Comparing Intervention Approaches to Lessen Severity of Stuttering in Preschool Children: A Systematic Review

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Introduction

Over the past ten years, evidence has shown controversy over which types of intervention approaches lessen stuttering severity in children who stutter (CWS).

**TYPES OF INTERVENTION APPROACHES**

- **Direct**
  - Modifying the child’s speech to promote adequate fluency. The Lidcombe Program (LP) is a widely-used operant conditioned based treatment program which is implemented to directly focus on correcting the child’s dysfluency (Miller and Guitar, 2009).
- **Indirect**
  - Modifying the child’s environment to promote fluency. Parents slowing rate of speech and asking less questions when talking to their children (ASHA, 2019).
- **Hybrid**
  - The Demands and Capacities Model (DCM) created by Woodruff Starkweather. Changes made in the child’s environment may increase the child’s capacity to speak fluently. (Starkweather, 2000).

Methods

**Research terms included:**

- (stuttering OR dysfluency) AND ((treatment OR intervention))
- PsychoInfo = 4,193
  - PubMed = 377,295
  - ERIC = 104
  - Total N = 321,592

- Articles based on abstract from 2008 to present
  - N = 238

- Articles based on age range
  - N = 69

- Articles based on type of intervention (e.g., direct, indirect, hybrid)
  - N = 7

- Articles based on stuttering severity of children
  - N = 23

- Reference provided by Sheryl Gottwald, PhD

**Results**

<table>
<thead>
<tr>
<th>Author and Research Design</th>
<th>Number of Participants</th>
<th>Treatment Approach</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laterman (2008)</td>
<td>N = 46</td>
<td>Lidcombe Program (direct)</td>
<td>Preschool children who receive speech treatment immediately after the Lidcombe Program have a higher likelihood of reducing their stuttering severity compared to those who wait a period without seeking treatment.</td>
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<td>Randomized controlled trial</td>
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<td>Miller and Guitar (2009)</td>
<td>N = 15</td>
<td>Lidcombe Program (direct)</td>
<td>11 out of 15 children were not stuttering at the long-term follow up assessment, as measured by the Stuttering Severity Instrument-3rd Edition (SSI-3) scale. The remaining 4 were identified as “very mild” or “mild”.</td>
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<tr>
<td>Longitudinal multiple single-subject design</td>
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<tr>
<td>Ferrell et al. (2012)</td>
<td>N = 10</td>
<td>Lidcombe Program (direct)</td>
<td>8 out of 10 participants reduced their stuttering severity by 98%; these results were maintained for 2 years. Additionally, parents reported they were satisfied with the Lidcombe Program.</td>
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<tr>
<td>Semi-controlled prospective study</td>
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<td>Bridgen et al. (2016)</td>
<td>N = 49</td>
<td>Lidcombe Program (direct)</td>
<td>No significant difference was found between the group who received Lidcombe treatment and the group who received the Lidcombe treatment in the clinic.</td>
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<td>Randomized controlled trial</td>
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<td>O’Brien, Smith, and Onslow (2014)</td>
<td>N = 33</td>
<td>Lidcombe Program (direct)</td>
<td>The parent-reported stuttering severity aligned with actual severity measurements via SS%. Parents were overall pleased with webcam delivery service for their CWS and that learning to manipulate the webcam equipment was not difficult.</td>
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<td>Phase I clinical trial</td>
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<td>Millard and Cook (2008)</td>
<td>N = 6</td>
<td>Palin Parent Child Interaction Therapy (PCIT) (indirect)</td>
<td>5 out of 6 children lessened their severity of stuttering after a SLP trained mothers to reduce their rate of speech to match the child. Although both mothers and fathers were trained, better outcomes resulted from mothers change in speech.</td>
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<td>Longitudinal, multiple single-subject design</td>
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<td>Sawyer et al. (2017)</td>
<td>N = 17</td>
<td>Palin Parent Child Interaction Therapy (PCIT) (indirect)</td>
<td>12 out of 17 children reduced their severity of stuttering when parents used slow relaxed speech (i.e. elongated vowels, not too “sing-songy”) during conversation with their children.</td>
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<td>Longitudinal, multiple single-subject design</td>
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<td>Sonnevile-Koodoet et al. (2015)</td>
<td>N = 199</td>
<td>Demands and Capacities Model (DCM) (hybrid)</td>
<td>The LP was suggested to reduce the child’s stuttering at a faster rate (i.e. within the first 3 months of treatment) than the DCM. All participants reduced their stuttering by 18 months after treatment, indicating that there was no significant difference between the LP and DCM (i.e. direct and hybrid) in the long-term.</td>
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<td>Randomized controlled trial</td>
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Discussion

- According to this systematic review, the Lidcombe Program (direct) is the most widely researched, using higher quality evidence as compared to indirect and hybrid approaches.
- The Palin Parent-Child Interaction Therapy (PCIT) is an effective way to lessen severity of stuttering in preschool children by empowering parents to be a part of their child’s treatment.
- The Demands and Capacities Model (DCM) was just as effective in lessening stuttering severity as the Lidcombe Program.

Directions for Future Research

- **Need for more high-quality research designs (i.e. randomized controlled trials) across all three approaches.**
- **More evidence needed to evaluate efficacy in both indirect and hybrid intervention approaches.**
- **Guitar and Miller (2009) were the only authors who evaluated their participants’ speech using the SS-3.** It would yield both reliability and validity as well as eliminate bias if the SS-3 was calculated via such a standardized assessment by a speech-language pathologist (SLP) who is qualified to interpret the scores given.

References