



# Academic Anxiety And Achievement In Science Of Higher Secondary School Students

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## ABSTRACT

A significant barrier to success in academics and other academic domains is academic anxiety. An increasing percentage of students worldwide are experiencing anxiety related to science. Science is a subject that is important and required for all students in the Indian educational system, from primary school through higher secondary school. The understanding of science is constantly improving at every school level. Because of this, students who have a large amount of science to learn and who must prepare for scientific aptitude frequently feel pressured. There is a growing amount of pressure on secondary pupils to do well in science, solve scientific problems in the classroom, and prepare for school and other competitive exams. The investigator felt it was worthwhile to investigate the relationship between academic anxiety and the acquisition of scientific concepts by checking achievement in science among students in class XI. For this study, the sample was drawn from six higher secondary school students of Koraput district of Odisha state. The sample of 120 students in the class XI was randomly selected from Govt. school/college students. For the present study the researcher have used the Academic Anxiety Scale for children of Dr.A.K.Singh and Dr. A Sengupta (1984) and Science marks of each students of second term examination were taken into consideration from school registered record. The findings show that the correlation between academic anxiety and science achievement was very weakly positive.

**Keywords:** Academic Anxiety, Achievement in Science, Higher Secondary School Students.

## INTRODUCTION

### ACADEMIC ANXIETY

Anxiety is the most prevalent psychological condition among school-age children and adolescents worldwide. (Costello, Mustillo, Erkanli, Keeler & Angold, 2003). To varied degrees, school children experience anxiety (Bernstein & Borchardt, 1991; Boyd, Kostanski, Gullone, Ollendick & Shek, 2000). Anxiety has been associated with negative effects on students' academic performance as well as their social, emotional, and academic adjustment (Essau, Conradt & Petermann, 2000). School avoidance, poor problem-solving skills, and diminished academic progress are all seen to be consequences of anxiety, aside from these and other factors (Mc Loone, Hudson & Rapee, 2006). It is thought that anxiety is a universal phenomenon that exists across all civilizations among students in school (Good & Kleinman, 1985; Guarnaccia, 1997). Academic anxiety pertains to a type of anxiety that is associated with the perceived threat posed by the educational setting in which teachers work and specific courses like chemistry, physics, science, and English. It is an adversely experienced mental sensitivity of unease or distress in response to conditions in school or college. Anxiety related to academics is not inherently harmful. It's true that high levels of anxiety impair memory and concentration, which are essential for regular academic performance and success; but, it's also true that most of us wouldn't have the drive or enthusiasm to write assignments, complete daily homework, or study for exams if we didn't have anxiety.

It can lead to a student developing a deep dislike for a subject or teacher, procrastinating, breaking off contact with parents, doing poorly on homework, missing class to engage in extracurricular activities, withdrawing from socializing with peers or friends. Parents' expectations for academic success and the ensuing pressure to achieve it are the most frequent causes of anxiety among Indian school students (Deb, 2001).

Research indicates that students may experience anxiety related to exams, which may lower their self-esteem and increase their fear of failure (Hardy, 2003). They will therefore credit an external cause for their achievement and an internal one for their failure. Students who have academic anxiety and exam anxiety perform less well academically than their peers. (Everson & Millsap, 1991). High levels of academic anxiety are negatively correlated with concentration and memory, two skills that are thought to be critical for academic success. If pupils are consumed with the fear of failure or are always comparing themselves to other students, they may lose their composure.

### ACHIEVEMENT IN SCIENCE

According to the Encyclopedia of Education, "Achievement is defined as the knowledge or skills developed by students, typically in school subjects, and measured by test scores, teacher marks, or by both." Achievement exams quantify the real performance level in a particular subject or field. Students' merits are what ultimately decide their success in science. Students' performance in science at school is determined by the grades they receive on their exams. IQ, genetics, environment, study habits, parental

education, mental health, socioeconomic situation, attitudes, study motivation, real background, and so on all have a significant impact on children's accomplishment. In conclusion, an individual's performance in the learning domain might be considered their achievement in science.

Academic anxiety has become one of the most debatable topics in present-day school education. The academic achievement of students depends very much on their level of academic anxiety. The relationship between anxiety and academic achievement has been difficult to clearly elucidate. Academic achievement is related to scholastic aptitude; it seems reasonable to suggest that more able students can spend their time in more non-academic activities.

## **JUSTIFICATION OF THE STUDY**

For pupils to attain and enhance their reasoning and thinking skills, science provides the foundation. Science should be the foundation at every level in order to foster mental observation, creativity, and innovation. Students who do not have the necessary science knowledge suffer in every aspect of their lives. Teachers generally agree that science is a vital and helpful subject for any nation's progress. Numerous studies have shown that academic anxiety is a significant impediment to understanding scientific topics. Hence, it is important and desirable to know the pattern of academic anxiety of the students and its relationship with the acquisition of scientific concepts. The investigator felt it was worthwhile to investigate the relationship between academic anxiety and the acquisition of scientific concepts by checking achievement in science among students in class XI. The results of this study could serve as the foundation for intervention programs in the future that try to reduce academic anxiety in students, which would ultimately lead to better performance outcomes in their understanding of scientific topics. In the present scenario, academic performance has been affected by academic anxiety. Any nation's future is closely related to how well its students do in class by managing their anxieties. In order to do well in their course of study, that is, to attain academic achievement, the students struggle to manage stress and anxiety. Thus, the investigator has chosen this topic to know the relation between academic anxiety and scientific achievement. Therefore, this study would work as a guideline for teachers to guide the students in science class intelligently and improve teaching of science which could lesser the stress and anxiety of students and indirectly helping them in enhancement of achievement in Science

## **STATEMENT OF THE PROBLEM**

In the present study effort has been made to investigate the academic anxiety and achievement in Science among secondary school students. Hence the present study is stated as “**Academic Anxiety and Achievement in Science of Higher Secondary School Students**”.

## OBJECTIVES OF THE STUDY

- 1) To find out the level of Academic anxiety and Achievement level in Science of Higher Secondary School Students in relation to gender.
- 2) To find out the relationship between Academic Anxiety and Achievement in Science of Higher Secondary School Students.

## HYPOTHESES OF THE STUDY

- 1) There exists no significant difference in the Academic Anxiety of higher secondary school students in relation to gender.
- 2) There exists no significant difference in the Achievement level in Science of higher secondary school students in relation to gender.
- 3) There is no significant relationship exists between the academic anxiety and achievement in Science of students.

## DELIMITATION OF THE STUDY

The present study has certain limitations which are given below:

- i) This study is confined to the Koraput district of Odisha only.
- ii) This study is delimited to the Government school and colleges students of Class XI
- iii) This study is confined to a sample of 120 students only.

## DESIGN OF THE STUDY

The study adopts survey method to find out the relationship between academic anxiety and achievement in Science higher secondary school students.

## Population and Sample

In the present study class XI students are the population of this research. The sample was drawn from six higher secondary school students of Koraput district of Odisha state. The sample of 120 students in the class XI was randomly selected from Govt. school/college students. The sample size of the present study is 120 students in which 60 students are girls and 60 students are boys.

## Tools

For the present study the researcher have used the following tools-

- Academic Anxiety Scale for children of Dr.A.K.Singh and Dr. A Sengupta (1984)
- Science marks of each students of second term examination were taken into consideration from school registered record.

## Procedure of data collection

The standardized academic anxiety scale, and summative assessment of Science were used by the investigator, who had physically visited the schools to gather the data. After distributing the scales booklet to the students, the researcher gave them an explanation of why they were taking it. Even in the absence of a time limit, it has typically been discovered that 30 minutes is sufficient to address every question. The scores for both variables were recorded in numerical form once the data were gathered.

## ANALYSIS AND INTERPRETATION OF DATA

The analysis and interpretation of the data come next once the data has been collected. Conclusions have been drawn using a variety of statistical methods, including the t-test, product moment correlation coefficient, mean, standard deviation, with the help of SPSS (Statistical Package for the Social Sciences) software. The investigator analysed the collected data keeping in view the objectives.

**Hypothesis 1-** There exists no significant difference in the academic anxiety level of students in relation to gender.

**Table 1: Comparison of Mean Score of Academic Anxiety of Boys and Girls Students**

Factor	Gender	N	Mean	Std.Deviation	df	t-test value
Anxiety Score	Boys	60	12.13	2.090	118	-4.897
	Girls	60	14.80	2.721		

An overview of the t-value of the mean academic anxiety scores among students according to gender is provided by the table's results. The t-value (-4.897) is significant at both the 0.05 and 0.01 levels of significance, indicating a substantial difference in academic anxiety between boys and girls. It can be concluded from the mean score that girls experience more academic anxiety than boys. As a result, according to the t-score finding, girls experience more academic anxiety than boys. Hence, the null hypothesis can be rejected in this situation.

**Hypothesis 2** - There exists no significant difference in the achievement level in Science of students in relation to gender.

**Table 2: Mean, S.D and t-test Value in Achivement in Science among Boys and Girls**

Gender	N	Mean	Std.Deviation	df	t-test value
Boys	60	74.62	18.824	118	0.760
Girls	60	77.06	15.394		

The t-test value at df = 118 in this table is 0.760. Based on the mean score, it can be concluded that girls have more achievement in science than boys because 0.850 is not greater than 1.98. Consequently, there is

no significant difference between boys and girls on achievement in science. Both the 0.05 and 0.01 significance levels do not support the estimated t-test value of 0.760. That means that the null hypothesis cannot be ruled out, and researchers can state with confidence that there is no need for additional t-test-based testing because the mean differences are not significant.

**Hypothesis 3-** There is no significant relationship exists between the academic anxiety and achievement in Science of students.

**Table 3: Correlation value between the Academic Anxiety level and Achievement in Science of Students.**

		Academic Anxiety	Achievement in Science
Academic Anxiety	Pearson Correlation	1	.035
	Sig. (2-tailed)		.806
	N	120	120
Achievement in Science	Pearson Correlation	.035	1
	Sig. (2-tailed)	.806	
	N	120	120

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\*. Correlation is significant at the 0.01 level (2-tailed).

Therefore, it may be concluded that anxiety is not a bad thing based on the value of  $r$  (0.035), which is a very little positive connection between academic anxiety and science achievement. It is true that having a lot of anxiety affects memory and focus, two things that are essential for doing well in school. But without anxiety, most of us wouldn't have the drive to compose papers, prepare for tests, or complete everyday homework especially in boring classes. By fostering motivation, a healthy level of worry really improves academic achievement.

## MAJOR FINDINGS

- The level of academic anxiety among boys was low, but that of girls was very high.
- The t-value (-4.897) is significant at both the 0.05 and 0.01 levels of significance, indicating a substantial difference in academic anxiety between boys and girls.
- The level of achievement in science for boys was average and for girls was high.

- There is no significant difference between boys and girls on achievement in science.
- The correlation between academic anxiety and science achievement was shown to be very weakly positive, with a value of  $r$  (0.035).

## CONCLUSION

It is determined that a significant portion of today's students suffer from high levels of academic anxiety, which can have detrimental long-term effects on their physical and mental well-being. For the benefit of children's improved development, parents, teachers, and school guidance counselors should collaborate. Teachers and parents alike should make effective use of timely motivation and encouragement. Maximum studies show that the stress, academic anxiety and achievement of the student are closely related. There is a significant difference of academic achievement in science between boys and girls adolescents whereby girls score higher in their academic achievement in science. About the anxiety the result shows girls were found comparatively more anxious than their boys counterparts in their academic situation. The findings show that the correlation between academic anxiety and science achievement was very weakly positive. For this serious problem to be resolved, schools must take appropriate measures. In lieu of concentrating just on grades or marks, they should concentrate on total growth. Getting worried or apprehensive will interfere with a student's ability to perform well in school activities.

## EDUCATIONAL IMPLICATION OF THE STUDY

To maximize learning opportunities and academic achievement for each student, it would be highly desirable for all schools and teachers to make the teaching-learning environment favourable for all the students. Resultantly it would bring high level of academic achievement for each and every student. Good teaching methods, home environment, school environment and learning style of students play an important role in reducing academic anxiety of students. As a result students achieve more and more as far as their academic achievements are considered.

## SUGGESTIONS FOR FURTHER RESEARCH

- Such type of study can be conducted on larger sample. The present study was conducted on a sample of 120 students only.
- In the present study data was limited to Koraput district only. Area of data collection can be extended to other districts of the Odisha state. It could be extended to other states also.
- Sample of the present study was confined to the schools affiliated to The Council of Higher Secondary Education, Odisha. A new study can be conducted on the schools affiliated to other boards also.
- This study was conducted on higher secondary school students only. It can be conducted on senior secondary and college students also.
- The present study was conducted on the students of govt. schools. It can be extended to the students of private schools also.

- This study was conducted on variables like academic achievement and academic anxiety. Other variables can be studied in relation to other variables.

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