The International Journal of Indian Psychology
ISSN 2348-5396 (Online) | ISSN: 2349-3429 (Print)
Volume 12, Issue 2, April- June, 2024
DIP: 18.01.440.20241202, DOI: 10.25215/1202.440
https://www.ijip.in

Research Paper

Early Identification and Intervention Strategies for Minimizing Dyslexia Risk in Children

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ABSTRACT

This study investigates early identification and intervention strategies for minimizing the risk of dyslexia in children, with a focus on differentiating between good and poor achievers in early literacy development. The primary objectives are to identify early signs of dyslexia, examine the effectiveness of early intervention, and assess the long-term academic impact of these strategies. A total of 100 kindergarten children (50 boys and 50 girls) from a reputable school in Chhatrapati Sambhajinagar participated. Pre-tests using the Differential Ability Scales (DAS-II) assessed cognitive abilities, phonological processing, and pre-reading skills. The study explored how early interventions, including phonological awareness and phonemic segmentation tasks, influenced literacy outcomes over time. Statistical analysis using t-tests revealed significant differences between high-performing and low-performing achievers in terms of differential ability, with high achievers demonstrating better phonological processing skills. Early intervention strategies were found to improve literacy outcomes, particularly for poor achievers, and help close achievement gaps. The findings underscore the importance of early identification and targeted interventions in mitigating the risk of dyslexia, supporting both academic and behavioral development in at-risk children.

Keywords: *Dyslexia, early identification, intervention strategies, phonological processing, literacy development, academic achievement, Differential Ability Scales, early intervention*

Dyslexia, a specific learning disability, is characterized by difficulties with accurate and/or fluent word recognition, poor spelling, and decoding abilities, despite conventional instruction and adequate intelligence (Lyon, Shaywitz, & Shaywitz, 2003). Early identification and intervention are crucial in mitigating the long-term academic and emotional consequences of dyslexia, as research has shown that children diagnosed and supported at an early age exhibit significantly improved outcomes (Shaywitz, 2003). The importance of early detection lies not only in reducing the risk of academic failure but also in addressing the psychological and social impacts that often accompany undiagnosed learning disabilities (Fletcher et al., 2019). This paper explores the significance of early identification of dyslexia, the key risk factors, and effective intervention strategies that can help minimize its impact during critical developmental years.

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Received: April 29, 2024; Revision Received: June 24, 2024; Accepted: June 30, 2024

Early identification of dyslexia involves recognizing warning signs of the disorder before the child falls behind in academic performance (Torgesen, 2000). Studies suggest that the earlier the intervention, the more likely a child is to overcome or minimize the effects of dyslexia. Early warning signs may appear as early as preschool, including delayed speech development, rhyming difficulties, or letter recognition problems (Snowling, 2000). These subtle signs can make it challenging for caregivers and educators to differentiate them from typical childhood developmental delays. Consequently, developing systematic screening processes in early childhood education settings is vital. Such screenings can help identify at-risk children and enable educators and parents to implement targeted interventions before the child falls too far behind (Torgesen, 2002).

The core difficulty faced by children with dyslexia is the inability to connect sounds with letters and words, a deficit known as phonological processing dysfunction (Shaywitz & Shaywitz, 2008). Phonological awareness—the ability to recognize and manipulate sounds in spoken words—is a key predictor of reading success and a strong indicator of dyslexia risk (Snowling, 2000). Therefore, early screening tools that assess phonological awareness can be crucial in identifying children at risk for dyslexia. Moreover, interventions focused on improving phonological processing skills, such as phonemic awareness training and structured literacy programs, have been shown to significantly reduce the impact of dyslexia on reading ability (Torgesen, 2000).

In addition to phonological awareness, other risk factors may increase the likelihood of a child developing dyslexia. Genetic factors have been found to play a substantial role in the development of dyslexia, with a higher likelihood of the disorder occurring in children who have a family history of reading difficulties (Shaywitz, 2003). Environmental factors, including inadequate early literacy experiences and insufficient exposure to language-rich environments, also contribute to the risk of developing dyslexia (Fletcher et al., 2019). These combined factors underscore the need for a comprehensive, multifaceted approach to early identification, considering genetic predispositions and environmental influences.

Once a child has been identified as at risk for dyslexia, early intervention becomes essential in reducing the severity of the disorder. The goal of early intervention is not only to enhance reading skills but also to boost self-esteem and academic confidence. Effective intervention strategies include systematic, explicit instruction in reading and writing, often utilizing structured literacy programs focusing on phonics, fluency, vocabulary, and comprehension (Moats, 2000). Programs such as Orton-Gillingham, Wilson, and Barton are highly effective in helping children with dyslexia by providing them with the necessary tools to decode words, build reading fluency, and comprehend text (Bates, 2019).

Incorporating multisensory teaching techniques is also a proven strategy in supporting children with dyslexia. These techniques involve engaging more than one sense at a time—such as using visual, auditory, and tactile methods simultaneously to help reinforce learning (Birsh, 2018). For instance, children might learn to trace letters while saying the corresponding sounds, strengthening their memory and understanding of the relationship between letters and sounds. Research indicates that multisensory instruction leads to improved retention of reading skills and can help children with dyslexia access and process language more effectively (Torgesen, 2000).

Furthermore, creating a supportive and inclusive classroom environment is crucial for children with dyslexia. Teachers and educators need to be trained in recognizing the signs of

dyslexia and employing strategies that accommodate the specific needs of these children. This may include providing extended time for reading assignments, offering audio books, or using assistive technologies that support literacy development (Swanson, 2018). Involving parents in the process is also vital, as parental support can help reinforce learning at home and provide a consistent, nurturing environment for the child (Fletcher et al., 2019).

In conclusion, early identification and intervention are key to minimizing the risk of dyslexia and ensuring that children with this learning disability have the opportunity to succeed academically. By recognizing early warning signs, addressing risk factors, and implementing evidence-based intervention strategies, the academic trajectory of children with dyslexia can be significantly improved. Educators, parents, and policymakers must work together to ensure that all children at risk for dyslexia receive the support they need at the earliest possible stage. With early intervention, children with dyslexia can not only overcome reading difficulties but also thrive in their academic and social development.

The objective of This Study

- To identify early signs of dyslexia in children who may be at risk, particularly focusing on differences between good achievers and poor achievers in early literacy development.
- To examine the effectiveness of early intervention strategies in minimizing the risk of dyslexia in children identified as at risk, with a focus on both academic and behavioral outcomes.
- To compare the academic performance and literacy development over time between children who received early intervention and those who did not, focusing on both good and poor achievers.

Hypothesis

- Children at risk of dyslexia who receive early intervention strategies will show significantly improved literacy outcomes (e.g., reading fluency, phonemic awareness) compared to children who do not receive early intervention.
- Good achievers will display fewer signs of dyslexia at early stages compared to poor achievers, but early identification and intervention will benefit both groups equally over time.
- Poor achievers will demonstrate greater improvement in literacy outcomes following early intervention strategies compared to good achievers, suggesting that intervention helps to close achievement gaps related to dyslexia risk.

Research Questions

- What are the early warning signs of dyslexia in children, and how do these signs differ between good achievers and poor achievers?
- How effective are early identification and intervention strategies in minimizing the risk of dyslexia in children, particularly in terms of reading skills, phonological awareness, and other related areas?
- How do early intervention strategies impact the long-term academic progress of children who were at risk for dyslexia?

Research Variables

- **Independent Variable** - Phonological processing ability.
- **Dependent Variable** - Academic achievement,

RESEARCH METHODOLOGY

Participants

A total of 100 kindergarten children, consisting of 50 boys and 50 girls, were selected to participate in the study. The participants were drawn from a reputable kindergarten school situated in Chhatrapati Sambhajinagar. This diverse group of young learners was chosen to ensure a balanced representation of gender and to provide insights into early childhood development within this vibrant community. The school has a history of fostering a nurturing environment, making it an ideal setting for the research.

Experimental measures:

Pre-tests

An extensive set of pre-tests from the Differential Ability Scale (DAS II) was administered to 100 children in two treatment groups. This set of assessments evaluated a wide range of cognitive abilities and pre-reading skills, providing a foundation for estimating child characteristics that could influence their response to the educational interventions in the study.

Tool: Differential Ability Scales (DAS-II)

The Differential Ability Scales, Second Edition (DAS-II), is an assessment tool designed to understand why a child may be struggling to learn. It specifically targets the nature of the learning problem, which helps in identifying appropriate intervention strategies. The DAS-II provides a comprehensive assessment of a child's strengths and abilities and allows for the measurement of progress over time.

Developed by Dr. Colin Elliott, the DAS-II is widely used by psychologists to gain insights into how children process information and to offer solutions to address learning difficulties. The assessment is suitable for children aged 2 to 11 years and consists of 63 multiple-choice items. There are four different forms of the test: Preschool, School Age, Cognitive Battery, and School Achievement. Completing the assessment typically takes between 45 to 60 minutes.

Procedure of data collection:

Participants in the study were assessed over a series of 30-minute sessions, during which they engaged in various tasks designed to evaluate their Phonological Processing skills. These tasks included activities such as rhyming words, blending two words together, phoneme deletion, phonemic identification, and segmentation. Each session was conducted individually by trained undergraduate psychology majors in a controlled, quiet environment at the school during regular school hours, ensuring minimal distractions.

The pre-test battery utilized in the assessment comprised several measures focusing on three distinct types of phonological processing: phonological awareness, phoneme segmentation, and phoneme blending. Specific tasks included identifying sounds that rhyme, performing deletion tasks where participants had to identify phonemes that could be removed from words to create new ones, and blending phonemes to form complete words.

Additionally, we collected and reviewed the participants' academic achievement test scores, which provided valuable context for our assessments of phonological processing skills. The academic scores, along with the subtest scores from the Differential Ability Scales (DAS), were systematically compared and analyzed to further our understanding of the relationship between phonological processing abilities and academic performance. This comprehensive

analysis aims to contribute to a deeper understanding of the factors influencing literacy development in students.

Statistical Analysis:

It was planned to compute the t-test of significance as there are only two groups. If t-value is greater than corresponding values of t-ratio, it is significant at both the levels ie. 0.05 level and 0.01 level.

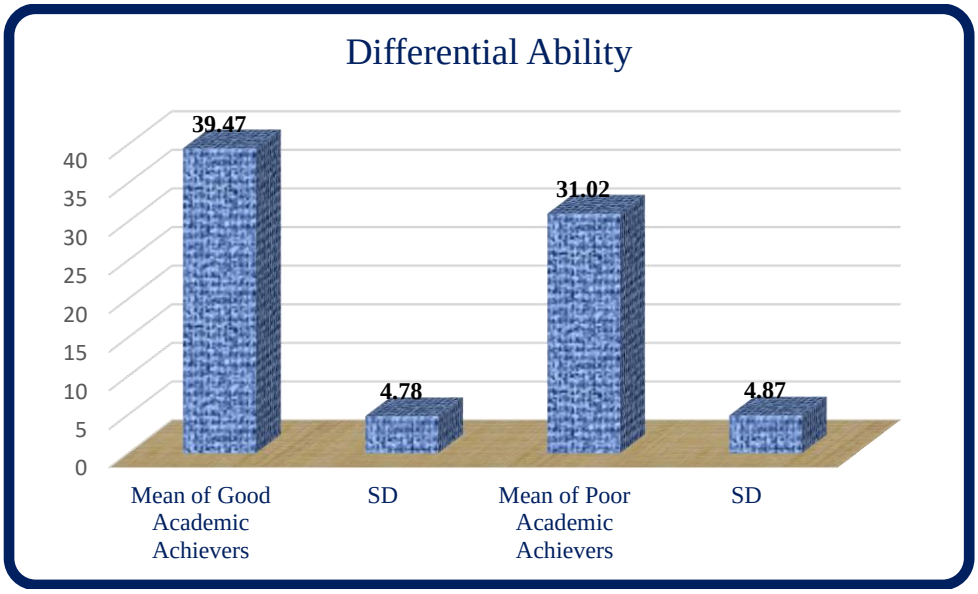
STATISTICAL ANALYSIS AND DISCUSSION

Differential abilities between high-performing and low-performing academic achievers: Mean, Standard Deviation, and "t" Value.

Table 1

Dimension	Good Academic Achievers		Poor Academic Achievers			
	Mean	**SD**	**Mean**	**SD**	**df**	**t**
Differential Ability	39.47	4.78	31.02	4.87	98	8.75**

Significant at 0.01** = 2.62, 0.05* = 1.98



Graph 1

The table summarizes the results of a statistical analysis comparing the differential abilities of high-performing and low-performing academic achievers. The analysis focuses on the mean scores, standard deviations, and the t-value for the dimension of "Differential Ability." For the "Differential Ability" dimension, high-performing achievers had a significantly higher mean score (39.47) compared to low-performing achievers (31.02). Both groups had relatively similar standard deviations (4.78 and 4.87, respectively), indicating that the variability in scores within each group was comparable.

The t-value of 8.75 is highly significant ($p < 0.01$), suggesting a strong difference between the two groups. This means that the observed difference in mean scores is unlikely to be due to chance. However, to assess the practical significance of this difference, we would need to consider the effect size. The effect size, typically measured by Cohen's d, could provide a more meaningful interpretation of the magnitude of the difference.

The results suggest that high-performing academic achievers exhibit higher levels of differential ability compared to low-performing achievers. This difference is statistically significant and likely meaningful in practice. However, it is important to note that this analysis is based on a specific sample and dimension. Further research with larger samples and diverse dimensions would be necessary to generalize these findings and gain a more comprehensive understanding of the relationship between academic achievement and differential ability.

CONCLUSION

1) High-performing academic achievers exhibit higher levels of differential ability compared to low-performing achievers.

REFERENCES

Bates, M. (2019). *Teaching students with dyslexia: A guide for teachers and parents*. Routledge.

Birsh, J. R. (2018). *Multisensory teaching of basic language skills* (4th ed.). Brookes Publishing.

Fletcher, J. M., Lyon, G. R., Fuchs, L. S., & Barnes, M. A. (2019). *Learning disabilities: From identification to intervention*. Guilford Press.

Lyon, G. R., Shaywitz, S. E., & Shaywitz, B. A. (2003). Defining dyslexia, comorbidity, teachers' knowledge of language and reading. *Annals of Dyslexia, 53*(1), 1-14. https://doi.org/10.1007/s11881-003-0010-8

Moats, L. C. (2000). *Speech to print: Language essentials for teachers*. Brookes Publishing.

Shaywitz, S. E. (2003). *Overcoming dyslexia: A new and complete science-based program for reading problems at any level*. Alfred A. Knopf.

Shaywitz, S. E., & Shaywitz, B. A. (2008). Paying attention to dyslexia. *Scientific American, 298*(6), 44-50.

Snowling, M. J. (2000). *Dyslexia* (2nd ed.). Blackwell Publishing.

Swanson, H. L. (2018). *Educational interventions for students with learning disabilities*. Academic Press.

Torgesen, J. K. (2000). Individual differences in response to early intervention in reading: The lingering problem of treatment resisters. *Learning Disabilities Research & Practice, 15*(1), 55-64. https://doi.org/10.1207/SLD.15.1.55

Acknowledgment

The author appreciates all those who participated in the study and helped to facilitate the research process.

Conflict of Interest

The author declared no conflict of interest.

How to cite this article: Jadhav, D.V. (2024). Early Identification and Intervention Strategies for Minimizing Dyslexia Risk in Children. *International Journal of Indian Psychology*, *12*(2), 4910-4915. DIP:18.01.440.20241202, DOI:10.25215/1202.440