Role of Demographic Factors and Family History in Children with Speech Delay

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Abstract:

Speech is the verbal mean of producing language & Language is the conceptual processing of communication. Children are considered to have speech delay if their speech development is considerably below the norm for children of same age.

Objective: To estimate the effects of demographic factors and family health in children with speech delay.

Methods:

A Cross sectional study was conducted to find the association of demographic factors and family history in children with speech delay. Convenient sampling technique was used. Sample of 50 children between the ages of 1 to 6 years with speech delay was enrolled from Outpatient department of Child & Family Psychiatry ward, Mayo Hospital, Lahore and statistically analyzed using SPSS version 21.0.

Results:

Females were more affected than males i.e. 44.2% were male and 55.8% were female. Speech delay was more prevalent in children with 1st birth order i.e. 38%. Among them 76% were urban and 24% had rural background while 40% children came from monthly income below 10,000. 72% of children were not having any family history of speech delay.

Conclusions:

It was concluded that gender and birth order can greatly influence the speech disorders. First child has greater chances of having speech delay normally due to less exposure or less given chances to express. Girls have less risk of speech delay as compared to boys were at lesser risk than boys. Urban children were more prone to speech delay while speech delay in children was not linked to family history.

Key Words:

Children, Speech Delay, Demographic Factors, Family History

Introduction:

Speech is verbal expression or ability to express ideas, feelings and thoughts by articulate sounds, whereas language is consist of socially shared rules consist of system of sounds, words and grammar used by people of particular social group. language has two main components expressive and receptive. Children are supposed to have speech delay if their speech progress or development is notablyunder standard age[1]. Speech and language delay is a very broad expression that includes different types of disorders in early childhood including toddlerhood and is traditionally divided into two types of delay: Primary and Secondary Delays. Primary Delay happens when speech and language milestones of children are delayed as compared with other skills, commonly when the reasons are not known. Secondary Delays present when both the speech and language skills are delayed to the same degree as other skills, mostly the cause is known[2]. Speech and language development is a very valuable indicator of the physical and cognitive development of children. In clinical implementation, the term "intellectual" was electedas long as it is broadly used, and widely defensible. It is a very big term that contains of cognitive functioning, adaptive behavior, and learning that is age appropriate and encounters the ultimatum of everyday life[3].Clinically substantial deficits in cognition, oral motor functionality and in hearing often leads to

inappropriate speech and language acquisition. The skills of a speech delayed children are acquired in a typical sequence but at slower rate than normal[4].When speech delay prolong for a significant time period it may lead to problems in psychosocial development of child and severe the problems like child literacy skills. When there are no comorbidities and secondary issues, speech delays are considered as primary issues.While the conditions like Down's syndrome, Hearing Impairment and many others coupled with any reason, then the delays are considered as secondary issues[5]. For the advancement of social, emotional and cognitive insufficiencies, well-timed detection and management importance shouldn't be ignored. There are many risk factors related to speech-language complications in children like gender, antenatal care, family history and environmental factors[6]. Poor health conditions, unsuitable diet, improper parenting styles are the growing risk factors from the deprived family backgrounds, which can affect the child's nervous system significantly. The abovementioned factors leads to delays in cognition, physical growth and language development. Moreover, they also have direct and indirect influences on social development as well[7]. There are several challenges for the practitioners regarding global developmental delays and mental retardation or intellectual disability. Accurate recognition of these most common of subtypes of neurodevelopmental disabilities is a central precondition to their correct evaluation and management, which makes them delayed in almost every developmental aspect[8].

According to Matychuk P, it has been believed by Piaget J that Speech and language is considerably influenced by the environmental factors as children are active learners in their surroundings. Speech has been considered as the learned behavior that forms through interaction with peers so parenting and reinforcement play an important role. It was also summarized in a research that four theories of infant speech production which also emphasized on environmental input. So without this essential element it is not possible for a child to produce its language sounds efficaciously no matter how much they mature physically[9]. It was explained by Hoff E in a study that how communal settings support and shape language development by providing children with many opportunities for communication and for the motivation of processes for the acquisition of language[10]. A study was conducted by Pinborough-Zimmerman J *et al.,* in determining the estimation of communication disorders. Their findings confirmed that Communication Disorders and co-existing intellectual well being conditions are mainly of educational and health concerns [11].

While the exact cause of speech delay is not known till now. Children with speech disorders and behavior disorders tend to have worse social competence. The implications for this study support the need for parent's education about the coexistence speech delay and the factors contributing to it.

Methods:

A cross sectional study was conducted at Outdoor Patient department (OPD) of child and family psychiatry Unit Mayo Hospital, Lahore. Data were taken in direct interview to parents or caregivers in a formal sitting. Sample size of 50 children aged between of 1 to 6 years was taken by using convenient sampling technique (Table 1). For the collection of data, questionnaire containing demographics of the study participants was developed for record keeping purpose. Study was completed during 6 months, from October 2011 to March 2012. A pilot study was conducted on 10 patients for verification of the Performa developed from literature review. The cognitive portion of Portage Guide for Early Education (PGEE) was applied on the child, questions were asked from parents and performed by the child after taking consent. For the assessment of delay in cognition, age difference was calculated. The cognitive

section of PGEE comprise of six portion on the basis of age of the child (0-1year, 2-3year, 3-4year, 4-5year, 5-6year). Each portion contains different number of questions like 12, 17,27,13,14, 12 in portion1, 2, 3,4,5, 6 respectively. Questions were asked from mothers or caregivers and also performed by the child. Answers were in the form of YES or NO. Number of YES answers was calculated by applying the formula given below, depending on the age of child.

No. of Correct Responses / Total No of Questions ×12 = Age of Respective Year

If 10 consecutive NO's were obtained then the test was stopped there and we calculated the age on the basis of previous year's responses. After the calculation of all ages of respective years, all obtained values were summed up, that's how the portage age was calculated [12].

Chronological Age - PGEE Age = Age Difference

Data were analyzed using SPSS version 21.0.

Results:

Table 1 shows that more children presented with cognitive impairment and among them males were more common than females.

Cognitive Impairment	Frequency (%)	Total
No	16 (32%)	50
Yes	34 (68%)	
Male	19 (55.8%)	34
Female	15 (44.2%)	

Table 1: Distribution for cognitive Impairment in Children

Males were more common than females. According to the results 64% were male and 36% were female which shows the dominance of speech delay in males than females. 76% were from urban and 24% had rural background while 40% children came from monthly income below 10,000. 72% of Children were not having any family history of speech delay, Table 2.

		No. of patients	Percentage
Gender	Male	32	64%
	Female	18	36%
Residential Status	Rural	12	24%
	Urban	38	76%
Monthly income/ Month	Below & Above 5000	14	28%
	Below 10000	20	40%
	Above 10000	16	32%
Family History	Yes	14	28%
	No	36	72%

Table 2: Distribution of Speech Delay with respect to Correlated Factors

Figure 1 shows that children with 1st birth order tend to have speech delay more than any other. Speech delay was more prevalent in children with 1st birth order.

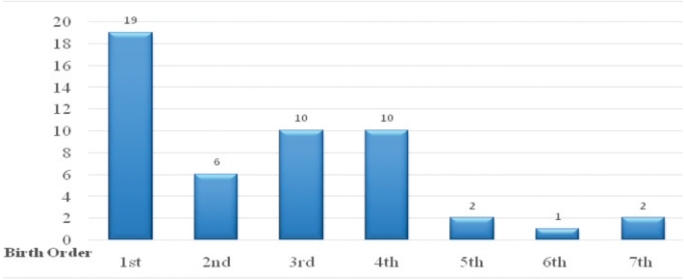

Figure 1: Distribution of children with speech delay according to their Birth order

Discussion:

Speech is the major entity which comes across when communicating with others and if problems related to this are not taking seriously on right time, it may have drastic effects on child's development, it's personal and social life as well. Speech is also a mechanism of individual Intellectual effort which build the bases[13]. Risk factors are features of individual lifestyle or behavior, hereditary, congenital characteristics and environmental exposure associated with health related condition[14]. A study conducted by Sliva GM *et al.*, showed that cultural and socioeconomic variables are predisposed to communication disorders.

Current study also revealed that socioeconomic status has substantial impact on speech delay as well. It is worth to discuss that socioeconomic detriment has been mentioned as risk factor for development because children living in poor environment are more prone to have complications that affect learning and speech-language development[15].The greater manifestation of only child was also observed (51.2%), followed by young children (31.8%) indicating that birth order may affect the development of speech and language in study conducted by Chaimay B *et al.,* [6]. Similarly in present study the occurrence of speech delay was more prevalent in children with first birth order than younger ones. To examine the language development in low socioeconomic status rural Appalachian kids from playschool to middle childhood a survey was conducted and findings showed that child language skills improves significantly throughout this period. Girls performed far better than did boys and girls from high socioeconomic (SES) status accomplish better than those from lower SES status[16]. Likewise in current study children from low SES status were more prone to have speech delay than others. An epidemiological study conducted by Pennington BF, showed that there was a speech delay of 3.8 % in children. According to their results speech delay was more prevalent in males than females, less in from rural areas than in urban areas. Same results were also observed in the results of current study. In current study, it was concluded that fewer children with speech delays had family history of speech disorders. It has been mentioned in a study that only child, being male, having history of speech-language variations in family and prematurity were the main risk factors identified among children having speech language[17]. Present study demonstrated same results that more children with speech delay were not having history of speech and language disorders. In India, a study was conducted to determine the correlation between increasing biological and environmental risk factors on the development of children's language.The most damaging effects on a child's language arise when there were multiple biological (preterm birth, history of birth asphyxia, low birth weight) and environmental (low SES, birth order, large family size) risks for a single child[18]. The factors identified in children with speech and language complications were, only child, family history, speech language variations, prematurity and being male. Children having any or more of above-mentioned factors must be having intermittent follow up for better development of communication and may require early intervention[15]. Early Intervention is very important so we should keep in mind that first five years of life are most significant for the achievement of therapeutic goals [19]. Speech-Therapy and Special Education both professional domains are very important for the children with speech and language impairments and intellectual disability[20].

Conclusions:

It was concluded that gender and birth order can greatly influence the speech disorders. It was also revealed that first child has greater chances of having speech delay normally due to less exposure or less given chances to express. Though gender is a main factor of speech delay, girls were at lesser risk than boys. As well as it was depicted that urban children were more prone to speech delay while speech delay in children was not linked to family history. Regular consultation could help in the early diagnosis and intervention for the well-being of children.

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