

Original Research Article

## The Big Five Domain: An Insight into the Personality Traits of First Year Medical Students

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### ABSTRACT

**Background:** The blend of cognitive and non cognitive abilities which is also influenced by the personality of an individual helps in the making of an ideal doctor. The personality traits required for a model doctor has not yet been identified. The aim of the study was to identify the prominent personality traits of medical school entrants and to correlate the various personality traits.

**Materials and methods:** This cross sectional study was done on 92 first year medical students in an Indian medical college. The validated IPIP big five personality questionnaire was administered. The results obtained were analyzed using ANOVA and Pearson's correlation tests on SPSS version 22.

**Results:** The students score highest on conscientiousness followed by openness; the least being agreeableness which is statistically significant. Agreeableness and neuroticism were found to be positively correlated significantly with conscientiousness. Neuroticism is negatively correlated with extroversion.

**Conclusion:** The results of the study show that these students have the ideal combination of personality traits to be successful in the pre clinical years. But this trait combination may not suffice to perform efficiently in the clinical years. Hence, this research highlights the importance of implementing strategies to help the students mould their personalities in order to become ideal doctors.

**Key words:** big five personality, conscientiousness, neuroticism, agreeableness, ideal doctor, medical student

### INTRODUCTION

'Health for all' by 2020 was the slogan proposed by the World Health Organization. <sup>[1]</sup> This encompasses the physical and mental health of each individual member in every society. In this backdrop, the role of doctors is crucial as caretakers of health. In India, the doctor-patient ratio is grossly inadequate leading to the mushrooming of multiple medical institutions and a mass production of doctors. But as the healthcare needs of the society changes, the role of a doctor

constantly evolves. Academic competency alone cannot be considered as a marker of a good doctor.

In an era where entry into professional courses is highly competitive, admission into the medical school is a matter of pride. MBBS is the toughest course among all the professional courses. <sup>[2]</sup> To ensure competency, commitment and compassion which are the hallmarks of a good doctor, cognitive abilities alone would not suffice. Presence of soft skills is required, in addition, to help the doctor interact with

patients across different strata and mindset. With the hectic syllabus and strenuous work load, training of students in soft skills takes a back seat in the present education system eventually resulting in stress, frustrations and an inability to cope. The final product that emerges after such rigorous training should be a doctor with formidable cognitive and non cognitive skills. In this scenario, the personality of the individual student will play a prominent role.

Information perceiving and processing varies according to the personality of a student. Combination of personality types is necessary for a successful career in medicine. Empathy, warmth, cooperativeness, honesty and self control are the hallmarks of a 'model' medical practitioner. [3] These qualities are attributable to a particular type of personality trait namely 'agreeableness' which has also been known to predict performance in interpersonal oriented jobs as seen in the medical field. [4] The influence of personality traits on academic outcome is varied and confusing, with some researchers laying emphasis on the benefits of students having conscientious personality and thereby a favorable academic outcome, while others are in favor of agreeableness being the best trait to have in order to be a good doctor. [5,6] On the other hand, researchers seem to concur on the negative impact of neuroticism in the academic and medical career. [7]

The selection criterion for selection of medical students differs worldwide, with Indian students being younger than the average medical school entrant. In addition, in India, only the cognitive abilities of a student form the basis of selection criteria in medical school. This results in a mix of students, who, even though have high cognitive abilities, may or may not have the soft skills like interpersonal communication and personality characteristics which are crucial for the all round development as a doctor.

The present study is one of the first in the series of studies designed to find out

the ideal ingredients of cognitive and non cognitive skills required in the process of formation of a 'model doctor'. This study is designed to investigate the personality mix seen in I year medical students keeping in mind that I year of medicine in the Indian curriculum is a purely knowledge acquisition based course while the subsequent years put to test the soft skills in the trainees.

## **MATERIALS AND METHODS**

This cross sectional study was done on 100 I year medical students of Jubilee Mission Medical College and Research Institute in Kerala India. The numbers of participants were 92 of which 40 are male. The study was done after obtaining clearance from the Institutional Ethics committee and consent of the students. Big Five Personality Questionnaire was administered to the students during college hours and the time taken to fill the questionnaire was approximately 30 minutes.

**Personality questionnaire: IPIP Big Five Factor markers:** This is a validated tool consisting of 50 questions graded on a 5 point Likert scale from 1 (disagree) to 5 (agree). The big five factors of personality are openness, conscientiousness, extroversion, agreeableness and neuroticism. The scores are added and the personality trait determined. While all traits are present in varying proportions in all individuals, generally one trait predominates which is used to identify the personality of an individual. [8]

**Extroversion-** implies an energetic approach to the social and material world.

**Agreeableness-** is a measure of interpersonal tendencies. It is an assessment of how compatible a person is with others, or if he is a 'people person'

**Conscientiousness-** relates to self control and to meticulousness and carefulness

**Openness-** refers to the creative, curious and open to experiences type of personality.

**Neuroticism-** is the tendency to feel anxious, stressed out, upset and fearful. [9]

**Statistical analysis:** The data obtained was tabulated and analyzed using statistical package for social sciences (SPSS version 22), the statistical tests used were ANOVA and Pearson's correlation tests.

**Table 1- Personality traits of I year medical students**

Domain	Mean	Std. Deviation	P
Extraversion	1.99	0.71	0.001***
Conscientiousness	2.87	0.54	
Neuroticism	2.11	0.76	
Agreeableness	1.67	0.74	
Openness	2.19	0.51	

\*\*\* ANOVA p<0.001

## RESULTS

This study involved 92 first year medical students of which 40 are male.

Table 1 shows the mean values obtained by the study population in each personality trait.

**Table 2- Correlation of the various personality traits of I year medical students**

Domain	Extraversion	conscientiousness	neuroticism	agreeableness	openness
Extraversion	1	0.10	-0.19	0.12	0.10
Conscientiousness	0.10	1	0.01**	0.001***	0.17
Neuroticism	-0.19	0.01**	1	0.15	0.20
Agreeableness	0.12	0.001***	0.15	1	0.10
Openness	0.10	0.17	0.20	0.10	1

\*\* Correlation is significant at p<0.01; \*\*\* Correlation is highly significant at p<0.001

Table 2 shows the correlations between various personality dimensions with each other using Pearson's correlation test.

**Table 3- Descriptive statistics showing frequency distribution of personality traits in medical students**

Domain	Ranking	Frequency	Percent
Extraversion	1	22	23.9
	2	26	28.3
	3	19	20.7
	4	14	15.2
	5	11	12.0
Conscientiousness	1	2	2.2
	2	5	5.4
	3	7	7.6
	4	25	27.2
	5	53	57.6
Neuroticism	1	20	21.7
	2	19	20.7
	3	18	19.6
	4	25	27.2
	5	10	10.9
Agreeableness	1	46	50.0
	2	25	27.2
	3	10	10.9
	4	6	6.5
	5	5	5.4
Openness	1	7	7.6
	2	27	29.3
	3	33	35.9
	4	17	18.5
	5	8	8.7
<b>TOTAL</b>		<b>92</b>	<b>100.0</b>

Ranking has been given based on the scores obtained in each personality trait. 5 ranks were allotted in each category of personality with 5 being the highest rank and 1 being the lowest as shown in table 3.

## DISCUSSION

Personality is what makes us who we are. The mental and emotional well

being of students of medicine is of paramount importance because they are the future of the health care system in any society. Choosing students whose attributes are best suited for patient care should be the prime aim of the selection process. Analysis of a learner's personality would aid in reducing misfits in the medical profession. Further, the environment into which the personality would fit influences the way in which students learn and perform academically. Extensive research has been done to analyze the inter relationship of personality traits and academic outcomes without giving a thought to the non cognitive attributes. We hope that by analyzing the personalities of the students, independent of their scores as soon as they enter medical school will provide us with an insight into the personality traits of students choosing this profession. This in turn will guide us in the process of moulding their personalities and making suitable modification to create the correct blend of characteristics expected out of an ideal doctor, keeping in mind that a variety of factors exert influence on personality and personality is not a rigid or fixed entity. [10] In the light of not having psychometric testing prior to admissions, this mouldability becomes particularly important since the group of students entering the profession need not necessarily have the correct mix required to make a model doctor.

Table 1 shows the mean scores obtained by I year medical students in various personality trait. Our students scored highest in conscientiousness (mean= 2.87) with 57% of students being highly conscientious (table 3, rank 5). Conscientiousness is known to be the best non cognitive predictor of performance across various job types. [4] Highly conscientious individuals are associated with personal attributes necessary for learning such as being organized, efficient, striving for success, exertion of self control and confidence and competent which accounts for their mental well being. [11] Our students have successfully completed intensive pre med training and exams which might be the reason for their highly conscientious behaviour.

The second highest trait observed was that of openness (mean 2.19). Openness to experience has been positively related to successful training activities. The optimistic attitude of an open individual has a positive impact on the outcome of a trainee. [12] The key feature of openness is plasticity which facilitates the adjustment to dynamic circumstances while allowing them to engage in activities which stimulate and enhance their cognitive functioning. [13] The creative and imaginative nature of individuals may be disadvantageous in academic setting where they are required to reproduce curricular content but these students thrive in an environment that requires creative problem solving like in the medical field. Research further reveals that higher levels of dopaminergic activity are related to the functions of the dorsolateral pre frontal cortex thus asserting a link between openness and intelligence. [14]

Neuroticism trait was the third highest amongst our study population (mean= 2.11) and only 10.9% of our students were found to be highly neurotic (table 3). It is known to be the best predictor of mental health. [15] Individuals high on the neurotic trait tend to be very sensitive to internal and external negative stimuli causing a fall in personal and professional

achievement. [9] It is said to be one of the fundamental traits along with extroversion and is related to the amygdala and is one of the traits that is modifiable and associated with changes in age. Neuroticism declines with age as shown by researchers. [3] In medical profession where one has to work constantly under pressure, being neurotic may have a negative impact on patient outcome as a neurotic doctor will be anxious and emotionally labile. [16]

A small percentage of our students are high extroverts (12% as seen in table 3) (mean 1.99) followed by agreeableness (mean= 1.67) and only 5% of the students are highly agreeable. Extroversion consists of attributes like energetic behaviour, sociability and being venturesome while agreeableness refers to the ease with which a person gets along with others. [17] Both these traits are related to communication which is the backbone of medical practice. Hence cultivation of these traits in medical students especially after the preclinical years would be advisable. Extroverts respond well to reward as seen by increased electrophysiological brain responses to positive stimuli which maybe the key to help nurture the trait of extroversion. [18] Research has proved that before the age of twelve, extroverted children outperform introverted children which may be attributed to the sociable and less competitive atmosphere of primary school. As age advances, some research has shown that introverts show higher achievement when compared to extroverts due to a lack of intensive socializing. Extroversion in the preclinical years may be avoidable in order to perform optimally academically and can be a trait to be cultivated in the subsequent years. An agreeable person is known to be a 'people person'. Such a person has trust in others, is compliant and is highly sympathetic. [9] These people though poor in leadership qualities, perform better in teams and as future doctors they need to inculcate this trait as agreeable people have an optimistic view of human nature. [16] Lack of agreeableness leads to an encounter with

barriers and obstacles which heightens anxiety levels which can be a deterrent to providing good patient care. [11]

Correlation of various personality traits are analyzed in table 2. It was found that neuroticism and agreeableness positively correlated with conscientiousness to a statistically significant level while extroversion and neuroticism were negatively correlated though not statistically significant. A study into the correlation of personalities helps us develop the perfect personality recipe for a model doctor. Personality traits are malleable and dynamic and change in response to age, maturity and circumstances. [19] High conscientiousness and agreeableness and low neuroticism, indicates the onset of maturity. [20] Conscientiousness is a trait that appears to be strong in the twenties while agreeableness increases in the thirties. [10] The traits of extroversion and openness show only a minor change with age. As these are traits needed for communication, special care must be taken to develop them. In the United Kingdom, the general medical council guidelines 'tomorrow's doctors' stresses on attitudes and behavioral development, a concept which should be adopted worldwide. [3] In our study we find that neuroticism has a highly positive association with conscientiousness. The reason maybe those neurotic learners always try to avoid the danger of making a mistake and feel more comfortable in doing assignments which require rote learning. This to a certain extent makes them conscientious. [21] Agreeable individuals also tend to be meticulous in their academic activities since poor academic performance would lead to disagreeableness with superiors and peers thus unconsciously inculcating the conscientiousness trait. More agreeable and conscientious students are also more empathetic making this the ideal combination of traits to have as a student of clinical medicine as seen by Panchu et al. [22,23]

## CONCLUSION

The findings of the present study suggest that we have a winning combination of personality traits in the preclinical years. Our students are high on conscientiousness and openness indicating that they are not just intelligent but hard working and well organized as well. But in the process of transformation from preclinical to clinical years, the focus must shift from academic orientation to good patient care. Hence these students are to be trained in such a manner that traits of agreeableness and extroversion can be incorporated into their personalities. The conclusions drawn from the present study cannot be generalized since the study population is limited to first year students. This study also points towards the urgent requirement of a multicentric follow up study to find out the ideal blend of personality traits for tomorrow's doctors.

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