>Calculations for Sound Effects</th>
<th>Williams syndrome participants(%)</th>
<th>Typically developing participants(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
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<td>0-6</td>
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<tr>
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<td>1</td>
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<td>Standard Deviation</td>
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</table>
## Results

<table>
<thead>
<tr>
<th>Calculations for Composite Paralinguistics</th>
<th>Williams syndrome participants(%)</th>
<th>Typically developing participants(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
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<td>0-30</td>
</tr>
<tr>
<td>Mean</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>11</td>
<td>8</td>
</tr>
</tbody>
</table>
Results

Mean Occurrence per Utterance

Participant Behaviors

- L
- SE*
- CP

TD
WS

* Difference was significant (p = .015)
# t-Test Results

<table>
<thead>
<tr>
<th>TD L</th>
<th>WS L</th>
<th>TD SE</th>
<th>WS SE</th>
<th>TD CP</th>
<th>WS CP</th>
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<td>0.02</td>
<td>0.06</td>
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<tr>
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<td>t-test</td>
<td></td>
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</tbody>
</table>
t-Test Results

- Laughter:  
  \[ p = 0.45 \]
- Sound Effects:  
  \[ p = 0.015 \]
- Composite Paralinguistics:  
  \[ p = 0.14 \]
Results Interpretation

• Adolescents with WS use significantly more sound effects than their TD peers.

• Adolescents with WS exhibit comparable results to their TD peers in reference to laughter and the composite measure.
Conclusion

• Overall, Williams syndrome (WS) participants did not exhibit the composite dependent variable (paralinguistics) more often than their typically developing (TD) age-matched participants.

• TD and WS participants demonstrated significant differences in the rate of production of sound effects.

• Laughter and composite paralinguistics were used at similar rates for the TD and WS participants.
Data Interpretation - Outliers

• In this study, outliers were characterized by high amounts of targeted behaviors as compared to the mean.

• Our view is that the general population may see the outliers as a representation for the entire WS population.

• This stereotyping is a common strategy used to characterize people with disabilities.

• Upon seeing someone with a syndrome who exhibits an atypical behavior, one may associate all people with this syndrome as having these characteristics.

• It is important not to over generalize and assume that all people with WS exhibit these behaviors.