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ARTICULATION DISORDERS AS A CONCOMITANT DISORDER OF INCOHERENCE OF SPEECH - STUTTERING

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Abstract. The main focus of this research is to conclude that children who are faced with slurred speech or stuttering disorder are also faced with articulation disorder as a secondary disorder. The sample of this research included 33 children who stuttered, referred by parents or teachers to the Speech Therapist for treatment. Of the respondents 54.5% were boys, while 45.5% were girls. At first, the children were evaluated and diagnosed by the speech therapist, at the request of the parents, and the Articulation Test was used to evaluate misarticulated sounds. All children have been or are being treated by a speech therapist for stuttering and other concomitant disorders.

Based on the research findings we understand that: children who have a stuttering disorder as the main disorder also have an articulation disorder as a secondary disorder. There are also no differences in the arithmetic mean of the groups (male-female) and secondary disorders (articulation disorder). It is also worth noting that there is no significant correlation between stuttering disorder and joint disorders.

Key words: disorders, articulations, stutter, speech, concomitant.

Introduction

In everyday life it often happens that we have communication with children of different ages. Based on the reality of today, it can be said convincingly that a pretty large number of children are noticed to be facing various disorders. The disorder that largely causes children to be discriminated by their peers and to be constantly frustrated, both they and their family members, is stuttering or slurred speech. This stutter can often be accompanied by a number of other disorders, and the disorder which is more common is the disorder of articulation.

Thus, human curiosity arises to understand whether children who are affected by speech impediment are also faced with a secondary disorder, in this case with an articulation disorder. There is also curiosity to understand the relationship between stuttering disorders and articulation disorders that a child faces, also discussing the arithmetic mean between groups, depending on the disorder they face.

Literature review

Stuttering is a speech disorder in which sounds, syllables, or words are repeated or lengthened, interrupting the flow of speech. It usually starts early in life and can be accompanied by eyelid movements, head tremors, and facial expressions. Those who suffer sometimes avoid specific words, speak in a fast tone or even take an accent so as not to

stutter. Most children who stutter eventually overcome it, but some do not. In general, stuttering with more than 10 words out of 100 may indicate that the child has a problem. Other factors must be taken into account, so only a speech therapist trained in the diagnosis and treatment of stuttering is qualified to make this diagnosis. This is the most common and important communication disorder, and it manifests itself as a combination of internal and environmental factors (Kakouros & Maniadaki, 2002, 2006). In many cases, the stutter goes away on its own by the age of 5, in others it lasts longer. The ratio of boys to girls is 3:1; a large percentage of children who stutter show symptoms of anxiety and stuttering can coexist with a range of speech disorders such as a language manifestation disorder, a phonological disorder and an attention hyperactivity disorder and an attention deficit disorder (Korpa, 2011). In this, the disorder includes other factors, such as the body with the kick of the feet and the crossing of the toes, but also the mimic muscle, with grimaces and trembling of the face (Voulgari, 2012).

Johnson developed the first system for classifying stuttering moments (Johnson & Associates, 1959). That taxonomy was developed specifically for stuttering in early childhood and included eight terms: word repetition, sound / syllable repetition, phrase repetition, incomplete phrase, exclamation point, revision, broken words, and extension. There have been several variants of that initial taxonomy (Packman & Onslow, 1998; Einarsdóttir & Ingham, 2005). The most popular terms added to Johnson's original taxonomy are dysrhythmic phonation, blockage, and tense pause. All of those taxonomies relate to stuttering in early childhood, with the exception of one (Wingate, 1976).

Some research has reported how many children have stuttering and another speech or language disorder, or have concomitant stuttering diseases, to use the correct term. There is no doubt that this will ever happen (Yaruss, LaSalle, & Conture, 1998; Nippold, 1990; Nippold, 2001; Nippold, 2004). A study of clinicians (Arndt & Healey, 2001) showed that 44% of the 467 school-age children who stuttered reportedly also had a language or phonological disorder. Another study (Blood, Ridenour, Qualls, & Hammer, 2003) reported that 34% had joint disorders and 14% had phonological disorders. However, another report (Clark, Conture, Walden, & Lambert, 2013) found no such difference between stuttering and control children. A recent report (Ambrose, Yairi, Loucks, Seery, & Throneburg, 2015), studied 58 stuttering preschool children and 40 control children over a 4-5-year period. No systematic differences in phonology were reported during the study period. A recent literature review (Sasisekaran, 2014) concluded that research on the topic is unclear. Given such ambiguity in the literature, it is not surprising that clinicians are unsure about the simultaneous treatment of children with comorbid stuttering and speech-sound disorders (Unicomb, Hewat, Spencer, & Harrison, 2013).

Purpose of the research

The main purpose of this research was to conclude that children who are faced with slurred speech or a stuttering disorder, are also faced with an articulation disorder as a secondary disorder.

At the same time, another goal was to understand the relationship between the stuttering disorder and the articulation disorder, also understanding the differences in the arithmetic means of the groups (male-female) in terms of the secondary articulation disorder.

Research questions

1. Do children who have speech impairments also face articulation disorders?
2. Is there a correlation between stuttering disorders and articulation disorders?
3. Are there differences in the arithmetic mean between the groups of respondents, male or female, that face articulation disorder as the secondary disorder?

Methodology

The research approach was quantitative, as for the processing of data we will rely on the statistical form, presented in the numerical form.

Respondents

The sample of this research was 33 children who stuttered, referred by parents or teachers to the Speech Therapist for treatment. Of the respondents 54.5% were boys, while 45.5% were girls. The age of children was from 6 (36.4%), 7 (27.3%), 8 (9.1%), 9 (18.2%), up to 11 (9.1%) years. Their place of residence was in the city of Mitrovica (63.6%), and 36.4% from the villages around the city.

Instruments

Two instruments have been used for this research.

The first instrument was translated and adapted only for the characteristics of stuttering by Gregory & Hill, (1993) entitled: Differential evaluation - Differential therapy for stuttering children. In R.F. Curlee (ed.) *Stuttering and Related Disorders of Fluency*. New York: Thieme.

The articulation test was used as a second instrument, which was used during the evaluation of children in speech therapy sessions.

Procedures

At first, the children were evaluated and diagnosed by the speech therapist, at the request of the parents, as they, or the children's teachers, referred the children to the speech therapist for evaluation. During the assessment of children, it was noticed that in addition to stuttering children have difficulties in articulating some sounds. Thus, the Articulation Test was used to evaluate misarticulated sounds. All children have been or are being treated by a speech therapist for stuttering and other concomitant disorders. But, to use the children's data for research, permission has been obtained from the children's parents, assuring them that the data will be confidential.

Results and discussion

Based on the frequency analysis, according to the first variable "Hesitations - Pauses as if thinking about what to say before or during speaking" we understand that 85% of children hesitate or pause while they are speaking, while in 15% the opposite happens. In the second variable "Interjections - Adds sounds, syllables or words when speaking. ("Well, I want to, well, go home." "Do you, do you, want some?")" 36.4% have interjections while they are speaking, while 63.6% do not. For the third variable "Revisions of phrases or sentences Changes what is said (I want to, I'd like to go somewhere, can I go with you?)", we understand that 18.2% of children have these effects, while 63.6% do not have them. The fourth variable "Phrase Repetitions (Mom, can I, can I, get some candy?)" makes us understand that 9.1% of children face repetition of phrases, while 90.9% do not. In the fifth variable "One-syllable word repetitions - Two or less with no tension (Can I get, get, get some candy?)", we understand that 36.4% of children repeat one word, while 63.6% do not repeat. In the sixth variable, "Part-word syllable repetitions - Two or less no tension", we understand that 63.6% of children repeat parts of the sentence while 36.4% do not repeat. For the seventh variable, "One syllable word repetitions - Three or more or uneven stress. ("Mom, can, can, can I get some candy?" Or "Mom, can, CAN I get some candy?)" the speech therapist answers with 36.4% for yes and 63.6% for no. Then, for the eighth variable "Part-word syllable repetition - Three or more or uneven stress (I want a pu, pu, puppy. "OR" I want a pu, Puppy)", we understand that 63.6% of children repeat the first letters of the word, while 36.4% do not repeat it. For the ninth variable, "Sound repetitions, especially" uh "(M, m, m, mom, can I go? "uh, uh, home?")", 36.4% of children answer by repeating a letter, while 63.6% do not repeat the letter. For the tenth variable, "Prolongations - Stretching or holding into a sound (Mmmmmom, I want it.)", we understand that 81.8% of children lengthen a letter, while 18.2% do not lengthen it. For the eleventh variable, "Increased muscle tension noted in the mouth, throat, or lips", the speech

therapist answers that 54.5% of children face this fact, while emphasizing that 45.5% do not face it. For the twelfth variable, we understand that "Non-speech behaviours (Blink eyes, slap body, bend or move body in some way to get speech start d)", 36.4% of children face these behaviours, while 63.6% do not face them. Whereas, for the last variable "Does the student have an articulation disorder?" we understand that 45.5% of children who have stuttering also have articulation disorders, while 54.5% do not.

In the research conducted by Blood et al. (2003), 2628 children who stuttered were studied, and 62% (1650) were found to have an accompanying a speech, language, or nonverbal disorder. These children had a total of 3567 accompanying speech, language, and nonverbal disorders. Each child had an average of 2.16 of concomitant disorders. Of the 6 speech disorders included in this study, the articulation disorder was the most common disorder at 33.55 (880). Of the 880 children with a concomitant joint disorder, 712 (34.5%) were boys, while 168 (29.5%) were girls. The other concomitant disorder was the phonological disorder in (12.7%). The last most common concomitant disorder was dysphagia (0.5%).

Table 1 Shows the types of disfluencies in children with stuttering

	Yes	No
1. Hesitations – Pauses as if thinking about what to say before or during speaking.	85%	15%
2. Interjections – Adds sounds, syllables or words when speaking. ("Well, I want to, well, go home." "Do you, do you, want some?")	36,4%	63,6%
3. Revisions of phrases or sentences Changes what is said ("I want to, I'd like to go somewhere, can I go with you?)	18,2%	81,8%
4. Phrase Repetitions ("Mom, can I, can I, get some candy?")	9,1%	90,9%
5. One-syllable word repetitions – Two or less with no tension ("Can I get, get, get some candy?")	36,4	63,6
6. Part-word syllable repetitions – Two or less with no tension.	63,6%	36,4%
7. One syllable word repetitions – Three or more or uneven stress. ("Mom, can, can, can I get some candy?" Or "Mom, can, CAN I get some candy?")	36,4%	63,6%
8. Part-word syllable repetition – Three or more or uneven stress ("I want a pu, pu, puppy." OR "I want a pu, Puppy.")	63,6%	36,4%
9. Sound repetitions, especially "uh". ("M, m, m, mom, can I go?" or "Uh, uh, Can I, uh, go, uh, uh, home?")	36,4%	63,6%
10. Prolongations – Stretching or holding into a sound ("Mmmmmom, I want it.")	81,8%	18,2%
11. Increased muscle tension noted in the mouth, throat, or lips	54,5%	45,5%
12. Non-speech behaviours. (Blink eyes, slap body, bend or move body in some way to get speech started)	36,4%	63,6%
13. Does the student have an articulation disorder?	45,5%	54,5%

Based on the first figure, we understand that 63.6% of children stutter in the sounds "P, B, M", then 18.2% stutter in the sounds "P, B, M, T, D", 9.1% of children stutter in the sounds "P, B, M, T, D, K, G" and 9.1% of children stutter in the sounds "P, B, M and vowels".

Also, based on the second figure, we understand that 18.2% of children who stutter do not articulate properly the sounds "Th, Dh", then 9.1% do not properly articulate the sounds "S, Z, C, X", also 18.2% do not properly articulate the sounds "C, Ç, Gj, Q, S, Sh, X, Xh, Z and Zh".

In the research done by Nippold (2003), it is also reported that 116 (91%) of children who stutter had concomitant articulation and phonological disorders. Also, in the research done by Arndt and Healey (2001), it is reported that out of 467 children, 262 children (56%) were identified as verified only with fluency disorders. A total of 205 children (44%) were identified with a verified fluency and an accompanying phonological and / or linguistic disorder. These children ranged in age from 3 to 20 years ($M = 9$, $SD = 3.7$). Within this group of 205 children, 66 (32%) presented with a phonological disorder, 72 (35%) with a language disorder, and 67 (33%) with a phonological and linguistic disorder.

Figure 1. Frequency of stuttering in different sounds

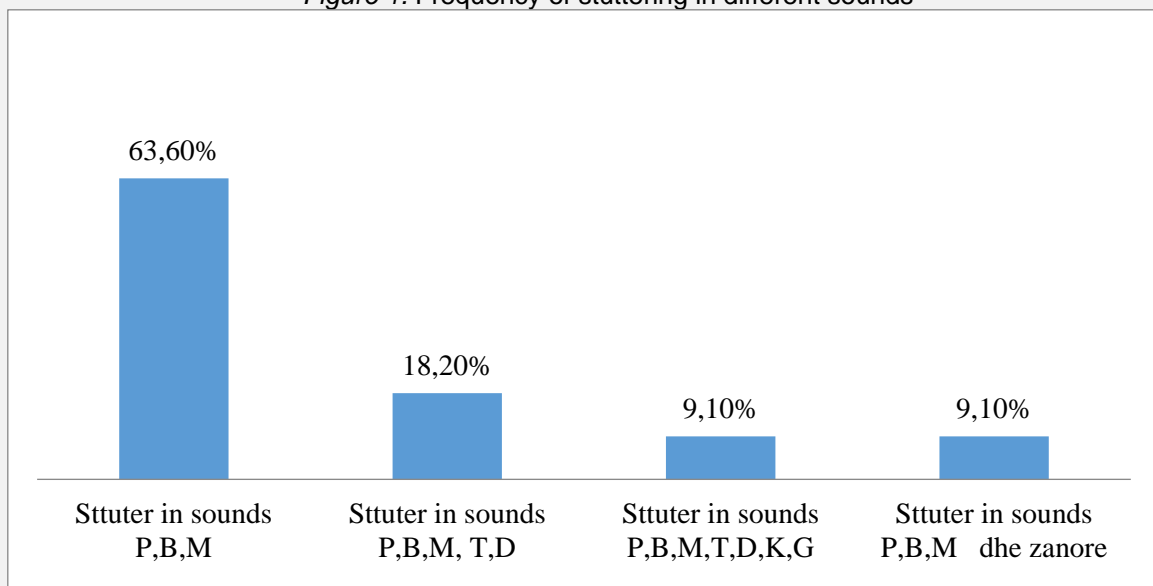
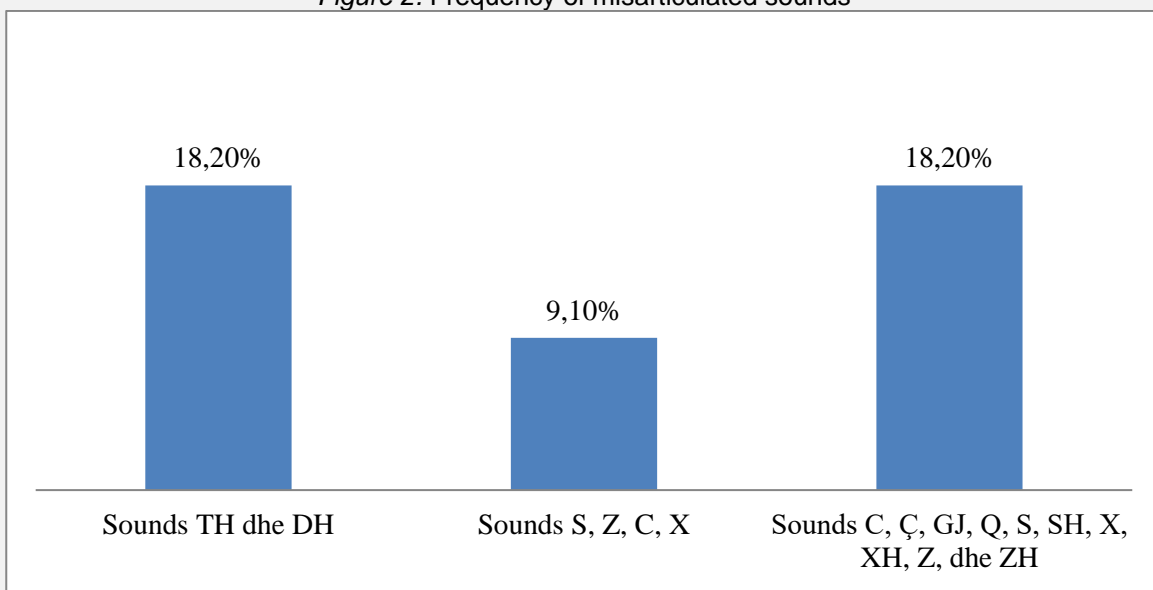


Figure 2. Frequency of misarticulated sounds



According to the results of the analysis, the average of 9 male students is 2.33 and the average of 6 female students is 1.50. So, it is seen that there is no significant difference

between the groups. Even the result of Sig (2-tailed) ($p = 0.87 / 0.59$) shows that there is no significant difference between the means of the groups.

Table 2 T-test analysis about Group Statistics

	Gjinia	N	Mean	Std. deviation	Std. Error Mean
Articulation disorder	Male	9	2,33	1,00	,333
	Female	6	1,50	,54772	,223

Table 3 Independent Sample Test

		t-test for mean equality				
		Sig. (2-tailed)	Ndryshimi i MA	Std. Error Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Articulation disorder	Equal variances assumed	0,87	8,333	,45055	-,14001	1,8066
	Equal variances not assumed	0,59	8,333	,40139	-,03587	1,70253

Correlation analysis shows that there is a significant positive correlation between articulation disorders and the type of stuttering: exclamation point, increase in sounds and syllables in question, where $r = ,449^{**}$, $p < 0.01$.

There is also a significant positive correlation between articulation disorders and the type of stuttering: phrase repetition, $r = ,346^{*}$, $p < 0.05$.

A significant positive correlation also exists between articulation disorders and the type of stuttering: Repetition of one-syllable words, 2 or less without tension, where $r = ,449^{**}$, $p < 0.01$.

Even between articulation disorders and the type of stuttering: Repetition of sounds, especially UH, M, M, M, MAMI, there is a significant positive correlation, $r = ,449^{**}$, $p < 0.01$.

But, between articulation disorders and the type of stuttering: elongation, extension of the mmmmmmm sound, there is a significant negative correlation, $r = -,516^{**}$, $p < 0.01$.

The association of a phonological disorder with stuttering has increased given the recent findings by Paden, Yairi, and Ambrose (1999), which show that preschool children in the early stages of stuttering do not appear to recover from the disorder if they have phonological deficits. The presence of poor phonological skills, as opposed to articulation problems, can be a predictor that a child will not recover from stuttering.

Table 4 Correlation analysis

	1	2	3	4	5	6	7
1. Exclamations, adds sounds, syllables in words	1						
2. Repetition of phrases	-,239	1					
3. Repetition of one-syllable words, 2 or less without tension	,214	,418*	1				
4. Repetition of the syllables in question, two or less without tension	-,418*	,100	,239	1			
5. Repetition of sounds, especially UH, M, M, M, MAMA	,214	,418*	,607**	,239	1		
6. Extensions, sound extension mmmmmmm	-,134	-,671**	-,624**	-,149	-,624**	1	
7. Articulation disorders	,449**	,346*	,449**	,289	,449**	-,516**	1

*. Correlation is significant at the 0.05 level (2-tailed).

** . Correlation is significant at the 0.01 level (2-tailed).

Conclusion

At the end of this research we come to the conclusion that: most children who face a stuttering disorder are reluctant to speak; these children do the repetition of words in sentences, or add words even where they have no place; they change sentences during speech, changing time; do the repetition of phrases; it is worth noting that these children also do the repetition of a word, switching to the repetition of sounds in different parts of the word, whether in the sound at the beginning, in the middle or at the end of the word.

It is important to note that children who experience stuttering as a primary disorder also experience articulation disorders as a secondary disorder. It can also be said that there is no significant correlation between stuttering disorders and articulation disorders. At the same time, it is important to note that there are also no differences in the arithmetic mean by groups of respondents (male - female) and articulation disorders.

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