

AN INVESTIGATION OF THE COMBINED INFLUENCE OF NEUROTICISM AND EXTRAVERSION ON ACADEMIC PERFORMANCE AMONG FRESH ENTRANTS TO PROFESSIONAL COLLEGE.

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ABSTRACT.

Background:

It has been proposed that personality qualities, specifically neuroticism, and extraversion, have an impact on college students' academic success. Gaining knowledge about how these characteristics interact and affect academic performance might help students succeed. The purpose of this study was to look at how new students' academic performance at a medical college in East India is impacted by their combination of neuroticism and extraversion qualities.

Methods:

Zung's self-rated Anxiety and Depression Scales were used to evaluate the psych morbidity of 110 enrolled participants from the professional college. Costa and McCrae's tool, the NEO-FFI, was used to assess personality traits. Four exams in a row were used to gauge academic performance, allowing us to distinguish between high and low achievers. To investigate the connections between psych morbidity, academic achievement, and personality factors, statistical analyses were carried out.

Results:

The personality trait combination of low neuroticism and low extraversion (sometimes called "low-keyed") was found to be associated with significantly better academic performance among mentally healthy students than high neuroticism and high extraversion (often called "overly emotional"). Significantly, depressive pupils performed worse academically than their friends who were not depressed; this difference was especially noticeable in low-key people and positive optimists (low Neuroticism and high Extraversion).

Conclusion:

The study's findings indicate that having a combination of low neuroticism and introversion is essential for achieving good academic proficiency on exams. Additionally, the study's findings were reviewed about the applicability of Gray's Behavioral Activation System/Behavioral Inhibition System (BAS/BIS) concept in the context of depression genesis. These understandings of the relationship between personality types and academic achievement can help develop instructional plans and resources for college students.

Recommendation:

This study recommends that students should be enlightened on the various variables and how they contribute to their academic performance.

Keywords: Academic performance, Psych morbidity, Personality traits, Professional college students

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INTRODUCTION.

To achieve academic excellence, students must possess optimal mental well-being and a distinct amalgamation of personality characteristics [1]. Several studies have demonstrated a positive correlation between emotional stability, as indicated by low levels of Neuroticism, and academic performance [2]. Elevated levels of Neuroticism, conversely, are linked with heightened levels of anxiety and stress, thereby impeding the attainment of academic achievements. The findings of this study are substantiated by brain imaging studies, which demonstrate a decrease in brain volume among individuals exhibiting elevated scores in Neuroticism [3].

Extraverted individuals, despite experiencing elevated levels of happiness, may encounter challenges within academic environments as a result of their proclivity for restlessness during prolonged study sessions. Individuals who exhibit introverted tendencies, conversely, have been found to demonstrate greater academic achievement and are frequently linked to favorable attributes such as intellectual prowess and exceptional abilities [4].

Hans Eysenck, a prominent figure in the field of psychology, successfully delineated two primary super traits, namely Introversion-Extraversion and Neuroticism-Emotional Stability. A comparable framework was postulated by Gray, wherein he introduced the Behavioral Approach System (BAS) and the Behavioral Inhibition System (BIS) [5]. The Behavioral Activation System (BAS) has been found to exhibit a positive correlation with elevated levels of Extraversion and dopamine. Conversely, the Behavioral Inhibition System (BIS) has been observed to demonstrate a positive association with heightened Neuroticism, specifically anxiety.

The objective of this study is to investigate the correlation between varying degrees of Neuroticism and Extraversion and academic performance in both mentally stable students and those with psych morbidity. The present study seeks to investigate the association between individuals classified as high and low achievers and Jeffrey Gray's biopsychological theory, with a specific focus on the Behavioral Activation System (BAS), which is responsible for processing rewards, and the Behavioral Inhibition System (BIS), which is responsible for avoiding punishment.

The primary objective of this study is to elucidate the impact of the amalgamation of Neuroticism and Extraversion traits on the scholastic achievements of students while taking into account their mental well-being. Furthermore, the intention is to establish a correlation between these findings and Gray's biopsychological theory.

MATERIAL AND METHODS.

Participants.

This study included 110 first-year professional college students from a college in East India, 48 of whom were male

and 62 of whom were female. The participants' average age was 22.7 years.

Actions.

1. **Anxiety Assessment:** Based on the DSM-IV-TR criteria for anxiety, the Self-rating Anxiety Scale (SAS) by Zung [6] was used to assess symptoms related to anxiety. There are 20 items in this short survey, and each one has a 4-point Likert rating. After converting raw scores into SAS indices, subjects with scores more than 45 were labeled as "clinically anxious."

2. **Depression Assessment:** Students exhibiting signs of depression were identified using Zung's Self-rating Depression Scale (SDS) [7]. This scale is a 20-item self-report questionnaire with a 4-point rating system, much like the SAS. Participants who exhibited substantial depressive symptoms were identified by using a cut-off index score of 50. Raw scores (Range = 20-80) were converted into SDS indices.

3. **Personality Trait Assessment:** To evaluate personality traits, the NEO-FFI (NEO Five-Factor Inventory) [8] was used. The sixty items on this assessment are intended to assess each of the five core personality traits. For each issue, participants used a five-point Likert scale: strongly agree, agree, neutral, disagree, and strongly disagree. An overall measure was obtained by adding the raw scores for each of the 12 items in each factor. $T = 50 + 10(X - Y) / Z$ was the formula used to generate T-scores; X stands for the student's raw score, Y is the cohort's average score, and Z is the standard deviation. Individuals were classified as having elevated levels of the corresponding personality trait if their T-score was greater than 50.

4. **Academic Performance Assessment:** The mean scores that students received throughout four consecutive exams were documented.

Bias.

There was a chance that bias would arise when the study first started, but we avoided it by giving all participants identical information and hiding the group allocation from the nurses who collected the data.

Analytical Statistics.

One-way ANOVA and t-tests were used in the statistical analysis to examine the connections between personality traits, academic performance, anxiety, and depression. These analyses' findings are shown graphically for interpretation.

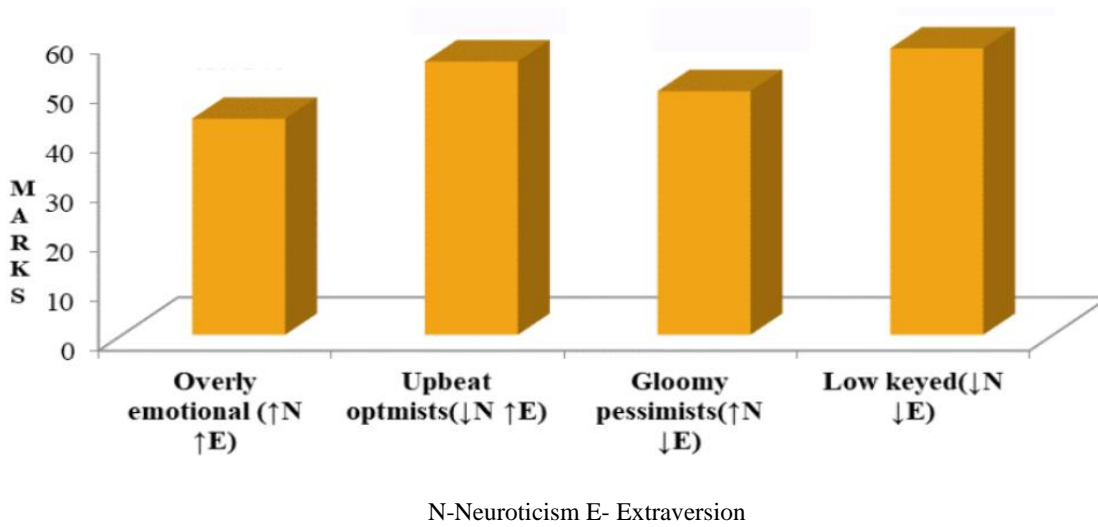
Ethical considerations.

The ethical aspects of the research were carefully thought out to preserve patient privacy and confidentiality.

The findings indicate a consistent pattern in the association between academic achievement and two personality qualities, neuroticism, and extraversion, in two different student groups: a) mentally well students and b) normal students as opposed to depressed students.

RESULTS.

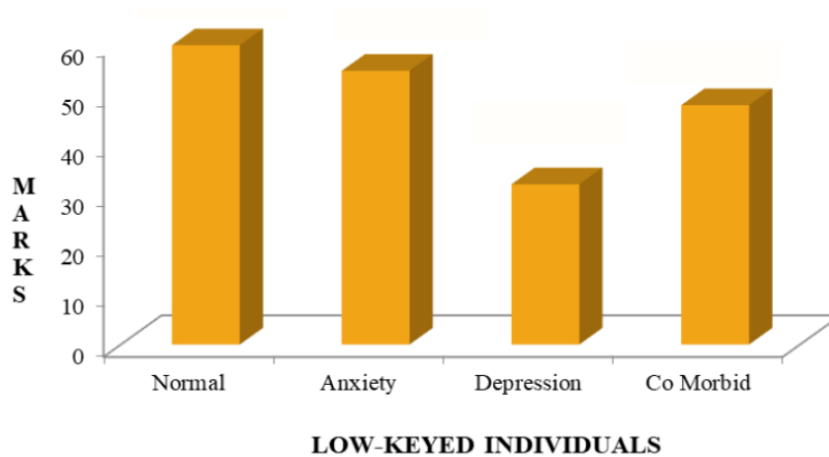
Figure 1: Academic achievers, both high and low, in students with normal mental health.



a) Among mentally healthy students, academic performance is significantly greater ($p < 0.05$) for those with low levels of both Neuroticism and Extraversion (often known as "low-keyed") than for those with high levels of both traits (Fig. 1).

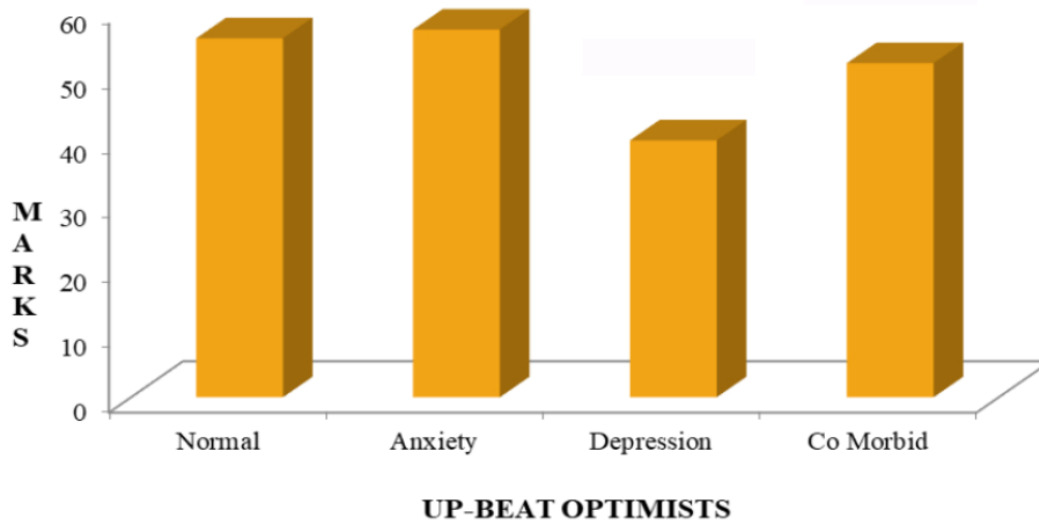
b) When it comes to depressed kids, two situations come to light:

Figure 2(a): Performance Vs Psych morbidity in low-keyed individuals.



- (1) When compared to normal pupils with similar trait levels, those with low levels of both neuroticism and extraversion also known as low-keyed—show considerably worse academic performance ($p < 0.05$) (Fig. 2(a)).

Figure 2(b): Performance Vs Psych morbidity in the upbeat optimist.



- (2) Similarly, as compared to normal students with equal trait levels, students with depression who exhibit high levels of neuroticism but low levels of extraversion—upbeat optimists—also have considerably inferior academic achievements ($p < 0.05$) (Fig. 2(b)).

DISCUSSION.

When compared to their peers who have high levels of both Neuroticism and Extraversion (referred to as "overly emotional"), mentally healthy kids who have modest levels of both traits (referred to as "low-keyed") typically perform better on academic exams. While high neuroticism in extroverts might result in an emotional roller coaster, low neuroticism offers emotional stability and lessens reactivity to stress [9].

Extroverts may find it difficult to sustain the inner focus and concentration needed for efficient studying and memorization of knowledge because of their propensity to seek stimuli [10]. This might have a negative influence on their academic achievement. Thus, having high levels of both neuroticism and extraversion together is bad for academic achievement.

When compared to mentally healthy students, students with depression typically perform worse academically. The

biggest differences are seen in low-keyed individuals who have low levels of both neuroticism and extraversion and in upbeat optimists who have low levels of neuroticism but high extraversion [11]. The lower ends of the Behavioral Approach System (BAS) and Behavioral Inhibition System (BIS) spectra correspond to these trait combinations. Reduced Extraversion and Neuroticism are characteristics of the bottom end of the BAS spectrum, which can result in under-sensitivity and an increased risk of depression. Conversely, the lower end of the BIS spectrum is marked by strong Extraversion (high impulsivity in Gray's theory) and low Neuroticism, which can result in depressive symptoms and oversensitivity [11].

The scholastic achievement gaps between normal and psychomorphid students become less noticeable as we go further along these spectra, mostly because greater Neuroticism scores obscure these differences. Molecular genetics research supports Gray's idea, especially when it comes to the relationship between personality traits and gene loci linked to dopamine receptors [6]. Gray's theory has also

been verified by neurophysiological fMRI studies that connect brain activation patterns to personality traits [7, 8].

CONCLUSION.

The study unequivocally demonstrates that being introverted, which permits more concentrated study time, and having low neuroticism, which provides emotional stability, are substantially correlated with attaining high exam outcomes. This is consistent with Eysenck's theory, which holds that introverts value their intellectual endeavors over social interactions since they are particularly sensitive to stimuli. Extraverts, on the other hand, are typically less susceptible to stimuli and are drawn to novelty and excitement [12]. Students in good mental health who score low on Neuroticism are more likely to stand out from high achievers. When neuroticism levels increase, however, this difference becomes less noticeable, especially in pupils who have psychomorbidity.

LIMITATIONS.

The limitations of this study include a small sample population who were included in this study.

GENERALIZABILITY.

The findings of this study cannot be generalized for a larger sample population.

RECOMMENDATION.

This study recommends that students should be enlightened on the various variables and how they contribute to their academic performance.

ACKNOWLEDGEMENT.

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LIST OF ABBREVIATIONS.

BAS/BIS- Behavioral Activation System/Behavioral Inhibition System
SAS- Self-rating Anxiety Scale
SDS- Self-rating Depression Scale
FFI- Five-Factor Inventory
ANOVA- Analysis of variances
N- Neuroticism
E- Extraversion

SOURCE OF FUNDING.

The study had no funding.

CONFLICT OF INTEREST.

The authors report no conflicts of interest in this work.

REFERENCES.

1. Furnham, A., Forde, L., & Cotter, T. (1998 a). Personality and intelligence. *Personality and Individual Differences*, 24;2, 187 – 192.
2. Chamorro-Premuzic, T., & Furnham, A. (2003a). Personality traits and academic examination performance. *European Journal of Personality*, 17, 237-250.
3. Brian Knutsona, Reza Momenan, Robert R. Rawlings, Grace W. Fong and Daniel Hommer (November 2001) “Negative association of neuroticism with brain volume ratio in healthy humans”. *Biological Psychiatry* 50 (9): 685 -690.
4. Pavot, W., Diener, E., & Fujita, F. (1990). Extraversion and happiness. *Personality and Individual Differences*, 11, 1299 – 1306.
5. Gray, J.A. (1981). A critique of Eysenck's theory of personality. In H.J. Eysenck (Ed.), *A personality model* (pp.247- 276). New York: Springer.
6. Martin Reuter, Anja Schmitz, Philip Corr and Juergen Hennig (2005). *International Journal of Neuropsychopharmacology* (2006), 9, 155-166.
7. Gray JR, Braver TS (2002). Personality predicts working – memory-related activation in the caudal anterior cingulate cortex. *Cognitive, Affective & Behavioral Neuroscience*.2, 64-75.
8. Reuter M, Stark R, Hennig J, Walter B, Kirsch P, Schienle A, Vaitl D (2004). Personality and emotion: Test of Gray's personality theory using an fMRI study. *Behavioral Neuroscience* 118, 462- 469.
9. Michael W. Passer, Ronald E. Smith (2009). *Psychology: the science of mind and behavior*. McGraw-Hill Higher Education.
10. Sanchez- Marin, M., Rejano – Infante, E., & Rodriguez – Troyano, Y. (2001). Personality and academic productivity in the university student. *Social Behavior and Personality*, 29,299-305.
11. Chamorro-Premuzic & Furnham, A (2005) *Personality and Intellectual Competence*. Mahwah, NJ: Lawrence Erlbaum Associates.
12. Eysenck, H.J. (1967). *The biological basis of personality*. Springfield, IL: Thomas Publishing.

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