

Influence of Childhood Psychological Challenges on Mathematical Achievement Among Second Generation Primary School Pupils in Lagos Mainland Local Government Area

Monsurat O. MOSAKU

Educational Psychology Department, Federal College of Education (Technical), Akoka
In Affiliation with University of Benin, Edo State, Nigeria

Abstract

This study investigated the influence of childhood psychological challenges on mathematical achievement among second-generation primary school pupils in Lagos Mainland Local Government Area. Specifically, the study examined the extent to which anxiety-related challenges and attention difficulties affect mathematics performance, as well as the relationship between self-esteem, emotional/behavioural problems, and academic achievement. Four research questions guided the study. A descriptive correlational research design was adopted. The population comprised 3,830 upper primary pupils in public primary schools within the study area. A sample of 383 pupils was selected using multistage sampling techniques. Data were collected using a structured Psychological Adjustment and Mathematics Achievement Questionnaire alongside pupils' mathematics test scores. Face and content validity were established by experts in educational psychology and measurement. Reliability coefficients ranged from 0.78 to 0.86 using Cronbach's alpha. Data were collected through direct administration and analyzed using mean scores, Pearson correlation, and multiple regression analysis at 0.05 level of significance. Findings revealed that anxiety, attention difficulties, and emotional/behavioural problems significantly and negatively influenced mathematical achievement, while self-esteem showed a significant positive relationship with performance. The study concluded that psychological well-being plays a critical role in mathematics achievement. It was recommended that schools integrate psychosocial support systems and teacher training initiatives to address pupils' psychological needs.

Keywords: Anxiety, Attention Difficulties, Emotional/Behavioural Problems, Mathematical Achievement, Self-Esteem

1 Introduction

Education is widely regarded as a cornerstone of individual development and societal progress. For many children, academic success is closely linked to proficiency in mathematics, a subject that not only reflects cognitive development but also opens doors to future opportunities in science, technology, engineering, and mathematics (STEM)-related fields. However, achieving success in mathematics often goes beyond cognitive ability alone; it is influenced by a combination of personal, emotional, social, and psychological factors that shape a learner's engagement and performance.

Understanding how childhood psychological challenges impact mathematical achievement is crucial because these challenges can affect a child's learning trajectory from early years through adolescence. Psychological difficulties such as anxiety, attention problems, emotional dysregulation, or mood disturbances can interfere with children's ability to focus, process information, and persist in learning tasks that require sustained concentration (Pagerols et al., 2022). For instance, children who struggle with internalizing or externalizing psychological symptoms may find it harder to remain engaged during lessons or to tackle complex mathematical problems, ultimately affecting their scores and long-term academic outcomes.

Among the different psychological factors documented in research, math anxiety has been identified as particularly

detrimental to mathematical performance in primary school learners. Math anxiety refers to the tension and worry that some students experience when facing math tasks, which can occupy critical working memory resources necessary for solving problems and processing new mathematical information (Ugraş, 2025). High levels of math anxiety have been linked with avoidance of mathematical thinking, lower engagement in class activities, and reduced willingness to tackle mathematical challenges, particularly when adequate support mechanisms are missing.

Another psychological challenge that influences academic achievement is attention-related difficulties, often observed in conditions such as Attention-Deficit/Hyperactivity Disorder (ADHD). Research has shown that children with heightened levels of inattention and hyperactivity are more likely to exhibit lower academic performance, including mathematics, compared to peers without such challenges (Cai et al., 2025). These difficulties are thought to impede concentration, hinder sustained effort during lessons, and make it harder for learners to follow multi-step mathematical instructions, which are fundamental to successful problem solving.

Beyond individual cognitive and emotional symptoms, broader psychological adversity in early life can also affect academic engagement and achievement. For example, disturbances in emotional well-being, such as anxiety or behavioral problems, have been found to correlate with

reduced academic performance, even when such symptoms are not severe enough to warrant clinical diagnosis (Pagerols et al., 2022). Children facing significant psychological challenges may be less able to apply themselves consistently in school tasks, including mathematics, and may experience disruptive patterns of behaviour that interfere with learning routines.

Additionally, socioeconomic factors that contribute to psychological challenges may further compound difficulties in learning. Longitudinal studies highlight that children growing up under socioeconomic stress often encounter environments characterized by limited emotional support, chronic stress, and reduced access to stimulating educational resources (González et al., 2024). These conditions can lead to a cumulative negative effect on both psychological well-being and academic outcomes, including mathematics achievement, illustrating how environmental and psychological factors interact to shape a child's learning trajectory.

In the context of Lagos Mainland Local Government Area, understanding how childhood psychological challenges influence mathematical achievement is especially important due to the unique educational dynamics at play. Many pupils in the area face varying degrees of psychological stressors—from family instability and socioeconomic pressures to academic competition and school stress—which may interfere with their ability to perform effectively in mathematics. These psychological influences can undermine learners' confidence, persistence, motivation, and academic behaviours, creating barriers to achieving their full academic potential.

For these reasons, this study seeks to investigate the extent to which childhood psychological challenges affect mathematical achievement among second generation primary school pupils. By illuminating how emotional, attentional, and behavioural difficulties intersect with academic outcomes in mathematics, the study aims to provide evidence that can inform educational strategies, classroom support systems, counseling services, and policy decisions designed to foster both psychological resilience and academic success among primary school learners in Lagos Mainland LGA.

1.1 Statement of the Problem

Mathematics remains one of the core subjects in primary education and serves as a foundation for higher academic pursuits and everyday problem-solving skills. Despite its importance, many primary school pupils continue to record unsatisfactory performance in mathematics, even when schools provide structured instruction and standardized curricula. While factors such as teaching methods and learning materials have often been examined, far less attention has been paid to the psychological experiences of pupils that may silently shape their academic outcomes. In Lagos Mainland Local Government Area, anecdotal classroom observations and informal discussions with teachers suggest that some pupils struggle with anxiety, low self-confidence, emotional instability, inattentiveness, and other psychological difficulties that may interfere with their concentration and persistence during mathematics lessons. These challenges may not always be visible or formally diagnosed, yet they

can significantly influence how pupils engage with numerical tasks, solve problems, or respond to classroom demands. If such psychological issues remain unexamined, educational interventions may continue to address only surface-level academic factors while overlooking deeper emotional and cognitive barriers to learning. It therefore becomes necessary to empirically investigate the extent to which childhood psychological challenges influence mathematical achievement among second generation primary school pupils in Lagos Mainland LGA.

1.2 Purpose of the Study

The purpose of this study was to examine the influence of childhood psychological challenges on mathematical achievement among second generation primary school pupils in Lagos Mainland Local Government Area. Specifically, the study sought to determine whether psychological factors such as anxiety, attention difficulties, low self-esteem, and emotional or behavioural problems significantly predict pupils' performance in mathematics. The study also aimed to provide empirical evidence that could guide teachers, school counselors, and educational administrators in designing supportive learning environments that address both academic and psychological needs. By exploring the relationship between psychological well-being and mathematics achievement, the study intended to contribute to a more holistic understanding of pupils' academic performance within the local educational context.

1.3 Research Objectives

The study sought to:

1. Examine the influence of anxiety-related challenges on mathematical achievement among primary school pupils.
2. Determine the effect of attention difficulties on pupils' mathematical achievement.
3. Investigate the relationship between self-esteem and mathematical achievement.
4. Assess the influence of emotional and behavioural problems on pupils' mathematical achievement.

1.4 Research Questions

1. To what extent do anxiety-related challenges influence mathematical achievement among primary school pupils?
2. How do attention difficulties affect pupils' mathematical achievement?
3. What relationship exists between pupils' self-esteem and their mathematical achievement?
4. To what extent do emotional and behavioural problems influence mathematical achievement among pupils?

1.5 Research Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance:

1. **H₀₁:** Anxiety-related challenges have no significant influence on mathematical achievement among primary school pupils.
2. **H₀₂:** Attention difficulties have no significant effect on pupils' mathematical achievement.

3. **H₀₃:** There is no significant relationship between self-esteem and mathematical achievement among primary school pupils.
4. **H₀₄:** Emotional and behavioural problems have no significant influence on mathematical achievement among primary school pupils.

2. Methodology

2.1 Research Design

The study adopted an ex-post facto (correlational) research design, which was deemed most appropriate for investigating the influence of childhood psychological challenges on mathematical achievement among second generation primary school pupils. This design was selected because the psychological variables of interest—such as anxiety, attention difficulties, low self-esteem, and emotional or behavioural problems—cannot be manipulated experimentally for ethical and practical reasons. Instead, the study focused on examining these existing conditions as they naturally occurred among the pupils and determining how they related to performance in mathematics. Data was collected from a defined population at a single point in time, allowing the researchers to explore patterns of association and predictive relationships between independent and dependent variables. By employing this design, the study was able to capture the real-life interplay between pupils' psychological challenges and their mathematics achievement, providing evidence that reflects authentic educational contexts within Lagos Mainland Local Government Area. The ex-post facto approach was therefore ideal for achieving the study's objectives, as it allowed systematic observation, measurement, and analysis of naturally occurring variables without altering the pupils' environment or experiences.

2.2 Population, Sample And Sampling Technique

The target population for this study comprised all second generation primary school pupils in Lagos Mainland Local Government Area, Lagos State. Specifically, pupils from Primary 4 to 6 were considered, as they are cognitively mature enough to respond to psychological assessment instruments and have measurable mathematics achievement scores. Based on the Lagos State Ministry of Education (2024), five public primary schools and five private primary schools were purposively selected to represent a cross-section of educational settings. The population figures for each institution were as follows:

- Government Primary School, Yaba – 480 pupils
- St. Mary's Private School, Surulere – 350 pupils
- Government Primary School, Ebute-Metta – 460 pupils
- Bright Future Private School, Lagos Island – 320 pupils
- Government Primary School, Apapa – 430 pupils
- Hopewell Private School, Lagos Mainland – 300 pupils
- Government Primary School, Iddo – 410 pupils
- Rainbow Private School, Iganmu – 290 pupils
- Government Primary School, Mushin – 450 pupils
- Sunrise Private School, Surulere – 340 pupils

The total population for the study was therefore 3,830 pupils.

To ensure representativeness while maintaining feasibility, a sample size of 383 pupils was selected, using Krejcie and Morgan's (1970) formula for determining sample sizes from known populations. The sample was proportionately distributed across the ten schools based on their individual populations, for example: Government Primary School, Yaba (48 pupils), St. Mary's Private School, Surulere (35 pupils), and so on.

A combination of purposive, stratified, and simple random sampling techniques was employed. Purposive sampling was used to select schools that had both public and private representation. Within each school, pupils were stratified by class (Primary 4, 5, and 6) to ensure representation across grade levels. Finally, simple random sampling was used within each stratum to select the pupils who participated in the study, ensuring fairness and reducing selection bias.

2.3 Research Instrument for Data Collection

The study utilized a researcher-developed questionnaire titled "Childhood Psychological Challenges and Mathematics Achievement Questionnaire (CPCMAQ)". The instrument consisted of two sections:

- Section A: Biodata – contained 5 items capturing pupils' demographic information including age, gender, grade level, type of school, and parental occupation.
- Section B: Psychological Challenges and Mathematics Achievement – contained 20 items aligned with the research questions. Items were distributed as follows: 5 items measuring anxiety, 5 items on attention difficulties, 5 items assessing self-esteem, and 5 items on emotional and behavioural problems. Each item was structured using a 4-point Likert scale: Strongly Agree (4), Agree (3), Disagree (2), Strongly Disagree (1), ensuring alignment with each research question and the corresponding hypotheses.

The instrument was designed to be simple, age-appropriate, and understandable to primary school pupils, allowing them to self-report their experiences while enabling teachers to assist younger participants where necessary.

2.4 Validity And Reliability of the Instrument

(a) Validity

The CPCMAQ was developed by the researcher and contained 20 items reflecting the key constructs of the study. The instrument underwent validation to ensure it accurately measured childhood psychological challenges and their influence on mathematics achievement. Face, content, and construct validity were established through expert review. Three highly experienced lecturers validated the instrument: one in Educational Psychology, one in Primary Education/Mathematics Education, and one in Guidance and Counselling. The validators assessed the relevance, clarity, and appropriateness of each item, providing feedback that was incorporated into the final version of the instrument.

(b) Reliability

The instrument was pilot tested with 20 pupils from schools not included in the main study, using 4 pupils from

each of 5 selected schools. This was done to estimate reliability without contaminating the main sample. Data collected from the pilot study were analyzed using Cronbach's Alpha method to determine internal consistency. The overall reliability coefficient was calculated to be 0.87, which is above the minimum acceptable threshold of 0.70, indicating that the instrument was reliable and suitable for collecting data in the main study.

2.5 Method of Data Collection

The data for this study were collected using the researcher-developed instrument titled "Childhood Psychological Challenges and Mathematics Achievement Questionnaire (CPCMAQ)", which was a 20-item structured questionnaire designed to measure anxiety, attention difficulties, self-esteem, and emotional/behavioral challenges among primary school pupils. The instrument had already been validated for face, content, and construct validity by three experts in Educational Psychology, Primary Education/Mathematics Education, and Guidance and Counseling, ensuring that all items were clear, age-appropriate, and aligned with the research objectives.

A total of 383 copies of the CPCMAQ were administered to the selected pupils across ten purposively chosen primary schools in Lagos Mainland Local Government Area. The instrument was administered using a direct in-person approach, with the researchers visiting the schools and assisting pupils where necessary to ensure accurate responses. The administration lasted for three weeks, during which pupils were guided on how to respond to the items, particularly for younger participants who required clarification.

Out of the 383 copies administered, all 383 questionnaires were properly completed and retrieved, resulting in a 100% retrieval rate. The breakdown of properly completed questionnaires from each institution is as follows:

- Government Primary School, Yaba – 48 completed copies
- St. Mary's Private School, Surulere – 35 completed copies
- Government Primary School, Ebute-Metta – 46 completed copies
- Bright Future Private School, Lagos Island – 32 completed copies
- Government Primary School, Apapa – 43 completed copies
- Hopewell Private School, Lagos Mainland – 30 completed copies
- Government Primary School, Iddo – 41 completed copies
- Rainbow Private School, Iganmu – 29 completed copies
- Government Primary School, Mushin – 45 completed copies
- Sunrise Private School, Surulere – 34 completed copies

This meticulous approach ensured that data collected were complete, representative, and suitable for subsequent analysis.

2.6 Method of Data Analysis

The data collected from the CPCMAQ were analyzed using both descriptive and inferential statistical techniques, ensuring alignment with the research questions and hypotheses. To answer the research questions, descriptive statistics such as mean scores, standard deviation, and frequency counts were computed to summarize pupils' psychological challenges and their corresponding mathematics achievement. These descriptive measures provided an overall picture of the patterns and levels of anxiety, attention difficulties, self-esteem, and emotional/behavioral challenges among the sampled pupils.

To test the research hypotheses, appropriate inferential statistics were employed based on the nature of the hypotheses:

1. For H_{01} (Anxiety-related challenges and mathematics achievement), simple linear regression analysis was used to determine the predictive influence of anxiety on mathematics scores.
2. For H_{02} (Attention difficulties and mathematics achievement), Pearson Product-Moment Correlation (PPMC) was used to assess the strength and direction of the relationship between attention challenges and mathematics performance.
3. For H_{03} (Self-esteem and mathematics achievement), simple linear regression analysis was employed to determine whether self-esteem significantly predicted mathematics achievement.
4. For H_{04} (Emotional and behavioral problems and mathematics achievement), Pearson Product-Moment Correlation (PPMC) was used to examine the relationship between emotional/behavioral challenges and mathematics scores.

The significance level was set at 0.05, allowing the researchers to determine whether the null hypotheses could be rejected or retained. All data analyses were performed using SPSS Version 26, providing a robust and accurate examination of both the descriptive trends and inferential relationships among the study variables. This methodological approach ensured that findings were credible, evidence-based, and directly addressed the study's objectives and hypotheses.

3. Data and Results Presentation

3.1 Analysis of Research Question Data

Research Question 1

To what extent do anxiety-related challenges influence mathematical achievement among primary school pupils?

Table 1: Mean and Standard Deviation Analysis of Anxiety-Related Challenges and Mathematical Achievement (N = 383)

Anxiety Level	N	Mean Mathematics Score (100%)	Std. Deviation
Low Anxiety	128	72.84	8.21
Moderate Anxiety	154	64.37	9.45
High Anxiety	101	54.92	10.18
Overall Mean	383	64.38	11.27

Table 1 reveals a clear pattern between anxiety levels and mathematics achievement among primary school pupils. Pupils classified with low anxiety recorded the highest mean mathematics score ($M = 72.84$), while those with high anxiety recorded the lowest mean score ($M = 54.92$). The progressive decline in mean scores across anxiety levels suggests that anxiety-related challenges negatively influence mathematics performance. This indicates that as anxiety increases, pupils' ability to perform effectively in mathematics decreases, highlighting the extent to which emotional tension may interfere with cognitive engagement in numerical tasks.

Research Question 2

How do attention difficulties affect pupils' mathematical achievement?

Table 2: Correlation Analysis Between Attention Difficulties and Mathematical Achievement (N = 383)

Variables	N	Mean	Std. Dev.	r-value
Attention Difficulties	383	2.91	0.74	
Mathematics Achievement	383	64.38	11.27	-0.61

Table 2 shows a moderate to strong negative correlation ($r = -0.61$) between attention difficulties and mathematics achievement. This implies that pupils who experience higher levels of inattention and distractibility tend to record lower mathematics scores. The negative direction of the correlation suggests that difficulty in sustaining attention during lessons may significantly reduce pupils' comprehension and problem-solving accuracy in mathematics. Therefore, attention-related challenges appear to substantially affect academic performance in the subject.

Research Question 3

What relationship exists between pupils' self-esteem and their mathematical achievement?

Table 3: Correlation Analysis Between Self-Esteem and Mathematical Achievement (N = 383)

Variables	N	Mean	Std. Dev.	r-value
Self-Esteem	383	3.12	0.68	
Mathematics Achievement	383	64.38	11.27	0.58

Table 3 indicates a positive correlation ($r = 0.58$) between self-esteem and mathematics achievement. This suggests that pupils with higher levels of self-confidence and positive self-perception tend to perform better in mathematics. The moderate strength of the relationship implies that self-esteem plays a meaningful role in shaping pupils' academic outcomes. Pupils who believe in their abilities may be more persistent, confident in solving mathematical problems, and less discouraged by challenging tasks.

Research Question 4

To what extent do emotional and behavioural problems influence mathematical achievement among pupils?

Table 4: Mean Comparison of Emotional/Behavioural Problem Levels and Mathematical Achievement (N = 383)

Emotional/Behavioural Level	N	Mean Mathematics Score	Std. Deviation
Low Problems	140	70.15	8.54
Moderate Problems	149	63.22	9.83
High Problems	94	52.47	10.92
Overall Mean	383	64.38	11.27

Table 4 shows that pupils with low emotional and behavioural problems recorded the highest mathematics mean score ($M = 70.15$), whereas pupils with high levels of emotional and behavioural difficulties recorded the lowest mean score ($M = 52.47$). The noticeable decline in mathematics achievement as emotional and behavioural problems increase suggests a substantial influence of these psychological factors on academic performance. Pupils who struggle with emotional regulation or disruptive behaviours may find it more difficult to concentrate and fully participate in classroom activities, thereby affecting their mathematics outcomes.

3.2 Test Of Hypotheses

All hypotheses were tested at 0.05 level of significance.

Hypothesis One

H_{01} : Anxiety-related challenges have no significant relationship with mathematical achievement among primary school pupils.

Table 5: Pearson Correlation Coefficient of the Relationship Between Anxiety-Related Challenges and Mathematical Achievement (N = 383)

Variables	N	Mean Score	SD	Df	r-calc.	r-crit.	Remark
Anxiety-Related Challenges	383	2.95	0.76	381	-0.63	0.098	Significant
Mathematical Achievement	383	64.38	11.27				

- Level of Significance: 0.05 Decision Rule: *Reject H_0 if r -calculated > r -critical*

Table 5 shows that the calculated correlation value ($r = -0.63$) is greater in magnitude than the critical value ($r = 0.098$) at 381 degrees of freedom and 0.05 level of significance. Since the calculated value exceeds the critical value, the null hypothesis is rejected. This indicates a statistically significant negative relationship between anxiety-related challenges and mathematical achievement. In practical terms, as anxiety increases, mathematics performance significantly decreases among the pupils studied.

Hypothesis Two

H_{02} : Attention difficulties have no significant relationship with pupils' mathematical achievement.

Table 6: Pearson Correlation Coefficient of the Relationship Between Attention Difficulties and Mathematical Achievement (N = 383)

Variables	N	Mean Score	SD	Df	r-calc.	r-crit.	Remark
Attention Difficulties	383	2.91	0.74	381	-0.61	0.098	Significant
Mathematical Achievement	383	64.38	11.27				

- Level of Significance: 0.05

The calculated r-value of -0.61 is greater than the critical value of 0.098 at 381 degrees of freedom. Therefore, the null hypothesis is rejected. This result confirms a statistically significant negative relationship between attention difficulties and mathematics achievement. Pupils with higher levels of inattention tend to record lower mathematics scores.

Hypothesis Three

H₀₃: There is no significant relationship between self-esteem and mathematical achievement among primary school pupils.

Table 7: Pearson Correlation Coefficient of the Relationship Between Self-Esteem and Mathematical Achievement (N = 383)

Variables	N	Mean Score	SD	Df	r-calc.	r-crit.	Remark
Self-Esteem	383	3.12	0.68	381	0.58	0.098	Significant
Mathematical Achievement	383	64.38	11.27				

The calculated r-value (0.58) exceeds the critical value (0.098), leading to the rejection of the null hypothesis. This indicates a statistically significant positive relationship between self-esteem and mathematical achievement. Pupils who demonstrate higher self-confidence tend to achieve better results in mathematics.

Hypothesis Four

H₀₄: Emotional and behavioural problems have no significant influence on mathematical achievement among primary school pupils.

Table 8: Simple Linear Regression Analysis Showing the Influence of Emotional and Behavioural Problems on Mathematical Achievement (N = 383)

Variables	N	Be ta (B)	St andard Error (SE)	t-Statistic	P-value	R	R ²	F-Statistic	Degrees of Freedom (df)	Significance Level (alpha)	Remark
Emotional/Behavioural Problems	383	-0.59	0.1455	-4.0538	0.0000	0.59	0.35	206.74	1, 381	0.05	Significant

Table 8 presents simple linear regression analysis examining the influence of emotional and behavioural problems on mathematical achievement among primary school pupils. The calculated t-value (-14.38) with a corresponding p-value of 0.000 is statistically significant at

the 0.05 level, indicating that emotional and behavioural problems significantly predict mathematics performance. The negative beta coefficient (-0.59) shows that an increase in emotional and behavioural challenges leads to a decrease in mathematics achievement scores. The model summary statistics further reveal that $R = 0.59$, indicating a moderate relationship, while $R^2 = 0.35$ suggests that approximately 35% of the variance in mathematics achievement is explained by emotional and behavioural problems. The F-calculated value of 206.74 with degrees of freedom (1, 381) confirms that the regression model is statistically significant. Since the p-value is less than the level of significance (0.05), the null hypothesis is rejected. This implies that emotional and behavioural problems have a statistically significant and negative influence on mathematical achievement among the pupils studied.

3.3 Summary of the Findings

Based on the analysis of the four research questions and corresponding hypotheses, the study produced the following major findings:

1. Anxiety-related challenges were found to exert a noticeable negative influence on pupils' mathematical achievement. Pupils who reported higher levels of mathematics-related fear and worry tended to record lower achievement scores.
2. Attention difficulties significantly affected pupils' performance in mathematics. Learners who experienced frequent distraction, poor concentration, and task persistence problems performed below their peers with better attentional control.
3. A significant positive relationship was established between pupils' self-esteem and mathematical achievement. Pupils with healthier self-perceptions and stronger academic confidence generally demonstrated better mathematics outcomes.
4. Emotional and behavioural problems significantly predicted mathematical achievement. Increased emotional instability, withdrawal, aggression, or classroom misconduct were associated with lower mathematics scores.
5. Collectively, the psychological variables examined in the study accounted for a meaningful proportion of the variance in pupils' mathematics performance, indicating that cognitive ability alone does not fully explain achievement outcomes.

4. Discussion of the Findings

The finding that anxiety-related challenges negatively influence mathematical achievement aligns with contemporary evidence that mathematics anxiety disrupts working memory and problem-solving efficiency. Recent studies have shown that anxiety consumes cognitive resources needed for computation and reasoning (Barroso et al., 2021; Carey et al., 2020). In the Nigerian primary school context, fear of failure, teacher-centered instruction, and high-stakes testing may intensify this anxiety. The implication is that addressing mathematics anxiety through supportive classroom climates and guided practice could improve performance outcomes.

The study also revealed that attention difficulties significantly affect mathematics achievement. This is

consistent with research indicating that sustained attention and executive functioning are strong predictors of numeracy development (Tamm et al., 2021; Ahmed et al., 2022). In many overcrowded classrooms typical of urban public schools, pupils with attention challenges may struggle without structured support. The implication is that early identification and classroom-based behavioural interventions may enhance engagement and improve mathematical learning.

Furthermore, the significant positive relationship between self-esteem and mathematics achievement corroborates findings that academic self-concept influences persistence, effort, and resilience in problem-solving tasks (Marsh et al., 2020; Orth & Robins, 2022). Pupils who believe in their ability to succeed are more likely to attempt challenging tasks and recover from mistakes. In practical terms, teachers' feedback styles, peer interaction patterns, and parental encouragement can strengthen pupils' confidence and, by extension, their academic outcomes.

Finally, emotional and behavioural problems were found to significantly predict mathematics achievement. This agrees with research showing that emotional dysregulation and behavioural instability interfere with classroom learning and academic productivity (Baker et al., 2020; Graziano & Garcia, 2021). In environments where counselling services are limited, such challenges may remain unaddressed. The implication is clear: integrating basic psychosocial support within primary education may substantially improve academic achievement.

5. Conclusion

This study examined the influence of selected childhood psychological challenges on mathematical achievement among second-generation primary school pupils in Lagos Mainland Local Government Area. The findings clearly demonstrate that psychological well-being is closely intertwined with academic performance.

Anxiety-related challenges and attention difficulties were found to hinder mathematics achievement, while self-esteem enhanced performance outcomes. Emotional and behavioural problems significantly reduced pupils' academic success in mathematics.

The results suggest that mathematics achievement at the primary school level is not determined solely by instructional quality or cognitive ability. Emotional stability, attentional control, and self-belief are equally important contributors to performance.

Overall, improving mathematics outcomes in Nigerian primary schools requires a holistic approach that addresses pupils' psychological development alongside academic instruction.

6. Recommendations

Based on the findings of the study, the following recommendations are made:

1. Primary schools should incorporate structured anxiety-reduction strategies such as guided practice, peer collaboration, and low-stakes formative assessments during mathematics instruction.
2. Teachers should receive professional development training on identifying and managing attention-related challenges within inclusive classroom settings.

3. School administrators should strengthen counselling units and ensure access to basic psychological support services for pupils exhibiting emotional or behavioural difficulties.
4. Classroom teachers should adopt positive reinforcement and mastery-oriented feedback techniques to enhance pupils' academic self-esteem.
5. Parents should be sensitized through school-community programmes on the importance of emotional support and constructive academic encouragement at home.
6. Educational policymakers should integrate psychosocial screening frameworks into primary education monitoring systems to enable early intervention.

References

- Ahmed, S., Tang, S., Waters, N. E., & Davis-Kean, P. E. (2022). Executive function and academic achievement: Longitudinal associations in middle childhood. *Developmental Psychology*, 58(3), 456–468.
- Baker, C. N., Grant, S., & Morlock, L. (2020). The teacher–student relationship as a developmental context for children with internalizing or externalizing behavior problems. *School Psychology Review*, 49(1), 3–17.
- Barroso, C., Ganley, C. M., McGraw, A. L., Geer, E., Hart, S., & Daucourt, M. (2021). A meta-analysis of the relation between math anxiety and math achievement. *Psychological Bulletin*, 147(2), 134–168.
- Cai, X., Zhang, L., & Li, Y. (2025). Attention-deficit/hyperactivity disorder and academic performance: Evidence from primary school students. *Journal of Child Psychology and Education*, 42(3), 215–230.
- Carey, E., Hill, F., Devine, A., & Szűcs, D. (2020). The chicken or the egg? The direction of the relationship between mathematics anxiety and mathematics performance. *Frontiers in Psychology*, 11, Article 573153.
- González, L., Popovic, M., Rebagliato, M., Estarlich, M., Moirano, G., ... & Pizzi, C. (2024). Socioeconomic position, family context, and child cognitive development. *European Journal of Pediatrics*, 183(6), 2571–2585.
- Graziano, P. A., & Garcia, A. (2021). Attention-deficit hyperactivity disorder and children's emotion dysregulation: A meta-analysis. *Clinical Psychology Review*, 87, Article 102033.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30(3), 607–610.
- Lagos State Ministry of Education. (2024). *Primary school enrolment statistics*. Lagos State Government.
- Marsh, H. W., Pekrun, R., Parker, P. D., Murayama, K., Guo, J., Dicke, T., & Lichtenfeld, S. (2020). The murky distinction between self-concept and self-efficacy: Causal ordering and reciprocal effects models. *Journal of Educational Psychology*, 112(6), 1186–1205.
- Orth, U., & Robins, R. W. (2022). Is high self-esteem beneficial? Revisiting a classic question. *American Psychologist*, 77(1), 5–17.
- Pagerols, M., Torres, A., & López, J. (2022). Psychological difficulties and academic outcomes in early childhood: A longitudinal study. *Scientific Reports*, 12(1), 1120–1132.
- Tamm, L., Epstein, J. N., Peugh, J., Nakonezny, P. A., & Hughes, C. W. (2021). The relation between attention regulation and academic functioning in children. *Journal of Attention Disorders*, 25(9), 1234–1245.
- Uğraş, E. (2025). The impact of math anxiety on mathematics achievement in primary education. *Frontiers in Psychology*, 16(4), 455–470.