Test Anxiety and Academic Achievement in Mathematics of Adolescent Students

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Abstract

The broad objective of the study was to find out the relationship between Test Anxiety and Academic achievement in mathematics of adolescent students in Vijayawada (A.P), India. A group of 200 adolescents (100 boys and 100 girls), aged 13-17 years were recruited to participate in the study. The sample consists of 10th graders studying in Government Secondary Schools of Vijayawada. The Test Anxiety Scale for children (TASC) by Sarason and Average half-yearly marks from school records are used to assess test anxiety and academic achievement respectively. Mean standard deviation and t-tests were used to analyze the data. The findings revealed that there is a significant negative relationship between Test Anxiety and Academic achievement in mathematics of adolescent students. So the present study emphasises the need for reducing the test anxiety among adolescent students so that they can achieve more. Also the students with moderate level of test anxiety excel in mathematics achievement.

Key words: *Test anxiety, Academic achievement, Adolescent students*

1. Introduction:

Too much anxiety about a test is commonly referred to as test anxiety. It is perfectly natural to feel some anxiety when preparing for and taking a test. Test anxiety is really common among college students! It is normal to feel some level of anxiety or stress regarding upcoming exams, papers or presentations. Examination stress and test anxiety are pervasive problems in modern society. As the information age continues to evolve, test scores will become even more important than they are today in evaluating applicants for demanding jobs and candidates for admission into highly competitive educational programs. Because test anxiety generally causes decrements in performance and undermines academic achievement, the development of effective therapeutic interventions for reducing its adverse effects will continue to be an important priority for counsellors, psychologists, and educators. Alleviating test anxiety will also serve to counteract the diminished access to educational and occupational opportunities that is frequently experienced by test-anxious individuals.

Every year, millions of students under-perform in school and university because of heightened test anxiety, which is defined as the "set of phenomenological, physiological, and behavioural responses that accompany concern about possible negative consequences or failure on an exam or similar evaluative situation" (Zeidner, 1998, p.17). Although test anxiety is known to depend on situational variables, such as levels of motivation, task complexity, and the practical consequences of high or low performance (Humphreys & Revelle, 1984), it varies markedly from one individual to another. Thus, some individuals will be relatively calm when

it comes to completing a test, whilst others will generally "perceive examinations as more dangerous or threatening and experience more intense levels of state anxiety when taking tests" (Spielberger & Vagg, 1995, p.6). On the self-defeating consequences of subjective cognitions (Ellsworth & Smith, 1988; Lazarus, 1991) suggest that poorer self-beliefs are a major cause of test anxiety.

Test anxiety is a sort of anxiety which appears in a specific situation that has symptoms like general anxiety, such as sweating, heart beat increase, uneasiness, worry, doubt, hand trembling, dizziness, and the like. Sarason and Mandler (1952) had started seriously to research about test anxiety. Sarason defines test anxiety as a type of "self-preoccupation" which is determined by understatement and feeling doubt about one's own capabilities. Although some anxiety before test taking is normal, and even necessary to do well, test anxious student's experience crippling anxiety that can limit their ability to perform to their real level of proficiency. So test-anxiety is actually, a type of performance anxiety- a feeling someone might have in a situation where performance really counts or when the pressure is on to do well. It is a psychological condition where a person experiences distress before, during, or after a test or other assessment to such an extent that this anxiety causes poor performance or interferes with normal learning. Test-anxiety is defined as the "set of phenomenological, physiological, and behavioural responses that accompany concern about possible negative consequences or failure on an exam or similar evaluative situation".

Research on test anxiety has a long and fruitful history. First studies relating to test anxiety were conducted as early as 1914 (Folin, Demis & Smillie, 1914), and the concept began to be investigated under its own name in 1952, when Mandler and Sarason (Sarason & Mandler, 1952) published a series of studies on test anxiety and how it relates to performance, as well as developed an instrument to assess individual differences in test anxiety in adults, the Test Anxiety Questionnaire. The increasing interest in outcome-based approaches to assessment and reporting in language testing (e.g., Brindley, 1998; McKay, 2000) has heightened the need for more research on fair assessment (Kunnan, 2000) by which more valid inferences can be drawn. Although assessment can be done without tests (e.g., portfolios, and self- and peer-assessments, Brown and Hudson, 1998), of particular interest and complexity is assessment based on tests. The current research focuses on one variable related to test-takers' characteristics, namely test anxiety, and investigates to what extent test anxiety affects listening test performance.

2. Objectives:

1. To find out the relationship between Test Anxiety and Academic achievement in mathematics of adolescent students
2. To study the difference in the relationships between Test Anxiety and Academic achievement in mathematics of male and female adolescent students
3. To study the difference in the relationships between Test Anxiety and Academic achievement in mathematics of urban and rural adolescent students

3. Hypothesis:

1. There exists a significant relationship between Test Anxiety and Academic achievement in mathematics of adolescent students
2. There is no significant difference in the relationships between Test Anxiety and Academic achievement in mathematics of male and female adolescent students
3. There is no significant difference in the relationships between Test Anxiety and Academic achievement in mathematics of urban and rural adolescent students

4. Delimitations

The study was delimited to the following:

1. The study was delimited to Government co-education secondary schools only.

2. The study was delimited secondary schools of rural and urban Vijayawada only.

3. The study was delimited to X standards secondary school students only.

5. Method:

Simple survey method was used in this study. In order to achieve the above-cited objective, the various aspects of the methodology followed were: Sample, tools, procedure of data collection and statistical techniques, scoring procedure.

a) Sample: The sample consisting of X class studying 200 adolescent students (100 boys and 100 girls) were belonging to rural-urban area of Vijayawada of Andhra Pradesh. The investigator used cluster sampling technique for selecting the sample from rural-urban area of Vijayawada.

b) Tools Used: The Test Anxiety Scale for children (TASC) by Sarason and Average half-yearly marks from school records are used to assess test anxiety and academic achievement respectively.

c) Procedure of data collection: After selecting 200 students of the selected schools, the investigator approached them individually and requested them to fill up the Test Anxiety Scale for children (TASC). Though the tool was self administering, the investigator explained the students how to fill up the tool. After the collecting the filled in tool, it was scored and tabulated systematically for statistical calculation.

d) Statistical techniques used: The investigator used the statistical techniques like Mean, standard deviation, t-test, etc for analyzing and interpretation of the data collected for the study.

6. Results and Discussions:

Objective-1. To find out the relationship between Test Anxiety and Academic achievement in mathematics of adolescent students

Table 1: Relationship between Test Anxiety and Academic achievement in mathematics, Test Anxiety and Academic achievement

Variables	Df	Correlation coefficient (r)	Result at 0.05 level
Test Anxiety and Academic achievement	289	0.35	Significant

Table-1 shows the relationship between Test Anxiety and Academic achievement in mathematics of adolescent students was found to be 0.35, 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.

Objective-2. To study the difference in the relationships between Test Anxiety and Academic achievement in mathematics of male and female adolescent students

Table-2: Mean and S.D scores of male and female adolescent students

Sr. No.	Gender	N	Mean	S.D	t-test	level of significance
1	male	100	63.20	7.22	0.97	Not Significant
2	female	100	65.04	11.19		

Table-2 shows the mean and S.D scores of male and female adolescent students were 63.20 &7.22 and 65.04 &11.19. The mean score of Test Anxiety and Academic achievement in mathematics among female adolescent students was higher than male adolescent students. The difference in the relationships between Test Anxiety and Academic achievement in mathematics of male and female adolescent students is not significant as the calculated t value of 0.97 is less than the table value at 0.05 levels.

Objective-3. To study the difference in the relationships between Test Anxiety and Academic achievement in mathematics of urban and rural adolescent students

Table-3 shows the mean and S.D scores of male and female adolescent students were 65.18 & 10.01 and 67.74 & 9.27. The mean score of Test Anxiety and Academic achievement in mathematics among urban adolescent students was higher than rural adolescent students. The difference in the relationships between Test Anxiety and Academic achievement in mathematics of urban and rural adolescent students is not significant as the calculated t value of 0.526 is less than the table value at 0.05 levels.

Table- 3: mean and S.D scores of male and female adolescent students, School Environment

Sr. No.	School Environment	N	Mean	S.D	t-test	level of significance
1	Rural	100	65.18	10.01	0.526	Not Significant
2	Urban	100	67.74	9.27		

7. Conclusion:

It is concluded from the findings that there is significant negative relationships between Test Anxiety and Academic achievement in mathematics of adolescent students. So the present study emphasises the need for reducing the test anxiety among adolescent students so that they can achieve more. Also the students with moderate level of test anxiety excel in mathematics achievement.

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