

A Study of Changes Process Between Children Who Stutter and Who Don't Stutter in Core Vocabulary Frequency in Primary School

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Abstract: Young stuttering children tend to show depressed lexical performance. Because of lower use of verbs, nouns and adjectives in their lexical diversity and challenges in learning them, the assessment of their lexical diversity is important. Since a comparison of using verbs between stuttering and non-stuttering children has been considered in a research, the present article deals with using verbs, nouns and adjectives in stuttering and non-stuttering children of different grades in a comparative method. This research is a descriptive-analytic and case-control study conducted on one hundreds of primary-school-aged stuttering and non-stuttering children in the speech therapy clinics in Tehran. Word Expressive test and word perceptiveness test are used to get stuttering severity and to register the frequency of perceptive and expressive vocabulary in noun, verb and adjective's category. The Mann-Whitney U test is used for analyzing the data. The results reveal that there is no significant difference between two groups in mean of frequency of expressive vocabulary in noun, verb and adjective category, frequency of perceptive vocabulary in noun category in second and third class, frequency of expressive vocabulary in noun category in fourth class and frequency of perceptive vocabulary in noun category in fifth class ($p > .05$). The results indicate a difference in all educational levels between these two groups. The students from the second and fifth grades show a more significant difference.

Key words: Core vocabularies • Perceptive words • Expressive words • Stuttering

INTRODUCTION

Language, albeit its simple appearance, is a complex system consisting of syntactic, semantic, morphological and phonetic subsystems. Among them, the lexicon, mainly due to its accessibility, has been studied more than the other linguistic components [1]. MacLellan believes that lexicon is an important tool of thought [1]. Child's comprehension of the world is limited without lexicon; it is categorizing and sorting phenomena and things [1]. It influences our sight processing as well. Expression and perception of nouns, verbs and adjectives, as subsets of expressive and perceptive of

lexicon, have been considered as the main criteria in the present study. In young normal children, expression and perception of verbs is more problematic than nouns [2, 3]. Stuttering has until now been studied from different viewpoints, including the relationship between linguistic factors and lexicon with stuttering [4]. For instance, simultaneous occurrence of the stuttering and phonological disorder in young children has been surveyed in details [5-10]. Interests in simultaneous occurrence of stuttering and phonological disorder have offered the results that prevalence of phonological disorders in young stuttering children have been reported higher than non-stuttering children [7, 11-13]. According

to Louko *et al* (1993) stuttering children, compared with non-stuttering children, are suffering from phonological disorders [7]. The recent researches indicate that stuttering children have a high depressed lexical performance than non-stuttering ones [2, 4-14]. Making a comparison of their language skills based on standard language test scores is a reasonable way for assessing them. The comparison shows that they have a partly delay in developing language skills and between overall language abilities and perceptive lexicon as compared with children who do not stutter [15, 16]. According to speech and language pathology work, stuttering children have had more communication disorders in comparison with non-stuttering children, especially in language and pathology areas [7, 17-28]. For example, reports have shown that phonological disorders occur in 30-40% in stuttering children as compared with 2-6% in non-stuttering children [29-34]. and it is more likely to have weak language skills (conversation, syntax, phonology and lexicon) as compared with children who do not stutter [35-38]. In a study by Wagovitch and Ratner, [14] participants, playing with their parents, spoke to them. Speech samples in terms of frequency of different verbs and number of overall multi-purpose verbs (with high frequency and usually acquired in the first stage of development) are analyzed. Stuttering children used significantly lesser overall verbs and different verbs and there is also significant difference between two groups in mean length utterance. There wasn't difference between children who stutter and children who don't stutter in use of overall multi-purpose verbs [14]. Specially, vocabulary learning is considered important challenge for children and in regards to verbs learning challenge, young stuttering children have perceptive verb lexicon as compared with their peers. Although stuttering children and non-stuttering children use verb lexicon significantly, stuttering children may use verbs to a lesser extent in their spontaneous language. Therefore, a child possibly deletes verbs in sample easily without interrupting conversation forms. Considering the challenge of acquiring learning verbs and the difference between stuttering and non-stuttering children in verb processing, based on researches, it is important to assess vocabulary frequency [14, 39]. Using verbs in stuttering and non-stuttering children has been recently studied and the present study deals with noun, verbs and adjectives in different educational levels. Thus the research aims to carry out a survey of the change process of core vocabulary frequency in primary school stuttering and

non-stuttering children. The research question comes as follows:

What is the frequency and percentage of perceptive and expressive vocabulary, in nouns, verbs and adjectives, in stuttering and non-stuttering children in educational different levels?

MATERIALS AND METHODS

This research is a descriptive-analytic and case-control study. The research was conducted on 50 stuttering and 50 non-stuttering males, as case and control groups respectively. The former was assessed in clinic of Rehabilitation Faculty, Tehran University of Medical Sciences and the latter was randomly assessed in primary schools. It is worth considering that both groups have similar educational success. It was tried to control the study in similar conditions with regards to place, temperature, light and time. The criteria for choosing participants were:

- Lack of speech and language disorder (other than stuttering); it was based on their files at the clinic.
- Lack of neurological disorder, they were tested by overall assessment by a speech therapist and their files at the clinic and, in case of any doubt regarding a neurological disorder, they were referred to neurology clinic for detailed assessment.
- Lack of color-blindness: participants were primarily tested by a speech therapist and, in case of any doubt regarding color-blindness, they were referred to an optometrist for detailed assessment.
- With more than 3-5% dysfluencies in speech for any participant. Reading a 100-word text (related to educational level), subjects' voice sample was recorded and analyzed. Then the percentage of stuttered words was calculated.

The data was collected by questionnaire, administration of expressive and perceptive word test and a 100-word text. The expressive word test has 12 pictures of different actions, the perceptive word test includes 1038 colored pictures related to noun, verb and adjective. These tests devised by Nematzade *et al* and conducted on 25000 Iranian students have high validity and reliability. In the expressive word test, it first is communicated with children then asked them to retell a story or a memoir. It was explained for them that then was stated them that prospect about picture is regarded 3

minutes. Their voices were recorded and the speech sample was transcribed and analyzed. In the perceptive vocabulary test, at first the experimenters showed pictures. The first grade was trained in five colors (red, yellow, blue, green and violet) and the second to the fifth grades in numbers from 2 to 10. Then as a primer instruction of the test, the participants were asked to flick through the pages and each question was repeated 3 times for the first grade and twice for the second to the fifth grades. The maximum time devoted for asking a question was one second for the first grade and 4 seconds for the higher grades. information about perceptive word test recorded and analyzed and too, in 100-word text (text related to educational grade) participants 's sounds was recorded when reading on text and his sample speech was analysed and with calculation of proportion of stuttered word to all word gave dysfluency level for assessment of relationship between dysfluency and core vocabulary frequency used of correlation statistic test.it is nessessary to know that data analyse administered by SPSS statistic software. resentment offered to parents.

RESULTS

Perceptive and expressive mean in noun, verb and adjective categories was assessed in 10 children stuttering and 10 non-stuttering children from all educational stages by the Mann-Whitney U test which showed no significant difference between two groups in Means of frequency of expressive vocabulary in noun, verb and adjective category and frequency of perceptive vocabulary in noun category in second class and frequency of perceptive vocabulary in noun category in third class and frequency of expressive vocabulary in noun category in fourth class and frequency of perceptive vocabulary in noun category in fifth class (p>0.05). Tables 1-6 represent the results.

Table 1: Comparison of expressive lexicon frequency in noun category in two groups

	Class	Class	Mean	Std	Significant Level
Expressive lexicon frequency in Noun category			30.79	2.93	
	First class	First class	41.97	5.1	0.001
			36.26	8.56	
	Second class	Second class	37.05	6.59	0.326
			30.66	4.34	
	Third class	Third class	38.12	4.53	0.002
			32.98	4.78	
	Forth class	Forth class	37.64	8.54	0.096
			29.94	3.54	
	Fifth class	Fifth class	37.96	6.17	0.006

Table 2: Comparison of perceptive lexicon frequency in noun category in two groups

	Class	Group	Mean	Std	Significant Level
Perceptive lexicon frequency in Noun category		Stutter	98.84	0.788	
	First class	Non stutter	99.68	0.216	0.023
		Stutter	99.16	0.636	
	Second class	Non stutter	99.47	0.227	0.299
		Stutter	99.08	0.672	
	Third class	Non stutter	99.4	0.335	0.444
		Stutter	98.62	0.779	
	Forth class	Non stutter	99.45	0.441	0.019
		Stutter	98.99	0.612	
	Fifth class	Non stutter	99.49	0.47	0.055

Table 3: Comparison of expressive lexicon frequency in verb category in two groups

	Class	Group	Mean	Std	Significant Level
Expressive lexicon frequency in Verb category		Stutter	26.66	4.61	
	First class	Non stutter	31.03	3.78	0.028
		Stutter	24.99	4.4	
	Second class	Non stutter	29.35	5.07	0.059
		Stutter	23.55	4.01	
	Third class	Non stutter	28.4	3.46	0.008
		Stutter	25.1	2.73	
	Forth class	Non stutter	30.17	8.22	0.034
		Stutter	2.415	3.59	
	Fifth class	Non stutter	30.09	5.5	0.01

Table 4: Comparison of perceptive lexicon frequency in verb category in two groups

	Class	Group	Mean	Std	Significant Level
Perceptive lexicon frequency in Verb category		Stutter	97.25	1.15	
	First class	Non stutter	99.12	0.45	0.001
		Stutter	96.54	2.5	
	Second class	Non stutter	99	0.336	0.006
		Stutter	96.66	1.31	
	Third class	Non stutter	98.76	0.633	0.001
		Stutter	96.26	2.4	
	Forth class	Non stutter	98.8	0.494	0.002
		Stutter	96.9	1.95	
	Fifth class	Non stutter	98.56	0.701	0.003

Table 5: Comparison of expressive lexicon frequency in adjective category in two groups

	Class	Group	Mean	Std	Significant Level
Expressive lexicon frequency in Adjective category		Stutter	4.41	1.56	
	First class	Non stutter	6.88	2.29	0.01
		Stutter	3.94	1.74	
	Second class	Non stutter	5.08	2.98	0.406
		Stutter	4.03	1.3	
	Third class	Non stutter	7.72	1.74	0.001
		Stutter	4.49	4.04	
	Forth class	Non stutter	6.48	2.79	0.034
		Stutter	4.02	1.37	
	Fifth class	Non stutter	7.07	1.87	0.002

Table 6: Comparison of perceptive lexicon frequency in adjective category in two groups

	Class	Group	Mean	Std	Significant Level
Perceptive lexicon frequency in Adjective category	First class	Stutter	95.96	1.92	0.007
		Non stutter	98.37	0.855	
Adjective category	Second class	Stutter	95.4	1.67	0.001
		Non stutter	98.28	0.83	
	Third class	Stutter	95.72	2.08	0.002
		Non stutter	98.45	0.629	
	Forth class	Stutter	96.61	1.77	0.005
		Non stutter	98.41	0.726	
	Fifth class	Stutter	96.23	1.95	0.003
		Non stutter	98.41	0.701	

DISCUSSION AND CONCLUSION

This study assessed the change process in core vocabulary frequency between stuttering and non-stuttering children in primary school. The results indicate a difference in all educational levels between these two groups. The students from the second and fifth grades show a more significant difference. The more significant results can be achieved if a more accurate research is done in this subject by increasing number of participants, improving a suitable laboratory conditions and devoting more time and sparing more expenses.

Louko and Linda (1995) state that stuttering children show many problems in phonological processing which are more apparent [39]. This study is in line with present study. Conture and Anderson (2000) [17] carry out a study aimed at assessing the difference between stuttering and non-stuttering children in perceptive standard test and perceptive-expressive lexicon. Participants was 16 and 4 stuttering boys and girls respectively and 16 and 4 non-stuttering boys and girls respectively. Then child-parent interaction completed an administered semantic, syntactic and phonological ability standard test for each child. The results indicated that difference between expressive-perceptive language index and perceptive lexicon was significant in children who stutter. possibly, semantic development is back of syntactic development and imbalance between language system parts (syntax, lexicon) role in speech dysfluency [40].

Silverman and Ratner (2002) result that stuttering children show depressed language and lexicon ability as compared with non-stuttering children [41]; that is in line with the present study. Ratner and Silverman (2000) [42] assessed 15 stuttering and 15 non-stuttering people four months after to incipient of stuttering. Language abilities assessment, including lexical skills, by formal test and

language sample synthesis indicated that there was not significant difference between stuttering children and their peers in single word perceptive lexicon score. But their expressive lexicon score was lower than peers. The next research of expressive lexicon indicated that stuttering children have significantly lower lexical diversity than non-stuttering children [42]; that is in line with the present study. Wagovitch and Ratner (2007) assessed verb use frequency in young 15 stuttering children and 15 non-stuttering children and the results showed that the former had significantly lower different verbs and overall verbs than the latter but there was difference in overall multi-purpose verb between stuttering children and non-stuttering children. Finally stuttering children use expressive and perceptive verbs significantly lower than non-stuttering children and according to Wagovitch and Ratner (2007) verb learning is an important challenge for children and stuttering children have perceptive verb lexicon lower than non-stuttering children [14]. The present study in addition to verbs, assessed nouns and adjectives in stuttering and non-stuttering children and it's results indicated that stuttering children have expressive scores lower than perceptive scores. Wagovitch and Ratner believe that this lower expressive scores is the result of children's behavior for simplifying verbal output as a strategy for dealing with stuttering and mismatch between expressive and perceptive skills that resulted in fluency interruptions [14]. Shafiei (1999) [43] compared concordance of verb in speech of 30 stuttering children and 30 non-stuttering children 4-5 years in Tehran. The results showed that the former has delayed learning syntactic complex rules as compared with the latter. Perrozi and Hunze (1969) [44] surveyed stuttering and non-stuttering children in second and third class and did not find significant difference between these two groups in Van Alstyne Picture Vocabulary Test. The inconsistency between their study and the present research results from Perrozi's and Cunz or Hunze's different test type and number of participants. Williams, Melrose and Wood (1969) [45] assessed perceptive lexical skills of 100 stuttering children and 300 non-stuttering children by lexicon subtest of Iowa basic skills tests and found that the former has more weaknesses in this test than the latter. Aram, Yamashita and Hall suggested that increase of dysfluency resulted of problem of child in integration of great lexico with insufficient syntax for articulated sentence [46]. According to capacities and needs model (starckwether) when stuttering people show interruption in fluency that communication needs exceed of capacities. also, if specific

language skills (lexicon) be weak as compared with another skill, even though communication need is similar peers resulted in interruption in fluency. Lees, Anderson and Martins stated that linguistic needs exceed of morpho-syntactic capacities that resulted in interruption [41]. Perpetual work in lexicon skills of people who stutter help to development of language abilities profile in incipient of stuttering. the role of linguistic mismatch and lexicon skills assigned by creation of language skills profile [47, 48]. Research texts is frequent in relation to studies that assess relationship between dysfluency and language and specially dysfluency and phonology [31, 48-51]. Stuttering people delayed in speech milestones and many of language tests is weaker than non-stuttering people [52]. Overall, researchers conclude that stuttering children have depressed scores in syntactic indices as compared with people who stutter in spontaneous speech samples [51, 53, 54], Peabody picture vocabulary test [55] and articulation indices and speak speed [33]. Results suggested that similar research conducted on children who stutter with more participants numbers. core vocabulary frequency assessed by another tests and different ages –type of core vocabulary assigned in children who stutter. similar study administered in girls. core vocabulary frequency been assessed in different severity levels.

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