

A brief review on reported Prevalence of LD

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Abstract

Humans were not born to read, or to write. Oral language skills originated a hundred thousand years ago, but reading as we know came about only a few thousand years back. Specific learning disorders are neurodevelopment disorders associated with impairment in reading, writing and mathematics. The government established many projects for the help of these children. But an early assessment of these children will help to identify the disability and hasten the intervention. There is no cure for this condition. But through early detection and remedial measures we can help these children to manage the condition. In India the prevalence of learning disabilities are considered as 5%- 15%. The studies revealed that, boys are more affected than girls. This study is an attempt to review the the reported prevalence of Learning disability.

Key words: Review, Prevalence, Learning disability, Reading.

Introduction

Today's children are tomorrow's responsible citizens of the world. 35%–45% constitutes the young children of total world's population. The future of our country depends on the health of young people (Charan, 2017).

The term "learning disabilities," sometimes referred to as specific learning disabilities, or learning disorders, is an umbrella term for a wide variety of learning problems. The most common types of learning disabilities involve problems with reading, writing, math, reasoning, listening, and speaking (Karande S, 2011).

Learning disorders (LD) are not pure syndromes. They are developmental disorders and are multi-dimensional in nature. Research areas in Child Psychiatry in India remain largely unexplored, especially developmental disorders (John P, 2010).

Multiple skills are involved in learning to read the 'spoken sounds' that get mapped into the left brain as 'written symbols' (letters) and thus as words that mean something.

Reading comprehension, the process of understanding automatically as we read, is the extraction of meaning from written language. This extraction of meaning through reading is not possible in children with learning disorders, especially reading disorder .

LD causes difficulty in one or more;

1. **Input** (auditory and visual perception),
2. **Integration** (sequencing, abstraction, and organization),

3. **Memory** (working, short-term, and long-term memory),
4. **Output** (expressive language),
5. **Motor** (fine and gross motor) (Habib M, 2013)

Learning disabilities vary from individual to individual and may present in a variety of ways. Kindergarten teachers are in the best position to catch early signs and symptoms of learning disabilities and to identify the children who are at risk for struggles in learning at school in their early stages (Habib, 2013)

Types of LD

- *Reading disability* (also known as dyslexia) is the most common LD, accounting for at least 80% of all LDs.
- *Dyscalculia* is generally characterized by difficulty in learning or understanding mathematical operations.
- *Dysgraphia* is generally characterized by distorted writing despite thorough instruction. (Kohli A, 2018)

Materials and methods

We searched PubMed Central, Google Scholar, Science Direct, JSTOR, and prominent online newspapers (Indian and Global) for articles published in English language reporting prevalence of Learning disabilities. Electronic search was done using terms such as "Learning disabilities", "Dyslexia", "Speech disorders", "Dysgraphia", "Dyscalculia". For this review, we considered original quantitative research articles, qualitative studies, narrative review papers, relevant systematic reviews, book chapters, and important news articles published which are available as free and full text. We selected relevant articles for this narrative review after manually appraising abstract and results. The inclusion criteria of study involved are; (1) full text articles published in indexed journals, (2) articles involving background and data of learning disabilities, and (4) pertinent news articles published online.

Reported Prevalence about Learning disabilities in literature

- Prevalence and its potential risk factors of dyslexic children (n=6530) in a middle-sized city of China (Qianjiang, a city in Hubei, China). The results showed that the prevalence of dyslexia was **3.9%**. Among dyslexic children, the gender ratio (boys to girls) was nearly 3:1. (Sun Z, 2013)
- Prevalence and clinical characteristics of dyslexia in primary school students. The findings showed that the prevalence of dyslexia and probable dyslexia was found to be **6.3% and 12.6%**, respectively. The male-to-female ratio of dyslexia was 3.4:1 (Roongpraiwan R, 2002).

- In the school population, the prevalence of SLD in written expression was 8–15% and 6% of the school population had mathematical difficulties (Lyon GR, 1996).
- Prevalence and explore the risk factors of dyslexia among the primary school students (n=100). Subjects **06%** of them with dyslexia was identified. 06 % of them had pre-school language impairment, 04% had some vision/sight problems, 15% of the students were found impulsive in nature: 04% of them had motor coordination difficulty (Rajesh R, 2021)
- Cross-sectional multi-staged stratified randomized cluster sampling study was conducted among children aged 8-11 years from third and fourth standard. Prevalence of specific learning disabilities was **15.17%** in sampled children, whereas **12.5%, 11.2% and 10.5%** had dysgraphia, dyslexia and dyscalculia respectively (Patil NM, 2012).
- Prevalence of SLD and its determinants among the school-going children in Ernakulam district, Kerala, India. The prevalence of SLD was **16.49%** (95% CI =14.59-18.37). The prevalence of impairment in reading, written expression, and mathematics was 12.57%, 15.6%, and 9.93%, respectively.
(Chacko, 2020)
- An epidemiological study done in India at the National Institute of Mental Health and Neurosciences (NIMHANS) Bangalore, the total prevalence rate of SLD was 12% (Srinath, 2005).
- There are **78,64,636** children with Learning disability in India constituting 1.7% of the total child population. Three-fourths of the children with disabilities at the age of five years and one-fourth between 5-19 years do not go to any educational institution.

(2019 “State of the Education Report for India: Children with Disabilities”)
- Prevalence of Dyslexia (n=365) has been seen highest in 2nd standard at (42.8 per cent) and lowest in 4th and 6th standards at (14.2 percent). May times the prevalence rate of Dyslexia occurred in 2nd standard at (14.2 percent). All the times Dyslexia has been seen in 2nd standard at (14.2 per cent)
(Sidhique S, 2014).
- Studies have shown that there is no significant gender difference in reading disability, several others have shown that SLD is more frequent in boys (Shaywitz SE, 2011).
- The prevalence of SLD was found to be higher in lower classes compared to higher classes (Siddiqui S, 2014).
- Prevalence of specific learning disabilities (SpLDs) such as dyslexia, dysgraphia and dyscalculia among primary school children in a South Indian city. The prevalence of

specific learning disabilities was **15.17%** in sampled children, whereas **12.5%**, **11.2%** and **10.5%** had dysgraphia, dyslexia and dyscalculia respectively.

(Mogasale VV, 2012)

- Proportion of children of age 5 to 7 y at risk of specific learning disability. Boys (9.6%) were significantly more affected than girls (4.9%). Similarly, risk was significantly higher in students of government schools (12.1%) than private schools (2.2%).

(Chordia SL, 2020)

- School-going children in Ernakulam from the fourth standard to the seventh standard were included in the study. Prevalence of SLD was 16.49% (95% CI =14.59-18.37). The prevalence of impairment in reading, written expression, and mathematics was 12.57%, 15.6%, and 9.93%, respectively

(Chacko D, 2020)

Discussion

- From the literature search on average the reported prevalence of LD was around **11-16%** among school children cross culturally in India and literature from global arena.
- Multiple neuro biological and inherited factors are associated as contributing factors in the development of LD.
- The core concepts about all learning disorders seem to be drastically changing with the gathering evidence of genetic studies, with gene loci, pharmacogenomic studies, vigorous research in neural sciences, and evidence-based investigations for pharmacotherapy in these disorders.
- The multidimensional nature of these disorders is evident from research as well as clinical studies. The 'spectrum-construct' seems to enable pharmacological options for therapeutic intervention, along with the regular multi-pronged, non-pharmacological options.
- The findings of this review is supported by Pollaway et al. (1994), Silva et al., Jung and Guskey for most teacher, they have no information on how to grade students with disabilities giving way to a radiance on individual grading adaptation, that distort the grades to the point of rendering them uninterpretable.
- There is a need to establish an appropriate system for monitoring and evaluating current strategies to identify areas for improvement. Integration of care by different service providers, such as ministries and non-governmental agencies, is also required. Finally, efforts should be continued to increase the level of awareness of the community and to educate parents about LDs and the available services. In view

of the recent progress made in the fields of genetics and neuroimaging, there is great hope that improved treatment strategies, interventions and the remedial services for individuals with LDs will be found in the near future. Moreover, prevention of LDs may be possible with a better understanding of aetiological factors at the neurobiological and social levels. This will hopefully allow us to identify children at risk of LDs prior to their manifestation.

Conclusion

- To understand LDs fully, it is necessary to examine the problem in black and white with all its shades of gray. These gray areas are the practical and experiential difficulties when dealing with these children in Child and Adolescent clinics.
- Constructing a standardized assessment battery, keeping in view of the diversity of Indian culture, is a mammoth task. Having a thorough insight into the overlapping areas can clear misconceptions and guide assessment, intervention, and welfare benefits to those children who genuinely deserve them.

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