

# Students' Perceptions of Mathematics Anxiety and Academic Stress: Influence of Gender, Teachers and Parents

Tiong Siew Lang, Dr. Muhammad Sofwan Bin Mahmud

Faculty of Education, University Kebangsaan Malaysia, Bangi, Selangor, Malaysia

Email: p144480@siswa.edu.ukm.my, sofwanmahmud@ukm.edu.my

DOI Link: <http://dx.doi.org/10.6007/IJARPED/v15-i2/28062>

*Published Online:* 09 April 2026

## Abstract

This study investigates primary school students' perceptions of mathematics anxiety and academic stress, focusing on the influence of gender, teacher and parental factors. Using a quantitative survey design, data were collected from 234 Year 4 to Year 6 students in Johor Bahru, Malaysia, through a structured questionnaire. Participants were chosen using simple random sampling. The data were examined using descriptive analysis involving mean, standard deviation, and percentage. The results showed that students demonstrated moderate to high levels of mathematics anxiety, especially during tests and time-pressured tasks. Academic stress was mainly caused by challenging assignments and high expectations from teachers and parents. Gender-related beliefs influenced students' confidence, with many perceiving males as naturally better in mathematics. Supportive teacher attitudes were linked to lower anxiety, while excessive parental pressure increased stress. The findings highlight the importance of supportive and inclusive learning environments, emphasizing collaboration between teachers and parents to reduce mathematics anxiety.

**Keywords:** Mathematics Anxiety, Academic Stress, Gender Beliefs, Teacher Support, Parental Pressure

## Introduction

Mathematics is an important subject that provides a foundation for enhancing critical thinking and problem-solving abilities. It focuses on understanding numbers, patterns, shapes and solving problems, which involve both calculation and reasoning abilities (Kusmaryono, Gufron, & Rusdiantoro, 2020). However, Er Xiao and Roslinda (2021) state that mathematics can be challenging because students' learning is influenced by their personal abilities as well as the surrounding physical and social environment. As a result, mathematics is often recognised as a major source of anxiety among young learners.

Despite its importance, a large number of students experience negative emotions when engaging with mathematics, commonly referred to as mathematics anxiety. This type of anxiety involves feelings of nervousness, concern and fearfulness that disrupt a student's ability to complete mathematical tasks effectively. Spangler (2020) explains that mathematics is often associated with stress, anxiety, frustration and boredom. More recent empirical

studies further confirm that mathematics anxiety can develop as early as primary school and significantly affect students' academic performance, motivation and long-term attitudes toward learning (Ahmmed et al., 2024; Kul et al., 2024). Among primary school students, this anxiety can persist into later stages of education, shaping their confidence and achievement in mathematics.

Mann and Walshaw (2019) state that anxiety during examinations is one of the main factors contributing to mathematics anxiety. Students who experience this anxiety often feel extremely nervous when being assessed and tend to develop negative expectations about their performance. Mathematics anxiety is also linked to biological, educational, cognitive and neural factors, and is largely driven by fear and the belief that one is unable to solve mathematical problems (Kul et al., 2024). Furthermore, Samuel and Warner (2021) explain that mathematics anxiety arises not only from the difficulty of the content but also from the way the subject is taught and presented to students.

In recent years, increasing attention in the social sciences has been given to students' emotional well-being, particularly the impact of academic pressure on young learners. Primary school students today face various sources of stress, including high expectations from teachers and parents, competitive learning environments and standardized testing, all of which contribute to their overall academic stress levels (Jarvis et al., 2020; Wang et al., 2021). At the same time, ongoing discussions on gender equity in education highlight how societal beliefs may influence students' perceptions of their mathematical abilities, often positioning mathematics as a male-dominated subject and affecting students' confidence, especially among female learners (Mweni et al., 2023).

The presence of both mathematics anxiety and academic stress in young learners can result in decreased motivation, lower academic achievement and a negative self-concept, particularly in relation to their mathematical abilities. Therefore, it is important to further examine these issues at the primary school level, as early experiences play a crucial role in shaping students' future attitudes and learning outcomes. This study contributes to ongoing debates in the social sciences on primary school students' perceptions of mathematics anxiety and academic stress, while also considering the influence of gender beliefs, teacher support and parental pressure in shaping students' learning experiences.

### **Problem Statement**

Although mathematics is a fundamental subject that shapes students' cognitive development, reasoning ability and academic success, an increasing number of primary school students encounter emotional and psychological barriers that hinder their mathematical performance. Mathematics anxiety, which refers to feelings of tension, fear or worry that disrupt the process of solving mathematical problems, is commonly observed among young learners. Peng and Roslinda (2021) reported that students with higher levels of mathematics anxiety often have reduced working memory capacity, which affects their ability to remember steps and apply problem-solving strategies effectively. Students who consistently experience this anxiety may avoid engaging with mathematics tasks, feel nervous during assessments and lack confidence when explaining solutions to others (Spangler, 2020). More recent studies also indicate that early experiences of mathematics anxiety can have

long-term effects on students' academic development and attitudes toward learning (Ahmmed et al., 2024; Kul et al., 2024).

Mathematics anxiety is influenced by various classroom-related and instructional factors. Samuel and Warner (2021) emphasize that anxiety is not solely caused by the complexity of mathematical content but is also shaped by how mathematics is taught and assessed. Teaching approaches that prioritise memorisation, speed and accuracy without developing conceptual understanding can heighten students' emotional discomfort (Roy & Kumar, 2023). In addition, fear of negative evaluation, peer comparison and repeated failure may contribute to avoidance behaviours among students, which over time result in lower motivation, decreased self-efficacy and poorer mathematics performance (Muner & Rosli, 2023). These issues reflect ongoing concerns in educational research regarding the balance between academic performance and students' emotional well-being.

At the same time, students also experience academic stress, which often overlaps with and reinforces mathematics anxiety. Academic stress is commonly driven by heavy homework, high parental expectations and competitive school environments (Jarvis et al., 2020). Research by Wang et al. (2021) found that strong academic pressure and social expectations contribute to higher levels of mathematics anxiety, particularly in education systems that emphasise achievement and performance. Persistent stress can negatively affect students' emotional well-being, leading to frustration, disengagement and reduced persistence in learning mathematics (Mofatteh, 2021). This issue is increasingly discussed in the social sciences, particularly in relation to the impact of performance-oriented education systems on young learners.

In addition, gender-related beliefs about mathematics ability continue to influence students from an early age. Studies show that societal stereotypes often portray mathematics as a male-dominated domain, which can affect students' confidence and contribute to higher anxiety levels, particularly among female students (Mweni et al., 2023). If such perceptions are not addressed, they may shape students' self-concept and limit their future participation in mathematics-related fields.

Despite increasing attention to these issues, limited research focuses specifically on primary school students, even though this stage is crucial for forming foundational attitudes toward mathematics. Most existing studies have examined mathematics anxiety in secondary or tertiary education, leaving a gap in understanding how these emotional challenges emerge at the early stages of learning (Kul et al., 2024). While prior studies have examined mathematics anxiety independently, limited research integrates academic stress, gender perceptions, and social influences within a single framework at the primary school level.

Therefore, this study is necessary to examine mathematics anxiety in relation to academic stress, while considering gender perceptions and the roles of teachers and parents. By addressing these interconnected factors, this study contributes to current discussions on student well-being, educational pressure and gender equity, while providing insights into how more supportive and emotionally responsive mathematics learning environments can be developed at the primary school level.

### *Research Objectives*

1. To identify primary school students' perceptions of their level of mathematics anxiety.
2. To examine level of students' perceptions of academic stress experienced in learning mathematics.
3. To examine level of students' perceptions of gender-related differences in mathematics anxiety.
4. To examine level of students' perceptions of the role of teachers and parents in influencing mathematics anxiety.

### *Research Questions*

1. What are primary school students' perceptions of their level of mathematics anxiety?
2. What is the level of students' perceptions of academic stress experienced in learning mathematics?
3. What is the level of students' perceptions of gender-related differences in mathematics anxiety?
4. What is the level of students' perceptions of the role of teachers and parents in influencing mathematics anxiety?

### **Literature Review**

Mathematics anxiety is influenced by biological, instructional, cognitive, and neural factors, and is primarily triggered by fear and a perceived inability to handle mathematical tasks (Kul et al., 2024). Mathematics anxiety is closely linked to academic stress within the field of educational psychology. In many cases, increased levels of academic stress are seen as a consequence of students experiencing anxiety related to mathematics. This can lead to a range of negative effects, including lower academic achievement and a decline in students' emotional well-being. In this section, we examine existing studies on both academic stress in learning mathematics and mathematics anxiety itself. The discussion will also extend to key focus areas such as the factors that contribute to math anxiety, differences in anxiety levels between genders and the roles played by teachers and parents. These themes help provide a clearer understanding of the root causes and outcomes of these issues and offer important insights into how they influence students' learning and performance.

### *Mathematics Anxiety in Primary Students*

Mathematics anxiety is a significant emotional barrier that affects students' ability to learn and perform effectively in mathematics. It is widely defined as an emotional response of tension, anxiety, or fear that hinders one's mathematical performance and problem-solving abilities (Prasetyo et al., 2023). Among primary school students, this anxiety often develops during early exposure to mathematical tasks such as tests, mental calculations or class questioning. When students repeatedly encounter failure, receive negative feedback, or are compared with others, they begin to associate mathematics with fear and embarrassment. Over time, these experiences can create avoidance behaviour, where students intentionally avoid math-related activities to protect themselves from discomfort. According to Peng and Roslinda (2021), mathematics anxiety also disrupts cognitive functioning, as anxious thoughts occupy working memory and limit the ability to focus during problem-solving. This cognitive interference causes students to make errors even when they understand the concepts being taught, leading to frustration and reduced confidence.

Mathematics anxiety affects not only students' achievement but also their emotional well-being and long-term attitude toward the subject. Physiological symptoms such as nervousness, rapid heartbeat and sweating are common when students face mathematics-related tasks, indicating that anxiety triggers both psychological and physical stress responses (Kul, Aksu & Satici, 2024). These emotional reactions can accumulate over time, creating a cycle in which anxiety leads to poor performance, which in turn reinforces greater anxiety. Studies have shown that mathematics anxiety is more likely to occur in learning environments that emphasize accuracy, time pressure and competition rather than understanding and reasoning (Samuel & Warner, 2021). When left unaddressed, mathematics anxiety can lead students to lose interest in the subject and avoid advanced mathematical learning in the future. Therefore, understanding the nature and effects of mathematics anxiety at the primary level is essential, as early intervention can help prevent long-term negative impacts on students' academic development and confidence in mathematics.

#### *Academic Stress and External Pressures*

Academic stress in primary school students refers to the emotional strain or pressure they experience in response to academic demands. In mathematics, this stress is often linked to homework load, test performance and the fear of not meeting expectations. For young learners, these pressures can feel overwhelming. Jarvis et al. (2020) discovered in their study conducted in South Korea that societal expectations linking academic achievement with social status create strong pressure on students to meet high standards, which may heighten their mathematics anxiety. Such pressure can also affect students' mental health and raise the risk of emotional problems, including stress and depression (Mofatteh, 2021). External pressures such as parental expectations and competitive classroom environments significantly contribute to academic stress. Some parents unknowingly increase anxiety by emphasizing high achievement or comparing their children to others.

Similarly, classroom cultures that reward speed and accuracy over understanding can lead students to feel inadequate if they struggle. Arslan (2020), in a study of 337 students, found a positive correlation between mathematics anxiety and exam anxiety. In fact, anxiety experienced during assessments is one factor that contributes to higher levels of mathematics anxiety. Teachers who focus heavily on grades and testing, rather than growth and effort may unintentionally add to students' stress. This can lead to burnout, lack of motivation and avoidance of math-related activities. Prolonged academic stress can negatively impact students' emotional health and hinder their overall academic achievement. Therefore, fostering a supportive environment that emphasizes effort, progress, and emotional security is essential to minimizing academic stress in mathematics learning. Early exposure to such pressures can cause children to associate math with stress.

#### *Gender Differences in Mathematics Anxiety*

Research on gender differences in mathematics anxiety has been widely studied, with many studies indicating that female students generally experience higher levels of anxiety toward mathematics compared to male students. Although the actual performance in mathematics may not vary significantly between genders, female learners often demonstrate less positive attitudes toward the subject and experience higher levels of test anxiety (Richland et al., 2020). This trend appears even at the primary school level, where girls may begin to internalize negative beliefs about their math abilities. Such differences are not

necessarily due to performance gaps but are often influenced by social expectations and stereotypes. One contributing factor is the societal belief that boys are naturally better at mathematics, which can shape the self-perception and confidence of young girls.

Research has shown that female students, in comparison to their male peers, may hold limiting beliefs about the causes of success, view mathematics as a male-oriented domain, and experience greater mathematics anxiety, which can negatively influence their academic performance (Mweni et al., 2023). Such stereotypes can cause girls to question their abilities, leading to greater anxiety, even when their performance is equal to or better than that of boys. Girls may be more likely to feel embarrassed or fear making mistakes in front of others, especially in competitive settings. Over time, this can cause them to disengage from math-related activities, reinforcing the cycle of anxiety. To address this issue, it is essential to provide gender-inclusive support, encourage growth mindsets and cultivate a learning environment that is supportive for every student.

### *Role of Teachers and Parents*

Teachers and parents are key in shaping the levels of mathematics anxiety and academic stress experienced by primary school students. The way adults communicate about mathematics, offer support and respond to mistakes can greatly influence a child's emotional response to learning mathematics. Low-achieving students in mathematics report that teachers who display negative attitudes and use less effective teaching methods can affect their interest in the subject. Teachers who are strict, rigid, unengaging, or rely on limited and ineffective teaching approaches can cause students to feel less connected to learning mathematics (Abd Karim et al., 2023). Teachers who emphasize high-stakes testing, competition or punishment for errors may unintentionally heighten anxiety. Supportive teachers who promote understanding over speed, encourage questioning and create a low-stress classroom environment can help reduce students' fear of failure and build confidence in their abilities. This is because teachers have a significant role in establishing an effective learning environment, both emotionally and practically (Mann & Walshaw, 2019).

Parental influence is equally significant. Multiple comprehensive studies in this field have confirmed that parental involvement plays a crucial role in mathematics anxiety. In particular, parents' own fear or anxiety toward mathematics often emerges as a key contributor to the development of math anxiety in their children (Zanabazar, Deleg & Ravdan, 2023). When parents express anxiety about math or put excessive pressure on academic performance, children may internalize these emotions and develop stress toward the subject. Children are less likely to experience mathematics anxiety when their parents foster an open and supportive communication environment (Demirtaş & Uygün-Eryurt, 2022). When parents provide encouragement and show interest in their child's learning process, students tend to develop more positive attitudes. Therefore, collaboration between teachers and parents is essential. Supportive teachers and parents can create a caring environment that helps students become more confident and less anxious.

## **Methodology**

### *Research Design*

This study employed a quantitative survey research design to explore primary school students' perceptions of mathematics anxiety, academic stress, gender differences and the

role of teachers and parents in reducing anxiety. This design was chosen to allow the collection of numerical data from a larger sample and to analyse trends and relationships among variables related to students' emotional responses to mathematics learning. The questionnaire was adapted from previously validated tools (Yang & Khairul Azhar, 2024).

#### *Population and Sample*

A total of 234 students were selected from a population of 585 primary school students from Year 4 to Year 6 to ensure proportional representation across grade levels and gender. In terms of grade level, the respondents were relatively balanced across Year 4 ( $n=78$ , 33.3%), Year 5 ( $n=77$ , 32.9%) and Year 6 ( $n=79$ , 33.8%). The gender distribution was slightly skewed toward female students, with 128 females (54.7%) and 106 males (45.3%). Respondents were selected using a simple random sampling technique to ensure fair representation across demographic groups.

Table 1

#### *Respondent Grade Level*

| Grade level  | Frequency  | Percent(%)  |
|--------------|------------|-------------|
| Year 4       | 78         | 33.3%       |
| Year 5       | 77         | 32.9%       |
| Year 6       | 79         | 33.8%       |
| <b>Total</b> | <b>234</b> | <b>100%</b> |

Table 2

#### *Experience of Anxiety Related to Mathematics*

| Experience of Anxiety | Frequency  | Percent(%)  |
|-----------------------|------------|-------------|
| Yes                   | 137        | 58.5%       |
| No                    | 97         | 41.5%       |
| <b>Total</b>          | <b>234</b> | <b>100%</b> |

#### *Research Instrument*

A structured questionnaire was used as the primary research instrument. The questionnaire was divided into five sections: Section A (Demographic Information) and Sections B to E, which covered Mathematics Anxiety, Academic Stress in Mathematics Learning, Gender Differences in Mathematics Anxiety and the Role of Teachers and Parents. A 5-point Likert scale, from 1 (Strongly Disagree) to 5 (Strongly Agree), was used to measure responses for each item, allowing the data to be standardized for straightforward analysis in SPSS. The questionnaire is adapted from previously validated instruments and modified suit primary school students.

#### *Data Collection Procedure*

The survey was conducted using a structured questionnaire that was distributed to primary school students during regular school hours. Respondents completed the questionnaire in a classroom setting under the supervision of the researcher and their teachers to ensure clarity of instructions and independent responses. Before distributing the questionnaire, students were provided with a brief explanation of the study's purpose and assured that their participation was completely voluntary, with all responses kept anonymous

and confidential. All returned questionnaires were reviewed for completeness before being entered into SPSS software for analysis.

#### *Data Analysis Method*

The collected data were analysed using descriptive statistics, including mean scores, standard deviations and percentage of agreement (responses of 4 or 5 on the Likert scale). This analysis was used to summarize the level of agreement for each item and to identify overall trends in mathematics anxiety and related factors. All analyses were conducted using SPSS software to ensure accuracy and consistency.

#### **Findings**

Table 3

#### *Students' Perceptions on Mathematics Anxiety*

| ITEM  | STRONGLY DISAGREE | DISAGREE | NEUTRAL | AGREE             | STRONGLY AGREE |
|---|-------------------|----------|---------|-------------------|----------------|
| I feel tense when solving math problems under time constraints. | 16 (7%)           | 39 (17%) | 14 (6%) | 96 (41%)          | 69 (29%)       |
| I often worry about making mistakes in math.                    | 19 (8%)           | 36 (15%) | 16 (7%) | 84 (36%)          | 79 (34%)       |
| The thought of taking a math test makes me anxious.             | 18 (8%)           | 31 (13%) | 13 (6%) | 76 (32%)          | 96 (41%)       |
| I feel nervous when I have to explain a math problem to others. | 20 (9%)           | 35 (15%) | 15 (6%) | 83 (35%)          | 81 (35%)       |
|   |                   |          |         | <b>Total Mean</b> | <b>3.75</b>    |

The analysis reveals that students experience a moderately high level of mathematics anxiety. The highest level of anxiety was related to the thought of taking a math test, with 73% of students agreeing or strongly agreeing ( $M = 3.85$ ). This was followed by worrying about making mistakes in mathematics ( $M = 3.73$ ; 70% agreement). Feelings of tension when solving math problems under time constraints ( $M = 3.68$ ) and nervousness when explaining math problems to others ( $M = 3.73$ ) also showed high levels of agreement, around 70% of respondents. Overall, the total mean score of 3.75 indicates that students generally experience considerable anxiety across different mathematical situations, particularly in testing and performance-related contexts.

Table 4

*Students' Perception on Academic Stress in Mathematics Learning*

| ITEM  | STRONGLY<br>DISAGREE | DISAGREE | NEUTRAL | AGREE                 | STRONGLY<br>AGREE |
|---|----------------------|----------|---------|-----------------------|-------------------|
| I feel overwhelmed by the difficulty of mathematics assignments.    | 10 (5%)              | 36 (17%) | 15 (7%) | 79 (38%)              | 68 (33%)          |
| High expectations from my teachers and parents increase my stress.  | 12 (6%)              | 30 (14%) | 14 (7%) | 91 (44%)              | 61 (29%)          |
| I find it hard to cope with the pressure to perform well in math.   | 30 (14%)             | 27 (13%) | 12 (6%) | 72 (35%)              | 67 (32%)          |
| I feel stressed when there is a lot of competition in math classes. | 13 (6%)              | 39 (19%) | 16 (8%) | 76 (37%)              | 64 (31%)          |
|   |                      |          |         | <b>Total<br/>Mean</b> | <b>3.69</b>       |

Based on Table 4, the total mean score of 3.69 indicates that students experience a moderate to high level of academic stress in mathematics learning. The highest stress factors were related to the difficulty of mathematics assignments and high expectations from teachers and parents, with about 71% of students agreeing or strongly agreeing ( $M = 3.77$ ). Stress caused by competition in math classes was also notable, with 68% agreement ( $M = 3.64$ ). Meanwhile, 67% of students agreed that they found it hard to cope with the pressure to perform well ( $M = 3.58$ ). Overall, the findings indicate that various academic and social pressures contribute significantly to students' stress in mathematics learning.

Table 5

*Students' Perceptions on Gender Differences in Mathematics Anxiety*

| ITEM   | STRONGLY<br>DISAGREE | DISAGREE | NEUTRAL | AGREE                 | STRONGLY<br>AGREE |
|--|----------------------|----------|---------|-----------------------|-------------------|
| I believe that boys are naturally better at math than girls.                 | 19 (9%)              | 29 (14%) | 11 (5%) | 81 (38%)              | 74 (34%)          |
| I feel that societal expectations about gender affect how I perform in math. | 14 (7%)              | 30 (14%) | 13 (6%) | 82 (39%)              | 75 (34%)          |
| Female students experience more math anxiety than male students in my class. | 22 (10%)             | 25 (12%) | 10 (5%) | 65 (31%)              | 92 (42%)          |
| Gender stereotypes contribute to my anxiety in mathematics.                  | 16 (8%)              | 31 (15%) | 19 (9%) | 70 (33%)              | 78 (35%)          |
|  |                      |          |         | <b>Total<br/>Mean</b> | <b>3.77</b>       |

Based on Table 5, the total mean score of 3.77 indicates that students experience a moderately high level of mathematics anxiety influenced by gender perceptions. The highest anxiety level was related to the perception that female students experience more mathematics anxiety than male students, with 73% agreement ( $M = 3.85$ ). Anxiety was also associated with societal expectations about gender and mathematics performance, where 73% of students agreed ( $M = 3.80$ ). Meanwhile, 71% of students believed that boys are naturally better at mathematics than girls ( $M = 3.74$ ), and 70% agreed that gender stereotypes contribute to their mathematics anxiety ( $M = 3.71$ ). Overall, these findings suggest that gender-based perceptions, societal norms, and cultural expectations play a significant role in shaping students' attitudes, confidence, and emotional experiences in mathematics learning.

Table 6

*Students' Perceptions on Role of Teachers and Parents in Reducing Mathematics Anxiety*

| ITEM   | STRONGLY DISAGREE | DISAGREE | NEUTRAL  | AGREE             | STRONGLY AGREE |
|--|-------------------|----------|----------|-------------------|----------------|
| My teacher's attitude toward math helps me feel more confident in the subject. | 18 (9%)           | 30 (14%) | 15 (7%)  | 79 (38%)          | 66 (32%)       |
| My parents' encouragement helps reduce my anxiety about math.                  | 19 (9%)           | 35 (17%) | 20 (10%) | 70 (34%)          | 64 (31%)       |
| A supportive teacher can make math feel less stressful.                        | 14 (7%)           | 32 (15%) | 12 (6%)  | 68 (33%)          | 82 (39%)       |
| My parents' pressure to perform well in math increases my anxiety.             | 17 (8%)           | 30 (14%) | 14 (7%)  | 79 (38%)          | 68 (33%)       |
|  |                   |          |          | <b>Total Mean</b> | <b>3.71</b>    |

Based on Table 6, the total mean score of 3.71 indicates that students generally agree that teachers and parents play an important role in reducing mathematics anxiety. The highest mean ( $M = 3.82$ ) was observed for the perception that a supportive teacher can make math feel less stressful, with 72% agreement. This was followed by the belief that teachers' positive attitudes help students feel more confident in math ( $M = 3.70$ , 70% agreement). Students also agreed that parental encouragement reduces anxiety ( $M = 3.61$ , 65% agreement). However, many students acknowledged that parental pressure to perform well increases anxiety ( $M = 3.70$ , 71% agreement). Overall, these findings suggest that supportive relationships with teachers and parents effectively reduce students' mathematics anxiety, while excessive pressure has the opposite effect.

**Discussion**

This study explored primary school students' experiences of mathematics anxiety and academic stress through four key dimensions: mathematics anxiety, academic-related stress, gender-based perceptions and the role of external support (teachers and parents). The results

demonstrate consistent patterns of moderate to high anxiety across all areas, reflecting an urgent need to address both psychological and sociocultural factors in mathematics education at the primary level.

### *Mathematics Anxiety*

The findings of this study show that mathematics anxiety among primary school students is not just a small issue, but one influenced by many factors including emotions, academic stress, gender beliefs and the support they receive from adults. The overall score for mathematics anxiety was quite high (mean = 3.75), which shows that many students feel uncomfortable or stressed when learning mathematics. This raises concern about how mathematics is taught and tested in schools. In some Asian countries, mathematics teaching still relies heavily on rote learning and repetitive exercises, without promoting a thorough understanding of underlying concepts (Roy & Kumar, 2023). The lack of a problem-solving or inquiry-based approach can reduce students' self-confidence in tackling mathematical tasks (Suryani, Maidiyah, Salasi, & Mardhiah, 2020). The strong anxiety linked to mathematics tests may suggest that too much focus is placed on grades and performance rather than on learning and understanding. At a young age, this kind of pressure can harm students' motivation and confidence.

### *Academic Stress in Mathematics Learning*

Academic stress in mathematics had a slightly lower average (mean = 3.69), but it still shows that many students feel burdened by assignments, pressure from parents and teachers and classroom competition. This suggests that even in primary school, students may feel they are expected to perform like older students. Muner and Rosli (2023) found that mathematical anxiety has a negative impact on students' mathematics achievements and can hinder them from achieving their educational goals. Students with high math anxiety often have trouble understanding math concepts, may avoid math-related classes, and usually get lower grades than students without this anxiety (Ng et al., 2022). It is important to ask whether the current school system is putting too much pressure on children too early. While some level of challenge is good for learning, stress that causes worry or fear can lead to long-term problems like loss of interest in the subject or poor mental health. High mathematical anxiety needs to be addressed by teachers or educators to prevent the development of more serious negative perceptions at higher educational levels (Hui & Rosli, 2021).

### *Gender Differences in Mathematics Anxiety*

Interestingly, the section on gender differences had the highest overall score (mean = 3.77). Many students believed that boys are better at mathematics than girls, and that girls feel more anxious. This discovery is consistent with Morán-Soto & Peña (2022) which reported female students may feel more anxious about mathematics. This is worrying because it shows that harmful gender stereotypes already exist at a young age. These beliefs may not come from the students themselves, but from what they hear at home, in the media or even in the classroom. Studies show that female students tend to view mathematics as male-dominated, feel more anxious about it and blame themselves for poor performance, which can affect their results (Mweni et al., 2023). A study of university students found that higher mathematics anxiety was linked to lower math achievement (Al-Shannaq & Leppayirta, 2020). Mathematics anxiety not only impacts immediate performance but also contributes to long-term avoidance and declining achievement. If teachers and parents don't challenge these

ideas, they can shape how children see themselves and what they believe they can achieve. This may result in girls avoiding math-related paths later due to a belief that they are less capable, even though they can succeed.

#### *Role of Teachers and Parents in Reducing Mathematics Anxiety*

Support from teachers and parents also plays a big role in how students feel about mathematics. While many students said that caring teachers helped them feel more confident, a similar number said that pressure from parents increased their anxiety. Parents, being the closest family members, are usually aware of any changes in their child's behavior or academic performance (Peng & Rosli, 2021). The overall score in this section was 3.71, showing that adults can both reduce and add to student stress. This suggests that while teachers may try to build students' confidence, the pressure from home may send mixed messages. For real improvement to happen, both school and home must work together to support students in a healthy way. Overall, the results suggest that schools need to look beyond test scores and focus more on the emotional well-being of students. Hui and Rosli (2021) found that students with high anxiety tend to perform poorly in mathematics. Teachers should be trained to create supportive, stress-free learning environments. Parents also need to be made aware that too much pressure can do more harm than good. According to Husain (2020), students who do not have parental support find it more difficult to learn. The education system must take steps to reduce stress and challenge harmful gender beliefs, especially at the primary level, so that all students can enjoy learning math without fear or anxiety.

#### **Conclusion**

This study examined primary school students' perceptions of mathematics anxiety, academic stress, gender differences and the roles of teachers and parents in shaping their emotional experiences in mathematics learning. The findings indicate that many students experience moderate to high levels of anxiety, especially during tests, timed tasks and when required to explain their solutions in front of others. Academic stress was also found to be common, largely influenced by the difficulty of mathematical content, high expectations from teachers and parents and competitive classroom environments. Students expressed beliefs about gender differences, with many perceiving that boys are naturally better at mathematics and that girls tend to experience more anxiety. These perceptions reflect the ongoing influence of societal stereotypes on student attitudes. Teachers were generally viewed as supportive figures who help reduce anxiety through encouragement and positive classroom interactions. On the other hand, while some students found parental support helpful, others reported increased anxiety due to excessive pressure to perform. Overall, the results highlight the need for emotionally supportive and inclusive learning environments. Both teachers and parents play important roles in helping students manage anxiety and stress. Their collaboration is essential in fostering confidence, motivation and a positive outlook toward mathematics.

## References

- Abd Karim, A. H., Hajar, M. S. N. & Tunku Ahmad, T. B. (2023). Prevalence of math anxiety among upper secondary students at a private school in suburban Kuala Lumpur. *Jurnal Pendidikan Sains dan Matematik Malaysia*, 13(1), 52–63.
- Acevedo, G. V., Arenas, T. Y. A. & Calderón, W. J. T. (2020). Relationship between mathematical anxiety and academic performance in mathematics in high school students. *Ciencias Psicológicas*, 14(1).
- Ahmad, M., Khalid, M. N. & Shafiq, F. (2022). Effect of problem solving teaching method in mathematics on the performance of 7th grade students. *Global Educational Studies Review*, 7(2). [https://doi.org/10.31703/gesr.2022\(VII-II\).03](https://doi.org/10.31703/gesr.2022(VII-II).03)
- Ahmed, S., Saha, J., Tamal, M. A., Abdullah Al Mamun, K. & Islam, S. (2024). Factors predicting the mathematics anxiety of adolescents: A structural equation modeling approach. *Frontiers in Psychiatry*, 15. <https://doi.org/10.3389/fpsy.2024.1484381>
- Al-Shannaq, M. M., & Leppayirta, J. (2020). Comparing math anxiety of scientific facilities students as related to achievement, and some variables. *International Journal of Instruction*, 13(1). <https://doi.org/10.29333/iji.2020.13123a>
- Arslan, K. (2020). Exploring middle school students' mathematics self-efficacy and mathematics anxiety. *Online Submission*, 7(2).
- Asikhia, O. (2021). Gender effect on mathematics anxiety of secondary school students in Ogun West Senatorial District, Nigeria. *Asian Journal of Education and Social Studies*, 15(4). <https://doi.org/10.9734/ajess/2021/v15i430386>
- Creswell, J. W. (2015). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research (4th ed.)*. Boston: Pearson Education, Inc.
- Deleg, A., Zanabazar, A., & Ravdan, M. (2022). Relationships between mathematics anxiety, mathematical performance, and teacher-related factors. *Proceedings of the Quality Assurance in Higher Education International Conference* (pp. 130–141). [https://doi.org/10.2991/978-2-494069-41-1\\_16](https://doi.org/10.2991/978-2-494069-41-1_16)
- Demirtaş, A. S., & Uygün-Eryurt, T. (2022). Attachment to parents and math anxiety in early adolescence: Hope and perceived school climate as mediators. *Current Psychology*, 41(7).
- Er, X. H., & Roslinda, R. (2021). Kebimbangan dan efikasi sendiri terhadap pembelajaran matematik dalam kalangan pelajar tingkatan empat. *Malaysian Journal of Social Sciences and Humanities*, 6(3).
- Husain, K. (2020). Kebimbangan matematik dengan pencapaian matematik dan faktor demografi dalam kalangan pelajar matrikulasi. *Jurnal Penyelidikan Dedikasi*, 14.
- Jarvis, J. A., Corbett, A. W., Thorpe, J. D. & Dufur, M. J. (2020). Too much of a good thing: Social capital and academic stress in South Korea. *Social Sciences*, 9(11). <https://doi.org/10.3390/socsci9110187>
- Kul, Ü., Aksu, Z., & Satıcı, S. A. (2024). Adaptation of the modified abbreviated math anxiety scale: Its relationship with mathematics self-efficacy and academic buoyancy. *Current Psychology*, 43. <https://doi.org/10.1007/s12144-024-05908-7>
- Kusmaryono, I., Gufron, A. M., & Rusdiantoro, A. (2020). Effectiveness of scaffolding strategies in learning against decrease in mathematics anxiety level. *NUMERICAL: Jurnal Matematika dan Pendidikan Matematika*, 4(1).
- Mamat, N., & Abdul Wahab, M. N. (2022). Kajian masalah pembelajaran matematik di kalangan pelajar sekolah luar bandar. *Malaysian Journal of Social Sciences and Humanities*, 7(6). <https://doi.org/10.47405/mjssh.v7i6.1531>

- Mann, L. C., & Walshaw, M. (2019). Mathematics anxiety in secondary school female students: Issues, influences and implications. *New Zealand Journal of Educational Studies*, 54(1).
- Mofatteh, M. (2021). Risk factors associated with stress, anxiety, and depression among university undergraduate students. *AIMS Public Health*, 8(1). <https://doi.org/10.3934/publichealth.2021004>
- Muner, N. S., & Rosli, R. (2023). Persepsi keseimbangan dan efikasi sendiri murid sekolah rendah dalam pembelajaran matematik. *Malaysian Journal of Social Sciences and Humanities*, 8(2).
- Mweni, N., O'Connor, M., & Kerich, W. (2023). Relationship between student anxiety and achievement in mathematics among secondary school students in Ganze District Kilifi County Kenya. *International Journal of Advanced Research*, 6(1). <https://doi.org/10.37284/ijar.6.1.1047>
- Ng, C., Chen, Y., Wu, C., & Chang, T. (2022). Evaluation of math anxiety and its remediation through a digital training program in mathematics for first and second graders. *Brain and Behavior*, 12(5). <https://doi.org/10.1002/brb3.2557>
- Nurul Noorerwany, A. J. & Muhammad Syawal, A. (2025). Students' mathematics anxiety and its correlation with achievement and career path. *International Journal of Arts and Social Science*, 8(2).
- Ojo, A., Oginni, O. G., Akinrinola, O. E., & Oginni, R. I. (2023). Impact of cognitive-behavioral intervention on alleviating depression and anxiety in mathematics: Enhancing students' learning experience and academic performance. *Voice of the Publisher*, 9(4). <https://doi.org/10.4236/vp.2023.94020>
- Peng, C. C., & Roslinda, R. (2021). Kebimbangan matematik dan hubungannya dengan pencapaian pelajar tingkatan satu. *Malaysian Journal of Social Sciences and Humanities*, 6(3).
- Prasetyo, F., Suhendra, S., & Turmudi, T. (2023). Mathematics teachers' anxiety in teaching and learning process: A literature review. *Aksioma Jurnal Program Studi Pendidikan Matematika*, 12(1). <https://doi.org/10.24127/ajpm.v12i1.6660>
- Richland, L. E., Näslund-Hadley, E., Alonzo, H., Lyons, E. M., & Vollman, E. (2020). Teacher and students' mathematics anxiety and achievement in a low-income national context. *Mind, Brain, and Education*, 14(4). <https://doi.org/10.1111/mbe.12253>
- Roy, A., & Kumar, A. (2023). Mathematics anxiety among Indian children and its preventive measures. *Bharatiya Vaigyanik Evam Audyogik Anusandhan Patrika*, 31(2). <https://doi.org/10.56042/bvaap.v31i2.6390>
- Samuel, T. S., & Warner, J. (2021). "I can math!": Reducing math anxiety and increasing math self-efficacy using a mindfulness and growth mindset-based intervention in first-year students. *Community College Journal of Research and Practice*, 45. <https://doi.org/10.1080/10668926.2019.1666063>
- Spangler, D. A. (2020). Assessing students' belief about mathematics. *The Arithmetic Teacher*, 40(3).
- Suryani, I., Maidiyah, E., Salasi & Mardhiah, M. (2020). Students' mathematics problem-solving skills through the application of Problem-Based Learning model. *Journal of Physics:Conference Series*,1460(1). <https://doi.org/10.1088/1742-6596/1460/1/012029>
- Wang, Z., Borriello, G. A., Oh, W., Lukowski, S. & Malanchini, M. (2021). Co-development of math anxiety, math self-concept, and math value in adolescence: The roles of parents

- and math teachers. *Contemporary Educational Psychology*, 67.  
<https://doi.org/10.1016/j.cedpsych.2021.102016>
- Yang, X., & Khairul Azhar, J. (2024). Examining the determinants of anxiety and academic stress in learning mathematics. *International Journal of Academic Research in Progressive Education and Development*, 13(4).  
<http://dx.doi.org/10.6007/IJARPED/v13-i4/23677>
- Zanabazar, A., Deleg, A., & Ravdan, M. (2023). A study of factors causing math anxiety among undergraduate students. *International Journal of Innovative Research and Scientific Studies*, 6(3).