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## Assessment of specific learning disorders among children

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### Abstract

**Background:** Learning disorders or Specific learning disorders are a group of neuro developmental disorders. About 5-15% of school-going children have this disability. The present study was conducted to assess specific learning disorders among children.

**Materials and Methods:** 128 children of specific learning disorders of both genders were included. Children were screened for hearing and visual impairments. Neurological issues were also assessed.

**Results:** Out of 128, boys were 68 and girls were 60. 90 were right-handed, 20 were left-handed and 18 were mixed handed. Medium of instruction was Hindi in 86, English in 38 and other in 4. Gap between the onset of symptoms and the referral was <6 months in 45, 2 years in 55 and 4 years in 28. Comorbidities were ADHD in 40, ASD in 22 and anxiety in 34. Deficits were fine motor issues in 28, right left confusion in 30 and difficulty in telling time seeing the clock in 54. The difference was significant ( $P < 0.05$ ).

**Conclusion:** Specific learning disability is an important cause of academic underachievement. Health professionals should look for early signs in routine visits of children and co-morbidities, particularly ADHD.

**Keywords:** Children, specific learning disability, development

### Introduction

Learning disorders (LD) or Specific learning disorders (SpLD) are a group of neuro developmental disorders that manifest in childhood as persistent difficulties in learning for efficient reading (dyslexia), writing (dysgraphia) or performing mathematical calculations (dyscalculia) despite normal intelligence, conventional schooling, intact hearing, vision, adequate motivation and socio-cultural opportunity [1]. 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 [2].

About 5-15% of school-going children have this disability. Dyslexia is the most common and most studied one, affecting 80% of all those identified as learning-disabled. There are significant gender differences: boys are more often affected in developmental dyslexia than girls (4:1). However, in developmental dyscalculia and language difficulties, there are no noticeable differences. Considering Indian scenario, information about SLD is sparse [3]. The incidence of dyslexia in Indian primary school children has been reported to be 2-18%, dysgraphia 14%, and dyscalculia 5.5%. However, its awareness as a significant cause of academic underachievement has recently increased. Learning disorders are not rare. Perhaps the most socially significant feature of learning disorders is its invisible and seemingly benign nature [4]. 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. 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 [5]. The present study was conducted to assess specific learning disorders among children.

### Materials and Methods

The present study comprised of 128 children of specific learning disorders of both genders. Parental consent was obtained and study was commenced. Data such as name, age, gender etc. was recorded. Children were screened for hearing and visual impairments.

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Neurological issues were also assessed. Occupational therapy assessment was also performed to look for hyperactivity, incoordination or sensory abnormalities. A semi-structured proforma was formed consisting of perinatal events, referral pattern and co-morbidities of children. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

**Results**

**Table I:** Distribution of patients

Total- 128		
Gender	Boys	Girls
Number	68	60

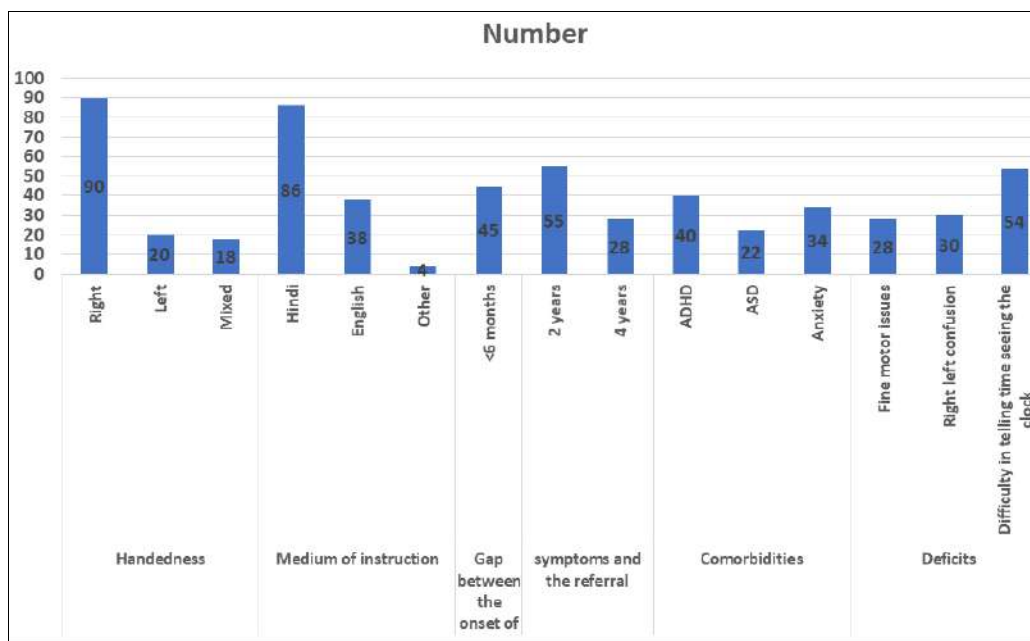
Table I shows that out of 128, boys were 68 and girls were 60.

**Table II:** Characteristics in children

Variables	Parameters	Number	P value
Handedness	Right	90	0.01
	Left	20	
	Mixed	18	
Medium of instruction	Hindi	86	0.02
	English	38	
	Other	4	
Gap between the onset of symptoms and the referral	<6 months	45	0.05
	2 years	55	
	4 years	28	
Comorbidities	ADHD	40	0.04
	ASD	22	
	Anxiety	34	
Deficits	Fine motor issues	28	0.02
	Right left confusion	30	
	Difficulty in telling time seeing the clock	54	

Table II, graph I shows that 90 were right- handed, 20 were left- handed and 18 were mixed handed. Medium of instruction was Hindi in 86, English in 38 and other in 4. Gap between the onset of symptoms and the referral was <6 months in 45, 2 years in 55 and 4 years in 28. Comorbidities

were ADHD in 40, ASD in 22 and anxiety in 34. Deficits were fine motor issues in 28, right left confusion in 30 and difficulty in telling time seeing the clock in 54. The difference was significant ( $P < 0.05$ ).



**Graph I:** Characteristics in children

**Discussion**

Various factors are implicated in understanding SLD. Social variables like socioeconomic stress and maternal education have links with school performance. Genetic basis of dyslexia has also been identified [6]. Various perinatal factors, like low birth weight (LBW) and prenatal stress can

indirectly affect attention, leading to attention deficit hyperactivity disorder (ADHD), a common co-morbidity with SLD. Co-morbidity in SLD is more of a rule than an exception [7]. Dyslexia is common in ADHD and conduct disorders. Around 40 percent of children with ADHD also meet diagnostic criteria for dyslexia, and major link appears

to be the inattention dimension. SLD is widely associated with affective disorders, particularly depression, deficits in social skills, self-esteem; peer relationship problems, feelings of lack of control and poor self-esteem. Common behavioral signs of learning disabilities fall within two categories, internalizing and externalizing [8]. Students who internalize show behaviors that mostly affect themselves and are sometimes overlooked by others. Students with externalizing behaviors have a more obvious effect on those around them and are usually recognized earlier as having problems. Both these groups are at-risk for being seen as being problems rather than having problems [9]. The present study was conducted to assess specific learning disorders among children.

In present study, out of 128, boys were 68 and girls were 60. Singh *et al.* [10], determined demographic profile, risk factors, co-morbidities and referral patterns in children with specific learning disability. Majority of the children were from English medium schools, in 8-12 years' age group, with a considerable delay in seeking medical help, were referred mostly by the teachers for academic issues. Most of them had all the three disabilities-dyslexia, dysgraphia and dyscalculia. 38.56% of children had ADHD. Psychological maternal stress, developmental issues and various co-morbidities were accompanying in many cases, of which speech delay and fine motor issues were more in children having comorbid ADHD.

We found that 90 were right-handed, 20 were left-handed and 18 were mixed handed. Medium of instruction was hindi in 86, English in 38 and other in 4. Gap between the onset of symptoms and the referral was <6 months in 45, 2 years in 55 and 4 years in 28. Comorbidities were ADHD in 40, ASD in 22 and anxiety in 34. Deficits were fine motor issues in 28, right left confusion in 30 and difficulty in telling time seeing the clock in 54. Choudhari *et al.* [11] assessed 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.

Children who have a learning disability (LD) are faced with this reality regularly. Fortunately, interventions have been put in place to assist children with their academic struggles, such as providing extra attention to developing their reading skills [12]. However, many individuals with LD's also experience social-emotional difficulties, yet there is less emphasis on the emotional needs of students with LD in the classroom than there is on academics. According to Hallahan, Lloyd, Kauffman, Weiss, and Martinez [13], many teachers are unwilling to identify emotional or behavioural problems and take preventive action. Behavioural and

emotional regulation is found to be vital to school learning and success, particularly because anger and distress can inhibit learning yet behaviour problems are often managed by medication rather than through school-based interventions [14]. This is concerning, since LD is a risk factor for negative life outcomes such as school dropout, juvenile delinquency, unemployment, social isolation, low self-esteem, depression, and mental health problems. However, it is not necessarily the LD itself that predicts students' life outcomes; it is their ability to cope with it adaptively. Coping is the cognitive and behavioural efforts that are employed to manage particular external and/or internal demands that are viewed as challenging, which in the case of a learning disability is conceptualized as external academic stresses and the aforementioned internal difficulties [15].

### Conclusion

Authors found that specific learning disability is an important cause of academic underachievement. Health professionals should look for early signs in routine visits of children and co-morbidities, particularly ADHD.

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