

# Study of the Academic Stress In Relation To Personality, Intelligence, and Achievement Motivation among Secondary School Students With Reference To Their Gender

Dr. Amit Kumar Gosar, Stacy Wilson, Saindhavi Venkatraman

**Abstract-** The study has been carried out with the purpose of understanding the relationship of academic stress in the school children with various other variables like their intelligence, their personality in terms of extraversion and introversion and their achievement motivation. The study was carried out on the students of higher secondary schools from Navi Mumbai and 120 students with equal numbers of male and female students were recruited for this study. Data for this study was collected using various validated instruments such as Cattell's Culture Fair Intelligence Test, TJPQR-S, Bisht Battery of Stress Scales and Deo-Mohan Achievement Motivation Scale. Various statistical techniques like correlation coefficient and t test were employed for analyzing the data.

The correlation coefficients between Academic stress and other variables like Intelligence, personality and achievement motivation were found to be -0.77, -0.87 and -0.66 respectively, which are showing high negative correlation. This indicates that academic stress is high with students having low IQ and also with students who are introverts. Similarly students with high academic stress have low achievement motivation.

The comparison of means using t test reveals that there is no significant difference in the stress levels of male and female students. However, there is significant difference in stress levels of extrovert and introvert students and students with low and high IQ. It is also observed that there is a significant difference in the level of achievement motivation in students with low academic stress and high academic stress.

**Index Terms**—Academic stress, Intelligence, Personality, Extraversion, Introversion, Achievement motivation.

## I. INTRODUCTION

Everyone in their lifetime gets exposed to stress at some or other point of time. Distress is an uncomfortable situation that generally affects quality of the life and the sense of wellbeing. When the environmental factors provides stimuli which disturbs the state of homeostasis of an individual, the available resources will decide the level of stress. Academic environments can be highly competitive, and students must rely on their coping abilities to handle school-related stress successfully. High school students experience stress in many situations. School education is one of the most important phase of an individual's life. The academic performance at this is very crucial in deciding the next career stage in terms

of academic stream in their life. Higher levels of academic stress at this stage can result in adverse effects that are significant and chronic. An excess of academic stress can lead to increased frequency of physical and psychological problems like anxiety, nervousness, depression and other stress related disorders, which in turn can affect their academic performance.

The extent to feel such a stress can also vary from individual to individual. When students' aspirations are too high to reach but his abilities, interests, attitudes and capacities do not match with it, one may feel stress. An individual may excel in limited areas but sometimes when one wants to excel in every walk of life without considering one's own capabilities or under estimating own self may suffer from stress. Worldwide, Anxiety disorder has been seen in 8% of the adolescents and children. Academic stress is also positively correlated with the parenteral pressure.

The cases of suicide has also been reportedly increased in the high school students. The data says that the percentage of high school students who reported that they had thought seriously about committing suicide is up by 25% from 2009 to 2017. Female high school students reported seriously considering suicide at nearly twice the rate of their male counterparts in 2017 (22.1 and 11.9 percent, respectively).

Students learn more and more to achieve excellence. But when they don't meet their targets, they chose wrong methods of study like rote memorization etc. which lead them towards stress. The psychologists and educationists have been focusing their research proposals in the area of stress. They remained mostly in the fields of occupational stress, stressful life events and stress due to some chronic diseases etc. But less attention has been paid to the issue of academic stress realizing the present day need in the area of education where focus is upon mobilizing and directing the inner potentialities of students to cope with difficulties and achieve better. The variable of academic stress has been selected for investigation especially as it exists in relation to one's cognitive functioning. The other variables selected for the present study are personality, intelligence and achievement motivation. It is yet to be explored whether more intelligent students take the academic requirements as challenge and utilize their maximum energy to do the best. Personality has different traits and any particular trait may help the individuals to react in a specific way for coming possibilities. Some students want to achieve the standard of excellence in every sphere of life but academic stress plays its role everywhere. It may vary with varying levels of personality, intelligence and achievement motivation. Hence,

Dr. Amitkumar Gosar, School of Psychology, California Center University, 1301, Clay St; Oakland, California, USA,

Stacy Wilson, School of Psychology, California Center University, 1301, Clay St; Oakland, California, USA

Saindhavi Venkatraman, Academic Counsellor; IGNOU, India.

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the investigator took the present study to account for the issues of academic stress.

## II. TOOLS USED

To achieve the objectives of the study following tools were used:

- A. Cattell's Culture Fair Intelligence Test.
- B. The short-form of the revised Junior Eysenck Personality questionnaire (JEPQR-S)
- C. Bisht Battery of Stress Scales made by Abha Rani Bisht.
- D. Deo-Mohan Achievement Motivation Scale by Deo-Mohan.

## III. RESULTS AND DISCUSSION

Out of 150 students selected for this study, after administration of all the questionnaires, data of 120 students was selected in equal ratio of male and female students based on their lie scores came within the limit. All the raw scores obtained from all the instruments used are attached as appendix 5.

### A. Academic stress

H<sub>0A</sub> : There is no significant difference in the Academic stress of male and female Secondary school students.

To study the level of Academic stress among school children the data were analyzed. To find out academic stress among school children the scores obtained on academic stress scale were computed. Mean score and its standard deviation have been shown in Table 1

**Table 1: Academic stress Among School Children**

Academic Stress	N	Mean	Std.Dev	Variance
Male	60	<b>66.88</b>	<b>11.49</b>	<b>131.97</b>
Female	60	<b>63.26</b>	<b>12.40</b>	<b>153.80</b>

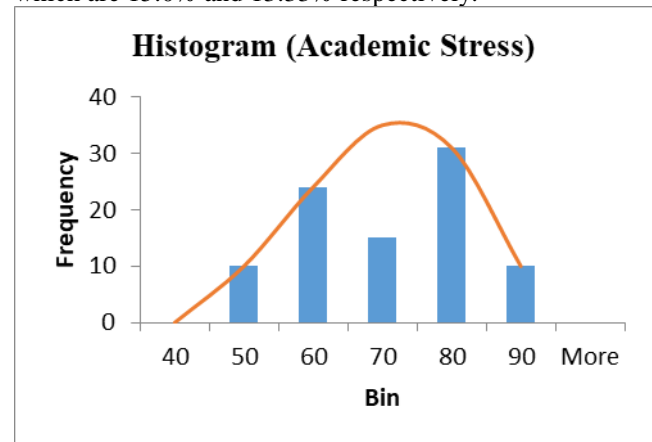
The children are further categorized w.r.t. their scores of Academic stress into Students with Low stress, Moderate stress and high stress and the data is tabulated in the Table 2.

**Table 2 : Categorization of the students with different stress level**

	Low Stress	Moderate Stress	High Stress	Total
Overall	65	55	17	120
%	54.17	45.83	14.17	100.00
Male	28.00	32.00	9.00	60
%	46.67	53.33	15.00	100.00
Female	37.00	23.00	8.00	60
%	61.67	38.33	13.33	100.00

From the above data it is seen that 54.17% students fall in low stress category, about 45.83% students fall under Moderate stress category and about 14.17 % of the students fall under high stress category. However, more number of

female students falls under low stress category (61.67%) as compare to male students (46.67%) but more number of male students fall under moderate stress category (53.33%) as compare to female students (38.33%). The high stress percentage are similar for both male and female students, which are 15.0% and 13.33% respectively.



**Figure 1 : Distribution of Academic stress amongst school students**

The Histogram of the distribution of the academic stress has been plotted in figure 1. And the distribution has been found to be near to normal.

### Academic stress among school children in relation to their gender

#### Hypothesis testing of H<sub>0A</sub>

H<sub>0A</sub> : There is no significant difference in the Academic stress of male and female Secondary school students.

For testing of the hypothesis H<sub>0A</sub>, the scores of academic stress of 60 male students and 60 female students were taken and the statistical analysis was done using t-test. t cal value obtained by this analysis at the significance level of 0.05 is reported in the table no.3.

**Table 3 : t- test results of academic stress of male and female students.**

	(Male students)	(Female Students)
Mean	66.88333333	63.61666667
Variance	131.969209	153.7997175
Observations	60	60
Pearson Correlation	0.105206294	
Hypothesized Mean Difference	0	
df	59	
<b>t Stat</b>	<b>1.582110783</b>	
P(T<=t) one-tail	0.059485347	
<b>t Critical one-tail</b>	<b>1.671093032</b>	
P(T<=t) two-tail	0.118970694	
t Critical two-tail	2.000995378	

The t cal value of 1.58 is less than that of t critical value of 1.67 at 0.05 level of significance. Hence the null hypothesis is accepted. This means that there is no significant difference in the stress level of Male and Female students.

### Intelligence

**H<sub>0B</sub>** : There is no statistically significant relationship between Academic stress of Secondary school students and their level of intelligence.

**H<sub>0C</sub>** : No significant difference will exist in the Academic stress of Secondary school students having high and low intelligence.

**Academic stress among school children having different levels of intelligence**

The objective of the study was to find the impact of intelligence on the academic stress among school children having different levels of intelligence. The data obtained in this study w.r.t. IQ scores are presented below. The mean, standard deviation and variance of the data is presented in the table No. 4.

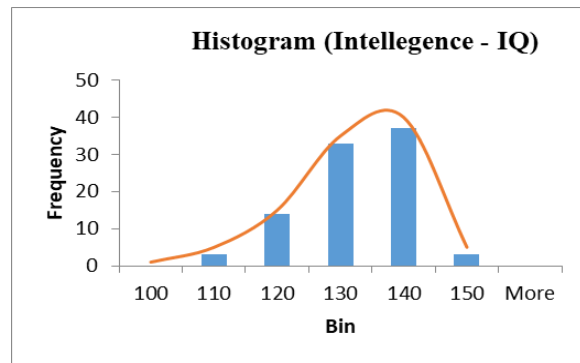
**Table 4 : IQ scores of schools childrens.**

IQ scores	N	Mean	Std.Dev	Variance
Male	60	126.70	8.16	66.52
Female	60	129.45	8.05	64.97

From the IQ scores of 120 students (60 male and 60 female), the students are further categorised into three category of IQ viz. a. Students with Average IQ (IQ scores below 120), b. Students with Superior IQ (IQ scores between 120 and 140) and Veru superior IQ (IQ scores above 140). The academic stress of these sub group was checked and the average academic stress for each group was calculated and the data is reported in the table no. 5. From the data it is found that the average academic stress scores of students with Average IQ (average academic stress scores of 75.3) is much higher than the students with superior IQ (average academic stress scores of 63.58), which is further higher than that of very superior IQ (average academic stress scores of 55.0).

**Table 5 : Categorization of the students with different IQ levels and their academic stress scores**

	Average IQ (Below 120)	Superior IQ (Between 120 to 140)	Very superior IQ (Above 140)
Number of Students	20	96	4
Academic stress score range	50-85	60-85	54-62
Average academic stress scores	75.3	63.58	55



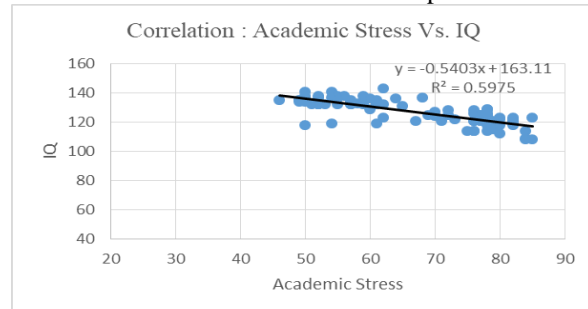
**Figure 2 : Distribution of IQ scores of school students**

The Histogram of the distribution of the IQ scores of the school students has been plotted in figure 2. And the distribution has been found to be near to normal.

**Hypothesis testing of H<sub>0B</sub>**

**H<sub>0B</sub>** : There is no statistically significant relationship between Academic stress of Secondary school students and their level of intelligence.

For testing of the hypothesis H<sub>0B</sub>, the correlational analysis of Academic stress scores vs. IQ scores of the students was carried out. The obtained correlation is plotted in the figure 3.



**Figure 3 : Correlation between academic stress and IQ scores of the students**

The correlation coefficient obtained for this study was  $-0.77$ . This means that the obtained correlation is high and negative. Hence, null hypothesis is rejected and alternate hypothesis is accepted, which means that there is a significant relationship between intelligence and academic stress of the students and the relation is high and negative. This indicates that the academic stress increases as the IQ scores decreases and academic stress decreases as IQ scores increases. This correlation was found to be higher in male students ( $-0.81$ ) as compare to female students ( $-0.73$ ).

**Hypothesis testing of H<sub>0C</sub>**

**H<sub>0C</sub>** : No significant difference will exist in the Academic stress of Secondary school students having high and low intelligence.

For testing of hypothesis H<sub>0C</sub>, students were divided into two groups based on their IQ scores. The students with IQ scores up to 125 are considered low IQ scores and students having IQ more than 125 are considered high IQ scores. Then academic scores of students of these two groups were compared with the help of t test. The obtained results are tabulated in table no. 6.

**Table 6 : t- test results of academic stress of low IQ and high IQ students.**

	Low IQ Group	High IQ Group
Mean	75.936	58.370

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Variance	66.235	73.764
Observations	47.000	73.000
Pooled Variance	70.829	
Hypothesized Difference	Mean	0.000
df	118.000	
<b>t Stat</b>	<b>11.161</b>	
P(T<=t) one-tail	0.000	
<b>t Critical one-tail</b>	<b>1.658</b>	
P(T<=t) two-tail	0.000	
<b>t Critical two-tail</b>	<b>1.980</b>	

The t cal value of 11.16 is higher than that of t critical value of 1.658 at 0.05 level of significance. Hence the null hypothesis is rejected and alternate hypothesis is accepted. This means that there is a significant difference in the stress level of low IQ and high IQ students. This is also evident from the hypothesis testing of hypothesis  $H_{0B}$  that there is a negative and high correlation between IQ scores and Academic stress of the students. Hence students with high IQ scores will have low academic stress and students with low IQ scores will have high levels of academic stress.

### Personality

$H_{0D}$  : There is no statistically significant relationship between Academic stress of extroverts and introverts.

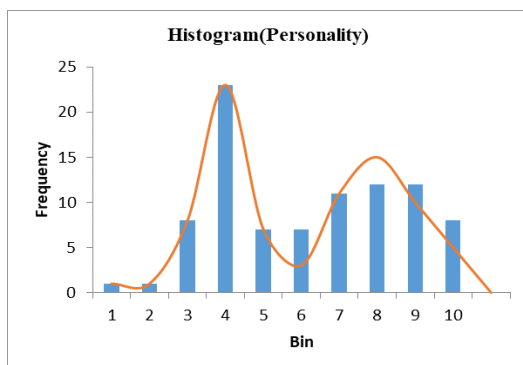
$H_{0E}$  : There is no significant difference in the Academic stress of extroverts and introverts.

### Academic stress among school children having different levels of personality

The objective of the study was to find the impact of personality in terms of extraversion and introversion on the academic stress among school children. The data obtained in this study are presented below. The mean, standard deviation and variance of the data is presented in the table No. 7.

**Table 7 : Personality scores interms of extraversion and introversion of school children.**

Personality	N	Mean	Std.Dev	Variance
Male	60	<b>6.10</b>	<b>2.18</b>	<b>4.74</b>
Female	60	<b>6.67</b>	<b>2.54</b>	<b>6.43</b>



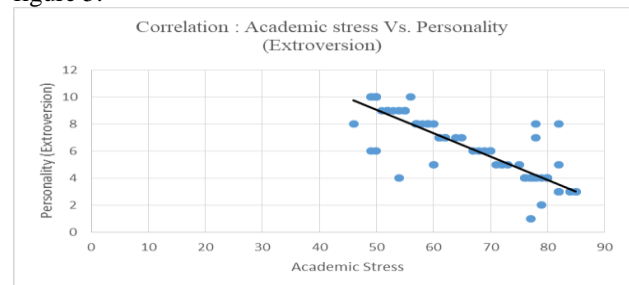
**Figure 4 : Distribution of Personality scores of school students**

The Histogram of the distribution of the personality scores of the school students has been plotted in figure 4. The obtained distribution is normal and bimodal. This indicates that there exists two distinct group of introvert and extrovert students and both have normal distribution of their scores.

### Hypothesis testing of $H_{0D}$

$H_{0D}$  : There is no statistically significant relationship between Academic stress of extroverts and introverts.

For testing of the hypothesis  $H_{0D}$ , the correlational analysis of Academic stress scores vs. Personality scores of the students was carried out. The obtained correlation is plotted in the figure 5.



**Figure 5 : Correlation between academic stress and Personality scores of the students**

The correlation coefficient obtained for this study was  $-0.87$ . This means that the obtained correlation is high and negative. Hence, null hypothesis is rejected and alternate hypothesis is accepted, which means that there is a significant relationship between personality interms of extraversion and introversion and academic stress of the students and the relation is high and negative. This indicates that the academic stress is high in case of students with low scores of personality, that is introverts and Academic stress is low in case students with high personality scores, that is extroverts. This correlation was found to be similar in both male students ( $-0.87$ ) and female students ( $-0.85$ ).

### Hypothesis testing of $H_{0E}$

$H_{0E}$  : There is no significant difference in the Academic stress of extroverts and introverts.

For testing of hypothesis  $H_{0E}$ , students were divided into two groups based on their Personality scores. The students with personality scores more than 5 were considered Extroverts and students with personality scores from 0 to 5 are considered as introverts. Then academic scores of students of these two groups were compared with the help of t test. The obtained results are tabulated in table no. 8.

**Table 8 : t- test results of academic stress of Extrovert and Introvert students.**

	Introverts	Extroverts
Mean	77.125	57.333
Variance	41.941	55.324
Observations	48.000	72.000
Pooled Variance	49.994	
Hypothesized Mean Difference	0.000	
df	118.000	
<b>t Stat</b>	<b>15.022</b>	
P(T<=t) one-tail	0.000	

<b>t Critical one-tail</b>	<b>1.658</b>
P(T<=t) two-tail	0.000
t Critical two-tail	1.980

The t cal value of 15.02 is higher than that of t critical value of 1.658 at 0.05 level of significance. Hence the null hypothesis is rejected and alternate hypothesis is accepted. This means that there is a significant difference in the stress level of Extrovert and Introvert students. This is also evident from the hypothesis testing of hypothesis H<sub>0D</sub> that there is a negative and high correlation between Personality scores and Academic stress of the students. Hence Extrovert students will have low academic stress and introvert students will have high levels of academic stress.

**Achievement Motivation**

**H<sub>0F</sub>** : There is no statistically significant relationship between Academic stress of Secondary school students and their level of achievement motivation.

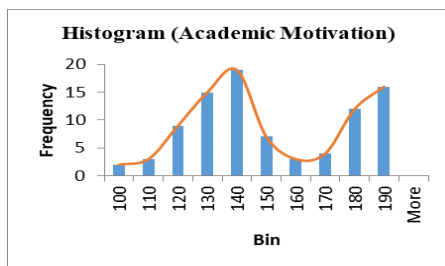
**H<sub>0G</sub>** : No significant difference will exist in the Academic stress of Secondary school students having high and low level of achievement motivation.

**Academic stress among school children having different levels of achievement motivation**

The objective of the study was to find the impact of the academic stress on the achievement motivation of the school children. The data obtained in this study are presented below. The mean, standard deviation and variance of the data is presented in the table No. 9.

**Table 9 : Achievement Motivation scores of school children.**

Achievement Motivation	N	Mean	StDev	Variance
Male	60	<b>148.45</b>	<b>27.49</b>	<b>755.68</b>
Female	60	<b>153.38</b>	<b>28.54</b>	<b>814.82</b>



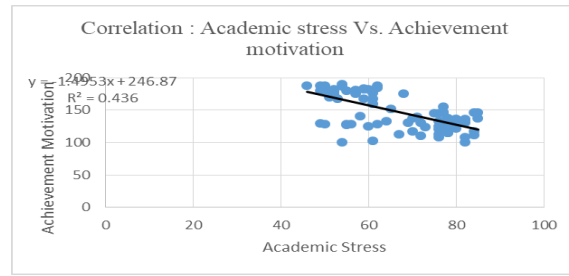
**Figure 6 : Distribution of Achievement motivation scores of school students**

The Histogram of the distribution of the Achievement motivation scores of the school students has been plotted in figure 6. The obtained distribution is normal and bimodal.

**Hypothesis testing of H<sub>0F</sub>**

**H<sub>0F</sub>** : There is no statistically significant relationship between Academic stress of Secondary school students and their level of achievement motivation.

For testing of the hypothesis H<sub>0F</sub>, the correlational analysis of Academic stress scores vs. Achievement motivation scores of the students was carried out. The obtained correlation is plotted in the figure 7.



**Figure 7 : Correlation between academic stress and Achievement motivation scores of the students**

The correlation coefficient obtained for this study was – 0.66. This means that the obtained correlation is moderate and negative. Hence, null hypothesis is rejected and alternate hypothesis is accepted, which means that there is a significant relationship between academic stress and achievement motivation of the students and the relation is moderate and negative. This indicates that when the academic stress is high the students will have low achievement motivation and when the academic stress is low students will have high achievement motivation. This correlation was found more in case of male students (-0.72) as compare to female students (-0.62).

**Hypothesis testing of H<sub>0G</sub>**

**H<sub>0G</sub>** : No significant difference will exist in the Academic stress of Secondary school students having high and low level of achievement motivation.

For testing of hypothesis H<sub>0G</sub>, students were divided into two groups based on their Achievement motivation scores. The students with Achievement motivation scores up to 145 were considered low in achievement motivation and students with Achievement motivation scores more than 145 are considered high in achievement motivation. Then academic scores of students of these two groups were compared with the help of t test. The obtained results are tabulated in table no. 10.

**Table 10 : t- test results of academic stress of students with low and high achievement motivation.**

	<i>Low Ach. Mot.</i>	<i>High Ach. Mot.</i>
Mean	73.322	57.443
Variance	91.084	72.251
Observations	59.000	61.000
df	118.000	
<b>t Stat</b>	<b>9.632</b>	
P(T<=t) one-tail	0.000	
<b>t Critical one-tail</b>	<b>1.658</b>	
P(T<=t) two-tail	0.000	
t Critical two-tail	1.980	

The t cal value of 9.63 is higher than that of t critical value of 1.658 at 0.05 level of significance. Hence the null hypothesis is rejected and alternate hypothesis is accepted. This means that there is a significant difference in the Achievement motivation of students with low and high level of academic stress. This is also evident from the hypothesis testing of hypothesis H<sub>0F</sub> that there is a negative and moderate correlation between Achievement motivation scores and Academic stress of the students. Hence students

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with high academic stress will have low achievement motivation and students with low academic stress will have high achievement motivation.

## IV. CONCLUSION

Based on the current research study and its result, it is concluded that both male and female students have similar levels of academic stress, intelligence, personality distribution and achievement motivation. From the results it is also concluded that academic stress has a strong relationship with variables like intelligence, personality in terms of extraversion and introversion and achievement motivation. The relationship of academic stress with all these variables was found negative. The small size of the research sample made it disadvantageous in generalizing the results of the study.

Owing to the present study following conclusions were drawn:-

- Majority of the school children feel academic stress.
- Male and female school children feel similar levels of academic stress.
- The school children having high intelligence feel less stress than those with low intelligence.
- Introverts suffer more academic stress than extroverts.
- The school children having high academic stress feels less achievement motivation than those who have low level of stress.

## ACKNOWLEDGMENT

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