

## Assessment of personality disorders in students appearing for medical school entrance examination

Muhammad Irfan,<sup>1</sup> Ayesha Sumera Abdullah,<sup>2</sup> Mifrah Rauf Sethi,<sup>3</sup> Urooj Saleem,<sup>4</sup> Muhammad Fazal Zeeshan,<sup>5</sup> Najib-ul-Haq<sup>6</sup>

### Abstract

**Objective:** To investigate personality disorders in medical students appearing for medical school entrance exam.

**Methods:** The cross-sectional study was conducted at Peshawar Medical College from August 2015 to May 2016, and comprised all the students who undertook medical school entrance examination of the College. They were asked to fill screening questionnaire of international personality disorder examination, based on International Classification of Disease version-10. Demographic information was collected from the application form. After screening of all the medical students during the entrance exam, detailed interview was taken from the students who were invited for admission interview. The data was analyzed using SPSS 20.

**Results:** There were 1334 subjects with a mean age of  $18.9 \pm 1.41$  years. Of the total, 745(55.8%) were male students. The most common personality traits were anankastic 1170(88%), schizoid 932(70%) and dependent 705(53%). Of the total, 322(24%) students were called for interview. The mean age of the interview sample was  $18.9 \pm 1.03$  years and 189 (58.7%) of them were females. Definite personality disorders in order of frequency were dependent 3(0.93%), schizoid 2(0.62%) and anankastic 1(0.31%). There was a significant correlation of female gender with histrionics, anxious, dependent and borderline personality disorder ( $p < 0.05$ ). There was a significant correlation between academic performance and dissociative, impulsive and borderline personality disorder separately ( $p < 0.05$ ).

**Conclusion:** Anankastic, schizoid and dependent personality traits and disorders were the commonest on screening and detailed interview.

**Keywords:** Personality disorders, Medical school, Entrance examination, International personality disorder examination, IPDE. (JPMA 68: 1763; 2018)

### Introduction

The term 'Personality' is derived from the Latin word 'Persona' which means a mask worn by theatre actors to represent their role and personality in the play. It refers to those enduring qualities of an individual that are shown in their ways of behaving in a wide variety of circumstances, and which we use to distinguish between people.<sup>1</sup> The resemblance of an individual's personality to his/ her parents could either be inherited or acquired through social learning.<sup>1</sup> However, for different cultures,

different sets of criteria with regard to social norms, rules and obligations may be needed for appropriate diagnosis.<sup>2</sup>

According to International Classification of Diseases Version 10 (ICD-10), personality disorders are enduring personality changes, comprise deeply-rooted and persistent behavioural patterns established as rigid responses to a range of personal and social situations.<sup>2</sup> These disorders reflect an individual's perspective of relating to one's self, others, and the characteristics of his/her lifestyle. They portray significant departure from the way an average person of a particular culture thinks, perceives and feels with regard to self and others and are commonly associated with personal distress and difficulties with social interaction. This assumes greater

<sup>1,3</sup>Department of Mental Health, Psychiatry and Behavioural Sciences,

<sup>2,4</sup>Department of Health Professions Education, <sup>5</sup>Prime Institute of Public Health/Department of Community Health Sciences, <sup>6</sup>Dean, Peshawar Medical College, Riphah International University, Islamabad - Pakistan.

**Correspondence:** Muhammad Irfan. e-mail: mirfan78@yahoo.com

importance in case of students because the emotional disturbance related to personality traits can adversely affect their academic performance.<sup>3</sup> Therefore, an early identification of these personality traits can avoid academic failure in students and assist in improving their performance.

Personality traits can deeply affect medical students' mental models of their workplace, academic goals and professional demeanour.<sup>4</sup> Negative personality traits and disorders have been reported to be associated with academic difficulties, employability, inter-personal relationships and poor quality of life of the individual and his/her family. They can not only adversely affect the performance of an individual, but can also contribute towards the development of major mental disorders. Moreover, personality disorder renders the treatment of a co-existing psychiatric or medical condition more complex, longer and less likely to be successful.<sup>5</sup> ICD-10 divides personality disorders into 9 subtypes i.e., paranoid, schizoid, dissocial, emotionally unstable-impulsive type, emotionally unstable-borderline type, histrionics, anxious (avoidant), anankastic and dependent personality disorders.<sup>2</sup> Emotionally unstable-impulsive type and emotionally unstable-borderline type are collectively called borderline personality disorder and dissocial personality disorder is called as antisocial personality disorder in Diagnostic and Statistical Manual of Mental Disorders (DSM-V).<sup>2</sup> In addition, few personality disorders as per DSM-V -- schizotypal and narcissistic - are categorised as mental disorder other than personality disorders in ICD-10.<sup>2</sup>

Personality assessment involves the administration, scoring and interpretation of empirically supported methods of personality traits' evaluation to improve clinical diagnosis and to increase the reliability of behavioural prediction in a variety of clinical, forensic, organisational and educational settings.<sup>6</sup> Commonly used personality disorder tests are Myers Briggs Type Indicator (MBTI), Revised Neo Personality Inventory (Neo Pi-R), International Personality Disorder Examination (IPDE), Minnesota Multiphasic Personality Inventory (MMPI), 16 Personality Factors (16PF), Thematic Apperception Test (TAT) and Rorschach Inkblot test. IPDE is one of the most frequently used tests.

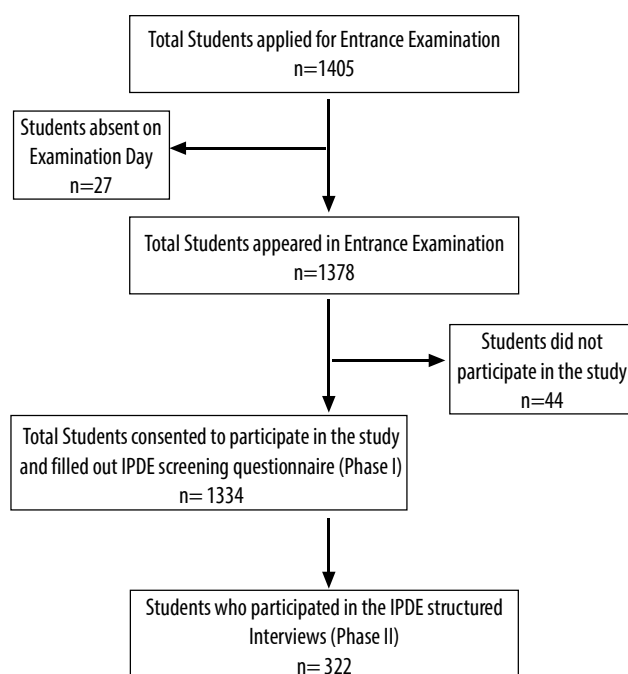
There are number of researches conducted on the assessment of personality in students. However, to our

knowledge, no significant studies have been reported on the assessment of personality disorders in students at entrance level in medical schools in this part of the world. The current study was conducted to assess personality disorders in students at a crucial stage of their higher education i.e. entrance exam. It is expected to guide institutional policies and academic planning with regard to mental health and academic performance of students.

## Subjects and Methods

The cross-sectional study was conducted at Peshawar Medical College (PMC) from August 2015 to May 2016, and comprised all the students who undertook medical school entrance examination of PMC and consented to participate in the study. IPDE based on ICD-10 screening questionnaire (IPDE-ICD-10) was administered to all the participants. After approval from the institutional ethics committee of Prime Foundation, Peshawar, the study was conducted in two phases i.e., the screening phase and the interview phase.

The subjects had applied for entrance test 2015. Those who consented were given IPDE questionnaire in the first phase, while the second phase comprised of only those students who were invited for admission interview. They also underwent IPDE structured interviews (Figure).



**Figure:** Flow diagram for the 1<sup>st</sup> and 2<sup>nd</sup> phase of the study.

The Cronbach's  $\alpha$  reliability for the IPDE screening was 0.744 and for IPDE interview, it was 0.877. IPDE is a tool developed by the World Health Organisation (WHO) and US National Institute of Health joint programme on psychiatric diagnosis and classification for the assessment and diagnosis of personality disorders. It is compatible with both ICD and DSM. The instrument is user-friendly and has been used in a variety of diverse cultural settings with stable psychometric characteristics. The IPDE screening questionnaire comprises 59 true-false questions covering the 9 personality disorders identified in ICD-10. In general, it takes 5-7 minutes to finish it. Those who score 3 and above in each type of personality in screening test, are requested to be interviewed based on IPDE. The questions of this interview are arranged under six headings: work; self; interpersonal relationships; affects; reality testing; and impulse control. Each question scores between zero and two points; zero when the behaviour or trait expressed in the question may be absent or normal, one point when it is exaggerated or highlighted, and two points when it is at criterion level or is pathological.

Each question assesses either a criterion or a partial criterion of a personality disorder in the ICD-10 classification system. The result of IPDE interview thus provides categorical diagnosis of personality disorders. The diagnosis is further divided into 3 sub-categories, i.e., definite, probable and negative. Those who get scores of 4 or more are referred to as definite, those who get 3 are considered probable, and those who get less than 3 score are considered negative diagnosis. The scores may reveal more than one personality trait/ disorder. A study found high reliability estimates for the IPDE, with intra-class coefficients ranging from 0.85 to 0.94 with a median of 0.88 for the ICD-10 Module.<sup>7</sup>

Data in the current study was analysed using SPSS 20. Analysis of the basic variables was carried out using descriptive statistics. Chi square test was used to assess any significant association between demographic variables and the type of personality. Spearman correlation was calculated between the type of personality and previous academic scores like matriculation, intermediate and Education Testing and Evaluation Agency (ETEA), Khyber Pakhtunkhwa.

## Results

A total of 1405 students had applied for the Entrance test,

out of whom 27(1.9%) were absent on the test date and 44(3.13%) did not fill the questionnaire. The sample, as such, stood at 1334 with a response rate of 96.8%. The overall mean age of the sample was  $18.9 \pm 1.41$  years, and there were 745(55.8%) male students (Table-1). The most common personality traits were anankastic 1170(88%), schizoid 932(70%) and dependent 705(53%). Based on the screening questionnaire, the participants were classified into 9 categories. The trait indicated in the first phase was further assessed in the second phase, and the difference of personality traits in the screening group and the interview group was analyzed. Paranoid and dissocial traits, were significantly different in the two groups ( $p < 0.05$ ) (Table-2).

There was a significant difference on paranoid and emotionally unstable-borderline type personality traits on male and female gender respectively ( $p < 0.05$ ). Age of the students showed a significant difference on histrionics traits towards the age range of below 20 years (Table-3). Statistically significant but weak negative correlation ( $-0.1$ ) was found independently between academic performance scores in matriculation, intermediate, ETEA and schizoid, dissocial and dependent personality traits. Generally, academic performance scores in ETEA had weak negative correlation ( $p < 0.01$ ) with all the traits except

**Table-1:** Demographic characteristics among study participants involved in IPDE Screening Questionnaire and Interviews.

Characteristics	IPDE Screening Questionnaire (n= 1334)	IPDE Interview Cases (n=322)
<b>Gender</b>		
Male	745 (55.8%)	133 (41.3%)
Female	589 (44.2%)	189 (58.7%)
<b>Age (in Years)</b>		
< 20	1029 (77.1%)	249 (77.3%)
>20	305 (22.9%)	73 (22.7%)
<b>Residence</b>		
Southern Khyber Pakhtunkhwa*	120 (9.0%)	47 (14.6%)
Northern Khyber Pakhtunkhwa**	1148 (86.1%)	234 (72.7%)
Outside Khyber Pakhtunkhwa***	66 (4.9%)	41 (12.7%)
<b>Birth Order</b>		
Eldest	NA	103 (32.0%)
Middle	NA	174 (54.0%)
Youngest	NA	45 (14.0%)

\* includes districts of Bannu, Dera Ismail Khan, Hangu, Karak, Kohat, Tank & Lakki Marwat.

\*\* includes districts of Abbottabad, Batagram, Buner, Malakand, Charsadda, Haripur, Pabbi, Kohistan, Dargai, Lower Dir, Mansehra, Mardan, Sakhakot, Nowshera, Peshawar, Shangla, Swabi & Swat.

\*\*\* includes Federally Administered Tribal Areas, Islamabad, Lahore, Dubai, Saudi Arabia, England & Afghanistan.

NA = Not available

IPDE: International personality disorder examination,

**Table-2:** Summary of the IPDE Screening Questionnaire and Interview groups.

Personality Traits#	IPDE Screening Questionnaire (n=1334)	IPDE Interview Cases (n=322)	Statistics z-scores
Paranoid	436 (32.7%)	85 (26.4%)	0.029*
Schizoid	932 (69.9%)	208 (64.6%)	0.067
Dissocial	271 (20.3%)	43 (13.4%)	0.004*
Impulsive	200 (15.0%)	40 (12.4%)	0.238
Borderline	190 (14.2%)	35 (10.9%)	0.111
Histrionic	588 (44.1%)	145 (45.0%)	0.756
Anankastic	1170 (87.7%)	274 (85.1%)	0.267
Anxious	481 (36.1%)	105 (32.6%)	0.246
Dependent	705 (52.8%)	160 (49.7%)	0.307

\*p-value &lt; 0.05

# More than one personality trait can possibly exist, so the total may not add up.

IPDE: International personality disorder examination

**Table-3:** Demographic Associations with IPDE Screening Group (n=1334).

Personality Traits #	Gender		p-values	Age		p-values
	Male (n=749)	Female (n=585)		<20 years (n=1029)	>20 years (n=305)	
Paranoid	260*	176	0.05	346	90	0.32
Schizoid	516	416	0.59	709	223	0.35
Dissocial	155	116	0.62	204	67	0.56
Impulsive	106	94	0.38	166	34	0.09
Borderline	94	96*	0.05	150	40	0.53
Histrionic	324	264	0.63	470*	118	0.04
Anankastic	662	508	0.15	901	269	0.90
Anxious	259	222	0.27	380	101	0.48
Dependent	396	309	0.80	560	145	0.08

\*p-value &lt; 0.05

# More than one personality trait can possibly exist, so the total may not add up.

IPDE: International personality disorder examination

**Table-4:** Academic performance scores association with Personality traits using Spearman correlation test among IPDE screening questionnaire (n=1334).

Personality Traits	Academic Performance Scores (P)		
	Matriculation	Intermediate	ETEA
Paranoid	-0.042	-0.042	-0.079**
Schizoid	-0.130**	-0.136**	-0.097**
Dissocial	-0.086**	-0.096**	-0.097**
Impulsive	0.021	-0.002	-0.097**
Borderline	-0.023	-0.051	-0.115**
Histrionic	0.035	0.018	-0.052
Anankastic	-0.031	-0.028	-0.036
Anxious	-0.079**	-0.032	-0.076**
Dependent	-0.077**	-0.085**	-0.157**

\*\* = p&lt;0.01

ETE A= Education Testing and Evaluation Agency, Khyber Pakhtunkhwa

IPDE: International personality disorder examination

histrionics and anankastic (Table-4).

Of the total, 322(24%) students were called for interview in the second phase. The mean age of the interview sample was 18.9 ± 1.03 years and 189 (58.7%) of them were

**Table-5:** Demographic description of Personality Disorder in IPDE Interview Group by gender, age and birth order (n=322).

Personality Disorders#	Gender		Age		Birth Order		
	Male	Female##	<20 years	>20 years	Eldest	Middle	Youngest
Paranoid	N 35	50	81	4	22	49	14
Schizoid	D 1	1	1	1	1	1	--
	N 79	127	163	43	61	114	31
Dissocial	N 16	27	41	2	13	21	9
Emotionally Unstable	P 1	--	1	--	--	--	1
Impulsive Type	N 11	28	30	9	13	22	4
Emotionally Unstable	P --	1	1	--	--	1	--
Borderline Type**	N 8	26	26	8	11	18	5
Histrionic**	N 50	95	141	4	48	77	20
Anankastic	D 1	--	1	--	--	1	--
	P 3	2	3	2	1	4	--
	N 112	156	207	61	84	144	40
Anxious*	P --	1	1	--	--	--	1
	N 33	71	80	24	34	54	16
Dependent*	D --	3	3	--	--	1	2
	P 1	3	4	--	2	1	--
	N 56	97	120	33	40	96	18

\*p&lt;0.05, \*\* = p&lt;0.01

--=No case identified

# More than one personality trait/ disorder can possibly exist, so the total may not add up.

## Correlation with personality disorder

Note: D= Definite diagnosis, P= Probable diagnosis, N= Negative diagnosis.

Excluding the sub categories (D and P) where no single case is identified in entire group IPDE: International personality disorder examination.

females. Seven definite (D) cases were identified based on IPDE structured interviews. Of them, 3(43%) cases were dependent, 2(28.5%) schizoid, and 1(14.2%) case each of emotionally unstable-impulsive type and anankastic. Besides, 10 probable (P) cases were also diagnosed. Of them, 5(50%) were anankastic, 3(30%) dependent, 1(10%) emotionally unstable-borderline type and 1(10%) anxious. A significant correlation of female gender was found in the second phase with emotionally unstable-borderline type, histrionic, anxious and dependent personality independently (Table-5).

## Discussion

Personality assessment at medical school entrance level is of paramount importance. For the selection of a profession that heavily depends on interpersonal relationships, the visible absence of personality assessment from all aptitude and competence assessment test in most of our academic settings is a huge paradox. Moreover, the intricately challenging environment of the medical schools, the 'hidden curriculum', can render the students vulnerable to worsen their existing negative traits or to

develop new personality and mental health problems.<sup>8</sup> A number of studies have reported that personality factor not only plays an important role in the selection of medicine as a field of future education by students, but later on during the course of their study, personality traits can deeply affect their academic and professional performance.<sup>9,10</sup>

The results of the current study show that dependent personality disorder was the most common definite diagnosis while there were no definite cases of paranoid, dissocial and histrionics personality disorders. A study conducted in Thailand on medical students showed that emotionally unstable-impulsive type, histrionic, anankastic disorders were more common.<sup>11</sup> Another study showed that using ICD-10-based IPDE, dissocial was the most commonly diagnosed personality disorder, while histrionics was the least common.<sup>12</sup> A preliminary study on personality disorders based on ICD-10 IPDE, conducted in Lahore, concluded that the most prevalent personality disorder was emotionally unstable-borderline type.<sup>13</sup> A study conducted in Greece reported antisocial (dissocial) and borderline (emotionally unstable-borderline type) as the most prevalent personality disorders.<sup>14</sup> Similarly, a study conducted in Australian community showed anankastic to be the most prevalent disorder.<sup>15</sup> Dependent personality disorder was found more in females while emotionally unstable-impulsive type and anankastic personality disorders were found in males in our study. A study, on the other hand, reported anxious personality disorders to be more common in females and rest of the personality disorders in males.<sup>16</sup> Results of another study related to medical students indicated a prevalence of personality disorders in the range of 0-16% for males, and approximately 1-26% for females.<sup>17</sup> A study showed that antisocial and borderline personality disorders were more prevalent in younger age groups, in men, while some disorders like obsessive-compulsive (anankastic) and dependent showed no individual association with demographic characteristics.<sup>16</sup> Our study showed that most of the students with personality disorder were in the younger age group (<20 years), but there was no correlation of age with any specific personality disorder.

The current study shows a significant correlation of male gender with paranoid and female gender with emotionally unstable-borderline type personality traits, respectively. However, in another study, dissocial and dependent personality traits were found more frequently in male and

female gender, respectively.<sup>18</sup> Antisocial personality traits are reported to be more prevalent in men may be due to high level of assertiveness.<sup>19</sup> In addition, females have been reported to be more anxious than males.<sup>20</sup> In our study, the younger age group showed a significant correlation with emotionally unstable-impulsive type, histrionics and dependent personality traits, while one study reported that the prevalence of borderline, histrionics and antisocial traits was higher in young rather than old age.<sup>12</sup>

There is increasing trend to assess the personality of applicants at the time of admission to a medical school, as both cognitive and non-cognitive virtues are required for an undergraduate medical student to become a competent doctor and safe professional.<sup>21</sup> Students with personality disorders can have problems with their academic performance during their studies and our results also showed a significant correlation between academic performance and schizoid, dissocial and dependent personality traits with all the three academic variables of our study i.e., matriculation, intermediate and ETEA.

A recent systematic review on the factors influencing postgraduate student's (resident) performance highlighted several studies in which personality characteristics correlated with their academic performance.<sup>22</sup> However, our findings were about correlation between academic performances and personality traits, but many other studies have gone beyond that and used various personality measures in an effort to reveal that it is not only possible to predict academic performance in medical school,<sup>23</sup> but also to predict the career interest of medical students,<sup>9,10</sup> and patient outcomes.<sup>24,25</sup>

We will prospectively follow the admitted students and at the end of their undergraduate education, their personality will be re-evaluated along with their academic performances and speciality choices.

In terms of limitations, the study was conducted at only one private-sector undergraduate medical institution, so the results may not very aptly represent other public and private undergraduate medical schools. To investigate the predictive value, stability, and reliability of personality assessment and its impact on professional competence of medical students and their career choices, a longitudinal cohort study of a minimum of five years is needed, and therefore, we intend to follow this cohort of students during the course of their five-year MBBS programme and later-on till their entrance into various specialties.

## Conclusion

Anankastic, schizoid and dependent personality traits and disorders were the commonest on screening and subsequent detailed interview. In view of the possibility of worsening of existing negative traits and development of new disorders, a baseline personality assessment and follow-up is recommended for all undergraduate health professional education institutions.

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