

Study of Academic Stress and Test Anxiety as Predictors of Academic Achievement of Secondary School Students

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Abstract:

This study examined academic stress and test anxiety as predictors of academic achievement. The sample consisted of 400 Xth class students (two hundreds boys: 100 rural & 100 urban; two hundreds girls: 100 rural & 100 urban) selected from government high schools of Aligarh city. Tools for collecting the data included Scale of Academic Stress (SAS) by Abha Rani Bisht (1987) and Test Anxiety Inventory by Spielberger et al. (1981). The data were analyzed using descriptive, correlational and inferential statistics. The findings of the present study revealed that academic stress and test anxiety are inversely related to academic achievement of secondary school students. Their levels of significance vary between .05 to .01 for total and sub-samples. It is also found that there is a significance difference between boys & girls both rural and urban on the variables academic stress, test anxiety and academic achievement. However no significant difference is found between boys and girls in case of academic achievement. The present findings point that rural youth might come across a variety of stress inducing situations which may increase the stress and anxiety particularly in academics. It is, therefore, suggested to develop programmes and strategies to cope up with the students' stressors. By reducing the stress, caused by examination and tests, academic performance of students' may be increased. The findings of

this study may be used to formulate policies and implement measures that may effectively address causes of stress and anxiety which may result into better academic achievement of secondary school students.

Key words: Academic Stress, Academic Achievement, Test Anxiety, Adolescence

INTRODUCTION

The 21st century is a competitive era where students are expected to perform at every front, the main being the academics. Being academically successful and making a place in the society is their priority. When they cannot rise up to the expectations or are in the process of meeting it, they suffer from frustration, stress and anxiety. Williamson, Birmaher, Ryan, and Dahl (2005) reported that stressful life events could lead to low performance in academics. It has been found that students' performance in school is influenced by stress (Dusselier, Dunn, Wang, Shelly, & Whalen, 2005), and anxiety (Anson, Bernstein, & Hobfoll, 1984) which could lead to difficulties in concentration and lack of motivation and interest. These conditions will influence students' academic achievement. A study by Md Aris Safree Md Yasin and Mariam Adawiah Dzulkifli (2010) also indicated the same results. They found that depression, anxiety, and stress negatively correlate with academic achievement. Academic stress is particularly severe because students are expected to pursue academic success to achieve respect, family pride, and social mobility (Gow, Bella, Kember, & Hau, 1996), resulting in extremely high academic demands and extraordinary pressure on school-aged children and adolescents (e.g., Bossy, 2000; Ho, 1996).

The test anxiety is another factor that affects academic achievement to a large extent. According to Zeidner (1998), test-anxiety is a multidimensional signs that can be described as a group of phenomenological, physiological, and behavioral

reactions to appear with possible negative consequences or failure on an examination or similar evaluative situation. Test-anxiety, especially worry has impact on academic performance, and working memory (Eysenck, 2001). Masson, Hoyois, Pcadot, Nahama, Petit and Anseau (2004) found that high school students with high test–anxiety had a poor school performance. Thus, test- anxiety contributed to academic achievement because of vulnerability to distraction and interference experienced by the students.

Given the adverse consequences of academic stress and test anxiety, it is important to delineate factors that may help students when they experience the stress involved in taking tests. Although many researchers in India and abroad have explored the relationship between academic stress, test anxiety and academic performance, almost few efforts have been made to examine the relationships and differences between academic stress, test anxiety and academic achievement of secondary school students in relation to their gender and locale. Therefore, it is a humble endeavour to explore the relationship and difference between above said variables in case of gender and locale of senior secondary students.

CONCEPTUAL FRAMEWORK

Academic Stress: Concept and Definition

Academic stress is conceptualized as a state of distress induced by a student's appraisal of excessive academic demands (e.g., overloaded homework, examinations; Lee & Larson, 2000; Lou & Chi, 2000), often resulting in negative effects on student's mental and physical health (e.g., Clark & Rieker, 1986; Felsten & Wilcox, 1992), as well as their school performance (e.g., Struthers, Perry, & Menec, 2000). Stress makes a significant contribution to the prediction of subsequent school performances and act as a negative predictor of academic performance in school children (Endler et. al, 1994). It has

become a source of immediate concern as it contributes to academic, social and emotional problem. In the context of school, academic stress is a pervasive sense of urgency to learn all these things which is related to or prescribed by the school (Shah, 1988). Academic stress is the product of a combination of academic related demands that exceed the adaptive resource available to an individual.

Test Anxiety: Concept and Definition

Test anxiety is basically a strong emotional reaction that an individual experiences before and during an examination (Akca, 2011). Therefore, this is detrimental towards the performance and will erode academic achievement by affecting the subject's mental health and academic life (Zeidner, 1998; Rothman, 2004). The Diagnostic and Statistical Manual-IV states that test anxiety is mainly a concern over negative evaluation (DSM-IV: American Psychiatric Association (APA), 1994) and falls into the classification of "social phobia". Zeidner (1998) defines test anxiety as the set of phenomenological, physiological and behavioral responses that accompany concern about possible negative consequences or failure on an exam or similar evaluative situations. According to Liebert and Morris (1967) there were two distinguishable components of test anxiety, one cognitive and the other emotional. The cognitive component, which they have labelled as "worry" was identified cognitive concern about one's performance (e.g., thinking about the consequences of failure. The "emotionality" component referred to autonomic or physiological reactions that occur in the test situation.

Academic Achievement: Concept and Definition

Academic achievement occupies a very important place in education as well as in the learning process. It is influenced partly by the individual's ability to adjust to his environment, partly by his special abilities, intelligence and aptitude which

are an integral part of his personality and partly by the intensity of drives and motives which serve as the impelling force for his activities. Academic achievement, according to Good (1955), is defined as “knowledge attained or skills developed in the school subjects, usually designed by test scores or by marks assigned by teachers, or by both”. Thus, academic achievement refers to the degree of level of success and that of proficiency attained in some specific area concerning scholastic and academic work. In the present study academic achievement refers to the aggregate marks obtained by the secondary school students in their annual examination.

OBJECTIVES

1. To study the relationship between academic stress, test anxiety and academic achievement of students.
2. To compare boys and girls (both rural and urban) on the measure of academic stress, test anxiety and academic achievement.

HYPOTHESES

Based on the review of literature, the following hypotheses were formulated:

- H₁. There will be a significant negative relationship between academic stress and academic achievement of students.
- H₂. There will be a significant negative relationship between test anxiety and academic achievement of students.
- H₃. There will be a significant positive relationship between academic stress and test anxiety students.
- H₄. There will be a significant difference between boys and girls in respect of their academic stress.
- H₅. There will be significant difference between boys and girls in respect of their test anxiety.

H₆. There will be a significant difference between boys and girls in respect of their academic achievement.

H₇. There will be a significant difference between rural and urban students in respect of their academic stress.

H₈. There will be a significant difference between rural and urban students in respect of their test anxiety.

H₉. There will be a significant difference between rural and urban students in respect of their academic achievement.

METHODOLOGY

This study utilized survey techniques due to its descriptive nature. This section is comprised of sample, research tools and procedure of the data collection.

Sample

Sample of 400 Xth class students (two hundreds boys: 100 rural & 100 urban; two hundreds girls: 100 rural & 100 urban) selected randomly from government high schools of Aligarh city participated in the study. The government high schools were selected for the sake of similarity in the infrastructures. The ages of the students ranged between 15 and 17 years with an average age of 16 + years.

LOCALE, GENDER AND SCHOOL- WISE DISTRIBUTION OF SAMPLE

Schools → Respondents		S.T.S.High School A.M.U.Aligarh	A.M.U. Girls High School A.M.U.Aligarh	Total
		Boys	Rural	100
Urban	100		-	100
Girls	Rural	-	100	100
	Urban	-	100	100
G. Total		200	200	400

TOOLS USED

The following tools were used for collecting the data to measure the variables of the study.

1. Scale of Academic Stress (SAS) by Abha Rani Bisht (1987)

Scale of Academic Stress is an 80 items 5 points scale to measure four components of academic stress viz. frustration, conflict, pressure and anxiety. Three types of reliabilities—dependability, i.e. short-term test-retest correlations (.87), stability i.e. retest after a longer interval (.82) and internal consistency i.e., split-half correlation (.88) was calculated with the help of split-half method. Content validity and construct validity were calculated for all the scales.

2. Test Anxiety Inventory by Spielberger et al. (1980)

The Test Anxiety Inventory is a 20-items paper and pencil test to measure two major components of test anxiety: worry and emotionality. The reliability coefficient of the test, as established by test-retest method was found to be 0.80. The validity of The Test Anxiety Inventory as established using correlations with six other anxiety measures and four measures of personality (Spielberger et al., 1980) were found to be between 0.34-0.86.

3. Academic Achievement

Aggregate marks secured by students in the annual examination of class Xth were taken as the academic achievement of the students. These marks were collected from the office records of the concerned schools and used in the analyses of the data.

STATISTICAL ANALYSES

The researcher used the following statistical techniques for analyses of the data.

- I. Descriptive Statistics: Mean and SD
- II. Correlational Statistics: Coefficient of Correlation 'r'
- III. Inferential Statistics: 't'- test

PROCEDURE

The administration of the tools viz., Academic Stress Inventory (1987) by Dr. Abha Rani Bisht and Test Anxiety Inventory by Spielberger et al. (1981) were completed following the instructions given by the respective authors.

ANALYSES OF THE DATA

Keeping in view the objectives as well as design of the study, coefficient of correlation and 't' test were used for the analysis of the data. Pearson's Coefficient of Correlation was computed to analyze the relationships. Mean, Standard Deviation and 't' test were used to find the significance of difference between the means.

RESULTS AND DISCUSSION

1. Correlation of academic stress, test anxiety and academic achievement.

The study was conducted to ascertain the extent of relationship between dependent variable (Academic Achievement) and independent variables (Academic Stress and Test Anxiety) using Pearsons' Product Moment Coefficient of correlation. Results of the correlation are presented in Table No.1

Table No.1
Correlation Coefficients of Academic Stress, Test Anxiety and Academic Achievement

Variables	Coefficients of Correlation				
	Total (400)	Boys (200)	Girls (200)	Rural (200)	Urban (200)
Academic Stress and Academic Achievement	- 0.149 (.05)	-0.178 (.05)	-0.156 (.05)	-0.210 (.01)	-0.188 (.01)
Test Anxiety and Academic Achievement	-0.275 (.01)	-0.202 (.01)	-0.222 (.01)	-0.166 (.05)	-0.153 (.05)
Academic Stress and Test Anxiety	0.229 (.01)	0.201 (.01)	0.195 (.01)	0.150 (.05)	0.235 (.01)

Perusal of table-1 establishes that there is a significant negative relation between academic stress and academic achievement for total sample, boys & girls and rural and urban students. This means that greater academic stress will result into poor academic achievement and vice-versa. The reason for the greater stress leading to poor academic performance may be the lack of targeted coping skills and strategies such as making a study plan, managing time, and using a study guide which facilitate students' motivation and performance (Chen, 2004). Similar result is also reported by Misra & McKean, (2000). Thus the hypothesis H₁ is accepted. The inverse relationship (Table 1) between test anxiety and academic performance for total sample, boys & girls and rural and urban students signify that larger test anxiety results into poor academic performance and vice-versa. The reason for the greater anxiety leading to poor academic performance may be the difficulties in retrieving the learned information, decreased concentration and inability to transform their knowledge into performance during tests and examinations. Such result is also reported by Onwayed (2005) and Nicholson (2009). Thus the hypothesis H₂ is accepted. In case of correlation between academic stress and test anxiety, the significant positive correlation for the total and sub-samples

indicates that more academic stress results into greater test anxiety and vice-versa. The possible reason for this result may be that academic stress being a risk factor may heighten students' anxiety levels which adversely affect academic performance. This result is in consonance with the research results of Leung, Yeung, & Wong, (2010) and Ge's (2008). Thus the hypothesis H_3 is accepted.

2. Comparison of boys & girls and rural & urban on the selected variables

The comparison of the samples on the selected variables was done by testing the significance of difference between their means by using t-tests. The results are presented in the following tables.

Table-2 presents mean scores of boys and girls for academic stress, test anxiety and academic achievement. The significance of difference between means varies between .05 to .01 level of significance for boys and girls on the said variables. Perusal of table-2 reveals significant difference between mean scores of boys and girls favouring girls on the variable, academic stress. The heightened academic stress of girls may be due to their thought oriented and emotional approach in dealing with the matters against the action oriented approach of boys. Similar findings were reported by Matud, (2004); Gadzella and Baloglu, (2006). Thus the hypothesis H_4 is substantiated. On the other hand, boys displaying significantly lower levels of anxiety in the test and examinations may be due to their "perfectionists" attitude due to their diligence and devotion to their work. This finding is in line with the findings of Cassady & Johnson, (2002) and Chapell et al., (2005). Thus the hypothesis H_5 is substantiated.

Table No.2
Comparison of Gender on the Selected Variables

Variables	Gender				t - value
	Boys (200)		Girls (200)		
	M ₁	σ ₁	M ₂	σ ₂	
Academic Stress	53.57	7.49	60.27	6.81	9.38 (.01)
Test Anxiety	35.65	6.77	46.17	8.71	13.50 (.01)
Academic Achievement	350.21	61.22	358.17	60.70	1.30 (N.S.)

Non-significant result in case of boys and girls on the measure of academic achievement may be due to the changing cultural scenario and providing equal opportunities to both boys and girls. This naturally enhances the level of aspirations which ultimately increases the academic and competitive spirit equally. This result is in line with studies of Kaur and Gill (1993) and Joshi (2000). Thus the hypothesis H₆ is confirmed.

Table No.3
Comparison of Locale on the Selected Variables

Variables	Locale				t - value
	Rural (200)		Urban (200)		
	M ₁	σ ₁	M ₂	σ ₂	
Academic Stress	62.19	6.50	55.21	6.19	11.00 (.01)
Test Anxiety	45.31	8.70	38.61	7.02	8.49 (.01)
Academic Achievement	370.12	61.05	382.75	59.82	2.09 (.05)

Results from Table-3 revealed significantly larger academic stress in case of rural sample in comparison to their urban counterparts. The larger academic stress in case of rural may be due to stressful life situations and adverse psychological effects. The stress generated by multiple negative life events may overwhelm the emotional, cognitive, and behavioral capacities of rural youth leading to the development of depressive symptoms. Results from Table-3 revealed that the

test anxiety is significantly lower among urban students in comparison to their peers of rural background. This may be attributed to the fact that urban students generally possess emotional resilience and mental flexibility to think positively and act confidently. On the other hands, they may receive relatively more intellectual stimulation from parents and teachers which enable them to assess situations quickly, accurately and react accordingly thereby reducing anxiety. The significant difference at 5% level favouring urban students on the measure of academic achievement may be attributed to their better quality of education and availability of facilities, opportunities and exposure to test their intellect and utilize their talents which help them in better academic accomplishment. The rural students, on the other hand, have the vulnerable aspiration level due to isolation and geographical and cultural context of their community (Haller & Virkler, 1993).

CONCLUSION

The purpose of this study was to investigate the relationships among academic stress and test anxiety and to find out the predictive power of these non-cognitive factors in academic achievement of secondary school students. According to the correlational analyses, academic stress and test anxiety were negatively associated with academic achievement in case of boys & girls and rural & urban students, which is substantiated with the finding of other researchers. Inferential analyses also reveal significant difference between the means of variables under study in case of gender and locale. These results therefore suggest the need for school-based programmes aimed to increase pupils' self-esteem and skills for dealing with stressful situations, particularly tests and examinations. Early intervention and proactive prevention programs may reduce anxiety symptoms which may result in an increase in overall

well-being and in academic performance. Although this investigation was limited by the small sample size, and the annual aggregate marks obtained from the school records, there are several implications for schools. Information about the relationships among academic stress, test anxiety and academic achievement of students could be important for educators who develop educational programs and implement teaching strategies. The research literature also suggests that teachers and parents who encourage students to use the coping strategies to deal with academic stress, such as making a study plan, managing time, and using a study guide, should facilitate students' motivation and performance (Chen, 2004).

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