



## A STUDY OF ACADEMIC PERFORMANCE IN RELATION TO MATHEMATICAL ANXIETY AMONG SECONDARY SCHOOL STUDENTS

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### ABSTRACT

The goal of the current investigation was to investigate the relation between academic performance and mathematical anxiety among secondary school students. A random sample of one hundred students from a secondary school in Sonipat, located in Sonipat district in the state of Haryana, participated in this research. The findings of the research indicate that There is a negative relationship between mathematical anxiety and academic performance.

**KEYWORDS:** Academic performance, mathematical anxiety, secondary school students.

### INTRODUCTION

Anxiety over mathematics is not a new phenomena; but, during the last few of decades, there has been a growing attention on the issue. Each researcher examines a unique facet of the phenomena in order to characterise it in accordance with their findings. For the purposes of this study, the substance of mathematics, and the definition of mathematics, we can see that math anxiety interferes with mathematics education and stops students from learning, comprehending, and using the knowledge of mathematics.

Those who teach mathematics in colleges and universities often find themselves attempting to satisfy the requirements of both the education department and the mathematics department on their respective campuses. These mathematics teachers are the ones who are in charge of laying down a solid basis for the material covered in upper primary mathematics. These teaching candidates will, at some point in the future, need to be able to successfully teach the subject matter, even if education professors place a greater emphasis on pedagogical abilities. Not only is it vital for the two departments to communicate with one another, but it is also essential for there to be consistency between the way mathematics is actually being taught in math classrooms and what students are learning about how to teach mathematics in education classes. Many people find mathematics to be a challenging topic, despite the fact that it plays an important role and has many applications in daily life. According to the findings of research, a significant number of pupils have challenges in learning and have a low level of accomplishment in mathematics at the upper primary level. One of the possible explanations for this phenomenon is the anxiety that some people experience when confronted with mathematical problems.

### Mathematics anxiety

#### Meaning

Math anxiety refers to the emotions of unease that some people have when confronted with mathematical concepts such as mathematical processes, mathematical symbols, mathematical diagrams, mathematical problems, geometrical diagrams, and mathematical theorems.

#### Concept of Maths Anxiety

An severe dread of a certain object or scenario associated to school, or with learning and thinking, is the definition of maths anxiety. Mathematics anxiety may also be known as math



phobia. The first step in the kid's lengthy educational journey is getting the youngster enrolled in school. This marks the beginning of the educational journey. This is a stage that causes many youngsters to feel anxious. Anxiety over mathematics is caused in especially by this mathematical lesson. That means giving up the sense of accomplishment that comes from attending school in favour of spending time in an environment teeming with other children, the friendliness of whom and their capacity to maintain order are unknown. When seen through the lens of a youngster, anxiety represents a genuine threat, and healthy levels of unease are expected and even desirable. Time is necessary in order to determine whether or not the anxiety brought on by the new surroundings can be tolerated or even appreciated.

There are times when the tension brought on by schoolwork in the subject of mathematics is too high to be controlled. Either the kid is unable to stay at school without the mother's continuous presence, or the youngster wakes up with agony in the morning that communicates his or her fear of going to school at all. Many times, the parents and the school officials agree to postpone school late attendance for the time being out of fear of the repercussions of panic. Yet, the outcomes are not much better when the effort is continued.

Conditioning is a crucial factor in the development of specialised mathematics anxiety among students in mathematical classes. Conditioning may take the form of either association or avoidance. During the process of association conditioning, a stimulus that would ordinarily not elicit an anxious response might get trained to do so. Those who undergo avoidance training learn to steer clear of a stimulus that brings on feelings of fear. This kind of arithmetic anxiety really causes a fear psychosis that prevents people from pursuing studies and mental processes that are important to the success of pupils in academic endeavours.

### **Causes of Maths Anxiety**

Previous negative experiences with mathematics – Anxiety tends to build up over time, and students may reflect on a hard time spent studying mathematics from their parents or from instructors who were cruel to them.

Under the Common Core standards, students are expected to demonstrate not just that they can answer a mathematical issue, but also that they have a "grasp" of the subject matter being studied. In addition to this issue, some of their parents are unable to assist them with even the most fundamental aspects of their mathematics assignments.

Timed exams and the pressures that go along with them Math examinations have a tendency to cram a lot of content into a short amount of time, and the perceived pressure that comes along with this may lead to extra mental and physical stress.

Danger of being humiliated in front of others - Who among us doesn't wince at the prospect of being embarrassed in front of others? Who among us hasn't slouched deeper in their chair during math class in the hopes that the bell would ring before the instructor called on them to answer a question?

Math professors are often strict, very brilliant individuals who may be kind, yet they still have the ability to scare their students since they are authoritative figures.

Math classrooms often consist mostly of lengthy lectures, with minimal opportunity for interaction between teachers and students.

Lack of recognition of different learning styles among pupils - Some kids learn better by visual



means, while others are more aural learners, and so on. It is possible that tension will result from all pupils being instructed in the same manner.

### **Understanding mathematics anxiety among students**

Mathematics is a subject that may be difficult to grasp for pupils while they are still in school; nevertheless, not all mathematical issues are caused by cognitive challenges. Several adolescents and adults suffer from math anxiety, which substantially hinders their ability to perform well in mathematics.

In the realms of psychology and education, "mathematics anxiety" is becoming an increasingly acknowledged detrimental emotional response to mathematics. One definition of math anxiety describes it as "a sensation of tension and anxiety that interferes with the manipulation of numbers and the solution of mathematical problems in regular life and academic settings." Feelings of modest tension all the way up to a crippling dread of mathematics are included in the spectrum of mathematics anxiety. Those who suffer from mathematics anxiety are not limited to scenarios such as tests or classrooms; as a consequence, individuals who suffer from it tend to avoid situations that include any form of mathematics to a significant degree. Even though they have the cognitive capacity for strong mathematics growth, they may not pick occupations that include the application of mathematics. This is despite the fact that such careers could appeal to them.

### **OBJECTIVES**

1. To identify the level of students with maths anxiety studying at secondary level.
2. To identify the level of academic performance of secondary level students with maths anxiety.

### **HYPOTHESIS**

- There is a negative relationship between mathematical anxiety and academic performance
- There is a negative relationship between mathematical anxiety and problem solving ability of secondary school students .

### **RESEARCH METHODOLOGY**

#### **Study Deign**

The current research largely consists of descriptive and analytical components.

#### **Study Area**

In the presented research work, we study on mainly Sonipat, Haryana State.

#### **Sample Size**

100 with be the sample size of present research work.

#### **Sampling Technique**

In the present research work, for sample selection Experience Sampling Methods are used which includes face to face interaction.

#### **Data Collection Procedure:**

Present study is based mainly on Primary data. Personal interactions, interviews and questionnaire have been used to collect the analytical data.

#### **Tools used**

For the measurement of mathematical anxiety in secondary school students **Mathematical**



**Anxiety Scale by A. Karimi and S. Venkatesah (2009)** was administered.

For the measurement of problem solving ability in secondary school students **Problem solving ability in Mathematics by Roma Ralhan (2018)** was administered.

For the measurement of academic achievement in secondary school students **Mathematics Academic Achievement test by L. N. Dubey** was administered.

**Data Analysis techniques:**

In order to provide an explanation for the variables, descriptive statistics were used in order to generate frequency distributions for levels of ambition and creativity scores. Data-Analysis methods that were used in this research included the mean, standard deviation, t-test, and correlation.

**DATA ANALYSIS**

**Table 1: Relationship of academic performance with mathematical anxiety of secondary School Students**

Types of Variables		N	'r'	Result
Dependent	Mathematical anxiety	100	-.124	Negative correlation
Independent	Academic performance	100		

**Table 2: Relationship of problem solving ability with mathematical anxiety of secondary School Students**

Types of Variables		N	'r'	Result
Dependent	Mathematical anxiety	100	.668	Positive correlation
Independent	Problem Solving Ability	100		

**FINDINGS**

- There is a negative relationship between mathematical anxiety and academic performance.
- There is a positive relationship between mathematical anxiety and problem solving ability.

**CONCLUSION**

The current body of research analyses the connection between students' academic success and their level of mathematics anxiety while they were in secondary school. The results of the study reveal that there is a negative association between mathematical anxiety and academic performance. This conclusion can be drawn from the outcomes of the research. This unequivocally demonstrates that pupils' levels of mathematical anxiety have a direct bearing on the academic success they achieve in secondary school. This research also suggests that there is a positive association between the level of mathematics anxiety that secondary school pupils experience and their ability to solve problems. According to this result, the capacity of students to solve problems that relate to their work may reduce the levels of anxiety that students experience.

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