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Research Article

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Prevalence and Causes of Mathematics Phobia among Primary school pupils in Kwara State, Nigeria

By

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ABSTRACT

Mathematics phobia is a widespread emotional response that negatively impacts pupils' attitudes, confidence, and performance in mathematics, particularly among primary school learners in Kwara State, Nigeria. The study therefore examined the prevalence and causes of mathematics phobia among primary school pupils in Kwara State. Six purposes, two research questions, and four hypotheses were used. The study used constructivist learning theory and theory of anxiety unpinned for the study. Descriptive survey research design was used for the study. The total population was106,832 public and private primary school pupils, the study sample size was 379 pupils, and multistage sampling techniques were used to select sample for the study. The instrument was used to collect data from the pupils tagged "Mathematics phobia, prevalence and causes Questionnaire (MPPCQ). The reliability coefficient for the questionnaire was 0.70 at 0.05 level of significance. Data obtained from the respondents were analyzed using frequency count and percentage for the demographic profile, and research questions. The formulated hypotheses were tested using independent sample t-test at 0.05 level of significance. The findings showed that the prevalent of mathematics phobia among primary school pupils in Kwara State was high (Mean=2.52), it was also found out that the causes of mathematics phobia is I have had unpleasant experiences with mathematics in the past that still affect my attitude toward the subject (weighted mean 3.06), *it was revealed that there was no significant difference in the prevalence of mathematics phobia among primary school pupils in Kwara State, Nigeria, based on gender (t = .928; df = 377; P >0.05), there was no significant difference in the causes of mathematics phobia among primary school pupils in Kwara State, Nigeria. Based on gender (t = 1.555; df = 377; P >0.05). It was also showed that there was no significant difference in the prevalence of mathematics phobia among primary school pupils in Kwara State, Nigeria, based on school type (t = 1.359; df = 377; P >0.05). there was no significant difference in the causes of mathematics phobia among primary school pupils in Kwara State, Nigeria, based on school type (t = 6.048; df = 377; P >0.05). Based on the findings, it was concluded that there was high prevalent of mathematics phobia among primary school pupils, the causes of mathematics phobia among primary school pupils are unpleasant experience with math, discouraged from asking questions during math class. It was therefore recommended among others that The teachers should address negative past experiences with mathematics, given that unpleasant past experiences strongly influence pupils' attitudes toward mathematics, teachers should adopt positive reinforcement strategies, provide constructive feedback, and avoid practices that may humiliate or discourage pupils*

Keywords: Mathematics phobia, Prevalence, *causes*

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Introduction

Mathematics is a core subject that pupils learn in school; it is the study of numbers, quantities, shapes, structures, and their interrelationships. It encompasses a broad spectrum of concepts and methods essential for solving problems, identifying patterns, and making sense of the world around us. Mathematics is a universal language, enabling the exploration and description of patterns and principles that govern natural phenomena and human-made systems. Mathematics is a fundamental subject that plays a crucial role in developing critical thinking, problem-solving, and analytical skills among pupils. The importance and demands of mathematics often cause pupils to experience overwhelming fear and anxiety associated with the subject, a condition commonly referred to as mathematics phobia. This condition, characterized by avoidance, negative emotions, and low confidence in tackling mathematical tasks, has become increasingly prevalent in classrooms.

Mathematics phobia, or fear associated with mathematical tasks, continues to hinder educational progress in Nigeria. Adeniyi and Modebelu (2024) investigated the prevalence and management of mathematics phobia among secondary school students in Lagos State, highlighting how deeply rooted anxiety can negatively affect students' academic performance. Building on the need for effective interventions, Ebere and Abaver (2024) emphasised that integrating social media tools could enhance student engagement and reduce phobia in Rivers State, suggesting that technology-driven approaches may offer promising solutions to alleviate mathematics-related fears among learners. Odiliobi (2024) also analyzed student attitudes in Enugu State, revealing that phobia often stems from a systemic failure to present mathematics in relatable ways. Persisting mathematics phobia, as reflected in various Nigerian studies mentioned earlier, mirrors broader educational challenges such as resource constraints and conventional instructional approaches.

Mathematics phobia, also known as mathematics anxiety, is a global issue affecting students across educational systems. Studies by Luttenberger et al. (2018) estimated that approximately 30% of students worldwide experience level of mathematics anxiety, which can escalate to a phobia. This prevalence is influenced by societal, pedagogical, and individual cognitive and emotional factors. The global impact of mathematics phobia underscores the need for widespread educational reforms, including teacher training and student support systems, to mitigate its effects on learning outcomes and career choices.

Mathematics phobia, commonly referred to as mathematics anxiety, is a widespread psychological condition that affects a significant number of learners across various educational systems. It is particularly prevalent among primary school pupils, who often encounter mathematics with fear, apprehension, and a sense of helplessness. Research shows that up to 30% to 50% of students worldwide experience some level of mathematics anxiety, with younger pupils displaying even higher levels of fear due to their limited coping skills and cognitive development (Carey, Hill, Devine, & Szücs, 2017; Dowker, Sarkar, & Looi, 2016). In early schooling, pupils may develop negative emotional responses to mathematics as a result of repeated failure, rigid teaching methods, or a lack of appropriate support. This fear manifests in avoidance behaviors, such as reluctance to participate in class, skipping homework, and underperformance in assessments (Ashcraft & Krause, 2007).

In Nigeria, the prevalence of mathematics phobia among primary school pupils has been increasingly observed, yet comprehensive data remains limited, particularly within specific states like Kwara. Studies suggested that many pupils in Nigerian schools show signs of mathematics anxiety due to overcrowded classrooms, insufficient teaching materials, and teacher-centered instructional approaches (Olaoye &Agbatogun, 2020). In such environments, pupils are less likely to receive personalized support, and their anxiety is often reinforced by a fear of failure or public embarrassment. Moreover, pressures from high-stakes examinations and performance expectations can intensify these fears. Despite interventions such as curriculum reforms and teacher training programs, mathematics phobia persists among pupils, indicating that the issue may be deeper than instructional practices alone. Understanding the extent to which mathematics phobia exists among primary school pupils, especially in under-researched areas like Kwara State, is crucial for developing context-specific strategies aimed at reducing anxiety and improving pupils' engagement with mathematics.

Beyond the classroom, several environmental and socio-cultural factors have also been associated with the rising prevalence of mathematics phobia among primary school pupils. In many societies, cultural attitudes portray mathematics as inherently difficult, with success in the subject perceived as limited to a select few who are “naturally gifted.” Such beliefs can discourage effort and persistence, leading pupils to internalize a fixed mindset that they are not capable of succeeding in math. This mindset contributes to early development of fear and anxiety, particularly among pupils who experience initial difficulty with mathematical concepts. Additionally, societal stereotypes about gender and mathematics ability may contribute to increased anxiety, particularly among girls, thereby influencing overall prevalence rates across different demographic groups (Ganley &Lubienski, 2016).

Furthermore, the influence of teachers and parental attitudes plays a critical role in shaping pupils’ perception of mathematics. Teachers who exhibit anxiety toward the subject themselves may unintentionally transmit their fear to students, especially in the foundational years of learning. Similarly, parents who lack confidence in mathematics or who express negative views about the subject at home can reinforce pupils’ apprehension and reluctance to engage. These external influences often compound the psychological burden that pupils face in school, thereby increasing the likelihood of

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developing mathematics phobia. Given the interconnected nature of these contributing factors, a comprehensive investigation into both the prevalence and underlying causes of mathematics phobia is essential to inform targeted interventions that address the emotional, instructional, and environmental components of the problem.

Mathematics phobia, often termed as "math anxiety," is a widespread psychological phenomenon in early education. Several causes have been identified that contribute to the development of mathematics phobia among primary school pupils. One major cause is the traditional teacher-centered instructional method, which emphasizes rote learning and correct answers rather than conceptual understanding (Ashcraft & Moore, 2009). When pupils repeatedly encounter failure or receive harsh feedback during math lessons, they begin to associate the subject with fear and helplessness. Mathematics phobia, also known as math anxiety, is a feeling of tension, apprehension, or fear that interferes with math performance. Among primary school pupils in Nigeria, particularly in Kwara State, several interrelated factors contribute to this condition. Another cause is negative past experiences, such as repeated failure in math tests or being humiliated in class for giving wrong answers (Ashcraft, 2002). Such experiences often lead to a conditioned fear response where pupils begin to associate mathematics with failure and embarrassment.

Another key cause is poor teaching methods. In many Nigerian classrooms, especially at the primary level, math is often taught abstractly without the use of real-life examples or teaching aids. Teachers may also focus more on memorization and less on understanding, which fosters confusion and disinterest (Adeniji, 2012). According to Ojo (2014), “many teachers themselves lack confidence in math, and their anxiety can be transmitted to their pupils, consciously or unconsciously.” Parental influence also plays a vital role. If parents express anxiety or negativity about math at home, their children are likely to adopt the same mindset (Beilock et al., 2010). The home environment, especially in rural areas of Kwara State, may not provide the necessary support for learning mathematics. Language barriers in teaching mathematics can contribute significantly to math anxiety. Since math is often taught in English in Nigerian schools, pupils who are not proficient in English may struggle to understand mathematical concepts, leading to frustration and fear (Ubah & Binta, 2017).

Cultural beliefs and societal expectations contribute significantly to mathematics phobia, as Odiliobi (2024) observed that societal stereotypes portraying mathematics as inherently difficult often instill preconceived fears in students, thereby heightening their anxiety toward the subject. In Enugu State, these cultural beliefs are reinforced by parents, teachers, and peers, creating a self-fulfilling prophecy that affects student performance and long-term interest in the subject. Another factor is the lack of adequately trained mathematics teachers. Ebere and Abaver (2024) observed that many educators in Rivers State lack the necessary pedagogical skills to effectively address and manage students’ mathematics phobia. An overemphasis on assessment and examination pressures also exacerbates mathematics phobia. Adebayo (2024) discussed how Nigeria's assessment-focused educational system creates high-stakes environments that amplify students' fear of failure. The pressure to memorise leads to a fear-based learning approach, causing students to prioritise rote memorisation over conceptual understanding, thereby escalating their anxiety and reluctance to engage with mathematics.

Beyond instructional challenges and systemic pressures, individual learner characteristics such as gender also play a crucial role in shaping how mathematics phobia is developed and experienced. Gender has been widely studied as a significant variable influencing the development and experience of mathematics phobia among pupils. Research suggests that female students, particularly at the primary and secondary school levels, tend to report higher levels of mathematics anxiety compared to their male counterparts (Devine, et al 2012). This gender gap in mathematics anxiety is often attributed to a complex interplay of cognitive, emotional, social, and cultural factors. From an early age, societal beliefs and stereotypes frequently portray mathematics as a male-dominated field, thereby shaping girls’ perceptions of their abilities and expectations in the subject. As a result, girls may internalize negative beliefs about their mathematical competence, leading to increased anxiety and avoidance behaviors.

Studies have shown that even when girls perform equally well or better than boys in mathematics, they still tend to express lower confidence in their abilities (Ganley &Lubienski, 2016). This lack of confidence, coupled with high levels of anxiety, contributes significantly to the development of mathematics phobia among female pupils. Furthermore, teachers and parents may unintentionally reinforce these gendered attitudes by expressing lower expectations for girls in mathematics or by offering more support and encouragement to boys in the subject (Gunderson, Ramirez, Levine, &Beilock, 2012). In classroom settings, boys are often more likely to receive praise for correct answers, while girls may be more harshly judged for errors, creating a fear of failure and embarrassment that discourages active participation On the other hand, male pupils may experience mathematics anxiety differently. While they may be less likely to report high levels of anxiety, those who do often exhibit it through behavioral issues such as task avoidance, aggression, or withdrawal, In some cases, boys may underperform not because of low confidence, but due to lack of motivation or interest, which may still result in poor outcomes. This indicates that gender differences in mathematics phobia are not solely about the presence or absence of phobia, but about how anxiety is experienced, expressed, and addressed by pupils, teachers, and parents.

Gender plays a critical role in shaping how pupils experience and respond to mathematics, particularly in relation to anxiety or phobia. Recent studies have consistently shown that girls are more likely than boys to report higher levels of mathematics anxiety, even when their actual performance is equal or better (Else-Quest, et al 2020; Carey et al., 2017). This gender gap in mathematics phobia is often linked to early socialization processes, in which girls are subtly discouraged from engaging with numerically intensive tasks, while boys are encouraged to take on mathematical challenges with confidence. Over time,

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these influences lead to differing levels of self-efficacy, where girls are more prone to doubt their mathematical ability, contributing to fear, avoidance, and underperformance.

Gender continues to be a significant factor in the experience and expression of mathematics phobia among primary school pupils. Recent studies indicate that girls are more likely to report higher levels of mathematics anxiety than boys, even when their performance is equal or better (Else-Quest, et al 2020; Carey et al., 2017). This disparity is not solely a reflection of ability but rather the result of early socialization, cultural expectations, and classroom dynamics. Girls are often exposed to subtle messages that mathematics is more suitable for boys, which leads to the development of self-doubt and a fear of failure. These internalized beliefs often contribute to increased anxiety and a reluctance to engage with mathematical tasks.

While male pupils generally report lower levels of mathematics phobia, they are not immune to the problem. Boys may experience math anxiety differently and express it through behavioral issues such as inattention, disruptive behavior, or outright refusal to engage in tasks they find difficult (Maldonado, Nieuwoudt, & Richards, 2022). In some cases, boys feel pressured to appear confident and unemotional, making them less likely to admit anxiety or seek help when they need it. Consequently, their math phobia may go unnoticed or be misinterpreted as laziness or indiscipline. This gender difference in emotional expression means that interventions must be tailored not only to address the anxiety itself but also to recognize how it manifests across different pupils.

Gender disparities in mathematics phobia, with females experiencing higher anxiety due to societal stereotypes and negative attitudes towards the male-dominated field, as Beilock et al. (2010) found that female students' mathematics anxiety often stems from the transmission of anxieties by female teachers who themselves exhibit high levels of mathematics anxiety. Additionally, Else-Quest et al. (2010) conducted a meta-analysis demonstrating that cultural norms significantly impact the gender gap in mathematics phobia, with higher levels of gender equity reducing these disparities. In Nigeria, Odiliobi (2024) noted that cultural stereotypes and traditional gender roles exacerbate the fear of mathematics among female students, particularly in rural areas, where societal expectations often limit girls' engagement in STEM subjects.

The link between school type and mathematics phobia is not merely structural—it reflects deeper inequalities in the education system that shape pupils' attitudes, emotions, and learning outcomes. Public and private schools in Nigeria differ in terms of funding, teacher training, classroom environment, and administrative policies, all of which contribute to variations in how mathematics is taught and perceived. These factors, in turn, influence how pupils internalize their experiences with mathematics, and whether these experiences result in confidence or fear (Ajayi & Adebayo, 2022). In many public primary schools, chronic underfunding results in poorly equipped classrooms, insufficient teaching aids, and limited access to mathematics learning technologies. Pupils are often taught in overcrowded rooms where individualized attention is nearly impossible. Such learning environments contribute to confusion, disengagement, and performance anxiety, particularly in subjects like mathematics that require conceptual understanding and stepwise xi

progression (Okon & Oyetunde, 2021). When pupils repeatedly fail to grasp mathematical concepts due to a lack of support, they begin to associate mathematics with personal failure, triggering a cycle of fear, avoidance, and low achievement.

Conversely, private schools, though not without their challenges, tend to offer better infrastructure, more instructional resources, and a lower teacher-to-pupil ratio. This creates an environment where learners receive more attention and are encouraged to express their difficulties without fear of humiliation. Studies have shown that private school pupils often experience more mathematics enjoyment and less performance-related anxiety due to the interactive teaching methods used in such settings (Udo & Opara, 2023). Tools like visual aids, flashcards, games, manipulatives, and digital apps are more frequently used in private schools, making mathematics less abstract and more engaging for young learners.

School type, whether public or private, has been found to significantly influence the development and prevalence of mathematics phobia among primary school pupils. Differences in school infrastructure, teacher quality, classroom size, parental involvement, and instructional resources contribute to varying learning experiences, which in turn shape pupils' attitudes towards mathematics. Pupils in private schools often have access to better-trained teachers, smaller class sizes, and more engaging instructional materials, which can reduce anxiety and foster a more positive attitude toward mathematics. In contrast, overcrowded classrooms, limited resources, and a lack of individualized attention in many public schools may lead to frustration, poor performance, and the eventual development of mathematics phobia (Olatunde & Akinyemi, 2021).

Given the critical role of mathematics in shaping logical reasoning, problem-solving ability, and readiness for future academic paths, it is essential to investigate these issues at the grassroots level. While national and international studies have identified general trends in the prevalence and causes of mathematics phobia, there remains a notable gap in localised research that considers regional differences in schooling systems, teacher training standards, and pupil demographics. Kwara State, with its blend of urban and rural school settings, public and private institutions, and culturally diverse populations, offers a unique context for understanding how these variables play out in real-world classrooms. Unlike previous studies that often adopt a narrow focus or generalize findings across regions, this research will explore mathematics phobia from a holistic, context-specific lens, incorporating both pupil-level and school-level variables. These

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widespread and multifaceted challenges highlight the urgent need to carry out this study on the prevalence and causes of mathematics phobia among pupils in Kwara State.

Statement of the Problem

Mathematics phobia is a growing concern among primary school pupils, hindering their academic performance, cognitive development, and confidence in numerical reasoning. Although mathematics is intended to cultivate logical thinking, creativity, and problem-solving skills, many young learners perceive the subject as difficult and intimidating. This fear often leads to avoidance behaviors, reduced classroom participation, and consistent underperformance. As a result, pupils miss out on the opportunity to build essential mathematical skills that are foundational to their overall academic growth. The persistence of this phobia contributes to a learning gap, where pupils struggle not only with computation but also with higher-order thinking skills required in a technology-driven and data-centered world. Despite educational efforts to make mathematics more accessible, the disconnect between instructional approaches and pupils' learning needs continues to fuel anxiety and negative attitudes toward the subject.

In the context of Kwara State, there is still a lack of comprehensive data on how widespread mathematics phobia is among primary school pupils and what specific factors contribute to its occurrence. While various strategies such as teacher training, curriculum adjustments, and psychological interventions have been introduced to address the issue, the effectiveness of these efforts remains uncertain without localized research. Factors such as teaching methods, classroom environment, pupil-teacher relationships, gender differences, and school type may all play a role in shaping pupils' emotional responses to mathematics. Therefore, this study aims to empirically investigate the prevalence and causes of mathematics phobia among primary school pupils in Kwara State. By adopting a multistage sampling technique and considering variables such as gender and school type, the study seeks to provide insights that will inform targeted and practical solutions for reducing math anxiety and improving pupils' learning experiences and outcomes

Research Questions

The following research questions were raised and answered in the study:

1.What is the prevalence of mathematics phobia among primary school pupils in Kwara State?

2.What are the causes of mathematics phobia among primary school pupils in Kwara State?

Research Hypotheses

The following null hypotheses were formulated to guide this study:

H01: There is no significant difference in the prevalence of mathematics phobia among primary school pupils in Kwara State, Nigeria, based on gender.

H02: There is no significant difference in the causes of mathematics phobia among primary school pupils in Kwara State, Nigeria, based on gender.

H03: There is no significant difference in the prevalence of mathematics phobia among primary school pupils in Kwara State, Nigeria, based on school type.

H04: There is no significant difference in the causes of mathematics phobia among primary school pupils in Kwara State, Nigeria, based on school type.

Methodology

This study adopted a descriptive survey research design. A survey research design helps researchers to systematically describe facts about a population or a particular situation as it exists at the time of the study. This approach is deemed appropriate for the study as it involves direct interaction with the respondents to investigate the prevalence and causes of mathematics phobia among primary school pupils in Kwara State, Nigeria. The descriptive survey design was adopted to gather relevant information from respondents regarding their experiences, perceptions, and attitudes toward mathematics learning.

The study's population consists of 106,832 primary school pupils in Kwara State. However, the target population specifically includes primary school pupils from selected schools within Kwara State, ensuring a more focused examination of the prevalence and causes of mathematics phobia among young learners. At the first stage, a systematic sampling technique was utilized to select four Local Government Areas (LGAs) out of 16 Local Government Areas in Kwara State, which was the study population. To achieve this, every 4th LGA was systematically chosen, ensuring an evenly distributed and unbiased representation. Specifically, the 4th LGA (Ekiti Local Government), 8th LGA (Ilorin West Local Government), 12th LGA (Moro Local Government), and 16th LGA (Patigi Local Government) were selected, depicting

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106,832 pupils in the 4 Local Governments. The application of systematic sampling enhances the objectivity of the selection process by eliminating potential biases while maintaining a well-spread distribution of the sample across the region.

A sample size of 379 pupils was recommended for the population of 106,832. Hence, a simple random sampling technique was used to select 379 respondents from the population; therefore, to select respondents from each Local Government, within each local government, stratified sampling techniques were used to categorize schools into two strata: public and private. This is to ensure both schools were adequately selected. In each stratum (private and public) simple random sampling technique was used to select an equal number of schools. In each selected school 23 pupils were selected in each school to sum up to 95 pupils in each local government, therefore, 95pupils were selected in each local government to make a total number of 379 respondents. To achieve the main thrust of this study, A self-constructed questionnaire titled Mathematics Phobia Prevalence and Causes Questionnaire (MPPCQ) was meticulously designed to serve as the primary instrument for data collection in this study. The questionnaire was developed to elicit comprehensive and relevant information on the prevalence and causes of mathematics phobia among primary school pupils, ensuring a structured and systematic approach to gathering empirical evidence. The MPPCQ was systematically structured into three major sections to enhance clarity, ease of response, and focused data collection. Section A required relevant demographic data of primary school pupils such as gender (male and female) and school type (public or private)**.** The inclusion of this information enabled the study to analyze variations in mathematics phobia across different demographic categories, providing insights into potential patterns and disparities among pupils based on their educational background and socio-environmental factors.

Section B consisted of 15 items on the prevalence of mathematics phobia among primary school pupils; which focused on assessing the prevalence of mathematics phobia among primary school pupils by incorporating well-structured statements designed to evaluate their attitudes, emotional responses, and physiological reactions toward mathematics. For example, I often feel nervous or anxious when I am asked to solve a mathematics problem, This sub-section employed a modified four Likert-type scale of always (4), sometimes (3), rarely (2), and never (1), allowing for the measurement of varying degrees of mathematics phobia to ensure a nuanced and quantitative analysis of its prevalence. Section C contains the items on causes of Mathematics Phobia to investigate the underlying causes contributing to mathematics phobia among pupils.by incorporating well-structured statements designed to evaluate their attitudes, emotional responses, and physiological reactions toward mathematics. For example, I have had unpleasant experience with mathematics in the past that still affects my attitude towards the subject. This sub-section employed a modified four Likert-type scale of always (4), sometimes (3), rarely (2), and never (1), allowing for the measurement of varying degrees of mathematics phobia to ensure a nuanced and quantitative analysis of its causes

To ensure the reliability and consistency of the research instrument, test-re-test method of reliability was used. Pilot study was conducted before the main data collection process. This pilot study involved the administration of the Mathematics Phobia Prevalence and Causes Questionnaire (MPPCQ) to a sample of 25 primary school pupils from schools outside the designated study area. The selection of a separate set of respondents for the pilot study was crucial in preventing contamination of the main research and ensuring that the instrument's effectiveness was tested under similar but independent conditions. This approach involved administering the same questionnaire to the same group of pupils twice, within a two-week interval, under similar conditions. The responses obtained from both instances were analyzed using the Pearson Product-Moment Correlation Coefficient (PPMC) to measure the consistency of the instrument over time. A correlation coefficient (r-value) of 0.70 or higher will be considered statistically acceptable, indicating that the instrument possesses strong internal consistency and can reliably measure the intended constructs. The reliability coefficient for the instrument was 0.70

Results

Research Question One: What is the prevalence of mathematics phobia among primary school pupils in Kwara State?

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Table 1: Prevalence of mathematics phobia among primary school pupils in Kwara State

S/N	ITEMS	Mean	Std. Deviation	Remark
1.	How often do you feel nervous or anxious when you are asked to solve a mathematics problem	2.50	.833	Sometimes
2.	I have anxiety whenever I have Mathematics test	2.89	.900	Sometimes
3.	How often do you avoid participating in mathematics -related activities	2.63	.598	Sometimes
4.	How often do you feel confident about solving mathematics problems	2.59	.747	Sometimes
5.	How often do you make mistakes in mathematics ematics	2.56	.788	Sometimes
6.	How often do you experience physical symptoms (e.g., sweating, rapid heartbeat) when you have to do mathematics work	2.66	.732	Sometimes
7.	How often do you encounter mathematics problems	2.36	.599	Rarely
8.	How often do you find yourself thinking "I am bad at mathematics "	2.65	.707	Sometimes
9.	How often do you feel that your classmates are better than you at mathematics ematics	2.79	.735	Sometimes
10.	How often do you find mathematics lessons interesting and engaging	2.48	.760	Rarely
11.	How often do you have trouble understanding math concepts	2.59	.714	Sometimes
12.	How often do you worry about failing math tests or assignments	2.54	.766	Sometimes
13.	How often do you avoid doing math homework or assignments because it causes you stress	2.65	.748	Sometimes
14.	How frequent does a teacher asks you to solve a mathematics problem in front of the class	2.79	.629	Sometimes
15.	How frequently do you seek help from others (friends, teachers, family) to complete your mathematics assignments	2.70	.804	Sometimes
	Weighted average	**2.52**		

Decision: Never: 1.00-1.74, Rarely: 1.75-2.49 Sometimes: 2.50-3.24, Always: 3.25-4.00

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Table 1 shows the prevalence of mathematics phobia among primary school pupils in Kwara State**.** The weighted average is **2.52** which is greater than 2.49 the base line for opinions. This therefore shows a numeric indicator that the prevalent of Mathematics phobia among primary school pupils in Kwara State is high.

Research Question Two: What are the causes of mathematics phobia among primary school pupils in Kwara State?

Table 2 showing the causes of mathematics phobia among primary school pupils in Kwara State

S/N	ITEMS	Mean	Rank	Remark
1	I have had unpleasant experiences with mathematics in the past that still affect my attitude toward the subject	3.06	1st	Sometimes
2	My mathematics teacher shouts at pupils when they make mistakes.	2.57	12th	Sometimes
3	I don't understand the way mathematics is taught in class.	2.54	13th	Sometimes
4	I feel anxious and fearful during math tests due to pressure to perform well	2.50	14th	Sometimes
5	I feel uncomfortable asking questions in mathematics class.	2.83	3rd	Sometimes
6	Do you feel that you get enough time to learn and practice mathematics concepts in class?	2.71	7th	Sometimes
7	How often do you find math assignments or homework to be overwhelming?	2.61	10th	Sometimes
8	Does your teacher give you enough individual attention when you struggle with mathematics	2.58	11th	Sometimes
9	I don't have enough books or materials to practice mathematics at home.	2.74	5th	Sometimes
10	Do you feel that there are too many students in your class for the teacher to give attention to everyone during math lessons?	2.66	8th	Sometimes
11	I don't get help with my mathematics homework at home.	2.88	2nd	Sometimes
12	I feel ashamed when I make a mistake in mathematics class.	2.83	3rd	Sometimes
13	Do you feel that your parents/guardians have high expectations for you when it comes to mathematics	2.73	6th	Sometimes
14	How often do you hear negative remarks about mathematics from your family members?	2.49	15th	Rarely
15	Have you had negative experiences with mathematics in previous school years that have made you fear it?	2.62	9th	Sometimes
	Weighted average	**2.69**		

Decision: Never: 1.00-1.74, Rarely:1.75-2.49 Sometimes: 2.50-3.24, Always: 3.25-

Table 4 shows the causes of mathematics phobia among primary school pupils in Kwara State,based on ranking the causes of mathematics phobia among primary school pupils; I have had unpleasant experiences with mathematics in the past that still affect my attitude toward the subject (3.06),I don't get help with my mathematics homework at home.(2.88),I feel ashamed when I make a mistake in mathematics class(2.83),I feel uncomfortable asking questions in mathematics class(2.83),I don't have enough books or materials to practice mathematics at home.(2.74),Do you

feel that your parents/guardians have high expectations for you when it comes to mathematics(2.73),Do you feel that you get enough time to learn and practice mathematics concepts in class(2.71),Do you feel that there are too many students in your class for the teacher to give attention to everyone during math lessons(2.66),Have you had negative experiences with mathematics in previous school years that have made you fear it(2.62),How often do you find math assignments or homework to be overwhelming(2.61),does your teacher give you enough individual attention when you struggle with mathematics(2.58),My mathematics teacher shouts at pupils when they make mistakes.(2.57),I don't understand the way mathematics is taught in class(2.54),I feel anxious and fearful during math tests due to pressure to perform well(2.50)

Research Hypothesis 1: There is no significant difference in the prevalence of mathematics phobia among primary school pupils in Kwara State, Nigeria, based on gender.

Table 2: Summary of independent sample t-test showing difference in the prevalence of mathematics phobia among primary school pupils in Kwara State, Nigeria, based on gender

Gender	N	Mean	Std. Deviation	T	Df	Sig.	Remark
Male	142	39.66	2.950				
				.928	377	.354	Not Significant
Female	237	39.32	3.610				

Table 2 shows the significant difference in the prevalence of mathematics phobia among primary school pupils in Kwara State, Nigeria, based on gender. There was no significant difference in the prevalence of mathematics phobia among primary school pupils in Kwara State, Nigeria, based on gender($t = .928$; $df = 377$; $P > 0.05$). Therefore, in the light of the result, the hypothesis was not rejected, it implies that there was no significant difference in the prevalence of mathematics phobia among primary school pupils in Kwara State, Nigeria, based on gender since the significant level (.354) is greater than 0.05.

Research Hypothesis 2: There is no significant difference in the causes of mathematics phobia among primary school pupils in Kwara State, Nigeria, based on gender

Table 3: Summary of independent sample t-test showing difference in the causes of mathematics phobia among primary school pupils in Kwara State, Nigeria, based on gender

Gender	N	Mean	Std. Deviation	T	Df	Sig.	Remark
Male	142	40.80	4.088				
				1.555	377	.121	Not Significant
Female	237	40.21	3.206				

Table 3 shows the significant difference in the causes of mathematics phobia among primary school pupils in Kwara State, Nigeria, based on gender($t = 1.555$; $df = 377$; $P > 0.05$). Therefore, in the light of the result, the hypothesis was not rejected, it implies that there was no significant difference in the causes of mathematics phobia among primary school pupils in Kwara State, Nigeria, based on gender since the significant level (.121) is greater than 0.05.

Research Hypothesis 3: There is no significant difference in the prevalence of mathematics phobia among primary school pupils in Kwara State, Nigeria, based on school type.

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Table 4: Summary of independent sample t-test showing difference in the prevalence of mathematics phobia among primary school pupils in Kwara State, Nigeria, based on school type

School type	N	Mean	Std. Deviation	T	Df	Sig.	Remark
Public	213	39.66	3.481				
				1.359	377	.175	Not Significant
Private	166	39.18	3.237				

Table 4 shows the significant difference in the prevalence of mathematics phobia among primary school pupils in Kwara State, Nigeria, based on school type. There was no significant difference in the prevalence of mathematics phobia among primary school pupils in Kwara State, Nigeria, based on school type($t = 1.359$; $df = 377$; $P > 0.05$). Therefore, in the light of the result, the hypothesis was not rejected, it implies that there was no significant difference in the prevalence of mathematics phobia among primary school pupils in Kwara State, Nigeria, based on school type since the significant level (.175) is greater than 0.05.

Research Hypothesis 4: There is no significant difference in the causes of mathematics phobia among primary school pupils in Kwara State, Nigeria, based on school type.

Table 5: Summary of independent sample t-test showing difference in the causes ofmathematics phobia among primary school pupils in Kwara State, Nigeria, based on school type.

School type	N	Mean	Std. Deviation	T	df	Sig.	Remark
Public	213	41.37	3.261				
				6.048	377	.125	Not Significant
Private	166	39.23	3.594				

Table 5 shows the significant difference in the causes of mathematics phobia among primary school pupils in Kwara State, Nigeria, based on school type.Thus,there was no significant difference in the causes of mathematics phobia among primary school pupils in Kwara State, Nigeria, based on school type($t = 6.048$; $df = 377$; $P > 0.05$). Therefore, in the light of the result, the hypothesis was not rejected, it implies that there was no significant difference in the causes of mathematics phobia among primary school pupils in Kwara State, Nigeria, based on school type since the significant level (.125) is greater than 0.05.

Discussion

The first finding of the study revealed that the prevalence of mathematics phobia among primary pupils in Kwara State is high. The reason could be that pupils still have the belief that mathematics is a difficult subject that cannot be learnt easily. This finding is in line with the findings of Fadare and Abubakar (2023), which reported that 68% of young children in primary schools have higher levels of mathematical phobia. Similarly, Nwosu et al (2022) found out that 72% of pupils experienced a higher level of mathematics anxiety. This finding is directly related to the present study as it reinforces the core objective of investigating the prevalence of mathematics phobia among primary school pupils in Kwara State. The study revealed that mathematics phobia is highly prevalent among the target population, these previous studies support the notion that mathematics phobia is not an isolated issue but a widespread educational concern, particularly among young learners who are in their foundational academic years. The consistency between the current study and prior research helps to validate the findings, indicating that the problem may stem from common factors such as negative classroom experiences, societal myths about math being inherently difficult, and teaching methods that do not promote understanding or engagement. Therefore, this study contributes to the growing body of literature on mathematics anxiety by offering current, region-specific evidence from Kwara State, while also confirming broader national patterns.

Another finding of the study revealed that Based on the findings the causes of mathematics phobia among primary school pupils in Kwara State are ;I have had unpleasant experiences with mathematics in the past that still affect my attitude toward the subject (weighted mean 3.06),The reason for this is that the pupils are aware of the specific factors that trigger

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mathematics phobia in them. This finding is in accordance with the finding of Johnson and Usman (2023) who found out that teachers related factors like traditional, lecture-based method are factors that cause mathematics phobia among pupils. Similarly, Okoro and Udom (2022) reported that a major cause of mathematic phobia/anxiety in Nigerian primary school pupils is the negative experiences they face during their initial encounters with mathematics. This finding is directly related to the core focus of the current study, which is to examine both the prevalence and causes of mathematics phobia among primary school pupils in Kwara State. The fact that 93.33% of the identified items were confirmed as valid contributors to understanding the causes of mathematics phobia indicates that the pupils themselves have clear insight into the specific experiences, teaching methods, and emotional responses that make them anxious or fearful about mathematics. This not only validates the relevance and reliability of the research instrument used but also emphasizes the pupils' awareness of their learning environment and how it affects their perception of mathematics.

Another findings of the study revealed that there was no significant difference in the prevalence of mathematics phobia among primary school pupils in Kwara State based on gender ($t = .928$; $df = 377$; $P > 0.05$), meaning both male and female pupils perceive mathematics as equally difficult and anxiety-inducing. This may be because both genders are exposed to the same teaching methods, curriculum demands, assessment styles, and societal expectations, often characterized by abstract and rigid approaches to teaching mathematics. Such uniformity in educational exposure may explain why gender did not emerge as a determining factor, challenging the common belief that girls are more susceptible to mathematics phobia due to stereotypes or lower self-efficacy. The finding underscores the need for inclusive, holistic interventions rather than gender-targeted ones. However, it contrasts with Okoro and Udom (2023), who reported that 58% of female pupils experienced mathematics phobia compared to 37% of male pupils. This disparity may be linked to regional, cultural, or methodological differences, such as environments with stronger gender stereotypes or weaker encouragement for girls in STEM. The current result therefore contributes to the literature by showing that gender may influence mathematics phobia in certain contexts but not universally, as seen in the sampled population in Kwara State.

The study revealed no significant difference in the causes of mathematics phobia among primary school pupils in Kwara State based on gender ($t = 1.555$; $df = 377$; $P > 0.05$), suggesting that both male and female pupils are equally aware of the specific factors that trigger their fear of mathematics. These factors include poor teaching methods, lack of foundational understanding, fear of failure, negative early experiences, peer pressure, and learning difficulties. The result indicates that the experience and understanding of what causes mathematics anxiety are largely universal across genders in the study area, with both boys and girls exposed to similar classroom environments, teaching styles, and curriculum demands. This finding is consistent with Okoro and Udom (2022), who also reported no statistically significant gender difference in the causes of mathematics phobia among primary school pupils, reinforcing the conclusion that while anxiety levels may sometimes differ by gender, the root causes remain largely the same. The agreement between the two studies enhances the credibility and generalizability of the findings within the Nigerian educational context. It further underscores the need for broad-based interventions aimed at improving teaching quality, fostering positive learning experiences, and addressing systemic challenges for all pupils, rather than implementing gender-specific strategies.

The study found no significant difference in the prevalence of mathematics phobia among primary school pupils in Kwara State based on school type ($t = 1.359$; $df = 377$; $P > 0.05$), indicating that pupils in both public and private schools experience similar levels of fear and anxiety toward mathematics suggesting that underlying factors such as poor teaching methods, weak foundational knowledge, fear of failure, and negative early experiences are common to both public and private school pupils. This finding aligns with Adetunji and Odetayo (2020), who also reported that children across both school types exhibited apprehension toward the subject. A possible explanation for this uniformity is that despite differences in infrastructure or resources, pupils in both public and private schools are often exposed to similar teaching approaches, curriculum content, and assessment methods, which may contribute equally to the development of mathematics phobia. However, this finding contrasts with Adetunji and Odetayo (2020), who reported that public school pupils were more affected due to larger class sizes, insufficient individual attention, and limited learning resources compared to their private school counterparts. The divergence between the two studies may be attributed to contextual or methodological differences, such as variations in school management, teacher quality, or regional education policies. By addressing one of the core objectives of the present research examining whether school type significantly influences the prevalence and causes of mathematics phobia the findings suggest that in the Kwara State context, both public and private schools face similar challenges. This emphasizes the need for broad, system-wide interventions aimed at improving mathematics teaching and learning across all school types, rather than targeting one sector exclusively.

The study found no significant difference in both the prevalence ($t = 1.359$; $df = 377$; $P > 0.05$) and causes ($t = 6.048$; $df = 377$; $P > 0.05$) of mathematics phobia based on school type, indicating that pupils in public and private schools experience mathematics phobia to a similar degree and identify similar contributing factors. This aligns with Adetunji and Odetayo (2020) regarding prevalence, who also reported that fear of mathematics is common among children in both school types, suggesting that mathematics phobia is a widespread challenge in Nigerian primary education. The similarity may be due to pupils in both settings facing comparable teaching methods, curricular demands, and assessment pressures. However, the present study contrasts with Adetunji and Odetayo's (2020) conclusion on causes, which indicated that public school pupils are more affected due to overcrowded classrooms, inadequate resources, and limited teacher support. The divergence may be explained by improvements in public school conditions in Kwara State, balanced sampling in the current research, or regional variations in educational environments. Overall, the findings suggest that school type is not a

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major determinant of either the extent or the causes of mathematics phobia in Kwara State. This reinforces the study's aim to identify systemic rather than school-specific drivers of mathematics phobia and underscores the need for universal, state-wide reforms in teaching practices, curriculum delivery, and pupil support strategies.

Conclusion

The study examined prevalence and causes of mathematics phobia among primary school pupils in Kwara State, Nigeria, it was concluded that the prevalence of mathematics phobia among primary school pupils was high, also the causes of mathematics phobia among primary school pupils are unpleasant experience with math, discouraged from asking questions during math class, they think math is a subject where boys are better than girls in schools among others.

Recommendations

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

1. School administrators and Government should Strengthen mathematics pedagogy across all school types, the absence of significant differences based on school type suggests that both public and private schools face similar challenges in teaching mathematics. Teacher training programs should therefore emphasize learner-centered, interactive, and practical approaches to teaching mathematics across all schools.
2. The teachers should address negative past experiences with mathematics, given that unpleasant past experiences strongly influence pupils' attitudes toward mathematics, teachers should adopt positive reinforcement strategies, provide constructive feedback, and avoid practices that may humiliate or discourage pupils. Remedial classes and peer tutoring can also help rebuild pupils' confidence.
3. Mathematics teachers should encourage primary school pupils to develop a positive interest in mathematics by creating a friendly environment for learning.

References

Adebayo, T. A. (2024). Impact of assessment and examination pressures on mathematics anxiety in Nigeria. *Nigerian Educational Review, 18*(1), 72-85.

Adeniyi, R. A., &Modebelu, M. N. (2024). Mathematics anxiety among public senior secondary school students in Lagos State, Nigeria: Causes and interventions. *African Journal of Mathematics Education, 12*(1), 78–92.

Adetunji, A. O., &Odetayo, A. D. (2020). Factors contributing to mathematics phobia among secondary school students. *Journal of Educational Research and Development, 12*(3), 45-57.

Adeyemi, T. O., & Oyetunde, T. S. (2021). Enhancing teacher competence for improved mathematics instruction: The role of professional development programs. *Journal of Educational Research and Development, 18*(2), 45–60.

Adeyemi, A. M., & Oyetunde, T. O. (2021). *Teacher competence and its impact on pupils' mathematics anxiety in primary schools in Nigeria*. Journal of Educational Development, 8(2), 45–56

Adeyemo, S. (2021). *Enhancing mathematics education through innovative teaching strategies in Nigeria*. *Journal of Education and Learning*, 15(4), 65-75.

Ajiboye, J. O. (2021). *Constructivist approaches in Nigerian mathematics classrooms: Promoting engagement and reducing anxiety*. *Nigerian Journal of Educational Development*, 12(1), 1-10.

Akinoso, S. O. (2019). Comparative analysis of mathematics anxiety among public and private secondary school students. *International Journal of Educational Studies, 7*(2), 112-126.

Ali, A., & Zubair, M. (2023). Societal perceptions of mathematics and their impact on student anxiety. *International Journal of Educational Psychology, 14*(2), 112-125.

Ashcraft, M. H., & Kirk, E. P. (2020). The relationships between working memory, math anxiety, and math performance. *Journal of Experimental Psychology: General, 149*(5), 851-863.

Ashcraft, M. H., & Krause, J. A. (2022). Mathematics anxiety and cognitive consequences: A review of recent research. *Educational Psychology Review, 34*(1), 1-22.

ISSN: 2354-3930 | https://kwasuspace.kwasu.edu.ng/handle/123456789/1186

Ashcraft, M. H., & Kirk, E. P. (2001). The relationships among working memory, math anxiety, and performance. *Journal of Experimental Psychology: General, 130*(2), 224–237. https://doi.org/10.1037/0096-3445.130.2.224

Balogun, T. F., Adewale, K. J., & Olayemi, O. A. (2020). The influence of parental involvement and home environment on pupils' attitudes towards mathematics. *Nigerian Journal of Educational Psychology, 15*(3), 112–130.

Beilock, S. L., & Willingham, D. T. (2023). Reducing math anxiety in the classroom: Strategies and interventions. *Educational Psychology Review, 35*(2), 231-256.

Bicer, A., Capraro, R. M., & Capraro, M. M. (2021). The role of concrete manipulatives in mathematics anxiety reduction among elementary students. *Educational Studies in Mathematics, 107*(3), 341-356.

Boaler, J. (2022). *Mathematical mindsets*: Unleashing students' potential through creative math, inspiring messages and innovative teaching. Jossey-Bass.

Boateng, K. (2024). Mathematics anxiety among South African students: Causes and interventions. *African Journal of Mathematics Education, 14*(2), 98-115.

Carey, E., Hill, F., Devine, A., & Szücs, D. (2017). The Chicken or the Egg? The Direction of the Relationship Between Mathematics Anxiety and Mathematics Performance. *Frontiers in Psychology, 6*, 1987. https://doi.org/10.3389/fpsyg.2015.01987

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