

Cross Sectional Study on Language Assessment of Speech Delay in Children 0 to 6 Years

A.Dharmalingam¹, N.S. Raghupathy², R. Belgin Prem Kumar³

¹Assistant Professor, Department of Pediatrics, Aarupadai Veedu Medical college and Hospital, Pondicherry.

²Professor & Head, Department of Pediatrics, Aarupadai Veedu Medical college and Hospital, Pondicherry

³Post Graduate, Department of Pediatrics, Aarupadai Veedu Medical college and Hospital, Pondicherry.

Abstract: Communication is a process of exchanging information and ideas between Persons. Speech and language is the most used tool for communication which depends on Effective production, Transmission, reception, registration and reproduction. The auditory system, Central nervous system integrity and articulation must be perfect. Speech and Language is affected if any of the system goes wrong. This study is done to find out the correlation between Speech and Language with Age, gender, Number of child, Order of child, and Parental education. This study reveals that Speech and Language delay is 9.54% ie 38/400. The maximum delay is found in 4-5 age group groups. ie 13.1% Males are more affected, and second born also. Speech and language delay is more in more than one child. There is no correlation with paternal education.

Key words: LEST Language Evaluation scale Trivandrum. Effective production, Reception.

I. Introduction

Communication is the process of exchanging information and ideas between persons. Speech and language is the most useful and wide used form of communication. Early detection of speech and language will be utilized for early intervention. This can be done by using simple easy screening tool i.e. **Language Evaluation Scale Trivandrum (LEST)** can be used to evaluate this problem.

Definition :

Speech is defined as the neuromuscular act of producing sounds that are used in language. It is the oral expression of language. **Language** is the mode whereby ideas about the world are represented through a conventional system of arbitrary signals for communication¹. At the basic level **phonology** refers to the correct use of speech sounds to form words, **semantics** refers to the correct use of words and **syntax** refers to appropriate use of grammar to make sentence.

Language can be divided into two forms

Receptive language and Expressive language

- a) Understanding language (receptive) is the ability to take in information presented through speech and action of others. Expressive language (talking) describes child ability to tell their needs, thoughts, ideas and feelings through their speech and actions.
- b) **Speech** is a form of language in which articulate sounds or words are used to convey the meaning. Speech is the most effective form of communication and most widely used skill. It involves the co ordination of different muscles of vocal mechanism as well as mental aspect of associating the meaning with the sound produced. As baby reaches the first birthday they find that their attempt to communicate by crying and gestures are not always understood.

II. Aim.

The aim of the present study is to assess the speech and developmental outcomes in children from age group 0 to 6 years.

III. Objectives Of The Study

1. To assess the prevalence of speech and language delay in a community setting for children in different age groups from 0 to 6 years of age.
2. To evaluate its association various parameters like age, Gender, order of child, number of children and parental education.
- 3.

IV. Materials And Methods

This is a descriptive study of cross sectional design and reference population of people from Bahour commune, Puduchery Union territory. The study sample constitutes children attending well baby clinic and daily pediatric clinic of a tertiary care centre, Aarupadai Veedu Medical College and hospital and also from

School camps during the period of July 2012 to July 2014. Children of 0-6 years attending our outpatient department for routine checkups, minor illnesses and also for vaccination were included in our study. Those children with severe sickness and those with development delay in other domains like gross motor, fine motor and social were excluded. The study is done using Proforma which includes different baseline parameters like age, sex, family order and number of children in family as single child or not a single child and details of parent education, and the speech and language assessment is done using Language Evaluation Scale Trivandrum (LEST) which is described below.

The interpretation is done in 2 ways.

1. Normal – All items done.
2. Delay – Two or more items not done.

The prevalence of speech and language delay is calculated as normal, questionable, suspect and delay. Results are analyzed using SPSS software. Chi-square with p value of 0.05 is considered significant.

V. Results

i. Age Distribution

The total 400 children were divided into 6 groups of 12 months interval as in table .1.

Table -1: Age Distribution .

Age group	No. of Child	Percentage
0-12month	63	15.8
13-24month	67	16.8
25-36month	91	22.8
37-48month	57	14.2
49-60month	61	15.2
61-72month	61	15.2
Total	400	100

In the study in each group minimum 25 children were allotted but for the group 0-12 months and 13 to 24 months minimum of 30 children were taken to find out the results of early identification.

ii. Gender Distribution

Among the total 400 children, 224(56%) were females and 176(44%) children were males as listed in table.2. Of the six age groups, the males and females in each group were compared. In all groups females were more.

Table -2: Gender Distribution

Gender	No. of Child	Percentage
Female	224	56
Male	176	44
Total	400	100

iii. Order of the child in family

Among all children assessed for the study the majority of children were of first order (84%). 61 children of second order (15.20%)and only 3 children were of third order (0.80%).

iv. Number of children in family

The children were analyzed as a single child of the family or not. Among 400 children 255 (63.8%) were single and 145(36.2%) had siblings in the family as in table 3. This parameter was used to see the influence of siblings in language development.

Table.3. Number of children in family

Single	Number of child	Percentage
Single child	255	63.8%
Not single child	145	36.2%
total	400	100%

v. Parental education.

In case of parental education majority of parents (71.2(n=285), had not passed 10th class while(21.2%.n=85)passed 10th class, only (7.6% n=30) had a degree qualification as in table no.4.

Table. No.4. Parental Education

Paternal education	Number	Percentage
10 th fail	285	71.2
10 th pass	85	21.2
degree	30	7.6

vi. Discussion of Language assessment and speech delay.

a) Association of language and speech delay with age group

Table. No.5. Language and Speech delay in each age group

Age group	Result		Total	Chi-Square Tests	p-value
	No Delay	LEST Positive			
Group 1	59	4	63	2.072	0.839
Group 2	62	5	67		
Group 3	82	9	91		
Group 4	51	6	57		
Group 5	53	8	61		
Group 6	55	6	61		
Total	362	38	400		

Using LEST Scale Trivandrum of various age groups. Interpretation is done in two ways as in table .6. The association of age group with language and speech delay was not found to be statistically significant (p value 0.839).

In the study done by Nair MKC et al¹ language delay observed for the age group 0-12and 13-24 months was 6.6% and 29.7 4%respectively,which is comparable to 6.34% and 7.46% respectively. The difference may be due to the factor that in the present study the babies coming to well baby clinic were observed and at risk babies were not included in the study. In the present study, the speech and language delay was (6.9%)among 0 to 2years of age which is higher than that of observed by Silva et al².(5%) Similarly in our study the speech and language delay among 2to 3 years was 9.8% which is higher than that observed by Burdon et al³ (6.9%). In our study among the age group of 3 to 4 yrs the speech and language delay was 10.52% which is also higher than that of observed (5%) in a study done by Silva et al². Among the age group of 5 to 6 yrs the speech and language delay in our study was 9.83% which is comparable to 11.78% observed by Beitchman et al⁴.

b) Association of language and speech delay with gender

The association of language and speech delay with gender was not significant (p value 0.923) in our present study though it is seen more among males (87%) in study done by Tomblin et al⁵.

c) Association of language and speech delay with number of children

The association of language and speech delay with number of children in the family was found to be significant (p value 0.045). Study done by Nelson et al⁶ also suggest that single child in family was also found to be a significant factor⁶.

d) Association of language and speech delay with order of children

Language Delay was found to be more prevalent (21.31%) among the second born child in the present study compared to 7.44% seen in the first born child. The difference in the birth order of children in family with language delay was found to be statistically significant as p value was 0.003 (p value <0.05). In a study done by Brookerhouser et al⁷ found language delay was significant in children who born late in family and proved birth order was a significant factor⁷ for the development of language delay.

Table.no.6. Association of language and speech delay with order of children

Birth Order	Result		Total	Chi-Square Tests	p-value
	No Delay	LEST Positive			
First	311	25	336	E	0.003
Second	48	13	61		
Third	3	0	3		
Total	362	38	400		

e) Association of language and speech delay with parental education

The association of language and speech delay with parental education was not significant (p value 0.45)

VI. Summary And Conclusion

In the present study, 400 children were assessed using Language Evaluation Scale Trivandrum (LEST 0-6) from the age group birth to 6 years of age. Depending on the age of children they were divided into 6 groups 0-1 year, 1-2 year, 2-3 year, 3-4 year, 4-5 year and 5-6 years.

The major conclusions drawn from the study were

- Among the 400 children studied, the total percentage of children with language and speech delay was 9.54%. s
1. Among the 6 age groups, 6.3% had language delay for the age group 0-1 year. ,(7.4% had delay. Only for the age group 2-3 year, 9.8% had delay. For the age group 3-4 year, 10.5% had delay. only for the age group 4-5 year, 13.1% had delay and for the age group 5-6 year 9.54% had delay.)
2. The association of Language Speech delay with age group was not statically significant (p-value 0.839).
3. The association of language and speech **delay** with gender was not statistically significant (P value 0.923)
4. Language delay was found to be more prevalent among the second born child in this present study, its association was to be found to be statistically significant (p value 0.003).
5. The association of language and speech delay with number of children in the family was found to be significant(p value 0.45)
6. In the present study no significant statistical association with paternal educational status and language

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