

Research Paper

## A Cross Sectional Study of Learning Disability in Tiruchengode Educational District

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### ABSTRACT

**Aim:** To screen the Learning Disability children in schools of Tiruchengode Educational District using Learning Disability Screening Teacher Rating Scale. **Objectives** • To compare the level of disability based on Gender • To compare the level of disability based on Parent's educational qualification • To compare the level of disability based on Board of study • To compare the level of disability based on Medium of instruction. **Methodology:** Totally 104 teachers and 554 students were selected in this study from various schools in Tiruchengode Educational District. All subjects were assessed by using the Learning Disability Screening Teacher Rating Scale, to identify and rate the severity of Learning Disability in students and demographic profile is used to know the factors which affect the learning abilities of a student. **Result And Conclusion:** With the statistical results this study concludes that more number of learning disabled children are observed in the age group between 9-11 years. Male children are higher in number with learning disability than female children. There is significant difference in medium of instruction in identifying Learning Disability. There is a positive correlation between Dyslexia, Dysgraphia and Dyscalculia.

**Keywords:** Learning Disabilities, Teacher questionnaire, Occupational Therapy

Learning is the process of acquiring new knowledge and skills. During the earlier years, children first learn to understand the spoken language and then to speak. However, some children may not be able to learn these skills according to their age.

According to the National Centre for Learning Disabilities, Learning Disability is a neurological disorder that affects the brain's ability to receive, process, store and respond to information. Learning Disability is not a single disorder. It is a term that refers to a group of disorders in listening, speaking, reading, writing and mathematics. Learning Disabilities also can encompass problems in the area of social-emotional skills and behaviour, and some individuals with Learning Disabilities struggle with peer relationships and social interactions in addition to academic challenges. Thus, Learning Disability can be described as one of the main reason for school-dropout, lack of interest in studies and poor academic performance.

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The degree in which Learning Disability affects an individual's ability of 'information processing' used in learning, results in deficit in input, integration, storage, and output of the information in a learner.

Missing out words or sentences while reading, misplacing letters or words while reading or writing and making frequent spelling mistakes were the most common problems noted by teachers.

Teachers have moderate level of awareness on specific learning disabilities and have appropriate knowledge on Dyslexia, Dyscalculia and Dysgraphia whereas they were not much aware of identification of students with Dysphasia and Nonverbal Learning Disabilities. Depending on the type of difficulty and the related symptoms evident in a learner with Learning Disability, the disability may be classified into Dyslexia ('word blindness' or 'reading disorder' leading to difficulty in reading, writing, and spelling), Dyscalculia (difficulty in computation, math, concepts of time and money), Dysgraphia (difficulty in written expression leading to illegible handwriting, spelling, and composition), Dyspraxia (difficulty in fine motor skills and coordination).

Globally, Learning Disabilities are present in approximately 5% of school aged children. Some Studies in India calculated the prevalence of Learning Disability to be 3-10% and in south India, it was 6.6%. prevalence of dyslexia among school children in Mysore and was found to be 13.67%. When compared with gender, prevalence of dyslexia was 19% among males and 8.50% among females. About 66.70% gave family history of dyslexia.

Learning Disabilities are more frequently seen in boys compared to girls. Low birth weight, preterm birth, neonatal complications, language delay and epilepsy are important risk factors for learning disabilities in children.

35% of students with Learning Disabilities drop out of high school. This is twice the rate of their nondisabled peers. 50% of the juvenile delinquents tested were found to have learning disabilities.

The multilingual social context in India, where children often have to learn to study through a medium other than their mother tongue is a complexity that makes not only diagnosis extremely difficult but also, estimation of prevalence next to impossible. These children came from the lower, middle and upper middle socioeconomic strata of society. Referral was due to their poor school performance.

Students with Learning Disabilities have special needs in academic, classroom, behavioural, physical, and social performance and hence require need-based adaptation of classroom procedures for effective academic instruction. Early diagnosis and individualized remedial training are necessary to manage the learning problems of children. Parental guidance is essential in the diagnosis and therapy of the children. By providing scientific guidance and intensive one to one remedial training, learning problems of children can be managed. Remedial education and policy interventions to manage Specific learning disabilities at main stream educational system to improve the school performance in Indian children.

Elementary school teachers possess an average level of Awareness on Learning Disabilities and with respect to gender, locale, type of management and teaching experience. These children need to be identified earlier to prevent the disability and school dropout. Early

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intervention presupposes early identification. At present there is no universally standardized screening procedure to guide referral from schools. In order to prevent school-dropout and juvenile delinquency, children with Learning Disabilities need to be identified earlier in the school itself. Hence the researcher is intended to find out the learning-disabled children through school teachers.

### **METHODOLOGY**

This study was a Cross sectional survey research design. This study was conducted in 54 schools in Tiruchengode Educational District. Convenient sampling technique was adopted. Totally 104 teachers and 554 students were taken in this study. A total duration of the study was one year. The students were selected between the age group of 6 - 13 years, attending regular school. Teachers working in Government and private school taking classes from 2<sup>nd</sup> standard to 7<sup>th</sup> standard were used to collect data. Physically challenged students and age group below 6 years and above 13 years were excluded.

#### ***Instrument And Measurement Tool***

Data was collected using Learning Disability Screening Teacher Rating Scale. This scale was developed by Mr.T.Jegadeesan and Dr.P.Nagalakshmi in 2019. It consists of 84 items with the scoring of 0-4, five-point Likert Rating Scale. 0 indicates Never, 1 - Rarely, 2- Sometimes, 3- Often, 4- Always. Pupil scoring between 0-84 is Mild, 85-168 is Moderate, 169-252 is Severe and above 252 is Extremely severe Learning Disability. Reliability value of cronbach's alpha is 0.806. Karl Pearson correlation of Dyslexia is 0.804, Dysgraphia is 0.892, Dyscalculia is 0.890 and Dyspraxia is 0.718 (N=1251).

#### ***Procedure***

This study aimed at to find out the number of learning-disabled children in Tiruchengode Educational District. The researcher got permission from District Educational Officer of Tiruchengode Educational District, Tamilnadu. Learning Disability Teacher Rating Scale was used in this study to assess the level and types of Learning Disability. Administration procedure of this scale was explained to the school teachers by the researcher. Totally 104 teachers are involved in this study, they were administered this scale to their students with poor academic performance. Interpretation of the items were done by the researcher. A total of 554 students from 54 different schools were assessed in this study. Data and scores were tabulated and statistically analysed with Kolmogorov test, 't' test, and Spearman correlation test.

### **DATA ANALYSIS AND RESULTS**

Data analysis was done by using SPSS 23 with statistical principles. The results are shown in tables and graphs.

*Table 1 shows the Descriptive Statistics and Test of Normality (Kolmogorov Test) of study variables (N=554)*

Socio-demographic variables	Mean	Standard Deviation	Minimum	Maximum	Test of Normality
Age	9.883	1.7796	6	13	0.141
Gender	1.278	0.4484	1	2	0.354
Father education	0.838	0.788	0	5	0.31
Father occupation	2.058	0.9042	0	7	0.361
Mother education	0.847	0.7438	0	5	0.332

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Mother occupation	2.693	1.4357	0	7	0.436
Monthly income	1.27	0.601	0	4	0.46
Board of study	1.022	0.1451	1	2	0.537
Medium of instruction	1.525	0.4998	1	2	0.354
Class	4.648	1.6969	2	7	0.161
Dyslexia	38.951	9.16	9	76	0.111
Dysgraphia	65.303	15.3668	11	124	0.102
Dyscalculia	63.872	14.3194	12	100	0.103
Dyspraxia	14.366	5.5576	3	36	0.168
Total score	182.493	36.9051	44	322	0.12

*Table 2 shows the Frequency and Percentage of the study variables*

Socio-demographic variables	Categories	Frequency	Percentage
Age	6	5	0.9
	7	57	10.3
	8	78	14.1
	9	98	17.7
	10	91	16.4
	11	103	18.6
	12	89	16.1
	13	33	6
Gender	Male	400	72.2
	Female	154	27.8
Father Education	Illiterate	179	32.3
	Secondary	315	56.9
	Higher secondary	46	8.3
	Polytechnic	0	0
	Degree UG	13	2.3
	PG	1	0.2
Father Occupation	Nil	37	6.7
	Business	26	4.7
	Coolie	400	72.2
	Driver	68	12.3
	Farmer	16	2.9
	Home maker	0	0
	Manager	3	0.5
	Teacher	4	0.7
Mother Education	Illiterate	160	28.9
	Secondary	346	62.5
	Higher secondary	35	6.3
	Polytechnic	0	0
	Degree UG	12	2.2
	PG	1	0.2
Mother Occupation	Nil	16	2.9
	Business	7	1.3
	Coolie	393	70.9

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	Driver	0	0
	Farmer	7	1.3
	Home maker	123	22.2
	Manager	0	0
	Teacher	8	1.4
Monthly income	Nil	4	0.7
	Below 10,000	431	77.8
	11,000-20,000	88	15.9
	21,000-30,000	26	4.7
	Above 30,000	5	0.9
Board of study	State board	542	97.8
	CBSE	12	2.2
	IBC	0	0
Medium of instruction	English	263	47.5
	Tamil	291	52.5
Class	I standard	81	14.6
	II standard	85	15.3
	III standard	88	15.9
	IV standard	93	16.8
	V standard	107	19.3
	VI standard	99	17.9
	VII standard	1	0.2

*Table 3 shows the Scores of Dyslexia, Dysgraphia, Dyscalculia and Dyspraxia were compared between male and female*

Variables	Gender	Total (N)	Mean	Standard Deviation	t value
Dyslexia	Male	400	38.778	9.333	0.719
	Female	154	39.403	8.7077	
Dysgraphia	Male	400	65.113	14.8314	0.471
	Female	154	65.799	16.7185	
Dyscalculia	Male	400	63.97	14.6532	0.26
	Female	154	63.617	13.4564	
Dyspraxia	Male	400	14.22	5.6112	0.999
	Female	154	14.747	5.4155	

*Table 4 shows the comparison between English and Tamil medium Students*

Variables	Medium of instruction	Total	Mean	Standard Deviation	t value
Dyslexia	English	263	38.1	8.69	2.0792
	Tamil	291	39.72	9.52	
Dysgraphia	English	263	63.47	14.55	2.6822
	Tamil	291	66.96	15.92	
Dyscalculia	English	263	60.49	14.34	5.424
	Tamil	291	66.93	13.62	
Dyspraxia	English	263	13.96	5.32	1.6308
	Tamil	291	14.73	5.75	

*Table 5 shows the correlation between Dyslexia, Dysgraphia, Dyscalculia and Dyspraxia*

Correlations					
Components	Dyslexia	Dysgraphia	Dyscalculia	Dyspraxia	Total score
Dyslexia	1				
Dysgraphia	0.538	1			
Dyscalculia	0.616	0.611	1		
Dyspraxia	0.57	0.492	0.513	1	
Total score	0.797	0.861	0.873	0.696	1
Correlation is significant at the 0.01 level (2-tailed)					

*Table 6 shows the nonparametric correlation between Dyslexia, Dysgraphia, Dyscalculia and Dyspraxia*

Nonparametric Correlations					
Components	Dyslexia	Dysgraphia	Dyscalculia	Dyspraxia	Total score
Dyslexia	1	0.472	0.531	0.463	0.746
Dysgraphia	0.472	1	0.57	0.385	0.825
Dyscalculia	0.531	0.57	1	0.388	0.83
Dyspraxia	0.463	0.385	0.388	1	0.584
Total score	0.746	0.825	0.83	0.584	1
Correlation is significant at the 0.01 level (2-tailed)					

## DISCUSSION

This study is aimed to screen Learning disability children in schools of Tiruchengode Educational District. Written consent was obtained by DEO of Tiruchengode Educational District. Learning Disability Teachers Rating Scale was used to screen the learning-disabled children. Questionnaire was given to the teachers and methods of administration was explained to them. A total of 554 children were screened in this study by the teachers with informed consent of the parents.

Table 1 shows the descriptive statistics and Test of Normality (Kolmogorov Test). The mean age of the participants is 9.8, both genders were included. Other variables are listed in the table.

Table 2 shows the Frequency and Percentage of study variables. While comparing the age group between 6 to 13, 98 children belong to 9 years, 91 children belong to 10 years and 103 children belong to 11 years. In gender, 400 children are male, 154 children are female. In Father Education, 315 have completed Secondary School Education, 179 are illiterate, 46 have completed Higher Secondary Education. In Father Occupation, 400 are coolie, 68 are drivers, 37 have no jobs. In Mother Education, 346 have completed Secondary School Education, 160 are illiterate, 35 have completed Higher Secondary Education. In Mother Occupation, 393 are Coolie, 123 are Home maker. In Monthly income, 431 families earn below Rs.10,000, 88 families earn Rs.11,000 - Rs.20,000. In Board of study, 542 children are studied in state board and 12 children are in CBSE. In Medium of instruction, 263 children studied in English medium and 291 children studied in Tamil medium. In class, 93 children are IV standard students, 107 children are V standard students and 99 children are VI standard students.

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Table 3 shows the Scores of Dyslexia, Dysgraphia, Dyscalculia, Dyspraxia were compared between Male and Female. All the score are indicating that there is no significant differences between Male and Female in Dyslexia, Dysgraphia, Dyscalculia, and Dyspraxia.

Table 4 shows the comparison between English and Tamil medium Students. The Dyslexia score indicates that the mean value of English medium is 38.1 and Tamil medium is 39.7, their 't' value is 2.0792, hence there is significant difference in Dyslexia. The Dysgraphia score indicates that the mean value of English medium is 63.4 and Tamil medium is 66.9, their 't' value is 2.6822, hence there is significant difference in Dysgraphia. The Dyscalculia score indicates that the mean value of English medium is 60.49 and Tamil medium is 66.9, their 't' value is 5.424, hence there is higher significant difference in Dyscalculia. The Dyspraxia score indicates that the mean value of English medium is 13.96 and Tamil medium is 14.73, their 't' value is 1.6308, hence there is no significant difference in Dyspraxia.

Table 5 shows the correlation among the subcomponents Dyslexia (0.79), Dysgraphia (0.86), Dyscalculia (0.86) and Dyspraxia (0.69). It shows strong correlation between the components. It indicates that when dyslexia are observed in children, the other types of specific learning disability also can be expected. Dyspraxia component show the weak correlation than other three component.

Table 6 shows the positive correlation between the variable, it indicates that when one specific learning disability increases other types of learning disability also increases.

### CONCLUSION

With the statistical results this study concludes,

- More number of learning-disabled children are observed in the age group between 9-11 years.
- Male children are having higher probability of getting Learning Disability than female children.
- There is significant difference in medium of instruction in identifying Learning Disability.
- There is a positive correlation between Dyslexia, Dysgraphia and Dyscalculia.

### Limitations

- This study was done in Tiruchengode Educational District only.
- Majority of children were screened from Government schools.
- Only few private matriculations and CBSC school children were participated.

### Recommendations

- Future studies are recommended in all schools with various board of education.
- Further intervention-based studies are recommended with school teachers in order to minimize the severity of disability.
- Further studies can be conducted in other educational districts.

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### **Conflict of Interest**

The author(s) declared no conflict of interest.

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