Fluency Plus: Managing Fluency Disorders in Clients With Multiple Diagnoses

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Today’s agenda

- Definitions of fluency disorders
- Assessment principles and differential diagnosis
- Executive functioning and its relationship to treatment of fluency disorders with concomitant diagnoses
- Case studies with management strategies

Speech sound disorders
Autism Spectrum Disorders
Attention Deficit Hyperactivity Disorder
Intellectual Disability
Learning Disabilities
Selective Mutism
Gifted and Talented

My background
A changing view of clients

Definitions of Fluency Disorders
**ABCs of stuttering**

- **Affective:**
  - Feelings about stuttering
    - Guilt, shame, embarrassment, etc.
- **Behavioral**
  - Stuttering core behaviors (stuttering-like disfluencies, secondary behaviors)
- **Cognitive (beliefs and interpretations of your stuttering)**
  - Ex. "I can't work in a field that requires doing presentations because I stutter"

**Stuttering-Like Disfluencies (SLDs)**

<table>
<thead>
<tr>
<th>Repetitions of:</th>
<th>Example:</th>
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<tbody>
<tr>
<td>Single-Syllable whole words (with tension)</td>
<td>&quot;I-7-I&quot;</td>
</tr>
<tr>
<td>Sounds or syllables (part-word repetition)</td>
<td>&quot;d-d-duck&quot;</td>
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<tr>
<td>Prolongations</td>
<td>&quot;s-sometimes&quot;</td>
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<tr>
<td>Blocks/Tense Pauses</td>
<td>&quot;st---uck&quot;</td>
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<tr>
<td>Broken Words</td>
<td>&quot;bro---kon&quot;</td>
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**Covert Stuttering**

- I will hide my stuttering
- Varying degrees of avoidance
- Requires work on
  - Desensitization
  - Affective and cognitive components of stuttering

**Covert Stuttering: Keep in mind**

- There are varying degrees of covert stuttering, ranging from overt behaviors accompanied by covert aspects (i.e., word/communication avoidance) to completely covert with no overt behaviors noticeable to the casual observer.
- Be careful not to over or under-interpret these behaviors.
- Kids as young as 7 or 8 begin “Chasing the fluency god” (Starkweather) and can become masters of tricks and disguises.

**A Straightforward way to view cluttering**

Cluttering is a fluency disorder wherein segments of conversation in the speaker's native language are perceived as too fast overall, too irregular, or both. The segments of rapid and/or irregular speech rate must further be accompanied by one or more of the following: (a) excessive “normal” disfluencies; (b) excessive collapsing or deletion of syllables; and/or (c) abnormal pauses, syllable stress, or speech rhythm.

*St. Louis and Schulte (2011)*
Fluency Plus

1. Cluttering must occur in naturalistic conversation, but it need not occur even a majority of the time. Clear but isolated examples that exceed those observed in normal speakers are sufficient for a diagnosis.
2. This may also apply to the speaker’s mastered and habitual non-native language, especially in multilingual living environments.
3. This may be true even though syllable rates may not exceed those of normal speakers.

Current Definition

4. Synonyms for irregular rate include “jerky,” or “spurted.”
5. These disfluencies are often observed in smaller numbers in normal speakers and are typically not observed in stuttering.
6. Collapsing includes, but is not limited to, excessive shortening, “telescoping,” or “over-coarticulating” various syllables, especially in multisyllabic words.

Current Definition

Rapid Rate

Bakker, Myers, Raphael, St. Louis (2011)

The speaker is not necessarily speaking at a rate that is faster than normal. It COULD be faster than normal, but is not necessarily. The rate is faster than their system can handle, resulting in breakdowns in fluency or intelligibility.

Excessive “normal” disfluencies

Nonstuttering-Like Disfluencies

Repetitions of:
- Multisyllable whole words
- Phrases
- “open—open”
- “I want—I want”

Revisions
- “I like unicorns, no, I mean dragons”

Interjections/Fillers
- “um, uh, er, well, like, so”
**Excessive over-coarticulation**

**Abnormal pauses**

**Atypical disfluency**

- Word Final Disfluencies (WFDs)
  - Repetitions with or without a pause in between
    - Turn out the light- **t-t** so I can go to sleep
    - Turn out the light- **ight** so I can go to sleep
    - Turn out the light- **ight** so I can go to sleep
  - Prolongations
    - Thissssss is a scary movie
  - Mid word insertions
    - I am going to play- **hay** outside now

**NSLDs, SLDs, Atypical Disfluencies**

- Non-Stutter-Like Disfluency:
  - national dinosaur service of food supplies except for they—except for they never imagined
- Stutter-Like Disfluency:
  - one of the biggest fishes and then hhhe
  - you should try the **-eir** bouncy ball—**al-al** so they decided—**ed** to
- Word Final Disfluency:
  - and also for stealing their—**-eer** bouncy ball—**al-al** so they decided—**ed** to
  - at one o clock in the afternoon—**n** the dinosaur would come on—**n** over and—**nd** match
Fluency Evaluation
For differential diagnosis

Principles for evaluating fluency disorders in clients with concomitant diagnoses
- Look for all fluency disorders in all populations; research is still emerging
- Determine fluency disorder separate from concomitant disorder (when possible)
- Examine fluency disorder and consider role any concomitant diagnoses may play

What tools should we use?
- Stuttering Severity Instrument (Riley, 2009)
- Rating Scales (affective/cognitive): What’s True for You? (Chmela/Reardon)
- Behavior Assessment Battery (Brutten & Vanryckeghem)
- Kidd CAT (Vanryckeghem & Brutten)
- OASES (Yaruss, Quesal, Coleman)
- Articulation tests
- Contrast your client’s speech in:
  - Reading
  - Rote tasks (fast and slow)
  - Spontaneous speech
  - Conversation
  - Monologue (include “charged” topics)
  - Expository discourse

How do I get to the bottom of this?
- Getting a sample and doing a fluency analysis is key
  - Approximately 500 words (or syllables) or 5 minute sample in conversation, monologue
  - Word for word transcription and fluency coding

How do I get to the bottom of this?
- Determine what percentage of words are represented by:
  - NSLDs
  - SLDs
  - WFDs
  - Atypical pauses (for cluttering)
  - Over-coarticulation (for cluttering)

Examples
- Non-Stuttering Like Disfluency:
  Clayton was burning the midnight oil
  Equations and numbers were an trying to invade his house

- Stuttering Like Disfluency:
  - ClayClay still had fifteen pages to review

- Word Final Disfluency:
  - Hoping and praying to hear

- Atypical Pause:
  - He could no longer keep his eyes open so he hit the sack

- Over-coarticulation:
  - That night Clayton dreamed of numbers and equations
Cluttering

- Outline each criterion
- Describe the behaviors that might fit into this criterion
- Draw a conclusion

Differential diagnosis

- Excessive non-stuttering like disfluencies
  - Could it be a language retrieval/formulation issue?
  - Could it be covert stuttering?
  - Could it be cluttering?
  - Could it be a combination of these?

Avoidance vs. escape behaviors

- To avoid stuttering a client may:
  - Not speak to a certain person
  - Speak only when they feel fluent (“fluent” days)
  - Not participate in class or take on certain work responsibilities involving speaking
  - Email/text instead of calling
  - Speak in a fluency enhancing condition (whispering, accent)
  - Substitute words

Avoidance vs. escape behaviors

- To escape stuttering a client may:
  - Change a word once they become stuck
  - Say “forget it” or not finish a thought
  - Revert to use of fillers, tricks, changing body movements/postures
  - Revert to running starts

Scoping out escape/avoidance behaviors

- If you are unsure about a word avoidance, feign ignorance and ask again
- Reading passages help pinpoint avoidance
- Set up a game, etc. where suspected words, sounds have to be said as part of the rules
- Put your client in a difficult situation when able (phone calls with specific words)
Differential diagnosis
- Excessive non-stuttering like disfluencies
  - Tips for teasing it out
    - What does change of rate do?
    - How well can you follow the content/message of their discourse?

Differential diagnosis
- Excessive over-coarticulation
  - Is it an articulation disorder?
  - Is it a phonological disorder?
  - Is it dysarthria?
  - Is it apraxia?
  - Is there a structural issue such as velopharyngeal insufficiency?

Differential diagnosis
- Excessive over-coarticulation
  - Consider
    - Does decreasing rate make it better?
    - Are sounds at a decreased rate all articulated correctly?

Differential diagnosis
- Excessive atypical pauses
  - Consider
    - Does decreasing rate make it better?
    - Does student seem to have fewer pauses than the average speaker? To run on without taking a breath?
    - Differential diagnosis: consider covert stuttering “tricks”

Things to think about when making recommendations
- How often do these behaviors occur?
- How much do they interfere with a client’s overall communication effectiveness?
- How much do they have the potential to interfere with a client’s communication effectiveness?
Executive Functions are described as those abilities which allow a person to:

1. Plan a task (e.g., identify what is needed for task completion; break down a long-term task into short-term projects; set goals; develop a timeframe for completion);
2. Organize the task (materials, support personnel, etc.);
3. Execute the task;
4. Stay focused to the task and avoid distractions (attention, self-regulation);
5. Engage in ongoing problem solving (be aware of roadblocks and determine possible solutions);
6. Persist even when the task is difficult.

There is a lot of overlap between these skills.

Why should I care about this?

Although the clinician may or may not use formal testing to measure executive functions in clients with communication disorders, the clinician working with students with fluency and concomitant diagnoses should be aware of what executive functioning skills are and what signs of difficulties in each of these skill areas looks like.

As the clinician learns to identify the executive functioning skills, s/he will gain a better grasp on how these skills can contribute to progress or lack thereof in treatment.

Rationale

Although there may be trends toward specific types of executive functioning issues in specific populations, there will also be executive functioning issues unique to the individual.

Therefore, gaining a broad overview of potential executive functioning deficits will assist the clinician in accurate identification of roadblocks to progress and proactive management strategies to combat these roadblocks.

Executive Functions to consider

- Working memory
- Self-awareness
- Self-monitoring
- Attention to task
- Goal setting
- Inhibiting responses
Executive Functions to consider

- Retrieval
- Phonological encoding
- Task persistence
- Cognitive flexibility (included in self regulation)
- Problem solving (included in self regulation)

What populations?

- Populations long known to have difficulty with executive functions are those with traumatic brain injury (See Narad, Treble-Barna, Peugh, Yetes, Taylor, Stancin, & Wade, 2017, for review) and/or Attention Deficit Hyperactivity Disorder (ADHD; see Barkley, 1997, for review).
- Also considerations for cluttering

Executive Functions and stuttering

- Studies comparing preschool children who do and do not stutter indicate the following traits among preschoolers who stutter: difficulties with maintaining and shifting attention, increased negative emotions (including anger and frustration), increased reaction to and difficulty adapting to stimuli from the environment, and difficulties with inhibitory control (see Conture, Kelly, & Walden, 2013, for review). These temperamental features show some overlap with features of executive functioning. Investigators found that those who shifted away from neutral or emotional stimuli tended to produce more fluent narratives after the stimuli were presented.

Executive Functions and stuttering

- Phonological encoding is the process by which a phonetic plan is built for a word a speaker is trying to say (Levelt, 1989, p. 12).
- Phonological encoding has been identified as a potential area of weakness among adults who stutter and clutter (see Sasisekaran, 2014; Bretherton Furness, in preparation; see Pelczarski & Yaruss, 2014; Peckzarski & Yaruss, 2016; McGill, Sussman, & Ibyrd, 2016, for review).
- Part of phonological encoding involves holding verbal information in a "phonological loop" until the specifics of the message have been planned (Baddeley, 1996). Any difficulties in this area thus far have been identified when tasks are extremely long and/or complex.

Speech Sound Disorders

- A survey of 1184 speech-language pathologists in public schools regarding the co-occurrence of other disorders with stuttering showed articulation and phonological disorders to be the highest coexisting disorders among the children who stutter (Blood, Ridenour, Qualls, & Hammer, 2003).
- Concomitant speech sound disorders have also been identified as a risk factor in persistent stuttering among preschoolers (Paden, Yairi, & Ambrose, 1999).
- No studies have been conducted to date examining the co-occurrence of articulation disorders and cluttering and/or atypical disfluencies.

Speech Sound Disorders: Myths and Facts

- Myth: Work on speech sound disorders can trigger stuttering
- Fact: Stuttering is thought to be multifactorial, with a predisposition to trigger stuttering. There is no evidence to support a specific trigger to childhood stuttering. If one stressor was not present (such as work on SSDs), the predisposition would have been triggered by another stressor.
Fact: Sometimes strategies used with SSDs and those used with stuttering can be in opposition to one another

- SSDs: emphasize your sounds, placement
- Stuttering: light contact, gentle onset to sounds

**Speech Sound Disorders: Myths and Facts**

- There are no executive functioning issues inherent to speech sound disorders (SSDs)
- However, when working with childhood apraxia of speech, keep in mind that there may be concomitant learning challenges which may impact attention and/or working memory

**Speech Sound Disorders: Case Study**

Case study

- 4-year-old male
- Working on phonological process disorders following the cycles approach since 3 years of age
- Moderate stuttering began at age 4, characterized by 2 to 3 second blocks, facial tension, and personality changes

Treatment approach

- Focus on stuttering to gain an easier start to speech and to prevent long-term development of secondary behaviors
- Put SSD work on hold for 3 sessions
- Once was able to respond to cues for use of rainbow speech, incorporated gentle but accurate placement for SSD work
- E.g., FCD work use touch cues for gentle approach to final sound production

**Autism Spectrum Disorders**

Types of disfluency to be aware of:

- All:
  - Population where may be more likely to see clattering and/or atypical disfluencies

Executive functioning features to be aware of

- Self-regulation
- Self-awareness and self-monitoring
- Cognitive flexibility
- Problem solving
- Task persistence

**Autism Spectrum Disorders: Case Study**

Case Study

- 10-year-old male with diagnosis of Autism Level 1
- History of Childhood Apraxia of Speech
- /r/ distortion
- Cluttering (characterized primarily by over-coarticulation)
- Atypical disfluencies

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Autism Spectrum Disorders: Case Study

- EF roadblocks in treatment
  - “I don’t want to plan it out”
  - Difficulties with task persistence, problem solving, and emotional regulation
  - High standards for self (G & T?)
- Overcoming EF roadblocks
  - In through the back door
  - Perspective taking: how pausing helps the listener
  - ENGAGEMENT IS KEY!!

Attention Deficit Hyperactivity Disorders

- There is co-occurrence between fluency disorders and attention disorders (Arndt & Healey, 2001; Blood, Blood, and Tellis, 1999; Blood, Ridenour, Qualis, & Hammer 2003).
- Attentional weaknesses have also been found in cluttering (Blood, Blood, & Tellis, 1999).
- Difficulties with inhibiting responses such as responses to internal distractions are proposed to be a key area of deficit in ADHD (Barkley, 1997).

Attention Deficit Hyperactivity Disorders: Case Study

- Case study
  - 12-year-old male with ADHD
  - Concomitant diagnosis of cluttering
- EF Roadblocks:
  - Impulse control and short responses
  - Working memory and recall of strategies in connected speech practice
  - Retrieval/language organization difficulties
  - Overcoming EF Roadblocks:
    - Visual organizers/reminders for strategies
    - “Extra effort saves me time”

Attention Deficit Hyperactivity Disorders: Myths and Facts

- Myth: All clients with this difficulty will be either: 1. frequently up and out of their seat and impulsive; or 2. quietly inattentive.
- Fact: While clients can exhibit one or the other of these characteristics, they can also exhibit both types.
- Myth: Inconsistent performance among those with attention disorders signifies laziness
- Fact: Remember that behavioral responses do not occur in a vacuum

Intellectual Disability

- Intellectual Disability is a neurodevelopmental disorder whereby the client presents with both challenges in intellectual and adaptive functioning (American Psychiatric Association, 2013).
- Typical Intelligence Quotient (IQ) score on standardized tests is approximately 70-75 or lower.
- Intellectual Disability may be associated with a specific syndrome or be nonspecific.
**Intellectual Disability**

- It is thought that fluency disorders may present more frequently in clients with ID, and that greater degrees of ID may be related to higher levels of disfluency (see Van Borsel & Tetnowski, 2007, for review). Fluency disorders have been identified in genetic syndromes, many of which include individuals with ID.

- Executive functioning deficits
  - Working memory
  - Self-awareness
  - Self-monitoring

**Intellectual Disability: Myths and Facts**

- Myth: Those with ID are largely unaware of their stuttering, therefore have no affective and cognitive components present
- Fact: This is individual to the client
  - Consider that “all behavior is communication” and that noises, facial expressions, etc. may indicate frustration
  - Frustration may be “in the moment” as with preschoolers who stutter
  - Feeling of frustration and reactions such as avoidance can and will occur, even if clients cannot verbalize them as those without intellectual disability might

- Myth: Those with ID cannot learn to use fluency strategies
- Fact: Those with ID CAN learn fluency strategies
  - Will need concepts made concrete and meaningful for them
  - Will require repetition, reinforcement, ongoing coaching to implement strategies

**Intellectual Disability: Case Study**

- 16-year-old male with Down Syndrome
- Stuttering and Cluttering
- Ongoing difficulties with carryover outside of speech room and self-monitoring
- Signs of frustration but unable to have cognitive discussion about this

- Overcoming EF Challenges
  - Use synergistic approach (Myers & Bradley, 1992) to decrease load on working memory and comprehension of strategies
  - Collaboration with teachers (“coach”)
  - Make stuttering and cluttering strategies concrete
  - Rainbow speech
    - Talk like a SMART board
  - Feelings
    - Comic strip cartoons with pictures of frustrating situations from life
    - Situations labeled with range of emotions...e.g. from annoyed to frustrated
The category of learning disability in the United States is diagnosed when a student, despite average to above average IQ, has difficulty with academic performance due to difficulties in how the brain receives and processes information.

Problems may be identified in areas such as reading, writing, mathematics, listening, spelling, and some related movement disorders (National Center for Learning Disabilities, 2013). The National Center for Learning Disabilities (NCLD; 2013) considers the aforementioned academic disability areas to be central to learning disorders, and the following difficulties to be “associated disorders” which may coexist with a learning disability: dyspraxia, executive function disorders, Attention Deficit Hyperactivity Disorder (ADHD), auditory processing disorder, visual processing disorder.

Disorder categories such as ADHD and visual processing disorder are not language based. It should be noted that in other parts of the world, learning disabilities equate to Intellectual Disability, where IQ scores are below average.

The literature at one time described cluttering as a complex syndrome of learning disabilities (Tiger, 1980). Auditory processing difficulties and difficulties with attention to auditory tasks have been found in those with cluttering (Blood, Blood, & Tellis, 1997; Blood, Blood, & Tellis, 1999; Blood, Blood, & Tellis, 2000).

Deceased efficiency in processing syntactical forms has been found in children (Usler & Weber-Fox, 2015) and adults (see Usler & Weber-Fox, 2015, for review). It is also known that disfluency in general (stuttering and non-stuttering like) is seen more in clients with overt language disorders and/or in clients with subtle language disorders that are not identified on testing (see Bloodstein & Bernstein Ratner, 2008, for review).

Word-final disfluencies have been identified in children with language disorders (Scaler Scott, Tetnowski, Flaitz, Yanuss, 2014), literacy disorders (Surkowski, Tokach, Scaler Scott, 2015), and attention disorders (Scott, Grossman, Abendroth, Tetnowski, & Damico, 2007). When the clinician is evaluating a client with any type of learning disability, it is warranted that they observe, test for, and ask about symptoms related to stuttering, cluttering, atypical disfluency, and excessive normal disfluency.
8-year-old male with diagnosis of: ADHD, language based learning disability, central auditory processing disorder

Fluency diagnoses:
- Cluttering
- Word-final disfluency

EF challenges:
- Self-awareness
- Task persistence
- Impulsivity

Selective Mutism (SM) is a disorder whereby the client exhibits normal communication in select situations (such as in a home environment) but exhibits limited communication in other situations (such as at school).

The origins of SM are thought to be based in anxiety disorders (American Psychiatric Association, 2013).

Although this disorder is based in anxiety, it results in difficulties in daily communication.

Myth: Those with SM are not necessarily mute!
Fact: Those who talk significantly less in selected situations by definition fit the criteria for SM. This does not necessarily mean completely mute or largely nonverbal!

Myth: SM is a behavioral disorder where clients are mute to gain control
Fact: Disorder is anxiety based; ability to communicate in different contexts will depend upon contribution of a multitude of factors

8-year-old female

Diagnosis of stuttering characterized by part-word repetitions and fleeting blocks

Many avoidance behaviors indicative of covert stuttering:
- Changing voice/accent
- Avoiding words (“hey you” for “mom”)

We came to find out
- Traumatic experience in kindergarten which resulted in counseling and home schooling
- Determined anxiety of speaking was not only about stuttering
**Selective Mutism: Case Study**

- EF Challenges
  - Task persistence

- Overcoming EF challenges
  - Focus on communication first before could even get to desensitization strategies for stuttering

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**Gifted and Talented**

- The federal definition of giftedness in the United States (US) is as follows:
  - Students, children, or youth who give evidence of high achievement capability in areas such as intellectual, creative, artistic, or leadership capacity, or in specific academic fields, and who need services and activities not ordinarily provided by the school in order to fully develop those capabilities (Elementary and Secondary Education Act of 1965)

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**Gifted and Talented: Case Study**

- 9-year-old boy
- Moderate to severe stuttering characterized by up to 5 second blocks, facial tension, secondary behaviors, occasional avoidance behaviors

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**Gifted and Talented: Myths and Facts**

- Myth: A child who is gifted will perform above their age level on academic tasks and emotional tasks
  - Fact: A child may perform above age level on academic tasks, but at age level emotionally. Important to keep in mind when grouping children by interest and ability level.

- Myth: A client who is gifted always welcomes challenging tasks
  - Fact: These clients often set unrealistic expectations for themselves for perfection; therefore, may avoid more challenging tasks and/or become frustrated more easily when things don’t come to them right away

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**Gifted and Talented: Case Study**

- EF Challenges
  - Things don’t come easily: task persistence
  - His stuttering requires lots of staying in the moment to access a strategy vs. a trick

- Overcoming EF challenges
  - Use “strategic” nature to talk about approach to stuttering
  - Shorter tasks
  - Mindfulness activities
Fluency Plus
Managing Fluency Disorders in Individuals With Multiple Diagnoses
Kathleen Scaler Scott, PhD, CCC-SLP

Resources

Managing Cluttering: A comprehensive guidebook of activities
Kathleen Scaler Scott and David Ward
Pro-Ed, Inc.

- International Cluttering Association
  http://www.associations.missouristate.edu/ICA/

- First Cluttering Online conference:
  http://www.mnsu.edu/comdis/ica/icacon.html

Summary

- Need to conduct a differential diagnosis of fluency disorders
- Consider the role of executive functions related to the concomitant disorder(s)
- Adjust your approach based upon what EF challenges are presenting themselves
- Remember that each client is an individual and there is no one right solution

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