

**Critical Review:
Effectiveness of Telehealth Delivery of the Lidcombe Program for Preschool Children Who Stutter**

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This study reports a critical review examining the effectiveness of telephone-based and webcam-based telehealth delivery of the Lidcombe Program in reducing frequency of stuttering in preschool children. Studies evaluated included two randomized controlled trials, two case studies, and one single group pre-test post-test design. Significant, long-term reductions in stuttering frequency were observed across all studies. Overall, findings suggest that telehealth delivery of the Lidcombe Program appears to offer a viable alternative to standard delivery of the program for preschool children who stutter

Introduction

Approximately 5% of children begin to stutter with about 74% of these individuals recovering naturally within two years of stuttering onset (Lewis et al., 2008). However, current research does not enable the speech-language pathologist (SLP) to predict whether a child will recover naturally or will continue to stutter in the absence of intervention (Lewis et al., 2008). Therefore, it is essential that children who stutter receive intervention during the preschool years because stuttering becomes less responsive to treatment as children increase in age (Lewis et al., 2008).

The Lidcombe Program is a two-stage behavioral treatment program developed for children under the age of six who stutter (O'Brian et al., 2014). During Stage 1 of the program, parents attend one-hour weekly sessions at the clinic with their child (Lewis et al., 2008). The SLP trains parents to present three verbal contingencies for stutter-free speech (acknowledgement, praise, request for self-evaluation) and two verbal contingencies for unambiguous stuttering (acknowledgement, request for self-correction) (Onslow et al., 2003). The parent implements these contingencies when communicating with their child in everyday situations (Lewis et al., 2008). The SLP measures the child's stuttering frequency in percentage of syllables stuttered (%SS) during each clinic visit (Lewis et al., 2008). In addition, parents are trained to measure stuttering each day on a ten-point severity rating scale in which 1 = no stuttering, 2 = extremely mild stuttering, and 10 = extremely severe stuttering (O'Brian et al., 2014). Stage 1 of the program is concluded when stuttering is absent or extremely mild (Lewis et al., 2008). This is classified as a stuttering frequency measure that is below 1%SS and a severity rating of 2 or lower which is maintained for three consecutive weeks (Onslow et al., 2003). During Stage 2, parents gradually withdraw treatment

and attend fewer clinic visits while the maintenance of treatment gains are monitored (O'Brian et al., 2014).

The Lidcombe Program has been found to be an effective early intervention program for preschool children who stutter, resulting in reductions of stuttering frequency to near-zero %SS which are maintained for two to seven years post-treatment (Wilson et al., 2004). However, the Lidcombe Program may not be accessible to all children who stutter that may benefit from it. Attendance at weekly clinic sessions may be a barrier for families who live remotely from speech-language pathology services (O'Brian et al., 2014). This is particularly the case for rural areas of large countries that are not densely populated, such as Canada and Australia. It can also affect families that have limited access to transportation, chronic health problems, work commitments, requests for multiple children. In addition, people who have

During Stage

of the Lidcombe Program effectively decreases frequency of stuttering.

Lewis et al. (2008) conducted a parallel group, open plan rando

which %SS scores were obtained for each child by two blinded SLPs specializing in stuttering. Appropriate statistical analyses were completed. Results indicated that 62% of children in the control group at 9-months post-randomization and 94% at 18-months post-randomization had completed Stage 1. In the experimental group, 67% at 9-months post-randomization and 100% at 18-months post-randomization had finished Stage 1. In addition, the data demonstrated that there was insufficient evidence of a post-treatment difference between the standard and webcam delivery of the Lidcombe program in %SS at 9 months and 18 months post-randomization.

Strengths of this study include clear inclusion and exclusion criteria, high intra-rater (.99) and inter-rater (.83) reliability, and its random allocation of participants to treatment condition. However, the results may be limited due to the use of the same treating SLP for all participants in all groups as the SLP was unable to be blinded to treatment condition and may introduce a bias towards a particular delivery model. Overall, this study provides compelling evidence that webcam delivery of the Lidcombe Program is similar in effectiveness to standard delivery of the program in reducing frequency of stuttering.

Discussion

Across studies, it was found that all participants receiving the Lidcombe Program via telehealth, whether by telephone or webcam, reached near-zero stuttering levels (%SS of less than 1). In addition, long-term maintenance of these treatment effects was observed in each study. Taken together, the results of the five reviewed studies provide equivocal to compelling evidence that the Lidcombe Program is an effective alternative to standard delivery of the program in terms of reducing frequency of stuttering.

The study by Harrison et al. (1999) provides equivocal evidence due to its low-level study design, extremely small sample size, modification of methodology during implementation, and lack of appropriate statistical analyses. Wilson et al. (2004) and O'Brian et al. (2014) provide suggestive evidence as they provided a clear description of methods and employed appropriate statistical analyses. However, these studies were still limited by their

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