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REVISITING DYSGRAPHIA: HISTORICAL DEVELOPMENT AND INTERVENTION STRATEGIES

Tanvir Ahmed Mondal**ABSTRACT**

Dysgraphia, a disorder of written expression characterized by difficulties in handwriting, spelling, and organizing written language, adversely affects students' academic achievement and overall well-being. The present study aims to explore the historical development of dysgraphia and examine its management strategies. It seeks to trace the evolving understanding of dysgraphia. The study is based on secondary sources of data and adopts a qualitative methodology. This review summarizes the strategies used to manage dysgraphia and examines the historical evidence related to this disability. The study provides useful insights for researchers, educators, and practitioners, while offering clear directions for future research aimed at strengthening the practical application of theoretical knowledge in the field of learning disabilities.

KEYWORDS: Dysgraphia, Learning Disability, Inclusive Education**INTRODUCTION**

According to the International Classification of Diseases (ICD-10), dysgraphia is primarily coded under ICD-10-CM as F81.81, *Disorder of Written Expression*, a category that encompasses specific learning disorders affecting written language skills (Centers for Medicare & Medicaid Services, 2026). According to the APA Dictionary of Psychology, learning disabilities are neurologically based disorders that affect specific higher-order cognitive processes, including reading, writing, and mathematical abilities. They are typically identified by a significant discrepancy between an individual's intellectual potential, which is often average or above average, and their actual level of academic achievement, rather than by the presence of a general intellectual disability (American Psychological Association, 2023).

In India, Under the Rights of Persons with Disabilities (RPwD) Act, 2016, Specific Learning Disability (SLD) is recognized

as a legal disability category in India. Since this category includes impairments in reading, writing, and arithmetic, dysgraphia is generally subsumed under SLD rather than being recognized as an entirely separate legal disability label (RPwD Act, 2016).

REVIEW OF LITERATURE

Espinosa et al. (2025) analysed that Specific Learning Disabilities affected approximately 5–15% of school-aged children and frequently co-occurred across multiple domains, such as reading and mathematics, as well as with conditions like ADHD and anxiety.

Fletcher and Grigorenko (2017) observed that significant progress had been made over the past 50 years in research involving children and adults with learning disabilities. Historically, neuropsychological research had emphasized the use of tests sensitive to brain dysfunction in order to identify the underlying neural mechanisms of learning disabilities, which could then

serve as a basis for treatment.

Kohli et al. (2018) analyzed that dysgraphia was generally characterized by distorted writing despite thorough instruction. A student with dysgraphia exhibited inconsistent and illegible handwriting. He or she might also have experienced fine motor difficulties, such as trouble holding a pencil correctly, inability to use scissors effectively, or difficulty colouring within the lines. Overall, the student's writing did not communicate at the same level as his or her other language skills.

While learning disabilities received increasing scholarly attention, limited research examined the historical recognition and educational support of dysgraphia in contemporary educational contexts.

HISTORY OF DYSGRAPHIA

From the 1970s onward, scholarly attention increasingly shifted toward linguistic and cognitive explanations of dysgraphia, moving beyond earlier interpretations that focused primarily on motor deficits. Researchers began to identify linguistic, highlighting deficits in the interaction between phonological and orthographic memory systems (commonly described as the Graphomotor loop), alongside weaknesses in executive functions and working memory that affect written expression (Chung et al., 2020). From the 1990s through the 2000s, scholarly and educational attention increasingly focused on inclusive and pedagogical perspectives, as the high prevalence of reading and writing difficulties—often estimated at 10% or more among school-aged children—prompted growing concern regarding the effective integration of these learners into formal education. Consequently, educational discourse began to shift from segregation-based models toward inclusive education within mainstream classroom settings (Zelenin, 2020). Early medical descriptions emerging in the late 19th and early 20th centuries were provided by physicians who observed children with otherwise normal intelligence but marked difficulties in reading and writing. Explanations during this period focused primarily on medical and neurological factors, such as ophthalmologic abnormalities or cerebral asymmetry, reflecting the influence of contemporary brain-localization theories (Zhuravlova, 2018).

Throughout much of the twentieth century, dysgraphia was primarily understood as a motor or peripheral disorder of handwriting, involving impairments in fine motor coordination, muscle regulation, and visuomotor integration, with oral spelling often remaining intact. During the mid-twentieth century, scholars further refined this view by proposing subtypes such as motor dysgraphia and spatial dysgraphia, with the latter linked to difficulties in visuospatial processing and drawing performance (Chung et al., 2020).

Over the past decade, dysgraphia has attracted growing attention within technological and psycholinguistic research. Advances in digital handwriting assessment, particularly through the use of tablets and machine learning techniques, have enabled researchers to analyze features such as writing kinematics, pressure, and pen tilt in order to identify dysgraphia, differentiate its subtypes, and gain deeper insight into the developmental processes underlying handwriting (Gargot et al., 2020).

MANAGEMENT STRATEGIES FOR DYSGRAPHIA

1. Occupational therapy interventions for dysgraphia commonly involve multisensory and motor-oriented handwriting practice, combined with relaxation strategies and sensory integration training. Research suggests that these interventions are generally more effective when delivered intensively and at higher frequencies (Moss et al., 2023).
2. Psycholinguistic and speech-language therapy interventions are designed to target deficits in phonological processing, visual and spatial abilities, motor functioning, and oral language, with the goal of remediating specific error patterns observed in written expression (Nabhan & Kamel, 2021).
3. In cases of neurological dysgraphia, lexical and phonological therapies, particularly word-level spelling interventions, have frequently been shown to improve written language skills, with some evidence of generalization to untreated words and, in certain cases, to functional writing abilities (Piller & Torrez, 2019).
4. Speech-to-text tools, word prediction systems, and writing software can improve functional

computer-based writing, even when unassisted handwriting shows little or no improvement, thereby indicating a compensatory effect (Sasidharan & Kotian, 2025).

5. Training in the use of mainstream assistive tools can help expand social networks and support everyday written communication. Thus, assistive technology appears to be a promising adjunct intervention; however, its long-term impact and the identification of which individuals benefit most remain understudied (Biddau et al., 2023).

CONCLUSION

The historical roots of dysgraphia can be traced indirectly to ancient educational practices, where writing difficulties likely existed but were not scientifically understood. It was only in the modern era that dysgraphia came to be recognized as a neurodevelopmental learning difficulty. It not only interferes with academic achievement but also has long-term consequences that extend beyond academic life. This type of learning disability cannot be effectively addressed through a single theoretical framework. Rather, it is more appropriately understood through a multi-theoretical approach, as its nature, causes, and intervention involve cognitive, neurological, educational, and developmental dimensions. However, future research and intervention strategies should adopt an integrated perspective in order to address dysgraphia more effectively.

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