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Parent verbal contingencies during the Lidcombe Program: Observations and statistical modeling of the treatment process

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ABSTRACT

Purpose: The purpose of this study was to document parent presentation of the Lidcombe Program verbal contingencies and model potential relationships between contingency provision and treatment duration.
Methods: Forty parent-child pairs undertaking the Lidcombe Program participated, 26 of whom completed Stage 1. All participants were included in the analyses. Parents completed weekly audio-recordings of treatment during practice sessions and a diary of treatment during natural conversations. The number and types of contingencies provided during practice sessions were counted for 520 recordings. Accelerated failure time modeling was used to investigate associations between contingency provision during the first 4 weeks of treatment and duration of time to complete Stage 1.
Results: During practice sessions 91% of contingencies were for stutter-free speech, 6.8% were for stuttering and 2.7% were incorrectly applied. Parents often combined several verbal contingencies into one. During natural conversations, the number of verbal contingencies reportedly provided across the day was low, an average of 8.5 ($SD = 7.82$) contingencies for stutter-free speech and 1.7 ($SD = 2.43$) for unambiguous stuttering. There was a positive, significant relationship between the number of verbal contingencies for stuttering provided during the first 4 weeks of treatment and time taken to complete Stage 1.
Conclusion: Parents mostly provided the expected types of contingencies but the number was lower than expected. An unexpected association was found between number of verbal contingencies for stuttering and treatment duration. Further research is required to explore the relation between rates of parent verbal contingencies, treatment process duration, and treatment outcome.

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1. Introduction

1.1. The Lidcombe Program

The Lidcombe Program is a parent-conducted, behavioral treatment developed for children aged younger than 6 years, administered with the training of a speech-language pathologist (SLP; Packman et al., 2015). While SLPs are strongly encouraged to attend Lidcombe Program Trainers Consortium training (Australian Stuttering Research Centre, 2015) prior to using the program with clients (Packman et al., 2015), this is not a mandated requirement (O'Brian et al., 2013), and student SLPs administering the Lidcombe Program receive their training in the treatment through their university course and clinical educator. As the program is parent-conducted, parents are trained to conduct Lidcombe Program treatment during weekly clinic visits with their SLP.

Speech-language pathologists teach parents to apply verbal contingencies to stuttering and stutter-free speech and to measure the child's stuttering daily in everyday situations (Packman et al., 2015). Verbal contingencies are comments made by the parents after moments of the child's stutter-free speech or unambiguous stuttering, the aim of both being to reduce the frequency of stuttering. These may be supplemented by non-verbal contingencies such as high-fives but non-verbal contingencies are not expected to replace the verbal contingencies. The Lidcombe Program no longer has a prescribed ratio for contingencies for stutter-free speech to those for stuttering (Packman et al., 2015). The expectation is that contingencies will be given for both stutter-free speech and unambiguous stuttering but more contingencies will be for stutter-free speech than for stuttering. Verbal contingencies are recommended to be provided only by SLP-trained parents in order to ensure that they are accurate, with the assumption that their inaccurate provision will cause slowed treatment and poorer outcomes.

Initially verbal contingencies are provided during practice sessions of 10–15 min duration, which are organized so that the child's level of stuttering is extremely low (Packman et al., 2015). As the treatment progresses the parent moves to providing verbal contingencies during natural conversations, which are everyday conversations with the child.[1] The Lidcombe Program is divided into two stages. The aim of Stage 1 is to reduce the child's stuttering to extremely low levels (a severity rating of 1 or 2 on a 10-point scale; 1 = no stuttering, 2 = extremely mild stuttering, 10 = extremely severe stuttering).[2] The aim of Stage 2 is to maintain these low levels over the course of at least a year. Pre-treatment severity has been consistently shown to be a predictor of the time required for preschool children to complete Stage 1 (Jones, Onslow, Harrison, & Packman, 2000; Kingston, Huber, Onslow, Jones, & Packman, 2003; Koushik, Hewat, Shenker, Jones, & Onslow, 2011). A meta-analysis of three clinical audit studies found that children with a pre-treatment severity of <5 percentage syllables stuttered (%SS) had double the odds of a shorter Stage 1 duration than children who had a pre-treatment severity of between 5 and 9.9%SS, and more than five times greater odds of a shorter Stage 1 than children with a pre-treatment severity of ≥10%SS (Koushik et al., 2011). Age, gender and onset-to-treatment interval did not predict treatment duration.

The putative treatment agent in the Lidcombe Program is the verbal contingencies. The Lidcombe Program Treatment Guide (Packman et al., 2015) outlines five parent verbal contingencies. There are three parent verbal contingencies for stutter-free speech: *praise*, *acknowledge* and *request self-evaluation*, and two verbal contingencies for unambiguous stuttering moments: *acknowledge* and *request self-correction*. Parents can also respond positively to two non-essential responses by the child: *spontaneous self-acknowledgment of stutter-free speech* and *spontaneous self-correction of stuttering*. The treatment guide specifies that parents provide verbal contingencies during practice sessions, which are conducted once or twice each day, as follows:

> The parent typically sits with the child at a table or on the floor in a quiet place, with suitable activities such as books and games. Such activities are not essential, however, and treatment . . . can be done in many situations, such as meal preparation, bath time, and shopping. (Packman et al., 2015, p. 8)

The treatment guide specifies that parents also provide verbal contingencies during natural conversations each day, as follows:

> . . . conversations of everyday life are never modified to optimize the occurrence of stutter-free speech. Instead, parents take advantage of naturally occurring periods of reduced stuttering severity during each day to present verbal contingencies. (Packman et al., 2015, pp. 8–9)

There are several randomized controlled trials in support of the Lidcombe Program (Arnott et al., 2014; de Sonneville-Koedoot, Stolk, Rietveld, & Franken, 2015; Jones et al., 2005; Lewis, Packman, Onslow, Simpson, & Jones, 2008) and evidence that it translates from research environments into generalist speech clinics (O'Brian et al., 2013). It is used internationally and

[1] The terms "practice sessions" and "natural conversations" are used in the current Lidcombe Program treatment guide (Packman et al., 2015), although the corresponding terms in previous versions of the treatment guide were "structured conversations" and "unstructured conversations." Although the former terms were used during the period during which this study was conducted, the latter terms are presented here.

[2] The current Lidcombe Program treatment guide (Packman et al., 2015) specifies a slightly different severity rating scale: 0 = no stuttering, 1 = extremely mild stuttering, 9 = extremely severe stuttering.