



# Mathematics Anxiety in the Classroom: Insights from Secondary School Students of District Ganderbal in J&K

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**Abstract:** Mathematics anxiety deserves attention as it is a common problem found in students at all levels of learning. The current study examines secondary school students' anxiety related to mathematics in district Ganderbal by taking into account of variables like school type, and student's gender. Random sampling technique employed to select 100 samples from the ten Schools of district Ganderbal. The sample of the students comprises 50 males and 50 females, accessing all the indicated demographic data. The information was gathered using a questionnaire with a five-point Likert scale that the researcher had created in accordance with the study's goals. Descriptive and comparative analyses were used to analyse the data. According to the study, students' anxiety levels in mathematics were moderate, with variables of gender, and type of school. The finding translates psychological insights into concrete classroom improvements, guiding teachers, curriculum designers, counsellors, and parents in creating an emotionally safe and academically productive environment for secondary-level students.

**Key Words:** - Mathematics Anxiety, Secondary Students.

## INTRODUCTION

Educational activity is widely acknowledged as a powerful instrument to bring positive modification to society, both socially and economically, and to enhance a country's culture and the well-being of its people. It helps to expand our knowledge and understanding of the world. Education not only shapes an individual's character but also plays a crucial role in advancing society as a whole. Moreover, education plays a vital role in transmitting moral ideas, spiritual values, and the aspirations of a nation across generations. It serves as a bridge for preserving, purifying, and elevating a society's cultural heritage to new heights, ensuring a continuous and upward transformation in our shared values and heritage. Humphrys, Traxler, et al. (1960) have very correctly remarked, "Our future material and cultural welfare and progress, even our survival as a nation, depends upon the wise use of abilities and energies of our people." (Kaur, and Harveen, 2021).

In modern society, we are facing a great explosion of knowledge in the field of science and technology as well as mathematics. Consequently, mathematics is becoming more and more important every day, demonstrating the intimate connection between science and mathematics. As a result, mathematics is seen as an essential component of science. Science is like a tree without fruit if mathematics is absent. All other sciences are based on mathematics, which Aristotle called the "science of quantity" and Gauss the "Queen of science." Numerical, analytical, and advanced mathematical modelling solutions combine ideas, approaches, and principles that are frequently interdisciplinary. (Manikandan, Nair, & Ajit, 2022).

## REVIEW OF LITERATURE

Math anxiety among students has become a widespread issue at all educational levels, including secondary school. (Tobias and Weissbrod., 1980). Fillings of stress, fear, or even anxiety that disrupt routine number manipulation and mathematical problem solving have been defined as mathematics anxiety. (Ashcraft & Faust, 1994). Research studies on gender revealed that males and girls experienced the same degree of mathematics anxiety, As found by (Sadaphal and Bhandari., 2020; Basuri and Akinson., 2020; Akbaylr 2019; Puteh & Khalin 2016). Their research findings reveal a non-noticeable distinction upon students' levels of mathematics phobia across gender. This outcome is inconsistent with the findings of (Mandal and Saha., 2019), because the study's findings showed that gender and school type significantly affect mathematics anxiety and performance. According to research by Mandal and Saha (2019) and Sadaphal and Bhandari (2020), there was no discernible difference in the degree of numerical anxiety among secondary school student in rural and urban areas. Likewise, when it comes to to the studies of (Kumar and Srivastava., 2021; and Mahajan 2015) there was no significant difference was found based on their types of schools. Contrary to the earlier study conducted by (Manikandan et al., 2022) found that pupils attending private schools had a far higher degree of math phobia than students attending public schools. However, the study's overall findings showed that secondary school children's math phobia did not significantly differ according to their gender, location, or kind of school. (Neelofar., 2020 and Akbaylr., 2019) found in their studies that Mathematics Anxiety possessed by secondary school students was at a medium level. The studies conducted by (Neelofar.,2022; Akbaylr 2019; Atoyebi, O.M., and Atoyebi, S.B. 2020) concluded that beliefs about mathematics, mathematical language, lack of practice, lack of previous knowledge, communication gap between students and teacher, lack of interest in mathematics, experience, and mathematical formula phobia in mathematics are part of the causes of anxiety in mathematics. (Baliya and Thappa., 2022) found that a number of important factors contributed to the underperformance of J&K pupils in mathematics, including a focus on rote memorization rather than competency skills like critical, collaborative, and creative thinking; a lack of qualified professional mathematics teachers; a rigidity in problem-solving; a focus on syllabus completion rather than meaningful learning of mathematics concepts; inadequate laboratories for mathematics; inappropriate teaching methods; an assessment system; students' comprehension of conceptual and procedural knowledge in the main operations; and a rigidity in problem-solving.

## BACKGROUND AND RATIONALE

In accordance to the assessment of related literature, the studies that have been studied for the research on students' anxiety about mathematics have examined many aspects that contribute to children's poor performance in the subject and are based on factors such as gender, board, location, and parents' qualifications. However, there have been limited studies conducted in the Kashmir valley and no study in Ganderbal. So, this study will help educationists to explore a new dimension of psychology with respect to mathematics. This might further enhance to come up with teaching methodologies framing Mathematics to be as interesting as any other field. This research is remarkable because, despite the fact that mathematics is essential to students' academic development and future employment, many students experience anxiety connected to the subject. By looking at how gender, school type, and region affect math anxiety, the study offers important insights into the difficulties children encounter. In order for kids to gain confidence in mathematics and have equitable opportunity to excel in postsecondary education and professional routes, the findings will assist educators, parents, and school officials in better understanding the problem and taking action to lessen fear.

## THE PROBLEM OF THE STUDY

The current research study aims to examine and relate the level of Mathematics Anxiety (M.A) among secondary school students studying in government and private secondary schools of District Ganderbal in J&K

## OBJECTIVES

The whole research work is based on the following research objectives

1. To examine students' levels of mathematics anxiety (M.A.) in both public and private secondary schools.
2. To examine mathematics anxiety (M.A.) in secondary school students, both male and female.
3. To relate the average Mathematics Anxiety (M.A.) score of secondary school students' attending government and private institutions.

## HYPOTHESIS

The study's null predictions, which were developed to investigate the research objectives, were as follows:

1. **Ho1:** Students in government and private secondary schools do not significantly differ in their levels of mathematics anxiety (M.A.).
2. **Ho2:** Male and female secondary school students do not significantly differ in their levels of mathematics anxiety (M.A.).
3. **Ho3:** The mean score of Mathematics Anxiety (M.A.) of students attending government and private secondary schools do not significantly differ.

## OPERATIONAL DEFINITION OF THE VARIABLES

**Mathematics Anxiety (M.A):** Here, "mathematics anxiety" refers to students' feelings of fear, worry, and distaste for the subject as determined by a specially created scale.

**Secondary School Students:** learners enrolled in classes 9th and 10th in public and private schools are referred to as secondary school student in this study.

## METHODOLOGY

**Population and Sample:** Population of the research includes all secondary level children in Classes 9<sup>th</sup> and 10<sup>th</sup> enrolled in public and private schools in the Ganderbal district of Jammu & Kashmir make up the population of the current study. To ensure equitable representation and lessen bias, a sample of hundred children were chosen at random from ten different private and government institutions. In order to give a fair knowledge of mathematics anxiety across genders, the sample was split evenly between male and female students, with fifty male and fifty female students.

**Instrumentation:** For this study, the main tool used to collect data was a self-constructed questionnaire. The researcher designed the questionnaire specifically to study "Mathematics Anxiety among Secondary School Students of District Ganderbal, Jammu and Kashmir. "The questionnaire was based on a five-point Likert scale and included sixteen items in total, eight positive and eight negative, aimed at measuring students' anxiety levels in mathematics. The scoring ranged from sixteen to eighty, with larger scores showing greater Anxiety levels. While developing the tool, the researcher referred to books, standardised tests, and also discussed with teachers to make the items relevant and reliable. Careful comparisons were made with existing resources before finalising the questions. The items were designed around Bloom's domains (cognitive, affective, and psychomotor) as well as key factors related to math anxiety.

**Statistical Processing:** The investigator follows the Descriptive statistics and comparative statistics techniques to analyse and interpret the result.

## ANALYSIS

### Descriptive Statistics

**OBJ:1.** To examine students' levels of mathematics anxiety (M.A.) in both public and private secondary schools

**Table 1.1** Percentage Distribution of Government and Private Secondary School Students on Mathematics Anxiety (M.A).

Mathematics Anxiety score	Level	Government	Government%	Private	Private%
16-37	Low	9	18%	11	22%
38-59	Average	34	66%	25	52%
60-80	High	8	16%	13	26%
Total		51	100%	49	100%

**Graph 1.1** Showing the percentage distribution of Mathematics Anxiety (M.A) of Government and Private Secondary School students.

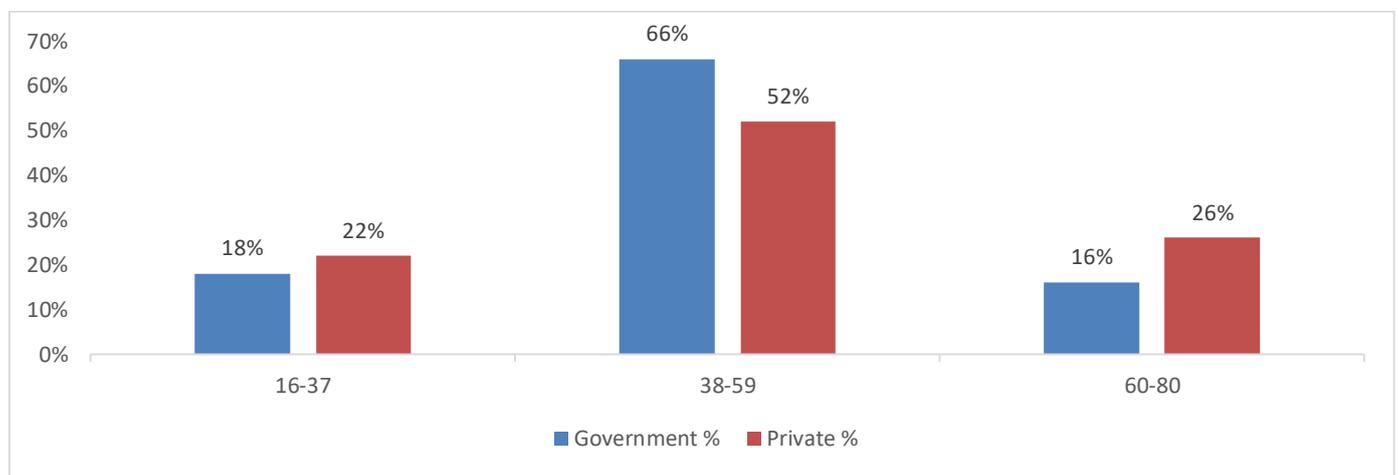


Table 1.1 demonstrates the percentage distribution of students in public and private secondary level schools who suffer from mathematics anxiety. Out of the 100 pupils, 51 attended government schools, while the remaining 49 attended private ones. It is clear from the above chart that 22% of students attending private schools and 18% of students attending government schools suffer from significant levels of mathematics anxiety (M.A). Additionally, the findings show that 52% of kids attending private schools and 66% of students attending government schools had moderate levels of mathematics anxiety (M.A). Additionally, it was discovered that 26% of kids attending private schools and 16% of students attending government schools have significant levels of mathematics anxiety. Therefore, most secondary school students in both public and private schools had moderate mathematics anxiety (M.A).

**OBJ: 2.** To examine mathematics anxiety (M.A.) in secondary school students, both male and female.

**Table 2.1:** The Table Shows the percentage Distribution of Male and Female Secondary School Students on Mathematics Anxiety (M.A).

Mathematics Anxiety Score	Level	Male	Male%	Female	Female%
16-37	Low	12	24%	8	16%
38-59	Moderate	25	50%	26	52%
60-80	High	13	26%	16	32%
Total		50	100%	50	100%

**Graph 2.1** Graph Showing the Percentage of Male and Female Secondary stage School Students with Mathematics Anxiety (M.A)

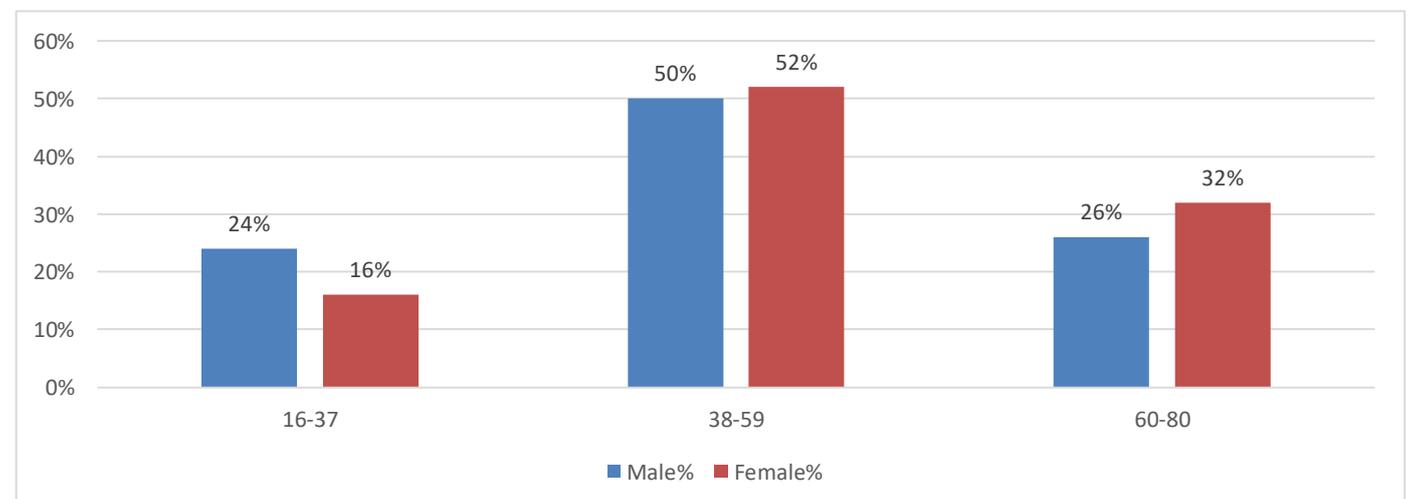


Table 2.1 displays the secondary school students' percentage distribution by gender, 50 male learner and 50 female learners out of the 100 total. It is clear from the data that 16% of female secondary school pupils and

24% of male learners have modest levels of mathematics anxiety. Additionally, the data shows that 52% of female secondary school pupils and 50% of male students have a moderate mathematics anxiety (M.A).

### Comparative Analysis

**OBJ: 3.** To relate the average Mathematics Anxiety (M.A.) score of secondary school students attending government and private institutions.

The two-tailed t-test is the Statistics used to examine hypothesis. It measures the difference between the groups' mean anxiety levels. The tables provide the two groups' mean  $M$ , standard deviation  $SD$ , degree of freedom  $df$ , and t-value displayed in Table 3.1.

**Table 3.1** School-wise  $M$ ,  $SD$ ,  $N$ ,  $t$ -value

School	N	Mean score	SD	t-test	Remarks
Government	51	54.49	14.00	1.057	NS
Private	49	57.53	14.75		

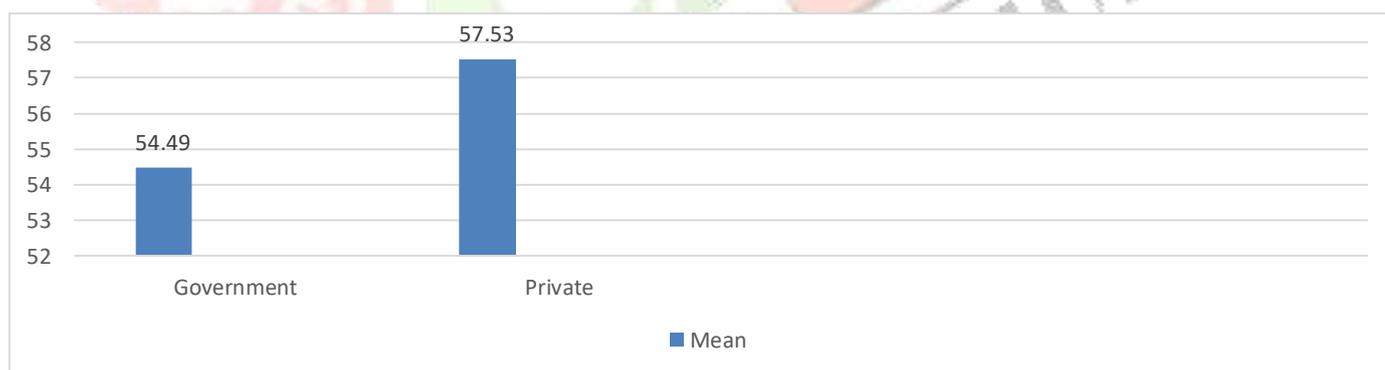
NS=Not Significant

\*\*P>0.05

From Table 3.1, it can be seen that 51 kids were enrolled in public and 49 in private institute. overall, for kids attending government schools, the average score for mathematics anxiety is 54.49 with a  $SD$  of 14.00. For learners attending private schools, the average score is 57.53 with a standard deviation of  $SD=14.75$ . With  $df=98$ , the statistically determined t-value of 1.057 is non-significant at the 0.05 level. The findings show no discernible difference in the average Mathematics Anxiety (M.A) scores of secondary stage school pupils attending public and private institutions.

Therefore, at a 0.05 level of confidence, the null hypothesis, that "there is no significant difference in mean scores of Mathematics Anxiety (M.A) of government and private secondary school students," is not rejected. Additionally, students at government secondary schools have a mean score of 54.49 on the Mathematics Anxiety (M. A) scale, which is not much different from the mean score of students in private secondary schools, which is 57.53. Thus, the results reveal that mathematics anxiety (M.A) of government and private school students is moderate at the secondary level.

**Graph 3.1** School-wise graphical presentation of the mean score of Mathematics Anxiety.



According to Graph 3.1, the average score for mathematics anxiety (M.A) among secondary stage pupils in government institutions is 54.49, which is not much different from the average score for students in private schools, which is 57.53.

### FINDINGS OF THE STUDY

The study found that most secondary school students, whether male or female, government or private, showed a moderate level of mathematics anxiety. The results also revealed that there was no significant difference in the level of mathematics anxiety between boys and girls, between government and private school students. Overall, mathematics anxiety was found to be quite similar across all these groups at the secondary school level of District Ganderbal in J&K.

## CONCLUSION

The conclusion states that the problem of mathematics concerns among secondary school pupils in District Ganderbal, Jammu and Kashmir, has been clarified by this study. The results demonstrate that the majority of students suffer from mild anxiety and that there are no significant changes in students' attitudes about mathematics based on criteria like gender, school type, or location. This implies that kids from a variety of backgrounds struggle with maths anxiety. The outcomes highlight how critical it is for schools to diagnose math phobia in order to help pupils gain confidence and cultivate a love of learning the subject. Together, educators, parents, and school administrators must foster a supportive learning environment, prioritise comprehension over memorisation, and implement techniques that lessen students' anxiety and tension around math. By doing these things, we may assist students in viewing mathematics as a tool for development and opportunity rather than a barrier, allowing them to pursue their academic and professional objectives without fear standing in their way.

## SUGGESTION

Based on the analysis, the outcome suggests that future research should include more variables to gain a deeper knowledge of mathematics anxiety (M.A). Since this study was limited to schools in one district of Kashmir, similar research should be carried out in other districts to provide a wider picture. Long-term studies are also needed to see how mathematics anxiety affects students' academic performance and career choices over time. It would be useful to test the effect of directed interventions, such as reduction of stress and creative teaching methods, to reduce anxiety among students. Researchers should also explore cultural and regional diversity in math anxiety (M.A), along with the important role teachers play through their attitudes, teaching approaches, and support. Finally, further studies can be extended to senior secondary and university levels to understand how mathematics anxiety continues beyond school.

## Conflict Declaration

## CONFLICT DECLARATION

Researcher declares study conducted with a unbiased perspective and there is no conflict of interest in conducting and reporting this study. The research was carried out purely for educational writing, without any individual, and monetary bias.

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