

## **The Effect of Phonological Awareness Training on Stuttering**

Mahdiyeh Kargar, *M.A.*

Psychology and Education of Exceptional Children, Tehran University, Tehran, Iran

**ABSTRACT**— Objective: This study aimed to compare the phonological awareness treatment and conventional treatment method in primary school children with stuttering. Methods: This study was conducted in a pilot on two groups of ten students with stuttering who were matched by age and sex. The subjects were divided into four treatment groups based on the treatment style. (3) The stuttering severity test was conducted in both groups and the results of these tests were analyzed. Student's t-test was used to compare two post-test treatment groups. Results: There was no significant difference between treatment groups ( $0.05 < p$ ).

Conclusion: The results show the importance of evaluation and treatment of phonological awareness and conventional treatment methods in children with stuttering.

Keywords: stuttering, phonological awareness, disfluency, conventional treatment method.

**KEYWORDS:** Salicylic acid, sodium Nitric Oxide, olive, ion leakage

### **Introduction**

We know that stuttering is a highly complex mental and motive phenomenon occurs in the normal process of individual's speech due to repetition, block or prolongation and etc. and also emerged in mild, moderate and severe forms. In summary, it can be said that fluency disorder is in the mental aspect of speech that occurs for a moment and temporary and after a moment the speech is uttered fluently (Van Riper, 1971). Scientists have spent many years to find a cause for stuttering since dealing with this disorder. Although they have not found a certain cause for stuttering so far, different theories have been proposed as a result of various studies. These theories are divided into three categories for a better review.

### **Theories about the causes of stuttering**

1. Psychological theories
2. Organic theories
3. Linguistic theories

### **Psychological theories**

Psychological theories presented in connection with the stammer can be divided into two groups, we psychoanalytic and psychosocial or environmental.

#### **1. Psychoanalytic theories:**

Some psychoanalysts including Freud, quoted by Ambrose (2004), believe that stuttering has a neuro-psychological root. In other words, stuttering a neuros or a sign of a mild neuros. If for some reason one of the five growth stages of a person (oral - anal - genital - latency - sexual) remains static and unfulfilled, the person may not return to the previous stage over time and during the lifetime due to the emotional turmoil and pressure, especially deprivations and frustrations. Travis (1927) says that the desires and their suppression, such as eating, excretion, and sexual behaviors, create a conflict which is a favorable context for the emergence of mental illnesses. Stuttering can also be regarded as one of conflicts.

#### **2. Psychosocial theories:**

The theories presented in the psycho-social field on stuttering stem from the theories of the behaviorists in psychology. Carrot (1946), quoted by Ambrose (2004), believes that stuttering is a habit that can be achieved through learning. He says that this habit (stuttering) is resulted from abnormal treatment with the child' mentality in 80% of cases, and only 10% of causes are due to genetics, and the remaining are due to miming, illness, excite, and stress. Johnson (1959), believes that all children in preschool age tend to repeat in their speech, but this repetition is simple and without effort and stress. If at this time parents do not judge the child's speech correctly and see natural disfluency as an illness, they will show normal behavior to this judgment. So the child starts to control his speech fluency and this process is the way that leads to stuttering.

### **Organic theories**

We consider this area to discuss and study the factors relating to the physical impairments and the relationship between these factors and stuttering. We should know that the organic theories are older than other theories about stuttering. It traced back to

the 19<sup>th</sup> century when the organic theories were widely common and considered the inability of language in stuttering. They believe that the inability of language in speech production gestures causes pauses and block or disfluency or knew the tongue's muscular spasm effective in the development of stuttering. Some ideas are also common among the people about stuttering; including that stuttering is caused by cold, so eating hot foods is prescribed.

### **Lingual theories**

In this section, we consider the most important theories about stuttering using the lingual structure. Some researchers believe that stuttering is caused by the failure of the sentence processing. They believe that most of children's speech disfluency occurs at the age of learning language, i.e. during language development age (Pelczerski, 2011). Gordon, Blood, Victor & Ridenour (2003) believe that the lingual inability is an important factor in the development of stuttering. Van Riper (1987) also believes that the stuttering more happens at the beginning of sentences with two or three words rather than the end or the middle of the sentence. He suggests that stuttering is increased by increasing the length of words. That is, less stuttering can be seen in the shorter words; the stuttering is also related with the frequency of using words and the weight and texture of words. Bajaj et al. (2004) suggest that stuttering is increased by increasing the length of words. That is, less stuttering can be seen in the shorter words; the stuttering is also related with the frequency of using words and the weight and texture of words. It means that the more frequent is the word, the stuttering and prediction of words is more. In the field of lingual theories on the causes of stuttering, the theory of theoretical-lingual thinking failure fully explains stuttering under this approach. The theory of stuttering due to lingual-theoretical thinking failure. The researchers in this regard believe that the people with stuttering are in trouble to process their thoughts and ideas in the lingual form. These problems cause lingual-theoretical thinking failure and thus will bring stuttering (Pagman, Code & Onslow, 2007). The designers of this theory believe that stutterers have no language immediacy.

### **Phonological awareness**

Since a single word can be segmented at least to three forms its component sounds, there are at least three phonological awareness ways. Several methods and assignments have been proposed to review phonological awareness, such as rhyming, composition, manipulating syllables, clusters and phonemes (Dastjerdi and Solomoni, 2010). Children's environmental experiences such as children's poems (rhymed poems), playing with voices and sounds and playing with letters and written words, bring them to the awareness that the word's form is different from meaning. Normal children normally learn to develop their phonological awareness assignments and skills, but children who have difficulty in reading, writing and speaking skills also face many problems to perform these assignments and skills. It should be added that the speech disorder severity measured by speech fluency tests is a significant predictor for the child's performance in his phonological awareness assignments. In fact, these two variables are highly correlated (Dastjerdi and Solomoni, 2010). Since a single word can be segmented at least to three forms its component sounds, there are at least three phonological awareness ways; including syllable, phoneme, and in-syllabic units.

### **Syllabic Segment**

The first and most convenient way to segment a word is syllabic segmentation. Children have a minor problem in segmentation of composing syllables (Wray, 1994).

### **Phonemic Segment**

Children need to learn that word is a set of phonemes and should be able to establish a relationship and correspondence between certain letters and certain phonemes. Goswami & Bryant (1990) have said on the importance of phonological awareness that it plays a crucial role in learning to read and no other form of phonological awareness (syllabic awareness and syllabic treatment) is not so important.

### **In-syllabic units Segment**

Wray (1994) defines the third word segmentation way in a way that words can be segmented into the units larger than phonemes, i.e. the units containing two or more phonemes, but are smaller than a syllable. For example, the word "string" can be divided into two parts: str and ing. Diagnosis of congruency and rhythm is related to in-syllabic unit segment. Phonological awareness includes skills such as word recognition to the same initial sound (such as apples, garlic) and the same final sound (such as mice, ear). Detecting the first or last sound and changing the word polyphonic texture is made by removing or adding a special sound.

### **Research Methodology**

This is a pilot study. As there were two groups of stutter children in this study who were tested using two methods. The stuttering children population includes all primary school children with stuttering referred to the Kerman Tolo Shahr Clinic, Farhangian Clinic, Imam Khomeini Clinic of Rafsanjan and Welfare Administration of Shahr Babak during November and December, 2013. It was 20 students with stuttering.

**Sampling method**

In order to select stuttering children, available sampling method was used. So that the researcher referred to the above mentioned speech therapy clinics and examined 20 primary school children enjoyed speech therapy services in November and December 2013. They should have had the inclusion criteria. They were divided into two groups matched by age and sex.

**Research Tools**

In this study, the Semiotic Questionnaire or diagnostic symptoms of the Stuttering Severity Instrument were used to measure the stuttering severity in children and then phonological awareness training as well as conventional treatment methods (behavioral-cognitive methods and bilateral procedures) were used.

**Procedure**

After conducting pre-test in both groups, phonological awareness training method were performed in one group and conventional treatment methods in another group over fifteen sessions.

First, the Stuttering Severity Instrument was carried out in both groups. After that, the data related to the phonological awareness treatment and conventional treatment methods and its levels, stuttering severity test, age and sex were entered to SPSS 16. Student's t test was used to examine the differences between phonological awareness treatment and its level (syllabic, phonemic, and in-syllabic unit awareness) with the conventional treatment methods. The significant results in significant levels of 0.05 ( $0.05 > p$ ) were checked out.

**Findings**

**Descriptive Statistics**

As you can see in table of demographic characteristics of subjects in the below:

**Table 1.** Demographic characteristics of subjects in the group of stuttering children

Samples	maximum-minimum age	Average age	Sex
Stuttering Group	7-10	8.06	4 girls and 6 boys

This study was conducted was conducted to examined the impact of phonological awareness training on stuttering in both groups of 4 girls and 6 boys aged 7 to 10 years. SPSS 16 was used after collecting the data to answer the research question.

**Comparison of the effect of phonological awareness training method and speech fluency with conventional methods using independent t-test**

To know whether phonological awareness and speech fluency therapy have significant impact or not? Independent t- test is used to compare the mean scores of the two groups in pretest and post-test. The results of this test can be seen in the table below.

**Table 2.** Independent t-test for comparison of phonological awareness training method with the conventional methods in post-test

	Levene's test for variant homogeneity (F)	Significance amount of variances homogeneity test	Number of Students	Average total test score	Mean difference	Degrees of freedom	t-statistic	Significance amount
Conventional post-test	0.059	0.45	10	12.35	1.33	18	1.52	0.101
Phonological post-test	0.349	0.55	10	13.68				

Statistically, the difference in the mean scores of both groups is significant in both methods. in other words, the mean score indicates that the students in both groups have reached a higher level after treatment and the symptoms of disorder have been resolved to some extent. These two methods are both suitable for treatment because both are not significantly different at post-test stage.

**Discussion and conclusion**

In summary, the main purpose of this research is to study phonological awareness and speech fluency and conventional treatment method in primary school children with stuttering and then compare the performance of phonological awareness and its levels. Finally, according to the results, it may be hoped that this research will open new horizons to the treatment of stuttering. According to the research, the importance of assessing language ability, including phonological awareness in stutters, is palpable. Using the available tests for the assessment and treatment of stutter children help the speech therapists and psychologists and their treatment process. Thus, the phonological awareness practices can be used in addition to the conventional methods in order

to treat stuttering, because there was no significant difference in these two methods. It is also needed to study and compare these two methods in larger samples in the future researches.

### **Limitations of the study**

In each study, there are limitations that may affect the results of the investigation. In this study, there were cases including:

1. Since some stutter children may have no stuttering problem in clinical conditions, although we tried to put the child in a stressful situation. The result of creating stressful situation was not normal to affect each child stuttering severity.
2. Since the researcher must communicate with the child and take dialogue speech sample, some children communicated late or used short sentences. It made the researcher to use more graphic stimulus.
3. Since tests have been run in schools for non-stutterers. Sometimes children's noise in the school yard may affect the accuracy of children's response.
4. Since phonological awareness test was carried the stuttering severity test, fatigue can have an impact on the accuracy of children's response.
5. There was also a problem in transportation.
6. The lack of cooperation of parents results in a waste of time.

### **Recommendations for future research**

1. It is hoped that future research will provide the grounds to study with a larger sample size.
2. It is also better to use parent - child dialogue to get speech samples.
3. It is suggested to compare different levels of phonological awareness (syllabic, phonemic, and in-syllabic unit awareness) in stuttering and non-stuttering children in future studies.
4. Further research needed to further investigate the correlation between phonological awareness and levels of disfluency in stuttering and non-stuttering children.
5. It is suggested to get more speech samples in other studies to indicate the child's actual speech.
6. It is also suggested to take the sample of stutter children from schools like other non-stutter children so that we can consider the proportionality of education level in stuttering and non-stuttering children and then select those children with stuttering who have not treatment history.
7. It is needed in future studies to examine the impact of stuttering severity on of phonological awareness level.
8. Future studies need to examine the differences between groups in linguistic and meta-linguistic exercises.

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