

Treating Children Who Stutter With Co-Existing Learning, Behavioral, or Cognitive Challenges

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Introduction

Most clinicians who are employed in an elementary school will encounter and plan treatment programs for a child who stutters (CWS). However, when a CWS also exhibits a broad range of learning, behavioral, or cognitive disabilities that co-exist with the stuttering, the clinician is faced with more difficult decisions about treatment. First, the clinician must determine the extent to which the child's stuttering is influenced by a concomitant disorder. Second, decisions must be made relative to the focus and form of treatment that will be provided. The purpose of this chapter is two fold: (1) to provide information on characteristics of children who stutter who also exhibit concomitant learning, behavioral, or cognitive challenges and (2) to provide an overview of treatment decisions and recommendations that we have found useful in our clinical practice and others have documented as being successful when managing children who stutter who also have co-existing speech, language, learning and/or behavioral disorders.

Categories of Concomitant Disorders

Three specific categories of children will be discussed in this chapter. Children with "learning difficulties or disabilities"(LD), children with Attention Deficit Hyperactive Disorder (ADHD), and children with cognitive delays (i.e., mental retardation and Down's Syndrome). The following are definitions, terminology, and descriptions of the disorders associated with each category of children discussed in this chapter.

Learning Disability

Because of the lack of consistency of terminology used around the world to describe children with disabilities, it is important to set forth definitions of terms used in this chapter. One of the most variable terms used by professionals to describe a child's learning difficulty is the term "learning disability"(LD). Even within the United States, "learning disability" can refer to a wide variety of symptoms and disorders (e.g., dyslexia, reading disabled, developmental aphasia). Conceptually, the term refers to children who evidence a marked disparity between their measured intelligence and their academic achievement. Put simply, these are children who despite normal intelligence have difficulty learning for no readily apparent reason. The current legal definition of learning disability notes that learning disabilities refers to:

“ ... those children who have a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which disorder may manifest itself in imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations. The term includes such conditions as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The term does not include a learning problem which is primarily the result of visual, hearing or motor handicaps, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage. (Individuals with Disabilities Education Act, 1997)

There is no single identification procedure for LD, which can cause difficulty in defining which children have the disorder. In the United States, different states are allowed to set their own standards and criteria for which children qualify for services. In general, children are classified as LD if they evidence a discrepancy of 1.3 to 1.5 standard scale units between an intelligence test score and a standardized academic achievement test. For example, a child with a measured IQ score of 115 and a written language standardized test score of 92 could be classified as LD in written language. Note that the deficit does not need to occur across all academic areas. For instance, a child might be learning disabled in reading but not in math. Also, because a large

percentage of children with a learning disability have language disorders, some professionals prefer the term language-learning disabilities (Shames & Anderson, 2002). For the purposes of this chapter, the term learning disabilities will be used but includes children who also have language impairments with the learning disability.

Estimates of the prevalence of LD in school-age children vary widely due to a slight difference in identification criteria, with the most widely accepted estimates at around 5% of the school age population. In the United States, children diagnosed as learning disabled constitute approximately 50% of the special education population, with LD being the single largest group of children in special education (Lerner, 2000). Children with learning disabilities are an extremely heterogeneous group and it is impossible to describe a “typical” child with LD. However, there are some areas of difficulty that are very common among children with LD. The most common academic problem is in the area of reading. Around 80% of children with learning disabilities have problems with reading (Lyon & Moats, 1997). Language problems associated with children with learning disabilities include difficulties with phonological awareness, delayed speech development, difficulty with grammar and syntax, vocabulary deficiencies, and difficulty comprehending spoken language (Lerner, 2000). Pragmatic issues frequently manifest in difficulties with social skills and interactive abilities. Unfortunately, documentation of the disfluency characteristics of children with LD in the literature is limited at best.

Attention Deficit Hyperactive Disorder

This is a disorder that has been recognized for decades but the exact terminology has changed often when describing children with difficulty moderating activity or who have problems with attention and impulsivity. Terms such as hyperkinetic, hyperactive, minimal brain dysfunction, and attention deficit disorders have all been used to describe children with ADHD-like behaviors (Barkley, 1998). In 1980, the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM III) used the term attention deficit disorder (ADD), which included two categories: a) ADD with hyperactivity, and b) ADD without hyperactivity. In 1987, the DSM IIIR combined the attention and hyperactivity dimensions into a single term, which is referred to now as attention deficit hyperactivity disorder (ADHD). Just like terminology has changed over the years, so too has the diagnostic criteria. Additional changes in diagnostic criteria for ADHD were released in 1994 as DSM IV guidelines (APA, 1994). The primary impact of these diagnostic changes has been an increase in the number of children who would be diagnosed with ADHD (Baumgaertel, Wolraich, and Dietrich (1995).

Currently, ADHD is subdivided into three categories: (1) ADHD combined type, (2) ADHD predominantly inattentive type, and (3) ADHD predominantly hyperactive-impulsive type.

ADHD combined type occurs when at least six symptoms each of inattention and hyperactivity-impulsivity are present and it is the most common form of ADHD. The predominantly inattentive and predominantly hyperactive-impulsive types of ADHD are diagnosed when at least six of nine symptoms are present from each respective category but not from the other.

When diagnosing a child with ADHD using these symptoms, one must also understand there are exclusionary clauses that are often overlooked. First, some of the ADHD symptoms have to become manifest prior to age seven but usually appear around age three. Thus, it is common to have the symptoms of ADHD first appear in the preschool years. Children are not considered to have ADHD if the symptoms initially occur when children reach middle or high school age. Second, children must exhibit ADHD symptoms in two or more environments such as school, home and other social settings. Third, the symptoms must result in clinically significant impairment in academic, social, or occupational functioning. Typically, a child with ADHD will experience severe difficulties in school, will have serious social problems (e.g. few or no friends), won't be able to do uninterrupted work, and will be unpopular. Fourth, anxiety disorders, mood disorders, or a traumatic life event (e.g. divorce, death in the family) may result in problems with attention or impulsivity (Reid & Maag, 1994; Sabatino & Vance, 1994). Moreover, ADHD is not the result of any mental disorder, learning disability, developmental disorder, or anxiety and depression. One should be able to rule out these disorders before an ADHD diagnosis is made.

Another feature of ADHD is that these children, as a group, are highly variable in terms of their performance and behavior (Barkley, 1998). It is common to find other disorders such as oppositional defiant disorders, conduct disorders, or learning disabilities in addition to a diagnosis of ADHD (Barkley, 1998; DuPaul & Stoner, 2002). It has also been reported that language deficits are present in the majority of children with some form of diagnosable attention disorder (Giddam, 1991). Thus it is difficult to speak of a "typical" child with ADHD. However, there is one theme that occurs regularly with all children with ADHD – they are

consistently inconsistent. Professionals will not see the same kind of performance pattern displayed by a child from one day to the next (DuPaul & Stoner, 2002). For example, one day the child will do well in completing assignments but the next day, the child struggles to finish any task. Therefore, clinicians, parents, and teachers must expect the unexpected from this type of child. Unfortunately some children have one good day, which then becomes the expectation and the thought is that “He could do it if he really wanted to” (Reid, 1999). Practitioners should remember that inconsistent performance and behaviors are hallmark symptoms of ADHD.

Little is known about the specific characteristics of stuttering in children with ADHD other than the patterns of disfluencies are consistent with children who only stutter. Because most children who have ADHD will be placed on medication to help them manage their behavior, it is unclear how the medication will impact stuttering. Most documented evidence is that the same medication can cause an increase or decrease in a child’s frequency of stuttering. Thus, the effects of medications on stuttering behaviors are unpredictable (Healey and Reid, 2003).

Children With Mental Retardation and Down’s Syndrome

The last category of children discussed in this chapter includes a broad range of children with mental retardation and other forms of developmental cognitive delays that prevent them from progressing at normal rates of speech and language abilities. Children with developmental delays often exhibit more than typical instances of stuttering, particularly in children with Down’s syndrome (Manning, 2001).

The current legal definition of mental retardation is defined as significantly sub-average intellectual functioning that occurs in conjunction with deficits in adaptive behavior which is

manifested during the developmental period and which adversely affects a child's educational performance (Individual with Disabilities Education Act, 1997). Mental retardation is divided into four levels based on the severity of impairment: mild (IQ approximately 55-70), moderate (IQ approximately 40-55), severe (IQ approximately 25 – 40); and profound (IQ below 25) (Grossman, 1983). Children with mild or moderate retardation are most like to be involved with a therapist.

More than 250 causes of mental retardation have been identified. However, for a significant proportion of individuals, the exact cause of mental retardation is unknown (McLaren & Bryson, 1987). One of the better-known and most thoroughly researched causes of mental retardation is Down syndrome. Down syndrome is caused by a chromosomal abnormality. There are three major types of Down syndrome with the most common being trisomy 21 where the 21st set of chromosomes contain 3 rather than two chromosomes. This typically results in moderate mental retardation. Children with Down's syndrome account for approximately 5-6% of all cases of retardation.

Children with mental retardation will exhibit difficulties in learning. There are a number of common problem areas. Problems with both short-term and long-term memory are common. As a result children with mental retardation will have difficulty storing and retrieving information (Bray, Fletcher, & Turner, 1997; Merrill, 1990). This in turn results in a decreased rate of learning. Problems maintaining sustained attention are also common and exacerbate learning problems (Zeaman & House, 1979). Generalizing knowledge, a skill that occurs naturally among most

children, may not occur for children with mental retardation. As a result, they may not be able to apply skills across settings.

There is inconclusive evidence that children with Down's syndrome exhibit stuttering behaviors, as they are typically defined. Conture (2001), reporting the findings of a study by Preus (1981), stated that of 47 children with Down's syndrome, 34% had symptoms of stuttering while 31% had disfluencies similar to cluttering (i.e., minimal awareness and reaction to the disfluency, intelligibility difficulties, and a rapid speech rate). Devenny and Silverman (1990) found that 42% of their sample of adults with Down's syndrome exhibited involuntary repetitions and prolongations of sounds, effort and tension during disfluent moments, and secondary symptoms such as facial grimacing and eye closure. Similar disfluent speech symptoms were identified in a small group of Down's syndrome children. Willcox (1988) discovered that three of five children with Down's syndrome she tested produced multiple-unit, part-word repetitions and sound prolongations of more than one second. However, two of the five children in her sample did not exhibit stuttering-like behaviors. Their nonfluencies resembled those of normally developing children.

Other nonfluent speech characteristics of individuals with Down's Syndrome include long pauses between words within an utterance, pauses in inappropriate places within an utterance usually accompanied by a sudden production of words that might be difficult to understand (e.g., I'm going shop.....'in t'morrow), use of multiple interjections of words prior to an utterance (e.g., um...um...er...er...a....it's mine (Bray, 2001). The nature of these disfluencies could be the result of slower developing speech and language processes, which contributes to the presence

of nonfluent, unintelligible speech. It has been shown that children with mental retardation and Down Syndrome frequently struggle with their language abilities. Most notably, these children often experience difficulty with speech production including phonological competence secondary to physiological complications, syntactic and morphological knowledge and social-interaction skills (Paul, 2001). The demands of language functioning for a person with a disabled cognitive system could contribute to the lack of proper idea formulation, word finding difficulties and syntactic processing of an utterance (Starkweather, 1987).

Prevalence Of Concomitant Disorders in CWS

A consistent finding in the literature on stuttering is that a small but significant percentage of CWS exhibit concomitant speech and/or language disorders in addition to their stuttering. The expected number of CWS with a concomitant disorder is somewhat unclear and seems to vary considerably among studies and can be best explained by methodological differences in studies (Nippold, 1990). Ardnt and Healey (2001) suggested that one major methodological difference among studies is the way in which the concomitant disorder is defined. The wide variety of criteria used to identify the number of disfluent children who have a concomitant speech and language disorder makes it difficult to compare results among past studies. For example, Blood and Sieder (1981) did not appear to provide their survey respondents with criteria for determining the presence of a concomitant disorder. In comparison, Riley and Riley (1979) and St. Louis and Hinzman (1988) used specific definitions of stuttering and concomitant disorders when selecting children for their studies, although some disorders appeared to have been broadly defined. For example, the children with fluency and phonological disorders in the St. Louis and Hinzman (1988) study had moderate or severe stuttering. The authors stated that “some of these

subjects would have been classified by speech-language clinicians primarily as articulation-or language disordered children rather than stutterers” (p 351).

Blood and Sieder (1981) conducted a survey of 358 school-based speech-language pathologists to determine the percentage of CWS with various concomitant disorders. However, the definitions of each co-existing condition was not specified. In their study, they discovered that 68% of 1,060 children who stutter had at least one concomitant disorder. The concomitant disorders reported most often by the clinicians in the Blood and Seider study were articulation disorders (16%), language disorders (10%), learning disabilities (7%) and reading disabilities (6%). Arndt and Healey (2001) found different percentages for these types of disorders in children who were identified as having a fluency disorder. Clinicians in that study were asked to specify the number of children who were suspected of having some type of concomitant disorder. A survey of 241 school-based clinicians from a cross section of states within the United States revealed that of 109 CWS, the percentage of children with a suspected co-existing disorder included 13% with articulation disorders, 20% with language disorders, 24% with a learning disability, and 14% having a reading disability. Another combined 17% had emotional disorders, ADHD, and mental retardation (Arndt & Healey, 2001). More specifically, Conture (2001) suggested that between 10-20% of the CWS might exhibit ADHD. Arndt and Healey (2001) found in their survey that approximately 4% of children who stutter had ADHD while Riley and Riley (2000) reported that 26% of the CWS they sampled had ADHD symptoms.

The specific incidence of disfluent speech in children with cognitive delays has been studied in various populations of people with mental retardation and those with Down’s syndrome. The

percentage of occurrence of stuttering in persons with cognitive delays was studied several decades ago and ranged from less than 1% (Martyn, Sheehan, and Slutz, 1969) to as high as 20 percent (Schlanger, 1953). Chapman and Cooper (1973) reported that the incidence of stuttering in a sample of 1,467 institutionalized people with mental retardation was 2%. In the population of individuals with Down's syndrome, estimates of the prevalence of stuttering range from 7% to 60% (Manning, 2001). Differences in percentages appear to be related to how stuttering was defined in earlier studies and whether or not individuals were exhibiting symptoms of cluttering instead of stuttering (Willcox, 1988). Clearly too, these individuals have a high occurrence of speech and language disorders and neuropathologies that complicate the diagnosis of stuttering. Nonetheless, it can be concluded that the prevalence of stuttering in individuals with Down's syndrome is unusually high (Manning, 2001).

Key Assessment Issues

From a clinical perspective, the presence of concomitant disorders in children who stutter is important because these subgroups of children require a different type of treatment than those who only stutter (Wolk, Edwards, & Conture, 1993). Concomitant disorders with stuttering presents certain challenges for the clinician in designing and implementing treatment programs (Logan & LaSalle, 2003). However, prior to the implementation of any treatment program for children who stutter with a concomitant disorder, it is important for the clinician to consider two major assessment issues or questions.

The first question prior to implementing treatment is: *Which disorder negatively impacts communication the most...stuttering or the concomitant disorder?* A clinician needs to consider

the severity of the fluency disorder or the speech and/or language disorder associated with the concomitant problem within the context of child's communicative and social functioning. Because effective and functional communication is the goal of any speech-language treatment, efforts should be made to address the most problematic speech or language disorder. Given that language problems are common with LD children and significant delays in speech and language development are typical for children with mental retardation and Down's syndrome, treating the language deficits first may indirectly improve fluency skills. Bray (2001) notes that children with Down's syndrome are particularly disfluent as their language and expressive vocabulary are expanding. Specifically, speech nonfluencies such as interjections or word fillers (i.e., uh, um, er) revisions, false starts and self-interruptions (e.g., "you need some, well, first get some") are characteristic of children with language impairments. These types of disruptions in the fluent production of an utterance are directly influenced by grammatical complexity and the child's constrained language formulation requirements (Scott Trautman, Healey & Norris, 2001). Thus, treatment aimed at facilitating improved linguistic competence would contribute to the perception of improved fluency.

On the other hand, if the child's stuttering interferes most with communication, then that's the disorder that should be addressed first. It's the clinician's responsibility to focus on improved fluency or the use of strategies that will encourage the management of the stuttering. In the next section of this chapter, we will discuss how a treatment program for children who stutter who have learning, behavioral, or cognitive challenges will need to be modified to accommodate the needs of these populations.

The second question that needs to be addressed prior to the implementation of treatment is:

Which model of intervention will be used when stuttering and a concomitant disorder co-exist?

There are a number of ways that clinicians have approached treatment when a concomitant disorder coexists with stuttering. Guitar (1998) stated that treating the co-existing speech and language problem does not necessarily increase the frequency of a child's stuttering. His approach is to integrate the treatment of stuttering with the concomitant speech or language disorder. In an effort to assist clinicians in making clinical decisions about how to treat CWS with concomitant disorder, Bernstein Ratner (1995) suggested four specific approaches for how this could be accomplished. These included: 1) a **blended approach** (e.g., simultaneously treating stuttering and the concomitant disorder such as incorporating stuttering and language targets simultaneously within a therapy session), 2) a **cycles approach** (treating each disorder for specific periods of time during the course of therapy), 3) a **sequential approach** (e.g., treating stuttering near completion followed by the initiation of language or articulation training), and 4) a **concurrent approach** (e.g., parallel treatment of stuttering and other speech/language targets for equal amounts of time within the context of the lowest phonological and linguistic demands). The sequential approach, which delays treating the other impairment until sometime in the future, appears to be the least desirable option (Bernstein Ratner, 1995). The blended, cycles, and concurrent approaches appear to be viable options for treatment aimed at facilitating increased fluency and remediation of the speech/language disorder associated with the concomitant problem.

Louko, Conture, and Edwards (1999) proposed that stuttering and a concomitant phonological problem can and should be treated simultaneously. This is supported by data from Arndt and

Healey (2001). They found that the majority of clinicians treating a fluency disorder and a concomitant phonological and/or language disorder used a blended approach in which both disorders were addressed simultaneously in the treatment program. Clearly though, there are other approaches to treating a disfluent child's concomitant disorder. Ardnt and Healey (2001) also found that many clinicians used a concurrent approach when treating stuttering and a concomitant disorder. With the concurrent approach, Bernstein Ratner (1995) recommended that fluency training be placed within linguistic and phonological contexts that the child can manage. For example, when treating a phonological disorder, a clinician could focus on treating the fluency disorder while the clinician models the correct sound production without direct reference to the child's sound production during each session. In this approach, both problems are addressed but only the fluency disorder is treated directly. Louko et al. (1999) take a slightly different approach by combining simultaneous treatment of stuttering and disordered phonology from a speech-language pathologist and the parents of the child.

Interestingly, only a few school-based clinicians in the Ardnt and Healey (2001) study used a cycles approach and even fewer applied a sequential approach in which treatment continued with one disorder until all goals were met. As Bernstein Ratner (1995) suggested, a clinician's choice of treatment depends on a careful analysis of the child's needs and may require changes in programming if progress is impeded through one particular approach. This might be particularly true for young children (i.e., kindergarten through third grade) and for those with learning, behavioral, and cognitive challenges. Logan and LaSalle (2003) suggest that young children may have difficulty remembering or being able to separate stuttering management techniques

from other speech and language concepts being taught. We believe the same difficulties exist for CWS who also have LD, ADHD, or mental retardation.

Therefore, one recommendation is to approach the treatment of stuttering and any other speech/language problem using a cycles approach. Treatment would involve using specific time intervals during the treatment program... treating one of the impairments for several weeks followed by treating the second impairment for the next several weeks. Or, a clinician, could use a slightly different cycles approach (criterion based) in which treatment of one impairment would continue until a specific criterion level of performance had been reached, which is then followed by treatment for the second impairment until specific performance criteria had been met (Logan & LaSalle, 2003). For example, the clinician could start the first treatment cycle for a child with Down's Syndrome by encouraging the child to use a prolonged speech pattern while producing single words or short phrases, using pausing between phrases, and focusing on proper turn-taking (Guitar, 1998). Once a criterion level of fluency is established at these simple levels of a linguistic context, a gradual increase in utterance length and complexity could be implemented to include sentences or short monologues as well as an increase in the speech rate and reduction of pauses between utterances (Ryan and Ryan, 1995). The second criterion-based cycle might use rhymes and jingles or some other simple expressive language task as a way to promote the child's learning of predictable language structures (Bray, 2001). The third and fourth cycles of the program would be focused on reviewing previously learned fluency management skills and language skills together with the introduction of new techniques or strategies that fall within the child's abilities to manage the demands of a speaking situation.

This type of cycles approach could include the parents by having them provide indirect support/modeling of behaviors being addressed by the clinician.

Logan and LaSalle (2003) also recommend that clinicians should not require a child to integrate stuttering and articulation/language skills within the same speech activity until he/she can demonstrate successful management of the techniques or skills at simple linguistic levels.

However, eventually the child needs to be able to implement all learned fluency and speech/language strategies simultaneously. Guitar (1998) also suggests that clinicians should reward children's responses with verbal and/or tangible reinforcement. However, reinforcing correct fluency and speech/language behaviors at the same time by saying "good job" after the child produces an utterance has been produced might cause some confusion for the child.

Because both problems have been addressed in therapy, care must be taken to insure the child understands which correct behavior is being reinforced. For example, he recommends that clinicians use a phrase such as "that was nice and smooth (or easy)" when reinforcing fluent responses or less severe stuttering behavior. When correct sounds are produced, the clinician might say, "that was a good ___(sound) on the word ___." A syntactically correct utterance might be reinforced verbally with a phrase such as "that was a good sentence." Being careful to clearly state what behaviors are correct and being reinforced should help the child understand the aspects of the response were correctly produced.

Preliminary Treatment Considerations For CWS Who Have Concomitant LD or ADHD

Given that a clinician has addressed the two issues above, there are a host of other treatment considerations that should be integrated into a clinician's blended, cycles, sequential or

concurrent treatment approach. A clinician needs to consider a variety of environmental and behavioral strategies in order to effectively treat stuttering when LD and ADHD co-exist.

Unfortunately, specific strategies regarding the management of children who stutter and have LD and ADHD cannot be found in the literature, although some information on treating CWS who also have ADHD can be found in an article by Healey and Reid (2003). However, there are a number of similarities in treating children with these disorders that a clinician will want to bear in mind. The co-morbidity of LD and ADHD is approximately 20-40% and includes problems with attention, persistence, and impulsivity (DuPaul & Stoner, 2002).

A clinician will want to consider the management process within the context of well-established environmental and behavioral interventions that have been developed to improve the performance of LD or ADHD children in the classroom. Paul (2001) suggests that the most effective treatments for children with ADHD include a combination of pharmacological, environmental, and behavioral interventions. Healey and Reid (2003) pointed out that many of the evidence-based research on how to manage children with ADHD in the school environment can be applied to treating stuttering children with these concomitant problems. For example, intervention strategies for ADHD children in the classroom have been applied to general intervention program for communication disorders (Damico & Armstrong, 1996). This next section is a description of these principles of intervention as they apply to treating children who stutter and have concomitant LD or ADHD.

The first consideration is environmental accommodations that a clinician can provide within the treatment setting. Ideally, children with LD or ADHD should be taught in a room rather than in

hallways, open classroom environments, or a corner of a classroom. For instance, research has shown that for children with ADHD, various types of distractions in the environment other than a room can result in decreases in time on task and other problem behaviors (Whalen, Henker, Collins, Finck, & Dotemoto, 1979). However, it is not necessary or even desirable to conduct individual treatment in a room with four plain walls (Abramaowitz & O’Leary, 1991). Rather, a clinician should be sensitive to any type of distraction and minimize their potential effects. For example, a clinician could make sure that they have the child’s attention before speaking by making eye contact, keep the conversation focussed on the main points by minimizing tangential comments and avoid talking over competing noise (Michon, 1999).

Consideration of whether the child will be treated individually or as a member of a treatment group is another important decision about therapy. Typically, children with LD and ADHD often do better in one-to-one situations or very small groups with well-behaved students. For example, Damico and Armstrong (1996) suggest that if the speech-language pathologist collaborates with the classroom teacher to provide interventions with ADHD students, then cooperative learning might be an effective strategy to use. The same would be true for children with LD. Within this context, the speech-language pathologist could encourage a child who stutters to work on basic social skills, which may be problematic for many people who stutter. The combination of struggling with interpersonal communication secondary to stuttering and attention issues associated with ADHD, could result in maladaptive social behaviors. These unproductive patterns can be pointed out, analyzed and worked on with the assistance of the clinician and other members within the same treatment group. Working in groups also allows the clinician to obtain a more realistic view of how an individual performs in social contexts outside of the

therapy room. This information is vital when considering carry-over of learned skills into future social arenas (Guitar, Donaher, Otto-Montgomery & Reville, 2000).

Another environmental consideration specifically for ADHD children is permitting physical movement within the classroom or clinical setting to control restlessness or fidgeting. Allowing children to move, stand during lessons, or interspersing activities that may require physical activity may help maintain attention to the tasks (Reid, 1999). For a child who stutters, this could involve having children move objects, draw a line slowly on a piece of paper or use some use some form of gross body movement (e.g., walking or tossing a ball) while talking with a prolonged speech pattern. Additionally, children with ADHD are more likely to display behavior problems when they are not actively responding and/or receiving frequent feedback on performance (DuPaul & Stoner, 2002). Providing students with frequent opportunities to respond, rather than having them spend time sitting passively while waiting for an opportunity to respond, is a crucial component for keeping a student with ADHD engaged. If a student with ADHD sits too long, tuning out or other inappropriate behavior typically will occur. Thus, children with ADHD typically perform best when they receive frequent and immediate feedback on their performance (Barkley, 1998). Children with LD also should be rewarded for asking questions and seeking clarification on assignments or for why certain strategies assist them in talking with greater fluency.

Relative to instruction and intervention planning, the length and difficulty of individual sessions is an important consideration. For children with ADHD, Healey and Reid (2003) recommend that it may be better to schedule treatment for short periods of time (i.e., 10-15 segments) rather

than one 30-minute treatment session. Long sessions could lead to boredom, non-compliance, and reluctance to practice strategies. If longer sessions are needed, or the student tolerates longer sessions, it is a good idea to break up the activities within the session. For example, rather than doing two, 15 minute activities, it would be better to do four, 7-minute activities and allow brief breaks in between activities (Reid, 1999). In this way, reviewing material more often could increase the child's ability to retain and implement any management techniques.

Treatment For CWS Who Are LD or ADHD

It is noteworthy that any approach to treatment will depend on such factors as the child's language abilities and cognitive difficulty of the task (Westby & Cutler, 1994). Given that approximately one-third of children who stutter also have language impairments (Arndt & Healey, 2000), a clinician should be aware of the links between stuttering, language impairment, LD and ADHD. Children with these characteristics would be at risk for developing the necessary cognitive skills necessary to self-evaluate and self-regulate behaviors (Abikoff, 1985). Therefore, the standard treatment approaches to stuttering when no concomitant disorders are present will have to be adapted to fit the needs of the child with LD or ADHD.

Therapy for CWS generally focuses on helping the child achieve a greater level of fluency, manage stuttered moments more effectively, and modify negative cognitive (thoughts, perceptions and awareness) and affective (emotions and attitudes) that impact influence effective communication in a variety of social contexts. Fluency shaping techniques such as easy or gentle onsets of phonation and prolonged speech and/or use of phrasing of an utterance to reduce speech rate are usually combined with stuttering modification strategies. A stuttering

modification approach uses pseudostuttering to increase a child's awareness of what happens during a real stuttering moment and to reduce their need to hide the stuttering (i.e., desensitization to stuttering). Actual modification of stuttered moments is accomplished through the use of cancellations and pullouts. Additional treatment strategies in a basic treatment program include increasing a child's awareness of stuttered moments and identification of behaviors that characterize the stuttering behavior. Any negative feelings, attitudes and emotional reactions that the child and others have toward stuttering also need to be addressed. Finally, systematic manipulation of the length and complexity of the utterance are critical to a child's management of newly learned fluency skills (Guitar, 1998, Logan & LaSalle, 2003, Manning, 2001, Ryan and Ryan, 1995).

Given this basic structure of an integrated treatment program, modifications need to be made in the program to accommodate the CWS with LD or ADHD. The following is a list of possible modifications or considerations the clinician might want to bear in mind when implementing a program for these children:

- Explain the specific goals of therapy to the child in simple, age-appropriate language.

Children should feel some ownership in setting goals and the gains that will occur as a result of work on specific skills and target behaviors. Also, having a child understand the goals of therapy and why those goals will facilitate remediation (Daly & Burnett, 1999).

- Ask the child a question to see whether they can describe what has been learned in therapy in their own words (Michon, 1999). By asking a children to organize the ideas and express the concepts using their own language, the clinician is increasing the chances of long term retention of the material (Guitar, Donaher, Otto-Montgomery & Reville, 2000).

- Make all instructions and directions clear and concise but don't give too many directions at once. Repeat the directions multiple times and have the child repeat what they heard and understood. Attention-getting strategies might include lightly touching the child's hand or arm and/or making eye contact with the child prior to the instruction (Michon, 1999). Once attention is achieved, directions can be short and direct. Long involved directions are difficult for the client to remember and could cause a child to lose focus and become distracted (Reid, 1999). An example of an instruction that might be given to a child is, "talk about the picture using your stretched speech" rather than "look at the picture and keep your voice on continuously and blend the words together the whole time you are talking about the picture." The clinician would also give verbal directions to use a particular speech strategy and then model the strategy for the child. Before he responded, the client should be asked to repeat what he/she is to do and then demonstrate that understanding by using the desired strategy within a specific speech context (Healey & Reid, 2003). Also, it is important to give concrete examples of all techniques. Clinicians can encourage children to use artwork, schematics or any visual reminders to increase comprehension of difficult concepts (Piffner, 1995).

- Select a topic that is highly interesting to the child, or about which the child has considerable knowledge (e.g., sports, hobbies, curricular topics). This topic then provides a theme for therapy. Most or all treatment activities and materials used to teach new skills will be based on this theme. Children and/or their families or teachers can contribute ideas, information, and materials related to the theme so that the topic stays within the realm of the child's prior knowledge. Numerous materials for most themes can be obtained from toy sets, books, magazines, newspaper articles, and various websites (Healey, Scott Trautman, & Panico, 2001).

- Use concrete examples and contextualized materials (objects, pictures, drawings, printed materials) as much as possible during therapy as a means of controlling the length and complexity of utterances. Clinicians need to consider how much contextualization the child will need to support talking and account for the child's cognitive-linguistic capabilities. To make this decision, the clinician should determine if the child is more disfluent when talking in contextualized or in decontextualized situations (no supportive communication materials). If the clinician is unsure whether the degree of contextualization affects the child's fluency, he or she should probe by collecting brief speech samples at various levels of linguistic complexity. For example, speech sampling could occur by asking the child to talk while engaged in pretend play or retelling a story with pictures about getting ready for school. A little more difficult speaking situation might involve retelling their own experiences getting ready for school, or retelling a scene from a favorite movie or television program without contextual support. The clinician could limit linguistic complexity of a response by targeting single word or phrase-level productions, asking the child to label or describe materials or objects associated while using a fluency enhancing or stuttering modification strategy. For instance, if a child has just learned a new fluency-enhancing skill, the clinician might probe the child's ability to use it across several utterances by asking the child to recall three things that happened in therapy that day (Healey et al, 2001).
- Increase the child's awareness and self-monitoring. Many LD and ADHD children show poor awareness of stuttering or self-monitoring skills. Strategies for achieving great awareness and self-monitoring include video and audio recording to provide immediate feedback on performance or correct behavior. Self-correction through self-cues to reduce speech rate, self-

rating of task performance, and/ or use one of the strategies taught in therapy will assist in improving awareness and self-monitoring (Daly & Burnett, 1999).

Treatment of CWS Who Have Mental Retardation or Down's Syndrome

Cooper (1986) suggests that the management of stuttering in children who are mentally retarded and have Down's syndrome is primarily a behavioral modification program. Little attention is given to modifying or shaping attitudes and feelings that may inhibit the development of improved fluency. The focus of therapy is for the clinician to use concepts and explanations for instruction that account for the child's limited conceptual and linguistic skills. Language training in the form of vocabulary development may be as much of a focus of therapy as stuttering (Bray, 2001).

Many of the suggestions described above for CWS and have LD or ADHD are relevant to modifications of treatment with children who are disfluent and mentally retarded or have Down's syndrome. In addition to those suggestions, the following is a list of recommended procedures for treating this population:

- Determine the child's awareness of stuttering or nonfluent speech that disrupts communication. Perhaps the child is no more aware of stuttering than he/she is aware of knowing when to speak or not, and the need to have good listening skills, taking conversational turns, and maintaining eye contact during a conversation (Bray, 2001). If the child is aware of his/her nonfluencies, then one of the first steps is to help the child create a list of the types of stuttering that are produced. For example, it might be helpful to have part-word repetition displayed graphically exactly like the child stutters. Thus, if the child says b-b-b-ball, the child can recognize a written version of

one form of stuttering he/she produces. For a whole-word repetition, like it's...it's...it's a ball, a similar written example could be used.

- Discuss in simple language, what techniques the child will use to enhance a fluent response and reduce the need to produce disfluency. These might include a number of fluency enhancing techniques such as slow speech rate and gentle onsets of phonation (Cooper, 1986; Manning, 2001). It is important for the clinician to model a slow pace of talking by elongating the syllables within the utterance or by using a greater number of pauses between words in order. This also slows the pace of the conversation which might allow the child more linguistic processing time (Bray, 2001). Cooper (1986) notes that improvements in speech intelligibility, rate of speech, and voice quality can improve as a result of having the child use fluency-enhancing gestures.
- Modify the linguistic length and complexity of the utterance, which is consistent with an approach advocated by Ryan and Ryan (1995). Adaptations of this approach as shown above by Healey et al. (2001) also should work well with this population. As the length and complexity of the utterance increases, it will be important to allow the child greater time in planning and processing the utterance (Bray, 2001).
- Encourage the child to master the use of learned fluency strategies. For this population, it is important to have the child use learned strategies extensively within and outside of therapy. Clinicians need to encourage the client through a reinforcement schedule to practice new speech patterns in as many structured (treatment session) and unstructured (at home, classroom, etc.) situations as much as possible. In order to accomplish the extended use of newly learned strategies, the clinician should enlist the support of parents, teachers, communication aids, and resource personnel to assist in the practice and maintenance of basic fluency skills (Cooper, 1986).

- Clinicians should work with the child to set tangible goals and reasonable timelines for completing those goals. Students should be rewarded often for both the work completed and their behaviors during the therapy process (Blazer, 1999). Clinicians should ensure that the child fully understands what they are being reinforced for by clearly and repeatedly modeling the desired behaviors (Conture, 2001).

Supporting Family and Teachers of CWS Who Also Have LD, ADHD, or Mental Retardation

It is important for the clinician to garner the assistance of family members and teachers in the treatment process. Parents and teachers can be extremely effective in helping the child manage the disorder and serving as raters of severity of the stuttering and the concomitant problem.

However, the clinician needs to assess the desirability of asking the parents to assist with treatment in the home. Our experience has shown that parents want to carry over the treatment in the home but find that by doing so is stressful for them and their child. Nonetheless, there are a few things a clinician could consider as a means of supporting the role of the family and teachers in the treatment process for CWS and have LD, ADHD, or Mental Retardation:

- Educate the parents and the entire family about the diagnosis and how that will affect the child's ability to perform certain tasks. Frequently parents receive a diagnosis (or two) but never receive a functional explanation of what that means to the child and the family in everyday situations. The clinician should also stress how the child's cognitive, emotional, psycho-social and physical abilities will affect his fluency in a variety of speaking situations.
- The family should become well versed in strategies used to decrease the environmental demands placed on the child (Starkweather, 1987). These include interaction strategies like:

- ❑ Reducing the rate of speech in the house
 - ❑ Allowing more pause time before speaking
 - ❑ Using less complex language and vocabulary
 - ❑ Providing increased listening time
 - ❑ Decreasing interruptions from all family members
 - ❑ Reducing competition for attention between all family members
 - ❑ Avoiding demands for speech.
- The family and teachers should also be informed about the rationale for strategies that the clinician is using to accomplish the goals of treatment. They should also understand why their child might experience difficulty utilizing techniques or completing assignments especially in light of their coexisting issues. Parents and teachers must understand that the child is undertaking something extremely difficult and could easily experience feelings of frustration, doubt, shame and insecurity (Pffifner, 1995).
- Clinicians should explain, demonstrate and model everything that you want the family and teachers to do at home. If possible, the clinician should observe the parents and teachers using the strategies with the child. If they have a firm understanding and comfort level with the strategies, they will be more likely to use them at home or at school.
- The clinician could offer suggestions if persistent stuttering leads to teasing. Even if the child is not being teased, this will make the teacher aware that it may happen and make her more alert in case it does happen (Murphy, 2000).

Summary

When a CWS has a co-existing learning, behavioral, or cognitive disability, the clinician will be faced with the task of developing an appropriate treatment program for these types of children. Understanding the nature of the child's stuttering and concomitant disorders begins with careful assessment. Once a clinician is familiar with each child's unique characteristics, abilities and challenges, he/she will need to decide on the design of the treatment program for the stuttering

and the concomitant disorder. The prevailing opinion is that CWS who also have a concomitant disorder should receive simultaneous treatment for both disorders and variations in this approach have been suggested by Bernstein Ratner (1995) and more recently, by Logan and LaSalle, 2003.

Unfortunately, there are no studies reported in the literature that have documented the effectiveness of an approach to treating children with stuttering and concomitant problems. Given this, we have attempted in this chapter to outline some of the key elements a clinician should bear in mind when treating CWS with learning, behavioral or cognitive impairments. A number of issues that have been found to be effective in working with children with LD and ADHD academically, appear to have particular relevance to clinicians treating these children who also stutter. A number of suggestions also were presented in helping clinicians work with children with mental retardation and Down's syndrome. Teachers and family members also become important adjuncts to the treatment process so there is continuity and coherence for these children.

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