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Original Article

Psychiatry/Mental Health Section

Proportion of Psychiatry Outpatients with Borderline Personality and Associated Clinical Syndromes using the Millon Clinical Multiaxial Inventory-III: A Retrospective Study

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ABSTRACT

Introduction: Personality disorders are a group of behavioural patterns associated with significant personal and socio-occupational disturbances. Numerous studies have demonstrated borderline personality to be one of the most common personality disorders. It's less often diagnosed with just a clinical assessment.

Aim: To examine the proportion of patients with Borderline Personality Disorder (BPD), and its associated personality types and clinical syndromes, using the Millon Clinical Multiaxial Inventory version-III (MCMI-III).

Materials and Methods: A retrospective observational study was carried out on 450 adult patients who attended the psychiatry outpatient department of an urban tertiary care hospital. They had been administered the MCMI-III, a self-rating questionnaire commonly used to provide information on personality types and associated clinical syndromes. Statistical Package for the Social Sciences (IBM SPSS, Windows) version 20.0 was used for statistical analyses. Data was expressed in terms of actual number, mean and percentages. Chi-Square or Fisher's-exact test, as appropriate, was used for categorical data to test for associations. Odds ratio was estimated to measure strength of the association.

Results: Borderline was the most common personality type comprising nearly half (46.63%) of the study population. 25.5% had borderline traits while 21.1% had Borderline Personality Disorder (BPD). BPD was significantly higher in females ($p<0.001$), younger age group below the age of 40 years ($p<0.001$) and unmarried persons ($p<0.001$). It was comorbid most with Anxiety (90.91%; OR=4.05; $p<0.001$), Major Depression (85.23%; OR=18.39; $p<0.001$), Post Traumatic Stress Disorder (PTSD) (46.59%; OR=6.30; $p<0.001$) and Thought disorders (56.82%; OR=18.15; $p<0.001$). Alcohol (22.73%; OR=3.54; $p<0.001$) and Drug dependence (13.64%; OR=11.52; $p<0.001$) were also seen significantly higher in patients with BPD. Personality types significantly comorbid with BPD were Sadistic, Depressive, Masochistic, Negativistic, Schizotypal, Avoidant, Dependent, Antisocial and Paranoid types, with odds being most for Sadistic personality (OR=9.44).

Conclusion: It is recommended that mental health professionals and clinicians should start to look for underlying symptoms of BPD in patients of anxiety and mood syndromes. If found these patients should be directed for psychotherapy as early as possible. The MCMI psychological test would be an important contribution to this area, given the need for systematic, quick, and objective testing methods that facilitate the diagnosis.

Keywords: Mental health, Personality disorder, Surveys and questionnaires, Tertiary care centres

INTRODUCTION

Personality disorders are a set of persistent, maladaptive, behavioural patterns, often associated with significant personal and socio-occupational disturbances. These may result in severe mental illnesses, like anxiety disorders and depression, which have a pervasive negative impact upon a person's quality of life [1-4]. Personality disorders are estimated to occur in at least 10% of the population and are associated with high rates of separation and divorce; unemployment and inefficiency; and poor quality of life for the individual and his/her family. Thus, personality disorders leads to disturbance in functioning as that seen in major mental disorder [2-7]. For many years, patients with personality disorders sought help from primary care physicians for physical complaints, rather than seeking psychiatric help. It is only recently that interest in this field has increased [4,5]. Studies using standardised interviews have consistently diagnosed almost half (or even more) of the patients coming for psychiatric consultation with a personality disorder, thus making these as a group, among the most frequent disorders treated by psychiatrists [3].

Many studies have shown Borderline Personality Disorder (BPD) to be one of the most common personality disorders [8-15]. BPD is characterised by an unstable sense of self, unstable relationships, mood swings, feelings of emptiness and an extreme fear of abandonment which typically begins by early adulthood [4,16,17]. About 1.6% (range 1-2%) of people are diagnosed with BPD in a year. Females are diagnosed about three times more often than males. BPD is most commonly found in the younger age groups and becomes less common as people grow older [7,10,15]. Depression and substance abuse are commonly found in people with BPD and they typically use a high amount of healthcare resources [2,7,10,15,17,18]. BPD increases the risk of self-harm and has an increased risk of mortality through suicide. The treatment of other co-existing psychiatric or medical conditions in people with BPD is frequently more complicated, lengthier, or less successful. This could be a fallout of the relative lack of recognition of this disorder [4-6].

Studies have shown that BPD is much less frequently diagnosed with an unstructured clinical evaluation than with a semi-structured diagnostic interview [3,6]. BPD was more likely to be identified by treating doctors when the evidence from semi-structured interviews was accessible to them [3,6]. A number of standardised assessment instruments for the diagnosis and measurement of

personality disorders are now available for clinical and research use, e.g., Minnesota Multiphasic Personality Inventory (MMPI), Multidimensional Personality Questionnaire (MPQ), Myers-Briggs Type Indicator (MBTI), International Personality Disorder Examination (IPDE), etc., [19,20]. Millon Clinical Multiaxial Inventory version III (MCMI-III) is a self-rating questionnaire which is frequently utilised by many doctors to screen for psychological disorders. Some of the advantages of this test are: 1) it is relatively concise; 2) easy to administer; 3) good correlation with the Diagnostic and Statistical Manual of Mental Disorders (DSM)-IV, which is a diagnostic classification; 4) able to discern clinical population from non-clinical ones [17,19,20].

On review of literature, it was found that there are very few studies which are done on BPD using the MCMI-III [21]. Thus, the aim of the present study was to examine the proportion of patients with BPD, and their associated personality types and clinical syndromes, using the MCMI-III, in patients attending the outpatient department of an urban tertiary care hospital.

MATERIALS AND METHODS

This study was a retrospective observational survey carried out in the psychiatry outpatient department of an Urban Tertiary Care Hospital and Medical Research Institute at Mumbai, India. Permission from Institutional Ethics Committee of the Hospital and Medical Research Institute (IEC Code:C-3/51/2017) was obtained prior to the conduction of this study. Patient's participation was kept entirely confidential and privacy of the data was maintained. A request for waiver for informed consent form to be obtained from the participants was granted by the Ethics Committee.

All 450 English speaking adult patients of either sex for whom psychological testing was done using the MCMI-III between January 2014 to December 2017 were taken up for the study. The MCMI-III is used often for the assessment of personality disorders and associated clinical syndromes in sample populations. MCMI-III is a 175-item true-false inventory which has been translated into many languages. It can be used for persons with age range of 18 and older with reading level of at least 8th grade. The administration pattern of the test was paper-and-pencil type (but now-a-days computer or online administration of the test can also be done). Completion time of test is approximately 25-30 minutes. Scoring was done manually (now-a-days web-based software is also available). The reports were of interpretive (but they can also be of profile) type. MCMI-III is one of the most suitable psychological tests for patients having psychological disorders, as it has a good consistency (0.66-0.90) with DSM-IV diagnostic criteria with high reliability (0.82-0.96) and validity (0.67-0.94), especially for measuring personality disorders [19].

The test is scored upon the following variables-three modifier indices and 24 clinical scales derived from Millon's personality theory and paralleling Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) Axis I and Axis II diagnostic categories [19]. Scoring is done using Base Rate (BR) scores which are used to determine the diagnostic validity of any category. They tell how a person responds to a question on the test. There are two main reasons for using BR: 1) there is difference in prevalence rate of various disorders; and 2) to make the most of the diagnostic efficiency of the MCMI scales and maximise the ratio of true positives to false positives [19]. The three Modifier (Validity) indices are X, Y and Z. The modifiers serve to identify the respondent's Disclosure Index (X), Desirability Index (Y), and Debasement Index (Z). For example, if BR score of Scale X is below 34 - it means, there is defensive under reporting and the profile is invalid. But if the BR score of Scale X is above 178 - it means, there has been an exaggeration of symptoms and again the profile is invalid. Scale Y measures of defensive responding, a score above 75 indicates presenting self in an overly positive, moral, emotionally stable, gregarious manner, also known as "faking good"; and higher the score, the more the person is concealing the facts. Scale Z is opposite to that from Desirability Index (Y). BR scores above 75 mean that the self-description is negative and pathological. Scores above 85 means "faking bad" and it could signify a cry for help [19].

The 24 Clinical Scales of the MCMI Include

- **11 Moderate personality pathology scales-** Schizoid (1), Avoidant (2A), Depressive (2B), Dependent (3), Histrionic (4), Narcissistic (5), Antisocial (6A), Sadistic (6B, also known as Aggressive), Compulsive (7), Negativistic (8A, also known as Passive-Aggressive) and Masochistic (8B, also known as Self-Defeating).
- **3 Severe personality pathology scales** representing greater levels of personality pathology. They are Schizotypal (S), Borderline (C) and Paranoid (P).
- **7 Moderate clinical syndromes:** Anxiety (A), Somatoform (H), Bipolar Mania (N), Dysthymia (D), Alcohol Dependence (B), Drug Dependence (T) and Post-Traumatic Stress Disorder (R)
- **3 Severe clinical syndromes:** Thought Disorder (Ss), Major Depression (Cc) and Delusional Disorder (Pp)

For the personality scales- BR scores of 75-84 signify presence of clinically significant personality traits while BR score of 85 and above signifies a personality disorder.

For the scales of the clinical syndromes- BR scores of 75-84 signifies presence of a clinical syndrome while BR score of 85 and above signifies prominence of the syndrome, and it being a persistent and significant clinical concern [19,20,22].

Patients whose test results were invalid were excluded from the study. Data of case record forms of the sample patients including socio-demographic details and scores of the MCMI-III were collected and tabulated. The MCMI-III test results of 34 patients were found to be invalid. The MCMI test result is considered invalid, if any of the following conditions are met: 1) The raw score on Scale X (Disclosure) is less than 34 or greater than 178. Scores this extreme indicate that the respondent may have over or under reported significant symptoms to such a degree that the results cannot be interpreted; 2) The raw score on the Invalidity scale (V) is greater than 1 or the raw score on the Inconsistency scale (W) is greater than 9. Scales V and W work in conjunction to help detect random responding; 3) None of the BR scores on the Clinical Personality Scales (1 through 8B) are above 59. In this case, no clear personality pattern emerges from the test data and therefore no interpretation should be attempted [19].

The data of the remaining 416 patients was analysed bio-statistically. Since the aim of the study was also to see for any comorbid personality and clinical syndromes associated with BPD in the sample population, to compare and contrast the significance of these associations, the data was further segregated and studied as follows:

- Those with BR score less than 75 (on the Borderline Personality scale)=Control Group
- Those with BR score between 75-84 (on the Borderline Personality scale)=Borderline Personality Traits group
- Those with BR score more than 85 (on the Borderline Personality Scale)=BPD group

STATISTICAL ANALYSIS

Data were anonymized for analyses. The Statistical Package for the Social Sciences (IBM SPSS, Windows) software version 20.0 was used for statistical analyses. Descriptive statistics were used to summarise the data. Data was expressed in terms of actual number, mean and percentages. Chi-Square or Fisher's-exact test, as appropriate was used for categorical data to test for the associations. Odds ratio was estimated to measure the strength of the association. p-value less than 0.05 was taken to be statistically significant and that less than 0.001 to be highly significant.

RESULTS

Demographic distribution of sample population [Table/Fig-1]: Age range of sample patients was 18 to 71 years. Majority consisted of women (61.54%), married persons (58.41%), young adults (77.40%), and those working in the service industry (40.38%).

Clinical syndromes in sample population [Table/Fig-2]: Anxiety (81.01%) was the most common moderate clinical syndrome while Major Depression (46.15%) was the most common severe clinical syndrome in the sample population. Anxiety was found to be more common in males (M=86.25%; F=77.73%) while Major Depression was found to be more common in females (F=54.30%;M=33.12%). Alcohol use was seen more in males (M=23.12%;F=5.86%).

Moderate Personality types in sample population [Table/Fig-3]: The most frequent moderate personality type in the sample population was the Depressive type (51.92%). It was most common in males (M=58.12%;F=48.05%). In females, the most common moderate personality type was the Masochistic/Self-Defeating type(F=49.61%;M=36.25%).

Severe Personality types in sample population [Table/Fig-1,3]: Nearly half (46.63%) of the sample population had borderline personality. 25.48% had Borderline personality traits (n=106), while 21.15% had Borderline personality disorder (BPD) (n=88) [Table/Fig-1,3].

Personality types comorbid with Borderline personality [Table/Fig-4,5]: Depressive (66.04%), Masochistic/Self-Defeating (56.60%), Negativistic/Passive-Aggressive (45.28%) were very significantly associated (p<0.001) with Borderline traits [Table/Fig-4].

[Table/Fig-5] highlights that eleven personality types were found to be significantly comorbid with BPD were depressive (78.41%), masochistic/self-defeating (70.45%), negativistic/passive-aggressive (68.18%), schizotypal (39.77%), sadistic (45.45%), antisocial (30.68%), paranoid (47.73%), avoidant (50%) and dependent (54.55%). Except for avoidant and dependent personality, there was very significant association (p <0.001) found between them. There was significant but negative (odds ratio <1) association found between Histrionic and Compulsive Personalities with BPD.

Maximum odds increase between the two groups (Borderline Traits vs BPD) was seen for Sadistic Personality (1.8→9.4).

Clinical Syndromes associated with Borderline personality [Table/Fig-6,7]: [Table/Fig-6] highlights that seven clinical syndromes were found to be significantly comorbid with Borderline traits, namely, Anxiety, Major Depression, Bipolar Mania, Dysthymia, Thought disorder, Somatoform Disorder and Post-traumatic Stress Disorder (PTSD).

Variable		Borderline personality disorder (BR score >85) (n=88)	Borderline personality traits (BR score 75-84) (n=106)	Controls (BR score <75) (n=222)	Total (n=416)	χ^2 (df)	p-value
Age (Years)	Total sample	18-60 years Mean=28.72 SD=7.71	18-71 years Mean=32.06 SD=10.82	18-71 years Mean=35.32 SD=11.29	18-71 years Mean=33.09 SD=10.84	16.48 (2)	< 0.001
	18-39 years Young adults	80 (90.91%)	86 (81.13%)	156 (70.27%)	322 (77.40%)		
	40 + years Middle age and Elderly	8 (9.09%)	20 (18.87%)	66 (29.73%)	94 (22.60%)		
Gender	Male	19 (21.59%)	40 (37.74%)	101 (45.50%)	160 (38.46%)	15.25 (2)	< 0.001
	Female	69 (78.41%)	66 (62.26%)	121 (54.50%)	256 (61.54%)		
Occupation	Student	12 (13.64%)	26 (24.53%)	27 (12.16%)	65 (15.63%)	13.75 (4)	0.088
	Service	36 (40.91%)	36 (33.96%)	96 (43.24%)	168 (40.38%)		
	Homemaker	12 (13.64%)	19 (17.92%)	33 (14.87%)	64 (15.38%)		
	Self-employed	21 (23.86%)	23 (21.70%)	56 (25.23%)	100 (24.04%)		
	Unemployed	7 (7.95%)	2 (1.89%)	10 (4.50%)	19 (4.57%)		
Marital Status	Married	42 (47.73%)	52 (49.06%)	149 (67.12%)	243 (58.41%)	14.88 (2)	<0.001
	Unmarried	46 (52.27%)	54 (50.94%)	73 (32.88%)	173 (41.59%)		

[Table/Fig-1]: Demographic distribution of sample population.
χ^2=Chi Square value; df: Degree of freedom; SD: Standard deviation; BR: Base rate; p-value less than 0.05 statistically significant

Clinical syndromes		Male (n=160)	Female (n=256)	Total (n=416)
Moderate	Dysthymia	116 (72.5%)	125 (48.83%)	241 (57.93%)
	Anxiety	138 (86.25%)	199 (77.73%)	337 (81.01%)
	PTSD	37 (23.12%)	55 (21.48%)	92 (22.11%)
	Bipolar Manic	36 (22.5%)	59 (23.05%)	95 (22.84%)
	Somatoform	21 (13.12%)	68 (26.56%)	89 (21.39%)
	Alcohol	37 (23.12%)	15 (5.86%)	52 (12.50%)
	Drug dependence	8 (5%)	13 (5.08%)	21 (5.05%)
Severe	Major depression	53 (33.12%)	139 (54.3%)	192 (46.15%)
	Thought disorder	37 (23.12%)	54 (21.09%)	91 (21.87%)
	Delusional disorder	18 (11.25%)	64 (25%)	82 (19.71%)

[Table/Fig-2]: Clinical Syndromes in the sample population.
*PTSD: Post-traumatic stress disorder; *BR (Base rate)=75 and above

Persons with BPD were found to be significantly younger (90.91% below age 40 years), unmarried (52.27%) and females were more than males (F=78.41%; M=21.59%) [Table/Fig-1].

Personality types		Male (n=160)	Female (n=256)	Total (n=416)
Moderate	Negativistic	82 (51.25%)	87 (33.98%)	169 (40.62%)
	Masochistic	58 (36.25%)	127 (49.61%)	185 (44.47%)
	Dependent	86 (53.75%)	107 (41.8%)	193 (46.39%)
	Schizoid	75 (46.87%)	92 (35.94%)	167 (40.14%)
	Depressive	93 (58.12%)	123 (48.05%)	216 (51.92%)
	Avoidant	87 (54.37%)	92 (35.94%)	179 (43.03%)
	Sadistic	23 (14.37%)	50 (19.53%)	73 (17.55%)
	Antisocial	19 (11.87%)	44 (17.19%)	63 (15.14%)
	Narcissistic	24 (15%)	70 (27.34%)	94 (22.6%)
	Histrionic	2 (1.25%)	23 (8.98%)	25 (6%)
	Compulsive	2 (1.25%)	10 (3.91%)	12 (2.88%)
Severe	Borderline	59 (36.87%)	135 (52.73%)	194 (46.63%)
	Paranoid	22 (13.75%)	70 (27.34%)	92 (22.11%)
	Schizotypal	35 (21.87%)	39 (15.23%)	74 (17.79%)

[Table/Fig-3]: Personality Types in the sample population.
BR (Base rate)=75 and above

Personality type	Cases (Traits) (n=106)		Controls (n=222)		χ^2 (df=1)	p-value	Odds ratio
	Present	Absent	Present	Absent			
Depressive	70 (66.04%)	36 (33.96%)	77 (34.68%)	145 (65.32%)	28.517	<0.001	3.662
Masochistic	60 (56.60%)	46 (43.40%)	63 (28.38%)	159 (71.62%)	24.387	<0.001	3.292
Negativistic	48 (45.28%)	58 (54.72%)	61 (27.48%)	161 (72.52%)	10.251	<0.001	2.184
Schizotypal	18 (16.98%)	88 (83.02%)	21 (9.46%)	201 (90.54%)	3.874	0.049	1.958
Sadistic	15 (14.15%)	91 (85.85%)	18 (8.11%)	204 (91.89%)	2.895	0.089	1.868
Antisocial	16 (15.09%)	90 (84.91%)	20 (9.01%)	202 (90.99%)	2.719	0.099	1.796
Avoidant	53 (50%)	53 (50%)	82 (36.94%)	140 (63.06%)	5.055	0.025	1.707
Dependent	56 (52.83%)	50 (47.17%)	89 (40.09%)	133 (59.91%)	4.721	0.030	1.674
Paranoid	21 (19.81%)	85 (80.19%)	29 (13.06%)	193 (86.94%)	2.529	0.112	1.644
Schizoid	43 (40.57%)	63 (59.43%)	84 (37.84%)	138 (62.16%)	0.225	0.635	1.121
Narcissistic	21 (19.81%)	85 (80.19%)	47 (21.17%)	175 (78.83%)	0.081	0.776	0.919
Histrionic	3 (2.83%)	103 (97.17%)	20 (9.01%)	202 (90.99%)	4.201	0.062*	0.294
Compulsive	1 (0.94%)	105 (99.06%)	11 (4.95%)	211 (95.05%)	3.276	0.112*	0.183

[Table/Fig-4]: Personality types comorbid with borderline personality traits.
*Fishers-exact Test; χ^2=Chi-square value; df: Degree of freedom; p-value <0.05 statistically significant

Personality type	Cases (BPD) (n=88)		Controls (n=222)		χ^2 (df=1)	p-value	Odds ratio
	Present	Absent	Present	Absent			
Sadistic	40 (45.45%)	48 (54.55%)	18. (8.11%)	204 (91.89%)	57.792	<0.001	9.444
Depressive	69 (78.41%)	19 (21.59%)	77 (34.68%)	145 (65.32%)	48.356	<0.001	6.839
Schizotypal	35 (39.77%)	53 (60.23%)	21 (9.46%)	201 (90.54%)	39.124	<0.001	6.321
Paranoid	42 (47.73%)	46 (52.27%)	29 (13.06%)	193 (86.94%)	42.885	<0.001	6.076
Masochistic	62 (70.45%)	26 (29.55%)	63 (28.38%)	159 (71.62%)	46.365	<0.001	6.018
Negativistic	60 (68.18%)	28 (31.82%)	61 (27.48%)	161 (72.52%)	43.876	<0.001	5.656
Antisocial	27 (30.68%)	61 (69.32%)	20 (9.01%)	202 (90.99%)	23.013	<0.001	4.470
Dependent	48 (54.55%)	40 (45.45%)	89 (40.09%)	133 (59.91%)	5.339	0.021	1.793
Avoidant	44 (50%)	44 (50%)	82 (36.94%)	140 (63.06%)	4.458	0.035	1.707
Narcissistic	26 (29.55%)	62 (70.45%)	47 (21.17%)	175 (78.83%)	2.455	0.117	1.561
Schizoid	40 (45.45%)	48 (54.55%)	84 (37.84%)	138 (62.16%)	1.523	0.217	1.369
Histrionic	2 (2.27%)	86 (97.73%)	20 (9.01%)	202 (90.99%)	4.337	0.047*	0.235
Compulsive	0	88 (100%)	11 (4.95%)	211 (95.05%)	4.521	0.038*	0

[Table/Fig-5]: Personality types comorbid with Borderline Personality Disorder (BPD).
*Fishers-exact Test; χ^2=Chi-square value; df: Degree of freedom; p-value less than 0.05 statistically significant

Clinical syndromes	Cases (Traits) (n=106)		Controls (n=222)		χ^2 (df=1)	p-value	Odds ratio
	Present	Absent	Present	Absent			
Anxiety	99 (93.40%)	7 (6.60%)	158 (71.17%)	64 (28.83%)	20.894	<0.001	5.729
Major depression	64 (60.38%)	42 (39.62%)	53 (23.88%)	169 (76.12%)	41.661	<0.001	4.859
Thought disorder	26 (24.53%)	80 (75.47%)	15 (6.76%)	207 (93.24%)	20.717	<0.001	4.485
Drug dependence	6 (5.66%)	100 (94.34%)	3 (1.35%)	219 (98.65%)	4.992	0.063*	4.380
Bipolar manic	29 (27.36%)	77 (72.64%)	21 (9.46%)	201 (90.54%)	17.790	<0.001	3.605
Somatoform	26 (24.53%)	80 (75.47%)	21 (9.46%)	201 (90.54%)	13.271	<0.001	3.111
Dysthymia	72 (67.93%)	34 (32.07%)	101 (45.50%)	121 (54.50%)	14.480	<0.001	2.537
Post-traumatic stress disorder	24 (22.64%)	82 (77.36%)	27 (12.16%)	195 (87.84%)	6.000	0.014	2.114
Alcohol	15 (14.15%)	91 (85.85%)	17 (7.66%)	205 (92.34%)	3.436	0.064	1.988
Delusional	16 (15.10%)	90 (84.90%)	52 (23.42%)	170 (76.58%)	3.029	0.082	0.581

[Table/Fig-6]: Clinical Syndromes comorbid with Borderline Personality Traits.
*Fishers-exact Test; χ^2=Chi-square value; df: Degree of freedom; p-value less than 0.05 statistically significant

[Table/Fig-7] highlights that, in addition to the seven clinical syndromes mentioned in the borderline traits group above, Drug Use and Alcohol Dependence were found to be significantly comorbid with BPD as compared to borderline traits.

Clinical syndromes whose odds ratio significantly increased in BPD group when compared to borderline traits were Major Depression, Thought Disorder, Bipolar Mania, Somatoform Disorder and PTSD. The odds increased most for Major Depression (4.8→18.3) and Thought Disorder (4.4→18.1).

DISCUSSION

Clinical Syndromes in sample population

The findings in this study were similar to those in the study by Dadfar M and Lester D, Eftekhar AM et al., who studied 4000 files of Iranian psychiatric outpatients at Tehran Institute of Psychiatry Clinic during the years of 1996-2000 found in their study that 35.6% had comorbid psychiatric disorders with Major Depression being the most frequent [21,23].

Clinical syndromes	Cases (BPD) (n=88)		Controls (n=222)		χ^2 (df=1)	p-value	Odds ratio
	Present	Absent	Present	Absent			
Major depression	75 (85.23%)	13 (14.77%)	53 (23.88%)	169 (76.12%)	97.857	<0.001	18.396
Thought disorder	50 (56.82%)	38 (43.18%)	15 (6.76%)	207 (93.24%)	95.307	<0.001	18.158
Drug dependence	12 (13.64%)	76 (86.36%)	3 (1.35%)	219 (98.65%)	20.655	<0.001*	11.526
Bipolar manic	45 (51.14%)	43 (48.86%)	21 (9.46%)	201 (90.54%)	65.321	<0.001	10.017
Somatoform	42 (47.73%)	46 (52.27%)	21 (9.46%)	201 (90.54%)	56.994	<0.001	8.739
Post-traumatic stress disorder	41 (46.59%)	47 (53.41%)	27 (12.16%)	195 (87.84%)	43.623	<0.001	6.300
Dysthymia	68 (77.27%)	20 (22.73%)	101 (45.50%)	121 (54.50%)	25.664	<0.001	4.073
Anxiety	80 (90.91%)	8 (9.09%)	158 (71.17%)	64 (28.83%)	13.769	<0.001	4.051
Alcohol	20 (22.73%)	68 (77.27%)	17 (7.66%)	205 (92.34%)	13.616	<0.001	3.547
Delusional	14 (15.91%)	74 (84.09%)	52 (23.42%)	170 (76.58%)	2.123	0.145	0.619

[Table/Fig-7]: Clinical Syndromes comorbid with Borderline Personality Disorder (BPD).
* Fishers-exact Test; χ^2=Chi-square value; df: Degree of freedom; p-value less than 0.05 statistically significant

These findings give lot of insight into how the genders react to stressful situations e.g., Anxiety and Alcohol use were seen more in males while Somatoform Disorders and Major Depression were seen more in females. An almost universal observation, independent of country or culture, is the two-fold greater prevalence of major depression in women than in men [24]. In epidemiological studies, females are generally more affected with Anxiety disorders than males but in clinical samples the reverse is often true. The reasons for these varying observations are not known [25].

Personality types in sample population

In this study, the most frequent moderate personality type in females was the Masochistic/Self-Defeating type, while in males, it was the Depressive type. These findings were similar to those found in the study by Dadfar M and Lester D [21].

The most common severe personality type in the sample population was the Borderline type. It comprised nearly half of the sample population with females being more than males. Subjects in the Borderline personality disorder (BPD) group were found to be significantly younger, females and unmarried. These findings were similar to the study done by Zimmerman M and Mattia JI, Banerjee KR and Mitra T, Dadfar M and Lester D, who interviewed psychiatric outpatients and found that borderline was amongst the most frequent diagnoses [3,9,21]. Zanarini MC et al., in their study on inpatients found borderline to be the most frequent diagnosis [26]. They also found a significantly high number of unmarried borderline patients to be younger and women. Swartz M et al., in their study also state that the borderline diagnosis is significantly higher among females and the unmarried [27]. They found highest rates in the 19-34 age range with nearly two thirds of respondents being younger than 35 years. They added that there was a trend toward this diagnosis in younger and non-white people who tended to live in urban areas. They opined that these persons were more likely to be separated or be in a marital crisis. Pearse LJ et al., in their study found the mean age of the borderline personality patients to be 39 years (range 23 to 55 years) with 90% being women [16]. Coid J, Biskin RS, in their studies also found that young women are more likely to suffer from BPD in clinical settings [14,15]. Coid J added that it was more commonly seen in unmarried women and in urban areas [14]. Nath S et al., concluded in their study that the most common personality disorder found in young age was borderline and it was more common in females [10].

In this study, the female to male ratio of patients with BPD was 2:1. Chapman J et al., reported the ratio of female to male BPD in a clinical setting as 3:1 [28] while Links PS et al., found it to be 4:1 [29]. Ellison WD et al., and Coid J also stated that BPD tends to be more prevalent in adult women and suggested that this decreases and even remits as individuals age [13,14]. They hypothesised that this decrease in prevalence is secondary to burnout in symptoms such as impulsivity or lost social connections and therefore less interpersonal instability.

Personality Disorders Associated with BPD

In this study, the Personality disorders on MCMI-III, that were found to be significantly comorbid with BPD were Depressive, Masochistic, Negativistic, Schizotypal, Avoidant, Dependent, Sadistic, Antisocial and Paranoid types. The odds were most for Sadistic Personality. Zimmerman M and Mattia JI, in their study also concluded that Borderline personality was significantly associated with six of the other nine DSM personality disorders [3], i.e., all except schizoid, histrionic, and obsessive-compulsive. Coid J in his study found Dependent and Avoidant personality disorders frequently comorbid with BPD [14]. Biskin RS in his study stated that comorbid avoidant, dependent, and masochistic/self-defeating personality disorders in patients with BPD are associated with lower rates of remission [15]. Sadistic personality occurs often in unison with other personality disorders such as borderline personality [30]. Individuals possessing sadistic personalities have certain symptoms which may overlap with borderline personality like the tendency to display recurrent aggression, unpredictability, violence (towards self/others) and history of manipulating others [31].

There was negative association between BPD and, Histrionic and Compulsive Personalities, in this study. Though histrionic personality and BPD share some characteristics, but they are, in fact, different diagnosis. Like BPD, histrionic personality may involve impulsive and attention-seeking behaviour but people with BPD do not actively desire to be the centre of attention. Rather, their actions are often motivated by fear of abandonment and more likely to engage in self-destructive behaviours. A person with histrionic personality may have trouble maintaining a relationship due to their flirtatious behaviour and leave a long-term relationship out of boredom. Meanwhile, person with BPD may feel rage at the mere thought of a relationship falling apart. Those with histrionic personalities are more likely to express themselves in a “theatrical” manner while feelings of deep emptiness are common in BPD [7].

Compulsive personality is quite different from BPD. In fact, in a study by Steenkamp M et al., participants with Compulsive personality scored similarly to participants with BPD on only one variable, namely, problems engaging in goal-directed behaviour when upset [32]. Compulsive personality is marked by an excessive need for orderliness, indecisiveness, inflexibility, and perfectionism. This is distinct from the emotional and behavioural instability seen in persons with BPD [7].

Clinical Syndromes associated with BPD

In this study, some of the Clinical Syndromes (on MCMI-III), that were found to be significantly comorbid with BPD were Major Depression, Thought disorder, PTSD and Substance Use Disorders (Alcohol and Drug Dependence). The odds being most for Major Depression and Thought Disorder. Mood disorders are common among borderline patients as shown in many studies [12,15,16,26-29,33,34]. In

fact, Zanarini MC et al., concluded that this comorbidity of BPD can be used by clinicians as a marker for underlying borderline psychopathology [26,33]. Pope HG et al., suggested that there was a close relationship between BPD and affective disorders, as they found a large number of patients with BPD having major depression [34]. Pearse LJ et al., in their study found that nearly 90% of BPD patients met criteria for major depressive disorder and 10% had bipolar disorder [16]. Links PS et al., said that patients with severe BPD are more at risk for recurrences of depression as opposed to patients with milder symptoms [29].

In this study, the odds of having comorbid Thought Disorder increased from 4 (in the traits group) to 18 (in the BPD group). But, the odds of having Delusional Disorder comorbid with Borderline Personality were very low. In fact, there was no association between BPD and Delusional Disorder. Zanarini MC et al., in their study found that disturbed and quasi-psychotic thoughts were significantly more common among borderline patients as compared to patients with schizophrenia [35]. True psychotic thoughts were significantly more in patients with schizophrenia. They added these quasi-psychotic thoughts develop in response to environmental stressors, particularly those of an interpersonal nature, the desire to assume on maintain the patient role, or if there is a childhood history of sexual trauma. All three of these factors, they opined, are common and often co-exist in the same patient. Each appears to predominate at different times in different patients. They added that substance-induced psychotic episodes were significantly more prevalent among borderline patients than among non-psychotic control subjects. Pearse LJ et al., reported that DSM-IV criteria for BPD does recognise the presence of transient paranoid ideas which are precipitated by stress or intense dissociative symptoms [16]. Patients with BPD do report psychotic symptoms, with just about 60% of them reporting these symptoms being not linked to drugs or affective disorders. These psychotic symptoms usually take the form of brief psychotic episodes, induced by stress, and are often accompanied by depersonalisation or derealisation. Some patients experience 'quasi-psychotic' experiences. These refer to delusions and/or hallucinations which influence only one/two regions of the affected patient's life and are transient/fleeting, i.e., having duration of less than two days. Schroeder K et al., stated that the BPD criterion in DSM-IV related to psychotic symptoms is transient, stress-related paranoid ideation and terms like pseudo-psychotic or quasi-psychotic may be misleading [36]. In their study, involving patients with BPD, about 20-50% reported psychotic symptoms. They suggested that childhood trauma may play a vital role in the development of psychotic symptoms in these patients. They said patients suffering from both BPD and psychotic disorders are a particularly vulnerable group with complex pathways to care and a worse outcome as compared with patients with either BPD or psychotic disorders alone. Miller FT et al., also said that patients with BPD who experience psychotic episodes are likely to have repeated hospitalisations [37]. Different studies [34,38] have shown that borderline patients having psychotic symptoms showed little or no relationship to schizophrenia per se, but show a closer link to schizotypal personality disorder.

In this study, Substance Use Disorders (Alcohol and Drugs) were also significantly comorbid in BPD. Alcohol Use Disorders was not significantly comorbid in the group with Borderline traits with odds of 1.9. But the odds increased to 3.5 times and became significant in the BPD group. Many studies have reported that patients with BPD have been shown to have high rates of comorbid substance use disorders [3,12,16,17,27-29,39]. Zanarini MC et al., found substance use disorders to be significantly more common among male borderline patients [26,33]. There was no such gender bias found in present study. Substance use disorders are closely associated with the failure to achieve remission from BPD [26,33]. Pearse LJ et al., also found in their study that 75% of the BPD patients had a history of alcohol and/or illicit drug use with 50% using both alcohol and drugs [16]. Shah R and Zanarini MC, in their study stated that comorbid substance use disorders in borderline patients range from 23-84% with co-occurrence of alcohol dependence range from 11-66% and drug use ranging from 3-87% [17]. Swartz M et al., postulated that comorbidity of BPD with substance abuse disorders may be a function of criterion overlap in the area of impulsivity [27].

In this study, it was seen that Anxiety and PTSD were significantly associated with BPD. The odds for PTSD increased from two (in the borderline traits group) to six (in the BPD group). Zanarini MC et al., in their study found that Post-traumatic stress disorder was a common comorbid disorder among borderline patients [26]. They opined that BPD is actually a form of chronic PTSD, and just like with patients with PTSD, patients with BPD are at a heightened risk for developing anxiety disorders, major depression and substance use disorders. Shah R and Zanarini MC, in their study included PTSD as a part of anxiety disorders and found its prevalence to be 34.9%. They said that borderline patients with a history of childhood adversity were less likely to achieve a remission from PTSD compared with those without such history [17].

Limitation(s)

The limitations of this study include use of available sample of adult, non-psychotic urban English-speaking patients. There was lack of other control groups for example psychiatric inpatients and normal, and the possibility of comorbidity of other mental disorders with main diagnosis. Research was done using just the MCMI-III. It is also possible that MCMI-III was used in acute phase of Axis I syndrome(s). In such situations, the prevalence of a personality disorder on the MCMI-III could have been overestimated. Also, the MCMI-III is an older version of the MCMI test which has been now updated to MCMI-IV. The latest version of the MCMI was released in 2015 and this study can be used for comparison in later studies.

CONCLUSION(S)

In conclusion, personality disorders should be evaluated for every patient with mental illness. Their presence and the frequency of their occurrence can influence the course and treatment of the Axis Axis I psychiatric disorder, that patients typically identify as their chief complaint. It is recommended that mental health professionals and clinicians should start to look for symptoms of BPD in patients with common mental disorders like anxiety and mood syndromes. They should be screened for personality disorders, and if found, these patients should be directed for psychotherapy as early as possible. The MCMI psychological test would be an important contribution to this area, given the need for systematic, quick and objective testing methods that facilitate the diagnosis. Patients with comorbid BPD need longer periods of treatment and are high users of mental health services. Early intervention by providing an accurate diagnosis and treatment has generally positive outcomes for patients with borderline personality. This can also instill a sense of hope in these patients who, many a times, feel completely hopeless. Hence, this has important implications for future research among planners of mental health services.

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