

Patterns and Risk Factors Associated with Speech Sounds and Language Disorders in Pakistan.

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ABSTRACT

Objectives:

To observe the patterns of speech sounds and language disorders.

To find out associated risk factors of speech sounds and language disorders.

Background:

Communication is the very essence of modern society. Communication disorders impacts quality of life. Patterns and factors associated with speech sounds and language impairments were explored. The association was seen with different environmental factors.

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Methodology:

The patients included in the study were 200 whose age ranged between two and sixteen years presented in speech therapy clinic OPD Mayo Hospital. A cross-sectional survey questionnaire assessed the patient's bio data, socioeconomic background, family history of communication disorders and bilingualism. It was a descriptive study and was conducted through cross-sectional survey. Data was analysed by SPSS version 16.

Results:

Results reveal Language disorders were relatively more prevalent in males than those of speech sound disorders. Bilingualism was found as having insignificant effect on these disorders. It was concluded from this study that the socioeconomic status and family history were significant risk factors.

Conclusion:

Gender, socioeconomic status, family history can play as risk for developing speech sounds and language disorders. There is a grave need to understand patterns of communication disorders in the light of Pakistani society and culture. It is recommended to conduct further studies to determine risk factors and patterns of these impairments.

Key words:

Speech sound disorder, language disorder, gender, family history, socioeconomic status.

INTRODUCTION:

Communication is the process which satiates man's social instincts. Modern man cannot maintain a healthy standard and quality of life with communication difficulties. A communication disorder refers to problem in

communication or in associated areas of oral motor function; it is a speech and language disorder. The disorders and delays cover a wide range from simple sound substitution to the inability to comprehend or produce their native language (1).

Communication disorders are related to speech, language and auditory processing due to developmental disorders, hearing loss, neurological disorders, brain injury, mental retardation, drug abuse and emotional or psychiatric disorders. However, the cause often remains unidentified. These are disabling conditions with widespread potential implications (2). Communication disorders are one of the most common disabilities in the world. A child's overall quality of life can be improved greatly through the early identification of communication disorders, finding their causes, and subsequent intervention (3).

Language is the form of human communication through which information, ideas and behaviour can be experienced, explained and shared. Deviant development of expression and/or comprehension of words in context can occur which causes language impairment. A language disorder is the impaired comprehension and use of spoken, written, and other symbol systems. The disorder may involve the form, content, or function of language in communication. It is an estimate that 6 to 8 million individuals in the United States have some sort of language impairment (4).

Disorders of language usually affect, children who can't use language typically from birth, or who acquire the problem in childhood, the disorder follows in the perspective of a language system that is not fully matured or acquired. Children with early language impairment exhibit consistent impairments in developmental and functional skills at school which encompass language (5). The term delay refers to language similar to younger child which is not appropriate to the age of child, whereas disorder refers to qualitatively atypical language. In practice, however, this distinction is frequently ambiguous. Various estimates show that the

prevalence of language impairment in preschool children is between 2% and 19% (6).

Speech is a motor act of communication, an articulation of verbal expression. Thus, it is shaped by precise, coordinated muscle actions in the head, neck, chest, and abdomen. Development of speech is a gradual process that demands years of practice. During speech development, intelligible speech is produced by learning to regulate muscles. A child has a speech delay if the child's speech development is significantly below the expected level of peers(7). There are three main classes of speech disorders. Speech sound disorders can be subdivided into two primary types, articulation disorders (phonetic disorders) and phonemic disorders (phonological disorders). However, some may have a mixed picture in which both primary types exist. Though speech sound disorders are linked with childhood, some left over errors may persist into adulthood.

Errors produced by children with speech sound disorders are typically organized into four sets:

1. Substitutions are most common. Child substitutes a sound for another sound. For example "mettle" for "battle" where "m" is substituted for "b".

2. Omissions: omitting a sound from a word. For example "at" for "pat" or "ba" for "bat".

3) Distortions: occur when a child distorts a sound usually by deficient oral motor skills. For example "thoup" for "soup".

4) Additions: are least common errors. This atypical speech error consists of a child adding a sound that is not supposed to be there, for example, "doga" for "dog"(8).

For 80% of children with phonological disorders, the disorders are significant enough to require clinical intervention (9).

This study is designed to explore patterns or risk factors associated with speech sound disorders and speech and language disorders in a tertiary care setting of Pakistan. It may stir the interest to conduct further studies on speech and language disorders. There is an extreme dearth of quality research in this area.

METHODOLOGY:

The primary objective of study was to identify risk factors for speech and language development leading to speech sound disorders and language disorders. For this purpose, cross-sectional survey was conducted through a questionnaire including patient profile and risk factors. Sampling method was Non-Probability convenient sampling with sample size of 200 patients with speech sound disorders were included in the study out of the total population presenting at speech therapy clinic found in OPD of Child and Family Psychiatry Department in Mayo Hospital Lahore Pakistan. All the patients diagnosed with speech sound disorders and language impairment aged 2-16 years coming in speech therapy clinic of a tertiary care setting were included. Patients who refused to give consent or coming for follow-up of therapy sessions were excluded.

Before the start of study, a pre study planning was done in which all aspects were catered to. It included selection of the site to study, target population, sample size, study design preparation of questionnaire, dummy tables, sampling method, study methodology,

organizational issues and work plan. The consent of the patient was taken to participate in the study. Then the proforme were filled which consisted of patient profile and the questionnaire about the factors such as gender, bilingualism, education level of parents and patient, family history of any communication disorder and socioeconomic status. Presenting complaints and diagnosis were also noted. At the end, the patients were thanked.

Stat-calc SPSS version 16 was used for statistical analysis. Diagnosis was taken as independent variables while gender, parental education, bilingualism, family history of any communication disorder and socioeconomic status were dependent variables.

RESULTS:

Speech sound and language disorders are more prevalent in boys than girls. Results suggested that 135 were males in the sample of 200. Bilingualism did not seem to be associated with these communication disorders, p-value is 0.470. However, socioeconomic status and family history have significant relations with a p-value of 0.017 and 0.000 respectively.

TABLE: 1 Correlation of language and speech sound disorders with gender, bilingualism, socioeconomic status, family history

Sample size=200 a=0.05	Gender		Bilingualism		Socioeconomic status		Family history	
	male	females	Yes	No	a	b	Yes	no
Language disorders	96	42	57	81	85	53	58	80
Speech sound disorders	39	23	29	33	27	35	8	54
Total	135	65	86	114	112	88	66	134
P value	0.352		0.470		0.017		0.000	

a= Monthly income below 10000, b= Monthly income above 10000

DISCUSSION

This population based study documents the relations of family history of communication disorder, socioeconomic status, gender and bilingualism. The disorders which were taken in account were language disorders and speech sound disorders. Language disorders were 69% in the sample of 200 while 31% were speech sound disorders. Analysis of chi square was used to study risk factors.

Results showed that female population was less affected with communication disorders than males. 32.5% were females while 67.5% were males. Thus, female to male ratio was 1:1.58. A similar study conducted by Goular t& Chiari showed a ratio of 1:1.15(10). The authors report that the incidence of language impairment for males was 45% significantly higher than for females 18% (11). A study conducted by McKinon and McLeod showed that 74% of males have speech disorder, speech sound, fluency and voice disorder, while 26% females has speech disorders (12). Bliele mentioned that prevalence of communication disorders is twice more in boys than girls (13). Males are more likely to exhibit co-occurring speech disorders than females, especially in articulation and phonology. Co-occurring non-speech-language disorders are also significantly higher in males than females (14).

Present study did not show any significant association with socioeconomic status in my study as value on chi square 0.017, which differs with an Australian study (12) where was no significant difference in the pattern of prevalence across the three speech disorders and four socioeconomic status quantiles, $p = 0.283$. While in another study referred in manual of articulation and speech disorders, persons younger than 45 years living in families making less than \$10,000 annually are approximately twice as likely to be diagnosed as having communication disorders as peers living in homes making between \$20,000 to \$34,999 annually(13).

Substantial evidence suggested familial transmission of communication disorders. This study revealed that 33.5% cases have positive family history. The Chi-Square significance value is 0.000 which is less than our value of .05 which shows that there is a relationship between family history and speech and language disorder. Fox, Dodd, Howard showed in a study conducted in 2002 that between 28% - 60% of children with a speech and language deficit have a sibling and/or parent who is also affected. So, both studies are quite in agreement (15). Choudary and Benaisch have reported 32% familial transmission of language disorders (11). Another study reported significant relations in speech and language difficulties and family history with a low receptive language status $p=0.001$, low expressive language status $p=0.002$, SLI receptive status $p=0.003$ and SLI expressive status $p=0.03$ (16).

Pakistan is a multicultural county, thus, multilingualism or bilingualism is a norm rather than exception. 43% population included in this study was bilingual. Chi square analysis exhibited a non-significant association which is 0.470. K. Kohnert revealed in language disorders in bilingual children and adults that bilingualism has a positive association with language disorders (17). Altaribba and Heredia also reported that bilingualism is can be a source of language disorder (18). However, a review reported that there is no association between language and phonological disorders with bilingualism (19).

CONCLUSION:

Findings suggest that different factors can predispose an individual to risk of language and speech sound disorders. Family history of a communication disorder and socioeconomic status have significant relation with language and speech sound disorders however bilingualism is found is insignificant factor. There was also gender difference found. Males are more likely to be affected with these disorders than are the females.

ACKNOWLEDGEMENTS

We are greatly indebted to Dr. Nazish Imran and Mr. Arshad Mehmood for their generous support. Participation of all participants and their parents is appreciated.

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