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Article

Personality Types and Career Preferences Among Medical Students: A Cross-Sectional Study Using Myers-Briggs Type Indicator

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ABSTRACT

Background: Personality characteristics significantly influence medical students' learning patterns, interpersonal skills, and long-term career satisfaction. While the Myers-Briggs Type Indicator (MBTI) has been extensively used in Western medical education to support specialty selection, its cultural applicability and predictive value in low- and middle-income countries like Pakistan remain underexplored, especially in the context of socioeconomic diversity and local healthcare dynamics. **Objective**: This study aimed to identify the distribution of MBTI personality types among medical students at Ayub Medical College and evaluate associations with preferred medical specialties and sociodemographic factors such as gender, urban-rural background, and family income. **Methods**: A descriptive cross-sectional design was adopted, targeting 150 MBBS students (n = 150) evenly sampled across all five academic years with equal gender representation (75 males, 75 females). Exclusion criteria included BDS students and incomplete responses. Data were collected using a modified MBTI questionnaire and demographic inventory, administered in person under standardized conditions. Primary outcomes included MBTI personality type distribution; secondary outcomes assessed preferred medical specialties and associations with demographic variables. Ethical approval was secured per the Declaration of Helsinki, and SPSS version 22 was used for statistical analysis. Descriptive statistics and Chi-square tests were employed to explore relationships, with $p \leq 0.05$ denoting significance. **Results**: INFJ (16.7%), ISFJ (11.3%), and INFP (10.7%) were the most prevalent personality types. Surgery (40.7%) was the top specialty choice, especially among INFJ and ISFJ students. No significant associations were observed between personality types and income ($\chi^2 = 36.74$, $p = 0.805$) or residence ($\chi^2 = 41.74$, $p = 0.611$). Gender-wise, INFJ remained dominant, with notable ISFJ and INFP representation among females. Trends between personality and specialty were evident but not statistically significant. **Conclusion**: INFJ, ISFJ, and INFP emerged as dominant MBTI types among Pakistani medical students, with a strong preference for surgical careers irrespective of personality–specialty congruence observed in global literature. These findings suggest cultural and systemic influences in career decision-making, highlighting the value of integrating personality assessments in academic advising to enhance student satisfaction, professional alignment, and healthcare workforce planning.

Keywords: MBTI, medical students, personality types, specialty choice, Pakistan, career counseling, cross-sectional study

INTRODUCTION

The personality characteristics of medical students play a pivotal role in shaping their learning styles, interpersonal interactions, and long-term career decisions. Among the various psychological profiling tools, the Myers-Briggs Type Indicator (MBTI) remains widely utilized in educational and occupational settings due to its ability to categorize individuals into 16 distinct personality types based on preferences in perception and judgment (1). These preferences are structured across four dichotomies: Extraversion versus Introversion, Sensing versus Intuition, thinking versus Feeling, and Judging versus Perceiving, offering a comprehensive framework to understand cognitive orientations and behavioral tendencies (2). In medical education, MBTI has been extensively

applied in North America and Europe to assist students in choosing specialties aligned with their innate strengths, emotional resilience, and working styles, leading to improved satisfaction and performance in professional roles (3,4).

Studies from Western countries suggest that introverted and intuitive individuals, such as INFJ or INTJ types, are more inclined towards academically or diagnostically driven fields like psychiatry and internal medicine. In contrast, extroverted and sensing types like ESTJ and ESFJ may prefer surgery or general practice due to their practical orientation and patient-facing interests (5,6). However, the predictive validity and cultural transferability of MBTI findings remain under-explored in low- and middle-income countries (LMICs), including Pakistan, where sociocultural dynamics, educational infrastructure, and healthcare system constraints differ significantly (7). In the Pakistani context, medical students face unique challenges, including family expectations, limited mentorship, and socioeconomic pressures that may overshadow intrinsic preferences when choosing a career path (8). While earlier research from urban centers such as Karachi has highlighted trends in specialty preferences among medical graduates, showing surgery and medicine as top choices, there is a lack of empirical data linking these preferences to underlying personality profiles using validated psychometric tools like MBTI (9). Moreover, important demographic variables such as rural or urban background, household income, and gender may interact with personality development, yet remain largely unaccounted for in the local literature (10).

Given this context, the current study addresses a critical gap in understanding how personality types, as measured by the MBTI relate to career aspirations among medical students in Pakistan. By focusing on a representative sample from Ayub Medical College, Abbottabad, the study seeks to explore the distribution of MBTI personality types in this population and evaluate how these types correlate with preferred medical specialties. Additionally, the research aims to assess whether sociodemographic variables such as gender, place of residence, and family income have any significant association with personality traits. This study is guided by the overarching research question: What are the prevalent MBTI personality types among medical students in Pakistan, and how are these associated with their specialty preferences and demographic characteristics? By addressing this question, the study contributes to the emerging discourse on integrating personality assessment into career counseling frameworks within medical education in LMICs, while also offering region-specific insights that challenge or refine existing international models.

MATERIAL AND METHODS

This study employed a descriptive cross-sectional design to investigate the distribution of Myers-Briggs Type Indicator (MBTI) personality types and their association with career preferences among medical students. Participants were recruited from Ayub Medical College, Abbottabad, between March and November 2022. The study targeted currently enrolled MBBS students across all five professional years, systematically selecting a total of 150 students with equal representation from each academic year (30 students per year). A gender balance was maintained, comprising 75 males and 75 females. Students from the BDS program and those who declined participation or submitted incomplete questionnaires were excluded to ensure consistency and completeness of the dataset. Informed written consent was obtained from all participants after explaining the study's purpose and procedures.

Data was collected using a modified version of the standardized MBTI questionnaire, comprising 65 items designed to capture the participants' personality types across the four MBTI dichotomies. The modified tool also incorporated additional items to gather demographic information, including age, gender, urban or rural residence, year of study, monthly household income, career preferences, body type, and familiarity with personality profiling tools. All questionnaires were administered in person by trained research assistants using standardized instructions to ensure consistency and minimize interviewer bias. The primary outcome was the distribution of MBTI personality types among students, while secondary outcomes included preferred career specialty and associations between personality type and demographic factors. Each participant's MBTI profile was assigned using the standard scoring protocol provided in the instrument's manual. All procedures were conducted following the ethical principles of the Declaration of Helsinki. Informed consent was obtained from every participant, and confidentiality was assured by anonymizing all data at the point of collection. Data were stored securely with access limited to the research team.

Statistical analysis was conducted using IBM SPSS version 22. Descriptive statistics, including frequencies and percentages, summarized categorical variables such as gender, personality types, and career preferences, while continuous variables like age were reported as mean ± standard deviation. Associations between categorical variables, including personality type and demographic characteristics, were evaluated using Chi-square tests, with statistical significance set at $p \leq 0.05$. No imputation methods were applied since the dataset contained no missing values.

RESULTS

A total of 150 medical students participated in the study, with an equal distribution of males (n = 75, 50%) and females (n = 75, 50%). The mean age of participants was 21.89 ± 1.70 years, ranging from 18 to 26 years. Most respondents reported an urban residential background (n = 120, 80%), while a minority were from rural areas (n = 30, 20%). Representation across all five professional years of MBBS was evenly maintained, with 30 students (20%) from each year (Table 1). Analysis of MBTI personality types revealed INFJ as the most prevalent type (n = 25, 16.7%), followed by ISFJ (n = 17, 11.3%) and INFP (n = 16, 10.7%). ENTJ (n = 2, 1.3%) and ESFJ (n = 4, 2.7%) were the least represented among the sample. A near-equal distribution was observed between extroversion and introversion, with extroverts comprising 52.7% and introverts 47.3% of the cohort. Gender-based stratification of personality types demonstrated that INFJ remained the most frequent type among both males (n = 14, 9.3%) and females (n = 11, 7.3%). Female students showed higher proportions of ISFJ and INFP types (7.3% each), while male students more frequently exhibited INTJ and ENFJ types (4.0% each) (Figure 1) About career preferences, surgery emerged as the most frequently selected specialty (n = 61,

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40.7%), particularly among INFJ (n = 18, 12%) and ISFJ (n = 11, 7.3%) individuals. Medicine was the second most popular choice (n = 42, 28%), most preferred by INFP (n = 7, 4.6%) and ENFP (n = 5, 3.3%) types (Figure 2). A minority of participants selected gynecology or other specialties (Table 2)

Table 1 Demographic Characteristics of Participants (N = 150)

Variable		Value
Age (years), Mean ± SD		21.89 ± 1.70
Gender, n (%)	Male	75 (50%)
	Female	75 (50%)
Residence, n (%)	Urban	120 (80%)
	Rural	30 (20%)
Year of Study, n (%)		30 (20%) per academic year

When stratified by residential status, students from urban areas more frequently reported INFJ (12.7%) and ISFJ (10.0%) personalities, compared to rural students (4.0% and 1.3%, respectively), although these differences did not reach statistical significance.

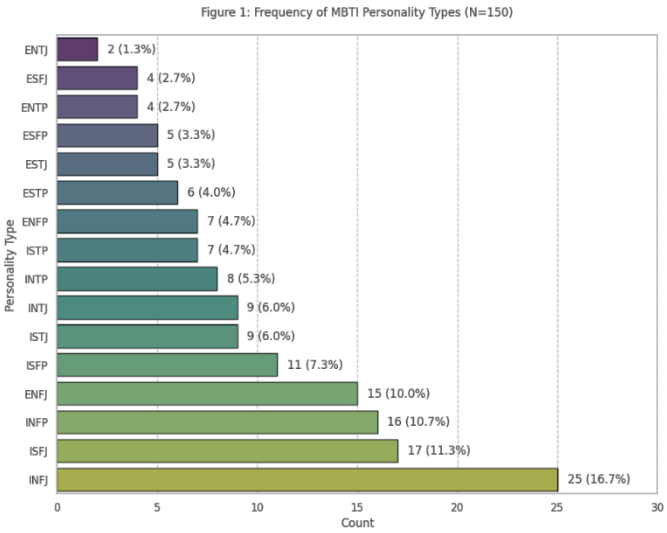

Figure 1: Personality Types distribution

Chi-square tests revealed no statistically significant associations between MBTI personality types and either monthly household income (χ^2 = 36.74, p = 0.805) or place of residence (χ^2 = 41.74, p = 0.611), suggesting that personality distribution in this cohort may be independent of socioeconomic background or urban–rural classification (Table 3). While trends were noted between specific personality types and specialty preferences, these associations did not attain statistical significance at the conventional $\alpha = 0.05$ threshold, thus preventing inference of a causal relationship.

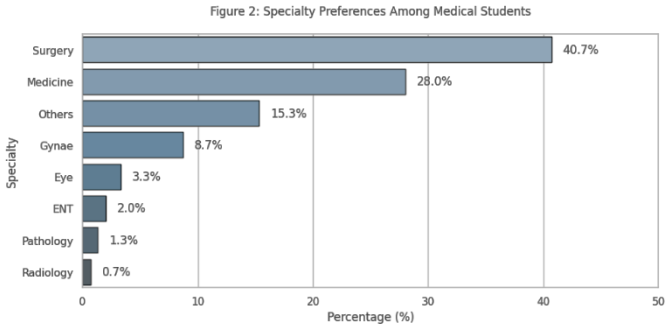

Figure 2: Specialty Preferences Among Medical Students (N=150)

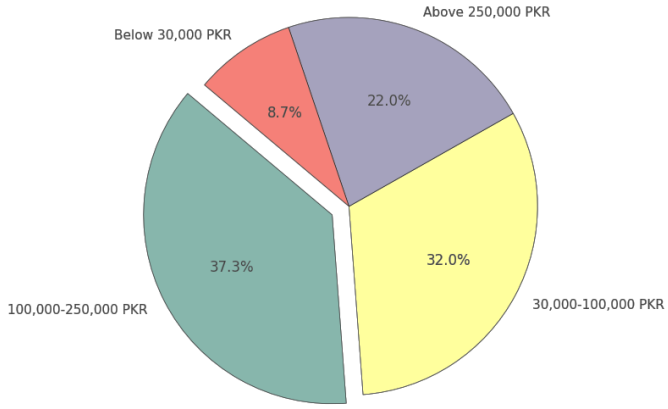

Figure 3. Monthly Household Income Distribution (N=150)

Body type assessments indicated ectomorphs were the most common (n = 67, 44.7%), followed by mesomorphs (n = 61, 40.7%) and endomorphs (n = 22, 14.7%). Monthly household income data showed a broad distribution but lacked a significant association with personality type (Figure 3).

Table 2 Career Preferences Among Top Personality Types

Personality Type	Top Specialty, n	Second Specialty, n	Third Specialty, n
INFJ	Surgery (18)	Others (4)	Medicine (2)
ISFJ	Surgery (11)	Medicine (3)	Gynecology (2)
INFP	Medicine (7)	Others (5)	Gynecology (2)

Table 3 Chi-Square Test Results for Associations Between Personality Type and Demographic Variables

Variable	χ^2 Value	p-value
Personality vs. Income	36.74	0.805
Personality vs. Residence	41.74	0.611

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These findings collectively highlight the dominance of INFJ, ISFJ, and INFP personality types among Pakistani medical students and a prevailing preference for surgical careers, particularly among intuitive–feeling types. Although observed trends suggest potential associations between personality and career choices, these relationships require further validation in larger, multi-institutional studies.

DISCUSSION

The present study provides valuable insight into the psychological landscape of medical students in Pakistan through the lens of the Myers-Briggs Type Indicator (MBTI), with findings that reveal both alignment and deviation from prior international literature. The predominance of the INFJ personality type (16.7%) among participants contrasts with Western studies, where ISTJ and ESTJ types have traditionally been the most prevalent among medical students (11,12). This divergence may reflect cultural differences in cognitive development, educational exposure, and the social desirability of certain traits in Pakistani society, where introspection and empathy—hallmarks of the INFJ type—are potentially nurtured through both religious and familial structures. The high frequency of ISFJ and INFP types in this study further reinforces the trend toward intuitive-feeling preferences, which may have implications for medical education and interpersonal dynamics in clinical settings.

The association between MBTI types and specialty preferences, though not statistically significant, suggested that intuitive-feeling types such as INFJ and ISFJ displayed a marked preference for surgery, deviating from earlier findings that typically linked these personalities with psychiatry, family medicine, or academic specialties (14,15). One possible explanation is the prestige and social status attached to surgical specialties in Pakistan, which might override personality-congruent decision-making in favor of extrinsic motivations. Moreover, the educational environment, faculty influence, and limited exposure to diverse specialties during early clinical years may also steer students toward more visible and highly regarded fields such as surgery. This cultural overlay on intrinsic personality preferences underscores the importance of localized research in career counseling frameworks, as Western models may not fully capture the motivational dynamics operating in South Asian medical students (7).

In terms of personality distribution by gender, INFJ remained dominant among both male and female students, with females demonstrating higher proportions of ISFJ and INFP types. This aligns with prior global trends indicating that female students more commonly exhibit feeling-oriented personality profiles (19). However, modest sample size restricts the power to draw definitive gender-based conclusions, and larger studies with stratified analysis are needed to explore these differences more robustly. Similarly, while this study observed no significant associations between personality type and sociodemographic factors such as income or place of residence, these variables may influence other psychosocial dimensions not captured in this cross-sectional design. This finding is in line with more recent studies from LMICs, which suggest that MBTI personality patterns may be more biologically or developmentally rooted than environmentally shaped (17).

The findings of this study carry important theoretical and clinical implications. The dominance of intuitive-feeling types may translate into students with strong empathetic communication skills and a preference for holistic care, traits increasingly emphasized in modern patient-centered medical education (23). However, if such students disproportionately pursue high-pressure specialties like surgery, potentially at odds with their personality profile, it may affect long-term satisfaction, well-being, and professional resilience (24). Understanding personality–specialty mismatches can inform career counseling and curricular reforms, encouraging earlier personality assessments to support informed, sustainable career decisions. Educational institutions in Pakistan might consider integrating personality assessment tools within mentorship and advising programs, promoting both self-awareness and alignment between personal strengths and professional roles.

Nonetheless, the study has limitations that warrant consideration. The single-center, cross-sectional design limits generalizability, and despite systematic sampling, findings may not be representative of medical students across Pakistan. The reliance on self-reported personality assessment is susceptible to social desirability bias, and although the MBTI is widely used, it has been critiqued for its psychometric limitations and lack of predictive validity in some domains (11). The absence of statistically significant associations between personality and career preferences may also reflect limited sample power, and future studies with larger, multicenter samples and longitudinal tracking are needed to validate and expand upon these findings. Furthermore, investigating the longitudinal impact of personality traits on academic performance, specialty satisfaction, and mental health outcomes could offer more nuanced insights into how personality interacts with the demands of medical training and clinical practice.

This study highlights INFJ, ISFJ, and INFP as the most prevalent personality types among medical students at Ayub Medical College, with a dominant preference for surgery as a career choice. The results challenge global assumptions about personality–specialty alignment and reinforce the need for culturally contextualized research. These findings underscore the importance of incorporating personality profiling into medical education frameworks in Pakistan, not only to enhance student satisfaction and professional development but also to contribute to more effective workforce planning within the country's evolving healthcare landscape.

CONCLUSION

This cross-sectional study using the Myers-Briggs Type Indicator revealed that INFJ, ISFJ, and INFP were the most prevalent personality types among medical students at Ayub Medical College, with a dominant preference for surgical careers. These findings suggest that personality profiling may offer valuable insights into specialty selection and career development in medical education. The observed deviation from international trends underscores the influence of cultural and systemic factors

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on career preferences, highlighting the need for locally tailored guidance strategies. Integrating personality assessments into early academic advising could foster better alignment between students' psychological traits and professional roles, ultimately enhancing career satisfaction, reducing burnout, and contributing to a more responsive and effective healthcare workforce. Future research should explore longitudinal outcomes to assess how personality influences academic performance, clinical competencies, and long-term professional fulfillment in diverse healthcare settings.

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