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ABSTRACT

Borderline Personality (BPD) and Bipolar (BP) disorders stimulate an academic debate between their distinction and the inclusion of Borderline in the Bipolar spectrum. Opponents to this inclusion attribute the important differences and possible diagnostic incomprehension to overlapping symptoms. We tested 248 Borderline and 113 Bipolar patients, consecutively admitted to the Psychiatric Unit, through DSM-IV Axis I and II Disorders (SCID-I/II), Hamilton Depression Rating Scale (HAM-D), Hamilton Anxiety Rating Scale (HAM-A), Young Mania Rating Scale (YMRS) and Borderline Personality Disorder Severity Index-IV (BPDSI-IV). All the tests statistically discriminated the disorders ($p < 0.0001$). Overlapping symptoms resulted significantly different (impulsivity = 5.32 in BPD vs 1.55 in BP, $p < 0.0001$; emotional instability = 7.11 in BPD vs 0.55 in BP, $p < 0.0001$) and the range of their scores gives the opportunity for an even more precise discrimination. Distinctive traits (e.g. irritability or sexual arousal) are also discussed in order to try to qualify the core of these disorders to a higher degree. Comorbidity proves to be extremely small (3.6%). However, Borderline patients with manic features offer a privileged point of view for a deeper analysis. This allows for the possibility of a more precise examination of the nature and load of each symptom. Borderline Personality and Bipolar Disorders can be distinguished with high precision using common and time-sparing tests. The importance of discriminating these clinical features may benefit from this evidence.

1. Introduction

Borderline Personality Disorder (BPD) is defined, according to DSM-5, as characterized by "significant impairments in self functioning (Identity or Self-direction) and interpersonal functioning (Empathy or Intimacy)" plus pathological personality traits in the following domains: Negative Affectivity (Emotional liability, Anxiousness, Separation insecurity, Depressivity), Disinhibition (Impulsivity and Risk taking), and Antagonism (Hostility). This is potentially a more precise classification compared to the DSM-IV's ("A pervasive pattern of instability of interpersonal relationships, self-image and affect, and marked impulsivity beginning by early adulthood and present in a variety of contexts as indicated by five criteria out of nine") particularly for the integration of dimensional aspects in categorical classification (APA, 2013; Black and Grant, 2014).

Bipolar Disorder (BP) is a mood disorder which definition and inclusion criteria are similar in the DSM-IV and 5 ("presence of five

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of nine diagnostic symptoms with a minimum duration of 2 weeks and a change from previous functioning"). To enhance the accuracy of diagnosis and facilitate earlier detection in clinical settings, criterion A for manic and hypomanic episodes includes, in the DSM-5, an emphasis on changes in activity and energy as well as the mood (Angst, 2013).

BPD and BP cause an academic debate regarding the nosological distinction between these two diseases. Patients, particularly at the onset or during acute episodes, might be classified in the spectrum of Bipolar Disorder (BP) (Akiskal, 2002; Frias et al., 2016; Ghaemi and Barroilhet, 2015; Ghaemi, 2016).

As a result, several authors argue about the possibility of a real comorbidity and the inclusion of the BPD in the BP spectrum (Akiskal, 2004; Mackinnon and Pies, 2006). Antagonists to this inclusion advocate precise differences both in the phenomenology and in response to medications (Bayes et al., 2016; Fulford et al., 2015; Leblanc et al., 2016; Paris, 2004; Robins and Guze, 1970). Some authors attribute misdiagnosis, particularly at the onset, to symptoms overlapping between these disorders (Bayes et al., 2016; Black and Grant, 2014).

Most of the overlapping symptoms pertain to ***emotional instability and impulsivity*** (although with different connotations) that are more evident during manic or mixed states of BP illness (Leblanc et al., 2016; Saunders et al., 2015). In fact, despite most of the previous studies compared BPD and BP during depressive phases, recent investigations focused on BP in manic states since they express these overlapping symptoms. This choice seems more focused on everyday clinical experience and allows a comparison of the overlapping symptoms.

The aim of the present study is to analyze potential differences between Borderline Personality Disorder and Bipolar Disorder in manic or mixed phases. The possible diversity of overlapping symptoms is examined through internationally recognized, time-efficient tests that do not significantly interfere with the routine of clinical practice.

2. Material and methods

2.1. Ethics

The investigation was carried out in accordance with the latest version of the Declaration of Helsinki and the study design was reviewed by the Ethics Committee of the University of Milan Bicocca (0015389/13).

Informed consent of the participants was obtained after the nature of the procedures had been fully explained. None of the participants received a compensation for their contribution.

2.2. Psychiatric departments and time of recruitment

The present study is a multicenter research that was conducted in Outpatients and Inpatients of the following Psychiatric Departments: i) S.Gerardo Health Care Trust (Monza), ii) Rodolico General Hospital (Catania), iii) S.Giovanni Battista-Molinette Health Care Trust (Torino), iv) Villaggio S.Camillo Health Care Trust (Sassari), v) "Casa di Cura Villa Azzurra" and vi) Public Health - Section of Psychiatry Health Care Trust (Cagliari) during a 1-year-period of recruitment (1st Jan 2014–31st Dec 2014).

2.3. Participants

2.3.1. Borderline personality disorder

248 patients consecutively admitted to Outpatients and Inpatients Psychiatric Departments who were diagnosed as having Borderline Personality Disorder ("BPD") with a SCID II Interview, were asked to participate to the present study.

SCID I Interview was not performed in the whole BPD group (see "Limitation" section), but in only 95 out of 248 patients. 20 patients were affected by a comorbid Major Depressive Episode, 3 by Obsessive-Compulsive Disorder and 5 by Eating Disorders (3 by Bulimia nervosa and 2 by Binge Eating Disorders). 4 patients were affected by Generalized Anxiety disorder, 1 by Cyclothymic disorder and 3 by Bipolar Disorder type II.

2.3.2. Bipolar disorder

We recruited 113 patients with Bipolar Disorder ("BP") consecutively admitted to the Inpatient and Outpatient Psychiatric Departments during the same period and screened through the SCID II Interview (First et al., 1997). In order to satisfy the aim of the present study, all the SCID II administered to BP resulted negative. The diagnosis of BP was evaluated with the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) (First et al., 1996) and the episode fulfilled the criteria for manic or mixed states. They were interviewed at the decrease of acute symptoms to avoid possible bias and increase their participation capacity.

2.4. Test

HAM D: Hamilton Depression Rating Scale is a clinician-administered test. Although it lists 21 items, the scoring is based on the first 17. Eight items are scored on a 5-point scale, ranging from 0 = not present to 4 = severe. Nine are scored from 0 to 2. A score of 0–7 is considered to be normal, 8–13 is indicative of Mild Depression, 14–18 of Moderate Depression, 19–22 of Severe Depression and >23 as of Very Severe Depression (Zimmerman et al., 2013).

HAM A: Hamilton Anxiety Rating Scale is a clinician-administered test. The scale consists of 14 items, each defined by a series of symptoms, and it measures both psychic anxiety (mental agitation and psychological distress) and somatic anxiety (physical complaints related to anxiety). Each item is scored on a scale from 0 (not present) to 4 (severe), with a total score range of 0–56, where <17 indicates mild severity anxiety, 18–24 mild to moderate severity anxiety and 25–30 moderate to severe anxiety (Maier et al., 1988).

YMRS: Young Mania Rating Scale has 11 items and it is based on the patient's subjective report of his or her clinical condition over the previous 48 h. Additional information is based upon clinical observations made during the course of the clinical interview. There are four items that are graded on a scale from 0 to 8 (irritability, speech, thought content, and disruptive/aggressive behavior), while the remaining seven items are graded on a scale of 0–4. Mania is indicated by a score of 12 but many clinical studies require YMRS >20 to determine a manic state (Young et al., 1978).

BPDSI-IV: is a semi-structured interview and consists of 70 items, arranged in nine subscales representing the nine DSM-IV BPD-criteria. For each item the frequency of the last three months is rated on an 11-point scale, running from 0 (never) to 10 (daily). Identity disturbance-items form an exception and are rated on 5-point Likert scales, running from 0 (absent) to 4 (dominant, clear and well-defined not knowing who he/she is), multiplied by 2.5. Criteria scores for the nine DSM-IV criteria are determined by averaging the item scores. The total score is the sum of the nine criteria scores (range 0–90). A total score >15 is under examination as indicative of BPD (Arntz et al., 2003; di Giacomo et al., 2016).

SCID II: it is a structural interview created to explore possible disorders belonging to the Axis II of the DSM-IV. It consists of a self-questionnaire with 119 items, followed by an interview based on the answers given to each item (First et al., 1997).

2.5. Statistical analysis

We used SPSS 23 to perform T-test for independent samples and ANOVA with POST HOC (Bonferroni) to establish possible differences in any test items with the aim to highlight symptoms discrepancies, particularly in the overlapping symptoms.

3. Results

BPD and BP resulted statistically different in any test administered [HAM-D, HAM-A, YMRS, BPDSI-IV] (see Table 1). HAM D resulted in "mild depression" (score 8–13) but the comparison between the two average scores reached a statistically significant difference. Both the groups had an average HAM-A lower than 17 which is categorized as low. Remarkably, all the BP scored lower than 5 while 80% of the BPD scored higher. At YMRS more than 95% of BPD scored lower than 20 while all the BP scored higher than 30. All the BP scored lower than 15 at BPDSI-IV while all the BPD scored higher. None of the BP had more than 4 positive criteria thus confirming SCID II results.

Each item scored significantly different for each test ($p's < 0.0001$) excluding BPDSI 9 ["Dissociation"]($p = 0.433$; mean BPD = 3.49. Mean BP = 3.74) (see Table 1). Focusing on each item, BPD and BP proved to be significantly different in any of them (see Table 1). Selected items, according to overlapping symptoms [impulsivity and affective instability], as well as distinctive traits confirmed this tendency. Overlapping symptoms and distinctive traits of these disorders are further reasoned in the "Discussion" section.

The deepened analysis of BPD that reached a score indicative for a manic episode (BPD-YMRS$^{>20}$) versus BPD without manic connotations (BPD-YMRS$^{<20}$) highlighted some differences between these subgroups. BPD with manic connotations were 13 out of 361 patients (13 out of 248 BPD patients), corresponding to 3.6% of the total sample and 5.2% of the BPD group. ANOVA reached statistical significance ($p < 0.001$) in every test and item except for BPDSI 9 ($p = 0.586$). It seems appropriate and important to underline some POST HOC results to facilitate further discussion.

POST HOC (Bonferroni) highlighted that BPDSI 7 ("Emptiness") discriminated BPD-YMRS$^{>20}$ and BPD-YMRS$^{<20}$, BPDSI 5 ("Parasuicide") did not discriminate between BPD-YMRS$^{<20}$ and $^{>20}$ while BPDSI 8 ("Anger-control") did not discriminate between BPD-YMRS$^{>20}$ and BP. HAM-D total score as well as half of its items discriminated only between BP and BPD-YMRS$^{<20}$. The other half of HAM-D items discriminated among all the subgroups. HAM-D 4, 9 and 19 ("insomnia early, agitation and depersonalization") statistically distinguished between BPD-YMRS$^{<20}$ and BPD-YMRS$^{>20}$. YMRS confirmed significance in any comparison ($p < 0.0001$) except for items 1, 2, 3, 4 and 6 ("elevated mood, increased activity, sexual interest, sleep and speech") between BPD-YMRS$^{>20}$ and BP. HAM-A 2, 13 and 14 ("tension, autonomic symptoms and behavior at interview") resulted statistically significant even between BPD-YMRS$^{>20}$ and BPD-YMRS$^{<20}$ (see Table 1).

4. Discussion

The present study focuses on highlighting possible differences between BPD and BP using internationally recognized tests in which time of administration does not have a significant impact on everyday clinical practice. Results clearly show the possibility of distinguishing between the two disorders with high significance and highlight a very precise range of results that do not or partially overlap, but easily separate them. In fact, HAM-D and HAM-A have a very low range of result for BP, while BPD has wider ranges that reach very high scores. YMRS clearly express a positivity for all the BP and BPDSI clearly confirms the discriminating results of the SCID II Interview. Every item mirrors the same trend, with the exclusion of "dissociation" (BPDSI 9) probably due to manic phases or mixed states of BP.

Overlapping symptoms that trigger the academic debate instigating the present study as well as distinctive symptoms are to be taken into consideration for a more detailed discussion. *"Affective instability"* and *"Impulsivity"* present important and significant differences both in the average results and in their ranges. BPD clearly expresses these characteristics, which are key features of this disorder. Authors advocate these symptoms the cause of diagnostic misinterpretation, considering them to be overlapping, but the current results do not seem to sustain their hypothesis.

BP shows a low rate of "Impulsivity" and "Anger-control", but a higher rate of "irritability" and "Disruptive-aggressive Behavior". These symptoms are evidently different from a conceptual point of view, but if not intentionally rated and weighted, they might easily cross one over the another. In particular, they might seem equivalent if not fully investigated or even a continuum. They should be integrated in the context of the disease since BPD shows impulsiveness and anger, especially in reaction to relationship issues and on a long term basis while BP irritability and aggressive behavior are shown only during acute manic phases that usually don't last as long as in BPD if properly treated.

BPD group shows a significantly higher rate of suicidal and parasuicidal behaviors while BP group rarely exhibits such symptoms, particularly parasuicide. Emptiness and identity disturbance seem to be key symptoms since none of the BP patients exhibit them. These defining symptoms are crucial to understand the difference between a BPD and a BP diagnosis and consequently special attention should be paid to these symptoms during interviews conducted with the patient.

4.1. BPD with manic features

BPD patients who score positive even for a manic episode may offer a unique point of view to investigate eventual divergences. As highlighted in the "Results" section, patients affected by Borderline Personality Disorder that have a possible comorbid manic episode show some distinctive traits.

It is of primary importance to underline that BPD shows high heterogeneity of subtypes according to the possible number of combinations of the symptoms listed in the DSM 5, which prescribes the fulfillment of 5 criteria out of 9. However, this clarification deserves further detailed analysis of the symptoms presented.

Borderline positive and negative for a manic episode can be assimilated except for "Emptiness", which is less frequently displayed in the first group. It should be necessary to focus on the possibility that mood elevation might interfere with the perception of emptiness. Depressive items which present similarities between Borderline patients with and without positivity for a manic episode, have very low score for all the groups that any extrapolation may imply a stretch. Borderline positive for a manic episode shows less depersonalization, but the low score should be weighted cautiously even in the presence of significance from a statistical point of view.

The analysis of YMRS seems more impressive for the purpose of this research. Borderline with manic episodes and Bipolar patients might be associated by mood elevation, increased energy and sexual interest, sleep deprivation and increased speech pressure.

Elevation in Sexual interest is typical of both Borderline and Bipolar (in manic phase) disorders. Even if it is not yet accounted for a possible confusing element or an overlapping symptom, it is reasonable to propose that it is included.

Increase in energy and in speech speed are conventionally more

Table 1
Average scores and p-values for all the groups and subgroups.

	BPD	BP	p	BPD-YMRS$^{<20}$	BPD-YMRS$^{>20}$	BP	POST HOC	p
BPDSI TOT	42.44 ± 17.129	10.48 ± 4.99	<0.0001	42.65	38.61	10.49	BPD-YMRS<20 vs BPD-YMRS>20	0.985
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	<0.0001
HAM_D TOT	12.12 ± 8.84	9.65 ± 1.50	0.0006	14.44	15.308	11.646	BPD-YMRS<20 vs BPD-YMRS>20	1.000
							BPD-YMRS<20 vs BP	0.003
							BPD-YMRS>20 vs BP	0.275
HAM_A TOT	13.48 ± 9.226	3.39 ± 1.00	<0.0001	13.306	16.692	3.903	BPD-YMRS<20 vs BPD-YMRS>20	0.365
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	<0.0001
YMRS TOT	5.87 ± 6.265	33.35 ± 1.50	<0.0001	4.834	24.615	33.354	BPD-YMRS<20 vs BPD-YMRS>20	<0.0001
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	<0.0001
HAM-D 1"DEPRESSED MOOD"	1.61 ± 1.209	0.00 ± 0.000	<0.0001	1.638	1.077	0	BPD-YMRS<20 vs BPD-YMRS>20	0.147
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	0.001
HAM-D 2 "FEELINGS OF GUILT"	0.91 ± 0.922	0.45 ± 0.500	<0.0001	0.909	1	0.453	BPD-YMRS<20 vs BPD-YMRS>20	1.000
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	0.066
HAM-D 3 "SUICIDE"	0.86 ± 1.164	0.45 ± 0.500	<0.0001	0.87	0.615	0.451	BPD-YMRS<20 vs BPD-YMRS>20	1.000
							BPD-YMRS<20 vs BP	0.001
							BPD-YMRS>20 vs BP	1.000
HAM-D 4 "INSOMNIA EARLY"	0.79 ± 0.750	1.55 ± 0.500	<0.0001	0.76	1.385	1.549	BPD-YMRS<20 vs BPD-YMRS>20	0.004
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	1.000
HAM-D 5 "INSOMNIA MIDDLE"	0.55 ± 0.687	1.55 ± 0.500	<0.0001	0.537	0.846	1.549	BPD-YMRS<20 vs BPD-YMRS>20	0.262
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	0.001
HAM-D 6 "INSOMNIA LATE"	0.49 ± 0.664	1.55 ± 0.500	<0.0001	0.485	0.615	1.549	BPD-YMRS<20 vs BPD-YMRS>20	1.000
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	<0.0001
HAM-D 7 "WORK AND ACTIVITIES"	1.43 ± 1.319	2.10 ± 1.000	<0.0001	1.463	0.769	2.097	BPD-YMRS<20 vs BPD-YMRS>20	0.141
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	0.001
HAM-D 8 "RETARDATION:PSYCHOMOTOR"	0.39 ± 0.705	0.00 ± 0.000	<0.0001	0.389	0.462	0	BPD-YMRS<20 vs BPD-YMRS>20	1.000
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	0.022
HAM-D 9 "AGITATION"	0.94 ± 0.919	0.45 ± 0.500	<0.0001	0.885	1.846	0.450	BPD-YMRS<20 vs BPD-YMRS>20	<0.0001
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	<0.0001
HAM-D 10 "ANXIETY (PSYCHOLOGICAL)"	1.37 ± 1.115	0.45 ± 0.500	<0.0001	1.373	1.308	0.449	BPD-YMRS<20 vs BPD-YMRS>20	1.000
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	0.008
HAM-D 11 "ANXIETY SOMATIC"	1.07 ± 0.957	0.00 ± 0.000	<0.0001	1.074	1.077	0	BPD-YMRS<20 vs BPD-YMRS>20	1.000
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	<0.0001
HAM-D 12 "SOMATIC SYMPTOMS"	0.29 ± 0.524	0.00 ± 0.000	<0.0001	0.288	0.385	0	BPD-YMRS<20 vs BPD-YMRS>20	1.000
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	0.008
HAM-D 13 "SOMATIC SYMPTOMS GENERAL"	0.52 ± 0.585	0.00 ± 0.000	<0.0001	0.52	0.538	0	BPD-YMRS<20 vs BPD-YMRS>20	1.000
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	0.001
HAM-D 14 "GENITAL SYMPTOMS"	0.24 ± 0.516	0.00 ± 0.000	<0.0001	0.24	0.231	0	BPD-YMRS<20 vs BPD-YMRS>20	1.000
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	0.197

(*continued on next page*)

Table 1 (*continued*)

	BPD	BP	p	BPD-YMRS$^{<20}$	BPD-YMRS$^{>20}$	BP	POST HOC	p
HAM-D 15 "HYPOCHONDRIASIS"	0.43 ± 0.745	0.00 ± 0.000	<0.0001	0.436	0.308	0	BPD-YMRS<20 vs BPD-YMRS>20	1.000
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	0.266
HAM-D 16 "LOSS OF WEIGHT"	0.29 ± 0.688	0.00 ± 0.000	<0.0001	0.282	0.385	0	BPD-YMRS<20 vs BPD-YMRS>20	1.000
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	0.064
HAM-D 17 "INSIGHT"	0.22 ± 0.515	1.10 ± 1.000	<0.0001	0.176	1	1.097	BPD-YMRS<20 vs BPD-YMRS>20	<0.0001
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	1.000
HAM-D 18 A "DIURNAL VARIATION"	0.43 ± 0.669	0.00 ± 0.000	<0.0001	0.438	0.308	0	BPD-YMRS<20 vs BPD-YMRS>20	1.000
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	0.174
HAM-D 18 B "DIURNAL VARIATION"	0.41 ± 0.627	0.00 ± 0.000	<0.0001	0.421	0.231	0	BPD-YMRS<20 vs BPD-YMRS>20	0.593
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	0.386
HAM-D 19 "DEPERSONALIZATION AND DEREALIZATION"	0.79 ± 0.943	1.55 ± 0.500	<0.0001	0.827	0.154	1.549	BPD-YMRS<20 vs BPD-YMRS>20	0.012
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	<0.0001
HAM-D 20 "PARANOID SYMPTOMS"	0.58 ± 0.680	0.45 ± 0.500	0.048	0.577	0.615	0.451	BPD-YMRS<20 vs BPD-YMRS>20	1.000
							BPD-YMRS<20 vs BP	0.250
							BPD-YMRS>20 vs BP	1.000
HAM-D 21 "OBSESSIVE-COMPULSIVE SYMPTOMS"	0.23 ± 0.479	0.00 ± 0.000	<0.0001	0.237	0.154	0	BPD-YMRS<20 vs BPD-YMRS>20	1.000
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	0.555
HAM-A 1 "Anxious mood"	1.68 ± 1.006	0.45 ± 0.500	<0.0001	1.687	1.615	0.453	BPD-YMRS<20 vs BPD-YMRS>20	1.000
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	<0.0001
HAM-A 2 " Tension"	1.77 ± 1.039	0.00 ± 0.000	<0.0001	1.733	2.462	0	BPD-YMRS<20 vs BPD-YMRS>20	0.008
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	<0.0001
HAM-A 3 " Fears"	1.01 ± 1.083	0.00 ± 0.000	<0.0001	1.009	1.077	0	BPD-YMRS<20 vs BPD-YMRS>20	1.000
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	<0.0001
HAM-A 4 "Insonnia"	1.24 ± 1.113	1.55 ± 0.500	<0.0001	1.219	1.538	1.549	BPD-YMRS<20 vs BPD-YMRS>20	0.735
							BPD-YMRS<20 vs BP	0.009
							BPD-YMRS>20 vs BP	1.000
HAM-A 5 "Intellectual"	1.25 ± 1.039	1.45 ± 0.500	0.015	1.217	1.846	1.448	BPD-YMRS<20 vs BPD-YMRS>20	0.043
							BPD-YMRS<20 vs BP	0.071
							BPD-YMRS>20 vs BP	0.400
HAM-A 6 "Depressed mood"	1.43 ± 1.094	0.45 ± 0.500	<0.0001	1.465	0.846	0.452	BPD-YMRS<20 vs BPD-YMRS>20	0.065
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	0.458
HAM-A 7 "Somatic (muscular)"	0.92 ± 0.971	0.00 ± 0.000	<0.0001	0.917	0.923	0	BPD-YMRS<20 vs BPD-YMRS>20	1.000
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	<0.0001
HAM-A 8 "Somatic (sensory)"	0.61 ± 0.895	0.00 ± 0.000	<0.0001	0.615	0.538	0	BPD-YMRS<20 vs BPD-YMRS>20	1.000
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	0.040
HAM-A 9 "Cardiovascular symptoms"	0.81 ± 0.899	0.00 ± 0.000	<0.0001	0.797	1	0	BPD-YMRS<20 vs BPD-YMRS>20	1.000
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	<0.0001
HAM-A 10 "Respiratory symptoms"	0.76 ± 0.936	0.00 ± 0.000	<0.0001	0.771	0.615	0	BPD-YMRS<20 vs BPD-YMRS>20	1.000
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	0.021
HAM-A 11 "Gastrointestinal symptoms"	0.59 ± 0.823	0.00 ± 0.000	<0.0001	0.583	0.615	0	BPD-YMRS<20 vs BPD-YMRS>20	1.000

Table 1 (*continued*)

	BPD	BP	p	BPD-YMRS$^{<20}$	BPD-YMRS$^{>20}$	BP	POST HOC	p
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	0.007
HAM-A 12 "Genitourinary symptoms"	0.30 ± 0.675	0.00 ± 0.000	<0.0001	0.295	0.462	0	BPD-YMRS<20 vs BPD-YMRS>20	0.886
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	0.015
HAM-A 13 "Autonomic symptoms"	0.66 ± 0.870	0.00 ± 0.000	<0.0001	0.627	1.231	0	BPD-YMRS<20 vs BPD-YMRS>20	0.009
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	<0.0001
HAM-A 14 "Behavior at interview"	0.92 ± 0.945	0.00 ± 0.000	<0.0001	0.862	1.923	0	BPD-YMRS<20 vs BPD-YMRS>20	<0.0001
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	<0.0001
YMRS1 "Elevated Mood"	0.39 ± 0.760	2.55 ± 0.500	<0.0001	0.293	2.154	2.549	BPD-YMRS<20 vs BPD-YMRS>20	<0.0001
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	0.071
YMRS2 "Increased Motor Activity-Energy"	0.39 ± 0.778	2.55 ± 0.500	<0.0001	0.27	2.385	2.549	BPD-YMRS<20 vs BPD-YMRS>20	<0.0001
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	0.997
YMRS3 "Sexual Interest"	0.22 ± 0.565	1.65 ± 1.500	<0.0001	0.157	1.385	1.646	BPD-YMRS<20 vs BPD-YMRS>20	<0.0001
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	1.000
YMRS4 "Sleep"	0.65 ± 0.926	2.10 ± 1.000	<0.0001	0.58	1.923	2.097	BPD-YMRS<20 vs BPD-YMRS>20	<0.0001
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	1.000
YMRS5 "Irritability"	1.72 ± 1.495	2.90 ± 1.000	<0.0001	1.591	4	2.903	BPD-YMRS<20 vs BPD-YMRS>20	<0.0001
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	0.011
YMRS6 "Speech"	0.64 ± 1.204	2.90 ± 1.000	<0.0001	0.478	3.538	2.903	BPD-YMRS<20 vs BPD-YMRS>20	<0.0001
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	0.087
YMRS7 "Language-Thought Disorder"	0.20 ± 0.502	0.90 ± 1.000	<0.0001	0.12	1.538	0.903	BPD-YMRS<20 vs BPD-YMRS>20	<0.0001
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	0.003
YMRS8 "Content"	0.54 ± 1.463	8.00 ± 0.000	<0.0001	0.389	3.231	8	BPD-YMRS<20 vs BPD-YMRS>20	<0.0001
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	<0.0001
YMRS9 "Disruptive-Aggressive Behavior"	0.39 ± 0.892	3.81 ± 1.999	<0.0001	0.293	2	3.805	BPD-YMRS<20 vs BPD-YMRS>20	<0.0001
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	<0.0001
YMRS10 "Appearance"	0.32 ± 0.581	2.00 ± 0.000	<0.0001	0.298	0.769	2	BPD-YMRS<20 vs BPD-YMRS>20	0.002
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	<0.0001
YMRS11 "Insight"	0.64 ± 1.324	4.00 ± 0.000	<0.0001	0.575	1.692	4	BPD-YMRS<20 vs BPD-YMRS>20	0.001
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	<0.0001
BPDSI1 "Abandonment"	5.48 ± 3.609	0.00 ± 0.000	<0.0001	5.47	5.692	0	BPD-YMRS<20 vs BPD-YMRS>20	1.000
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	<0.0001
BPDSI2 "Relationships"	5.37 ± 3.214	0.55 ± 0.500	<0.0001	5.357	5.615	0.549	BPD-YMRS<20 vs BPD-YMRS>20	1.000
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	<0.0001
BPDSI3 "Identity dist."	35.297 ± 2.174	0.000 ± 0.000	<0.0001	3.512	3.846	0	BPD-YMRS<20 vs BPD-YMRS>20	1.000
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	<0.0001
BPDSI4 "Impulsivity."	5.32 ± 3.375	1.55 ± 0.500	<0.0001	5.321	5.308	1.549	BPD-YMRS<20 vs BPD-YMRS>20	1.000
							BPD-YMRS<20 vs BP	<0.0001

(*continued on next page*)

Table 1 (*continued*)

	BPD	BP	p	BPD-YMRS$^{<20}$	BPD-YMRS$^{>20}$	BP	POST HOC	p
							BPD-YMRS>20 vs BP	<0.0001
BPDSI5 "(Para)suicide"	2.40 ± 2.983	0.45 ± 0.500	<0.0001	2.448	1.462	0.461	BPD-YMRS<20 vs BPD-YMRS>20	0.492
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	0.496
BPDSI6 "Affective Instability"	7.11 ± 3.048	0.55 ± 0.500	<0.0001	7.139	6.538	0.549	BPD-YMRS<20 vs BPD-YMRS>20	1.000
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	<0.0001
BPDSI7 "Emptiness"	6.62 ± 3.274	0.00 ± 0.000	<0.0001	6.729	4.769	0	BPD-YMRS<20 vs BPD-YMRS>20	0.033
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	<0.0001
BPDSI8 "Anger-control"	5.72 ± 3.142	3.65 ± 1.500	<0.0001	5.753	5.077	3.646	BPD-YMRS<20 vs BPD-YMRS>20	1.000
							BPD-YMRS<20 vs BP	<0.0001
							BPD-YMRS>20 vs BP	0.224
BPDSI9 "Dissociation"	3.49 ± 3.344	3.74 ± 2.499	0.433	3.528	2.833	3.743	BPD-YMRS<20 vs BPD-YMRS>20	1.000
							BPD-YMRS<20 vs BP	1.000
							BPD-YMRS>20 vs BP	1.000

linked to mania and it does not seem appropriate to consider them as overlapping. Conversely, they might recall clamorous manifestations which are typical of some BPD features (which stimulate a differential diagnosis with Histrionic Personality Disorder) (APA, 2013).

Some further considerations seem appropriate. Potential comorbid patients represent a very small part of the total sample. This result appears even more significant considering that the total sample seems more consistent compared to other research. Consequently, it seems logical to deduce that a possible real comorbidity is not frequent.

On the contrary, the same possible comorbidity might be partially explained by the elevated presence of typical Borderline characteristics thus obscuring the essence of a possible Manic episode and instead crediting them to BPD subgroup features. Authors advocating a clear distinction between these disorders are supported by the possibility of discriminating between them using the proposed tests even in the presence of positive manic symptoms. The integration of clinical practice with appropriate testing methods gives us the possibility to correctly correlate key symptoms and test results.

5. Limitation

A possible limitation is that the SCID I Interview to attest the Axis I diagnosis was not performed on the whole BPD group.

Declarations of interest

There are no conflicts of interest to be disclosed.

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Author's contribution

All the authors recruited and tested the patients. Dr di Giacomo and Prof Clerici designed the study and supervised recruitment. Dr di Giacomo and dr Aspesi elaborated data. Dr di Giacomo, dr Aspesi and Prof Arntz discussed the results. Dr di Giacomo and dr Fotiadou wrote the paper.

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