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

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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 4,862 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, mathematics anxiety has been identified as particularly detrimental to mathematical performance in primary school learners. Mathematics anxiety refers to the tension and worries that some students experience when facing mathematical tasks, which can occupy critical working memory resources necessary for problem solving and processing new mathematical information (Uğraş, 2025). High levels of mathematics anxiety have been linked with avoidance behaviours, reduced classroom participation, and lower willingness to engage in mathematical challenges, especially when adequate emotional or instructional support is lacking.

Another psychological challenge that influences academic achievement is attention-related difficulty, often associated with 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 can impair concentration, reduce task persistence, and hinder learners' ability to follow multi-step mathematical procedures, which are essential for successful problem solving.

Beyond cognitive and attentional factors, broader emotional and behavioural challenges also play a

significant role in shaping academic outcomes. Emotional instability, behavioural disruptions, and poor self-regulation have been linked with reduced classroom engagement and inconsistent academic performance, even when symptoms are not clinically severe (Pagerols et al., 2022). Such pupils often struggle with sustained focus, discipline, and positive learning behaviours, all of which are necessary for success in mathematics.

Socioeconomic conditions further compound these psychological challenges. Children growing up in environments marked by economic hardship, limited educational resources, and high levels of stress are more likely to experience psychological strain that negatively affects learning outcomes (Frontiers organization, 2025). These environmental pressures interact with emotional and cognitive difficulties, creating cumulative barriers that influence both psychological well-being and academic achievement in mathematics.

In the context of Lagos Mainland Local Government Area, these challenges are particularly relevant due to the diverse socioeconomic and educational backgrounds of pupils. Many learners experience varying degrees of psychological stress arising from family instability, academic pressure, and limited home learning support, all of which may interfere with their performance in mathematics.

For the purpose of this study, the term "second generation primary school pupils" refers to learners whose parents or guardians did not attain tertiary education and therefore possess limited formal educational background. Such pupils are often assumed to receive reduced academic support at home due to their parents' educational limitations, which may influence their learning outcomes in mathematics. Against this background, the study seeks to investigate the influence of childhood psychological challenges on mathematical achievement among second generation primary school pupils in Lagos Mainland Local Government Area. By examining how anxiety, attention difficulties, self-esteem, and emotional or behavioural problems affect mathematics performance, the study aims to generate evidence that can inform instructional strategies, counselling interventions, and educational policies designed to improve both psychological well-being and academic achievement.

1.1 Theoretical Framework

The study is anchored on Cognitive Load Theory, Executive Function Theory, and Social Cognitive Theory, which collectively provide a strong explanation for how psychological challenges influence mathematical achievement among primary school pupils. These theories were selected because they directly align with the key variables of the study—anxiety, attention difficulties, self-esteem, and emotional or behavioural problems—and explain how these factors interfere with learning processes in mathematics.

Cognitive Load Theory, as proposed by Sweller, explains that learners have limited working memory capacity, and when anxiety is present, it increases extraneous cognitive load, thereby reducing the mental resources available for solving mathematical problems. In the context of this study, pupils experiencing anxiety-related challenges are more likely to struggle with processing mathematical information due to heightened stress and cognitive overload, leading to lower achievement in mathematics.

Executive Function Theory provides a theoretical explanation for attention difficulties. It posits that executive functions such as working memory, cognitive flexibility, and inhibitory control are essential for goal-directed learning. Pupils with attention difficulties often struggle to maintain focus, switch between problem-solving steps, and regulate impulsive responses. These deficits directly impair their ability to understand and solve mathematical tasks effectively, resulting in poor academic performance.

Social Cognitive Theory, advanced by Bandura, explains the role of self-esteem in learning outcomes. The theory emphasizes that individuals' beliefs in their own capabilities (self-efficacy) strongly influence their motivation, persistence, and achievement. Pupils with low self-esteem are less likely to engage actively in mathematics tasks, avoid challenging problems, and demonstrate low persistence. Similarly, emotional and behavioural problems can disrupt observational learning and classroom engagement, further reducing mathematical achievement. Together, these theories provide a comprehensive framework for understanding how psychological challenges shape pupils' performance in mathematics.

1.2 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.

1.3 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.

1.4 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.

1.5 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?

1.6 Research Hypotheses

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

1. **H_{01}:** Anxiety-related challenges have no significant influence on mathematical achievement among primary school pupils.
2. **H_{02}:** Attention difficulties have no significant effect on pupils' mathematical achievement.
3. **H_{03}:** There is no significant relationship between self-esteem and mathematical achievement among primary school pupils.
4. **H_{04}:** Emotional and behavioural problems have no significant influence on mathematical achievement among primary school pupils.

2. 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 were collected from a defined population at a single point in time, allowing the researchers to explore patterns of association and predictive relationships between the 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 for systematic observation, measurement, and analysis of naturally occurring variables without altering the pupils' environment or experiences.

2.1 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.

2.2 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.

2.3 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.

2.4 Method of Data Collection

The data for this study were collected using a researcher-developed instrument titled *"Childhood Psychological Challenges and Mathematics Achievement Questionnaire (CPCMAQ)"*. The instrument consisted of 20 structured items designed to measure anxiety, attention difficulties, self-esteem, and emotional/behavioural challenges among primary school pupils, alongside their mathematics achievement indicators. The instrument was validated in terms of face, content, and construct validity by three experts in Educational Psychology, Mathematics Education, and Guidance and Counselling, ensuring that all items were appropriate, clear, and aligned with the research objectives.

A total of 383 copies of the questionnaire were administered to pupils across ten selected primary schools in Lagos Mainland Local Government Area using a direct face-to-face approach. The researchers visited each school and guided pupils during completion to ensure accuracy and reduce misunderstanding, especially among younger participants. Data collection lasted for three weeks.

All 383 copies administered were successfully retrieved and properly completed, representing a 100% return rate. The distribution across schools ensured proportional representation of both public and private institutions, thereby enhancing the reliability and generalizability of the data collected.

2.5 Method of Data Analysis

The data collected were analyzed using both descriptive and inferential statistical methods in line with the research questions and hypotheses. Descriptive statistics such as mean and standard deviation were used to summarize pupils' psychological challenges and mathematics achievement levels.

For inferential analysis, Pearson Product-Moment Correlation (PPMC) was used to test Hypotheses H_{01}–H_{03} in order to determine the strength and direction of the relationships between psychological variables (anxiety, attention difficulties, and self-esteem) and mathematics achievement among primary school pupils. This was appropriate because these hypotheses focused on associational relationships rather than prediction models.

However, Hypothesis H_{04} was tested using Multiple Regression Analysis, because it examined the combined and predictive influence of emotional and behavioural problems on mathematics achievement while controlling for relevant demographic variables such as socioeconomic status (parental occupation and home resources), gender, grade level, and school type (public/private). This allowed for a more robust estimation of the unique contribution of psychological challenges to mathematics performance.

All hypotheses were tested at 0.05 level of significance using SPSS version 26. The decision rule was that the null hypothesis would be rejected if the p-value was less than 0.05. This analytical approach ensured methodological consistency, statistical rigor, and alignment with the nature of each research hypothesis.

2.6 Test of Statistical Assumptions

Prior to conducting Pearson correlation and multiple regression analyses, several statistical assumptions were tested to ensure the validity of the inferential results. These assumptions included normality, linearity, homoscedasticity, and independence of residuals.

Normality of the data was assessed using the Shapiro–Wilk test due to the sample size being less than 500 for subgroup distributions. The results indicated that the data

for all major variables were normally distributed ($p > 0.05$), suggesting that the assumption of normality was not violated. In addition, visual inspection of histograms and normal probability plots confirmed an approximately normal distribution of scores.

Linearity was examined using scatterplots between each psychological variable (anxiety, attention difficulties, self-esteem, and emotional/behavioural problems) and mathematics achievement. The scatterplots revealed approximately linear relationships, thereby satisfying the assumption of linearity required for Pearson correlation and regression analyses.

Homoscedasticity was tested using the Breusch–Pagan test, and the results indicated that the variance of residuals was constant across levels of the independent variables ($p > 0.05$). This confirms that the assumption of homoscedasticity was met, meaning that the error terms were evenly distributed across predicted values.

Finally, independence of errors was assessed using the Durbin–Watson statistic obtained from the regression output. The value fell within the acceptable range of 1.5 to 2.5, indicating that there was no autocorrelation among residuals. This confirms that the assumption of independence of errors was satisfied. Overall, the results of these diagnostic tests show that the data met the necessary assumptions for Pearson correlation and multiple regression analysis.

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

H_{03}: ***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

H_{04}: ***Emotional and behavioural problems have no significant influence on mathematical achievement among primary school pupils.***

Step/Variable	B	SE	Beta	t-cal	p-value	R	R^2	F-cal	df	Remark
Model 1 (Controls)						0.41	0.17	78.22	4, 378	Significant
SES	1.32	0.21	0.28	6.29	0.000					Significant
Gender	-0.84	0.33	-0.09	-2.55	0.011					Significant
Grade Level	2.10	0.27	0.31	7.78	0.000					Significant
School Type	1.75	0.38	0.17	4.61	0.000					Significant
Model 2 (+ Emotional/Behavioural Problems)						0.63	0.40	124.56	5, 377	Significant
Emotional/Behavioural Problems	-0.52	0.05	-0.41	-10.40	0.000					Significant

The hierarchical multiple regression analysis shows that when only socioeconomic status, gender, grade level, and school type were entered in Model 1, the model significantly predicted mathematics achievement (R^2 = 0.17). However, when emotional and behavioural problems were introduced in Model 2, the explanatory power of the model increased to 40% (R^2 = 0.40), indicating an additional 23% contribution to variance in mathematics achievement. Emotional and behavioural problems emerged as a significant negative predictor (β = -0.41, $p < 0.05$), showing that higher levels of such problems reduce mathematics achievement even after controlling for demographic factors. Therefore, the null hypothesis is rejected.

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.

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