Grammar Outcomes of a Narrative Intervention for Adolescents with Fragile X Syndrome

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Introduction

- Fragile X syndrome (FXS) is the leading inherited cause of intellectual disability.
- FXS is caused by excessive repeats of a trinucleotide (CGG) sequence in the fragile X mental retardation 1 (FMR1) gene on the X chromosome.
- FXS affects approximately 1 in 4,000 males and 1 in 8,000 females.
- Few interventions that aim to improve the grammatical language skills of children with FXS have been designed and tested.

Study Purpose

- This study aimed to evaluate the potential grammatical growth of three children with FXS who received language intervention.
- Results from this study will be used to determine if the analyses are sensitive to detecting grammatical growth.

Method

- The project involved secondary analyses of existing data from three adolescents with FXS.
- The Developmental Sentence Scoring (DSS) system was used for analysis of the language samples.
- The intervention plan coached parents to use books to support their child’s language development and production.
- 5-7 baseline sessions
- 12 parent-only sessions
- 12 examiner-present sessions

Outcomes

- Each of the three children’s language samples were scored efficiently to the DSS coding system.
- No statistical breakthroughs in language development.

Developmental Scoring System

- The DSS system scores sentences according to their grammatical complexity.
- Eight categories with values of 1-8 assigned to each use of the child’s form.
- Scores closer to 1 indicate less grammatical complexity than scores closer to 8.

DSS Chart

<table>
<thead>
<tr>
<th>Session</th>
<th>Indefinite Pronouns or Noun Modifiers</th>
<th>Personal Pronouns</th>
<th>Main Verbs</th>
<th>Secondary Verbs</th>
<th>Negatives</th>
<th>Conjunctions</th>
<th>Interrogative Reversals</th>
<th>Wh- Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>who, that</td>
<td>3rd Person</td>
<td>A. uninflected verbs</td>
<td>B. auxiliary verbs</td>
<td>C. passive with be</td>
<td>D. obligatory do + verb</td>
<td>E. passive imperative + verb</td>
<td>F. Wh-words+inf.</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>he, she, it</td>
<td>A. are + verb</td>
<td>B. auxiliary verbs</td>
<td>C. passive with be</td>
<td>D. obligatory do + verb</td>
<td>E. passive imperative + verb</td>
<td>F. Wh-words+inf.</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>none, nobody</td>
<td>A. can, will, may + verb</td>
<td>B. obligatory do + verb</td>
<td>C. passive with be</td>
<td>D. obligatory do + verb</td>
<td>E. passive imperative + verb</td>
<td>F. Wh-words+inf.</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>first, last,</td>
<td>A. 3rd Person</td>
<td>B. obligatory do + verb</td>
<td>C. passive with be</td>
<td>D. obligatory do + verb</td>
<td>E. passive imperative + verb</td>
<td>F. Wh-words+inf.</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>all, many, how</td>
<td>A. could, should, might + verb</td>
<td>B. obligatory do, did-verb</td>
<td>C. passive with be</td>
<td>D. obligatory do, did-verb</td>
<td>E. passive imperative + verb</td>
<td>F. Wh-words+inf.</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>how, how much</td>
<td>A. who, whom</td>
<td>B. obligatory do, did-verb</td>
<td>C. passive with be</td>
<td>D. obligatory do, did-verb</td>
<td>E. passive imperative + verb</td>
<td>F. Wh-words+inf.</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>anyone, everybody</td>
<td>A. passive with get, any tense</td>
<td>B. passive with get, any tense</td>
<td>C. passive with get, any tense</td>
<td>D. have got</td>
<td>E. passive imperative + complement</td>
<td>F. all other negatives</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>some, anyone</td>
<td>A. passive with get, any tense</td>
<td>B. passive with get, any tense</td>
<td>C. passive with get, any tense</td>
<td>D. have got</td>
<td>E. passive imperative + complement</td>
<td>F. all other negatives</td>
</tr>
</tbody>
</table>

Clinical Implications & Future Research

- Results do not suggest clinical gains based on the DSS measure of grammatical complexity.
- These findings could be due to the treatment not being efficacious or the measure not being appropriate.
- Further studies need to be done to determine if there are measures more sensitive to language growth in this population.

Acknowledgments

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Key References