RESEARCH ARTICLE

EFFECTS OF PROLONGATION OF SPEECH AND SYLLABLE TIME SPEECH ON SEVERITY OF STUTTERING IN STUTTERING PATIENTS

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ABSTRACT

Background: Stuttering is an organic process utterance condition. This utterance condition is broken by prolongation of sounds and repetitions of part words and phrases. Speech constitution strategies facilitate the client to use a new way of oral communication in stutters. **Objective:** to determine the effects of prolongation of speech and syllable time speech on severity of stuttering in stuttering patients. **Methods:** This Randomized clinical trial study design was conducted in National Institute of Rehabilitation bSP) and Group B received syllable time speech protocol. The data was collected using the Scale of rating severity of stuttering (SRSS) at baseline, after 6th weeks and after 12th weeks of training. The data was analyzed through SPSS-21. **Results** The mean age of the study participants was 22±2.05 years. The median number of sibling was 4(2), birth order 2.5(2) and age of onset was 4(1) years. With-in group analysis showed that the group received prolong speech protocol {F=25.24(2), p<0.001} and syllable time speech protocol {F=29.52(2), p<0.001}, both were significantly improved from the baseline to the end of 12th week of intervention as well as at each level of assessment. While comparing the groups, there was significantly large mean difference (MD) of SRSS in group received syllable time speech protocol (2.53±.83 ver 1.73±.59, p=0.005, Cohen's d=0.72) as compared to group received prolong speech protocol. **Conclusion** It is concluded that Syllable time speech was effective in reducing severity of stuttering and improving fluency in stutterers. .

Key words: Stuttering, stammering, fluency shaping therapy, speech therapy.

INTRODUCTION

Stuttering is condition characterized by prolongation of sounds and repetitions of part words and broken phrases mostly occurs between 2 and 4 years during the preschool time of life[1].The prevalence of stuttering in young children is approximately 5% and 0.5% to 1% in adults respectively. Approximately 75% children recover from stuttering even without any treatment. It depends on family history and physiological factors of natural recovery. The female child seems more natural recovery as compare to male child children with a family history of natural recovery from stuttering[2, 3].

Stuttering is multi-modality, and its features are readily observable during communication, but some are not that include affective and personal aspects of stuttering. Consequently, a person who stutters frequently creates many strategies to cope the stuttering. These strategies include avoiding stressful speaking situation, difficult words and avoiding talking situation where unnecessary communication pressure presents[4]. The person who stutter (PWD) feel communication pressure while he communicate on telephone, introducing them and specially when talking to dominant personalities[5]. Several factors contribute in the development of stuttering and influence the speech i.e. brain structure and function, genetics factors, language development and environment. Working together, these factors can of a person who stutters[5,6,7].

Speech constitution strategies facilitate the client to use a new way of oral communication. These approaches are also called prolonged speech or fluency shaping management. Prolonged speech is typically the essential element of new way of oral communication. These approaches involves like light articulatory pressure gentle initiation of speech. Stuttering patients use speech production strategies in daily life that are not the part of their motor control ability. The successful prolong speech depends on patients willingness to apply a new plan of action in conversation of daily life[6, 7].

Stutters have since been taught many methods for adding rhythm to their speech. Syllble time speech involves saying each syllable in time to a rhythmic beat including foot tapping, finger tapping, and arm swinging. In syllable time speech (STS) group, each syllable has been spoken exactly on downbeat. It starts by relatively slow speech i.e. 60 beats per minute, and then gradually speed up to 80 beats, and then as high as 120 beats per minute in in

talking with expert, reading loudly, free spoken language in reading and conversation context.[4,6]

There is paucity in the literature regarding the stammering management with prolongation of speech and syllable time speech. The objective of this study was to determine the effects of prolongation of speech and syllable time speech on reduction of severity of stuttering in stuttering patients.

METHODOLOGY

This study was designed as a randomized clinical trial with n=30 participants were recruited through non-probability, purposive sampling and randomly assigned to Group A (n=1%) received prolonged speech protocol (PSP) and Group B (n=15) received syllable time speech protocol (Figure 1).

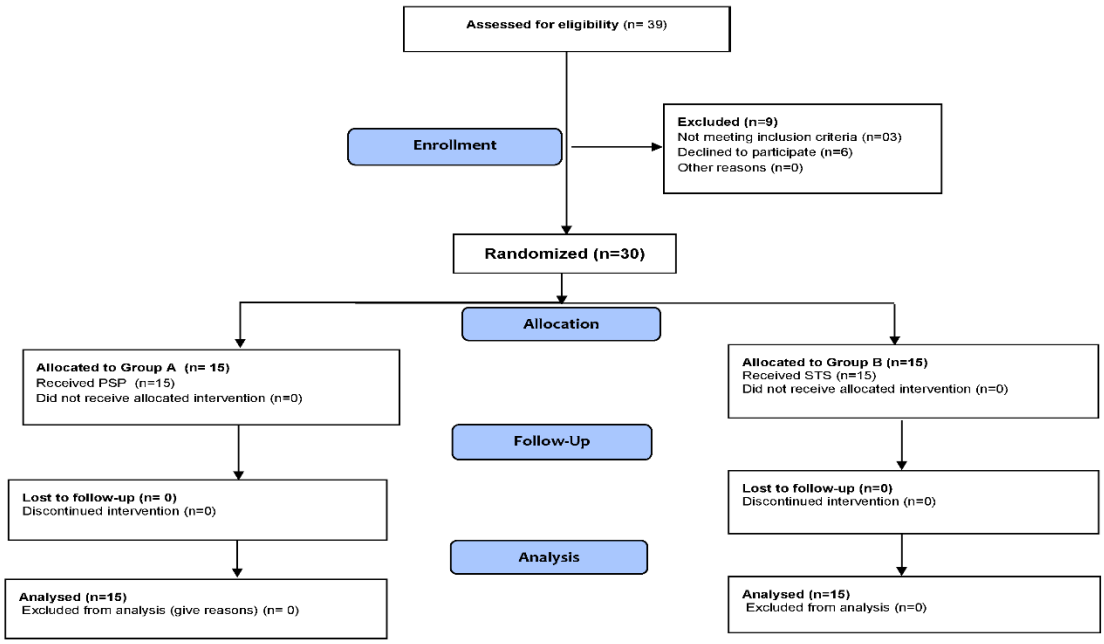

Figure 1: CONSORT diagram

Participants of both genders having developmental stuttering with age between 20-30 years were included in the study. While those with neurological stuttering, cluttering and language disorders were excluded. The study was conducted in National Institute of Rehabilitation Medicine Islamabad Pakistan after approval from the ethics review committee (ERC). All participants provided written, signed consent before participation in the study which was conducted according to ethical guidelines of Pakistan medical and research council as well as Declaration of Helsinki

Prolonged speech protocol (PSP) group received light articulatory pressure, gentle initiation of speech, continuous phonation and light articulatory contact during talking with expert, reading aloud and free spoken language in reading and conversation context.

In syllable time speech (STS) group, each syllable has been spoken exactly on downbeat. It starts by relatively slow speech i.e. 60 beats per minute, and then gradually speed up to 80 beats, and then as high as 120 beats per minute in talking with expert, reading loudly, free spoken language in reading and conversation context.

Each participant in both groups therapy session twice week for 12 weeks. Each session was last for 30 minutes. In every session the reading task was performed with 80 short sentences, free spoken language for 5 minutes and talking with expert by using protocol for 5 minutes. At the end for 5 minute each participant gave the review of the session.

The data was collected using the Scale of rating severity of stuttering (SRSS)at baseline, after 6th weeks and after 12th weeks of training. . The SRSS score range from 0 to 7, 0 score means absence of stuttering and 7 means very severe stuttering. The demographic data was obtained as age, gender birth order, number of siblings and age of onset of

stuttering. The Friedman and Wilcoxon sign rank test was used for with-in group analysis. Mann Whitney U-test was applied for between the group comparisons. As the data was not comparable ($p \geq 0.05$) at the baseline, so the mean difference (MD) of both groups was compared through independent t test. The significance level was set at $p<0.05$ and SPSS ver 21 was used for data analysis.

RESULTS

The mean age of the study participants was 22±2.05 years. The median number of sibling was 4(2), birth order 2.5(2) and age of onset was 4(1) years.

With-in group analysis showed that the group received prolong speech protocol {F=25.24(2), p<0.001} and syllable time speech protocol {F=29.52(2), p<0.001}, both were significantly improved from the baseline to the end of 12th week of intervention as well as at each level of assessment. (Table 1)

It was observed that, groups were not comparable at the baseline, so the mean difference (MD) was calculated in the both groups and compared with independent t-test. (Table 2) The result showed that there was significantly large mean difference (MD) of SRSS in group received syllable time speech protocol (2.53±.83 ver 1.73±.59, p=0.005, Cohen's d=0.72) as compared to group received prolong speech protocol. (Figure 2

Table 1: With-in group Analysis

	Assessment	Prolonged Speech Protocol				Syllable Time Speech Protocol			
		Median (IQR)	MR	Z/F(2)	p-value	Median (IQR)	MR	Z/F(2)	p-value
Severity Rating scale of Stuttering	Baseline	5(1)	2.93	-3.35	0.00***	5(1)	3.00[a]	-3.54 [a]	0.00***
	After 6th Week	4(1)	1.83	-2.48	.013*	4(1)	1.97[b]	-3.44 [b]	0.00***
	After 12th Week	3(1)	1.23	25.24	0.00***	3(1)	1.03[c]	29.52 [c]	0.00***

[a]baseline to 6th week, [b]6th week to 12th week & [c]baseline to 12th week
*Significance level: p<0.001***, p<0.01**, p<0.05**

Table 2: Comparison between the Groups on Severity Of Stuttering

	Assessment	Prolonged Speech Treatment Protocol		Syllable Time Speech Protocol		U-test	p-value
		Median (IQR)	MR	Median (IQR)	MR		
Severity Rating scale of Stuttering	Baseline	5(1)	12.50	5(1)	18.50	67.5	0.045
	After 6th Week	4(1)	13.67	4(1)	17.33	85.0	0.202
	After 12th Week	3(1)	16.03	3(1)	14.97	104.5	0.724

*significance level: p<0.001***, p<0.01**, p<0.05**

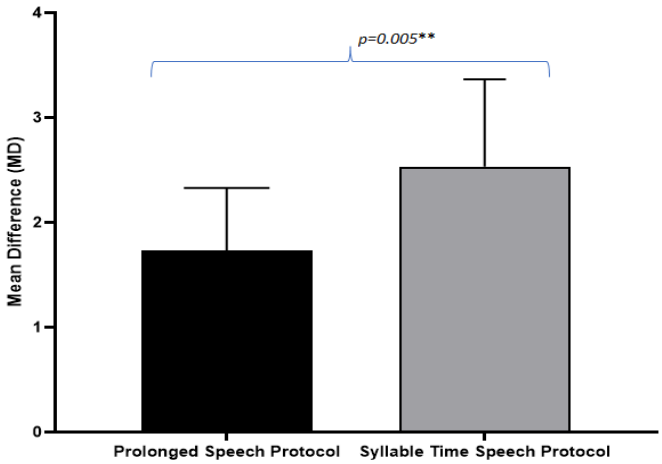

Figure 2: Comparison of mean difference of the both groups

DISCUSSION

The study was conducted to find out the effect of prolongation of speech and syllable time speech for management of stuttering. Significant improvement was noted within both groups from zero weeks to 12th weeks of training regarding severity of stuttering but syllable time speech proved to be more effective as compared to prolonged speech, in reduction of severity of stuttering and improving fluency in stuttering patients.

Current study demonstrated that there was significant improvement in prolonged speech group from week 0 to week 12 of training regarding scale for rating the severity of stuttering. The prolonged speech resulted in control over the articulatory movements of speech and effective in reducing severity of stuttering and in enhancing confidence and improving quality of life of clients with stuttering[8]. Another study conducted by sanjeev Kumar Gupta also supports the results of our study in which significant improvement was observed on both pre- and post-intervention score in stutters[9]. Zamani P et al, also reported that prolong speech is an effective in reducing the severity of stuttering and improve the fluency in stuttering patients[10].

The current study also demonstrated that syllable time speech was significantly better than prolonged speech regarding in reduction of severity of stuttering and improving fluency from baseline to 12 weeks of training regarding SRSS. A previous study also concluded that SRSS was improved significantly in syllable time speech which is in line with current result. Nineteen stuttering patients were involved under two conditions in speech communication activity. One using STS and other in their native talking manner. The talkers' speech rhythmicity and percentage syllables stuttered (%SS) were ranked. The rhythmicity ranks evaluated in syllable time speech to approximation the level to which native talkers were using STS. Results discovered that syllable time speech was significantly reducing severity of stuttering on %SS; but reduction in severity of stuttering[11].

Prolonged speech improves the fluency but syllable time speech showed more improvement in the severity of stuttering. The underlying mechanism of improvement in fluency involves speaking with minimal stress across syllable or words in time to a regular beat.one of the reasons for better results in STS group is that STS has an advantage of engaging in hand tapping activities which ultimately lead to the patient to talk in strict time to rhythm and each syllable have to be spoken exactly on downbeat. exactly on downbeat. This syllable time speech allowed and individual to change their spoken language production. The syllable time speech method resulted in decreased the power of articulatory motion and improves fluency[12,13].

Andrews et al., examined the Syllable time speech to reduce the stuttering severity in 10 preliminary school-age children with stuttering. They trained the children with stuttering and their parents to practice a treatment protocol of the syllable time speech at relaxed level of talking. The results showed that nine children with stuttering exhibited a substantial reduction in severity of stuttering. Researchers have firmly proposed that more studies are desirable to explore the effectiveness of syllable time speech in the reduction of severity of stuttering in other languages[14].

One of the limitations of the current study was designed without controlled group. The study was conducted only one institute. The reason was that the ethical committee of NIRM did not approve the controlled group. This study was conducted without counseling.

CONCLUSION

Syllable time speech was significantly better than prolonged speech regarding in reduction of severity of stuttering and improving fluency from baseline to 12 weeks of training regarding SRSS. It is recommended that study should be conducted with large sample size. This study was conducted in only one institute; therefore, it is recommended further study should be conducted in multiple institutes.

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