
Assessment of Primary School Teachers' Awareness, Identification Skills, and Perceived Challenges regarding Dyscalculia in Kontagora Local Government Area, Nigeria

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Abstract: *This study assessed the level of awareness, identification skills, and perceived challenges regarding dyscalculia among primary school teachers in Kontagora Local Government Area, Niger State, Nigeria. A descriptive survey research design was adopted, with a sample of 379 primary school teachers selected from a population of approximately 2,000. Data were collected using a researcher-designed structured questionnaire titled Dyscalculia Awareness Teachers Questionnaire (DATQ), which achieved a reliability coefficient of 0.79 using the test-retest method. Data were analyzed using descriptive statistics, including mean and standard deviation, with a criterion mean of 2.50 adopted for decision-making. Findings revealed that teachers demonstrated low awareness of dyscalculia, with mean scores below the criterion for knowledge of the term, its definition, and symptoms. A prevalent misconception was the belief that dyscalculia results from laziness or low intelligence. Teachers reported limited access to formal training on specific learning disabilities and workshops on dyscalculia, relying instead on online resources and colleague discussions. Major challenges identified included lack of instructional resources and large class sizes. Despite these barriers, teachers expressed positive attitudes toward supporting affected pupils and strongly endorsed school-parent collaboration. The study recommended integrating dyscalculia-focused content into teacher education curricula, providing regular workshops, developing locally-adapted screening tools, and fostering collaborative partnerships between schools and parents to enhance early identification and support for learners with dyscalculia.*

Keywords: dyscalculia, teacher awareness, primary school teachers, learning disabilities, Kontagora

INTRODUCTION

Dyscalculia, often described as "number blindness," is a specific learning disability that affects an individual's ability to comprehend, learn, and perform mathematical operations. It is

classified as a specific learning disorder in diagnostic manuals and typically manifests in childhood, affecting a person's capacity to understand numerical concepts and process number-based information (Oladayo and Oladayo, 2024). The condition is neurodevelopmental in nature and, like dyslexia, is not related to a child's level of intelligence but rather to differences in how the brain processes numerical information. Children with dyscalculia experience persistent difficulties with fundamental mathematical concepts, including number sense, memorisation of arithmetic facts, performance of calculations, and understanding of mathematical reasoning (Onyishi and Sefotho, 2021). These challenges are not attributable to inadequate instruction, intellectual disability, or sensory impairments, but represent a distinct learning difference that requires specialised educational approaches.

The identification of dyscalculia in educational settings requires careful observation of learners' persistent difficulties with number-related tasks (Eteng-Uket, 2023). In the Nigerian context, where access to educational psychologists and diagnostic services is extremely limited, classroom teachers bear the primary responsibility for recognising potential indicators of dyscalculia among their pupils. Indicators of dyscalculia in primary school children include difficulties with counting, problems in understanding place value, challenges in recalling basic number facts such as multiplication tables, struggles with estimating quantities or measurements, and persistent difficulty with mental arithmetic (Igbineweka et al. 2023). These difficulties become increasingly apparent as mathematical curriculum demands escalate in higher primary grades.

Research conducted in Nigeria has contributed to the development of assessment tools for identifying dyscalculia. Eteng-Uket (2023) focused on developing, validating, and standardising a dyscalculia test for Nigerian students, drawing a sample of 2,340 students from the nation's upper primary and junior secondary school population of over 4.7 million. The analysis revealed that the Dyscalculia Test items effectively measure three core components: number sense, arithmetic operation, and working memory. This represents a significant contribution to the Nigerian educational landscape, providing school administrators and counsellors with a locally validated tool for assessing students who may be experiencing mathematical difficulties.

A critical distinction must be made between general difficulties in mathematics, which may result from inadequate teaching, environmental factors, or temporary learning challenges, and dyscalculia, which represents a persistent neurodevelopmental condition (Agu and Omenyi, 2020). While many children struggle with mathematics at some point in their education, those with dyscalculia display a consistent and pervasive pattern of difficulty that does not respond to conventional instructional approaches (Reginald-Ihedike and Inoma, 2022). This distinction is particularly important for teachers in inclusive classrooms, as it determines the type and intensity of intervention required.

Empirical research on the prevalence of dyscalculia within Nigeria has begun to emerge, providing valuable data for understanding the scope of the condition in the country. Igbineweka, Aihie, and Agboma (2023) conducted a study examining sex differences in the prevalence of dyscalculia among public secondary school students in Ika South Local Government Area of Delta State, Nigeria. The findings revealed that dyscalculia disorder was

moderately prevalent among public secondary school students in the study area, with no significant sex difference identified among students with the condition. Another study by Bobori (2025) examined the effect of dyscalculia on the acquisition of numeracy skills among preschoolers in Obio/Akpor Local Government Area of Rivers State which found a moderate prevalence of dyscalculia among preschoolers, with affected children demonstrating significant challenges in basic numeracy skills. Further evidence of the prevalence of dyscalculia in Nigerian schools comes from a study conducted in Calabar educational zone, Cross River State, which investigated specific learning disabilities among 400 pupils aged 6-14 years across 20 schools. the research found that dyscalculia affected 18 percent of the sampled pupils, making it the second most prevalent specific learning disability after dyslexia.

The foundational issue identified across the literature is a widespread lack of basic knowledge about what dyscalculia is. Dias et al. (2013), in their study of educators in Brazil, found that a staggering 45.2% of participants reported not knowing what dyscalculia is. Consequently, only a small fraction (12.9%) felt confident in their ability to identify its signs, highlighting a profound insecurity among teachers regarding this condition. This finding is echoed in a more recent study by Imoro et al. (2024), which investigated lower primary school teachers. Their results similarly unveiled that teachers possess limited knowledge regarding the definition, nature, and symptoms of dyscalculia. The research by Kizilelma, et al. (2023) found that the majority of classroom teachers do not have sufficient knowledge about mathematics learning disabilities, largely because they did not receive special training on the subject during their undergraduate education or through in-service professional development. This absence of formal training leaves teachers feeling ill-equipped; the study concluded that teachers feel themselves inadequate in the education of these students (Niyi, et al., 2025).

This study is justified by the urgent need to address a critical gap in the equitable education of children in Kontagora Local Government Area, specifically concerning dyscalculia, a learning disability that impairs numerical understanding. Dyscalculia is severely under-researched and poorly understood, particularly in rural Nigerian contexts where access to specialist support is almost non-existent. In this setting, the primary school teacher is the sole professional capable of identifying such difficulties, yet without adequate awareness, a child's struggles are often misattributed to laziness or low intelligence, leading to inappropriate teaching and negative reinforcement. As no prior research has established a baseline of teacher awareness in Kontagora LGA, this investigation is essential to provide the first empirical data on the subject. This research is a necessary step toward bridging the gap between inclusive education policy and practical classroom reality, ensuring that every child in the area has an equal opportunity to develop foundational numeracy skills.

Research Questions

1. What is the level of awareness of dyscalculia among primary school teachers in Kontagora LGA?
2. How well can primary school teachers identify the symptoms of dyscalculia in pupils?
3. What are the common sources of information or training on dyscalculia available to teachers?
4. What strategies for improving awareness, understanding, and support for students with dyscalculia as perceived by teachers?

METHODOLOGY

The study adopted a descriptive survey research design to examine the level of awareness, knowledge, identification practices, and perceived support strategies related to dyscalculia among primary school teachers in Kontagora Local Government Area of Niger State, Nigeria. The population of the study comprised all primary school teachers in Kontagora Local Government Area of Niger State, estimated at approximately 2,000 teachers across public and private primary schools. The sample size for the study was determined using the Yamane (1967) formula for sample size determination. Using a population of 2,000 teachers and a 5% margin of error, the formula yielded a minimum sample size of 334 respondents required to achieve a 95% confidence level, ensuring that the true population value lies within $\pm 5\%$ of the measured survey value. A total of 379 primary school teachers ultimately participated in the study. Data for the study were collected using a researcher-designed structured questionnaire titled Dyscalculia Awareness Teachers Questionnaire (DATQ). The reliability of the Dyscalculia Awareness Teachers Questionnaire (DATQ) was established using the test–retest method. The analysis yielded a reliability coefficient of 0.79.

Responses to the questionnaire items were measured using a four-point Likert scale. The response options were structured as follows: Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2, and Strongly Disagree (SD) = 1. The collected data were analyzed using descriptive statistical techniques, including mean (\bar{x}), standard deviation (SD), and grand mean. The mean scores were used to determine the general pattern of responses among the respondents. A criterion mean of 2.50 was adopted as the benchmark for decision making. Mean scores equal to or greater than 2.50 were interpreted as agreement with the statement, while mean scores below 2.50 were interpreted as disagreement. In addition, standard deviation values were used to determine the degree of variation in responses among the respondents.

RESULTS

Research Question 1: What is the level of awareness of dyscalculia among primary school teachers in Kontagora LGA?

Table 1: Awareness and understanding of dyscalculia among teachers in Kontagora Local Government Area

Statement	Mean (\bar{x})	Standard Deviation (SD)	Interpretation
1. I am aware of the term “dyscalculia.”	2.21	0.99	Low awareness
2. I can define dyscalculia accurately.	2.21	1.03	Low knowledge
3. I understand the signs and symptoms of dyscalculia.	2.24	0.96	Low understanding
4. Dyscalculia is caused by laziness or low intelligence.	2.74	1.05	High agreement (misconception present)
5. I can differentiate dyscalculia from general poor performance.	2.66	0.97	Moderate confidence

The mean scores for awareness of the term ($\bar{x} = 2.21$) and ability to define dyscalculia ($\bar{x} = 2.21$) are both below the benchmark mean of 2.50. This indicates low general awareness and inadequate conceptual understanding of dyscalculia among primary school teachers in Kontagora LGA. The relatively moderate standard deviations (0.99 and 1.03) indicate some variability in responses, suggesting that while a minority possess awareness, the majority do not.

Research Question 2: How well can primary school teachers identify the symptoms of dyscalculia in pupils?

From Table 1, the mean score for understanding signs and symptoms ($\bar{x} = 2.24$) also falls below 2.50, indicating insufficient knowledge of diagnostic indicators. However, the mean for differentiating dyscalculia from general poor performance ($\bar{x} = 2.66$) is above the midpoint. This suggests that teachers' express moderate confidence in distinguishing dyscalculia from general mathematics weakness. This discrepancy may indicate that teachers rely more on classroom intuition than formal knowledge in making judgments about pupils' mathematical difficulties. The highest mean score ($\bar{x} = 2.74$) was recorded for the statement that dyscalculia is caused by laziness or low intelligence. Since this statement reflects a misconception, the above-average mean is concerning. This finding reveals that misunderstanding about the nature of dyscalculia is prevalent. The relatively high standard deviation ($SD = 1.05$) shows varied opinions, but overall agreement remains dominant.

Research Question 3: What are the common sources of information or training on dyscalculia available to teachers?

Table 2: Sources of information or training on dyscalculia

S/N	Statement	Mean (\bar{x})	SD	Decision
6	I have received formal training on Specific Learning Disabilities (SLDs).	2.12	0.98	Disagree
7	I have attended workshops/seminars that included dyscalculia.	2.23	1.09	Disagree
8	I rely on professional development programs for information on learning disabilities.	2.56	1.09	Agree
9	I use online resources to learn about dyscalculia.	3.03	0.92	Agree
10	I discuss learning disabilities with colleagues or experts.	2.91	0.99	Agree

From Table 2, teachers indicated limited exposure to formal training on Specific Learning Disabilities (SLDs), as reflected by a mean score of 2.12 ($SD = 0.98$), which falls below the criterion mean of 2.50. This suggests that most teachers in the study have not received structured professional training specifically addressing learning disabilities such as dyscalculia. Similarly, participation in workshops or seminars addressing dyscalculia appears to be relatively low. With a mean score of 2.23 ($SD = 1.09$), the results indicate that many teachers have not had opportunities to attend professional development programmes focused on dyscalculia. The higher standard deviation reflects some variability in responses, implying that while a small number of teachers may have benefited from such training, the majority have had limited exposure. Teachers moderately rely on professional development programmes as sources of information on learning disabilities, as indicated by a mean score of 2.56 (SD

= 1.09). This result suggests that professional development initiatives play a supportive but not dominant role in providing teachers with knowledge about dyscalculia.

In contrast, the use of online resources emerged as a prominent source of information. Teachers reported strong reliance on digital platforms to learn about dyscalculia, with a mean score of 3.03 (SD = 0.92). The relatively low standard deviation indicates considerable agreement among respondents, highlighting the growing importance of online learning materials and digital resources for teacher self-development. Collaborative discussions with colleagues or experts also appear to be a common practice among teachers. With a mean score of 2.91 (SD = 0.99), the findings suggest that peer interaction and professional dialogue serve as important informal avenues through which teachers enhance their understanding of learning disabilities.

1. What strategies for improving awareness, understanding, and support for students with dyscalculia as perceived by teachers?

Table 3: Improving awareness, understanding, and support for students with dyscalculia

S/N	Statement	Mean (\bar{x})	SD	Decision
14	Pupils with dyscalculia can learn effectively with the right support.	2.79	1.03	Agree
15	I need more training to support pupils with dyscalculia.	2.76	1.03	Agree
16	Lack of resources is a major barrier to supporting pupils with dyscalculia.	2.83	1.04	Agree
17	Large class sizes make it difficult to support pupils with learning disabilities.	2.82	1.05	Agree
18	I would welcome school-based support programs for pupils with dyscalculia.	2.81	1.02	Agree
19	Collaboration between schools and parents is essential for supporting children with dyscalculia.	3.17	0.84	Agree

From Table 3, teachers expressed confidence that pupils with dyscalculia can make meaningful academic progress when appropriate support mechanisms are provided. This perception is reflected in a mean score of 2.79 (SD = 1.03), indicating general agreement that with suitable instructional strategies and targeted assistance, pupils with dyscalculia are capable of effective learning. The need for additional professional preparation was also strongly acknowledged. Teachers reported, with a mean score of 2.76 (SD = 1.03), that more training is required to adequately support pupils with dyscalculia. This finding aligns with earlier results in the study which revealed limited access to formal training opportunities on specific learning disabilities. Teachers further identified lack of instructional resources as a major barrier to supporting pupils with dyscalculia, as indicated by a mean score of 2.83 (SD = 1.04). This suggests that insufficient availability of teaching materials, assessment tools, and specialized instructional aids limits teachers' ability to effectively address the needs of learners experiencing mathematical learning difficulties. Large class sizes were also perceived as a significant challenge. With a mean score of 2.82 (SD = 1.05), teachers indicated that overcrowded classrooms make it difficult to provide individualized attention and specialized support for pupils with learning disabilities, including those with dyscalculia.

Support for structured institutional interventions was also evident in the responses. Teachers indicated willingness to embrace school-based intervention programmes designed to assist pupils with dyscalculia, as reflected in a mean score of 2.81 (SD = 1.02). This suggests that educators are receptive to organized support systems aimed at improving learning outcomes for pupils with learning difficulties. The strongest level of agreement was observed regarding the importance of collaboration between schools and parents. Teachers expressed this view with the highest mean score of 3.17 (SD = 0.84), indicating broad consensus that effective support for children with dyscalculia requires cooperation among teachers, parents, and other educational stakeholders. The relatively low standard deviation further suggests a high level of agreement among respondents on the importance of this collaborative approach.

DISCUSSION OF FINDINGS

The results indicate that teachers' general awareness and knowledge of dyscalculia among primary school teachers in Kontagora Local Government Area of Niger State remains relatively limited. Although some respondents indicated familiarity with the concept, the overall pattern of responses suggests that many teachers lack a clear and accurate understanding of the condition and its characteristics. Another important finding relates to teachers' ability to identify symptoms of dyscalculia in pupils. While some teachers reported that they use classroom observation and performance tracking to monitor pupils' progress in mathematics, many respondents indicated difficulty distinguishing dyscalculia from general mathematics weakness.

The study also revealed significant gaps in formal training and professional development related to specific learning disabilities. Many teachers reported that they have not received formal training on learning disabilities such as dyscalculia and have not attended workshops or seminars focused on the subject. However, the findings also indicate that teachers often rely on alternative sources of information, particularly online resources and discussions with colleagues, to learn about learning disabilities. The study further highlighted several systemic challenges that affect teachers' ability to support pupils with dyscalculia which include lack of instructional resources and large class sizes as major barriers to effective support. In many classrooms, limited access to specialized teaching materials and assessment tools makes it difficult for teachers to implement targeted instructional strategies for pupils with learning difficulties.

Despite these challenges, the study reveals a generally positive attitude among teachers toward supporting pupils with dyscalculia. Teachers expressed strong agreement that pupils with dyscalculia can learn effectively when appropriate support is provided. Teachers also expressed a clear willingness to participate in further professional development and to adopt school-based intervention programmes designed to support pupils with dyscalculia. An important aspect highlighted by the findings is the critical role of collaboration in supporting pupils with learning disabilities. Teachers strongly agreed that effective collaboration between schools and parents is essential for addressing dyscalculia. Such collaboration enables better monitoring of pupils' progress, reinforces learning strategies at home, and promotes early intervention.

Overall, the findings of this study suggest that while teachers demonstrate positive attitudes and willingness to support pupils with dyscalculia, their effectiveness is limited by insufficient training, limited awareness, inadequate resources, and structural challenges such as large class sizes. Addressing these issues through targeted teacher training programmes, improved resource provision, and collaborative support systems could significantly enhance the early identification and educational support of pupils with dyscalculia in primary schools.

CONCLUSION

This study assessed the awareness, identification skills, and perceived challenges regarding dyscalculia among primary school teachers in Kontagora Local Government Area, Niger State, Nigeria. The findings revealed that teachers demonstrated low awareness of the term dyscalculia, its definition, and its symptoms. A prevalent misconception was the belief that dyscalculia results from laziness or low intelligence, indicating a fundamental misunderstanding of the neurodevelopmental nature of the condition. Teachers reported limited access to formal training and workshops on specific learning disabilities, relying instead on online resources and discussions with colleagues for information. Major challenges identified included lack of instructional resources and large class sizes, which hinder effective support for pupils with mathematical learning difficulties. Despite these barriers, teachers expressed positive attitudes toward supporting affected pupils and strongly endorsed the importance of school-parent collaboration. The low level of awareness observed in Kontagora LGA mirrors the results of Dias et al. (2013), where educators reported not knowing what dyscalculia is, and only few were confident in identifying its signs. Similarly, Imoro et al. (2024) found that teachers possessed limited knowledge regarding the definition, nature, and symptoms of dyscalculia, despite demonstrating better understanding of intervention methods. This pattern suggests that while teachers may encounter practical strategies for supporting struggling learners, they often lack the foundational knowledge required to understand the specific condition underlying those difficulties.

The findings underscore the urgent need for comprehensive interventions that address both knowledge gaps and systemic barriers to support. Without targeted teacher training, improved resource provision, and collaborative support systems, learners with dyscalculia in this context will continue to struggle without identification or appropriate intervention, perpetuating the cycle of mathematical difficulties and their associated consequences.

Recommendations

Based on the findings of this study, the following recommendations were made:

1. Teacher training institutions should revise their curricula to include comprehensive coverage of specific learning disabilities, with particular emphasis on dyscalculia. Good foundational training will ensure that new teachers entering the profession possess the essential awareness required for early identification and intervention.
2. The Niger State Ministry of Education, in collaboration with local government education authorities, should organize regular workshops and seminars focused on dyscalculia for practising teachers. Given teachers' reliance on online resources, professional development programmes could also guide teachers toward reliable digital platforms and materials.

3. Educational stakeholders, including universities and research institutions, should collaborate with education authorities to develop culturally and contextually appropriate screening instruments for identifying dyscalculia among Nigerian primary school pupils.
4. Government at all levels should prioritize the allocation of resources to primary schools to address the material barriers identified in this study. Schools require specialized teaching materials, manipulatives, and assessment tools to effectively support learners with dyscalculia.
5. Schools should proactively establish mechanisms for meaningful engagement with parents regarding learning disabilities. Parent awareness programmes should be organized to educate families about dyscalculia, its indicators, and its management. Regular communication channels should be established to enable teachers and parents to share observations, monitor pupil progress, and reinforce learning strategies both at school and at home.

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