

Research Article

Perceptions of Stuttering of Different Age Groups

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AQ2 Purpose: The purpose of this study was to assess the perceptions of stuttering of school-age children who stutter and those of adults who stutter through the use of the same tools that could be commonly used by clinicians.

Method: Twenty-three participants across various ages and stuttering severity were administered both the Stuttering Severity Instrument–Fourth Edition (SSI-4; Riley, 2009) and the Wright & Ayre Stuttering Self-Rating Profile (Wright & Ayre, 2000). Comparisons were made between severity of behavioral measures of stuttering made by the SSI-4 and by age (child/adult).

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Results: Significant differences were obtained for the age comparison but not for the severity comparison. Results are explained in terms of the correlation between severity equivalents of the SSI-4 and the Wright & Ayre Stuttering Self-Rating Profile scores, with clinical implications justifying multi-aspect assessment.

Conclusions: Clinical implications indicate that self-perception and impact of stuttering must not be assumed and should be evaluated for individual participants. Research implications include further study with a larger subject pool and various levels of stuttering severity.

Researchers and clinicians have examined stuttering in several ways. The most commonly used method involves a “counting” of stuttering. From the identification and counting of stuttering in early studies (Bloodstein, 1960; Williams & Kent, 1958) to the more recent longitudinal studies of Yairi and Ambrose (1992a, 1992b) researchers and clinicians have steadfastly relied on stuttering counts as both a diagnostic and research tool. Most researchers and clinicians continue to use this method in spite of documented flaws. One of the major critiques of this method has to do with poor listener agreement and low reliability (Ingham, 1990; Lewis, 1994, 1995; Young, 1975; Young & Downs, 1969). Nonetheless, stuttering counts and tools that use these counts as their primary methodology, such as the Stuttering Severity Instrument–Fourth Edition (SSI-4), continue to be a critical aspect of most clinical and research reports. The benefit of this behavioral documentation of stuttering is now only one aspect of documented stuttering.

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As a response to the widespread critiques of stuttering counts and a more global understanding of stuttering, other

tools to document stuttering have emerged. Several of these are based on either the iceberg analogy of stuttering that documents “below the surface” symptoms of stuttering (Sheehan, 1953) or Yaruss and Quesal’s (2004) model of stuttering based on the World Health Organization’s International Classification of Functioning, Disability and Health. These two views of stuttering have guided practice for many years and have led to the development of several tools to help researchers and clinicians document a more global impact of stuttering. These tools include tests such as the Communication Attitude Test for Preschool and Kindergarten Children Who Stutter or KiddyCAT (Vanryckeghem & Brutten, 1997), Children’s Attitudes about Talking (and Children’s Attitudes about Talking–Revised; Brutten & Dunham, 1989), and the Overall Assessment of the Speaker’s Experience of Stuttering (OASES; Yaruss & Quesal, 2004). These tools tend to evaluate the affective and cognitive aspects of stuttering within particular age groups. The KiddyCAT is used for pre-school children; the Children’s Attitudes about Talking and Children’s Attitudes about Talking–Revised are predominantly for school-age children; and the OASES has three separate forms for school-age children, adolescents, and adults. One other tool, the Wright & Ayre Stuttering Self-Rating Profile (WASSP), views some of these same concepts across a larger span of ages.

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When tools like the SSI-4 and the WASSP are used in combination, clinicians can gain a clearer and more global view of stuttering across a larger age range of people who stutter (PWS). In addition, the SSI-4 and the WASSP take a relatively short time to administer and can serve as useful clinical tools in a multitude of settings. Thus, the purpose of this preliminary study was to compare the results of time-efficient tools to measure both the affective and behavioral components of stuttering across a wide range of ages using the same tools for the sake of consistency. This can add to the consistency and understanding of stuttering across age ranges.

Justification for Attitudinal AQ5 and Self-Perception Tools

The attitude of PWS toward speech and affective behaviors has been an important area in understanding stuttering. Vanryckeghem, Brutton, and Hernandez (2005) found that stuttering can be a cause of anxiety, frustration, and fear of speaking. The study found that preschool and kindergarten children who stutter (CWS) show a more negative attitude toward speech than their peers who do not stutter. The speech-associated attitude of CWS has been found to be significantly more negative than those of children who do not stutter. The significant difference between groups exists as early as the age of 6 years. With increased age, the mal-attitude toward speech increases significantly among CWS and decreases among children who do not stutter (De Nil & Brutton, 1991; Vanryckeghem & Brutton, 1997). Yairi and Ambrose (2005) found that children acquire awareness of stuttering at an early age, but the negative speech-associated attitude does not occur until a child begins stuttering. In spite of these findings, we do not know a great deal if these feelings develop over time or whether they begin at the actual moment of stuttering.

De Nil and Brutton (1991) assessed the speech-associated attitudes of 70 school-age CWS and 271 school-age children who do not stutter and found that young CWS had developed a negative self-concept about their communicative abilities. Their findings reveal that CWS from 7 years of age showed more negative attitudes toward their communicative abilities than did children who do not stutter. The combination of these studies shows that preschool and school-age CWS have developed negative attitudes toward speaking. It would be interesting to know if these attitudes shift more with age or more with severity of behavioral symptoms. The proposed study will explore this concept.

Attitudes about stuttering have also been studied in adults. One of the most widely used tools for this is the OASES. This instrument consists of a pencil-and-paper measure that PWS could complete in a typical clinical setting. Questions are clearly and simply worded. The test is administered and scored in a reasonable period of time. Items of the test are relatively limited in number, with a small number of selection options, and are organized in a way that clinicians are able to easily calculate scores. The OASES higher scores indicate a greater degree of negative impact of

stuttering on a PWS, whereas lower scores indicate less negative impact. Although the OASES does not yield an equivalent of stuttering severity, it provides indicators of the impact of stuttering on various aspects of a PWS's life. The impact scores are calculated separately for each section of the instrument. The OASES impact ratings may provide general information about a PWS's experience of stuttering (Yaruss & Quesal, 2006).

As stuttering develops, negative reactions can become a significant concern (Vanryckeghem, Hylebos, Brutton, & Peleman, 2001). The negative experiences can not only have an adverse impact on the child's ability to communicate but also hinder progress in therapy. These negative perceptions may turn into persistent negative thoughts and attitudes that affect children, adolescents, and adults who stutter (Murphy, Hennessey, & Beilby, 2007). It would be of value to clinicians to know how the behavioral and attitudinal (affective) aspects of stuttering vary across age and behavioral severity across ages when using the same tools.

Behavioral Assessment Tool

The severity of stuttering is a subjective term that is commonly used by speech-language pathologists and other professionals. In spite of the subjective terminology, the severity of stuttering can be based on many variables. Some of these include traditional overt measures of stuttering, such as percentage of stuttered syllables, duration/severity of stuttering, secondary/associated behaviors, and other measures of overt speech behaviors. The most common of these tools is the SSI-4 (Riley, 2009). This tool was selected for this study based upon its ease of clinical administration and its widespread usage.

Attitude Assessment Tool

Since the proposed study will examine both affective and behavioral aspects of stuttering, the selection of a tool that crossed age barriers was important. Although the OASES is likely the most popular tool used today, we chose to use a shorter tool. The OASES has 60 questions for ages 7–12 years, 80 questions for ages 13–17 years, and 100 questions for ages 18 years and above. It has three different versions for different age groups: 7–12 years, 13–17 years, and 18 years and above. For these reasons, the WASSP was chosen for use in this study. This easy-to-use tool is beneficial in that it is not restricted by age group and can be given repeatedly, which is a distinct advantage for clinicians.

Summary

Blood, Blood, Tellis, and Gabel (2001) found that reduced communication skills due to stuttering may have a cumulative impact on a PWS's life. Negative communication attitude represents a major obstacle to developing communication skills. We know very little about how this process develops. At this point, there is limited data that explore both behavioral and affective communications skills across

age groups that make use of clinically friendly tools. Therefore, the purpose of this study was to assess the behavioral and attitudinal perceptions of stuttering of CWS and adults who stutter (AWS) with short, clinically oriented tools. The results of this preliminary can help determine if there is a statistically significant between-groups difference using the same measures cross-sectionally. Previously, adults and children across a variety of severities were not the typical focus in the same study for comparative purposes. Therefore, the research questions are as follows: (1) Is there a difference between attitudinal perceptions of stuttering of PWS with different behavioral severity ratings? (2) Is there a statistically significant difference between attitudinal perceptions of stuttering of CWS and AWS when using the same tool?

Method

Subjects included eight CWS, between the ages of 10 and 19 years, and 15 AWS, between the ages of 24 and 40 years. All participants did not have a history of chronic physical or psychological disabilities. The participants were selected from the chapters of the National Stuttering Association. Inclusion criteria were confirmation of stuttering by the participant or a parent; showing overt stuttering during administration of the SSI-4; having received stuttering therapy at least once; and no documented psychological, emotional, cognitive, or social disorders.

All participants were administered the SSI-4 (Riley, 2009) in order to assess the behavioral characteristics of stuttering. Upon completion of the SSI-4, all participants were administered the WASSP (Wright & Ayre, 2000). For

each participant, the WASSP median score was calculated. Testing the participants had the same order: first the SSI-4, then the WASSP. It should be noted that since the WASSP and, arguably, the SSI-4 are ordinal measures, the median is the appropriate measure of central tendency, and non-parametric inferential statistics were used for comparisons.

Statistical Data Analysis

In order to determine if significant differences existed between the four severity groups of SSI-4 scores, the Kruskal–Wallis test was used for analysis. The Kruskal–Wallis test is basically the nonparametric equivalent of the independent analysis of variance. Following typical procedures, if a significant difference is found for the omnibus test (among the four groups of subjects), Mann–Whitney *U* test would be used as the post hoc follow-up test. Four groups of behavioral stuttering severity (very mild, mild, moderate, and severe) served as the independent variable for Research Question 1.

Research Question 2 explored if there was a statistically significant difference on the WASSP scores according to age (adult vs. child). Once again, a nonparametric tool was selected due to the ordinal nature of the data. In this case, the Mann–Whitney *U* test is basically the nonparametric equivalent of the independent-samples *t* test. In this case, age served as the independent variable.

Results

Research Question 1 asked whether there was a statistically significant difference between the perceptions of stuttering

AQ7 Table 1. The participants' Wright & Ayre Stuttering Self-Rating Profile (WASSP) scores, age, and Stuttering Severity Instrument–Fourth Edition (SSI-4) score.

Participant	Adults/ children	Age (years)	WASSP median score	WASSP mean score	WASSP total score	SSI-4 total score	Severity equivalent
1	Ch	14	2	2	50	7	Very mild
2	Ch	10	3.5	4	91	22	Moderate
3	Ch	9	4	4	91	17	Mild
4	Ch	11	2	2	61	18	Mild
5	Ch	15	5	5	127	21	Moderate
6	Ch	16	7	4	110	28	Severe
7	Ch	19	6	5	131	9	Very mild
8	Ch	15	4	4	97	21	Moderate
9	Ad	22	2	3	71	4	Very mild
10	Ad	26	2.5	3	65	9	Very mild
11	Ad	36	2	2	56	8	Very mild
12	Ad	22	2.5	3	70	9	Very mild
13	Ad	34	4	4	103	16	Very mild
14	Ad	27	2	2	51	7	Very mild
15	Ad	27	2	2	64	11	Very mild
16	Ad	42	2	2	55	4	Very mild
17	Ad	25	2.5	3	74	25	Moderate
18	Ad	34	3.5	4	100	31	Severe
19	Ad	26	2	2	61	4	Very mild
20	Ad	29	1	2	51	32	Severe
21	Ad	37	3	3	80	27	Moderate
22	Ad	25	3	3	86	21	Moderate
23	Ad	23	2	2	52	2	Very mild

Note. Ch = children; Ad = adult.

Table 2. Ranked scores of children and adults.

Group	N	Mean rank
Children	8	16.56
Adults	15	9.57

(the WASSP median score) between the four levels of behavioral stuttering severity (very mild, mild, moderate, and severe). The results indicate that there was not a statistically significant difference (χ^2 , 3 = 4.547; p = .208).

Research Question 2 asked whether there was a statistically significant difference due to age group of the participants (child/adult) on the WASSP. Results from the Mann–Whitney U test reveal a statistically significant difference between CWS and AWS (U , 22 = -2.438, p =

T2 .015). The CWS group had the higher WASSP median
T3 scores with the mean rank of 16.56 than the mean rank of
T4 9.57 for AWS. Results are summarized in Tables 2, 3, 4, 5,
T5 and 6.
T6

As a follow-up analysis, a Spearman rank order correlation was used to view the strength of the correlation between the WASSP score and the SSI-4 severity score. The Spearman correlation revealed that there was a moderate strong positive correlation between the WASSP median score and the SSI-4 severity score (ρ = .462).

Discussion

Based on the current findings, there is not a statistically significant difference between self-assessed attitude scores and severity levels of behavioral stuttering severity as measured by the SSI-4 for the participants in this study. This may seem in contrast to the information presented to beginning clinicians as is quite commonly professed in textbooks about stuttering. The results of this study show what many experienced clinicians are already aware of is that PWS who have severe observable behaviors do not necessarily have highly negative attitudes/affective issues. At the same time, PWS with mild behavioral speech symptoms can have severe attitudes/affective issues. Certainly, these statements must be treated with caution due to the limitations of the current sample size. Ongoing collection of data with more participants should be an ongoing goal. Upon completion of the study, a Spearman correlation between the WASSP scores and the SSI-4 scores revealed a significant positive correlation of .462. Using principles for calculating a coefficient of determination (in this case,

Table 3. Mann–Whitney test ranks.

WASSP median score	Children/ adults	N	Mean rank	Sum of ranks
	Children	8	16.56	132.50
	Adults	15	9.57	143.50
	Total	23		

Note. WASSP = Wright & Ayre Stuttering Self-Rating Profile.

Table 4. Test statistics.^a

Test	WASSP median score
Mann–Whitney U	23.500
Wilcoxon W	143.500
Z	-2.436
Asymp. Sig. (2-tailed)	.015
Exact Sig. [2*(1-tailed Sig.)]	.016 ^b

Note. WASSP = Wright & Ayre Stuttering Self-Rating Profile.

^aGrouping variable: children/adults. ^bNot corrected for ties.

0.2134), this number suggests that 21.34% of the shared variance between the WASSP score and the SSI-4 score is due to the interaction of these two tools. This is not insignificant and should be considered as a contributor to “overall stuttering severity.” A diagnosis of stuttering should not be determined by just a single variable.

At the same time, there was a statistically significant difference between the attitude/affective assessments between children and adults. Surprisingly, the higher scores were obtained for CWS. It is possible again that this finding was a result of this preliminary study based on a limited sample size. It is also possible that these two variables are not enough data to separate the children from the adults. The positive correlation mentioned earlier could explain only part of the difference. Clearly, more variables must be added to this formula in order to get a better view of stuttering.

Past studies have shown that the impact of stuttering grows throughout childhood, with the impact being greatest within the teenage years (Alm, 2014; Mulcahy, Hennessy, Beilby, & Byrnes, 2008). However, there may be factors that change this progression with maturity. For example, St. Louis (2001) catalogued a series of narratives about PWS and showed a trend of many people improving when they reached a level of maturity as adults. This trend has not been verified by our objective data. Therefore, the results of this study offer an interesting alternative for consideration. That is, stuttering impact might potentially lessen with age/maturity into adulthood for many PWS. More research in this area is needed.

In summary, tools like the SSI-4 and the WASSP can contribute to the overall assessment of both CWS and AWS. The relatively short time required for administration and scoring of these tools makes them appealing to

Table 5. Kruskal–Wallis test ranks.

WASSP median score	Severity	N	Mean rank
	Very mild	12	9.42
	Mild	2	12.50
	Moderate	6	16.25
	Severe	3	13.50
	Total	23	

Note. WASSP = Wright & Ayre Stuttering Self-Rating Profile.

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Table 6. Test statistics.^a

Statistics	WASSP median score
Chi-square	4.547
df	3
Asymp. Sig.	.208

Note. WASSP = Wright & Ayre Stuttering Self-Rating Profile.
^aKruskal–Wallis test; grouping variable: severity.

clinicians; however, they are not powerful enough to distinguish overall severity rankings. Once again, the coefficient of determination level of over 23% is not to be ignored. However, these tools on their own must still be supplemented by more in-depth evaluation tools. Their power as screening tools cannot be ignored; however, their clinical utility needs to be further explored.

Clinical implications indicate that self-perception and impact of stuttering must not be assumed and should be evaluated for individual participants. Research implications include further study with a larger subject pool and various levels of stuttering severity. There was a large number of participants in this study that were in the very mild/moderate range based on the SSI-4 scores. The differences between CWS and AWS may not be as pronounced with a severer group of PWS. Future research is needed. Additionally, the impact of stuttering should be measured with more detail. This might include in-depth interviews and qualitative analyses.

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