Studying Dyslexia and Cognitive Deficits in a Global Context to Investigate Learning Difficulties in Primary School Students

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Dyslexia has been a concept for about 200 years, yet researchers, educators, and psychologists disagree over whether it actually exists. Word blindness was only one aspect of dyslexia; other specific learning difficulties that schoolchildren face now fall under this umbrella. Dyslexia primarily shows up as reading issues, but in certain kids, it also causes problems with writing and math, which causes a gap between aptitude and performance. The diagnosis of dyslexia has been a topic of discussion recently, especially in relation to third world countries. The purpose of the current study was to examine the range of specific learning obstacles among young primary school students. For the assessment, both group and individual settings were used. A total of 513 nine to eleven-year-old students, 296 boys and 217 girls from ten different primary schools were assessed. an examination series designed specifically to assess the indicators of certain learning difficulties. Although a significantly larger range of cognitive deficits across three achievement levels was demonstrated by the data, they are inconsistent with a dyslexia diagnosis. The results were examined in the context of observations made in third-world nations, where dyslexia is similar to academic challenges.

Keywords: dyslexia, schoolchildren, primary, assessment

Introduction:

Reading, writing, and spelling are all impacted by the neurological disorder known as dyslexia. People with dyslexia may struggle with specific language-based skills, especially in the areas of reading and phonological processing, even though they are intelligent and/or above average. It is thought that dyslexia is a chronic illness that often first appears in childhood and persists throughout maturity[1]. Drawn from the Greek terms "dys," which means difficulty, and "lexis," which means words or language, the term "dyslexia" has been used in educational and psychiatric discourse for approximately 200 years. Historically, "word blindness," a phrase used to characterize the difficulties people had identifying and decoding printed words, was linked to dyslexia[2].

Our knowledge of dyslexia has grown over time, going beyond simple reading issues. It is now understood to represent a range of learning difficulties, including issues with writing and math. The main symptom of dyslexia is trouble with accurate and fluent word recognition, which can cause problems with understanding and general academic performance. The disorder is frequently identified by a discernible discrepancy between an individual's intellectual capacity and their real accomplishments in reading and related tasks.[3]. Assessing a variety of cognitive skills and spotting particular patterns of difficulties in language-related tasks are necessary steps in the diagnosis of dyslexia. Nonetheless, there is continuous discussion and dispute among scientists, instructors, and psychologists

concerning the identification, diagnosis, and even the validity of dyslexia as a unique and generally applicable notion. The topic of dyslexia has been more widely discussed in recent years, particularly in relation to schooling in developing nations. Because the difficulties dyslexic kids encounter in these kinds of environments are frequently similar to more general academic difficulties, tackling learning disabilities globally presents a challenging terrain[4]. In order to effectively assist and deliver interventions that are targeted to the many needs of individuals with dyslexia, educators, parents, and policymakers must have a comprehensive awareness of the multiple nature of this disorder, as research continues to uncover its intricacies. The Diagnostic and Statistical Manual diagnosed dyslexic children based on the discrepancy criterion. After the publication of a paper that suggested eliminating the discrepancy criteria, consolidating the diagnostic criteria into a single category, and arguing that reading, writing, and math disorders overlap and are related, the perception of dyslexia and specific learning difficulties shifted. It is a challenge in the field of academia. According to the requirements, notwithstanding targeted area intervention, difficulties must continue in the targeted region for a minimum of six months. It makes it harder for students to operate in class. Lack of access to appropriate instruction, vision or hearing impairment, or intellectual disability is not the cause of the difficulties. Researchers generally agree that a learning disability is a problem affecting academic performance[5].

Prior to Dyslexia's publication, it was thought to be a combination of skills and challenges that could interfere with a person's ability to acquire math, reading, and writing. It was possible to pinpoint deficiencies in the areas of memory, attention, organization, sequencing, information processing, and visuospatial skills[6]. It happens regardless of one's socioeconomic background or average level of cognition. Specific reading challenges are prevalent in 8–10-year-old schoolchildren (epidemic study; 1.3% in specific arithmetic issues, 2.3% in specific arithmetic and reading difficulties).

According to Dyslexia Symptoms, these include: losing one's place when reading; misreading simple, familiar words; omitting endings from words; confusing words with similar appearances; omitting syllables from words; adding letters to words; and guessing words based only on their initial letter[7]. The student may choose to: reverse the entire word; invert a letter (e.g., pig for dig); delete letters from words; struggle with punctuation; or substitute words. not comprehend what he has read. Handwriting is sluggish, illegible, awkward, and unreliable[8]. inadequate space between words, incorrect letter placement on the page, uneven letter size, uneven height, malformed letters, heavy pencil pressure, inverted letters, inability to replicate close curves and angles, inability to start, continue, and finish a letter, messy crossing out, one letter superimposed on others, uneven lower case letter size, erratic slant, altered (cutting and writing the same word again), inability to stay on line, misrepresentation of sound, words written together without space, inconsistent spelling, incorrect letter doubled letters in words presented in the incorrect order, omission of one Spelling is solely based on phoneme misunderstanding (b-d)[9]. The mathematical language is challenging; children struggle to understand word problems, reverse letters or symbols, learn tables quickly, become confused, lose their place while working through tables, struggle with mental arithmetic, struggle with using calculators, struggle to understand fractions and decimals, and lack spatial awareness. Trouble focusing, poor visual-spatial awareness, memory issues, confusion between the right and left sides of the brain, and sequencing issues.[10]

Researchers[11] now place more of an emphasis on cultural sensitivity and offering schoolchildren help than they did on test results and diagnostic criteria alone in order to diagnose dyslexic students. Diagnosing particular learning issues requires consideration of cultural elements, especially when it comes to mastering fundamental reading skills. In these circumstances, underachievement will resemble the dyslexic cognitive profile Children are

not diagnosed with dyslexia in such circumstances. In order to prevent over identification of the issue, the assessment must provide a precise image of the specific learning challenges. Lack of locally established standardized assessment tools in many nations can lead to physicians misinterpreting test results and attributing learning issues to poverty or poor teaching practices from Specific Learning challenges brought on by cognitive deficiencies with a biological basis[12].

In Pakistani schools, the situation is somewhat different due to the large percentage of illiteracy, which makes it challenging to determine whether students have specific learning disabilities or academic issues as a result of a lack of exposure and chances. These elements obscure dyslexia and impede understanding—making it impossible to determine if dyslexia is a myth or a real condition. Education is experiencing a downward trend for a number of reasons, including the fact that less than 2 percent of government spending goes into education and that the sector receives less budgets. Bias based on gender: boys were more likely than girls to have access to school[13]. The syllabus's quality is deteriorating, and its content hasn't been updated in decades. Children in government schools have an additional challenge in learning because they are taught in English yet most of the students speak Urdu more fluently. This creates a barrier to learning. Teacher dedication to provide high-quality instruction is impacted by their low pay. Lack of competent teacher's leads to a reduction in educational attainment, conceptual cramming, and the development of foundational math, reading, and writing abilities. The government's instability and its policies are a major contributing element to the educational downturn[14]. Children's ability to complete basic schoolwork is impacted by poverty. Children are given an atmosphere by illiterate parents.

Pakistan has also seen a paucity of research on dyslexia. investigated the frequency of particular learning disabilities in females attending school in the third, fourth, and fifth grades. For the purpose of screening children, an indigenous scale was created. The subject was diagnosed and the scale was developed using the DSM IV diagnostic criteria[15]. Out of 200 girls, 75 were found to have a specific type of learning problem. Among the girls, emotional issues such as sadness, anxiety, aggressive behavior, and low self-esteem were identified. Children in Pakistan's Lahore city's grades six, seven, and eight had dyslexia identified. A sample of 500 kids, consisting of 250 boys and 250 girls, was selected from government schools, ranging in age from 11 to 17. The Slossan Intelligence Test, the Bangor Dyslexia Test, and the pupils' academic records were utilized to rule out dyslexia. Five percent of the students in the sample as a whole had dyslexia filtered out. In grades 6 and 7, dyslexia was more common in male pupils than in female students; however, in grade 8, the percentage did not change significantly for either gender[16].

The most widely used and accessible tools for diagnosing dyslexia are the Slosson Intelligence Scale, Dyslexia Screening Test (DST), Bangor Dyslexia Screening Test, and WISC. These tests are based on western-based skills that are taught in schools. To find patterns of particular learning difficulties in our cultural setting, it is crucial to conduct assessments for this reason. It will assist in distinguishing dyslexia brought on by cultural factors from specific learning challenges and provide a clear image of how specific learning difficulties manifest in Pakistani society[17]. Giving schoolchildren early intervention will be made easier by the early identification of specific learning issues.

The study's objectives:

The study's goals were to:

- Determine how common dyslexia is among kids in primary schools
- Examine educator's perspectives regarding the issues arising from dyslexic students in inclusive elementary school classrooms.
- Examine how educators handle dyslexic students in inclusive elementary classrooms.

Material and Method:

We requested permission from the schools administration to conduct research. After advising them of the study's purpose, school authorities gave their informed consent. Information will be kept private and used only for research, the school administration has been notified. Everyone agreed that information regarding the research's goal was given to both boys and girls. Both group and individual testing was conducted. Schoolchildren received assurances regarding the research's anonymity. It was encouraged for them to discuss any difficulties encountered during administration and to ask questions. 513 students were evaluated one-on-one. Children were given a briefing regarding the goal of the research following the administration. The group assessment took one month to complete, and the individual examination took two months to complete.[18].

This study employed a mixed-method approach, which consisted of three distinct stages. During the initial stage, consultations were held with relevant educators to ascertain the indicators of dyslexia, leading to the compilation of a roster of affected students. Following that, the identified pupils in stage two were given a screening test utilizing a self-developed tool consisting of 25 items pertaining to symptoms associated to reading and writing. During the third phase, educators, who had provided considerable instruction to these children, were interviewed regarding challenges encountered by individuals with dyslexia[19].

The study encompassed 10 schools, with a combined population (N=513) of primary pupils who were enrolled. The screening exam, which was validated by expert opinions, evaluated a range of signs associated with dyslexia. Students who were recognized by teachers completed further examinations in reading, writing, and dictation[20]. The data analysis was performed utilizing percentages and frequencies. A total of 20 English language teachers from various schools took part in semi-structured interviews. The application of thematic analysis was utilized to derive valuable insights pertaining to classroom issues, underlying causes of dyslexia, and recommended interventions. The interview questions explored the rate at which kids learn, disruptions in the classroom, concerns related to classroom management, and the particular difficulties encountered by students with dyslexia. An internally created test was utilized for the purpose of screening. The test was designed by drawing upon the symptoms of dyslexia documented in the pertinent literature, as well as the firsthand experiences of the researchers. The screening test has revealed that the daughter of one of the researchers exhibits the same symptoms. The screening consisted of 13 items that were pertinent to reading and writing.

The composition comprised the subsequent elements, numbered accordingly:

- Students who experience difficulty in maintaining their position while reading.
- Illegible handwriting.
- Difficulty distinguishing between similar-looking letters (p/q, b/d)
- Inverting the order of letters within words (e.g., saw/was).
- Misinterpreting basic and common terms.
- Leaving out the ending of a word
- Adding extra letters to words.
- Omitting a syllable from a word; The text has inadequate word spacing.
- There are letters that are not printed accurately on the line.
- letters that are not of consistent size.
- Excessive pressure applied when using a pencil.
- Words written without proper spacing between them
- Inconsistent ability to correctly read and write words, with occasional errors.

Result and Discussion:

This study rigorously examines dyslexia in primary schools, utilizing a combination of quantitative and qualitative research approaches. By engaging in discussions with educators, a list of kids with dyslexia is created, which is then followed by the administration of a screening test to identify and evaluate symptoms. Concurrently, interviews with English language teachers provide a qualitative viewpoint on the difficulties and possible solutions. The objective of this comprehensive method is to offer a detailed comprehension of dyslexia, by connecting quantitative data with the real-life experiences of educators and children in primary education settings.

Table:1:

In-depth Examination of Dyslexia: A Study Utilizing Both Quantitative and Qualitative Methods in Primary Schools:

Stage	Activity	Participants	Methodology	Data Analysis
1	Consultations for Dyslexia Indicators	Teachers	Engaging in dialogues with educators; Gathering data about impacted children	Detection of dyslexia signs and list of students
2	Administration of Dyslexia Screening Test	Designated pupils	Test created by the individual; Validation conducted by professionals	Evaluation of dyslexia symptoms; Additional assessments for selected pupils
3	Interviews with educators regarding challenges related to dyslexia	English Language Teachers	Semi-structured interviews	Analyze the themes related to difficulties, causes, and interventions.

Table 2 provides a comprehensive analysis of dyslexia symptoms observed in primary school kids, including the proportion of individuals exhibiting each detected symptom. Significantly, 14% of students demonstrate trouble in sustaining their gaze when reading, emphasizing a widespread issue in visual tracking. Illegible penmanship is seen in 8% of kids, highlighting challenges in expressing thoughts through writing. Approximately 11% of pupils demonstrate difficulty in distinguishing visually identical letters, such as 'p' and 'q', highlighting the issues associated with phonological processing. In addition, the table illuminates concern such as the misinterpretation of common phrases, the omission of word endings, and the addition of extra letters, thus revealing the varied nature of challenges faced by individuals with dyslexia. These findings highlight the complex and diverse characteristics of dyslexia, highlighting the significance of customized interventions to target the individual requirements of students who are affected.

Table 2:

Reading and writing test items for assessment: (N=513)

S NO	Reading and Writing Test Item	Percentage of Students Displaying Symptom
1.	Difficulty maintaining position while reading	14%
2.	Illegible handwriting	8%
3.	Difficulty distinguishing between similar-looking letters (p/q, b/d)	11%
4.	Inverting the order of letters within words (e.g., saw/was)	9%
5.	Misinterpreting basic and common terms	13%
6.	Leaving out the ending of a word	7%
7.	Adding extra letters to words	10%

8.	Omitting a syllable from a word; Inadequate word spacing	15%
9.	Letters not printed accurately on the line	12%
10.	Letters not of consistent size	9%
11.	Excessive pressure applied when using a pencil	6%
12.	Words written without proper spacing between them	14%
13.	Inconsistent ability to correctly read and write words, with occasional errors	16%

Table 3 concisely presents key findings obtained from interviews conducted with English language educators addressing the difficulties linked to dyslexia in primary school environments. Approximately 22% of teachers express apprehensions regarding the speed at which pupils with dyslexia comprehend new ideas, emphasizing the necessity for customized teaching methods. Disruptions in the classroom, as reported by 18% of teachers, indicate the influence of dyslexia on the overall learning environment. 20% of teachers express worries about classroom management, highlighting the added challenges teachers encounter while meeting the needs of kids with dyslexia. Notably, 40% of teachers prioritize addressing the particular challenges faced by dyslexic pupils, highlighting the need for prompt implementation of appropriate interventions to assist these learners in their academic progress. The teacher interviews yield useful data that offers a comprehensive perspective on the difficulties related to dyslexia. This data helps inform the creation of specific methods aimed at enhancing educational results.

Table 3:

Theme of the interview with Teachers:

S NO	Theme of the Interview	Teacher's Response Percentage
1.	Rate at which kids learn	22%
2.	Disruptions in the classroom	18%
3.	Concerns related to classroom management	20%
4.	Specific difficulties encountered by students with dyslexia	40%

The learning difficulties encountered by dyslexic pupils in Pakistan can be ascribed to a multitude of variables, spanning both educational and socio-cultural dimensions. These are the primary factors:

Insufficient knowledge on dyslexia:

Insufficient knowledge regarding dyslexia among educators, parents, and policymakers might result in a delay in identifying and addressing the condition. Several educators may lack sufficient training to identify indications of dyslexia, leading to undiagnosed pupils who have difficulties in their academic progress.

Lack of Sufficient Educational Resources:

The limited accessibility of specialist educational resources and support services for dyslexic kids can hinder their capacity to learn. Schools may suffer from a shortage of qualified special education teachers and lack suitable instructional resources specifically designed to cater to the distinctive requirements of dyslexic students.

Stigma and social perceptions:

The presence of societal stigma and misinformation regarding dyslexia might have an adverse effect on students. Insufficient comprehension and approval might result in a hesitancy to recognize dyslexia, impeding the provision of essential adjustments and assistance.

Insufficient Teacher Training:

Lack of sufficient training for educators regarding dyslexia and inclusive pedagogical approaches might lead to an inability to modify teaching techniques to accommodate the varied learning modalities of dyslexic students. Teachers may encounter difficulties in implementing efficacious tactics that address the particular requirements of these learners.

Medium of instruction:

The difficulties associated with dyslexia are frequently more noticeable in languages that utilize intricate writing systems. In Pakistan, where Urdu and English are important languages used for teaching, the intricate nature of the scripts used may worsen reading challenges for students with dyslexia.

Financial limitations:

Access to private educational help or specialized treatments may be restricted in certain regions of Pakistan due to economic problems. Parents of dyslexic children may have financial limitations when seeking external aid, which might affect the total support network accessible to the pupils.

Obstacles to the evaluation and identification of problems:

The absence of timely access to formal tests and dyslexia diagnosis services can lead to a deficiency in specialized interventions. The scarcity of dyslexia evaluation specialists may result in unnoticed instances.

Inflexibility of the curriculum:

Dyslexic children may face difficulties when confronted with an inflexible curriculum that fails to accommodate their different learning methods. The absence of adaptability in teaching approaches may not adequately address the diverse aptitudes and deficiencies of individuals with dyslexia.

To tackle these issues, a comprehensive strategy is needed that encompasses heightened consciousness, enhanced teacher education, the formulation of inclusive educational policies, and the allocation of resources to assist dyslexic pupils throughout their educational progression in Pakistan.

The study found that out of the sampled students, 8% suffer from the common symptoms of dyslexia. The majority of the students confuse letters, lose a place in reading, read and write slowly, size of letters in written English is either too small or too big, use a lot of pressure on the pencil, and write awkwardly. It is also found that the students cannot concentrate on lessons. Dyslexics need more time and attention if teachers want to take them along. This leads to classroom management issues. In such cases, normal students start talking or making mischief in the classroom, when a teacher gets busy with a dyslexic. The study reported that teachers and parents do not know the truth about dyslexia; they consider it a weakness in the study. This perception aggravates the problem of dyslexics because teachers and parents do not treat them properly. Dyslexics also cause embarrassment to teachers, when they do not perform well in the examination or during the inspection, when inspectors blame the teachers for the students' awkward writing or weaknesses in reading. The study further found that teachers need to give dyslexics extra time and to treat them kindly. Moreover, all the stakeholders, especially parents should identify and get to know these students, so that neither the teachers nor such students suffer from embarrassment or any kind of loss of learning. Teachers and parents should have regular consultative sessions about such students. Parents should be educated about the specific problem of their kids. Similarly, teachers need to be trained in dealing with such students. They should have the skills to identify dyslexics right in the beginning and give them proper treatment, well in time, so that problems are not aggravated over time. Likewise, teachers are required to create a conducive and cooperative environment, where students may learn not only from teachers but also from their classmates. Group work is suggested for working with such students. Teachers, themselves, may not be able to give that much time to individual students. Therefore, cooperative learning methods may work effectively.

Conclusion:

The aim of the present study was to examine the frequency of dyslexia among primary school students, comprehend the learning obstacles experienced by individuals with

dyslexia, analyze the challenges faced by teachers in classrooms with dyslexic students, and suggest corrective actions to tackle these learning difficulties. By utilizing a mixed-method design, the study effectively detected dyslexia in primary pupils and provided insight into the related learning difficulties, as well as the obstacles encountered by instructors in the classroom. The findings corroborated with current research in certain parts while offering original insights into other domains. Significantly, 8% of children at the grade level were diagnosed with dyslexia, displaying symptoms such as letter confusion, challenges in reading and writing, inconsistent letter sizes, excessive pressure while using a pencil, and unorthodox writing styles.

The investigation underscored the pivotal significance of instructors in comprehending and tackling dyslexia, emphasizing that teachers had direct experiences and perspectives on the difficulties presented by dyslexic children. The study unveiled that teachers faced a multitude of obstacles in the classroom as a result of having dyslexic students. These challenges encompassed concerns pertaining to pronunciation, time management, work pace, routine disruption, discipline, managing slow learners, and overall teacher performance. Furthermore, the study highlighted the fundamental factors that contribute to the presence of these difficulties.

Finding the signs of dyslexia and specific learning difficulties in the cultural environment of Pakistan was the goal of the current study. The word has been around for more than a century, and researchers[21] from various fields continue to disagree about its meaning. The term dyslexia is now conceptually understood as an academic disorder that will present itself in the 3Rs (Reading, Writing, and Arithmetic). Its identification is therefore crucial for school-age children; otherwise, it would have a disastrous impact on their lives and cause a gap between success and arability. Looking at specific learning difficulties, or dyslexia, in the context of Pakistani culture, we find that underachievement is caused by a number of other factors, such as a decline in education, unqualified teachers, a lack of reading and writing instruction in the classroom, an outdated curriculum, dual language instruction, crammed classrooms, teaching strategies that reinforce rote learning, poverty, and parents who lack education[22]. . Dyslexia can be identified by phonological awareness, morphological competence, grammatical abilities, spelling, and vocabulary; however, these are not skills that are taught to schoolchildren in Pakistan. It can be challenging to discern between two diseases because of these features that mimic dyslexia[23]. Irrespective of dyslexia, children in all three categories simultaneously struggle with laterality, attention, and skills; in contrast, children in western nations who struggle academically are typically dyslexic or underachievers. According to western research, the incidence of dyslexia is 3% to 5%, however in Pakistani cultural context, the frequency of low achievers in academic tasks ranges from 20% to 25%, which is an over-identification of dyslexia[24].

The ability to read, write, and calculate is seen as a prerequisite for success in school and for building a solid foundation in other subjects including science, math, geography, and history. The findings imply a positive relationship between numeracy and reading/writing abilities. Developing one ability facilitates the development of another. These three interconnected abilities are the main drivers of academic success. Compared to students who perform badly academically, those who achieve high marks have a superior understanding of these skills[25].

Suggestions/Recommendations:

- Teachers should use a distinct strategy when dealing with dyslexic kids, acknowledging and refraining from punishing them for innate characteristics such as spelling challenges and reduced reading speed. Teachers working with dyslexic pupils must possess vital attributes such as patience, encouragement, politeness, sympathy, and sensitivity.
- When parents are unable to recognize dyslexia in their children due to a lack of skills

or knowledge, it becomes the duty of teachers to not only educate the kids but also to provide guidance to the parents in managing these youngsters. This dual method enables the efficient education of individuals with dyslexia.

- Schools should possess the ability to accurately identify dyslexia in pupils throughout the early stages of their education in order to promptly adopt appropriate measures and interventions to enhance their progress. Timely diagnosis streamlines the responsibilities of educators and enables students to pursue their education with minimal distress and unease, hence diminishing the probability of dropout.
- Educators ought to commend and inspire dyslexic pupils for their small accomplishments, refraining from making comparisons with the academic achievements of neurotypical students.
- Specialized classrooms specifically designed for dyslexic pupils would be ideal. If it is not possible to construct specialist institutions, an alternative approach would be to consider specific programs and instructors who have received specialized training.

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