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Original Article

The Relationship between Personality Traits According to the Five-Factor Model and Preferred Clinical Specialty in Medical Interns

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BRIEF TEXT

Background and Objective

[1–3]. Satisfaction with one's academic and career field is directly related to personal development [4, 5]. Individuals working in health and medical professions require strong critical thinking skills to make accurate and timely decisions, and these skills are influenced by personality traits [6, 7]. Personality traits, including neuroticism, extraversion, openness, agreeableness, and conscientiousness, significantly affect the development of critical thinking and academic and professional performance [8]. … [9–12]. These traits not only influence job satisfaction but also play an important role in academic field selection [13, 14]. Although numerous studies have examined this topic, their findings remain inconsistent [15].

Medical students should ideally choose a specialty aligned with their personality traits. Therefore, selecting a medical specialty—an inherently high-precision decision—should be based on a thorough understanding of both personal characteristics and the demands of each specialty [16, 17]. This study aimed to investigate the influence of personality traits on specialty preference among medical students providing a useful framework for students and educators in academic and career decision-making.

Materials and Methods

This descriptive-analytical cross-sectional study was conducted in five teaching hospitals affiliated with Hamadan University of Medical Sciences in 2024. The study population included all medical interns during this period, and sampling was performed using a convenience sampling method. Data were collected using the short form of the Big Five Personality Inventory (NEO) and a demographic checklist. The validity and reliability of the NEO have been confirmed in multiple studies, with Cronbach's alpha coefficients ranging from 0.56 to 0.87 and correlations between self-report and observer forms ranging from 0.45 to 0.66 in Iranian studies [18, 19]. Demographic variables included age, gender, marital status, preferred specialty and reasons for choosing it, parents' occupation, place of residence, internship grade point average (GPA) (out of 20 points), and history of psychiatric illness.

Interns completed the questionnaires themselves. Individuals with incomplete responses and those with self-reported moderate to severe psychiatric disorders requiring medication were excluded. Cases reporting unconfirmed psychiatric illness were referred to a psychiatrist, and those diagnosed with moderate to severe illness were excluded. Data were analyzed using SPSS (version 20), with a significance level of < 0.05.

Results

Of the 347 interns approached, 260 (74.9%) met the inclusion criteria. Among the 87 excluded participants, 60 (17.3%) had moderate to severe psychiatric illness requiring medication, and 27 (7.8%) had incomplete questionnaires. The mean GPA was 15.63 ± 0.92 (range: 12.34–19.42). Table 1 presents the participants' demographic characteristics.

Extended Abstract

Mean personality trait scores were as follows: neuroticism 22.6 ± 5.81, extraversion 24.45 ± 5.02, openness 26.11 ± 5.23, agreeableness 24.30 ± 4.92, and conscientiousness 25.88 ± 5.06.

Pathology was the most preferred specialty (11.9%). Table 2 presents the interns' preferred specialties along with the factors influencing their choices.

Among male interns, neuroticism and openness differed significantly across specialty preferences; among females, neuroticism, openness, and agreeableness showed significant differences ($P < 0.05$). Table 3 presents the association between personality traits and demographic characteristics.

Analysis of variance (ANOVA) results indicated significant differences across specialties for neuroticism ($P < 0.001$, F = 5.78), openness ($P < 0.001$, F = 3.25), and conscientiousness ($P = 0.002$, F = 2.21). Extraversion ($P = 0.07$) and agreeableness ($P = 0.36$) showed no significant differences (Table 4).

Students preferring surgical specialties scored significantly higher on extraversion ($P = 0.003$) and conscientiousness ($P = 0.002$).

Among parental occupation groups, only neuroticism differed significantly for fathers with miscellaneous occupations ($P = 0.037$).

Discussion

This study found significant associations between certain personality traits—particularly openness, conscientiousness, and neuroticism—and medical specialty preferences. For example, openness was highest among those interested in obstetrics and gynecology and lowest among those preferring cardiology. Neuroticism was highest among those interested in internal medicine and lowest among those preferring emergency medicine.

While our study identified pathology, orthopedics, radiology, and nuclear medicine as the most popular specialties, a study of 683 German medical students reported surgery as the most preferred specialty [10], likely reflecting cultural and systemic differences. Similarly, a nationwide Iranian study found that radiology, dermatology, cardiology, and ear, nose, throat (ENT) specialties were the most popular [20], suggesting that specialties with higher income and lower stress tend to be favored.

Personal interest has consistently been identified as a major determinant of specialty choice [21]. In our study, interest, working conditions, and income were also key factors. [22-24]

Our findings regarding neuroticism and conscientiousness among internal medicine and surgical specialties align with studies by Maron and others' prospective evaluations [25]. Higher neuroticism among students preferring non-surgical fields may reflect greater risk aversion. Diagnostic specialties such as radiology and pathology were associated with higher neuroticism, consistent with findings from Croatia [26, 27]. Surgeons have been described as more agreeable and conscientious [28], traits essential in high-pressure environments requiring rapid decision-making. Agreeableness, associated with flexibility and patient interaction [29], has been highlighted as a key factor in specialty preference in our study: students preferring pediatrics and psychiatry scored highest in agreeableness, consistent with McCrae's descriptions of empathy and cooperation [30, 31].

Some studies, such as Abtahi [22], found no association between personality traits and specialty choice, possibly due to differences in sample characteristics, gender distribution, educational stage, or timing of specialty decision-making. Students may also adapt their personality traits to match their desired specialty over time.

Despite strengths such as a high response rate and validated instruments, limitations include the modest sample size, lack of assessment of factors such as socioeconomic status and religiosity, and the use of convenience sampling. Specialty preferences were also assessed before final decision-making. Larger multicenter longitudinal studies are recommended.

Conclusion

Although the sampling method limits generalizability, the findings suggest that personality traits may play an important role in specialty selection among medical students. Incorporating personality assessment into academic and career counseling may support more informed decision-making and enhance long-term professional satisfaction.

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Table 1. Demographic Characteristics of Study Participants

Variable	No	%
Total participants	260	100
Gender		
Female	151	58.1
Male	109	41.9
Marital status		
Single	176	67.7
Married	84	32.3
Father's occupation		
Administrative employee	43	16.5
Military personnel	42	16.2
Medical and health professions	29	11.2
Agriculture	13	5.0
Other	44	16.9
Mother's occupation		
Housewife	174	66.9
Educational profession	36	13.8
Medical and health professions	25	9.6
Administrative employee	17	6.5
Other	8	3.1
Place of residence		
Urban	247	95.0
Rural	13	5.0

Table 2. Participants' Preferred Medical Specialties and Reasons for Their Selection

Variable	No	%
Preferred specialty		
Pathology	31	11.9
Orthopedics	30	11.5
Radiology	27	10.4
Nuclear medicine	24	9.2
Other specialties	44	16.9
Reasons for specialty selection		
Working conditions	60	23.1
Personal interest	51	19.6
Income	31	11.9
Social status	19	7.3
Recommendations from others	19	7.3

Table 3. Relationship of Personality Traits with Demographic Characteristics

*Variable	Category**	Extraversion **(p)	Openness to Experience **(p)	Agreeableness** (p)	Conscientiousness** (p)	Neuroticism** (p)
Place of residence	Urban	0.086	< 0.001	0.378	0.003	< 0.001
	Rural	0.059	0.149	0.360	0.293	0.275
Age group	20–25	0.062	0.069	0.521	0.495	< 0.001
	26–30	0.304	< 0.001	0.006	0.014	< 0.001
Marital status	Single	0.036	< 0.001	0.456	0.055	< 0.001
	Married	0.839	< 0.001	0.770	0.375	< 0.001
Reasons for specialty selection	Income	0.123	< 0.001	0.189	0.380	0.009
	Personal Interest	0.418	0.165	0.828	0.122	0.001
	Social Status	0.597	0.200	0.588	0.004	0.083
	Recommendations	0.943	0.046	0.155	0.176	0.330

	from others					
	Educational program conditions	0.107	0.221	0.374	0.262	0.128
	Working conditions in specialty	0.771	0.014	0.359	0.110	0.001
**GPA	15–20	0.227	< 0.001	0.426	0.002	< 0.001
	< 15	0.070	0.001	0.061	0.750	< 0.001

*Chi²
**Out of 20

Table 4. Description of Personality Traits by Participants' Preferred Medical Specialties

Preferred *Specialty	**Extraversion	**Openness to Experience	**Agreeableness	**Conscientiousness	**Neuroticism
Anesthesiology	21.5	27	26	24.5	23
Cardiology	24	20	23	21.33	22.67
Dermatology	22.67	24.08	24.04	25.5	23.79
ENT (ear, nose, throat)	25.17	28.36	24.97	27.14	18.86
Emergency medicine	26.2	25.8	24.6	25.2	13.8
General surgery	26.25	28.62	26.81	28.88	20
Infectious diseases	24.6	26.8	3.22	24.8	21.6
Internal medicine	25.67	24	25.67	20	28
Neurosurgery	27.5	29.25	23	27.25	22.25
Nuclear medicine	22.96	23.38	24.46	23.21	22.17
Obstetrics and gynecology	28	31	24	28	19
Occupational medicine	27.17	22.33	23.83	25.33	22.17
Ophthalmology	31.5	31	27	23.5	22
Orthopedics	25.4	29.3	23.67	27.17	17.33
Pathology	22.97	24.16	22.29	25.65	25.45
Pediatrics	25.83	24.83	28.17	25.5	23.5
Physical medicine and rehabilitation	22	22	25.25	17.5	25.25
Psychiatry	20	27.6	27.5	27	27.4
Radiotherapy	22	26.25	23.5	24	19.75
Radiology	23.78	24.96	25.33	25.59	27.3
Social medicine	23.33	24	20	24.33	21.33
Sports medicine	27.33	21.33	22.33	22	23.67
Toxicology and forensic medicine	25	25.25	23	30.25	26.5
Urology	26.33	28.67	23.33	29.67	19
Overall mean (SD)	24.45 (5.02)	26.11 (5.23)	24.30 (4.92)	28.88 (5.06)	22.06 (5.81)
F	1.48	3.25	1.08	21.2	78.5
P value	0.077	< 0.001	0.365	0.002	< 0.001

*One-way ANOVA
**Scores of the NEO-FFI Questionnaire