Vanderbilt University
Speech Language Study involving Children Who Do and Do Not Stutter

This dataset includes fluency, speech and language variables of 60 children who participated in a research study at Vanderbilt. The study involved conversations with a clinician in the home of the participant and conversations in a lab setting on campus with a parent. During the two visits, standardized speech and language tests were administered to the children, and parents were given several questionnaires to complete.

Participants include 30 preschool children who stutter (CWS), and 30 preschool children who do not stutter (CWNS), all of whom were native speakers of American English. All children were between the ages of 3 years and 5 years and 11 months. A child was considered a CWS if he or she (a) exhibited three or more stuttering-like disfluencies (SLD; i.e., sound/syllable repetitions, monosyllabic whole-word repetitions, sound prolongations, inaudible sound prolongations) per 100 words of conversational speech with a clinician in a clinical setting (based on a 300-word sample; Conture, 2001; Yairi & Ambrose, 1992) and (b) received a total score of 11 or above (a severity equivalent of at least “mild”) on the Stuttering Severity Instrument (SSI-3). A child was considered a CWNS if he or she (a) exhibited two or fewer SLD per 100 words of conversational speech with a clinician in a clinical setting (based on a 300-word sample) and (b) received an overall score of 10 or less (a severity equivalent of less than “mild”) on the SSI-3.

Variables in dataset (See Variable Definition file)

Participant Characteristics
The dataset includes both males and females who participated in the study. Age is determined by the number of months between the child’s date of birth and the date that the child participated in the study. Time since onset of stuttering in months (TSO) was obtained during the parent interview using a “bracketing” procedure, whereby the interviewer systematically narrowed down the time of onset of stuttering (Yairi & Ambrose, 1992). It is based on the parent reports (retrospectively) of when the child began to stutter.

Speech Fluency Measures
A 300-word conversational speech sample was extracted from the home visit and the campus visit. It was analyzed for the following speech disfluency measures: (a) frequency of all speech disfluencies (within-and between-word disfluencies) per 100 words (i.e., rate), based on the 300-word speech sample; and (b) frequency of within-word disfluencies (i.e., sound/syllable repetitions, sound prolongations, broken words) and monosyllabic whole-word repetitions per 100 words (i.e., rate), based on the 300-word speech sample. The Mean length of utterance (MLU) was computed on each 300-word sample. MLU is a measure of linguistic productivity in children, and is considered a good marker of language impairment. A higher MLU is taken to indicate a higher level of language proficiency.

The Stuttering severity instrument (SSI, Riley, 1994) is a widely used reliable, and valid norm-referenced stuttering assessment. The SSI scores are derived from measures made on both a speech sample and observations of physical concomitants. The SSI assesses three major parameters of disfluent speech including frequency, duration, and physical concomitants.

Frequency refers to the percentage of stuttering that occurs within a period of time, measured in conversational speech. Frequency is expressed in percent syllables stuttered and converted to scale scores of 4-18. Duration of stuttering refers to how long a stutter event lasts over time (e.g., 3 seconds).
It is calculated by averaging the three longest instances of stuttering in the conversational speech sample. Duration is timed to the nearest one tenth of a second and converted to scale scores of 2-18. Physical concomitants are physical behaviors that are associated with moments of stuttering. These include behaviors such as distracting non-speech sounds; facial grimacing; head movements; and movements of the extremities. Each of these four criteria is given a score from 0 (none) to 5 (severe and painful looking). By adding the scores for the three parameters, a total overall score is obtained and compared to others in similar age ranges.

**Standardized Speech-Language Tests**

During both visits, several standardized speech-language tests were administered to the children. Receptive language skill was measured using The Peabody Picture Vocabulary Test (PPVT-III) and The Test of Early Language Development (TELD-REC). Expressive language skill was measured with the Expressive Vocabulary Test (EVT) and The Test of Early Language Development (TELD-EXP). Articulation was measured using the Goldman-Fristoe Test of Articulation (GFTA-2) and phonology was measured using the Khan Lewis Phonological Analysis (KLPA).

**The Peabody Picture Vocabulary Test** (PPVT, Dunn & Dunn, 1959) is an untimed test of receptive (hearing) vocabulary for Standard American English, intended to provide a quick estimate of verbal ability and scholastic aptitude. The PPVT is a norm-referenced, wide-range instrument that is available in two parallel forms (Form A and Form B) that are administered individually. Each form contains training items and 228 test items, each consisting of four full-color pictures as response options on a page. For each item, the examiner says a word, and the child responds by selecting the picture that best illustrates that word’s meaning.

**The Expressive Vocabulary Test** (EVT) is an individually administered, norm-referenced instrument that assesses expressive vocabulary and word retrieval for children and adults. The EVT is available in two parallel forms (Form A and Form B) that are administered individually. Each form contains example items and 190 test items arranged in increasing difficulty. For each item, the examiner presents a picture and reads a stimulus question, and the child responds with one word that provides an acceptable label, answers a specific question, or provides a synonym for a word that fits the picture.

**The Test of Early Language Development** (TELD) is a standardized measure of the early development of oral language in the areas of receptive and expressive language, syntax, and semantics. It utilizes two subtests, Receptive Language (TELD-REC) and Expressive Language (TELD-EXP), and yields an overall Spoken Language score. The child's responses generate a standard score (with a mean of 100 and a standard deviation of 15), which differentiates groups with known language problems from those without such problems. Some children received the TELD-2 and some received the TELD-3.

**The Goldman-Fristoe Test of Articulation** (GFTA-2; Goldman & Fristoe, 2000) provides information about a child's articulation ability by sampling both spontaneous and imitative sound production. Children respond to picture plates and verbal cues from the examiner with single-word answers that demonstrate common speech sounds. Additional sections including, “Sounds-in-Sentences” and “Stimulability,” provide further measures of contextual articulation; and the ability to directly imitate error sounds pre-treatment, respectively. This test is used to measure articulation of consonant sounds, determine types of misarticulation, and compare individual performance to national, gender-differentiated norms.
The Khan-Lewis Phonological Analysis (KLPA) is the psychometrically linked partner test to the GFTA. The KLPA is a norm-referenced, in-depth analysis of overall phonological process usage. It organizes sound errors into 10 phonological processes divided into three process areas. The primary purpose of this analysis is to provide speech-language pathologists with a method of diagnosing or describing phonological disorders in individuals.

Temperament Measures

Caregiver rating scales have been the most widespread tools used to study children's temperament. In this dataset, two questionnaires assess various aspects of temperament, emotional reactivity and emotion regulation. These are the Behavior Style Questionnaire and the Temperament Characteristic Scale.

The Behavioral Style Questionnaire (BSQ) (Chess & Thomas, 1996) is a caregiver rating scale of child temperament based on well-established temperament domains. The BSQ is a 110-item measure using a six-point scale of nine temperament dimensions. These nine dimensions are: Activity; Rhythmicity; Approach; Adaptability; Intensity; Mood; Persistence; Distractibility; and Threshold. Items are phrased as statements about a child’s behavior, and parents rate how often the child behaves in the way described in the statement, using a score ranging from 1 (almost never) to 6 (almost always). Items are recoded as necessary so that higher dimension scores are indicative of greater challenge or difficulty. For example, a high score on the Approach/Withdrawal dimension indicates more withdrawal from novelty; and a high score on Rhythmicity indicates more irregular, or less rhythmic daily functions. Summary scores for each dimension are computed by dividing the sum of items on each dimension by the number of ratings available.

The Temperament Characteristic Scale (TCS) (Oyler, 1996) is a list of personal traits or characteristics that describe children. The questionnaire has 7 questions which assess the child’s temperamental and sensory responsiveness and susceptibility to people and the environment (Oyler, 1999). The construct of temperamental characteristics include the following components: emotional sensitivity, reactivity, stress awareness and coping ability, sensitivity to time pressure, noise, light, and touch. Parents respond to the questions by selecting the number most accurately describing their child. The numbers range from 1 to 7, and a score of 3 is average. In this dataset, each question response and z-score is provided.