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Impulsive clinical profile of Borderline Personality Disorder with comorbid Substance Use Disorder

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Introduction. Borderline Personality Disorder (BPD) is one of the Personality Disorder most frequently associated with Substance Use Disorder (SUD). According to different models, the Behavioral dysregulation-BPD subgroup has a higher prevalence of SUD and certain impulsivity behaviors than the other two subgroups.

Methods. Out of 156 BPD patients, 47 were in the Behavioral dysregulation-BPD subgroup, 55 in Affective dysregulation, and 54 in Disturbed relatedness. All patients completed the SCID-II for DSM-IV Axis II Disorders, SCID-I for DSM-IV Axis I Disorders, Barratt Impulsiveness Scale (BIS-11) and Revised Diagnostic Interview for Borderlines (DIB-R).

Results. In the comparison of the BPD subgroups, Behavioral dysregulation showed significantly more prevalence of SUD (alcohol and cocaine), and tendency for anxiolytics, higher impulsivity (DIB-R, but none in BIS-11), and higher number of suicide attempts and psychiatric admissions, although these was not significant in comparison with the other subgroups.

Conclusions. This should be especially useful in the discrimination of BPD patients for different therapeutic approaches and prognoses.

Keywords: Borderline Personality Disorder, Substance Use Disorder, Clinical profile, Impulsivity, Comorbidity

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Perfil clínico de impulsividad en el Trastorno Límite de Personalidad con Trastorno de Uso por Sustancias comórbido

Introducción. El Trastorno Límite de Personalidad (TLP) es uno de los Trastornos de Personalidad (TP) más frecuentemente asociado con el Trastorno por Uso de Sustancias (TUS). De acuerdo con diferentes modelos, el subtipo TLP-Desregulación conductual tiene mayor prevalencia de TUS y de ciertas conductas de impulsividad que los otros dos subgrupos.

Método. De un total de 156 pacientes TLP, 47 eran del subgrupo Desregulación conductual, 55 de Desregulación afectiva, y 54 de Alteración relacional. Todos los pacientes completaron SCID-II para los trastornos del Eje II del DSM-IV, SCID-I para los trastornos del Eje I, Escala Impulsividad de Barratt (BIS-11) y la Entrevista Diagnóstica Revisada para Límites (DIB-R).

Resultados. En la comparación entre los subgrupos TLP, Desregulación conductual mostraba prevalencia significativamente mayor de TUS (alcohol y cocaína), y tendencia a ansiolíticos, mayor impulsividad (DIB-R, pero no en BIS-11) y un mayor número de tentativas de suicidio e ingresos psiquiátricos, aunque éstos no eran estadísticamente significativos en comparación con los otros subgrupos.

Conclusiones. Estos resultados deberían ser especialmente útiles en la discriminación de pacientes TLP en relación al pronóstico y a los diferentes abordajes terapéuticos.

Palabras clave: Trastorno Límite de Personalidad, Trastorno por Uso de Sustancias, Perfil clínico, Impulsividad, Comorbilidad

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INTRODUCTION

Since the publication of the multiaxial diagnostic system in the Diagnostic and Statistical Manual of Mental Disorders-III (DSM-III)¹, in which Personality Disorders (PD) are placed on Axis II, until the present, interest in the study of the comorbidity between PD and Substance Use Disorder (SUD) has been growing. This is one of the most common forms of dual diagnosis in routine clinical practice². However, it is currently very difficult to obtain reliable diagnoses and, consequently, to perform appropriate therapeutic interventions. This situation has led clinicians and researchers to study PD and SUD comorbidity both in clinical³⁻⁵ and non-clinical samples^{2,6-9}.

Previously published results report that Borderline Personality Disorder (BPD) is one of the PD with the highest association with SUD, with an estimated average prevalence of 50%^{5,10-14}. Zanarini et al.¹⁴ reported that between 23 and 84% of BPD patients (mean=65.1%) met criteria for alcohol-related SUD, and between 19 and 87% (mean=47%) for SUD related to other substances. These data are consistent with those published by Walter et al.¹⁵ (2009), who described a prevalence of comorbid SUD of over 50% in a psychiatric sample of BPD patients, whereas in non-BPD patients, it was about 35%. Also, some studies, such as that of Feske et al.¹⁰, have indicated that the association between BPD and SUD in a psychiatric sample of women could result in a more torpid evolution and prognosis, based on a more severe drug abuse pattern, a higher number of self-destructive behaviors, and more suicide attempts.

This remarkable association between BPD-SUD, not explicable solely by random or measurement causes or by overlapping diagnostic criteria (evident in psychiatric classifications), has led some authors to propose some etiological explanatory models^{13,16-19}. Siever and Davis¹⁸ considered BPD and SUD as parts of a common underlying disorder related to a biologically determined lack of impulse control. Subsequently, several authors have suggested the existence of common underlying etiologic factors of vulnerability to further development and crystallization of BPD and/or SUD, with impulsivity and emotional dysregulation being the most replicated^{13,15,16,19-21}.

On the other hand, BPD is considered a heterogeneous and complex diagnostic category^{22,23}. Among the different approaches to a better understanding of this complexity, the research lines of the distinction of different components underlying the BPD construct must be highlighted^{17,24,25}. Their differential expression could shape different clinical patterns of borderline personality^{14,17,24,25}. The existence of possible clinical BPD subgroups based on clinical observation^{14,26} and as a result of statistical techniques like Latent Class Analysis (LCA)¹⁷ has been proposed. Further-

more, some investigators have subjected DSM criteria for BPD to statistical procedures, such as exploratory factorial analysis (EFA) and confirmatory factorial analysis (CFA) in an attempt to clarify the latent symptom structure. Different models have emerged from these analyses, with a 3-factor model that considers three underlying BPD factors called Disturbed relatedness, Affective dysregulation and Behavioral dysregulation being the most widely accepted^{25,27-29}. The first factor, Disturbed relatedness loaded on DSM-IV³⁰ criteria for BPD: unstable and intense interpersonal relationships (2nd criterion), identity disturbance (3rd criterion), chronic feelings of emptiness (7th criterion), and transient, stress-related paranoid ideation, delusions or severe dissociative symptoms (9th criterion). The second factor, Affective dysregulation: affective instability due to a marked reactivity of mood (6th criterion), inappropriate anger (8th criterion), and frantic efforts to avoid real or imagined abandonment (1st criterion). Behavioral dysregulation is the third factor: impulsivity in at least two areas that are potentially self-damaging (4th criterion), and recurrent suicidal or self-mutilation behaviors (5th criterion). According to this model, BPD could present different clinical profiles with related comorbidity patterns depending on the predominance of one of the three components^{31,32}. Despite the growing body of scientific evidence to modify the diagnostic criteria of DSM-IV³³ (APA, 1994)³⁰, the final version of the fifth edition of the DSM³⁴ maintains the same polythetic diagnostic system as the previous edition.

Given that the relationship between BPD and SUD could be due to a common underlying etiologic factor in vulnerability to suffer from impaired impulse control, the main objective of this study was to analyze whether a subgroup of BPD patients characterized by predominant Behavioral dysregulation component have a higher prevalence of SUD than those characterized by dominance of Affective dysregulation and Disturbed relatedness components. The hypothesis is that the BPD subgroup characterized by the predominance of Behavioral dysregulation will exhibit a higher prevalence of comorbid disorders and certain impulsive behaviors.

METHODOLOGY

Participants

This is an observational, cross-sectional study that includes a total number of 156 outpatients diagnosed BPD according to DSM-IV criteria, who had been consecutively referred to our BPD program at the General University Hospital in Barcelona (Spain). 107 patients (68.6%) were women. The average age of subjects was 27.08 years ($SD=7.3$). Inclusion criteria in the study were older than 18

years of age, with a least average intelligence, having no current diagnosis of schizophrenia, bipolar I disorder, or active substance dependence disorder, and not suffering from any organic condition that might be associated with the development of psychiatric symptoms.

Measures

The Spanish version of the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-II)³⁵ was administered to assess of BPD and others PD according to DSM-IV/DSM5 criteria. To determine the possible lifetime presence of SUD and the other comorbid disorders in Axis I, the Spanish version of the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I)³⁶ was used.

Impulsivity was explored with the Barratt Impulsiveness Scale (BIS-11)³⁷, Spanish version³⁸. This self-report BIS-11 provides a total score and three subscales for impulse control measure: Cognitive impulsivity, Motor impulsivity, and Non-planning impulsivity.

Also, the impulsivity was assessed using the corresponding subscale of the Revised Diagnostic Interview for Borderlines (DIB-R)³⁹, Spanish version⁴⁰. This subscale contains a score of Impulsive Behaviors Area (range 0-10), and a score of Impulsive Behaviors Scale (from 0 to 3). It was used to assess the presence and severity of symptoms of impulsivity in BPD (substance abuse/dependence, sexual deviance, self-harm, suicide attempts or/and threats, and other impulsivity patterns).

Finally, psychopathological severity was assessed during the first screening interview through the clinical variables of suicide attempts, self-harm behaviors, and psychiatric emergency admissions and confirmed by previous medical reports. When patient's information was not confirmed by medical reports, it was not considered for the analyses. This strategy was chosen to increase the reliability of the data.

Procedure

The psychopathological evaluation was carried out in four diagnostic interviews performed by a psychiatrist and clinical psychologist trained in diagnosis of BPD. The first clinical interview was conducted by a psychiatrist to confirm BPD clinical diagnosis according to DSM-IV criteria and the fulfillment of inclusion criteria and to record clinical and socio-demographic data the absence of exclusion criteria. Later, clinical psychologist experienced in BPD and in the use of the different instruments performed three interviews on three different days to administer SCID-II, SCID-I and DIB-R. Finally, self-report BIS-11 was collected during the third interview. Written informed consent was obtained from all

the participants before they entered the study. The study was approved by the hospital Ethical Committee.

Statistical Analyses

The main independent factor of analysis in this study was the three BPD subgroups. The three groups of analysis were obtained using the same method as in a previous study with confirmatory factorial analyses (CFA) (for more details see Andión et al.²⁸, and Calvo et al.³¹). The 156 subjects who were classified in this previous study were included in the present study: 47 in the Behavioral dysregulation-BPD subgroup, 55 in Affective dysregulation, and 54 in Disturbed relatedness. These three groups constituted the main independent factor. When categorical variables were analyzed, as in the case of Axis I diagnoses, Pearson Chi Square was executed. For quantitative variables, as in the case of BIS-11, analysis of variance was considered.

RESULTS

Descriptive characteristics of the total BPD sample and from the different BPD subgroups characterized by the different components -Behavioral dysregulation, Affective dysregulation and Disturbed relatedness- are reported in Table 1. Data indicate that 76% (n=117) of the total sample were single. Of the patients, 42.8% (n=65) had reached a level equivalent to graduate school studies, whereas only 10.5% (n=16) had university studies or were in university. Regarding occupation, 38.8% (n=59) of the patients were occupationally active, whereas 42.8% (n=65) were inactive (unemployed, or on sick leave). No significant differences between subgroups were observed regarding sociodemographic variables (see Table 1).

Analyzing the differences in Axis I comorbidity between the BPD subgroups, SUD was only significantly more prevalent in the Behavioral dysregulation (63.8%) group compared to the Affective dysregulation (34.5%) and the Disturbed relatedness (37%) groups [χ^2 (2)=10.54, $p=.005$]. Regarding the specific abused substance, the highest prevalence for all substances was observed in the Behavioral dysregulation group, which was significant for alcohol [χ^2 (2)=7.74, $p=.021$] and cocaine [χ^2 (2)=11.22, $p=.004$]. Higher frequency was observed for and anxiolytics in this subgroup, but it was not significant [χ^2 (2)=5.94, $p=.051$] (see Table 2). No differences were observed between the different groups for other Axis I disorders. Only anxiety disorders were more strongly associated with Disturbed relatedness-BPD, but the differences were not statistically significant [χ^2 (2)=4.18, $p=.124$] (Table 2).

The differences between the BPD subgroups in impulsivity, as measured by the BIS-11 and the DIB-R, are presented in

Table 1	Sociodemographic characteristics (n=156)								
	Behavioral Dysregulation - BPD (n=47)		Affective Dysregulation - BPD (n=55)		Disturbed Relatedness - BPD (n=54)		F	df	p
	mean	(SD)	mean	(SD)	mean	(SD)			
Age	27.87	(7.25)	26.07	(7.77)	27.30	(6.88)	0.818	2	0.443
	%	(n)	%	(n)	%	(n)	χ^2	df	p
Gender							0.24	2	0.888
Female	66	(31)	69.1	(38)	70.4	(38)			
Civil Status							3.17	4	0.530
Single	72.3	(34)	75.9	(41)	79.2	(42)			
Married or w. partner	21.3	(10)	14.8	(8)	9.4	(5)			
Level Education							8.49	10	0.581
Primary	47.8	(22)	41.5	(22)	39.6	(21)			
Secondary	34.8	(16)	47.2	(25)	41.5	(22)			
High (University)	8.7	(4)	5.7	(3)	17	(9)			
Work Status							9.09	12	0.695
Unemployed/disability leave	52.2	(24)	37.1	(20)	40.4	(21)			
Employed	39.1	(18)	38.9	(21)	38.5	(20)			

Table 2	Comorbidity total sample and subgroup BPD in Axis I with SCID-I								
	Behavioral Dysregulation BPD (n=47)		Affective Dysregulation BPD (n=55)		Disturbed Relatedness BPD (n=54)		χ^2	df	p
	%	(n)	%	(n)	%	(n)			
Mood disorders	38.3	(18)	23.6	(13)	37	(20)	3.18	2	0.203
Anxiety disorders	51.1	(24)	38.2	(21)	57.4	(31)	4.18	2	0.124
Eating disorders	14.9	(7)	12.7	(7)	16.7	(9)	0.34	2	0.845
ADHD	31.6	(12)	34.1	(15)	35.3	(18)	0.14	2	0.934
SUD	63.8	(30)	34.5	(19)	37	(20)	10.54	2	0.005
Alcohol	40.4	(19)	20	(11)	18.5	(10)	7.74	2	0.021
Cannabis	40.4	(19)	25.5	(14)	27.8	(15)	3.01	2	0.222
Cocaine	36.2	(17)	12.7	(7)	13	(7)	11.22	2	0.004
Anxiolytics	10.6	(5)	1.8	(1)	1.9	(1)	5.94	2	0.051
Boldface = $p < 0.05$									
ADHD: Attention deficit/hyperactivity disorder; SUD: Substance use disorder									

Table 3. No differences between the BPD subgroups in impulsivity scores on any BIS-11 scale were found. However, significant differences in scores on the Impulsivity subscale of

the DIB-R were found. The patients of the Behavioral dysregulation subgroup obtained higher and significant values both in the impulsivity area [$F(2)=6.70$, $p=.002$] and on

Table 3 Impulsivity and severity in subgroup BPD

	Behavioral Dysregulation BPD		Affective Dysregulation BPD		Disturbed Relatedness BPD				
<i>Impulsivity</i>	mean	(SD)	mean	(SD)	mean	(SD)	F	df	p
BIS-11									
Cognitive impulsivity	18.7	(4.87)	18.1	(5.26)	19.4	(5.71)	0.70	2	0.489
Motor impulsivity	23.5	(8.36)	23.8	(9.14)	23.1	(8.17)	0.08	2	0.926
Non-planning impulsivity	26.5	(7.45)	24.0	(8.01)	23.4	(7.34)	1.89	2	0.154
Total score	68.6	(16.44)	65.7	(17.08)	65.3	(15.37)	0.53	2	0.593
DIB-R									
Area impulsivity	4.54	(2.18)	4	(2.35)	3.02	(1.73)	6.70	2	0.002
Scale impulsivity	1.65	(1.12)	1.14	(1.19)	0.83	(1.08)	6.99	2	0.001
<i>Severity</i>	%	(n)	%	(n)	%	(n)	χ^2	df	p
Suicide Attempts							6.69	4	0.153
General presence*	56.6	(26)	41.2	(21)	35.8	(19)			
Number $\geq 2^{**}$	45.7	(21)	27.5	(14)	22.6	(12)			
Self-harm behaviors							3.31	4	0.507
General presence*	50	(23)	54.9	(28)	37.7	(20)			
Number $\geq 2^{**}$	41.3	(19)	45.1	(23)	30.2	(16)			
Psychiatric admittances							3.85	4	0.427
General presence*	36.9	(17)	33.3	(17)	22.6	(12)			
Number $\geq 2^{**}$	21.7	(10)	13.7	(7)	11.3	(6)			

Boldface = $p < .05$

* General presence: Presence in general of suicide attempts, self-harm behaviors or psychiatric admittances

** Number ≥ 2 : Number equal to or higher than 2.

BIS-11: Barratt Impulsiveness Scale self-report; DIB-R: Diagnostic Interview for Borderlines-Revised.

the impulsivity scale DIB-R [$F(2)=6.99, p=.001$] in comparison with the other two subgroups.

Our results also showed a higher number of suicide attempts and psychiatric admissions for the Behavioral dysregulation subgroup, and more self-harm behaviors in the Affective dysregulation subgroup, but it was not significant in comparison with the other subgroups (see Table 3).

DISCUSSION AND CONCLUSIONS

As frequently stated, BPD is one of the most heterogeneous diagnostic constructs, considering the high comorbidity of a large diversity of Axis I disorders. Our study aimed to explore whether the Behavioral dysregulation subgroup had a greater association with the Substance use disorder (SUD) compared to two other subgroups, and we analyzed

whether this association represents more proneness to impulsivity. Our patients, who were characterized by predominance of the Behavioral dysregulation-BPD component, showed higher comorbidity with SUD, specifically, greater use of alcohol and cocaine, and a greater tendency to abuse anxiolytics. These Behavioral dysregulation BPD-SUD patients also showed more impulsivity according to the results obtained in the subscale DIB-R interview (substance abuse and severity behaviors). However, although historically the BIS-11 has been widely used in clinical studies to investigate impulsivity in BPD^{16,41,42}, in our study, it did not differentiate the three subgroups in impulsivity. Although these results seem to be more closely related to the lack of a clear definition of impulsivity¹⁶, unfortunately there are currently no previous studies analyzing the BIS-11 self-report scores in BPD subgroups to compare our data. Finally, our Behavioral dysregulation subgroup with comorbid SUD is characterized by a greater tendency to carry out suicide attempts and by more psychiatric admissions, associated with impulsivity in

BPD, but this tendency was not statistically significant. According to our data, the relation between BPD and SUD should be investigated in more detail, and the experimental or neurological measures and biological markers, such as decision-making or reflection impulsivity in gambling, or planning tasks and tasks testing motivational impulse control, such as gratification delay, should be examined in BPD patients^{15,43}.

Interestingly, the other two BPD subgroups, patients characterized by Affective dysregulation factor or Disturbed relatedness did not present so clearly differentiated clinical characteristics. Only Disturbed relatedness-BPD exhibited a higher frequency with anxiety disorders, and Affective dysregulation-BPD presented a higher rate than the other BPD subgroups of self-harm behaviors, but neither one was significant. So, it seems that the patients classified in these two subgroups are more similar and have a clinical profile with less impulsivity, as we noted in an earlier study of our group³¹.

Therefore, our findings indicate the existence of clinical differences in function of the presence of SUD and impulsivity in patients depending on the BPD subgroup. According to the literature^{21,44,45}, this should be especially useful in the discrimination of BPD patients. In this sense, the study of Trull et al.²¹ (2004) indicated that patients with BPD and SUD show higher levels of impulsivity and have a higher tendency towards behavioral dyscontrol and self-destructive behaviors than patients with either disorder alone. In this sense, our results lead us to suggest the possible existence of a Behavioral dysregulation - BPD subgroup in which impulsivity may be a vulnerability factor to promote the development of a clinical profile in which SUD would have a significant presence. This is consistent with the works of some authors advocating that impulsivity is one of the core features underlying BPD^{13,16,18,20,44}. Future studies should consider whether there is a causal link between impulsivity and Behavioral dysregulation-BPD that can better explain the significant association found in our work, and should examine whether the two other subtypes of BPD -Affective Dysregulation and Disturbed relatedness- show any other predisposition or combination of subjacent traits.

This study has several limitations. First, this is an exploratory study using a limited-size sample size, thus limiting statistical power. Second, the setting of the patients evaluated is an outpatient unit of BPD. Further studies should be performed in larger samples and in other groups of BPD patients, or with patients who are inpatients in a drug addiction unit, in order to confirm and generalize the results obtained in this study. Third, the assessment tools of impulsivity administered are controversy. The contribution of the impulsivity trait to the development of BPD subtypes and the possible connections with impulsivity traits needs to be systematically assessed in future. Finally, BPD comorbidi-

ty has not been studied with other PDs, and more specifically with SUD. Future research should explore possible associations between BPD subgroups, SUD, and other PDs that could explain some of the results obtained.

In conclusion, our findings suggest that, from a clinical perspective, the recognition of BPD subgroups based on the predominance of a specific component of psychopathology may help to understand the existence of certain clinical patterns within a unique heterogeneous category. The contribution and novelty of our work is that the patients characterized by a differential clinical profile of Behavioral dysregulation-BPD and SUD would require quick identification, and a more accurate diagnosis and therapeutic approach of greater intensity, allowing these patients to manage and reduce the impulsivity and the severity of their behavior. This could be of great relevance in prognosis and treatment. It may help clinicians and researchers to clarify the study of BPD, as it may require completely different therapeutic approaches and, therefore, BPD may also have different prognoses.

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CONFLICT OF INTEREST

There are no conflicts of interest.

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