

# Speech Disorders and Introversion Behavior among School Age Children

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**Abstract:** Children with speech disorders frequently experience peers victimization and rejection which make them susceptible for psychosocial disturbances. Aim of the study: This study aimed to assess the impact of speech disorders on introverted behavior among school age children. Subjects and method: a descriptive study design was used to perform this study. It was conducted on a total of 104 speech disordered children attending the Unit of Phoniatics at both Assiut and Beni-Suef University Hospitals and a control group composed of 80 normal school-age children. Data were collected by utilizing A Structured Interview Questionnaire, Introverted Behavior Scale. Results: The highest percentage of the studied speech disordered children had severe introverted behavior. On the other hand, the highest percentage of the control group subjects had mild introverted behavior. Conclusion: speech disorders affect the psychosocial status of school-age children. Recommendations: Collaboration between phoniaticians and psychiatrists is required to implement a comprehensive treatment programs for psychological disorders of the affected children.

**Keywords:** speech disorders, school age, introverted behavior.

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## 1. INTRODUCTION

Speech development is a gradual process during which the child learns how to regulate these muscles to produce understandable speech. Humans express thoughts, feelings, and ideas orally to one another through a series of complex movements that alter and mold the basic tone created by voice into specific decodable sounds. Speech disorders are a type of communication disorder where normal speech is disrupted. Speech disorders refer to problems in producing the sounds of speech (National Institute on Deafness and Other Communication Disorders (NIDCD), 2010 and Zieve, 2012).

Speech disorders include dyslalia, stuttering, nasality and dysarthria. In many cases, the cause of speech disorders is unknown. However, speech disorders may result from a variety of etiologies such as neurological disorders, brain injury, cleft palate and hearing impairment (Abdelfattah, 2005; Baylis, 2007 and National Dissemination Center for Children with Disabilities, 2013).

The prevalence of speech disorders in young children is 8 to 9 percent. By the first grade, roughly 5 percent of children have noticeable speech disorders. Incidence of dyslalia is 1% among boys, and 2% among girls. Stuttering occurs early in childhood and rarely after adolescence with an incidence of 4% of children under age of twelve years. There are no known figures indicating the incidence of dysarthria and nasality in the general population (Craig et al., 2003; Pennington et al., 2008 and NIDCD, 2010).

Dyslalia is a speech disorder causing the affected child to have difficulties in pronouncing certain sounds correctly. Dyslalia is characterized by substituting one sound for another (e.g. wabbit for rabbit), omitting a sound (e.g. han for hand), or distorting a sound (e.g. shlip for sip) (Caby et al., 2014; and American Speech-Language-Hearing Association (ASHA), 2016).

Speech disorders affect individuals in various ways. Speech disorders can erode self-esteem and affect educational achievement, social integration and general behavior. In addition, speech disorders increase the probability of offending behavior and early disengagement from school. Children with speech disorders are much less likely to continue in education beyond 16 years of age (Bryan et al., 2007; Lindsay et al., 2007; and Humber & Snow, 2011).

Children with speech disorders frequently experience peers victimization, social isolation and rejection. These negative consequences have the potential to result in shame and embarrassment, low self-esteem, withdrawal, and lowered school performance. Similar factors have been associated with social anxiety (Iverach & Rapee, 2014).

The role of the nurse includes assessment of the children and their parents' condition, exploring children's social anxiety and discussing their feelings about their self-esteem. The nurse can identify health teaching needs of each child and then formulate a plan to meet these needs. Teaching families and significant others effective communication strategies is an important nursing role (Loraia, 2005).

### Significance of the study

Prevalence of speech disorders in Egypt is 1 % according to the US Census Bureau, International Data Base, (2004). Children with speech disorders have poor conversational skills, poor non-verbal skills and poor social perception, all of which can hinder their ability to form friendships with their peers and may lead them to become marginalized and isolated. So, they often experience anxiety and depression which can affect their psychosocial status. These problems can become exacerbated with age if they remain unidentified and untreated, and are likely to result in poorer outcomes for the children concerned.

## 2. SUBJECTS AND METHOD

### Study design:-

A cross-sectional descriptive design was utilized to conduct this study.

### Study hypothesis

School-age children who suffer from speech disorders have a great risk for **introverted behavior than those without** speech disorders.

### Study settings:-

Data were collected from school-aged children with speech disorders attending the Unit of Phoniatics at Assiut University Hospital and the Phoniatics Outpatient Clinic at Beni-Suef University Hospital. The study contained a convenient sample representing the control group selected from Abu-Bakr El-sedeek primary school at Beni-Suef City. The study was carried out during the period from the beginning of April 2015 to the end of September 2015.

### Subjects:-

A convenient sample of 104 school-age children suffering from speech disorders and 80 school-age children free from speech disorders was included in the study.

### Inclusion criteria:-

The study subjects were selected according to the following criteria:

- Age between 6-12 yrs.
- Both sex.
- Willing to participate in the study.
- The study subjects with speech disorders were selected if they had had one of the following speech disorders:
  1. Dyslalia.
  2. Stuttering.
  3. Nasality.
  4. Dysarthria.

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Diagnosis of the studied cases of dyslalia, stuttering, nasality and dysarthria was done by the phoniatricians according to protocol of evaluation of speech disorders developed in the Phoniatric Unit – Ain Shams University which comprises of:

### I-Elementary Diagnostic Procedures:

1. Personal interview which includes analysis of complaints and present history, personal history, etiological factors during pregnancy and during the prenatal, perinatal, and postnatal periods, developmental milestones, and illness during early childhood.
2. General and ear, nose, and throat examinations.
3. Auditory Perceptual Assessment (APA) is used as a subjective tool for evaluating the patients' speech (both automatic speech (e.g. El Fatha), and spontaneous speech) through listening to every patient in a free conversation and a recorded speech sample.
4. Visual Perceptual Assessment (VPA) in cases of stuttering for assessing eye contact and involuntary movement.
5. Visual assessment of the vocal tract in cases of nasality.

### II- Clinical diagnostic aids:

1. Psychometric evaluation by intelligence quotient (IQ) using the Stanford-Binet Intelligence test.
2. Articulation tests.
3. Video-nasofiberscopy and high fidelity voice recording (Kotby et al., 1993).

### Exclusion criteria:-

The criteria for exclusion of the study subjects were as follow:

- 1- Age less than six years or more than twelve years.
- 2- Having any chronic disease such as, diabetes mellitus, liver disease and cancer.
- 3- Having any known psychological disorders such as anxiety, depression, and phobia.
- 4- Having any other communicative disorder e.g. Language and voice disorders.
- 5- Having an Intelligence Quotient (IQ) less than 85 (a psychometric evaluation was done by an expert psychometrist to exclude any child whose IQ was less than 85).

### Tools of data collection:

After reviewing the relevant literatures, five tools were utilized to collect data pertinent to the study.

#### Tool (1): A structured Questionnaire Interview Sheet:

It was divided into two parts:-

**Part I: - Personal and Clinical Data Questionnaire** - The personal data related to the child included the child's name, age, gender, and level of education. The clinical data included data about diagnosis and the presence of relevant family history of speech disorders. Validity of the Personal and Clinical Data Questionnaire was estimated by five experts in the pediatric field.

#### Tool (II): Introverted Behavior Scale;

This scale was developed by **Abd El-Hamid, (1995)** to assess introverted behavior. Reliability of the Introverted Behavior Scale was estimated by its author by the Alpha Cronbach Test.

**Scoring system:** This scale included 30 sentences. Each sentence was categorized and scored into either:-

- No = 0 Sometimes = 1 Yes = 2.
- Those who obtained a score equal to or less than (29) were considered having a mild introverted behavior.

- From 30-39 were considered having a moderate introverted behavior.
- While those who obtained a score equal to or more than (40) were considered having a severe introverted behavior.

**Method of data collection:**

1- **Administrative design:** Permission was obtained from both directors of Assiut and Beni-Suef University Hospitals. Verbal permission with an explanation of the nature and aim of the study were obtained from clinical residents of the units as well as the parents of the studied children included in the study.

2- The tools used for the study were ensured to be valid and reliable before the beginning of data collection.

3- **A pilot study** was carried out on 10 % children who fulfilled the criteria of the study to evaluate the applicability and clarity of the tools and to estimate the length of the time needed to fill the sheet. Analysis of the pilot study revealed that modifications are required such as multiplying the monthly family income variable by 3.5 to accommodate the rate of inflation at the time of conducting the study. These modifications were done and children included in the pilot study were excluded from the total sample.

4- **Ethical consideration:** -Confidentiality of the study was asserted. An informed consent was taken from the children's parents. Clarification of the nature and aim of the study was done on initial interview with each child's parents with an emphasis that the study yields no harm to the participants. The results were informed to the participants and the obtained data were available only to the researcher.

5- **Field of the work:** The researcher interviewed each participated child and his parents individually to obtain the necessary information to assess psychosocial status through using the previously mentioned tools of the study. The researcher first introduced herself to them and gave them a complete background about the study. Throughout the interview, related information was recorded in the designed sheet depending upon the response of the participant. Data were collected during the period from the beginning of April 2015 to the end of September 2015. Data were collected two days each week from the selected settings and four days in the final semester vacation. The study was conducted in the morning shift. The time used for filling each sheet ranged between 35-55min.

**Statistical analysis:-**

The content of each tool was analyzed, categorized and then coded. Data entry and statistical analysis were done using the compatible personal computer through the SPSS statistical Package 20.0 for Windows. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables and mean and standard deviations for quantitative variables. Qualitative variables were compared using Chi-square and ANOVA tests. Spearman correlation coefficient test was used to test correlation between variables. Statistical significance was considered at P. value < 0.05.

**Obstacles of the study:-**

Some of the obstacles faced by the researcher were:

- First of all; transportation was a problem because the researcher had to travel to another governorate to collect data from the selected settings.
- Lack of sample subjects numbers; the researcher in several days didn't collect data from subjects due to absence of subjects in these days.

**Table (1): Socio-demographic characteristics of the studied children with and without speech disorders.**

Items	Children with speech disorders n= (104)		Children without speech disorders n= (80)	
	No	%	No	%
<b>Age</b>				
6 - <9 years	66	63.46 %	38	47.50 %
9 - 12 years	38	36.54 %	42	52.50 %

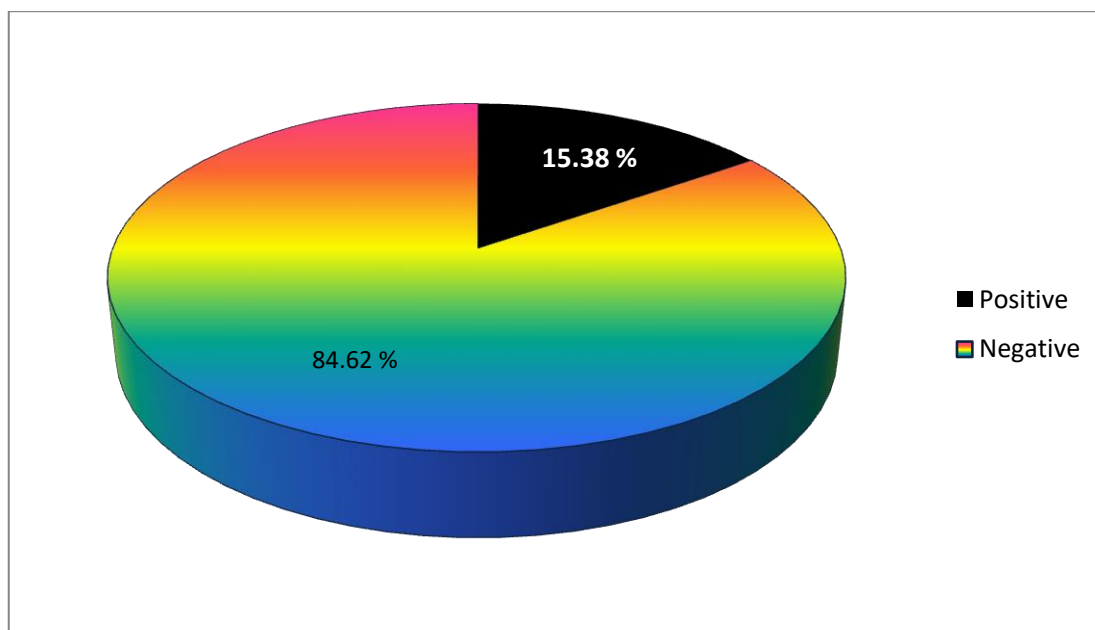
<b>Mean± SD</b>	8.31 ± 2.13		9.17 ± 2.27	
<b>Gender</b>				
Male	66	63.46 %	32	40.00 %
Female	38	36.54 %	48	60.00 %
<b>Residence</b>				
Rural	60	57.69 %	38	47.50 %
Urban	44	42.31 %	42	52.50 %
<b>Level of child's education</b>				
Illiterate	14	13.46 %	0	0.00 %
Read and write	14	13.46 %	6	7.50 %
Primary school	76	73.08 %	74	92.50 %

This table shows that the highest percentage of the studied children with speech disorders (63.46%) was aged between six and less than nine years old with mean age of  $8.31 \pm 2.13$  years. As well, boys were more than girls (63.46 % and 36.54% respectively). According to the level of education, the majority of them (73.08 %) were in the primary school and more than half of them (57.69 %) were from rural areas. Regards the studied children without speech disorders, more than half of them (52.50 %) were aged were aged between nine and twelve years old with a mean of  $9.17 \pm 2.27$  and an equal percentage were from urban areas. The highest percentage of them (60.00 %) were males. As well, the majority of them (92.50 %) were in the primary school.

**Table (2): - Types and distribution of speech disorders among the studied children with speech disorders (n= 104).**

Type of speech disorder	No	%
Dyslalia	38	36.54 %
Stuttering	40	38.46 %
Nasality	16	15.38 %
Dysarthria	10	9.62 %

Table (2) represents types and distribution of speech disorders among the studied group. More than one third of the studied children (36.54 %) had been diagnosed with dyslalia and more than one third of the studied children (38.46 %) had been diagnosed with stuttering, more than one eighth of them (15.38 %) had been diagnosed with nasality and the remaining percentage (9.62 %) had been diagnosed with dysarthria.



**Figure 1: Percentage distribution of the studied children with speech disorders regarding their family history of speech disorders.**

Table (3): Percentage distribution of different levels of introverted behavior among the studied children.

Level of introverted behavior	Study group n= (104)		Control group n= (80)	
	No	%	No	%
Mild	32	30.77 %	48	60.00 %
Moderate	26	25.00 %	24	30.00 %
Severe	46	44.23 %	8	10.00 %

This table shows that more than two fifths of the studied children with speech disorders (44.23 %) had a severe introverted behavior, more than one quarter of them(30.77 %) had a mild introverted behavior, and exactly one quarter of them (25.00 %) had a moderate introverted behavior. Regarding the control group subjects, the highest percentage of them (60.00%) had mild introverted behavior and the least percentage of them (10 %) had severe introverted behavior.

Table (4): Mean scores of the studied children regarding psychosocial problems.

Item	Children with speech disorders N= (104)	Children without speech disorders N= (80)	P. value
Introverted behavior	34.69 ± 15.33	24.10 ± 11.89	0.000**

\* Statistically significant difference (p≤ 0.05)

\*\* Highly Statistically significant difference (p≤ 0.01)

By using the One-way Anova test, this table shows that there was a highly statistically significant difference between the study and the control subjects as regards degree of depression, self-esteem disturbance, and introverted behaviors.

### 3. DISCUSSION

Children with speech disorders frequently experience peers victimization. Children who are chronically victimized by their peers have been found to be at risk for undesirable psychosocial and academic outcomes, including anxiety, depression, impaired concentration, somatic symptoms, impaired self-esteem, absenteeism, academic under-achievement, and suicidal ideation (Redmond, 2011).

The present study included 104 school-age children suffering from speech disorders. The aim of the study was to assess the impact of speech disorders on psychological and social status of school-age children.

According to the studied children's age, the highest percentage of the studied children with speech disorders was aged between six and less than nine years old with a mean age of 8.31 ± 2.13 years. This finding is consistent with results of Farag, (2009) who found that more than half of the studied school-age children with speech disorders were aged between six and less than nine with a mean age of 9.2 ± 2.1.

As regard to the studied children's gender, the present study results showed that males were more affected with speech disorders compared to females. This finding is in agreement with a study carried out by McKinnon et al., (2007); Keating et al., (2008); and Pestel,(2012)who found a higher prevalence of speech disorders in males than in females. This result also agrees with the results of a study carried out by Dave et al., (2013) who studied 60 Indian patients for speech disorders and results showed that speech disorders were more prevalent in males as compared to females.

Regarding the family history of speech disorders, the current study revealed that the majority of the studied sample had a negative family history and the remaining percentage (15.38 %) had a positive family history of speech disorders. Similar results were found by Pruitt et al.,(2010)whose results showed a prevalence of 24 % of positive family history of speech disorders.

The results of the present study showed that the highest percentage of the studied children with speech disorders had a severe introverted behavior. This may be interpreted by that children with speech disorders are at a particularly high risk for being bullied by peers so they prefer social isolation over being extroverted especially in the school setting. This finding is in agreement with Snowling et al., (2006) who found that there was a raised incidence of social difficulties in children with speech disorders.

Based on the results of the current study, more than one third of the studied CWS had a severe introverted behavior. In the researcher's opinion, children who stutter are afraid of being teased about their speech while talking in front of others so they avoid being in a group and refuse to participate in social activities. This result agrees with **Adriaensens et al., (2015)** who revealed that stuttering negatively influences the child's competence to experience a close friendship.

According to the study results, nasality affects severe introverted behavior. This may be explained by negative attitude of others toward children with nasality including verbal teasing. This agrees with **Miller and Richman, (2001)**.

As regards the effect of dysarthria on children's behavior, the results of the present study showed that highest percentage of the studied children with dysarthria had a severe introverted behavior. This may be attributed to difficulties trying to make others understand them and feeling that they had to shout in order to communicate effectively. This agrees with results of a study carried out by **Brady et al., (2011)** whose results highlighted the negative impact of dysarthria on social participation. This also is in line with a recent study carried out by **Alabdulkarim, (2014)** who observed a positive relationship between the presence of dysarthria and restrictions in social participation.

The present study results support the study hypothesis and add to the growing body of evidence that supports the negative psychosocial effects of speech disorders. The current study is in agreement with **Beitchman, (1996)** who studied school-aged children using speech and psychosocial measures and found that children with speech disorders demonstrated a greater psychosocial disturbance than children without speech disorders. The study results also agree with a study carried out by **Snowling et al., (2006)** who studied psychosocial outcomes at 15 years of children with a preschool history of speech-language impairment using a psychiatric interview and the Child Behavior Checklist and The Early Language Milestones Scale (*ELMS*), social difficulties questionnaire and found that there was a raised incidence of attention and social difficulties in children with speech disorders.

## CONCLUSION

The present study revealed that speech disorders negatively affect the psychosocial status of affected school-age children. The highest percentage of the studied speech disordered children had severe introverted behavior. We can recommend that, collaboration between speech pathologists and psychiatrists is required to develop and implement a comprehensive assessment and treatment programs for psychological disorders among children with speech disorders. Implementing a continuing educational program for families of speech disordered children including counseling skills about importance of early detection and management of speech disorders by phoniatricians or speech pathologists. Raising the public awareness of negative effects of bullying through mass media and educational institutes.

1. Children with speech disorders who seem overly shy and refuse to participate in common social group activities should be closely monitored for the emergence of psychiatric disorders.

### Further researches:

Further studies, including exploring psychosocial effects on all age groups experiencing different forms of speech disorders, the effects on all family members, are required.

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