

## Original Research

### Assessment of specific learning disorders among children

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#### ABSTRACT:

**Background:** Specific learning disorder (SLD) is a neurodevelopmental disorder. The present study was conducted to assess specific learning disorders among children. **Materials & Methods:** 105 children age ranged 10-16 years of specific learning disorders of both genders were enrolled and a semi-structured proforma was formed consisting of perinatal events, referral pattern and co-morbidities of children. Neurological issues were recorded. **Results:** Out of 105, boys were 67 and girls were 38. Age group 10-12 years had 12 boys and 10 girls, 12-14 years had 25 boys and 12 girls and 14-16 years had 30 boys and 16 girls. 83 were right-handed, 20 were left-handed and 2 were mixed handed. Medium of instruction was hindi in 75, English in 30 and other in 5 children. Gap between the onset of symptoms and the referral was <6 months in 56, between <6 months- 2 years in 40 and 2-years- 4 years in 9. The difference was significant ( $P < 0.05$ ). Comorbidities were ADHD in 35, ASD in 40 and anxiety in 30 patients. Deficits were fine motor issues in 42, right left confusion in 30 and difficulty in telling time seeing the clock in 27 patients. The difference was significant ( $P < 0.05$ ). **Conclusion:** Specific learning disability is an important cause of academic underachievement especially in children.

**Key words:** Anxiety, Children, Specific learning disorder

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#### INTRODUCTION

Specific learning disorder (SLD) is a neurodevelopmental disorder. It includes impairment in reading, written expression, and mathematics. Combined types of SLD occur more frequently than isolated types. The prevalence estimate of SLD varies between 5% and 15%.<sup>1</sup> There is no significant gender difference in reading disability, several others have shown that SLD is more frequent in boys.<sup>2</sup> The prevalence of SLD was found to be higher in lower classes compared to higher classes. There is a significant risk for the child to develop reading disability if either parent reports difficulty in reading. Low maternal education, very low birth weight, low 5-minute APGAR score, and other obstetric factors are associated with a high risk for learning disability.<sup>3</sup> These children present with "academic problems" such as reading slowly, incorrectly, skipping lines while reading aloud, making repeated spelling mistakes, untidy/illegible handwriting with poor sequencing and inability to perform even simple additions and subtraction.<sup>4</sup> Delayed and conflicting diagnoses are common, leading to belated

intervention. Meanwhile, the invisible disorders may create intolerance toward the child by the family and the general public.<sup>5</sup> LD afflicts almost 5–15% of school-going children and is believed to be genetically inherited. Dyslexia is the most common specific learning disorder and most carefully studied of the LD, affecting 80% of those identified as learning disabled.<sup>6</sup> The present study was conducted to assess specific learning disorders among children.

#### MATERIALS & METHODS

The present study comprised of 105 children age ranged 10-16 years of specific learning disorders of both genders. Parental written consent was obtained before starting the study

Data such as name, age, gender etc. was recorded. A semi-structured proforma was formed consisting of perinatal events, referral pattern and co-morbidities of children. Neurological issues were recorded. Screening of hearing and visual impairments was performed. Occupational therapy assessment was also performed to look for hyperactivity, incoordination or sensory abnormalities. Results thus

obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

**RESULTS**

**Table I Distribution of patients**

Age group (years)	Boys	Girls
10-12	12	10
12-14	25	12
14-16	30	16

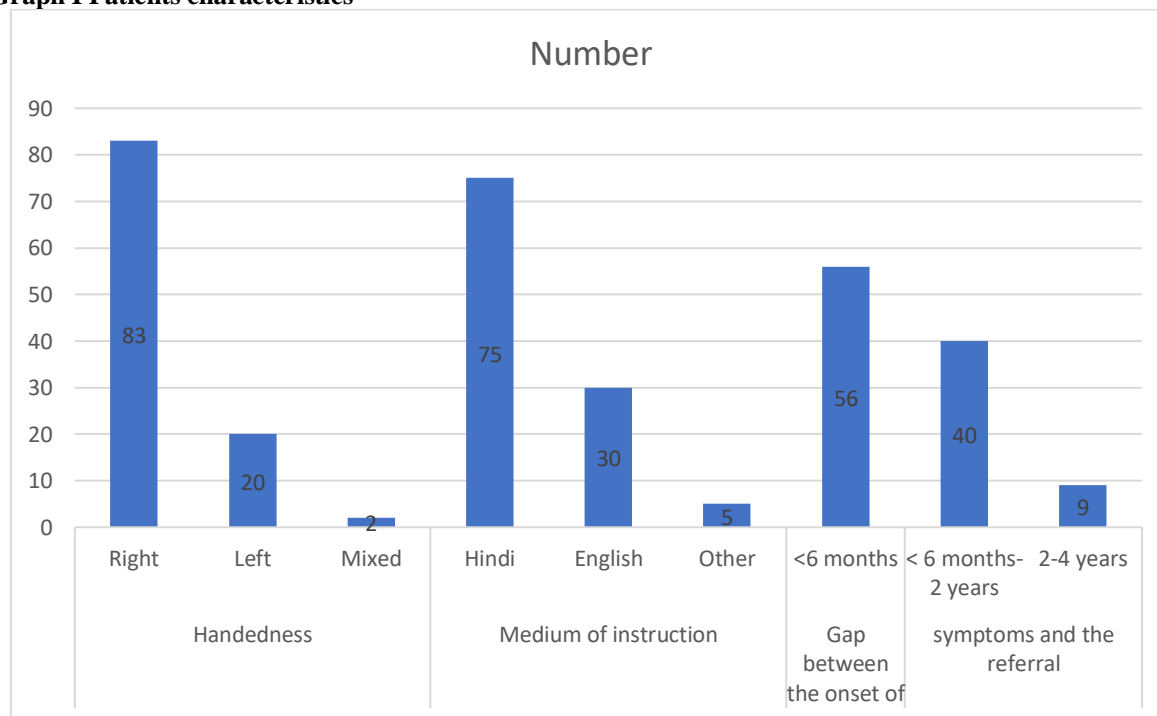
Table I shows that out of 105, boys were 67 and girls were 38. Age group 10-12 years had 12 boys and 10 girls, 12-14 years had 25 boys and 12 girls and 14-16 years had 30 boys and 16 girls.

**Table II Patients characteristics**

Variables	Parameters	Number	P value
Handedness	Right	83	0.01
	Left	20	
	Mixed	2	
Medium of instruction	Hindi	75	0.01
	English	30	
	Other	5	
Gap between the onset of symptoms and the referral	<6 months	56	0.05
	< 6 months- 2 years	40	
	2-4 years	9	

Table II, graph I shows that 83 were right- handed, 20 were left- handed and 2 were mixed handed. Medium of instruction was hindi in 75, English in 30 and other in 5 children. Gap between the onset of symptoms and the referral was <6 months in 56, between <6 months- 2 years in 40 and 2-years- 4 years in 9. The difference was significant (P< 0.05).

**Graph I Patients characteristics**



**Table III Assessment of Comorbidities and deficits**

Comorbidities	Number	P value
ADHD	35	0.91
ASD	40	
Anxiety	30	
<b>Deficit</b>		
Fine motor issues	42	0.05

Right left confusion	30	
Difficulty in telling time seeing the clock	27	

Table III shows that comorbidities were ADHD in 35, ASD in 40 and anxiety in 30 patients. Deficits were fine motor issues in 42, right left confusion in 30 and difficulty in telling time seeing the clock in 27 patients. The difference was significant ( $P < 0.05$ ).

**DISCUSSION**

Despite the fact that millions of people around the world suffer silently from SLD, there remains widespread confusion and misinformation with regard to identification of and interventions for SLDs.<sup>7</sup> Due to this, children do not enjoy their school life and resist going to school.<sup>8</sup> Some efforts have been made, like the one by National Council of Educational Research and Training in 2015, when a handbook on the inclusion of children with special needs was prepared.<sup>9</sup> It was a very sincere effort in which a series of workshops were held in different parts of the country, involving regular school teachers, teacher educators, special educators, and experts from universities and nongovernmental and governmental organizations.<sup>10</sup> The present study was conducted to assess specific learning disorders among children.

We observed that out of 105, boys were 67 and girls were 38. Age group 10-12 years had 12 boys and 10 girls, 12-14 years had 25 boys and 12 girls and 14-16 years had 30 boys and 16 girls. Choudhari et al<sup>11</sup> studied the prevalence of learning disorders in school going children and to compare the socio-demographic variables and other related factors with learning disorder. All the 500 students of class III to V with all sections were given the dyslexia assessment questionnaire (DAQ) to fill; 468 students returned the completed forms. Only 68 children scored  $\geq 4$  on DAQ were given MISIC (Mallin’s intelligence scale for Indian children) for IQ assessment and DST-J for dyslexia screening. Forty-eight students were labeled as dyslexia and further diagnosis was confirmed by DSM IV- TR classification. Prevalence of learning disorders (LD) was found to be 10.25% with higher in males than females (11.40% vs. 7.14%). The delivery complications were more in LD and more family members were left handed as compared to control group. In classroom behavior, children with LD asked questions, answered questions less frequently and took notes less attentively than control group.

We found that 83 were right- handed, 20 were left-handed and 2 were mixed handed. Medium of instruction was hindi in 75, English in 30 and other in 5 children. Gap between the onset of symptoms and the referral was  $< 6$  months in 56, between  $< 6$  months- 2 years in 40 and 2-years- 4 years in 9. Dhanda et al<sup>12</sup> found that the prevalence of impairment in reading and written expression was 22% each and impairment in mathematics was 16%.

We observed that comorbidities were ADHD in 35, ASD in 40 and anxiety in 30 patients. Deficits were fine motor issues in 42, right left confusion in 30 and

difficulty in telling time seeing the clock in 27 patients. Clarke et al<sup>13</sup> revealed that physical illness in childhood was associated with SLD. According to this study, there is an increased prevalence of neurodevelopmental disorders such as SLD with a physical illness like epilepsy. Another study had shown that hypothyroidism is associated with poor memory, attention, and visuospatial abilities and learning problems.<sup>14</sup>

**CONCLUSION**

Authors found that specific learning disability is an important cause of academic underachievement especially in children.

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