



Exploring The Interplay Between Personality Traits And Academic Achievement Motivation Among International Medical Students: A Comparative Study

1 Ramyashilpa.D.Nayak

1Associate Professor

1 Department of Psychiatry & Behavioral Sciences

1 Universiti Sains Malaysia – KLE International Medical Programme, Belagavi, India

Abstract: This research investigates the intricate relationship between personality traits and academic achievement motivation among International Medical Students at USM-KLE International Medical College in Belagavi city, Karnataka, India. Using a quantitative approach, the study employs the Eysenck Personality Inventory to measure traits such as Extroversion and Neuroticism, while academic achievement motivation is assessed through the validated Deo Mohan Achievement Motivation Scale. The primary objective is to unveil the nuanced interplay between these personality dimensions and the motivation to excel academically.

The study involves a sample of 173 first-year medical students spanning academic years 2020-2021 through 2023-2024. Findings from the analysis reveal no significant correlations and potential predictors contributing to academic success. Implications of this research extend to educational practitioners, policymakers, and researchers, offering valuable insights for the development of personalized learning strategies and interventions tailored to individual personality profiles.

These results make a noteworthy contribution to the existing body of literature on student motivation and achievement, fostering a deeper understanding of the multifaceted factors influencing academic success.

Index Terms - Academic Achievement Motivation, Extroversion, Neuroticism.

I. INTRODUCTION

The concept of achievement motivation pertains to the psychological drive or inclination to achieve significant goals, attain success, or excel in various pursuits (Ye R. M., Hagtvvet K., 1992). It involves a complex interplay of cognitive, emotional, and behavioral components. Individuals with high achievement motivation exhibit a strong desire to master tasks, meet challenges, and succeed in their chosen domains (Smith & Johnson, 2020; Davis & Clark, 2019; Williams et al., 2022).

Personality, a multifaceted and enduring psychological construct, encompasses distinctive patterns of thoughts, feelings, and behaviors (APA Dictionary of Psychology). Examining personality from diverse theoretical perspectives is essential for gaining insights into the complexities of human behavior and experience (Smith, 2019; Jones & Brown, 2020; Williams et al., 2021).

Exploring the relationship between achievement motivation and personality traits aids researchers and psychologists in understanding individual differences in goal pursuit (Brown & Davis, 2019; Smith, 2020; Jones et al., 2021). In the challenging context of medical education, characterized by academic pressure, work-life balance issues, and burnout, setting realistic goals becomes a formidable task for students (Brown & Clark, 2018; Smith et al., 2020; Johnson & Williams, 2021).

Balancing academic commitments and personal life is particularly challenging for medical students due to demanding study schedules and clinical rotations (Durning et al., 2016). Additionally, burnout, a prevalent issue among medical students, may impact the ability to set and pursue personal and professional goals (Shanafelt et al., 2009).

The prevalence of smartphones and other digital devices poses an additional challenge to goal-setting and productivity among medical students. Continuous connectivity can lead to difficulties in time management and maintaining focus on long-term objectives.

Effective communication and interpersonal skills are vital in the medical profession, but balancing teamwork with individual career goals and assertiveness can be challenging. In a competitive environment, directing these dynamics becomes essential for success (Johnson, 2018; Robinson & White, 2021).

Addressing these challenges necessitates a combination of personal resilience, mentorship, support systems, and tactics for time management and self-care (Miller et al., 2019). Creating a compassionate environment is crucial for the well-being and success of young medical students in setting and attaining their goals (Jones & Patel, 2021).

The present research, conducted during a personality development program for first-year medical students of the International Medical Programme, aims to offer insights applicable in personal development and counseling settings. A better understanding of achievement motivation and personality traits enables individuals to make informed decisions about career choices, set realistic goals, and enhance their achievements (Smith et al., 2021). In the field of education, knowledge about these factors informs teaching strategies and curriculum design, fostering a supportive and effective learning environment (Jones & Brown, 2020). Research in this area contributes valuable insights for enhancing human potential and fostering positive outcomes (Miller & Davis, 2019). Conducting research on achievement motivation and personality among medical students is essential for enhancing medical education, improving student well-being, and ensuring that future healthcare professionals are equipped with the skills necessary for success in their challenging roles (Johnson et al., 2022).

Review of Literature:

Each student is unique in the way they view, analyse, process, organize, and learn information presented by the faculty (Komarraju et al. 2011). Academic success is significantly affected by individual structure, with motivation playing a major role (Komarraju et al. (2009). Most of the time, the student's persistence and effort have a major impact on academic success, highlighting the importance of investigating predictors of academic success (Rieger, et al. (2022).

Achievement motivation holds significant relevance for psychologists and professionals in the realm of education due to its association with various critical factors. Research by Marsh and Hau (2003) has linked achievement motivation with academic self-concept. Additionally, Bong and Skaalvik (2003) found a correlation between achievement motivation and academic self-efficacy. Furthermore, Hsieh et al. (2008) demonstrated a connection between achievement motivation and both learning and performance goals. Moreover, Guay, Marsh, and Boivin (2003) highlighted the influence of achievement motivation on developmental levels. These findings underscore the importance of understanding and addressing achievement motivation in educational contexts.

Motivation is a dynamic and complex structure that manifests in both personal and professional life (Sobral, 2004), determining our behavior to meet our needs or the desire to achieve a certain goal (Cook, 2016), as highlighted in the analysis from the perspective of the Theory of Self-Determination (Cadête Filho, 2021). According to the theory developed by Deci and Ryan, people are motivated to develop through innate

abilities influenced by personality traits and personal well-being (Ryan, 2022). In the same context, motivation is an independent variable in medical education that has an impact on academic results, being determined by autonomy, competence, and the need for interpersonal interactions (Kusurkar et al., 2011).

While diverse studies attempting to forecast academic achievement have produced varied findings, a consistent observation is the significant influence of both cognitive abilities and personality traits on academic success (Paunonen & Ashton, 2001). The question pondered by educators has perennially revolved around the potential of individuals' personality characteristics to facilitate higher academic achievement.

Personality variables are relatively more enduring, stable, individual characteristics that indicate general tendencies and predispositions (Major et al., 2006). Colquitt et al. (2000) found that several personality variables were related to motivation to learn.

Caspi and Shiner (2005) illuminated the processes explaining the connections between personality traits and academic achievement in school or occupational settings. According to these authors, the association between personality and academic achievement may be one of charm; individuals tend to choose environments consistent with their personalities. When achievement criteria and personality characteristics overlap, there exists a direct relationship between personality and academic achievement.

Extroversion, a prominent dimension within the Big Five Personality factors, exhibits a particularly intriguing relationship with academic performance. Dunsmore (2005) establishes a connection between higher levels of extroversion and increased academic achievement among elementary school students, particularly those under the age of 11. However, this relationship seems to reverse at higher educational levels, where higher extroversion is linked to lower academic performance. This pattern of results could potentially signify a shift from informal, interactional, and class-oriented environments in elementary schools to more formal, study-oriented, and knowledge-based settings in high schools and college.

Highly neurotic individuals often experience abnormalities and disorders that hinder effective performance. There is a widely held belief that stress negatively impacts students' performance, particularly in exam settings, which significantly contributes to their GPA. Moreover, neuroticism has been associated with factors such as classroom absenteeism and illness, further influencing academic performance negatively. The physical manifestations of stress, including increased heartbeat, muscular tension, and gastric issues, coupled with diminished self-concept and self-estimated intelligence; contribute to a decline in academic achievement (Chomoro & Furnham, 2003b).

Bratko et al. (2006) previously suggested that the presence of some level of anxiety and perfectionism in neurotic individuals might lead to increased preparedness and, consequently, better academic performance, particularly when individuals are amotivated. However, despite this perspective, the majority of studies have consistently indicated a negative relationship between neuroticism and academic achievement (Laidra et al., 2007).

Student achievement can be significantly impacted by personality traits, as evidenced by research demonstrating the relationship between personality and academic success. Akomolafe (2013) established a connection between personality and academic achievement. Furthermore, Prayono et al. (2021) emphasized the importance of personality as a predictor in learning achievement. These findings underscore the role of personality in shaping students' academic outcomes, highlighting its significance in educational settings.

Research Design:

Stratified Sampling Comparative Design is applied to explore the relationship between personality traits and academic achievement motivation among international medical students.

Participants:

- Diverse sample of international medical students from various academic years and cultural backgrounds.
- Stratification based on academic year to ensure representation across different stages of the medical program.
- Inclusion criteria: Currently enrolled in a medical program, willingness to participate.
- Stratified sampling based on gender, age, and cultural background to ensure representation.

Stratification Criteria:

1. Dividing the population into strata based on academic year (e.g., 2020-2021, 2021-2022, etc.).
2. Hypothesis:
3. There exists a significant positive correlation between achievement motivation and extroversion.
4. Moderate neuroticism levels have positive effects on achievement motivation
5. Extremely high levels of neuroticism will lead to low achievement motivation.

Gender Differences:

1. Men on average score higher on measures of extroversion.
2. Women on average score higher on measures of neuroticism

Data Collection:

- *Personality Assessment:* To measure personality traits. Eysanck Personality Inventory (EPI) was administered electronically or in-person, to ensuring confidentiality.
- *Academic Achievement Motivation:* For Academic Achievement Motivation, Deo-Mohan Achievement Motivation (n-Ach) Scale (DMAMS) (Deo & Mohan, 1985) was administered electronically or in-person, to ensuring confidentiality.

Variables:

Independent Variable:

- Personality traits extraversion and neuroticism.

Dependent Variable:

- Academic achievement motivation.

Data Analysis:

- Conducting statistical analyses using correlation analysis to examine the relationship between personality traits and academic achievement motivation.
- Exploring potential moderating or mediating variables.

Correlation Analysis:

- Pearson's correlation coefficient to assess the strength and direction of the relationship between personality traits and academic achievement motivation among international medical students.
- Applying statistical significance tests (e.g., p-values) to determine if observed correlations are significant.

Ethical Considerations:

- Informed consent was obtained from all participants, outlining the purpose, procedures, and potential risks/benefits of the study. Participants were informed of their right to withdraw at any point without consequences.
- Participants' identities were kept anonymous throughout the study, and all data were stored securely. Confidentiality was maintained, and access to sensitive information was restricted to authorized personnel only.
- This study was conducted in compliance with ethical standards all procedures were carried out in accordance with the ethical guidelines outlined by the board.
- Cultural sensitivity was maintained throughout the study by considering variations in the interpretation of personality traits and motivation across diverse cultural backgrounds. Assessment tools and methodologies were adapted to align with the cultural context of the participants.

Results and Discussion:

Table No.1 showing the Correlation between Extroversion of Eysanck Personality with Academic Achievement Motivation and its components by Karl Pearson's correlation coefficient:

Variables	Correlation between Extroversion of Eysanck Personality with		
	r-value	t-value	p-value
Academic Achievement Motivation	0.0951	1.2341	0.2189
Acad n Ach	0.0869	1.1273	0.2612
Edu n Ach	-0.0034	-0.0434	0.9654
Int n Ach	0.1112	1.4454	0.1502
Gen n Ach	0.1767	2.3195	0.0216*

* $p < 0.05$

In examining the correlations between Extroversion of Eysenck Personality and various dimensions of academic motivation, the findings yielded interesting insights. The correlation analysis revealed a weak positive correlation between Extroversion and Academic motivation ($r = 0.0951$, $p = 0.2189$). This suggests that there is a slight tendency for individuals with higher levels of Extroversion to exhibit slightly greater academic motivation, although this relationship did not reach statistical significance.

Similarly, the correlation between Extroversion and other components of academic motivation, including Academic need Achievement (Acad n Ach), Intellectual need Achievement (Int n Ach), and General need Achievement (Gen n Ach), were also found to be weak, with coefficients ranging from 0.0869 to 0.1767. However, none of these correlations were statistically significant ($p > 0.05$), indicating that Extroversion may not be a strong predictor of these specific dimensions of academic motivation among the sample population.

Interestingly, the correlation between Extroversion and Educational need Achievement (Edu n Ach) was close to zero ($r = -0.0034$), suggesting virtually no linear relationship between these variables. This finding implies that Extroversion does not significantly influence educational need achievement in the context of this study.

It is noteworthy that the correlation with General need Achievement (Gen n Ach) approached statistical significance ($p = 0.0216^*$), indicating a slightly stronger relationship compared to the other dimensions of academic motivation. However, caution should be exercised in interpreting this result, as the significance level was marginal.

Regarding the extraversion dimension, there are studies which argue that there is no link between the extraversion dimension and academic performance. R. D. Nayak (2016) Abba Y.A. (2019) Extraversion was partially related to academic performance, according to Chamorro-Premuzic and Furnham (2003).

Overall, while the analysis did not reveal strong correlations between Extroversion and Academic Achievement Motivation or its components, the findings contribute to the understanding of the nuanced interplay between personality traits and motivation in academic settings. Further research with larger sample sizes and diverse populations may provide additional insights into the complex relationship between personality and academic achievement motivation.

Table No. 2: Correlation between Neuroticism of Eysanck Personality with academic motivation and its components by Karl Pearson's correlation coefficient:

Variables	Correlation between Neuroticism of Eysanck Personality with		
	r-value	t-value	p-value
Academic Achievement Motivation	-0.1001	-1.3007	0.1952
Acad n Ach	-0.1043	-1.3554	0.1771
Edu n Ach	-0.1138	-1.4802	0.1407
Int n Ach	-0.1325	-1.7281	0.0858
Gen n Ach	-0.0624	-0.8079	0.4203

* $p < 0.05$

The correlation analysis between Neuroticism of Eysenck Personality and various dimensions of academic achievement motivation provided valuable insights into the relationship between these variables. The findings suggest a weak negative correlation between Neuroticism and Academic Achievement Motivation ($r = -0.1001$, $p = 0.1952$), although this association did not reach statistical significance. This indicates that individuals with higher levels of Neuroticism may exhibit slightly lower levels of academic achievement motivation, but the strength of this relationship was minimal in the studied sample.

Similarly, negative correlations were observed between Neuroticism and other components of academic achievement motivation, including Academic need Achievement (Acad n Ach), Educational need Achievement (Edu n Ach), Intellectual need Achievement (Int n Ach), and General need Achievement (Gen n Ach). However, none of these correlations were statistically significant ($p > 0.05$), suggesting that Neuroticism may not strongly predict these specific dimensions of academic achievement motivation among the participants.

The correlation coefficients ranged from -0.0624 to -0.1325, indicating weak negative associations between Neuroticism and the different dimensions of academic achievement motivation. Notably, the correlation with Intellectual need Achievement (Int n Ach) approached statistical significance ($p = 0.0858$), suggesting a potentially slightly stronger relationship compared to the other dimensions, albeit still not reaching conventional levels of significance.

Trapmann et al. (2007) suggested that research into neuroticism is essential because it does not clearly correlate with academic performance. The study further states that the neuroticism facets generate different contributions to academic performance. Ghazi et al. (2013) demonstrated that there was no significant relationship between student personality neuroticism and academic achievement. This finding was further supported by Bergold and Steinmayr (2018), who found that neuroticism does not correlate with GPA. These studies provide evidence suggesting that neuroticism may not be a significant predictor of academic success.

Overall, while the analysis did not reveal significant correlations between Neuroticism and academic achievement motivation or its components, the findings contribute to understanding the complex interplay

between personality traits and motivation in academic contexts. Further research utilizing larger and more diverse samples may help elucidate the role of Neuroticism in shaping academic achievement motivation more comprehensively.

Table No.3: Comparison of male and females with academic motivation and its components by t test

Variables	Male		Female		Mean Diff.	t-value	p-value
	Mean	SD	Mean	SD			
Academic motivation	153.23	20.95	152.60	44.85	0.63	0.1009	0.9198
Acad n Ach	39.18	5.93	40.04	12.19	-0.86	-0.5031	0.6155
Edu n Ach	49.44	8.54	51.80	14.82	-2.36	-1.1109	0.2682
Int n Ach	21.95	4.86	21.96	6.57	-0.01	-0.0089	0.9929
Gen n Ach	41.61	7.52	39.61	13.91	2.00	1.0141	0.3120

* $p < 0.05$

The comparison between male and female participants in terms of academic motivation and its components was conducted through mean differences, t-values, and corresponding p-values. The results are summarized below:

Academic Motivation: There was no statistically significant difference in academic motivation between male and female participants ($t(171) = 0.63$, $p = 0.1009$).

Academic Need Achievement (Acad n Ach): Similarly, no significant difference was observed between males and females in academic need achievement ($t(171) = -0.86$, $p = 0.6155$).

Educational Need Achievement (Edu n Ach): The mean difference in educational need achievement between male and female participants was not statistically significant ($t(171) = -2.36$, $p = 0.2682$).

Intellectual Need Achievement (Int n Ach): There was no significant difference in intellectual need achievement between male and female participants ($t(171) = -0.01$, $p = 0.9929$).

General Need Achievement (Gen n Ach): The mean difference in general need achievement between males and females did not reach statistical significance ($t(171) = 2.00$, $p = 0.3120$).

Gender differences in achievement motivation have been extensively researched, revealing notable disparities between males and females. For instance, Shekher, Chandra, et al. (2016) conducted a study indicating a significant variation in achievement motivation based on gender. Similarly, Devakumar and Mary (2018) observed higher achievement motivation scores among girls compared to boys in their study. Moreover, Nathanael (2019) found significant differences between male and female participants concerning achievement motivation in sports, considering both the type of sport and the competitive level. Additionally, research by Maheswari, Kavitha, and Aruna (2016) on adolescents revealed significant gender-based differences in achievement motivation. These studies collectively highlight the impact of gender on achievement motivation, underscoring the need for further investigation into this phenomenon.

Overall, the findings of the present research suggest no significant gender disparities in academic motivation and its components among the sampled population. However, it is essential to interpret these results cautiously, considering the potential influence of other variables and factors that were not accounted for in this analysis. Further research with larger and more diverse samples may provide additional insights into gender differences in academic motivation.

Table No.4: Comparison of male and females with components of Eysanck Personality by t test

Variables	Male		Female		Mean Diff.	t-value	p-value
	Mean	SD	Mean	SD			
Extroversion	11.14	3.93	10.68	3.33	0.46	0.7940	0.4283
Neuroticism	10.84	4.27	11.66	4.52	-0.82	-1.1320	0.2592

* $p < 0.05$

Extroversion: The analysis revealed a mean difference of 0.46 between male and female participants, with males scoring slightly higher on Extroversion ($t(171) = 0.7940$, $p = 0.4283$). However, this difference was not statistically significant, suggesting that there is no significant gender disparity in Extroversion among the sampled population.

Neuroticism: The mean difference in Neuroticism between male and female participants was -0.82, indicating that females scored slightly higher on Neuroticism than males. However, this difference did not reach statistical significance ($t(171) = -1.1320$, $p = 0.2592$), implying that there is no significant gender difference in Neuroticism among the studied sample.

The primary objective of exploring gender disparities in personality traits is to comprehend the variations in typical behavioral patterns between men and women, recognizing that individuals of both genders can manifest states across the entire spectrum of most traits. It's essential to note that disparities in average trait scores between genders do not suggest that men and women solely exhibit states at opposite extremes of the trait spectrum. On the contrary, notable distinctions can coexist alongside substantial overlap in the distributions of men's and women's traits (Hyde, 2005).

Consistent with the research conducted by Costa et al. (2001), women demonstrated higher scores than men in Neuroticism, encompassing both of its facets, Withdrawal and Volatility, when assessed in terms of raw scores. This replication of findings aligns with prior research on Neuroticism (Weisberg YJ, 2011).

Overall, findings of the present research suggest that there were no significant gender disparities in Extroversion and Neuroticism among the sampled population. However, it is important to interpret these results cautiously and consider potential confounding variables or factors that were not accounted for in this analysis. Further research with larger and more diverse samples may provide additional insights into gender differences in personality traits.

Key Findings:

- **Personality Traits and Academic Achievement Motivation:** The study explored the relationship between personality traits (specifically Extroversion and Neuroticism) and academic achievement motivation among international medical students. While some weak correlations were observed, they did not reach statistical significance.
- **Extroversion:** Extroversion showed a slight positive correlation with academic motivation, but it was not statistically significant. There was no significant correlation between Extroversion and other dimensions of academic motivation.
- **Neuroticism:** Neuroticism exhibited a weak negative correlation with academic achievement motivation, but this association was not statistically significant. Similar to Extroversion, Neuroticism did not significantly predict specific dimensions of academic motivation.
- **Gender Differences:** The study found no significant gender differences in academic motivation or personality traits (Extroversion and Neuroticism) among the sampled population.

Implications:

Educational Practice: Insights from this research can inform the development of personalized learning strategies and interventions tailored to individual personality profiles. Understanding how personality traits influence academic motivation can help educators support students more effectively.

Research Directions: The findings contribute to the existing body of literature on student motivation and achievement, fostering a deeper understanding of the multifaceted factors influencing academic success. Further research with larger and more diverse samples could provide additional insights.

Student Support: Recognizing the role of personality in shaping academic outcomes can guide counseling and support services for students, helping them make informed decisions about career choices and goal setting.

Limitations:

Sample Size and Scope: The study involved a sample of 173 first-year medical students from a specific institution, which may limit the generalizability of the findings. Future research could include larger and more diverse samples to enhance the external validity of the results.

Measurement Tools: While validated instruments were used to assess personality traits and academic motivation, there may be inherent limitations associated with self-report measures, such as response biases or social desirability effects.

Causal Inference: The cross-sectional nature of the study design limits the ability to establish causal relationships between personality traits and academic achievement motivation. Longitudinal studies could provide more robust evidence of temporal associations.

Overall, this research offers valuable insights into the complex interplay between personality traits and academic motivation among international medical students. By addressing the identified limitations and building upon the findings, future studies can contribute further to our understanding of this important area of inquiry.

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