Effects of Intensive Voice Treatment on Cluttering: A Case Study

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1. BACKGROUND AND RATIONALE

Cluttering: A fluency disorder characterized by a rate that is perceived to be abnormally rapid, irregular, or both for the speaker (although measured syllable rates may not exceed normal limits). These rates abbreviations further are manifest in one or more of the following symptoms:

(a) the excessive number of disfluencies, the majority of which are not typical of people who stutter;

(b) the frequent placement of pauses and use of prosodic patterns that do not conform to syntactic and semantic constraints;

(c) inappropriate (usually excessive) degrees of coarticulation among sounds, especially in multisyllabic words. (St. Louis, Bakker, Raphael, & Story, 2007, pp. 293-300).

Rate of speech is arguably the most important factor in cluttering and is considered by St. Louis (2007) to be central to the disorder and its treatment. No standard approach to therapy for cluttering has yet been established.

Lee Silverman Voice Treatment (LSVT® LOUD):

The LSVT® LOUD methods originated for use with populations with dysarthria and Parkinson's disease (Ramig et al., 2001; Ramig, Sapir, Fox, & Countryman, 2001). The 4-week intensive program centers around the concept of “think loud.” Prophetic effort, or loudness, has been shown to be a global variable because the “effects span the different levels of the speech production mechanism: respiration, phonation, and articulation” (Dromey&Ramp, 1998, p. 1004).

Paring the loudness with selective cognitive tasks has been shown to improve other speech characteristics, including slower rate of speech and cleaner articulation (Sapir et al., 2003).

Purpose: This study examined the effects of the Lee Silverman Voice Treatment (LSVT® LOUD) program on a client with a diagnosis of cluttering to test the outcomes of training loudness for:

• Speech rate
• Articulation

2. METHODS

Participant: 27-year old male diagnosed with moderate cluttering and mild stuttering, who had received no form of therapy in the last 20 years.

LSVT®LOUD treatment:

• 16 individual 60-minute sessions over a 4-week period
• Repetitive high-effort vocal exercises aimed at training healthy loudness
• Tasks:
  • Maximum sustained phonation, pitch glides, and repetition of ten functional phrases
  • Hierarchical speech tasks (repetition, reading, conversation)
  • Daily home practice and carryover exercises for generalization

Data Collection:

Baseline data were collected on three consecutive days before treatment. Posttreatment data were collected on two consecutive days after treatment and one day six months post-treatment by an experimenter who was not involved in administering treatment. Rate of speech was then measured in syllables per minute and compared pre- and post-treatment. Perceptual ratings of loudness, articulation, and rate of speech were compared for pre- and post-treatment speech samples. The task was repeated with the presentation order reversed and presented as a “new pair” for 14 of the listeners to rate in order to assess intra-listener (test-retest) reliability. Analysis of the listeners’ raters indicated the following reliability results:

- Objective speech rate data did not appear to drop significantly in the assessments immediately following treatment; however, long-term effects were seen in the follow-up assessment 6 months post-treatment.
- Although objective data on speech rate was not taken during treatment, the participant received frequent subjective positive feedback from those around him regarding improved intelligibility and slower rate. He shared that he was more able to keep up with the teacher's pace.
- At the beginning of the third week of treatment, the participant became ill with a respiratory infection. This illness hindered his ability to complete the training with the required intensity and may have impacted his performance and outcomes. He was still very ill for the two immediate post-treatment data sessions, which may explain in part the difference between immediate post-treatment and follow-up data points.
- The participant received no further treatment in the 6-months following the LSVT® LOUD program prior to the follow-up assessment. He maintained the loudness established in treatment, continuing “to think loud” in his daily communication.

Data Analysis:

Table 1. Perceptual Ratings Intrater and Interater Reliability

<table>
<thead>
<tr>
<th>Reliability</th>
<th>Rating of Sentence Repetition Task</th>
<th>Rating of Picture Description Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrater</td>
<td>Loudness</td>
<td>Articulation</td>
</tr>
<tr>
<td>14</td>
<td>79%</td>
<td>79%</td>
</tr>
<tr>
<td>Intrater</td>
<td>37</td>
<td>78%</td>
</tr>
</tbody>
</table>

4. SUMMARY & CONCLUSIONS

Results showed that targeting the global variable, loudness, in the Lee Silverman Voice Treatment (LSVT® LOUD) program, resulted in reduced rate of speech and perceptually improved articulation in an individual who clutters.

Given that the participant became ill and was unable to complete the therapy at the recommended intensity, it is recommended that the study be replicated to assess whether there would be similar results and whether the results immediately post-treatment would show an even further reduction in rate of speech.

References


