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A Preliminary Report on Outcomes of the American Institute for Stuttering Intensive Therapy Program

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Abstract

In this study, we documented the effects of a 3-week, intensive stuttering treatment program on overt and covert symptoms of stuttering and participants' levels of social anxiety. This study was a preliminary report in which we used a single-group pretest-posttest design to analyze outcomes data with reference to each participant individually and described general group trends. Researchers gave 5 adult participants who stuttered a battery of self-report instruments and collected speech samples before and after treatment. We found that disfluencies lessened considerably for all participants, although most continued to stutter at levels above those of normally fluent speakers. All participants except for 1 were far less negatively affected by stuttering after treatment and greatly reduced their reported levels of social anxiety. Several participants in this sample displayed pathological levels of social anxiety pretreatment. Preliminary data indicate that this intensive program generally achieved its stated goals of facilitating improved stuttering/speech management and psychological/attitudinal management. We need further investigations to document the durability of the gains reported herein, as well as the clinical implications of social anxiety as a comorbid condition in some persons who stutter.

Clinicians typically deliver treatment for people who stutter (PWS) in one of two formats. In the longer term approach, clients receive therapy through weekly or semiweekly sessions, usually over the course of several months (Cook & Fry, 2006; Guitar, 2005; O'Brian, Onslow, Cream, & Packman, 2003; Yaruss, Pelczarski, & Quesal, 2010). In many ways, this is analogous to the delivery procedures of traditional outpatient mental health services, in which an individual is seen repeatedly over an extended period of time until the presenting concern is sufficiently ameliorated. Clinicians also may provide stuttering therapy in a concentrated, intensive format. An intensive program involves several hours of therapy per day over a relatively brief period of time, usually 2 to 3 weeks (Blomgren, Roy, Callister, & Merrill, 2005; Boberg & Kully, 1994; Howie, Tanner, & Andrews, 1981; Onslow, Costa, Andrews, Harrison, & Packman, 1996; Tsiamouris & Krieger, 2010; Webster, 1980). Some clinics focus primarily on the intensive phase of therapy and have minimal resources devoted to continuing care (Webster, 1980), others provide the initial intensive phase within a larger therapeutic framework that includes continued services at a lower frequency and intensity for many clients (Montgomery, 2006). To use another analogy, both of the intensive models for stuttering are similar to intensive outpatient addiction treatment programs for substance abuse, in which patients are temporarily sequestered in a healthcare facility in order to break maladaptive behavioral patterns/thought processes and begin a path toward durable recovery (McKay, 2009).

The American Institute for Stuttering (AIS) offers one such intensive treatment program for PWS. To date, researchers in only one peer-reviewed study have reported outcomes of the AIS program (Lee, Manning, & Herder, 2011). Lee and colleagues indicated that participants experienced significant improvements in stuttering frequency, avoidance and struggle behaviors, and quality of life factors immediately posttreatment. Researchers analyzed written narratives and indicated that the majority of participants changed their locus of causality to a more autonomous and agentic lifestyle as well.

The AIS program aims to provide holistic therapy that facilitates improved stuttering/speech management, as well as psychological/attitudinal management (AIS, 2012). These treatment goals reflect the clinic's view of stuttering as a multifactorial disorder that emerges from and is sustained by diverse constitutional and environmental factors (Conture, 2000; De Nil, 1999; Smith, 1999; Starkweather, 1987; Wall & Myers, 1995). Researchers widely accept this conceptualization of stuttering and have categorized the salient features of the disorder into three symptom classes. Affective or emotional symptoms involve how one feels about one's stuttering and communication in general. Behavioral symptoms are the observable features of the disorder such as frequency and duration of disfluencies, as well as secondary behaviors such as eye blinks and movement of extremities. Cognitive symptoms pertain to how one thinks about stuttering and one's capabilities as a communicator (Bennett, 2005; Cooper, 1993). Several authors advocate for a multifaceted approach to outcomes measurement sufficient to capture treatment effects across the foregoing symptom dimensions (Blomgren, 2007; Yaruss & Quesal, 2004). In a recent report on an intensive stuttering program, Blomgren and colleagues (2005) advised that

Minimally, a comprehensive treatment outcomes study should provide adequate measurement of both the surface (behavioral) and subsurface (cognitive and affective) aspects of the disorder. Further, when appropriate, it is recommended to assess these constructs using multiple measures [...] including both observer-reported and self-reported data. (p. 20)

For a long time, researchers have thought that anxiety, and more specifically social anxiety, play a role in the aggravation and maintenance of stuttering symptoms. There is growing literature indicating that many PWS who seek therapy will have some degree of concomitant social anxiety (Kraaimaat, Janssen, & Van Dam-Baggen, 1991; Kraaimaat, Vanryckeghem, & Van Dam-Baggen, 2002; Mahr, & Torosian, 1999; Messenger, Onslow, Packman, & Menzies, 2004; Paprocki & Rocha, 1999; Schneier, Wexler, & Liebowitz, 1997; Stein, Baird, & Walker, 1996). For example, Kraaimaat and colleagues (2002) found that roughly half of their sample of PWS demonstrated social anxiety at levels comparable with highly socially anxious psychiatric patients. Because social anxiety may be present in some PWS and the AIS intensive program addresses it through several activities, outcomes related to this construct were of interest during the study. Therefore, measures assessing social anxiety were included to complement more traditional stuttering-related measures.

In this study, I present the initial findings of the AIS intensive stuttering therapy program in an effort to begin documenting, in a multidimensional fashion, the outcomes of that particular treatment approach. Researchers collected outcome measures related to overt and covert stuttering symptoms, as well as speech-related and nonspeech-related social anxiety, in an effort to provide a comprehensive assessment of the program's effectiveness.

Methods

Participants

The participants were five adult males who stutter, ranging in age from 19 to 63 years. Three were college students, one worked in the financial sector, and one was retired. None reported a history of other speech or language disorders other than stuttering. We report each

participant's overt stuttering severity and profile of covert stuttering symptoms in Tables 1 and 2.

Table 1. Behavioral Measures Related to Stuttering

Participant	Measure	Pre-treatment	Post-treatment
1	SSI-4	Severe	Mild
	% SS	21.6	10.1
	Stutter duration (seconds)	5.0	2.2
	PSI: Struggle	12	8
2	SSI-4	Severe	Mild
	% SS	13.7	7.1
	Stutter duration (seconds)	3.1	1.3
	PSI: Struggle	15	4
3	SSI-4	Very Mild	Very Mild
	% SS	3.3	1.0
	Stutter duration (seconds)	.9	.4
	PSI: Struggle	13	1
4	SSI-4	Very Severe	Moderate
	% SS	13.3	9.7
	Stutter duration (seconds)	4.3	3.3
	PSI: Struggle	19	5
5	SSI-4	Moderate	Mild
	% SS	11.9	4.8
	Stutter duration (seconds)	2.5	1.5
	PSI: Struggle	6	4

Table 2. Affective/Cognitive Measures Related to Stuttering

Participant	Measure	Pre-treatment	Post-treatment
1	OASES	2.49	1.76
	PSI: Avoidance	8	6
2	OASES	3.04	1.90
	PSI: Avoidance	11	1
3	OASES	3.25	1.55
	PSI: Avoidance	14	0
4	OASES	1.87	1.49
	PSI: Avoidance	6	0
5	OASES	3.12	3.30
	PSI: Avoidance	11	14

Procedures

A more thorough description of the AIS intensive stuttering program can be found elsewhere (Montgomery, 2006). The program is not intended to be an ultimate endeavor, but rather “the beginning to a longer-term process,” (AIS, 2012, para. 4) with staff recommending continuing services for most clients. As stated previously, therapy broadly focuses on behavioral and cognitive management strategies related to stuttering specifically and communication in general. The delineated goals of the program include acceptance of one’s stuttering, elimination of avoidance behaviors, changes in affective and cognitive components of stuttering, development of stuttering modification and fluency shaping techniques, and provision of choices for continued speech management following treatment.

Therapy took place Monday through Friday from 9 a.m. to 4 p.m. for 3 consecutive weeks, with homework assignments given at the end of each day. A certified speech-language pathologist who specializes in stuttering conducted the program, along with the assistance of three interns from local speech-language pathology graduate programs. Participants engaged in small-group (2–3 people), large-group (all 5 participants plus therapists), and individual practice sessions throughout the program. The team conducted activities within and beyond the clinic environment. Clinicians introduced new management techniques within the clinic before those skills were transferred into real-world speaking situations. The team addressed multiple components of therapy during the program, although each week had a unique focus. Week 1 involved sharing the views of the participants, identification of and desensitization to stuttering moments, desensitization to listeners’ responses, and managing stuttering through application of stuttering modification techniques. Week 2 involved speech restructuring through application of fluency shaping principles related to speech breathing and vocal fold management. Week 3 involved continued honing of stuttering modification and fluency shaping techniques and the integration of skills and attitudes. The team addressed affective and cognitive changes throughout the program through desensitization procedures, group discussions, and the application of methods from the fields of cognitive and sports psychology, physical training, performance, motivation, and human potential (Montgomery, 2006).

The team collected speech samples and patients completed self-report instruments at the beginning and conclusion of therapy. The order of the self-report questionnaires was counterbalanced across participants during both administrations.

Outcome Measures

In keeping with the multidimensional nature of stuttering symptoms mentioned previously, outcome measures fell into three categories: behavioral, affective/cognitive, and social anxiety.

The researchers collected reading and conversation speech samples of 300 syllables from each participant within the clinic. They used these to evaluate observable changes in core (i.e., frequency and duration of stuttering events) and secondary (i.e., physical concomitants) features of stuttering that, together, commonly are used to quantify the construct of severity. Additionally, the team assessed the self-reported presence of overt struggle behaviors.

The team used the Stuttering Severity Instrument for Children and Adults–Fourth Edition (SSI-4; Riley, 2009) to calculate an overall severity score. They calculated percent stuttered syllables (%SS) to evaluate changes in stuttering frequency for the reading and conversation samples and then averaged them to yield a single score. Researchers averaged the three longest stuttering moments from the speech samples and averaged them for each participant to evaluate changes in stuttering duration.

To evaluate changes in self-reported, overt struggle behaviors (e.g., facial/head/extremity movements, forceful/noisy breathing, forceful/strained articulator movements, etc.), the team used the Struggle subscale of the Perceptions of Stuttering Inventory (PSI; Woolf, 1967). Using the PSI, the team inquired about an individual’s struggle behaviors, avoidance patterns, and expectancy to stutter. Clinicians presented a total of 60

statements (20 for each subscale) and the patient indicated statements that were characteristic of him or her.

Researchers used the Overall Assessment of the Speaker's Experience of Stuttering (OASES; Yaruss & Quesal, 2008) to collect information about the total effect of stuttering on the participants' lives. In the OASES, 100 items are organized into four sections titled General Information, Reactions to Stuttering, Communication in Daily Situations, and Quality of Life. The instrument is based on the framework of the World Health Organization's International Classification of Functioning, Disability & Health (World Health Organization, 2001). Researchers used the Avoidance subscale of the PSI (Woolf, 1967) to assess the presence of word and situational avoidances. Avoidance patterns are often hidden features of stuttering and are assumed to result from the expectation of and past subjection to negative social consequences (Menzies, Onslow, & Packman, 1999).

A number of measures of social anxiety have been used previously in stuttering treatment outcomes research (Blomgren et al., 2005; Menzies et al., 2008; Messenger et al., 2004). Although none of the instruments address stuttering-related symptoms directly, items containing hypothetical speaking situations and scenarios in which one would be evaluated in a social context are included in all of them.

The Social Phobia Anxiety Inventory (SPAI; Turner, Beidel, & Dancu, 1986) is a comprehensive and widely used tool that assesses specific somatic symptoms, cognitions, and behaviors across a wide range of fear-producing situations to measure social anxiety and fear. It contains 109 items and yields a total score and a difference score. The difference score controls for the presence of agoraphobia symptoms (assessed in 13 items), which would not be an anticipated comorbid condition with PWS. In this study, we used the difference score, as it is considered the more valid measure of social anxiety (Turner et al., 1986).

The State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983) contains two, 20-item subscales. One subscale addresses state anxiety (a temporary experience of how one feels presently or in a specific situation), and the other addresses trait anxiety (a consistent phenomenon of how one generally feels all the time). The STAI-State subscale was used during this research and was modified to inquire about the speaking task of using the telephone. Spielberger and colleagues designed the instrument so the State subscale could be modified to focus on a particular situation or time period (e.g., before/after taking a test or biofeedback training, during a counseling session). Telephone usage was of interest because the AIS intensive clinic includes numerous telephone activities and PWS report the telephone as among the most stressful and feared speaking situations (Silverman, 1997).

Psychologists commonly use the Social Avoidance and Distress Scale (SAD; Watson & Friend, 1969) to measure anxiety experienced in social situations. It consists of 28 items that probe the "experience of distress, discomfort, fear, anxiety, etc. in social situations and the deliberate avoidance of social situations" (Watson & Friend, 1969, p. 448). Scores range from 0 to 28.

Data Analysis

As this is a preliminary report using a one-group pretest-posttest design with a small sample size, we present results in a multiple case study format. We analyzed outcomes data with reference to each participant individually and general group trends. We compared pre- and posttreatment scores within subjects to describe and quantify the impact of therapy across multiple domains.

Results

Stuttering-Specific Data

Tables 1 and 2 show outcomes related to behavioral and affective/cognitive symptoms of stuttering.

Table 1. Behavioral Measures Related to Stuttering

Participant	Measure	Pre-treatment	Post-treatment
1	SSI-4	Severe	Mild
	% SS	21.6	10.1
	Stutter duration (seconds)	5.0	2.2
	PSI: Struggle	12	8
2	SSI-4	Severe	Mild
	% SS	13.7	7.1
	Stutter duration (seconds)	3.1	1.3
	PSI: Struggle	15	4
3	SSI-4	Very Mild	Very Mild
	% SS	3.3	1.0
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	PSI: Struggle	19	5
5	SSI-4	Moderate	Mild
	% SS	11.9	4.8
	Stutter duration (seconds)	2.5	1.5
	PSI: Struggle	6	4

Table 2. *Affective/Cognitive Measures Related to Stuttering*

Participant	Measure	Pre-treatment	Post-treatment
1	OASES	2.49	1.76
	PSI: Avoidance	8	6
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	PSI: Avoidance	11	1
3	OASES	3.25	1.55
	PSI: Avoidance	14	0
4	OASES	1.87	1.49
	PSI: Avoidance	6	0
5	OASES	3.12	3.30
	PSI: Avoidance	11	14

Regarding behavioral symptoms, each participant made measurable improvements in the frequency and duration of stuttering events, as well as overt struggle behaviors associated with stuttering (e.g., facial/head/extremity movements, forceful/noisy breathing, forceful/strained articulator movements, etc.). Participants 1 and 5 reduced the frequency and duration of their stuttering moments by roughly half, but showed less improvement with their secondary struggle behaviors. Participant 2 showed similar reductions in the frequency and duration of his disfluencies (i.e., about 50%), and also reduced his struggle behaviors substantially. Participant 3, a self-described “covert stutterer,” nearly eliminated his struggle behaviors. His reduction in the number and length of his disfluencies, while robust, was likely of little practical significance because of the already mild nature of his disfluencies prior to treatment. Participant 4 showed the least reduction in overt stuttering behaviors posttreatment (roughly 25% for frequency and duration). However, he reduced his concomitant struggle behaviors dramatically.

Four out of the five participants showed large reductions in the negative affective and cognitive symptoms of stuttering (for all instruments a lower score represents improvement). Participants 2, 3, and 4 eliminated avoidant behaviors such as word substitution, situational avoidance, and conversational withdrawal. All participants except Participant 5 had posttreatment OASES scores in the Mild or Mild/Moderate range. Participants 2 and 3 showed the largest gains on that instrument, each improving from Moderate/Severe pretreatment to Mild/Moderate posttreatment. Participant 1 showed minimal reductions in avoidant behaviors and Participant 4 improved only slightly on the OASES. Given Participant 4’s low pretreatment score on the OASES (indicating the he was only mildly affected by his stuttering at the start of treatment), a floor effect may account for the modest improvement seen on that measure. Participant 5 showed small increases in the negative affective and cognitive symptoms of stuttering posttreatment. His results will be discussed below.

Social Anxiety Data

Table 3 summarizes the changes in measures of social anxiety.

Table 3. Measures of Social Anxiety

Participant	Measure	Pre-treatment	Post-treatment
1	SPAI	62	37
	STAI-State	59	31
	SAD	4	1
2	SPAI	72	38
	STAI-State	43	32
	SAD	9	4
3	SPAI	101	37
	STAI-State	70	36
	SAD	14	1
4	SPAI	27	0
	STAI-State	32	23
	SAD	5	1
5	SPAI	73	89
	STAI-State	50	53
	SAD	17	20

One instrument, the STAI-State, specifically addresses speech, as it probes use of the telephone. The other two instruments contain some items bearing on hypothetical speaking situations, but deal mainly with the prospect of being in the presence of others, rather than engaging in verbal communication per se. For all instruments, a lower score represents less social anxiety.

Four out of five participants showed improvements on all measures of their subjective experiences of social anxiety. On the SPAI, all participants except Participant 5 showed dramatic improvement, with their post-treatment scores falling very near or below the cutoff score of 34 for typical adults. When using the telephone, all participants except participant 5 showed considerable reductions in their anxiety levels posttreatment. This trend was most pronounced for Participants 1 and 3; their pretreatment anxiety levels in this situation were more than two standard deviations above the mean of 36 for typical adults, and fell to or below the mean after treatment. Decreased anxiety using the telephone was apparent, although less robust, for Participants 2 and 4. It should be noted that participants entered treatment with normal or near normal levels of anxiety in this situation. Scores on the SAD scale revealed that Participants 1, 3, and 4 substantially reduced their levels of anxiety in social situations and/or their tendencies to avoid such situations. Participant 2 also improved on this instrument, although to a lesser degree. Similar to his scores on measures of affective and cognitive components of stuttering, Participant 5 showed modest increases on the measures of social anxiety posttreatment.

Discussion

This study documents preliminary findings of the effectiveness of the AIS intensive stuttering therapy program, an integrative treatment that aims to foster improved stuttering/speech management and psychological/attitudinal management. Although the design of the study was appropriate given the nature of the AIS program and the convenience

sample we used, the limitations of this investigation are apparent. We used a nonrandomized and relatively small sample, we didn't use group-level statistical analyses to verify apparent posttreatment effects, and there was no control group. Due to these inherent constraints, we could not infer direct causality between the therapy provided by the clinicians and any changes we saw in the participants' post-treatment behaviors and cognitions.

All participants showed reductions in the surface features of stuttering following treatment, with most of them reducing the frequency and length of their disfluencies by 50–60%. Despite such gains, all but one participant continued to stutter at a severity that fell within the Mild or Very Mild range on the SSI-4. This indicates that, by and large, the speakers' disfluencies were lessened considerably, but remained at levels above those of normally fluent speakers (Guitar, 2005). This is consistent with the stated goals of the AIS program, which aims to provide clients with speech restructuring skills to circumvent stuttering moments while also instituting stuttering modification techniques to lessen the severity of remaining disfluencies. The OASES results revealed that participants generally felt that stuttering affected their lives to a far lesser degree following treatment. Four out of the five participants had scores in the Mild or Mild/Moderate range on that instrument. Many of the program's activities focused on avoidance reduction and desensitization, targeting the participants' fear and expectation of stuttering's negative social consequences. The affect of those procedures seems to have been uneven with this sample. Two participants (Participants 1 and 5) showed virtually no change in their stuttering-related avoidances after treatment, whereas the remaining three (Participants 2, 3, and 4) eliminated those behaviors altogether. Further research with these and other participants should help elucidate this inconsistency.

The pretreatment data from this study supports “the possibility that a subgroup of adults who stutter may have relatively high social anxiety” (Kraaimaat et al., 2002, p. 321). High levels of social anxiety and avoidance of social situations are consistent with a diagnosis of social anxiety disorder, which may be comorbid with stuttering in some individuals (Kraaimaat et al., 1991, 2002; Messenger et al., 2004; Schneier et al., 1997; Stein et al., 1996). Interestingly, three of the five participants (Participants 2, 3, and 5) in this sample had pretreatment SPAI scores that placed them within the range of untreated specific social phobics (Turner et al., 1986). Participant 3 appeared to have the highest degree of social anxiety before treatment, scoring near the mean of untreated generalized social phobics on the SPAI and scoring three standard deviations above the mean for typical adults on the STAI-State. It is striking that he showed the most dramatic improvement on all measures of social anxiety after treatment. All of the other participants, except Participant 5, also greatly reduced their reported social anxiety posttreatment. This suggests that the AIS intensive program may help reduce social anxiety in PWS, even those with pathological levels of anxiety upon entering treatment. Interestingly, the participant with the lowest levels of social anxiety and the mildest cognitive and affective symptoms of stuttering prior to treatment was Participant 4. Despite his relatively low levels of communicative fear and social anxiety, he showed improvements in those areas that were commensurate with other, more affected participants. This suggests that the desensitizing and anxiolytic aspects of the AIS program may be effective for less impaired individuals as well. It remains to be seen if these gains will be durable for the four participants who showed improvement, but research investigating that question is ongoing.

A notable exception to the general improvements seen in this study was the response profile of Participant 5. His reductions in the overt symptoms of stuttering were comparable to the other participants, but he retained slightly heightened or unchanged levels of social anxiety and remained affected by his stuttering after treatment. These results are intriguing, given his narrative reports to the clinicians that he experienced an increased sense of control over his stuttering, reduced his avoidance behaviors, and generally felt confident and positive moving forward with his treatment. It will be informative to monitor his follow-up data, and an interview sample may shed more light onto his unique therapy and maintenance experiences.

In conclusion, data pertaining to stuttering symptoms as well as social anxiety suggest that most of the participants in this sample benefited from the AIS intensive therapy program. The data also indicate that further examination of this program is warranted. Such investigations are ongoing and will help determine if the gains suggested in this report, as well as the near absence of gains in one participant, will be maintained.

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