

## **Neuroticism and Academic Performance of Medical Students**

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**ABSTRACT:** Performance of medical students is influenced by negative emotionality as a personality dimension. It is therefore important to develop awareness and understanding of the existence of this dimension in their personalities of Medical students for their excellent academic performance in the Medical School. The main objective of the study was therefore to ascertain the neuroticism score among the medical students and finding out the correlation between neuroticism and their academic performance. Participants for this study were 70 Phase-I year 1 Medical Students of USM-KLE International Medical Programme Belgaum, Karnataka, India. They were selected by purposive sampling technique. Eysanck personality Inventory was administered to find out the neuroticism of students and the neuroticism scores were compared with academic grades. For this process Carl Pearson's Correlation coefficient method was carried out. The results reveal that there is a significant correlation between academic performance and neuroticism ('t' Value -5.1953 Significant at 0.05, 0.01 and 0.001 level of significance.) The implication of this study was to develop insight in each medical student the existence of negative emotionality as a dimension of personality and its influence on their academic performance.

**KEY WORDS:** Academic Performance, Medical Students, Neuroticism

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### **I. INTRODUCTION**

Neuroticism is a fundamental personality trait in the study of psychology, manifested by characteristics of anxiety, moodiness, worry, envy and jealousy.<sup>[14]</sup> Individuals who score high on neuroticism are more likely than the average to experience such feelings as anxiety, anger, envy, guilt and depressed mood.<sup>[9]</sup> They are often self-conscious and shy and they may have trouble in controlling urges and delaying gratification. Neuroticism is a risk factor for the "internalizing" mental disorders such as phobia, depression, panic disorder and other anxiety disorders (traditionally called neuroses).<sup>[1,3,9]</sup> Neuroticism is the tendency to experience negative emotions, such as anger, anxiety or depression. It is sometimes called emotional instability or reversed referred to as emotional stability. According to Eysenck's (1967) theory of personality, neuroticism is interlinked with low tolerance for stress or aversive stimuli.<sup>[11]</sup> They are more likely to interpret ordinary situations as threatening, and minor frustrations as hopelessly difficult. Their negative emotional reactions tend to persist for unusually long periods of time, which means they are often in a bad mood. These problems in emotional regulation can diminish the ability of a person scoring high on neuroticism to think clearly, make decisions, and cope effectively with stress. Lacking contentment in one's life achievements can correlate to high neuroticism scores and increase a person's likelihood of falling into clinical depression.<sup>[12]</sup>

At the other end of the scale, individuals who score low in neuroticism are less easily upset and are less emotionally reactive. They tend to be calm, emotionally stable, and free from persistent negative feelings. Freedom from negative feelings does not mean that low scorers experience a lot of positive feelings. Chamorro-Premuzic and Furnham (2003) explored the predictability of general academic achievement in two longitudinal studies of British university students. They found neuroticism to be a negative correlate of academic achievement.<sup>[4]</sup> Although academic performance has typically been associated with intelligence rather than personality (Sternberg & Kaufman, 1998)<sup>[15]</sup>, empirical evidence shows that both personality and intelligence are important predictors of academic achievement, given their long-known association with learning (Busato, Prins, Elshout, & Hamaker, 1999). This relationship has been found in both high school and college levels of education.<sup>[2]</sup> Jang Y. et.al. studied the role of neuroticism in the association between performance-based and self-reported measures of mobility. The authors hypothesized that neuroticism would modify the association between performance-based and self-reported measures of mobility.<sup>[9]</sup> Paul K. (1966) conducted research on extraversion, neuroticism and academic performance among Ghanaian university students. Eysenck Personality Inventory (E.P.I., 1964) was given to first-year students at the University College of Science Education,

Cape Coast, and Ghana. Their scores on this test were related to the only common academic measure among them—the intermediate examination in arts.<sup>[14]</sup> Extraversion was found to be correlated significantly and negatively with success in this examination while neuroticism, though also negatively related, failed to reach significance.<sup>[16]</sup> Eysenck (1967) who suggested three super-traits (introversion-extraversion, neuroticism-stability, and psychoticism) as the core of personality, argued that extraversion and neuroticism were theoretically and empirically associated with ability, chiefly as a consequence of similarities in mental processing speed. For instance, high extraversion, low neuroticism, and high intelligence are all related to high mental speed. In addition, it has been shown that stable, as opposed to neurotic, individuals tend to score higher on ability tests and university courses, potentially less overwhelmed by anxiety (Chamorro-Premuzic, Zeidner & Matthews, 2000; Cattell & Kline, 1977).<sup>[4]</sup>

### Assessment Tool

- Eysanck Personality Inventory  
A self-report personality inventory based on Hans Eysenck's factor analysis of personality which assumes three basic factors (the two most important being extraversion to introversion and neuroticism) was used for the study. The concurrent validity and reliability for the neuroticism dimension were found to be .92 and .77 respectively (H.J.Eysanck, Sybill B.G. Eysanck 1980).<sup>[w1]</sup>
- School academic performance has been taken in grades and percentages to find out the correlation between academic performance and neuroticism. Grading system used in present study is presented in the table below.

#### Grades and Percentages

Sl.No	Grade	Range of Marks Obtained
1	A+	75-100 (Pass)
2	A-	70-74.9 (Pass)
3	B+	65-69.9 (Pass)
4	B-	60-64.9 (Pass)
5	C+	55-59.9 (Pass)
6	C-	50-54.9 (Pass)
7	F+	45-49.9 (Fail)
8	F-	40-44.9 (Fail)
9	LF	30-39.9 (Fail)
10	LLF	0-29.9 (Fail)

### Methodology

#### Aim

- To find out the neuroticism and its effect on students' academic performance and further using this data for counseling purpose, thereby improve their academic performance.

#### Objective

- To evaluate the neuroticism in medical students
- To find out the relationship between neuroticism and academic performance of medical students.

#### Hypothesis

- Medium and high neuroticism score significantly affects the academic performance of medical students

### Sample

Eysenck initially conceptualized personality as two, biologically-based independent dimensions of temperament measured on a continuum:

- 1) Extraversion/Introversion
- 2) Neuroticism/Stability

Neuroticism is a dimension of Eysenck's trait theory is related to moodiness versus even-temperedness. Neuroticism refers to an individual's tendency to become upset or emotional, while stability refers to the tendency to remain emotionally constant.<sup>[4]</sup> In this study our focus is on this dimension of temperament Neuroticism/Stability. The sample for the present study has been chosen from USM-KLE International Medical Programme 2011-2012 (Phase-I, year 1 students) Belgaum, India. The total no of students are 83 in the class out of this 13 students have scored high on the lie scale of Eysanck Personality Inventory therefore these students are not taken for the study. The sample study group includes 70 students. The age of the sample varies from 17-23 years. Among the sample group 49 are females and the 21 are male. Neuroticism, also a Big Five personality trait, is defined as an enduring tendency to experience unpleasant emotions (e.g., anger, anxiety, and depression) easily. Those high in neuroticism react more negatively to stress, are prone to anxiety, and susceptible to feel-

ings of helplessness<sup>[4]</sup>. Students with high neuroticism react negatively to academic stress; this factor must have contributed to the low academic performance of participant students in the present study.

## II. STATISTICAL ANALYSIS AND TABLE DISCUSSION

**Table No1: Showing score on neuroticism of the Medical students**

Sl.No	Neuroticism		Score	Number of students	Percentage
	Degree	Emotionality			
1	Low	Stable	01-08	14	20
2	Medium	Unstable	09-16	38	54
3	High	Neurotic	17-24	18	26
				70	100

Table No.1 Data shows the degree of neuroticism and level of emotionality among the 70 medical Students of Phase-I year 1. Observation of the data reveals that among the 70 students 14 of them which are 20 percent of the total number of students fall between 01-08 which reveals that they have low level of neuroticism and emotionally stable. Further data shows 38 students which is 54 percent of 70 students are emotionally unstable, which is the highest number among the sample group. The neuroticism on the higher end shows neurotics, among the study group there are 18 who fall under this category which is 26 percent of the total number. The overall result brings out the importance of conceptualizing the positive and negative effects of this dimension in their personality development and towards their academic performance.

The academic performance of the continuous assessment of Phase-I, year 1 students have been graded and range of marks obtained are depicted in percentages. The Personality plays an important role that affects academic achievement. 308 undergraduates who completed the Five Factor Inventory Processes and offered their GPA implied that the two of traits therein, conscientiousness and agreeableness, have positive relationship with all learning styles (synthesis analysis, methodical study, fact retention, and elaborative processing), whereas neuroticism has an inverse relationship with them all. Moreover, extraversion and openness were proportional to elaborative processing. The Big Five together explained 14% of the variance in GPA, suggesting that personality traits make great contributions to academic performance. Furthermore, a reflective learning style (synthesis-analysis and elaborative processing) was able to mediate the relationship between openness and GPA. These results indicate that intellectual curiousness has significant enhancement in academic performance if students can combine the scholarly interest with thoughtful information processing.<sup>[10, 12]</sup> The present study focus on neuroticism as personality dimension and its relation with academic performance.

**Table No 2: Showing the Percentage and Grade in academic performance of students and level of Neuroticism (Emotionality)**

Sl.No	Grade	Range of Marks Obtained	Total No. of students with grades	Level of Neuroticism Existing in Students		
				Stable	Unstable	Neurotic
1	A+	75-100 (Pass)	03	03	00	00
2	A-	70-74.9 (Pass)	07	06	01	00
3	B+	65-69.9 (Pass)	16	02	14	00
4	B-	60-64.9 (Pass)	25	01	24	00
5	C+	55-59.9 (Pass)	09	00	09	00
6	C-	50-54.9 (Pass)	08	00	08	00
7	F+	45-49.9 (Fail)	01	00	01	00
8	F-	40-44.9 (Fail)	01	00	01	00
9	LF	30-39.9 (Fail)	00	00	00	00
10	LLF	0-29.9 (Fail)	00	00	00	00
			<b>Total =70</b>	<b>12</b>	<b>58</b>	<b>00</b>

Table No.2 shows three students among the seventy have obtained Grade 'A+' and their marks in percentage fall above seventy five, seven of them having grade 'A-' are having a percentage between 70 to 74.9, sixteen and twenty five of the total number holds the Grades of 'B+' and 'B-' respectively. The percentage of these students falls between 65 to 69.9 and 60 to 64.9. Further, nine of them holding Grade 'C+' and fall between the percentage of 55 to 59.9, eight of the seventy holding the Grade 'C-' and falling between 50 to 54.9 percentage, excluding two students who have 'F+' and 'F-' holding the percentage between 45 to 49.9 and 40 to 44.9 respectively. The study result reveals some facts supporting to the study below.

Individuals who score low in neuroticism are more emotionally stable and less reactive to stress. They tend to be calm, even-tempered, and less likely to feel tense or rattled. Although they are low in negative emotion, they are not necessarily high on positive emotion.<sup>[13]</sup> A vast number of studies have sought to determine the predictability of academic performance by personality traits. Given that there is empirical data about the effect of intelligence and cognitive processes on school performance, it is understandable that the relationship between personality and academic achievement has been examined by studies controlling for those two factors. Two of the famous psychologists, whose factor-analytic works contributed to the research on personality traits, intelligence, and academic performance, are R. B. Cattell and H. J. Eysenck. (Goldberg, 1990; Ewen, 2010).<sup>[7]</sup> In the present study the personality dimension neuroticism has been focused to find its relation with the academic performance and which has been made understood.

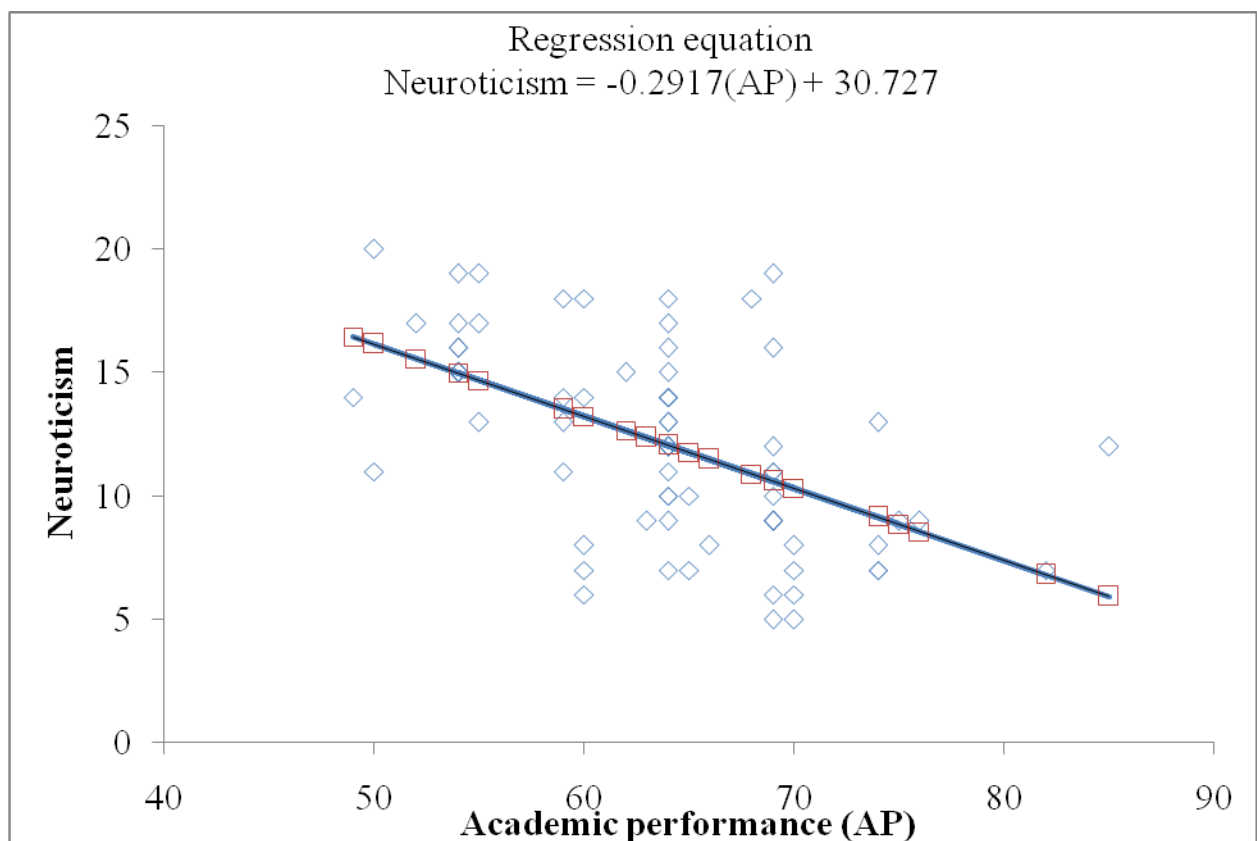
**Table No.3 Showing the correlation between Academic Performance and Neuroticism (n=83)**

Variables	Mean	Std.Dv.	r(X,Y)	t-value	p-value
Academic Performance	63.91	7.38		-5.1953	0.0000***
Neuroticism	12.09	4.04	-0.5331		

\*\*\* $p < 0.001$  level of significance.

Table No.3 shows mean score of 63.91 for academic performance and 12.09 for neuroticism dimension of Eysanck Personality Inventory and the 't' value is 5.19 which is highly significant at 0.001 level of significance. The neuroticism is a dimension of personality which is characterized by emotional instability as an impact influence on cognitive functioning. Medical studies need emotional stability which maintains their optimal level of cognitive functioning. The above results clearly show the impact of neuroticism on the academic performance of medical students.

**Graph No.1 showing the correlation between Academic Performance and neuroticism**



The regression line depicted in the graph shows the significant correlation between academic performance and neuroticism.

### III. CONCLUSION

The present study results reveal the existence of neuroticism in medical students and its effect on their academic performance. Students with high neuroticism react negatively to academic stress; this factor must have contributed to the low academic performance of participant students in the present study.

It has been concluded that there is an existence of neuroticism among medical students; furthermore it has been found that large number of students fall under high and medium in the Eysanck's scale of neuroticism. In the present study the personality dimension neuroticism has been found medium and high level and disclosed its relation with the academic performance.

Further in the conclusion the statistical analysis clearly revealed that high neuroticism scores affect academic performance.

### IV. SIGNIFICANCE OF THE STUDY

The purpose of the study is based on observed neuroticism in students, neuroticism being one of the factors affecting intelligence and cognitive faculties may have some role on academic performance of students. To formulate intervention measures and counseling objectives this study results can be taken as one of the input. This research study may further help to develop an awareness and insight among the medical students with regard to their emotionality and academic performance. Further development on this research can be used as a part of the PDP (Personal Professional Development Programme). Research results can be used as an integral part of counseling to improve on academic performance.

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