



SOCIO- DEMOGRAPHIC PROFILE OF CHILDREN (0-3YEARS) AND ITS ASSOCIATION WITH LANGUAGE AND SPEECH DELAY IN A TERTIARY CARE CENTRE

Pediatrics

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ABSTRACT

A cross sectional study across 200 children from the age group birth to 3 years of age attending the well-baby clinic in a tertiary care center in Chennai was conducted using Language Evaluation Scale Trivandrum (LEST 0-3) to find out the prevalence of speech and language delay in children. Questionnaires were used to identify the socio-demographic profile and the home environment of children attending the clinic.

In the present study, the association between language delay and home environment as assessed by the Home Screening Questionnaire was statistically significant ($p=0.000$). However, there was no significant statistical association between age of children, gender, religion, mother's education, father's education, socio economic status, place of residence, type of family, number of members in family, gestational age at birth, age of mother at childbirth, age of father at child birth, birth order of child, birth weight, type of delivery, problems in antenatal, natal, post-natal period and language delay.

KEYWORDS

Socio-demographic profile, home environment, language delay

INTRODUCTION:

Speech and language is the most useful and most widely used form of communication. Communication is integral to overall developmental progress in young children mainly in cognitive, social – emotional and adaptive development. Speech helps the children to get attention from others, to satisfy their needs, to influence the behaviour of others, to develop social relations and as they grow, it plays an important role in their academic achievements [1]

Children's capacity to communicate and the vocabulary power when they enter preschool are important for good scholastic performance. Children with language problems in preschool are at risk of poor educational achievement in school age and are at increased risk to develop emotional and behavioural disorders [2]. Early intervention may prevent or decrease the severity of language delays in school age and increase later academic success in school. To underline this fact, there is increasing number of evidences coming up that intervention given or started during infancy or preschool age has a greater positive effect than services provided at school age [3].

Knowing about the prevalence, incidence, and risk factors in children aged less than 6 years old with **changes** in language acquisition and development will decrease the impact on their academic lives, and also on social relations [4].

Several studies describe the prevalence and the incidence of language-related changes in children. However, only a few point out the risk factors for such changes. Risk factors are aspects of individual behavior or lifestyle, environmental exposure, hereditary, or congenital characteristics associated with a condition related to health [5, 6].

Studies show that racial and socioeconomic variables are prone to communication disorders [7, 8, 9].

Table 1: Association between Age of children and speech delay

LEST Interpretation	Age of child (in months)						Total
	0-6	7-12	13-18	19-24	25-30	31-36	
Normal	52(85.2%)	45(81.8%)	28(73.7%)	22(75.9%)	11(91.7%)	4(80.0%)	162(81.0%)
Questionable	8(13.1%)	8(14.5%)	5(13.2%)	4(13.8%)	-	-	25(12.5%)
Suspect	1(1.6%)	2(3.6%)	1(2.6%)	-	-	-	4(2.0%)
Delay	-	-	4(10.5%)	3(10.3%)	1(8.3%)	1(20.0%)	9(4.5%)
Total	61(100%)	55(100%)	39(100%)	29(100%)	12(100%)	5(100%)	200(100%)

Chi-Square value = 18.356df= 15P-value = 0.244

In the present study, there were 95 male children (47.5%) and 105 (52.5%) were female children. No significant statistical difference was observed for speech and language delay among both sexes ($p=0.252$).

Table 2: Association between Gender and speech delay

LEST Interpretation	Gender		Total
	Male	Female	
Normal	73(76.8%)	89(84.8%)	162(81.0%)

No national references were located concerning the risk factors for different speech language pathology and audiology changes. In this context, the need for studies that identify different types of speech language pathology and audiology changes in children is clear, so that actions connected to public health policies can be effectively conducted based on evidence.

MATERIALS AND METHODS:

The study was conducted in the Well baby clinic, Department of Paediatrics, Dr. Kamakshi Memorial Hospital, Pallikaranai, Chennai. Informed consent was taken from parents. A descriptive study of cross sectional design across 200 children attending well baby clinic of tertiary care centre, Dr. Kamakshi Memorial Hospital of age group birth to 3 years from April 2014 through June 2014.

Inclusion Criteria consisted of all children in the age group of 0-3 years attending the outpatient clinic of Paediatric Department for routine check-up and vaccination. Children with severe or chronic illness and delay in other domains of development like gross motor, fine motor and social-personal were excluded.

Study was done using a Proforma consisting of Socio-demographic parameters like age, sex, family order. Details of parental age, education, occupation and socio-economic status are assessed by modified Kuppaswamy scale[10].

RESULTS:

Out of 200 children in age group of 0-3 years in the present study ,30.5% were in the age group of 0-6 months,27.5% in the range of 7-12 months ,19% in the group 13-18 months ,14.5% between 19-24 months and rest between 2-3 years. Present study was limited to age group of 0-3 years and children were sampled as random sample. No statistical significance was obtained between the age of the children and speech and language delay ($p=0.244$).

Questionable (1 item delay)	15(15.8%)	10(9.5%)	25(12.5%)
Suspect (2 item delay)	1(1.1%)	3(2.9%)	4(2.0%)
Delay (3 or more item delay)	6(6.3%)	3(2.9%)	9(4.5%)
Total	95(100.0%)	105(100.0%)	200(100%)

Chi-Square value = 4.090 df= 3 P-value = 0.252

Out of 200 children 169 (84.5%) were Hindus, 11(5.5%) were

Muslims and 20 children (10%) were Christians. There was no significant association between **religion** of children and speech delay ($p=0.598$). In the present study, 179 children (89.5%) were belonging to urban area whereas 21 children (10.5%) were belonging to rural area. There was no significant difference of speech delay among both groups. ($p=0.583$).

Out of 200 children, mothers of 130 children (65%) were graduates / post graduates.62 (31%) were professional. There was no statistically significant association between **education of mother** and speech delay. ($p=0.335$)

Fathers of 98 children (49%) were graduates /post graduates.95 (47.5%) were professional. There was no significant association between the **education of father** and speech delay ($P=0.870$)

Out of 200 children, the occupation of 87% of family heads was professional. There was no statistically significant association between **occupation of head of family** and speech delay in children ($p=0.966$).

The monthly family income of 167 children (83.5%) was > Rs 19,575.No significant association was obtained between **monthly family income** and speech delay in children ($p=0.473$).

In the present study, 123 children (61.5%) belonged to nuclear family and 77 children (38.5%) belonged to extended /joint family. There was no statistically significant association between **type of family** and speech delay ($p=0.635$).

Also ,107 children(53.5%) had more than 4 members in the family ,93 children(46.5%) had less than 4 members .There was no significant association between **number of family members** and speech delay($p=0.635$).

In the present study ,most of the children(83.5%) were belonging to the upper group as per the Modified Kuppuswami Classification ,**socio economic status** of parent did not significantly affect the outcome in present study($p=0.972$).

Table 3: Association between Socio-economic status and speech delay

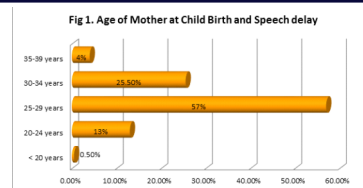
LEST Interpretation	Socio Economic Status				Total
	Upper	Upper middle	Lower middle	Upper lower	
Normal	135 (80.8%)	24 (82.8%)	2 (66.7%)	1 (100.0%)	162 (81.0%)
Questionable (1 item delay)	21 (12.6%)	3 (10.3%)	1 (33.3%)	-	25 (12.5%)
Suspect (2 item delay)	4 (2.4%)	-	-	-	4 (2.0%)
Delay (3 or more item delay)	7 (4.2%)	2 (6.9%)	-	-	9 (4.5%)
Total	167 (100.0%)	29 (100.0%)	3 (100.0%)	1 (100.0%)	200 (100%)

In the study, 175 children (87.5%) were term gestation whereas 25 (12.5%) children were born preterm. It has been recommended to use corrected age up to 24 months for premature babies ,but in the study by MKC Nair et al such correction was not attempted and being a screening test same was followed in the present study .There was no difference among both groups ($p=0.897$).

Table 4: Association between gestational age and speech delay

LEST Interpretation	Gestational age		Total
	Term	Preterm	
Normal	142(81.1%)	20(80.0%)	162(81.0%)
Questionable(1 item delay)	22(12.6%)	3(12.0%)	25(12.5%)
Suspect(2 item delay)	3 (1.7%)	1(4.0%)	4(2.0%)
Delay (3 or more item delay)	8(4.6%)	1(4.0%)	9(4.5%)
Total	175(100.0%)	25(100.0%)	200(100%)

The age of the mother at child birth for 114 children(57%) was 25-29 years and mothers of 51 children (25.5%) belonged to 30- 34 years age group .There was no significant association between age of mother at child birth and speech delay($P=0.103$)



Chi-Square value = 18.454, df= 12, P-value = 0.103

Fathers of 104 children (52%) belonged to the age group of 30-34 years .61 of them (30.5%) belonged to 25-29 years age group .There was no significant association between age of father at child birth and speech delay($p=0.058$)

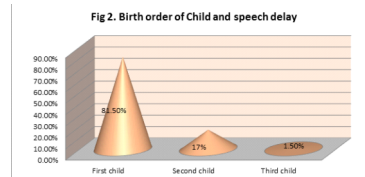
84% of the children (168) had a birth weight in range 2500-4200 gm.13% of the children (26) ,had a birth weight in the range of 1800-2499gm. There was no significant statistical association between birth weight and speech delay (P-value = 0.892)

Table 5: Association between Birth weight and speech delay

LEST Interpretation	Birth weight			Total
	1200-1799 gm	1800-2499 gm	2500-4200 gm	
Normal	6(100.0%)	21(80.8%)	135 (80.4%)	162(81.0%)
Questionable (1 item delay)	-	4(15.4%)	21(12.5%)	25(12.5%)
Suspect (2 item delay)	-	-	4(2.4%)	4(2.0%)
Delay (3 or more item delay)	-	1(3.8%)	8(4.8%)	9(4.5%)
Total	6(100.0%)	26(100.0%)	168(100.0%)	200(100%)

Chi-Square value = 2.281,df= 6,P-value = 0.892

In the present study, 163 children (81.5) belong to first child birth order. There was no significant association between birth order of the child and speech delay (P-value = 0.982).



Chi-Square value = 1.079, df= 6, P-value = 0.982

In this study 62.5% (125 children) were delivered by Caesarean section, 37.5% (75 children) were delivered by vaginal delivery .There was no statistically significant association between type of delivery and speech delay ($p=0.490$).

Mothers of 184 children (92%) had no problem in the antenatal period .No statistically significant association was obtained between problems in antenatal period and speech delay ($p=0.926$). In the present study 187 children (93.5%) did not have problems in the neonatal period. No significant association was obtained between speech delay and problems in neonatal period ($p=0.238$). 179 children (89.5%) did not have problems in the neonatal period .No significant association was obtained between speech delay and problems in neonatal period. ($p=0.591$).

In the present study, out of 200 children, 129 children (64.5%) had a positive home environment as assessed by the Home Screening Questionnaire, 71 children (35.5%) had a negative home environment. As per the LEST results in the present study, LEST was normal in 162 children, 38 children had one or more item delay. Among the 162 children with normal LEST, 115 children (71%) had a positive home environment, 47 children (29%) had a negative home environment. Among 25 children with one item delay, 18 children (72%) had a negative home environment. Among 9 children with 3 or more item delay, 5 children (55.6%) had a negative home environment. The association between speech delay and home environment as assessed by Home screening questionnaire was statistically significant ($p=0.000$)

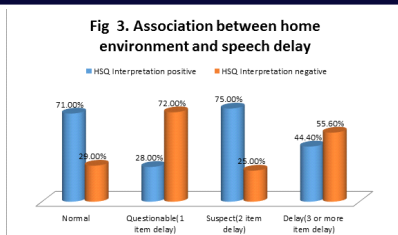


Table 6: Association between Home environment & Speech delay

LEST Interpretation	HSQ interpretation		Total
	Positive	Negative	
Normal	115(71.0%)	47(29.0%)	162(100.0%)
Questionable (1 item delay)	7(28.0%)	18(72.0%)	25(100.0%)
Suspect (2 item delay)	3(75.0%)	1(25.0%)	4(100.0%)
Delay (3 or more item delay)	4(44.4%)	5(55.6%)	9(100.0%)
Total	129(64.5%)	71(35.5%)	200(100.0%)

Chi-Square value = 19.297, df = 3, P-value = 0.000

DISCUSSION AND CONCLUSION:

A cross sectional study in 200 children was conducted using Language Evaluation Scale Trivandrum (LEST 0-3) from the age group birth to 3 years of age to find out the prevalence of speech and language delay in children attending the well baby clinic.

The total percentage of children with one or more item delay by LEST was 19%. 6.5 % children had two or more item delay in the present study. 4.5% had three or more item delay. In the present study, the association between speech delay and home environment as assessed by the Home Screening Questionnaire was statistically significant ($p=0.000$).

In the present study, there was no significant statistical association between age of children, gender, religion, mother's education, father's education, socio economic status, place of residence, type of family, number of members in family, gestational age at birth, age of mother at birth, age of father at child birth, birth order of child, birth weight, type of delivery, problems in antenatal, natal, post natal period and speech delay.

Family history was the most consistent significantly associated risk factor in 5 of 7 studies. In the study done by Tomblin et al [11], 87% of children with articulation disorders were boys and in the study done by Choudhary et al [12] 70% of the children were males. In the present study there was no significant statistical association between male gender and speech delay. In the study by Nelson et al [13], single child in the family was also found to be a factor. The study done by Campbell et al [14] showed an association between lower maternal education and language delay. Another study by Tallal et al [15] showed an association between lower paternal education level and language delay and lower socio economic status was a risk factor for language delay. In our study there was no significant association between socioeconomic status and language delay. In our study, the association between the home environment as assessed by the Home Screening Questionnaire and language delay was statistically significant ($p=0.000$).

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