

Causes of Speech Disorders in Primary School Students of Zahedan

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Article information	Abstract
<p>Article history: Received: 2 Mar 2011 Accepted: 1 June 2011 Available online: 28 Oct 2012 ZJRMS 2013; 15(2): 79-82</p> <p>Keywords: Speech disorders Stuttering Articulation disorders Cluttering</p> <p>*Corresponding author at: Department of Psychology, Research institute of Education office of Sistan and Baluchestan province, Zahedan, Iran E-mail: sfakhrrahimi@yahoo.com</p>	<p>Background: Since making communication with others is the most important function of speech, undoubtedly, any type of disorder in speech will affect the human communicability with others. The objective of the study was to investigate reasons behind the [high] prevalence rate of stammer, producing disorders and aglossia.</p> <p>Materials and Methods: This descriptive-analytical study was conducted on 118 male and female students, who were studying in a primary school in Zahedan; they had referred to the Speech Therapy Centers of Zahedan University of Medical Sciences in a period of seven months. The speech therapist examinations, diagnosis tools common in speech therapy, Spielberg Children Trait and also patients' cases were used to find the reasons behind the [high] prevalence rate of speech disorders.</p> <p>Results: Psychological causes had the highest rate of correlation with the speech disorders among the other factors affecting the speech disorders. After psychological causes, family history and age of the subjects are the other factors which may bring about the speech disorders ($P < 0.05$). Bilingualism and birth order has a negative relationship with the speech disorders. Likewise, another result of this study shows that only psychological causes, social causes, hereditary causes and age of subjects can predict the speech disorders ($P < 0.05$).</p> <p>Conclusion: The present study shows that the speech disorders have a strong and close relationship with the psychological causes at the first step and also history of family and age of individuals at the next steps.</p> <p>Copyright © 2013 Zahedan University of Medical Sciences. All rights reserved.</p>

Introduction

Language is one of the most complicated functions of the human being's brain and is known as the best function of the brain [1]. Language's most function is making communication with others and at the same time it plays as the thought support [2]. The external manifestation of the language can be observed in two forms of writing and speaking [3]. Incurring any damage to each aspect of human speech, which is the motor part of the language and can be posed in three concepts of producing speech sounds, speech speed and voice, will cause disorders in speech.

Stammering is referred to as a speech psychological disorder. Stammer is the speech disorder which is led to the production of vowels or the sounds produced by colonic and tonic spasms with involuntary ruptures in speech trend. These ruptures are almost the combination of struggle and tension in the speech organs or other parts of the body which are associated with the emotional reactions which totally make the speech incomprehensible for the listener [4]. The World Health Organization (WHO) announced the prevalence rate of this disorder one percent [5]. Disorder in sound production is regarded as another speech disorder in which person is not accurately able to produce certain speech sounds. Aglossia has been defined as irregularity in speech timing and it is usually characterized by excessive speed in

speaking, existence of irregularities in sentences, replacing syllables and vowels, and pronunciation of unknown words. Prevalence of the three types of speech disorders has been reported differently which is severely affected by the linguistic and cultural condition [6, 7].

In a study made on 10,425 Australian students in primary schools, it has been shown that the general prevalence of sound production disorder stood at 1.06 percent [8]. In another study made in 2001 in Zanjan, prevalence of speech disorder in 1,170 primary school students was shown 10.2 percent. Bilingualism was considered as one of the main reason of highness of prevalence of speech disorders in this city [9]. In another study made in Ahwaz city in 2003 on 2000 students, the prevalence rate of speech disorders in primary school students was reported 24 percent [10].

In studying types of speech disorders in Isfahan, the disorders rate was obtained 16.55 percent, according to which the maximum and minimum rates stood at 9.05 and 2.59 percent in production disorder and stammer, respectively [11]. The prevalence of speech disorders in female students (primary school) in Tehran was reported 16.1 percent. The results of this study showed that speech disorder has direct relationship with variables of education, job of parents [12]. Prevalence of stammering has been reported in different communities [7]. Stammer

among men is more prevalent than in women (3:1). The prevalence rate of stammer in American school children stands at around 0.3 to 2.12 percent, while it varies from 0.5 to 5.18 percent across the world [7]. In another study on stammer in Kermanshah, its prevalence rate has been reported 2.15 percent [13]; hence the prevalence rate of aglossia is less than the stammer [14, 15]. Baker and Grundmann reported that 1.8 percent of 7 and 8-year-old children are diagnosed with aglossia in German schools [16]. Daly estimated that approximately 5 percent of all people with speech disorders are diagnosed with aglossia, as well [17].

Weiss claims that although there are not any neuropsychology symptoms in normal aglossia, the extant symptoms indicate another organ characteristic. Most authors have written that similarity of speech of people with aglossia to the speech of some people suffering from Parkinson disease indicate its organ identity [18]. The objective of the present study was to evaluate reasons behind high prevalence rate of speech disorders in order to find an appropriate and comprehensive way to treat people suffering from speech disorder.

Materials and Methods

This study is a descriptive-analytical type and was conducted in 2010 among people who referred to Speech Therapy Centers of Zahedan University of Medical Sciences. A number of 118 female and male students, in primary school level in Zahedan, constituted the subject of our study, who had referred to the Speech Therapy Centers of Zahedan University of Medical Sciences within a 7-month period. With due observance to the research backgrounds, the reasons behind the high prevalence rate of the speech disorders were classified into the five groups as follows:

Body organ-based reasons including defects in oral-peripheral structure (cleft in lip and mouth), deformations of denture, auditory disorders and defect in nervous system, social reasons (bilingualism), psychological reasons (anxiety), cultural reasons (marriage with relatives) and family history. Examination by the speech therapist, study of patients' file and Spielberger Trait Anxiety Inventory for Children Test were used in order to identify the abovementioned reasons. Parents of the subject of the study were fully informed of the procedure and they signed the consent form in order to observe

ethical principles. The obtained data were recorded in nameless sheets, details of which were performed based on a code envisioned for each subject. The parents of patients were assured that the received information will be kept confidential and will not be used in somewhere else. After data collection, the data were analyzed by SPSS-15 software and with Logistic-Regression Statistical Test.

Results

In the present study, the frequency of various organ reasons, which has been considered as the main reason of the high prevalence rate of speech disorders, including the defect in denture (12.2%), auditory defect (5.9%), cut in mouth (2.5%) and cut in lip (0.8%) as well as disorder of nervous system (24.6%).

Of total 118 volunteers of the Speech Therapy Centers, 40.7% of them were diagnosed with anxiety based on Spielberger test while frequency of bilingualism of people referred to the speech therapy centers included 53.4%. Of total parents referred to the Speech Therapy Center, 53.4% of them were diagnosed with family marriage while 45.8% of patients had speech disorders in their family history. 39.8% of patients to the Speech Therapy Centers were diagnosed with first child, 33.1% with second child, 16.1% with the third child and 11% with fourth child of the family.

Frequency of age of people referred to the Speech Therapy Centers included 42.4% (6-8 years old), 29% (8-10 years old) and 18.6% (10-12%). Table 1 shows results of logistic-regression analysis in order to predict speech disorders by the predefined reasons while table 2 indicates correlation matrix of factors behind prevalence of speech disorders.

Table 1. Results of logistic regression analysis of the causes of speech disorders

Independent variables	B	S.E	Wald	df	Sig	Exp (B)
Gender	1.983	0.661	9.013	1	0.003*	7.265
Organic Causes	0.046	0.185	0.057	1	0.811	1.045
Psychological Causes	2.592	0.804	1.39	1	0.001*	13.35
Social Causes	-1.278	0.648	3.89	1	0.049*	0.27
Cultural Factors	0.406	0.671	0.36	1	0.545	1.501
Family history	2.029	0.680	8.913	1	0.03*	7.610
Birth order	-0.131	0.312	0.177	1	0.674	0.877
Age	1.43	0.43	11.02	1	0.001*	4.194

Table 2. Correlation matrix of speech disorders prevalence

variables	1	2	3	4	5	6	7	8	9
1 Speech Disorders	-								
2 Organic Causes	0.203*	-							
3 Psychological Causes	0.436**	0.202*	-						
4 Social Causes	-0.139	-0.051	0.151	-					
5 Cultural Factors	0.008	-0.099	0.151	0.319**	-				
6 Family history	0.424**	0.254**	0.247**	-0.028	0.074	-			
7 Age	0.384**	0.180	0.200	-0.022	0.070	0.0187*	-		
8 Gender	0.363**	0.141	0.221*	0.093	-0.217*	0.134	0.135	-	
9 Birth order	-0.099	0.050	-0.049	0.288**	0.152	-0.67	0.188*	0.015	-

As it is observed in the abovementioned results, psychological reasons have had the highest significant correlations with the speech disorders among the diagnosed factors affecting speech disorders ($p=0.001$). After psychological reason, history of family and age of people placed in the second and third ranks. Bilingualism and order of birth also had negative correlation with the speech disorders. Also, another finding of this study shows that only gender ($p=0.003$), psychological reasons ($p=0.001$) and bilingualism ($p=0.049$), family history ($p=0.003$) and age of patients ($p=0.001$) can predict speech disorders based on reliability.

Discussion

The present study shows that correlation of organ reason is not significant with the speech disorders. The organ reason identified in this study, included: cleft lip, cleft in mouth, deformation of denture, auditory disorders and nervous system defect. The result of present study conflicts with the studies which have referred to the auditory system defect and maxilla-dental abnormalities in patients suffering from speech disorders [18]. However, results of other study place special emphasis on the role of configuration, functional and action defects in outbreak of speech disorders [20].

The result is interpretable due to the sample size. Principally, theoretical basics have mentioned organ reason as actual reason of speech disorders with aglossia [17, 20] but stammering is always considered as effect of corporal, physical, emotional, and social reason [21]. Since maximum frequency is related to the people with stammering disorder among people who referred to the Speech Therapy Centers, relationship of organ reason is not significant with the speech disorders. This study shows that bilingualism, as social reasons, has not significant relationship with the speech disorders. If more bilingualism is found among students, speech disorders are reduced tremendously. Significance of bilingualism relationship and speech disorders have been placed special emphasis in a study made by Ma'soumi [8]. But there is conflict in terms of type of relationship. It is expected that the increased speech disorders will be considered as one of the consequences of bilingualism. Clarification of the abovementioned finding can be discussed with referring to this subject that bilingualism has both positive and negative effects [22].

In the present study, relationship of family marriage is not significant with the speech disorders, in which, this finding is consistent with the finding of another study which discusses family marriage with the speech disorders [23]. The present study showed that anxiety, as psychological reason, has significant relationship with the speech disorders, so that, the more anxiety is increased, speech disorders are increased as well. Some other studies confirm this finding, so that anxiety is considered as one of the most important reasons of stammer [18]. The present study also shows that there is

significant relationship between gender of patients and speech disorders [18- 24]. In other words, the number of boys with speech disorders is more than the number of girls suffering from speech disorders as well. The results of some studies confirm this finding.

The present study also shows that there is significant relationship between gender of patients and speech disorders [26, 27]. In other words, the number of boy with speech disorders is more than the number of girls with such problem. The individual differences of girls and boys in terms of nervous-muscular control are in such a way that this ability is less than the girls in the early years of life of boys. This study also shows that family history has significant relationship with the speech disorders. Another study also confirms this finding. In clarification of this finding, it can be reiterated that family track and hereditary factors may not cause transfer of stammering and/or other speech disorders necessarily [28].

The present study also shows that most frequency of disorders was observed between 6-8 years old among 86 patients with speech disorders. The age and prevalence of speech disorders among children and young adults have been considered in most speech disorders [20]. The possibility of formal using speech in this age is the most important clarification to discuss with regard to the abovementioned finding.

In fact, children go to school in 6-8 years and require using speech to establish more formal relationship and learn training issues. However, their social interactions will be increased. At this time, any defect becomes more vivid in their speech. With due observance to the results of the present study, necessity of caring and taking more serious follows up become more transparent to identify and remove any type of speech problem. The educational and health activists of the country are highly recommended to take their utmost effort in order to train children with 6 to 8 years of age.

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Authors' Contributions

All authors had equal role in design, work, statistical analysis and manuscript writing.

Conflict of Interest

The authors declare no conflict of interest.

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