International Journal of Recent Development in Engineering and Technology
Website: www.ijrdet.com (ISSN 2347-6435 (Online) Volume 15, Issue 08, August 2026)

A Study on Test Anxiety and Their Relationship with Academic Achievement of High School Students

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***Abstract*-- The present study aims at studying the relationship between test anxiety and academic achievement in mathematics of high school students in Vijaynagara region. The sample consists of 300 high school students, selected using cluster sampling technique from Vijaynagara region. Test Anxiety Scale for Children (TASC) by Sarason and Average half-yearly marks from school office register are used to assess test anxiety and academic achievement respectively. Finding revealed that higher the test anxiety, lower was the academic achievement in mathematics. Also students with average level of test anxiety achieved more than the students with high and low levels of test anxiety.**

I. Introduction

A very high percentage of the students at high school level have some form of test anxiety. Some of them have high levels of test anxiety while many of them have at least mild level anxiety. Anxiety is a basic human emotion consisting of fear and uncertainty that typically appears when an individual perceives an event as being a threat to the ego or self-esteem (Sarason, 1988). According to Van Der Ploeg, Schwarzer and Spielberger (1982) "Test Anxiety can be interpreted as worry or emotion in the face of academic demands which are self-threatening". Students experience test anxiety, when they develop an extreme fear of performing poorly in an examination. Various negative outcomes like psychological distress, underachievement, academic academic failure, and insecurity are the outcomes of test anxiety (Hembree, 1988). Also mathematics is considered to be an abstract subject and each and every concept in mathematics is abstract in nature. Many students find it very difficult to score good marks in mathematics. Even students with high intelligence and aptitude are not able to do well in exams because of high level of test anxiety. So there is a great need to find out the test anxiety of high school students and its relationship with academic achievement in mathematics of high school students.

II. Review Of Related Studies

Putwain, David W (2007) has identified gender, ethnic and socio- economic background as significant predictors of variance in test anxiety scores.

Ushanandhini. R (2007) has studied the relationship between test anxiety and scholastic achievement in mathematics of high school pupils of Erode district. She has found that the more the test anxiety less the scholastic achievement in mathematics. But this relationship does not hold true in case of boys. But this relationship is significant in girls. Also difference in relationships between test anxiety and scholastic achievement of boys and girls is also significant. Putwain, David (2008) has found that students who reported the lowest levels of anxiety have attained the highest grades in the mid stakes examination. Regression analysis suggested that examination stakes do moderate the inverse anxiety- grade relationship, but the effect for high stakes examinations was not in the expected direction.

Statement of the Problem

The problem of the present investigation is stated as "A study on test anxiety and their relationship with academic achievement of high school students"

Method

The investigator used Normative Survey method for the present study.

III. Objectives

Following were the objectives of the study -

1) To find out the relationship between Test Anxiety and Academic Achievement in Mathematics of high school students.
2) To find out the relationship between Test Anxiety and Academic Achievement in Mathematics of high school students with respect to gender and locality.
3) To study the difference in the relationships between Test Anxiety and Academic Achievement of
    a) Boys and girls.
    b) Urban and rural school students
4) To compare the Academic Achievement in Mathematics of students with different levels of Test Anxiety.

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IV. Hypotheses

The investigator formulated the following hypothesis

1) There exists a significant relationship between Test Anxiety and Academic Achievement in mathematics of high school students.
2) There exists a significant relationship between Test Anxiety and Academic Achievement in mathematics of high school boys.
3) There exists a significant relationship between Test Anxiety and Academic Achievement in mathematics of high school girls.
4) There exists a significant relationship between Test Anxiety and Academic Achievement in mathematics of urban school students.
5) There exists a significant relationship between Test Anxiety and Academic Achievement in mathematics of rural school students.
6) There is no significant difference in the relationships between Test Anxiety and Academic Achievement of boys and girls.
7) There is no significant difference in the relationships between Test Anxiety and Academic Achievement of urban and rural school students.
8) There is no significant difference between the groups in Academic Achievement in Mathematics with respect to different levels of Test Anxiety.

V. Sample

The sample consists of 300 high school students, of whom 148 were boys and 152 are girls; 158 were from rural schools and 142 were from urban schools. The investigator used cluster sampling technique for selecting the sample from Vijaynagara region.

VI. Tools Used

1) Test Anxiety Scale for Children (TASC) by Sarason and associates is used to assess the Test Anxiety of the high school students. It is meant to test the highly anxious children who are very much concerned about their progress in their classes and who are very much anxiety- ridden of the time of tests and examinations conducted for them.

   The scale consists of thirty items like "Do you worry a lot before you take a test?" in two-point scale Yes or No. The subject has to answer for each statement either yes or no. Yes answer carries a score of 1 and no carries a score of 0 and the sum of the scores represents the individual's anxiety score.

   The tool used is already a standardized one. It is suitable for administration to the present sample, since it does not suffer from the disadvantage of culture etc. So the necessity of establishing the validity does not arise. However the sample reliability of the test is established by test-retest method and the reliability coefficient is found to be 0.82. Hence the tool is highly reliable and valid.
2) Half-Yearly Exam Marks obtained from the school office register is taken as the index of the Academic Achievement. The raw scores obtained by the students are converted into the standard 't' scores by the investigator.

VII. Statistical Technique Used

The data collected by the investigator from the sample was analyzed using suitable statistical techniques. In the present study the relevant data collected were the scores secured by 300 high school students in test anxiety scale for the children and average marks obtained in half-yearly examination.

In the present investigation Mean and Standard Deviation scores were calculated from the scores in test anxiety scale. 't' value was calculated to test the significant difference between the Mean scores of the two groups of Test Anxiety in Academic Achievement in mathematics. And also 't' test was used to test the significant difference between the relationships of Test Anxiety and Academic Achievement in mathematics of boys and girls and rural and urban school students. Correlation coefficient 'r' was used to find out the relationship between Test Anxiety and Academic Achievement in mathematics.

VIII. Analysis Of Data

In the present study the relevant data collected were the scores of Test Anxiety and Academic Achievement marks secured by 300 high school students in Vijaynagara region. The data were analyzed employing suitable statistical techniques to arrive at meaningful conclusions.

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Table:1 Correlation Coefficient between Test Anxiety and Academic Achievement in Mathematics of High school students

Variables	Df	Correlation coefficient(r)	Result at 0.05 level
Test Anxiety and Academic Achievement	298	-0.34	s

From table-1, correlation coefficient between Test Anxiety and Academic Achievement in mathematics was computed on representative sample of 300 cases drawn at random from high school students. As per the manual, higher the score in Test Anxiety Scale, higher is their test anxiety.

The relationship between Test Anxiety and Academic Achievement in mathematics was found to be - 0.34, which is significant at 0.05 level. It was inferred that there was a substantial negative relationship between Test Anxiety and Academic Achievement in mathematics. It is found that the higher the test anxiety, lesser is the Academic Achievement in mathematics and vice versa.

Table: 2 Correlation Coefficient between Test Anxiety and Academic Achievement in Mathematics of Boys, Girls, Rural and Urban Students

Sub-variables	df	Correlation Coefficient (r)	Result at 0.05 level
Boys	146	-0.28	S
Girls	150	-0.37	S
Rural	156	-0.40	S
Urban	140	-0.32	S

From table 2, significant negative relationships are observed in all the sub-samples of high school students. Difference in relationships between Test anxiety and Academic Achievement in Mathematics of boys and girls (table 3) is not significant as the calculated 't' value 0.75 is less than the table value at 0.05 level of significance.

Also it is found that the difference in the relationships between test anxiety and academic achievement in mathematics of rural and urban school students is not significant at 0.05 level of significance. Based on the Mean and Standard Deviation of the overall test anxiety scores of high school students, the sample is classified into high test anxiety group, average test anxiety group and low test anxiety group.

Table 3: Significance of Difference in the Relationship between Test Anxiety and Academic Achievement of Boys and Girls and Rural and Urban School Students

Group	N	R	Z	't' Value	Result at 0.05 level
Boys	148	-0.28	-0.29	0.75	NS
Girls	152	-0.37	-0.39		
Rural	158	-0.40	-0.42	0.66	NS
Urban	142	-0.32	-0.33		

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On comparing the academic achievement scores of high, average and low test anxiety groups, significant difference exists between low and average test anxiety groups and average and high test anxiety groups as the calculated 't' values 4.53, 3.23 respectively are significant at both levels of significance.

But the difference that exists between high and low test anxiety groups is not significant at 5% level. Students with average level of test anxiety achieve more than the students with high and low levels of test anxiety.

Table 4: Comparison of Mean Academic Achievement Scores of High School Students with Different Levels of Test Anxiety

Group	N	Mean	SD	't' Value	Result at 0.05 level
Low Test Anxiety	58	59.42	12.73	4.53	Sig
Average Test Anxiety	182	67.44	7.94		
Average Test Anxiety	182	67.44	7.94	3.32	Sig
High Test Anxiety	60	61.86	12.60		
Low Test Anxiety	58	59.42	12.73	1.05	NS
High Test Anxiety	60	61.86	12.60		

IX. Conclusion

It is concluded from the findings that there is a significant negative relationship between Test Anxiety and Academic Achievement in mathematics. So the present study emphasizes the need for reducing the test anxiety among the high school students so that they can achieve more. Also, an important thing that should be kept in one's mind is that the students with moderate level of test anxiety excel in mathematics achievement.

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