

Children with speech delay – A retrospective chart review

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Abstract

Introduction: Speech delay is a common problem in children less than 6 years. The reported prevalence of language delay in children two to seven years of age ranges from 2.3 to 19%. Various psychiatric disorders may manifest as speech delay in the early period. Usually, these children are initially seen by the primary care physician who gives reassurances and often fails to refer them to a psychiatrist. In these cases, the children miss out on the specialised assessment that they require and consequent help. Therefore, it is essential to evaluate each child with speech delay. Early identification and starting appropriate therapy as early as possible is very important for good clinical long term outcome. In this context, this study was carried out to investigate socio-demographic and other factors associated with speech delay.

Materials and Methods: A retrospective study design was used to collect data from case files of children aged less than 6 years who were referred to the psychiatric OPD for speech delay between May 2015 and May 2017. Their socio-demographic details, antenatal, perinatal and postnatal details, medical comorbidities, psychological assessment reports such as developmental and social quotient were collected and evaluated.

Results: In our study, speech delay was predominant in male child, middle and low socioeconomic status, semi-urban population & nuclear family. Mild deficits in developmental and social functioning was found according to DST and VSMS.

Conclusion: This study's findings may prove relevant to therapists when planning comprehensive and effective treatment for such children.

Keywords: Speech delay, Specific developmental disorders of speech and language, Pervasive developmental disorders, Mental retardation.

Introduction

Speech is the verbal production of thought, whereas language is the conceptual processing of communication. Language includes both the capacity to understand, “receptive language”, and the ability to convey information, emotions and ideas, or “expressive language”. Developmental language delay has been a concern of those interested in the developmental of children. According to Rutter and Martin,¹ this issue can have a great impact on the child's future for a number of reasons. First, delayed language development means that the child may have difficulty in communicating with others and thus may be disadvantaged. Second, in young children it may be the first manifestation of a more pervasive disorder such as mental retardation, learning disability or behavioural problem. Third, it may lead directly to problems with learning and behaviour. Finally, it may predict, in a subtle manner, future learning disabilities such as difficulties in reading and writing. Several studies have shown that children with speech and language problems at two and a half to five years of age have increased difficulty reading in the elementary school years.²⁻⁴ Beyond five and a half years, persistent language impairment can result in attention and social difficulties.⁵ When this lasts beyond 7 and a half to 13 years, it can result in deficits in writing skills, and in spelling and punctuation when compared to those children without speech and language impairments.⁶ The reported prevalence of language delay in children

two to seven years of age ranges from 2.3 to 19 percent.⁷⁻¹¹ Leske's¹² data suggests 2.5–3% prevalence of speech-language disorders in 3-5-year-old children. Hull et al.¹³ & Beitchman et al.,¹⁴ found 9–11% prevalence rates for first-grade children, while L. D. Shriberg et al¹⁵ estimated the prevalence of 3.8% speech delay in 6-year old children. A critical review of the literature concerning the prevalence of psychiatric disorders in children with speech and language retardation revealed that such children are at risk for the occurrence of disorders such as attentional deficit disorder, oppositional disorder and various anxiety disorders.¹⁶ Usually, these children are initially seen by the primary care physician who gives reassurances and often fails to refer them to a psychiatrist. In these cases, the children miss out on the specialised assessment that they require and consequent help they need. Therefore, it is essential to evaluate each child with speech delay. Early identification and starting appropriate therapy as early as possible is very important for good clinical longterm outcome.

Materials and Methods

It is a retrospective study. The study was conducted at SRM hospital, Chennai. Data were collected from the case files of children aged less than 6 years who were referred to the psychiatric OPD for speech delay with normal hearing between May 2015 and May 2017.

Inclusion Criteria

1. Children less than 6 years of age

2. Intact hearing
3. Completion of intellectual assessment by means of DST/VSMS

Exclusion Criteria

1. Children above 6 years of age
2. Hearing Loss
3. Lack of intellectual assessment by means of DST/VSMS

Their socio-demographic details such as sex, age, religion, socioeconomic status, parent's consanguinity, type of family and place of residence were collected.

Their antenatal details such as mother's medical comorbidities in the antenatal period, maturity such as preterm or full term or post term baby, perinatal details such as type of delivery, birth cry was either immediate or delayed or absent, incubator history and postnatal events such as seizure history were collected.

Their psychological assessment reports such as Developmental screening test (DST) and Vineland Social Maturity Scale (VSMS) scores were collected.

DST is used for measuring mental development of a child. A semi-structured interview is conducted with the child and parents. There are 88 behavioural items presented at appropriate age levels. Scores obtained on these items with IQ calculator are used to assess the level of development in the child and these scores are expressed in terms of their "developmental age" or "developmental quotient".

Vineland Social Maturity Scale (VSMS) is designed to measure social competence, defined as a "functional composite of human traits that sub-serve social usefulness and are reflected in self-sufficiency and in service to others", from birth to 30 years of age. It measures eight categories of behaviour: "self-help general, self-help eating, self-help dressing, locomotion, occupation, communication, self-direction, and socialization". The parent or someone familiar with the child is interviewed, and behaviours that are usually shown by the children are noted, and scores are given accordingly. This score is then expressed as "social age" or "social quotient".

Results

In accordance with the criteria, a total of 210 files from May 2015 to May 2017 were reviewed. 104 files were excluded as they either did not include an intellectual assessment or were of children with physical disabilities such as hearing impairment that contributed to their speech delay. 106 files were ultimately selected for the study.

Table 1 lists the socio-demographic, antenatal, perinatal and postnatal history variables and percentage. Considering the socio-demographic characteristics of the children, we found that a majority (53.8%) were from the 3-5 year age group, male (73.6%) and Hindu (84%). The families that they belonged to tended to be of middle (49.1%) or low (48.1%) socioeconomic class,

nuclear type (84.9%), residing in a semi-urban area (54.7%). The parent's marriage was usually non-consanguineous (82.1%). Chart 1 describes the socio-demographic details.

A vast majority of the mothers of the children reviewed (81%) did not suffer from complications during the antenatal period, and carried their children to full term (87.7%) with only 11.3% of children being born pre-term. Children cried immediately after birth in 82.1% of the files studied and incubator was not required for 74.5% of children. Most children did not suffer from any adverse postnatal events, with seizures accounting for 15.1% of cases. Chart 2 describes the antenatal, perinatal & postnatal details.

Table 2 & 3 lists the DST and VSMS variables and percentage. Upon assessment of developmental and social adaptive function using the DST and VSMS, we found that the generally scored as having mild deficit (36.8% & 33%) and borderline deficit (17.9% & 22.6%) respectively. Only 9.4 % of children had normal/average developmental quotient and 5.7% had normal/average social quotient. Chart 3 describes the DST and VSMS details.

Table 1: Socio-demographic, antenatal, perinatal and postnatal history

Variables			
	Frequency	Percent	
Age	1 – 3	41	38.7
	3 – 5	57	53.8
	Above 5	8	7.5
Sex	Male	78	73.6
	Female	28	26.4
Religion	Hindu	89	84.0
	Christian	10	9.4
	Muslim	7	6.6
Socio Economic Status	High	3	2.8
	Middle	52	49.1
	Low	51	48.1
Consanguinity	Non Consanguineous	87	82.1
	Consanguineous	19	17.9
Type of Family	Nuclear	90	84.9
	Joint	16	15.1
Area of Resident	Urban	18	17.0
	Semi Urban	58	54.7
	Rural	30	28.3
Antenatal	Medical comorbidities	17	16.0
	Nil	89	84.0
Term	Pre Term	12	11.3
	Full Term	93	87.7
	Post Term	1	0.9
Delivery	Normal	51	48.1
	Caesarian Section	51	48.1
	Forceps	3	2.8
	Vacuum	1	0.9
Birth cry	Immediate	87	82.1
	Delayed	9	8.5

	Absent	10	9.4
Incubator	Yes	27	25.5
	No	79	74.5
Postnatal events	Nil	87	82.1
	Seizure	16	15.1
	CHD	3	2.8

Chart 1:

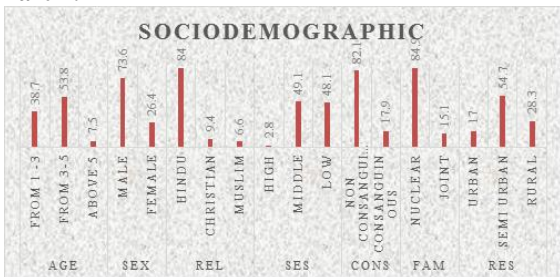


Chart 2:



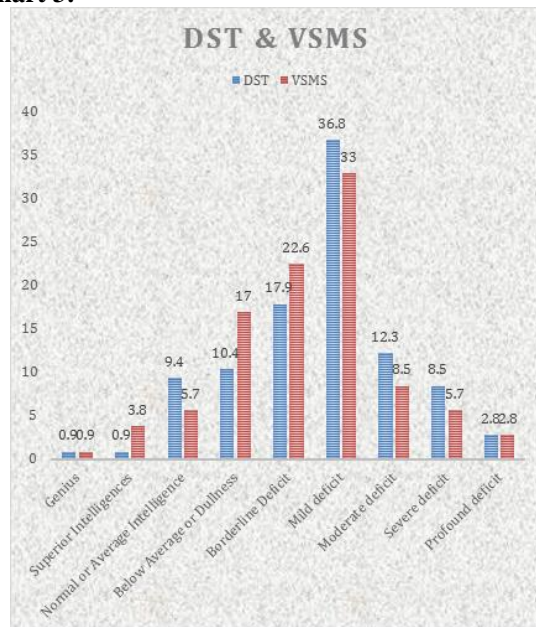
Table 2: DST

	Frequency	Percent
Genius	1	.9
Superior Intelligences	1	.9
Normal or Average Intelligence	10	9.4
Below Average or Dullness	11	10.4
Borderline Deficit	19	17.9
Mild deficit	39	36.8
Moderate deficit	13	12.3
Severe deficit	9	8.5
Profound deficit	3	2.8
Total	106	100.0

Table 3: VSMS

	Frequency	Percent
Genius	1	.9
Superior Intelligences	4	3.8
Normal or Average Intelligence	6	5.7
Below Average or Dullness	18	17.0
Borderline Deficit	24	22.6
Mild deficit	35	33.0
Moderate deficit	9	8.5
Severe deficit	6	5.7
Profound deficit	3	2.8
Total	106	100.0

Chart 3:



Discussion

Silva⁹ reported about the longitudinal study by the Dunedin (New Zealand) multidisciplinary health and development research unit, which found that a delay in language development is associated with both low intelligence and reading difficulties. Our study found a correlation between deficits in developmental and social function and speech delay.

Some types of deficits in language development are hypothesised to be because of abnormalities in brain structure and function. It can be said that in these cases it is likely the psychiatric disorder is due to the damage to the brain as much as it is due to the language disorder. As a vast majority of the individuals with an Intelligence Quotient below 50 are known to have abnormalities in brain structure, it is possible that both the psychiatric disorder and language delay in such children is due to the gross brain disease.¹⁷

A number of studies have revealed a specific association between large family size, low verbal intelligence, poor reading skills, and conduct disorders¹⁸⁻¹⁹. Larger family size has not been specifically associated in this manner with other psychiatric disorders or non-verbal intellectual deficits. This association may be hypothesised to be due to differing patterns of family life in nuclear and joint families. In the latter, there may be less intensive interaction between multiple family members and more exposure to other children with small vocabularies and poor grammar.²⁰⁻²¹ However, our study revealed that nuclear families had more children with speech delay which may suggest that a lack of sustained interaction with other people and other children could contribute to a delay in speech development.

There is much evidence linking socioeconomic class and language or speech disorders. A 1956 study

by Barry and Eisenson²² found that speech disorders were more prevalent among children belonging to families of a lower socio-economic class. These findings may be somewhat unreliable as the language tests used could have cultural biases. However, size of vocabulary and complexity of sentence structures tests, which are not quite as culturally sensitive, revealed poorer developmental skills among children belonging to lower socio-economic class. Our results concur with these findings.

Identification of these children with language developmental delay at an early stage can lead to effective early intervention which may be useful²³. However more research is required in this area. It will be helpful to see if early intervention can help ease the long-term effects of speech/language delay, well into their school going years and adulthood.

Conclusion

Speech delay in children is a common problem. Usually, these children are initially seen by the primary care physician who gives reassurances and often fails to refer them to a psychiatrist. In these cases, the children miss out on the specialised assessment that they require. In this study, we found that almost 80% of children with speech delay have deficits in their developmental and social functioning. This deficit may be a cause of speech delay or an underlying pathology in the brain may cause intellectual disability and speech delay. Many studies found that speech delay also presents with attention difficulties, hyperactivity and learning difficulties. So these children need holistic psychiatric assessment at an early stage and plan for further management accordingly.

Further Directions: A prospective comparative study may reveal a more reliable finding on the relationship between intellectual ability and speech delay. Follow up these patients will give a better understanding of the developmental processes involved in speech production and speech delay.

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