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PERSONALITY TRAITS AND ASSOCIATED FACTORS AMONG UNDERGRADUATE MEDICAL STUDENTS AT DAI NAM UNIVERSITY, 2024–2025

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ABSTRACT

Objective: To describe Big Five personality traits and identify associated factors among undergraduate medical students at Dai Nam University during the 2024–2025 academic year.

Subject and method: A cross-sectional study was conducted among 360 undergraduate medical students. Data were collected using a structured self-administered questionnaire, including general characteristics and a 21-item Big Five–based personality scale. Five personality domains were assessed: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience. Descriptive statistics and multivariable linear regression were used for data analysis.

Results: Among 360 students, males accounted for 59.72% and females for 40.28%. The highest mean personality score was observed for openness to experience (3.53 ± 0.64), followed by agreeableness (3.40 ± 0.70), conscientiousness (3.38 ± 0.59), neuroticism (3.20 ± 0.67), and extraversion (2.98 ± 0.61). Female students had significantly higher agreeableness scores than male students (Coef. = 0.239; 95% CI: 0.090–0.389; $p < 0.01$). Compared with fifth-year students, first-year students had higher agreeableness and neuroticism scores, second-year students had higher neuroticism and openness to experience scores, and third-year students had higher conscientiousness scores. Academic performance was significantly associated with conscientiousness and openness to experience. Students without a part-time job had lower extraversion scores than those with a health-related part-time job.

Conclusion: Medical students showed moderate levels of all Big Five personality traits, with openness to experience being the most prominent and extraversion the lowest. Gender, year of study, academic performance, and part-time employment status were associated with specific personality traits.

Keywords: Big Five personality traits; medical students; undergraduate students; academic performance; associated factors.

1. INTRODUCTION

Personality traits are relatively stable individual characteristics that influence how students learn, communicate, adapt, and develop professionally. In medical education, personality is particularly important because medical students need not only professional knowledge but also empathy, responsibility, resilience, and adaptability in academic and clinical environments.

The Big Five model is widely used to assess personality through five domains: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience. Previous studies have shown that these traits are associated with academic performance, anxiety, resilience, empathy, and career development among medical students [1-4]. Conscientiousness, openness, and agreeableness have been positively related to academic achievement, whereas neuroticism may be negatively associated with academic outcomes and mental health [3, 5, 6].

In Vietnam, evidence on personality traits among medical students remains limited, especially regarding their associations with gender, year of study, academic performance, and part-time employment. Therefore, this study aimed to describe Big Five personality traits and identify associated factors among undergraduate medical students at Dai Nam University during the 2024–2025 academic year.

2. SUBJECT AND METHODS

2.1. Study design and setting

A cross-sectional study was conducted at Dai Nam University during the 2024–2025 academic year. Data were collected during regular teaching sessions and academic activities to ensure participation across all five academic years. The study population included students enrolled in the Doctor of Medicine program. Students who were actively studying during the study period and agreed to participate voluntarily were included. Students who were absent during data collection or on academic leave were excluded. A census sampling approach was applied, and 360 valid questionnaires were included in the final analysis.

2.2. Variables and measurements

Data were collected using a structured, self-administered questionnaire. The questionnaire included two main sections: general characteristics and personality traits.

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General characteristics included gender, year of study, academic performance classification, and part-time employment status. Gender was categorized as male or female. Year of study was classified from first-year to fifth-year students. Academic performance was categorized as poor, average, good, very good, and excellent. Part-time employment status was classified into three groups: health-related job, non-health-related job, and no part-time job.

Personality traits were measured using a 21-item Big Five–based scale assessing five domains: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to experience. Each item was rated on a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. Negatively worded items were reverse-coded before score calculation using the formula 6 minus the original score [7]. Domain scores were calculated as the mean of the corresponding items, with possible scores ranging from 1 to 5. Higher scores indicated stronger expression of the respective personality trait. The five domain scores were treated as continuous variables in subsequent analyses [7].

2.3. Study size

The sample size was determined by the total number of eligible students available during the study period. A total of 360 students completed valid questionnaires and were included in the analysis.

2.4. Statistical analysis

Data were analyzed using Stata software. Descriptive statistics were used to summarize participant characteristics and personality trait scores. Categorical variables were presented as frequencies and percentages. Continuous variables were presented as means, standard deviations, minimum values, and maximum values.

Multivariable linear regression was used to examine the associations between general characteristics and each personality trait score. Five separate regression models were built for Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to experience. Regression coefficients with 95% confidence intervals were reported. Robust standard errors were used in the regression models. Statistical significance was set at $p < 0.05$, with $p < 0.01$ considered highly significant.

2.5. Ethical considerations

The study was conducted in accordance with ethical principles for research involving human participants. All students were informed about the study objectives, voluntary participation, confidentiality, and their right to withdraw at any time. Informed consent was obtained before data collection. Responses were collected anonymously and used only for research purposes.

3. RESULTS

A total of 360 students participated in the study, with males accounting for 59.72% and females 40.28%. The largest group was Cohort 18 (30.56%). Most students had good academic performance (44.72%), followed by average (33.33%). The majority did not have a part-time job (73.06%); among those employed, 17.22% worked in non-health-related jobs and 9.72% in health-related jobs (Table 1).

Table 1. General characteristics of the study participants

Characteristics	n	%
Gender		
Male	215	59.72
Female	145	40.28
Year of study		
Fifth-year students	84	23.33
Fourth-year students	44	12.22
Third-year students	40	11.11
Second-year students	82	22.78
First-year students	110	30.56
Academic performance classification		
Poor	1	0.28
Average	120	33.33
Good	161	44.72
Very good	68	18.89
Excellent	10	2.78
Part-time employment status		
Yes, health-related job	35	9.72
Yes, non-health-related job	62	17.22
No	263	73.06
Total	360	100.00

Table 2. Description of personality traits among students

Personality trait	n	Mean	SD	Min	Max
Extraversion	360	2.98	0.61	1.00	5.00
Agreeableness	360	3.40	0.70	1.00	5.00
Conscientiousness	360	3.38	0.59	1.75	5.00
Neuroticism	360	3.20	0.67	1.25	5.00
Openness to experience	360	3.53	0.64	1.20	5.00

Among the five personality traits, openness to experience had the highest mean score (3.53 ± 0.64), followed by agreeableness (3.40 ± 0.70) and conscientiousness (3.38 ± 0.59). Extraversion had the lowest mean score (2.98 ± 0.61). Overall, the mean scores of personality traits were at a moderate level.

Table 3. Associations between general characteristics and personality traits

Characteristics	Extraversion Coef. (95% CI)	Agreeableness Coef. (95% CI)	Conscientiousness Coef. (95% CI)	Neuroticism Coef. (95% CI)	Openness to experience Coef. (95% CI)
Gender (with Male)					
Female	-0.079 (-0.207; 0.048)	0.239 (0.090; 0.389)**	-0.004 (-0.127; 0.119)	0.121 (-0.023; 0.266)	0.061 (-0.078; 0.201)
Year of study (with Fifth-year students)					
Fourth-year students	-0.064 (-0.252; 0.124)	-0.028 (-0.270; 0.214)	0.011 (-0.189; 0.210)	0.119 (-0.118; 0.357)	-0.032 (-0.267; 0.203)
Third-year students	-0.007 (-0.218; 0.203)	-0.050 (-0.333; 0.233)	0.287 (0.042; 0.532)*	0.208 (-0.071; 0.487)	0.219 (-0.039; 0.478)
Second-year students	0.162 (-0.047; 0.371)	0.149 (-0.069; 0.367)	0.183 (-0.001; 0.366)	0.239 (0.010; 0.469)*	0.271 (0.062; 0.480)*
First-year students	0.101 (-0.094; 0.297)	0.213 (0.003; 0.423)*	0.171 (-0.020; 0.362)	0.225 (0.002; 0.448)*	0.147 (-0.066; 0.360)
Academic performance classification (with poor)					
Average	0.010 (-0.149; 0.170)	-0.517 (-0.694; -0.340)**	0.360 (0.210; 0.509)**	-0.003 (-0.190; 0.183)	0.366 (0.200; 0.532)**
Good	0.104 (-0.091; 0.298)	-0.329 (-0.521; -0.137)**	0.383 (0.221; 0.546)**	-0.001 (-0.188; 0.185)	0.448 (0.277; 0.618)**
Very good	0.072 (-0.168; 0.312)	-0.440 (-0.719; -0.161)**	0.491 (0.245; 0.738)**	0.105 (-0.197; 0.406)	0.535 (0.283; 0.787)**
Excellent	0.113 (-0.322; 0.548)	-0.015 (-0.297; 0.267)	1.020 (0.695; 1.345)**	-0.161 (-0.664; 0.341)	0.659 (0.270; 1.049)**
Part-time employment status (with Yes, health-related job)					
Yes, non-health-related job	-0.111 (-0.379; 0.157)	-0.118 (-0.398; 0.162)	0.017 (-0.235; 0.268)	0.171 (-0.135; 0.477)	0.065 (-0.217; 0.347)
No	-0.236 (-0.452; -0.020)*	-0.146 (-0.366; 0.074)	-0.083 (-0.304; 0.138)	0.218 (-0.043; 0.479)	0.004 (-0.238; 0.245)

*Coef. = regression coefficient; CI = confidence interval; *: p < 0.05; **: p < 0.01.*

The multivariable regression results showed that gender, year of study, academic performance classification, and part-time employment status were associated with some personality traits among students. Female students had higher Agreeableness scores than male students ($p < 0.01$). Compared with fifth-year students, first-year students had higher Agreeableness and Neuroticism scores; second-year students had higher Neuroticism and Openness to experience scores; and third-year students had higher Conscientiousness scores ($p < 0.05$). Regarding academic performance, students classified as average to excellent had higher Conscientiousness and Openness to experience scores than those classified as poor ($p < 0.01$). Students without a part-time job had lower Extraversion scores than those with a health-related part-time job ($p < 0.05$).

4. DISCUSION

This study described Big Five personality traits and examined their associated factors among 360 undergraduate medical students at Dai Nam University during the 2024–2025 academic year. Overall, the mean scores of all five personality traits were at a moderate level. Among them, openness to experience had the highest mean score, followed by agreeableness and conscientiousness, whereas extraversion had the lowest mean score. Multivariable linear regression showed that gender, year of study, academic performance classification, and part-time employment status were associated with some personality dimensions. Specifically, female students had higher agreeableness scores than male students. Compared with fifth-year students, first-year students had higher agreeableness and neuroticism, second-year students had higher neuroticism and openness to experience, and third-year students had higher conscientiousness. Academic performance was mainly associated with conscientiousness and openness to experience, while students without a part-time job had lower extraversion than those with a health-related part-time job.

The personality profile observed in this study is generally consistent with previous findings among medical students. Earlier studies have reported that medical students often show relatively high levels of agreeableness and openness, moderate levels of

conscientiousness and extraversion, and variable levels of neuroticism [1-4]. In an Egyptian cohort, agreeableness and openness were also among the highest-scoring traits, while extraversion and conscientiousness were relatively lower [4]. The high score for openness to experience in the present study may reflect the characteristics required in medical education, where students are expected to absorb complex scientific knowledge, adapt to changing clinical situations, and remain receptive to new ideas, technologies, and approaches to patient care. Openness may also support curiosity, flexible thinking, and willingness to engage with interdisciplinary learning, which are increasingly important in modern medical training.

Agreeableness was the second highest personality trait in this study. This finding is meaningful in the context of medical education because agreeableness reflects trust, cooperation, interpersonal warmth, and concern for others. These qualities are closely aligned with the professional values expected of future physicians, including empathy, respect, teamwork, and patient-centered communication. Previous evidence has shown that Big Five traits are related to empathy, with agreeableness strongly predicting empathic concern among medical students [2]. The finding that female students had significantly higher agreeableness scores than male students is also consistent with previous research reporting higher agreeableness among female medical students [4]. This may partly reflect gender-related differences in interpersonal orientation, emotional sensitivity, or socialization patterns, although such interpretation should be made cautiously and not used to stereotype individual students.

Conscientiousness was also relatively high and showed a strong association with academic performance. Students classified as average, good, very good, and excellent had significantly higher conscientiousness scores than those classified as poor. This finding is consistent with studies from Iran and India, where conscientiousness was positively associated with grade point average or academic grades [5, 6]. Conscientiousness reflects responsibility, organization, persistence, self-discipline, and the ability to complete tasks. These characteristics are highly relevant to medical training, which requires sustained effort, careful preparation, time management, and adherence to academic and clinical requirements. The strong association between conscientiousness and better academic classification suggests that this trait may contribute to students' learning behaviors and academic success. However, because the poor academic performance group included only one student, comparisons using this group as the reference category should be interpreted with caution.

Openness to experience was also significantly higher among students with better academic performance classifications. This finding supports previous evidence suggesting that openness may positively predict academic achievement [5, 6]. In medical education, openness may help students engage with abstract concepts, integrate knowledge across disciplines, and adapt to active learning methods such as case-based learning, simulation, research activities, and clinical reasoning exercises. Students with higher openness may be more willing to explore unfamiliar topics, question assumptions, and apply knowledge in flexible ways. However, evidence on the direct relationship between personality and academic outcomes remains mixed. For example, one Egyptian study found no direct association between Big Five traits and module grades despite high levels of agreeableness and openness [4]. These differences may be explained by variations in assessment methods, curriculum structure, cultural context, and the way academic performance is measured.

Neuroticism showed significant differences by year of study, with first-year and second-year students reporting higher scores than fifth-year students. This may reflect the adjustment challenges faced by students in the early years of medical training, including transition to university life, academic pressure, unfamiliar learning methods, and uncertainty about future professional pathways. Neuroticism is commonly associated with emotional instability, worry, anxiety, and vulnerability to stress. Previous studies have shown that neuroticism is positively related to anxiety, whereas agreeableness, conscientiousness, and openness are negatively related to anxiety among medical students [2]. In addition, personality traits have been shown to contribute to resilience across different years of medical training [1]. The higher neuroticism scores among junior students in this study suggest the need for early psycho logical support, stress management programs, academic mentoring, and peer-support activities, particularly during the transition into medical school.

Extraversion had the lowest mean score among the five personality traits and was significantly lower among students without a part-time job compared with those having a health-related part-time job. Extraversion reflects sociability, assertiveness, enthusiasm, and active engagement with others. Students who are more extraverted may be more likely to seek social or work-related opportunities, including part-time jobs in health-related settings. Conversely, students with lower extraversion may prefer more private, independent, or academically focused activities. Previous studies have suggested that living conditions, activity status, and learning environments may be associated with different personality profiles [8, 9]. In medical training, low extraversion is not necessarily a disadvantage, as students may still perform well through conscientiousness, self-directed learning, and reflective ability. However, communication, teamwork, and confidence in interaction are essential clinical competencies. Therefore, structured learning activities such as group discussion, role-play, clinical communication practice, and supervised patient interaction may help students strengthen interpersonal confidence regardless of their baseline personality traits.

The findings have several practical implications for medical education. Personality assessment should not be used to label or rank students, but it may provide useful information for student support and educational planning. Students with higher neuroticism may benefit from stress management, counseling, resilience training, and closer academic advising. Students with lower extraversion may benefit from safe and gradual opportunities to practice communication and teamwork. The positive association of conscientiousness and openness with academic performance suggests that educational programs should promote learning habits such as planning, self-regulation, active inquiry, and reflective learning. In addition, the observed differences by gender and year of study indicate that student support should be tailored to different stages of training rather than applying a single approach to all students.

This study has some limitations. First, the cross-sectional design allows identification of associations but cannot establish causal relationships between general characteristics and personality traits. Second,

data were collected using a self-administered questionnaire, which may be affected by social desirability bias or response tendency. Third, the study was conducted at a single university, which may limit the generalizability of the findings to all medical students in Vietnam. Fourth, the poor academic performance group was very small, making comparisons with this reference group less stable. Despite these limitations, the study provides useful initial evidence on Big Five personality traits among undergraduate medical students at Dai Nam University.

5. CONCLUSION

In conclusion, students showed moderate levels of all five personality traits, with openness to experience, agreeableness, and conscientiousness being the most prominent. Several factors, including gender, year of study, academic performance, and part-time employment status, were associated with specific personality dimensions. These findings may inform student counseling, academic support, and professional development activities in medical education.

REFERENCES

[1] A. Findyartini, Nadia Greviana, A. Putera và các cộng sự. (2021), "The relationships between resilience and student personal factors in an undergraduate medical program", BMC Medical Education, 21.

[2] Yang Song và Meng Shi (2017), "Associations between empathy and big five personality traits among Chinese undergraduate medical students", PLoS ONE, 12.

[3] Meng Shi, Li Liu, Z. Wang và Lie Wang (2015), "The Mediating Role of Resilience in the Relationship between Big Five Personality and Anxiety among Chinese Medical Students: A Cross-Sectional Study", PLoS ONE, 10.

[4] E. Abouzeid, Sally Fouad, Nourhan Wasfy và các cộng sự. (2021), "Influence of Personality Traits and Learning Styles on Undergraduate Medical Students' Academic Achievement", Advances in Medical Education and Practice, 12, tr. 769-777.

[5] A. Hayat, Naeimeh Kohoulat, M. Amini và Seyed Aliakbar Faghihi (2020), "The predictive role of personality traits on academic performance of medical students: The mediating role of self-efficacy", Medical Journal of the Islamic Republic of Iran, 34, tr. 77-77.

[6] S. Nighute (2014), "RELATIONSHIP BETWEEN BIG FIVE PERSONALITY TRAITS AND ACADEMIC PERFORMANCE IN MEDICAL STUDENTS", Journal of Evolution of medical and Dental Sciences, 3, tr. 4446-4452.

[7] Anastassiya Kovaleva, Constanze Beierlein, Christoph J. Kemper và Beatrice Rammstedt (2013), "Psychometric properties of the BFI-K: A cross-validation study", The International Journal of Educational and Psychological Assessment, 13(1), tr. 34-50.

[8] Muhammad Sarfraz Khan, Abdur Rehman Malik, Adam Umair Ashraf Butt và các cộng sự. (2019), "Personality Dynamism and Academic Performance Among Boarders and Non-boarders Studying in a Medical University", Cureus, 11.

[9] Korn Boonyapison, G. Sittironnarit và P. Rattanaumpawan (2025), "Association between the big five personalities and academic performance among grade 12 students at international high school in Thailand", Scientific Reports, 15.