Cluttering vs. Stuttering

A REVIEW OF LITERATURE TO HELP CLINICIANS FIGURE OUT DIFFERENTIAL DIAGNOSTIC CHARACTERISTICS BETWEEN CLUTTERING AND STUTTERING AS WELL AS SOME TREATMENT IDEAS.

Literature

- Today's information comes from two sources.
- The first is a research article by Van Zaalen- Op't Hof, Wijnen, and De Jonckere titled, Differential diagnostic characteristics between cluttering and stuttering- Part 1
- The second is a presentation from David. A. Daley, Ed. D. titled, Identifying and Treating Cluttering: Effective Strategies Clinicians Need to Know

What is stuttering?

- Repetitions of sounds, syllables, or one syllable words
- Prolongations of sounds
- Blocks of airflow or voicing in speech
- Often accompanied by secondary features
- Usually aware

What is cluttering?

- According to a group of experts, Cluttering can be defined by three main features:
- 1. A rapid and/or irregular articulatory rate
- 2. A higher than average frequency of normal disfluencies (interjections, revisions, and syllable/phrase repetition)
- 3. Reduced intelligibility due to exaggerated coarticulation (deletion of syllables or sounds in multi-syllabic words) with indistinct articulation

Percentages for Four Subgroups of Fluency Clients
(Daly, 2007)

Pure Clutterer	Clutterer-Stutterer	Stutterer with Concomitant Problems • Articulation • Language Disabilities • Motor Coordination • ADHD/ADD • Hearing Loss • Speech Dyspraxi	Pure Stutterer
2%	33%	32%	33%

Daly's Dozen Indicators of Cluttering

1. Poor awareness & poor self-monitoring skills
2. Telescopes or condenses words
3. Rapid rate with poor intelligibility
4. Lack of pauses between words; run-on sentences
5. Imprecise articulation (distorts & omits sounds)
6. Irregular speech rate; speaks in spurts
7. Interjections; revisions; many filler words
8. Compulsive talker; many circumlocutions
9. Disorganized language; trouble sequencing
10. Repetitions of multi-syllabic words & phrases
11. No excessive effort during disfluencies
12. Speech better under pressure

Eight (8) Additional Indicators Believed to be Significant for Identifying Possible Clutterers

13. Word-finding difficulty
14. Initial loud voice; trails off to a murmur
15. Respiratory dysrhythmia; poor breath support
16. Inappropriate turn-taking; frequently interrupts
17. Oral reading & writing problems (omits, adds, and transposes letters, syllables, and words)
18. Clumsy & uncoordinated; impulsive motorically
19. Little inhibition or anxiety about speech
20. Signs of ADD and/or hyperactivity

*The Items on these two pages constitute Daly's (2007) Top 20 of the 33-Items for Identifying Cluttering

1. Rapid and/or irregular articulatory rate

- In St. Louis et al. (2003) definition of cluttering, they describe this rapid and/or irregular articulatory rate as the main distinguishing characteristic between cluttering and stuttering.
- The article suggests that this can be subjective because agreement on what defines an abnormally fast rate needs to be defined.
- Example video:
- https://www.youtube.com/watch?v=eAJB4JgeGAA

2. Intelligibility and imprecise articulation

- Experts in the field believe that there are two reasons people who clutter often have intelligibility problems:
- 1. exaggerated coarticulation (deletion of sounds or syllables in multisyllable words)
- Indistinct articulation (substitution of sounds and/or syllables)

- It is hypothesizes that cluttering can be defined as a fluency disorder in which speech motor control at the world level is disturbed in high speech rate, resulting in errors in word structure.
- https://www.youtube.com/watch?v=2AFygz-bxwQ

3. Frequency and type of disfluencies

- High frequency of normal disfluencies
- Low frequency of disfluencies typical for stuttering

Client X: During speaking sample, Client X produced 234 syllables with 22 stuttering events. He presented with 9.4% stuttering syllables.

* 2 syllable repetitions, 1 phrase repetition, 1sound prolongation, 5 interjections, and 13 revisions

- My video

Subject Clinical Judgement

- Up until this research study, most differential diagnosis of cluttering vs. stuttering was based upon subjective clinical judgement.
- They wanted to develop a more objective method for this.

The study

- All participants were referred for stuttering therapy
- A control group was included to obtain normative values for articulation rate as well as scores on a speech motor control assessment.
- Participants were diagnosed based on subjective clinical judgementon three different speech tasks.
  - Spontaneous speech, reading, and retelling a story
- Two SLP's, who specialized in fluency disorders, blinding looked at the data and made diagnostic decisions. They diagnosed people as cluttering, stuttering, and cluttering-stuttering.

What was tested:

- As mentioned before, three speech samples.
  - Monologue
  - Reading Sample
  - Retelling a story sample
- Speech Motor Control Measures
  - Syllable level: Oral motor Assessment Scale (Also measured articulation accurary)
  - Word level: The Screening Pittige Articulatie (the SPA test)
- Rate
  - Mean Articulatory Rate (MAR)
  - They defined "fast articulatory rate" as a rate greater or equal to 1 SD about the MAR of disfluent speakers.
- **Ratio disfluencies**
  - **Dividing the percentage of non-stutter like disfluencies by the percentage stutter disfluencies.**
  - **It is expected that persons who clutter will have a higher frequency of non-stutter like disfluencies so the ratio will be above 1.**

Results:
Back to Subjective Clinical Judgement….

- As mentioned before, it was crucial to find more objective measures-
- Pearson's correlation between SLP diagnoses was LOW.
- Of the 54 male/female disfluent speakers, only 27 were agreed upon by the SLP's in their diagnosis (50%).
- Of the 54, 7 (13%) were diagnoses as PWC by one and PWS by another
- 20 were diagnosed as PWC or PWC by 1 and PWCS by the other.
- Only 27 subjects were agreed upon!

Results:

- Articulatory Rate:
  - The MAR (syllables per second) was slower for persons who stutter compared to persons who clutter and controls.
- Fast Articulatory Rate (more than 1SD above the MAR)
  - Most of the PWC (56%) met the description of "fast articulatory rate" in spontaneous speech and the PWS did not.
  - *no group differences found in reading or telling a memorized story
- Ratio Disfluencies
  - Differences were found between groups for spontaneous speech in ratio disfluencies but not in reading.
  - PWC produced **6.4 times** more normal disfluencies compared to stutter disfluencies in spontaneous speech and **7.6 times** in telling a memorized story!
- Articulatory accuracy and smooth flow
  - PWC produced significantly more accuracy errors compared to controls and PWS.
  - Controls had the least smooth flow errors, then PWS, then PWC.

Adding Objectives measures to Subjective Clinical Judgement

- Using a ratio disfluencies <2.87 (meaning cluttering symptom) was added, 11 out of the 54 could be added to the 27 cases the SLP's decided on.
- Adding accuracy problems >2.1 (cluttering component) to the diagnosis, 9 more cases could be confirmed.
- An agreement of 42 out of 52 (77.8) were agreed upon now!

How does this help us?

- Adding more concrete, evidence-based data into our evaluations
- If cluttering is suspected (or even if not), obtaining a speech sample from home is very important, with the client knowing and not knowing if possible.
- Very difficult to subjective find differences between PWC and PWS. These tools can help us as clinicians feel more confident giving a diagnosis.
- Help plan appropriate treatment

Limitations

- Although this information can be helpful for differential diagnosis, the objective measure values were based on a small amount of disfluent participants that both SLP's agreed upon.
- They recommend future studies look at multiple factors/domains in data collection process and look at young children with overlap with speech/language domains occur.

Part 2

- The second article is not discussed at length in this PowerPoint.
- They discuss and examine results form the Predictive Cluttering Inventory (PCI) (Daly & Cantrell, 2006) in relation to the subjective and objective measurement's studied in the first article.
- https://associations.missouristate.edu/ICA/Translations/PCI/dalycluttering2006.pdf
- This checklist contains 33 symptoms associated with stuttering in four domains (pragmatics, speech, motor, language and cognition) and ranked on a seven-point scale (0-not present, 6- always present) in order to predict possible cluttering.
- This second article looked to correlate PCI data with characteristics of spontaneous speech production in disfluent and fluent speakers and validate the PIC as a cluttering detection instrument.

- One significant problem in trying succinctly to identify the characteristics of a clutter lies in the fact **that there may be two basic strands to the disorder; a language component and a motor one**" (Ward, 2006, p. 141). The fact that it is common for cluttering to present more as a language problem than a motoric one, was supported by both factor and cluster analysis which proposed two major clusters of variables: a speech motor and a language component. **"In case of linguistic cluttering speech output is more likely to show a lack of linguistic fluency, characterized by poorly constructed language rather than as an output which is motorically disrupted"** (Ward, 2006, p. 141), or as Daly described: "in cluttering accelerated speech is not always present, but an impairment of language formulation always is" (Daly, 1992, p. 107). **In cases of motoric cluttering speech output is more likely to show a lack of speech flow fluency characterized by excessive coarticulation, lack of speech rhythm, fast bursts of speech interspersed with short inappropriate pauses** (Bezemer et al., 2006; Daly, 1996; Damsté, 1984; Dinger et al., 2008; St. Louis, 1992; St. Louis et al., 2003, 2007; Ward, 2006; Winkelman, 1990).

Quick Results

- They found the PCI (in its current state) does **not** service as a valid diagnostic tool for cluttering
  - Scoring not clear
  - It does differentiate between fluent and disfluent speaks but not between different types of fluency problems.
- It can be used as a valid screening instrument for possible cluttering symptom
- They used a revised PCI that involved selecting all the items that significantly differentiated littering from stuttering and controls.
  - Can be found at the end of the research article

Daly's suggestions for Scoring the PCI

- Due to difficulty in diagnosing cluttering, they suggest scores of 120+ be classified as CLUTTERER
- 80-120 CLUTTERER-STUTTERER.
- "At this time, we suggest that the number and severity of various symptoms of cluttering may be more accurate predictors of cluttering than any one score."

Daly's treatment ideas to target different deficit areas

Targeted Deficit Area	*Treatment Principles and Activities*
Awareness *It is important to address awareness as a whole and as it pertains to each deficit area.*	• Provide rationale for each task and goal in each session • Utilize video and audio recordings • Provide immediate, direct feedback with positive reinforcement for appropriate performance/behavior • Multisensory feedback; e.g., vibro-tactile feedback, pacing board • Negative practice
Self-Monitoring *Tasks for awareness also assist in improving self-monitoring and vice-versa. Impulsivity also improves.*	• Monitor number of times the client self-corrects (e.g., an articulation error, self-cues to reduce rate, etc.) • Use of Delayed Auditory Feedback • Self-rating for specific task performance (i.e., demonstrating ability to accurately judge correct or desirable performance) • Train awareness and accurate response to listener feedback
Attention Span	• Measure time on task (sustained attention) • Tally number of times redirection to task is required • Use timer or alarm to indicate task beginnings, endings • Listening for comprehension and details, following directions; selections of increasing duration • Auditory memory for increasingly longer series of numbers (forward or backward), words (related or unrelated)

Treatment ideas cont.

Thought Organization/ Formulation *Note that each activity may actually address multiple target areas simultaneously*	• Naming attributes within given categories for specific objects • Categorization of items or objects • Detailed description of objects, increase use of descriptors/ adjectives • Describe similarities and differences of two objects • Sequencing activities, such as naming steps to complete a task or giving directions • Story telling; structured with use of picture sequencing cards or unstructured narrative • Writing; same tasks as above with written responses
Semantics, Syntax, and Lexical Selection *The activities in the sections above as well as these can be targeted in verbal or written exercises*	• Unscramble words, sentences, paragraphs • Vocabulary building exercises • Naming activities, including confrontation naming and naming to description or category • Cloze activities at sentence or paragraph level • Sentence framing • Combining simple sentences into one complex sentence
Pragmatics/Social Skills	• Listening activities requiring careful follow-through; blind board activities • Training appropriate means of requesting clarification, questioning • Building awareness of specific behaviors through direct feedback (verbal, audio or video replay, role-playing) • Overt practice of social skills (greetings, introductions, salutations)

Targeted Deficit Area	*Treatment Principles and Activities*
Pragmatics/Social Skills (cont.)	• Topic-specific discussion; attempt to make all remarks pertain to one topic • Overt or exaggerated practice of acknowledging nonverbals (reading expressions, body language) • Practice of turn-taking in activities and conversation; move from highly structured to less structured tasks • Appropriately tell jokes (proper sequencing, timing)
Speech Production and Prosody *Many suggestions in this section address speech & motor abilities*	• Rate reduction programs; DAF; deliberate, exaggerated practice • Reduce repetitions via use of DAF, deliberate phonation, decreasing rate and increasing linguistic skills • Emphasize appropriate changes in inflection/intonation; stressing different words to change meaning, statements versus questions • Breathing modifications for better coordination with speaking and increased use of pauses; appropriate use of "verbal punctuation" • Overarticulation and exaggeration of mouth movements; articulation drills if necessary • Imitation or oral reading of nursery rhymes, poetry
Motor Skills	• Oral-motor skills training (e.g., Riley and Riley) • Recite tongue twisters • Address penmenship in written assignments • Practice various rhythmic patterns (tapped or verbalized)

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