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THE ITALIAN VERSION OF THE BORDERLINE PERSONALITY DISORDER SEVERITY INDEX IV: PSYCHOMETRIC PROPERTIES, CLINICAL USEFULNESS, AND POSSIBLE DIAGNOSTIC IMPLICATIONS

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Borderline personality disorder (BPD) has a core embodied in affective and behavioral dysregulations, impulsivity, and relational disturbance. Clinical presentation might be heterogeneous due to a combination of different symptoms listed in the *DSM-5*. Clinical diagnosis and assessment of the severity of manifestations might be improved through the administration of structured interviews such as the Borderline Personality Disorder Severity Index, 4th edition (BPDSI-IV). The psychometric properties of the Italian version of the BPDSI-IV were examined for the first time in 248 patients affected by BPD and 113 patients affected by bipolar disorder, proving to be a valid and accurate instrument with good internal consistency and high accuracy. The Italian version also demonstrates significant validity in the discrimination between these clinical groups ($p < .001$).

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Borderline personality disorder (BPD) is a psychiatric illness with a core embodied in affective and behavioral dysregulations, impulsivity, and relational disturbance (Yen et al., 2015). The *Diagnostic and Statistical Manual of Mental Disorders*, fifth edition (*DSM-5*; American Psychiatric Association [APA], 2013) includes nine diagnostic criteria, five of which must be fulfilled in order to diagnose BPD.

DIAGNOSTIC AND CURRENT SEVERITY ASSESSMENTS OF BPD

The diagnosis of personality disorders is based on clinical evaluation according to the *DSM-5* criteria (APA, 2013) but might be improved, standardized, and optimized by administering semistructured interviews (Zimmerman & Coryell, 1990). Several semistructured interviews with a long-term perspective have been developed for the diagnosis of BPD and are available for both clinical and research purposes. The most widely acknowledged instruments (Zimmerman & Coryell, 1990) in the field of personality disorders and for the assessment of features of pathological personalities belonging to Axis II of the *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition (*DSM-IV*; APA, 2000), are the International Personality Disorder Examination (Loranger et al., 1994) and the Structured Clinical Interview for *DSM-IV* Personality Disorders (SCID-II; First, Gibbon, Spitzer, Williams, & Benjamin, 1997).

Likewise, assessment of the current severity of BPD is improved by clinician-administered, structured and semistructured interviews compared to clinical impression. The current severity of BPD can be assessed through specially developed interviews, identified in the Zanarini Rating Scale for Borderline Personality Disorder (ZAN-BPD; Zanarini et al., 2003) and the Borderline Personality Disorder Severity Index – 4th edition (BPDSI-IV) (Arntz et al., 2003) by an internationally known expert group in the field (Zanarini et al., 2010).

SCALE OVERVIEW AND VALIDATION IN DIFFERENT COUNTRIES

The BPDSI-IV was designed to assess the severity of BPD manifestations within a short time period (3 months) due to the instability of symptoms typical of borderline PD. The BPDSI-IV is a semistructured interview that consists of 70 items, arranged in nine subscales representing the nine *DSM-IV* BPD criteria. For each item, the frequency over the past 3 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. Scores for the nine *DSM-IV* criteria are derived by averaging the item scores. The total score is the sum of the nine criteria scores (range 0–90). The estimated time for administering the whole test is approximately 15 minutes (Arntz et al., 2003). Interviewers are trained in a one-day session, rating tapes and practicing on each other.

The BPDSI-IV demonstrates very good internal consistency in a mixed group as a whole (Cronbach's $\alpha = 0.93$) and good internal consistency in the BPD group (Cronbach's $\alpha = 0.82$), and it discriminated the BPD group from *DSM-IV* Axis I, Cluster C, and non-patient groups. The total cut-off score was 14.93 (2 standard deviations below the BPD group's mean; Jacobson and Truax, 1991) (Arntz et al., 2003; Giesen-Bloo, Wachters, Schouten, & Arntz, 2010), while criteria cut-offs were: 1 for BPDSI 1, 2, 3, and 8; 0.5 for BPDSI 4; 0.1 for BPDSI 5; 0.3 for BPDSI 9; and 2 for BPDSI 6 and 7, respectively. The German version was validated by comparing BPD with mixed psychiatric patients and normal control groups and showed good internal consistency in the BPD group (Cronbach's $\alpha = 0.90$), excellent internal consistency in the whole group (Cronbach's $\alpha = 0.96$), and discriminated between subgroups; the Finnish version demonstrated good internal consistency in a BPD sample (Cronbach's $\alpha = 0.89$) (Kroeger et al., 2013; Leppanen, Lindeman, Arntz, & Hakko, 2013).

The BPDSI-IV has been used in several trials (Arntz et al., 2003; Giesen-Bloo et al., 2010; Rinne et al., 2003; Rinne, van den Brink, Wouters, & van Dyck, 2002; Verheul et al., 2003), and two were conducted in Italy on Italian-speaking samples (Bellino, Paradiso, & Bogetto, 2005, 2006); however, its psychometric properties have never been documented in the Italian context. The lack of scientific proof about the properties of the Italian version (sensitivity, specificity, and reliability) might compromise and invalidate the value of data obtained in previous research due to the absence of the scientific evidence necessary to contextualize the extent, value, and importance of those data.

It seems appropriate to provide adequate scientific support for the Italian version of the BPDSI-IV in order to validate previous evidence and support its clinical usefulness. Moreover, demonstrating the degree of the most important psychometric properties seems crucial to highlighting the importance of the BPDSI-IV in discriminating between BPD and other disorders, especially those, like BP, whose overlapping symptoms might create clinical challenges.

USEFULNESS AND STRENGTH COMPARED TO OTHER SCALES

The BPDSI has undoubtedly proven to be a valid instrument in any research attesting to its psychometric properties. Contrary to other scales (e.g., the Zanarini Rating Scale for Borderline Personality Disorder or the SCID II-BPD section), the BPDSI was designed not to diagnose but rather to monitor the severity of symptoms in a short time perspective. Each item score is ranked according to the frequency of the symptoms (0–11), thus allowing for checking the severity in a more detailed way, rather than just affirming BPD's presence or absence. This reflects a strong difference compared to other tests that are more prone to attesting to the presence of BPD than checking the single-symptom time trend. Thus, in addition to its utility in the research context, the BPDSI allows accurate monitoring of each symptom, which makes it a very useful tool even in the clinical context.

THE PRESENT STUDY

The aim of the present study is to assess, for the first time, the psychometric properties of the Italian version of the Borderline Personality Disorder Severity Index IV. The most important psychometric properties are its discriminant validity, internal consistency, accuracy, sensitivity, specificity, and inter-items correlations. These properties are essential for the exact appraisal of the quality of the obtained data.

The research was designed choosing a particular clinical comparison group (bipolar patients–BP), due to the high comorbidity between the disorders and their overlapping symptoms that instigated an academic debate regarding borderline's inclusion in the bipolar spectrum or distinct nosological existence (Akiskal, 2002, 2004; Black & Grant, 2014; Kernberg & Yeomans, 2013; Paris, 2004; Richardson & Tracy, 2015; Robins & Guze, 1970; Smith, Muir, & Blackwood, 2004; Zimmerman & Morgan, 2013a, 2013b).

Patients in manic or mixed phases of BP were selected because of evidence that most of the overlapping symptoms regarding emotional instability and impulsivity (although with different connotations) are more common during manic or mixed states of BP illness (Leblanc et al., 2016; Mackinnon & Pies, 2006; Saunders, Goodwin, & Rogers, 2015). And despite the fact that most previous studies have focused on comparing BPD and BP during depressive phases, recent trends have been to investigate BP in manic states that express these overlapping symptoms. This choice seems more focused on everyday clinical experience and increasingly demonstrates the real extent of BPDSI properties. However, BP patients might still experience psychotic symptoms (e.g., hallucinations and delusions) during acute manic or mixed episodes, and they were therefore interviewed carefully when symptoms decreased in order to gain an understanding of their ability to participate. Therefore, if BPDSI-IV proves high in accuracy and discriminant validity, even compared with bipolar patients who are credited with partial sharing or similarity of symptoms, this might further stress its properties' strength.

METHODS

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 compensation for their contribution.

PSYCHIATRIC DEPARTMENTS AND TIME OF RECRUITMENT

The present study was a multicentric research project. Participants were recruited from outpatient and inpatient treatment programs from six psychiatry departments across Italy during a one-year period (January 1, 2014–December

31, 2014): (1) S. Gerardo Health Care Trust (Monza), (2) Rodolico General Hospital (Catania), (3) S. Giovanni Battista-Molinette Health Care Trust (Torino), (4) Villaggio S. Camillo Health Care Trust (Sassari), (5) “Casa di Cura Villa Azzurra,” and (6) Department of Public Health, Section of Psychiatry Health Care Trust (Cagliari).

PARTICIPANTS

Borderline Personality Disorder. A total of 248 patients consecutively admitted to outpatient and inpatient psychiatric departments, who were diagnosed with borderline personality disorder (BPD), were asked to participate in the validation of the Italian version of the BPDSI-IV. Their clinical diagnosis was confirmed by a SCID-II interview (First et al., 1997), which represents the discriminative criterion for selection.

A SCID-I interview (to assess Axis I illness) was performed not for the whole BPD group (see the Limitations section), but rather for 95 of the 248 patients, resulting in 20 patients affected by a comorbid major depressive episode, 3 by obsessive-compulsive disorder, 5 by an eating disorder (3 by bulimia nervosa and 2 by binge eating disorder), 4 by generalized anxiety disorder, 1 by cyclothymic disorder, and 3 by bipolar disorder type II.

Psychiatric Controls. We recruited 113 patients with bipolar disorder (BP) who were consecutively admitted to inpatient or outpatient psychiatric departments during the same period and screened through the SCID-II Interview (First et al., 1997). BP was assessed by the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I; First, Spitzer, Gibbon, & Williams, 1996), and the episode fulfilled the criteria for manic or mixed states. The patients were interviewed while acute symptoms were minimal to avoid possible bias due to clinical conditions, which increased their participation capacity.

Patients' Acceptance Rate. None of the patients admitted to the six psychiatric departments refused to take part in this research, complained during the interview, or dropped out, requiring suspension of the interview. Recruiting from different departments gave us the opportunity to obtain a few patients from each facility. Both this format and the handy integration of the BPDSI into an everyday clinical interview probably resulted in this successful recruitment rate.

GROUPS' CHARACTERISTICS

Most of the participants were women: 190 (76.6%) in the BPD group versus 62 (54.9%) in the BP group ($p < .0001$). The BP group was significantly older (in years: 51.57 ± 13.29 vs. 40.83 ± 13.06 ; $p < .0001$). The BPD patients were mostly single (43.5%), followed by those “in a relationship” (37.1% married or common law) and those “who had ended their relationship” (19.4% separated or divorced). Conversely, BP patients were mostly “in a relationship” (75.2% married or common law), followed by single (38.1%) and those “who had ended their relationship” (15.9% separated or divorced). The only significant comparison was between patients “in a relationship” ($\chi^2 < 0.0001$).

Half of the patients in each group had obtained a high school degree (46.4% in BPD and 46.9% in BP). Almost double the number of BP patients had obtained a university degree (17.7% vs. 8.9%), and this difference showed statistical significance ($\chi^2 < 0.0001$). BPD patients declared “unemployment” (housewife, unemployed, pensioned, and disabled) in 60.1% of the cases while BP patients claimed “unemployment” in 20.4% of cases. This difference is statistically significant ($\chi^2 < 0.0001$).

INSTRUMENTS

SCID-II. SCID-II is a structured interview created to explore possible disorders belonging to Axis II of the *DSM-IV*. It consists of a self-questionnaire with 119 items, followed by an interview based on the answers to those items. The estimated time of administration is approximately 90 minutes (First et al., 1997; Mazzi, Morosini, De Girolamo, Bussetti, & Guaraldi, 2000).

BPDSI-IV Italian Translation. The BPDSI-IV was separately translated into Italian by two clinicians from different centers (Turin and Monza) who practiced in the United States and the United Kingdom, and after a comparison of the translations, it was back-translated by a bilingual interpreter, and observed incongruities were subsequently corrected.

INTERVIEWER TRAINING

According to the original research, interviewers were trained in a one-day session, practiced on each other, and used a standardized protocol to propose the research and administer the test.

STATISTICAL ANALYSIS

Data were analyzed using SPSS 22, performing:

- a. A *t* test to assess discriminant validity.
- b. Cronbach's α to measure internal consistency (reliability) of the BPDSI-IV. Cronbach's α most commonly used to evaluate surveys/questionnaires with Likert questions. It is expressed as a number between 0 and 1. Internal consistency describes the extent to which all items in a test measure the same concept construct, and hence it is connected to the interrelatedness of the items within the test. The additional measure to perform Chronbach's α is the result obtained at the SCID-II for the DSM-IV interview.
- c. The receiver operating characteristic (ROC) curve, to evaluate test performance. The ROC analysis is used in clinical epidemiology to quantify how accurately medical diagnostic tests (or systems) can discriminate between two patient states, with the area under the curve (AUC) as a meaningful measure of accuracy. Moreover, the ROC curve is essential to determine the optimal cut-off values; in fact, in the ROC curve, the true positive rate (Sensitivity) is

plotted as a function of the false positive rate (100-Specificity) for different cut-off points. Each point on the ROC curve represents a sensitivity/specificity pair corresponding to a particular decision threshold.

- d. Pearson's correlation to establish concurrent and construct validity. The Pearson's coefficient (ρ when measured in the population and r when measured in a sample) is a measure of the strength of the linear relationship between two variables. The Pearson coefficient can range from -1 to 1 (with -1 indicating a perfect negative linear relationship, 0 indicating no linear relationship, and 1 indicating a perfect positive linear relationship between variables).

RESULTS

DISCRIMINANT VALIDITY

The BPDSI total score and criteria scores statistically discriminate between groups ($ps < .0001$) except for criterion 9, Dissociation (see Table 1).

INTERNAL CONSISTENCY

Internal consistency of the BPDSI-IV total score and subscales was good in the total group, in the BPD group, and in the BP group. For the total sample, the average internal consistency for the subscale scores was 0.764, ranging from 0.746 for Affective Instability to 0.784 for Dissociation, and 0.785 for the total score. The BPD group had an average internal consistency for the subscale scores of 0.772, ranging from 0.755 for Affective Instability to 0.792 for Identity Disturbance and Impulsivity, and 0.806 for the total score, while the BP group had an average internal consistency for the subscale scores of 0.724, ranging from 0.597 for Dissociation to 0.827 for Parasuicide and 0.744 for the total score. The average inter-item correlation was 0.642 in the total sample, 0.619 in the BP group, and 0.565 in the BPD group.

ACCURACY OF THE BPDSI-IV

The ROC curve shows excellent accuracy for the total score, with AUC = 0.968 (IC = 97.5). Considering a cut-off of 15 for the total score, the results were Sensitivity 95.4% and Specificity 100%. All patients belonging to the BPD group scored higher than 15, while no subject belonging to BP group scored above this cut-off (see Table 1).

Most criteria obtained an AUC of excellent accuracy except for criteria 5, 8, and 9 (Parasuicide cut-off = 0.5 AUC = 0.650, Anger cut-off = 2.5 AUC = 0.694, and Dissociation cut-off = 0.15 AUC = 0.455; IC = 97.5) All criteria and the total score obtained the same cut-off as in previous studies, except for criterion 6, Affective Instability (AUC = 0.969, Sensitivity = 94.1 and Specificity = 100; IC = 97.5) at a lower cut-off (1.5 vs. 2.5) and criterion 9 Dissociation (AUC = 0.455; IC = 97.5) at a higher cut-off (1.5 vs. 0.3).

TABLE 1. *t*-Test (BPDSI Subscales and Total Scale) and ROC Analysis

BPDSI-IV scale	<i>t</i> test					ROC IC 97.5		
	BPD Mean	BP Mean	Std. Error	<i>p</i> value	AUC	Cut-off	Sn%	Sp%
BPDSI1, Abandonment	5.48 ± 3.60	0	.2792	< .0001	.933	0.5	86.6	100
BPDSI2, Relationships	5.37 ± 3.21	0.55 ± 0.50	.2502	< .0001	.918	0.5	91.2	54.9
BPDSI3, Identity Disturbance	1.41 ± 0.87	0	.06737	< .0001	.956	1.2	91.2	100
BPDSI4, Impulsivity	5.32 ± 3.37	1.55 ± 0.50	.2922	< .0001	.807	2.5	71	100
BPDSI5, (Para)suicide	2.40 ± 2.98	0.45 ± 0.50	.2343	< .0001	.650	0.5	55	54.9
BPDSI6, Affective Instability	7.11 ± 3.05	0.55 ± 0.50	.2958	< .0001	.969	1.5	94.1	100
BPDSI7, Emptiness	6.62 ± 3.27	0	.2527	< .0001	.971	0.5	94.1	100
BPDSI8, Anger Control	5.72 ± 3.14	3.65 ± 1.5	.2571	< .0001	.694	2.5	80.7	45.1
BPDSI9, Dissociation	3.49 ± 3.34	3.74 ± 2.49	.2898	1.000	.455	1.5	59.7	45.1
BPDSI Total	42.44 ± 17.11	10.49 ± 4.99	1.396	< .0001	.968	15	95.4	100

BPDSI-IV = Borderline Personality Disorder Severity Index, 4th edition; ROC = receiver operating characteristic; IC = confidence interval; AUC = area under the curve; Sn = sensitivity; Sp = Specificity.

CORRELATIONS

Most of the criteria showed significant intercorrelations in the total group ($p < .001$), with r s ranging from .062 to .873, except between criterion 9, Dissociation, and criterion 4, Impulsivity ($r = .066$; $p = .21$), and between criterion 9, Dissociation, and criterion 5, Parasuicide ($r = .062$; $p = .24$). In the BPD group, almost all criteria showed significant intercorrelations, except between criteria 4, Impulsivity, and 9, Dissociation ($r = .64$; $p = .319$), while all intercorrelations in the BP group showed statistical significance ($p < .001$). All comparisons between criterion 5, Parasuicide, and the other criteria showed negative correlations in the BP group (see Table 2).

DIAGNOSTIC ACCURACY

The results of the BPDSI were indicative of BPD in 235 patients who were positive for BPD in the SCID II (BPD-SCID II+); 13 BPD-SCID II+ patients scored below 5 in the BPDSI. None of the patients whose results were negative for BPD in the SCID II (BPD-SCID II-) satisfied more than five criteria in the BPDSI. Therefore, Sensitivity was 95% and Specificity 100%. If the discrimination for positivity in the BPDSI is a total score of 15 (diagnostic implications are further analyzed in the Discussion section below), all the BPD-SCID II+ and none of the BPD-SCID II- patients scored more than 15 (see Accuracy section above), thus implying Sensitivity and Specificity of 100%.

DISCUSSION

This study evaluated the discriminant validity, internal consistency, sensitivity and specificity of the BPDSI-IV in psychiatric patients diagnosed with BPD or BP by the SCID. BPDSI-IV was shown to discriminate between the two psychiatric disorders. It has good internal consistency and excellent accuracy for the total score and most of the criteria.

Our analysis shows that the Italian version of the BPDSI-IV clearly discriminates BPD from BP ($p < .0001$), except for criterion 9, Dissociation. This might be due to the high prevalence of psychotic symptoms, including paranoid ideation and/or dissociation in BP patients (Toh, Thomas, & Rossell, 2015; Vasquez, Gonzalez-Guarda, & De Santis, 2011; Vieta & Valenti, 2013).

All criteria were significantly correlated in all groups, except for criteria 4, Impulsivity, and 9, Dissociation, in the BPD group. This outcome might be due to the high heterogeneity of BPD subtypes according to the possible combination of symptoms listed in the *DSM-5*, which requires fulfillment of five out of nine criteria (APA, 2013; Jacob et al., 2016; Soloff & Chiappetta, 2012). The negative correlation that criterion 5, Parasuicide, obtains in the BP group highlights its unrelatedness in that clinical group, thus stressing implications for the clinical distinction between these clinical groups. The internal consistency of the subscales is good in the total group, the BPD group, and the BP group.

The total score shows excellent accuracy. Most of the criteria obtain ROC curves highlighting excellent accuracy, but it seems appropriate to discuss the

TABLE 2. Pearson's Correlation in the BPD and BP Groups

	BPDSI1	BPDSI2	BPDSI3	BPDSI4	BPDSI5	BPDSI6	BPDSI7	BPDSI8	BPDSI9	BPDSITotal
BPDSI1, Abandonment	.584*									.704*
BPDSI2, Relationships	.511**	.584*								.683*
BPDSI3, Identity Disturbance	.990*	.526**	.372**							.443**
BPDSI4, Impulsivity	.513**	.996**	.349**	.259**						.502**
BPDSI5, (Para)suicide	-.524**	-.995**	.527**	.264**	.188**					.496**
BPDSI6, Affective Instability	.521**	.994**	-.503**	-1.000**	.343**	.419**				.714**
BPDSI7, Emptiness	.578**	.412**	.517**	.993**	-.997**	.283**	.542**			.699**
BPDSI8, Anger Control	.520**	.991**	.526**	.437**	-.432**	.434**	.383**	.291**		.658**
BPDSI9, Dissociation	.518**	.992**	.509**	.994**	-.994**	.995**	.429**	.354**	.373**	.591**
BPDSITotal	.519**	.999**	.511**	.991**	-.993**	.990**	.431**	.295**	.341**	.997**

Note. $n = 248$ for all the correlations in the BPD group and $n = 113$ in the BP group; correlations in the BPD group are displayed above the diagonal and in the BP group below the diagonal. * $p < 0.05$. ** $p < 0.0001$.

poor accuracy of Parasuicide, probably due to the low scores even in the BPD group. Dissociation also failed to achieve accuracy, ostensibly due to the lack of discrimination of the item between groups.

Criteria cut-offs correspond or are close to the results obtained in validation of the German version (Kroeger et al., 2013). Confirmation of the cut-offs, as in previous BPDSI validation studies in different languages and countries, suggests their validity in the identification of BPD versus other psychiatric disorders.

Evidence of different cut-offs in criteria 6, Affective Instability, even with excellent accuracy, and 9, Dissociation, might mirror BPD key features that strongly distinguish from (affective instability) or associate them (dissociation) with BP patients. A different cut-off in criterion 6 might be stressed if the diagnostic process specifically implies a distinction between BPD and BP, but this hypothesis requires additional research. In fact, previous studies compared BPD to Axis I, Cluster C, and non-patient groups (Arntz et al., 2003; Giesen-Bloo et al., 2010) or mixed psychiatric patients and normal control groups (Kroeger et al., 2013). A different cut-off in a criterion representing a decisive overlapping symptom (affective instability) between BPD and BP might be taken into consideration since it specifically stresses and focuses on this comparison (not compared in previous studies analyzing BPDSI psychometric properties). This evidence might represent an additional strength. In fact, it has been detected in the comparison between two clinical groups with partial symptom similarities. As a consequence, it might represent a key to resolving the international academic controversy over the attempt to distinguish BPD and BP.

It is of crucial interest that the total score obtained a cut-off of 15, which corresponds to the value in the validation of the original Dutch version using the Jacobson and Truax formula (Jacobson & Truax, 1991). The repetition of the same cut-off in the total score in different studies and with different methods might suggest that the general cut-off should be considered as indicative of a BPD diagnosis, but this hypothesis needs further investigation. Moreover, the high degree contribution that the BPDSI-IV demonstrates in discriminating between BPD and BP, in the context of the nosological debate expressed in the academic world, appears to be a valid clinical aid. Finally, the BPDSI-IV structure is very adaptable and suitable to being administered during a clinical interview without interfering with daily clinical practice, due to both the typology of the questions and the time needed, leading to great compliance and participation.

LIMITATIONS

A possible limitation of the present study is that we did not specifically assess for comorbid BP in the BPD group using a structured interview schedule. Thus, there might have been BP comorbidity in BPD, obscuring the distinction between the two clinical groups. Despite that limitation, the BPDSI showed a strong capacity to distinguish between the two clinical groups.

A second limitation might be the fact that we did not perform inter-rater reliability tests. However, all interviewers were trained according to the original validation and conformed to a rigorous shared protocol of administration.

CONCLUSION AND FUTURE DEVELOPMENT

The Italian version of the BPDSI-IV shows high psychometric properties (discriminant validity, internal consistency, accuracy, sensitivity and specificity, diagnostic accuracy, and inter-item correlation). It clearly discriminates patients affected by BPD, thus fulfilling the need for diagnostic rigor. Its discriminant capacity in the specific comparison of BPD and BP strengthens BPDSI-IV validity and importance in relation to the reported symptoms overlapping between these disorders. Further studies are needed to establish the BPDSI-IV as a diagnostic tool, but the results obtained in the present study, with its large sample size, strongly point in this direction.

REFERENCES

- Akiskal, H. S. (2002). The bipolar spectrum: The shaping of a new paradigm in psychiatry. *Current Psychiatry Reports*, 4(1), 1–3.
- Akiskal, H. S. (2004). Demystifying borderline personality: Critique of the concept and unorthodox reflections on its natural kinship with the bipolar spectrum. *Acta Psychiatrica Scandinavica*, 110(6), 401–407.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.
- Arntz, A., van den Hoorn, M., Cornelis, J., Verheul, R., van den Bosch, W. M., & de Bie, A. J. (2003). Reliability and validity of the borderline personality disorder severity index. *Journal of Personality Disorders*, 17(1), 45–59.
- Bellino, S., Paradiso, E., & Bogetto, F. (2005). Oxcarbazepine in the treatment of borderline personality disorder: A pilot study. *Journal of Clinical Psychiatry*, 66(9), 1111–1115.
- Bellino, S., Paradiso, E., & Bogetto, F. (2006). Efficacy and tolerability of quetiapine in the treatment of borderline personality disorder: A pilot study. *Journal of Clinical Psychiatry*, 67(7), 1042–1046.
- Black, D. W., & Grant, J. E. (2014). *DSM-5 guidebook: The essential companion to the Diagnostic and Statistical Manual of Mental Disorders, fifth edition*. Washington, DC: American Psychiatric Publishing.
- First, M., Gibbon, M., Spitzer, R. L., Williams, J. B. W., & Benjamin, L. S. (1997). *Structured Clinical Interview for DSM-IV Axis I Personality Disorders, (SCID-II)*. Washington, DC: American Psychiatric Press.
- First, M., Spitzer, R. L., Gibbon, M., & Williams, J. B. W. (1996). *Structured Clinical Interview for DSM-IV Axis I Disorders*. Washington, DC: American Psychiatric Press.
- Giesen-Bloo, J. H., Wachters, L. M., Schouten, E., & Arntz, A. (2010). The Borderline Personality Disorder Severity Index-IV: Psychometric evaluation and dimensional structure. *Personality and Individual Differences*, 49, 136–141.
- Jacob, C. P., Gross-Lesch, S., Reichert, S., Geissler, J., Jans, T., Kittel-Schneider, S., . . . Lesch, K. P. (2016). Sex- and subtype-related differences of personality disorders (Axis II) and personality traits in persistent ADHD. *Journal of Attention Disorders*, 20, 1056–1065.
- Jacobson, N. S., & Truax, P. (1991). Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology*, 59(1), 12–19.
- Kernberg, O. F., & Yeomans, F. E. (2013). Borderline personality disorder, bipolar disorder, depression, attention deficit/hyperactivity disorder, and narcissistic personality disorder: Practical differential diagnosis. *Bulletin of the Menninger Clinic*, 77(1), 1–22.
- Kroger, C., Vonau, M., Kliem, S., Roepke, S., Kosfelder, J., & Arntz, A. (2013). Psychometric properties of the German version of the Borderline Personality Disorder Severity Index–Version IV. *Psychopathology*, 46(6), 396–403.
- Leblanc, A., Jarroir, M., Vorspan, F., Bellivier, F., Leveille, S., & Romo, L. (2016). Dimensions affectives et impulsives dans le trouble bipolaire et le trouble de la personnalité *borderline* [Emotional and impulsive dimensions in bipolar disorder and borderline personality disorder]. *L'Encephale*. Advance online publication. doi:10.1016/j.encep.2016.02.007
- Leppanen, V., Lindeman, S., Arntz, A., & Hakko, H. (2013). Preliminary evaluation of psychometric properties of the Finnish Borderline Personality Disorder Severity Index: Oulu BPD study. *Nordic Journal of Psychiatry*, 67(5), 312–319.

- Loranger, A. W., Sartorius, N., Andreoli, A., Berger, P., Buchheim, P., Channabasavanna, S. M., . . . Regier, D. A. (1994). The International Personality Disorder Examination: The World Health Organization/Alcohol, Drug Abuse, and Mental Health Administration international pilot study of personality disorders. *Archives of General Psychiatry*, *51*(3), 215–224.
- Mackinnon, D. F., & Pies, R. (2006). Affective instability as rapid cycling: Theoretical and clinical implications for borderline personality and bipolar spectrum disorders. *Bipolar Disorders*, *8*(1), 1–14.
- Mazzi, F., Morosini, P., De Girolamo, G., Bussetti, M., & Guaraldi, G. P. (2000). *SCID, Intervista Clinica Strutturata per il DSM-IV*. Firenze, Italy: Organizzazioni Speciali.
- Paris, J. (2004). Borderline or bipolar? Distinguishing borderline personality disorder from bipolar spectrum disorders. *Harvard Review of Psychiatry*, *12*(3), 140–145.
- Paris, J., Gunderson, J., & Weinberg, I. (2007). The interface between borderline personality disorder and bipolar spectrum disorders. *Comprehensive Psychiatry*, *48*(2), 145–154.
- Richardson, E., & Tracy, D. K. (2015). The borderline of bipolar: Opinions of patients and lessons for clinicians on the diagnostic conflict. *BJPsych Bulletin*, *39*(3), 108–113.
- Rinne, T., de Kloet, E. R., Wouters, L., Goekoop, J. G., de Rijk, R. H., & van den Brink, W. (2003). Fluvoxamine reduces responsiveness of HPA axis in adult female BPD patients with a history of sustained childhood abuse. *Neuropsychopharmacology*, *28*(1), 126–132.
- Rinne, T., van den Brink, W., Wouters, L., & van Dyck, R. (2002). SSRI treatment of borderline personality disorder: A randomized, placebo-controlled clinical trial for female patients with borderline personality disorder. *American Journal of Psychiatry*, *159*(12), 2048–2054.
- Robins, E., & Guze, S. B. (1970). Establishment of diagnostic validity in psychiatric illness: Its application to schizophrenia. *American Journal of Psychiatry*, *126*(7), 983–987.
- Saunders, K. E., Goodwin, G. M., & Rogers, R. D. (2015). Borderline personality disorder, but not euthymic bipolar disorder, is associated with a failure to sustain reciprocal cooperative behaviour: Implications for spectrum models of mood disorders. *Psychological Medicine*, *45*(8), 1591–1600.
- Smith, D. J., Muir, W. J., & Blackwood, D. H. (2004). Is borderline personality disorder part of the bipolar spectrum? *Harvard Review of Psychiatry*, *12*(3), 133–139.
- Soloff, P. H., & Chiappetta, L. (2012). Prospective predictors of suicidal behavior in borderline personality disorder at 6-year follow-up. *American Journal of Psychiatry*, *169*(5), 484–490.
- Toh, W. L., Thomas, N., & Rossell, S. L. (2015). Auditory verbal hallucinations in bipolar disorder (BD) and major depressive disorder (MDD): A systematic review. *Journal of Affective Disorders*, *184*, 18–28.
- Vasquez, E. P., Gonzalez-Guarda, R. M., & De Santis, J. P. (2011). Acculturation, depression, self-esteem, and substance abuse among Hispanic men. *Issues in Mental Health Nursing*, *32*(2), 90–97.
- Verheul, R., Van Den Bosch, L. M., Koeter, M. W., De Ridder, M. A., Stijnen, T., & Van Den Brink, W. (2003). Dialectical behaviour therapy for women with borderline personality disorder: 12-month, randomised clinical trial in The Netherlands. *British Journal of Psychiatry*, *182*, 135–140.
- Vieta, E., & Valenti, M. (2013). Mixed states in DSM-5: Implications for clinical care, education, and research. *Journal of Affective Disorders*, *148*(1), 28–36.
- Yen, S., Frazier, E., Hower, H., Weinstock, L. M., Topor, D. R., Hunt, J., . . . Keller, M. B. (2015). Borderline personality disorder in transition age youth with bipolar disorder. *Acta Psychiatrica Scandinavica*, *132*(4), 270–280.
- Zanarini, M. C., Stanley, B., Black, D. W., Markowitz, J. C., Goodman, M., Pilkonis, P., . . . Sanislow, C. (2010). Methodological considerations for treatment trials for persons with personality disorder. *Annals of Clinical Psychiatry*, *22*(2), 75–83.
- Zanarini, M. C., Vujanovic, A. A., Parachini, E. A., Boulanger, J. L., Frankenburg, F. R., & Hennen, J. (2003). Zanarini Rating Scale for Borderline Personality Disorder (ZAN-BPD): A continuous measure of DSM-IV borderline psychopathology. *Journal of Personality Disorders*, *17*(3), 233–242.
- Zimmerman, M., & Coryell, W. H. (1990). Diagnosing personality disorders in the community. A comparison of self-report and interview measures. *Archives of General Psychiatry*, *47*(6), 527–531.
- Zimmerman, M., & Morgan, T. A. (2013a). Problematic boundaries in the diagnosis of bipolar disorder: The interface with borderline personality disorder. *Current Psychiatry Reports*, *15*(12), 422.
- Zimmerman, M., & Morgan, T. A. (2013b). The relationship between borderline personality disorder and bipolar disorder. *Dialogues in Clinical NeuroSciences*, *15*(2), 155–169.