



# Characteristics of the Stuttered Word in Older and Younger Spanish-Speaking Children

Jennifer B. Watson<sup>1</sup>, Ph.D., CCC-SLP, Courtney T. Byrd<sup>2</sup>, Ph.D., CCC-SLP, and Edna J. Carlo<sup>3</sup>, M.S. CCC/PHL  
 Texas Christian University<sup>1</sup>, University of Texas at Austin<sup>2</sup>, University of Puerto Rico<sup>3</sup>  
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## Abstract

This study examined the characteristics of words identified as stuttering-like disfluencies in the spontaneous speech of younger and older monolingual Spanish-speaking children who stutter. These disfluencies are described for each age group in terms of their position in the clause and word, the length of the disfluent word, the initial phoneme of the word, and whether it was a content or function word.

## Background

Empirical studies have demonstrated that the stuttering of older children and adults who speak English is influenced by certain word attributes, with stuttering occurring more on content words, words beginning with consonants, and on longer words (e.g., Brown, 1945; Brown & Moren, 1942).

In younger children, stuttering occurs more frequently on function words, single-syllable words, and the first word of a sentence or clause (e.g., Au-Yeung, Howell, & Pilgrim, 1998; Bloodstein & Gantwerk, 1967; Starkweather & Harris, 1981).

Although a limited number of studies have been completed investigating the characteristics of stuttered speech in languages other than English (e.g., Jayaram, 1983; Ratner & Benitez, 1985; Au-Yeung, Gomez, & Howell, 2003), additional study is needed to better understand the cross-linguistic attributes of stuttering.

This study is one of a series examining the characteristics of stuttering monolingual children who speak Spanish and addressed the following:

- Are stuttered words more likely to be: at the onset or within in a word or clause, single-syllable or multi-syllabic words, vowel or consonant initiated, and content or function words?
- How are these attributes affected by age?
- How do these findings compare with previous reports of English-speaking children?

## Method

### Participants

- Participants were fourteen children from Puerto Rico, including 6 boys and 3 girls aged 2;11 to 5;3 ( $M=4;0$ ) and 5 boys aged 6;1 to 8;7 ( $M=7;4$ ) identified through Head Start centers and private clinics.
- All children were monolingual Spanish-speakers (based on parent and teacher reports that only Spanish was spoken at home and school) and born and raised in Puerto Rico with Puerto Rican parents.
- The parents and a Puerto Rican speech-language clinician both identified a stuttering problem that had lasted for at least six months for each participant. An independent Spanish-speaking ASHA certified speech-language pathologist also verified the presence of stuttering in all participants.
- All participants passed pure tone screening (ASHA, 1990).
- Speech and language skills were screened by a Puerto Rican native Spanish speaker researcher. A criterion reference screening procedure was used to determine age-appropriate articulation for Puerto Rican Spanish speaking children (see Carlo & Watson, 2003). All participants demonstrated adequate production of all phonemes expected for their age.
- Grammatical skills were examined using the *Screening Test of Spanish Grammar (STSG)* (Toronto, 1973). All participants scored at or above the 50th percentile based on the test's norms for Puerto Rican children.
- Voice was informally assessed while completing screening tasks and determined appropriate for the children's age and gender. An oral peripheral exam revealed normal structures/function to support speech.

### Data Collection

- All spontaneous speech samples were video-taped and obtained with the same Puerto Rican native Spanish-speaking researcher who screened the participants. Free-play activities used during elicitation of samples included the same materials (e.g., play food and cooking utensils, play phones, Legos) for all participants. Picture description tasks included stimuli from the *Stuttering Severity Index Instrument-3* (Riley, 1994).
- Bilingual (Spanish-English) graduate assistants transcribed all speech samples using *Systematic Analysis of Language Transcripts (SALT)*; Miller & Iglesias, 2006). Transcriptions were reviewed and changed as needed by a Puerto Rican Spanish-speaking researcher familiar with the dialectal variations.
- Sample sizes ranged from 470 to 1240 syllables ( $M=848.7$ ,  $SD=186.3$ ).

### Data Analysis

- Stuttering-like disfluencies (SLDs) were identified and coded, including monosyllabic word, syllable and sound repetitions, prolongations, and blocks.
- All SLD words were coded for the following:
  - Clause location: Onset or Within
  - Word location: Initial, Medial, or Final Position
  - Word length: 1 Syllable, 2 Syllables, More than 2 Syllables
  - Initial Phoneme: Consonant or Vowel
  - Grammatical Class: Content Word (Noun, Main Verb, Adjective, Function Word (Article, Pronoun, Auxiliary Verb, Preposition, Conjunction) or Adverb) or

### Reliability

- Intra-/inter-rater reliability was completed for four randomly selected participants (two from each age group). Point-by-point percentages of agreement for SLD, clause and word location, word length, initial phoneme, and grammatical class ranged from 95.7 to 100 for intra-rater and from 94.2 to 100 for inter-rater.

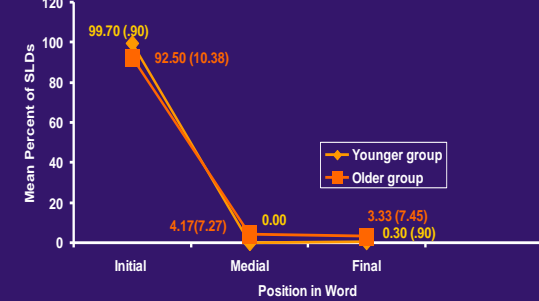
## Results

Figure 1. Mean percent (SD) of SLDs at onset or within clauses for younger and older groups



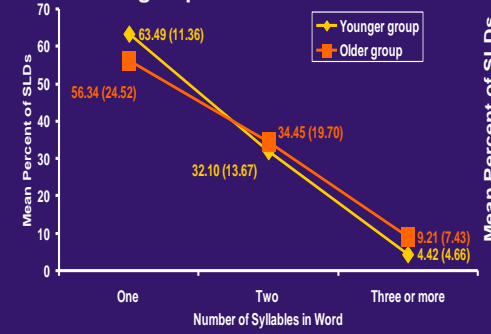
**Findings related to Figure 1:** No main effect for clause loci of stuttered word. Significant interaction effect [ $F(1, 24) = 10.36$ ;  $p = .004$ ] for clause loci and age with the older group exhibiting more within clause stuttering.

Figure 2. Mean percent (SD) of SLDs on word initial, medial, or final phoneme for younger and older groups.



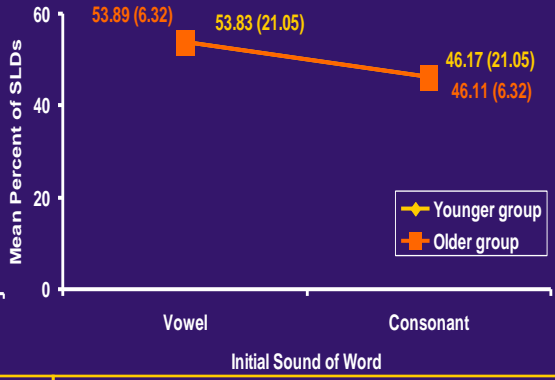
**Findings related to Figure 2:** Significant main effect [ $F(2, 36) = 1564.61$ ;  $p < .001$ ] for stuttering to occur at the beginning of words. Significant interaction effect [ $F(2, 36) = 5.189$ ;  $p = .010$ ] between age and word loci.

Figure 3. Mean percent (SD) of SLDs in one, two, and three or more syllable words for younger and older groups.



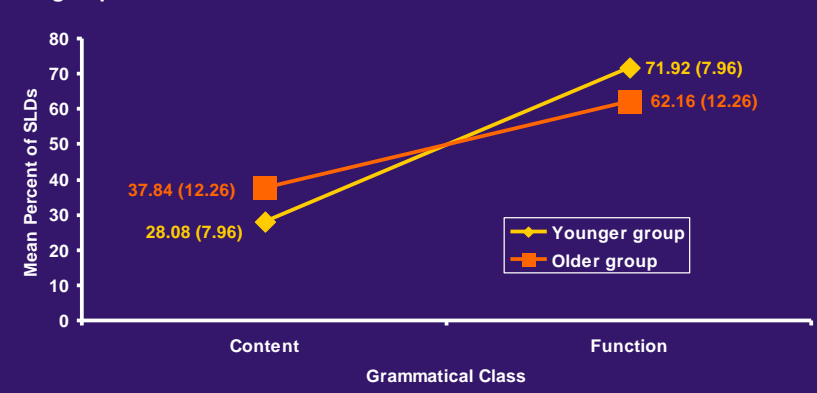
**Findings related to Figure 3:** Significant main effect [ $F(2, 36) = 47.43$ ;  $p < .001$ ] for stuttering to occur on one syllable words regardless of the child's age.

Figure 4. Mean percent (SD) of SLDs in vowel and consonant initiated words for younger and older groups.



**Findings related to Figure 4:** No differences in the stuttered words initiated with vowels or consonants for either the younger and older children.

Figure 5. Mean percent (SD) of SLDs in function and content words for younger and older groups.



**Findings related to Figure 5:** Significant main effect [ $F(1, 24) = 80.89$ ;  $p < .001$ ] with more stuttering occurring on function words. Significant interaction effect [ $F(1, 24) = 6.63$ ;  $p = .017$ ] for grammatical class and age group.

## Conclusions and Discussion

**Finding 1:** Stuttering words in younger & older Spanish-speaking children occur both at the onset & within clauses. More within clause stuttering was observed in the older children.

By comparison, in English-speaking children, stuttering is more likely to occur on clause-initial words (e.g., Bernstein, 1981; Wall, Starkweather, & Cairns, 1981). Further study of the influence of clause length, syntactic complexity, age, and stuttering in Spanish is needed.

**Finding 2:** In both younger and older Spanish-speaking children, stuttering occurs most frequently on the initial sound of words. However, the older children had more instances of stuttering in other word positions

Stuttering on the initial phonemes of words is consistent with reports of stuttering in English for both children and adults (Bloodstein, 1995; Wingate, 1988). Further study of stuttering in other word positions relative to other word features (e.g., word length and familiarity, lexical class) is warranted.

**Finding 3:** The majority of stuttering occurs on words of one syllable in both younger and older Spanish-speaking children who stutter.

Although longer words in English are reportedly stuttered more frequently (e.g., Brown & Moren, 1942; Soderburg, 1966; Wingate, 1967), the influence of lexical class and word frequency and familiarity on word length in Spanish should be investigated.

**Finding 4:** There are no differences in the initial phonemes of the stuttered word for younger and older Spanish-speaking children. Stuttering occurs on both vowel and consonant initiated words.

While in English, initial consonants have been found to be stuttered more frequently than initial vowels, this distinction was not observed in these children. There is evidence, however, that phonetic profiles in stuttering loci differ across two languages in bilingual speakers (Bernstein, Ratner & Benitez, 1985). Further study of the phonetic features, as well as lexical and syntactic characteristics, of the stuttered Spanish word is needed.

**Finding 5:** As a group, stuttering occurred more frequently on function words. However, stuttering on content words was more frequent for the older children.

The observations of more frequent stuttering on function words in younger children is consistent with reported findings of English-speaking children who stutter (Bloodstein & Gantwerk, 1967; Bloodstein & Grossman, 1981; Howell, Au-Young, & Sacken, 1999). It appears that the older children were shifting from stuttering on function words to more stuttering on content words, a finding consistent with previous reports of other Spanish-speaking children who stutter (Au-Yeung, Gomez & Howell, 2003).

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