

## MCCI-II borderline personality disorder in anorexia and bulimia nervosa

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The aim of the present study is to explore the MCCI-II personality style and MCCI-II possible disorder of borderline personality (BPD) in various groups of women. 93 patients-31 anorexia nervosa restricting subtype (ANr), 31 anorexia nervosa binge-eating/purging subtype (ANp), and 31 bulimia nervosa purging subtype (BNp); 31 women at high risk for eating disorder or symptomatic control group (S-CG) and 31 without known pathology or not symptomatic control group (NS-CG)-completed the Spanish version of the MCCI-II. The results revealed: (1) clinically significant borderline personality traits [74>Base Rate (BR) <85]: 16.1% ANr, 12.9% ANp, and 45.2% BNp versus 3.2% of the S-CG and none of the NS-CG; (2) possible disorder (BR>84): 29% ANr, 41.9% ANp and 29% BNp. According to the MCCI-II, women with BNp displayed more BPD traits than possible disorder (though these were more severe). However, the probability of a possible disorder was higher in ANp (more disorders than traits).

*Trastorno límite de personalidad según el MCCI-II en la anorexia y bulimia nerviosas.* El objetivo del presente trabajo es estudiar los rasgos de personalidad y el posible diagnóstico de Trastorno Límite de la Personalidad (TLP) según el MCCI-II en diferentes grupos de mujeres. 93 pacientes: 31 con anorexia nerviosa restrictiva (ANr), 31 con anorexia nerviosa compulsiva/purgativa (ANp) y 31 con bulimia nerviosa purgativa (BNp); 31 mujeres en riesgo de desarrollar un trastorno de la conducta alimentaria o grupo control sintomático (GC-S) y 31 sin patología conocida o grupo control no sintomático (GC-NS) completaron la versión española del MCCI-II. Los resultados muestran: (1) rasgos de personalidad límite clínicamente significativa [74>tasa base (TB)<85], 16.1% ANr, 12.9% ANp, y 45.2% BNp versus 3.2% en el GC-S y ninguno en el GC-NS; (2) posibles trastornos (TB>84), 29% ANr, 41.9% ANp y 29% BNp. Se concluye que, a partir del MCCI-II, las mujeres con BNp mostraron más rasgos de TLP que posibles diagnósticos (aunque cuando los presentaron éstos fueron más severos). Sin embargo, la probabilidad de un posible trastorno fue mayor en las mujeres con ANp (más trastornos que rasgos).

A number of researchers have thoroughly studied the relationship and comorbidity of eating disorders (ED) with personality disorders (PDs), being one of the most referenced the comorbidity with the borderline personality disorder (BPD). It has been even regarded as an artifact or a bias of the elevated comorbidity rates of ED with PDs in general (Braun, Sunday, & Halmi, 1994; Fahy, Eisler, & Russell, 1993; Grilo et al., 2003) and specifically with the BPD by the assessment methods used in the first studies that overestimated the diagnosis of this disorder (Pope & Hudson, 1989).

Several studies refer to BPD as the most characteristic in women with an ED, especially in those with bulimia nervosa (BN), with percentages ranging from 2% to 50% (Grilo et al., 2003; Herzog, Keller, Sacks, Yeh, & Lavory, 1992; Levin & Hyler, 1986; Sansone,

Levitt, & Sansone, 2005; Skodol et al., 1993; Vitousek & Manke, 1994; Wonderlich, Swift, Slotnick, & Goodman, 1990). Sansone & Levitt (2005) and Levitt (2005) consider that among those with an ED, the explicit prevalence of BPD remains unknown. However, other researchers have not found that such association is frequent. Some have even suggested that there might be a conceptual confusion between BN and BPD, due to the overlap between the symptomatology inherent in both disorders (Davis, Claridge, & Cerullo, 1997; Meyer, Leung, Ferry, & Mann, 2001; Pope & Hudson, 1989; Wonderlich, 1995). In the case of AN, the BPD diagnosis is more frequent in the purging subgroup, whereas the restricting subtype shows with more frequency other PDs (obsessive-compulsive, avoidant and schizoid) (Sansone et al., 2005; Vaz, 2003; Westen & Harden-Fisher, 2001).

Currently, concern has been focused on the study of certain personality features. There is empirical evidence of the involvement of specific features such as impulsivity, lack of control or self-aggressiveness, mainly in patients with BN (Fahy & Eisler, 1993; Favaro & Santonastaso, 2000; Favaro et al., 2005). On the other hand, all these features are common to persons having a BPD therefore it has been suggested that BN sometimes may be conceptually confused with the BPD (Dolan, Evans, &

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Norton, 1994; Zanarini et al., 1998). Furthermore, borderline personality characteristics have been found as risk factors among persons without psychiatric pathologies (Davis et al., 1997; Steiger, Leung, & Houle, 1992).

The importance of knowing the relationship ED-BPD lies in that persons with both disorders have a more severe clinical profile (Skodol et al., 1993), as well as in the fact that the presence of a BPD in these patients indicates a worse prognosis, especially in the case of BN (Wonderlich, Fullerton, Swift, & Klein, 1994). So far no research on BPD has been done focusing on the differential study of the traits and the disorder in the same sample of women with an ED. Also, according to our knowledge, there are currently very few studies on personality disorders in ED which include comparative groups which are either symptomatic or at risk for ED, and groups without known pathology.

The MCMI-II (Millon, 1987), in spite of being one of the instruments that provides a more promising measure of personality psychopathology in persons with a clinical ED (Tisdale, Pendleton, & Marler, 1990; Wiederman & Pryor, 1997), has been little used so far in the ED (del Río, Torres, & Borda, 2002; Echeburúa, Marañón, & Grijalvo, 2002; Espeleage, Mazzeo, Sherman, & Thompson, 2002; Martin, Motos, & del Aguila, 2001; Wiederman & Prior, 1997). However, we consider that it may be a valid instrument, not so much for its sensitivity to distinguish specific patterns for the different ED, an aspect which could not be established in different research (Torres, 2001; Torres, del Río, & Borda, 2003), but for its usefulness in the detection, in individual cases, of the possible personality alterations much quicker than with other interview instruments.

In relation to the interpretation of MCMI-II scores, Millon (1987) introduced the base rate (BR) score to the MCMI which is a transformed score that selects that point in the distribution of scores whereby the patient has all of the disorder or syndrome at the diagnostic level (BR>74). Therefore, Craig (1999) reported that BR scores greater of 84 on the personality scales are said to be diagnostic. Although this approach does maximize diagnostic efficiency, a problem arises with BR scores between 75 and 84, which are said to reflect some of the behaviours and traits that define the disorder but not necessarily at a diagnostic level. This procedure also has been used by others authors in our country, among others López & Becoña (2006) and Fernández-Montalvo &

Echeburúa (2006). If we consider the personality disorders as a continuum we understand that this procedure is especially appropriate. In addition, this has important implications in the development of the therapy.

The aim of this investigation is to study the presence of MCMI-II BPD in (1) patients with BN purging-subtype (BNp), AN (restricting -ANr- and purging -ANp-); (2) women at risk for having any ED; and (3) women without known pathology. We have comparatively assessed in our sample, following the recommendations of Craig (1999), the presence of (a) clinical traits or features and behaviors characteristic of the BPD (BRs scores >74 and <85), and (b) the disorder or complete syndrome (BR>84). Further, we studied whether there were significant differences among the groups.

Methods

Participants

A total of 155 women were studied, of whom 93 met the DSM-IV diagnostic criteria for some of the ED types: 31 women with anorexia nervosa, restricting subtype (ANr) whose mean age was 22.23 years, 31 women with binge-eating/purging subtype (ANp) whose mean age was 23.29 years, and 31 women with bulimia nervosa, purging subtype (BNp) whose mean age was 23.16 years. All of them were assessed for two authors of this work, specialists in clinical psychology, before being assigned to a (homogeneous) group of out patient cognitive-behavior group therapy in Eating Disorders Association (ADANER) in Seville (Spain). Furthermore, the remaining 62 women constituted the two comparative groups: one with 31 women at high risk for having an ED (symptomatic comparative group: S-CG) since they had a symptomatology typical thereof (EAT scores higher than or equal to 30, and BSQ scores higher than 104); with a mean age of 22.48 years. And a group of 31 women who did not have a known pathology (non-symptomatic comparative group: NS-CG) with a mean age of 22.61 years. In the selection of the sample, sociodemographic characteristics were controlled, so that all the groups should be equivalent to each other; the variables were gender (constant), age (from 18 to 31 years), academic level, marital status and socioeconomic level (see table 1).

Table 1  
Sociodemographic characteristics of the sample

		ANr (n= 31)	ANp (n= 31)	BNp (n= 31)	S-CG (n=31)	NS-CG (n= 31)
<b>Age</b>		<b>Mean (SD)</b> <b>22.23 (3.48)</b>	<b>Mean (SD)</b> <b>23.29 (4.03)</b>	<b>Mean (SD)</b> <b>23.16 (3.45)</b>	<b>Mean (SD)</b> <b>22.48 (3.72)</b>	<b>Mean (SD)</b> <b>22.61 (3.44)</b>
Marital status	Percentage (n)	Percentage (n)	Percentage (n)	Percentage (n)	Percentage (n)	Percentage (n)
	Married	6.50 (2)	6.50 (2)	3.20 (1)	6.50 (2)	3.20 (1)
	Single	93.50 (29)	93.50 (29)	96.80 (30)	93.50 (29)	96.80 (30)
Academic level	High School	16.10 (5)	16.10 (5)	19.40 (6)	19.40 (6)	19.40 (6)
	Professional training	16.10 (5)	19.40 (6)	19.40 (6)	19.40 (6)	16.10 (5)
	University Education	67.70 (21)	64.50 (20)	61.30 (19)	61.30 (19)	64.50 (20)
Socio-economic level	Low	22.60 (7)	16.10 (5)	29 (9)	29 (9)	25.80 (8)
	Medium	45.20 (14)	41.90 (13)	41.90 (13)	41.90 (13)	38.70 (12)
	High	32.30 (10)	41.90 (13)	29 (9)	29 (9)	35.50 (11)

### Measures and procedure

The sample of patients were selected from those women who after the assessment process met the DSM-IV diagnostic criteria for anorexia nervosa restricting subtype, for purging/bulimic subtype, and for bulimia nervosa purging subtype.

We administrated to all women the Millon Clinical Multiaxial Inventory (MCMI-II) by Millon (1987) in its version adapted for the Spanish population (Ávila, 2002). This instrument assesses different aspects of personality, according to the DSM-III-R rating in 13 scales: 10 basic scales: schizoid (1), phobic (2), dependent (3), histrionic (4), narcissist (5), antisocial (6A), aggressive-sadist (6B), compulsive (7), passive-aggressive (8), and self-destructive/masochist (8B) and 3 pathological personality scales: schizotypal (S), borderline (C) and paranoid (P). All the inventory scales reflect in different degrees both «features» and «states». For this study we have only used the borderline scale (C), for which the reliability coefficients in its Spanish version are: 0.90 for the clinical sample and 0.86 for the normal comparison group. The BR cutoff score recommended by Craig (1999) has been considered: BR scores equal to 85 or higher, as possible disorder of BP, and BR between 75 and 84, as the reflection of some traits which define the disorder though not necessarily at a diagnostic level.

To select comparative groups, we used:

1. Eating Attitudes Test (EAT-40) by Garner & Garfinkel (1979); version adapted by Castro, Toro, Salamero, & Guimerá (1991) in which the authors obtained a global coefficient of validity of 0.61 ( $p < 0.001$ ). For the cutoff score of 30, they obtained a 67.9% sensitivity and 85.9% specificity.
2. Body Shape Questionnaire (BSQ) by Cooper, Taylor, Cooper, & Fairburn (1987), adapted by Raich et al. (1996). The Spanish version has shown good internal consistency (Cronbach's  $\alpha = 0.97$ ) and concurrent validity (Raich et al., 1996). The cutoff score established is 105.

Women in the two non-clinic groups who got a score equal to or higher than 30 in the EAT-40 and a score equal to or higher than 105 in the BSQ (mean EAT=40.87 and mean BSQ=132.48) formed part of the symptomatic comparative group (S-CG). And those women whose scores were lower than 20 (the maximum score they got was below 30) in the EAT, and scores lower than 95 (the maximum score they got was below 105) in the BSQ, constituted the non-symptomatic comparative group (NS-CG) (mean EAT-40=8.42 and mean BSQ=61.26).

All the instruments were administered following the application and correction rules recommended by the respective authors. All the women signed the Informed Consent Protocol before their participation, following the Del Río's recommendations (2005).

### Data analysis

Analyses were performed with the SPSS software, version 14.0.S for Windows. We conducted a descriptive analysis, when assumptions of normality and homocedasticity were not met, we employed non-parametric techniques for independent K samples to compare among the participants their scores in the borderline personality scale. We applied the Kruskal-Wallis H test as an

alternative to the ANOVA of a factor. Where there were significant differences, we used the Mann-Whitney U test for two independent samples accompanied by the Bonferroni correction to control the error rate. Chi-square tests (two-tailed) were used for comparisons of the proportions of the participants.

### Results

The BNp group shown mean scores higher on MCMI-II borderline features, followed by ANp group and lastly ANr group. There were significant differences among these three groups and the group of women without known pathology (NS-CG) (ANr:  $U=229.50$ ;  $p=0.000$ ; ANp:  $U=180.00$ ;  $p=0.000$  and BNp:  $U=136.50$ ;  $p=0.000$ ). Whereas when comparing the three ED groups with the group at risk for ED (S-CG), only participants with ANp and BNp showed significant differences ( $U=308.50$ ;  $p=0.015$  and  $U=194.50$ ;  $p=0.000$  respectively) (see table 2). Finally, in the comparison of the group without known pathology (NS-CG) with the group at risk for ED (S-CG), we found differences ( $U=308.50$ ;  $p=0.000$ ), the latter scoring halfway between the group without known pathology and the groups with ANp and BNp, but similar to the ANr group.

As regards the presence of MCMI-II clinical traits of BPD (BR>74 and <85), the women with some ED had similar scores (see table 2). There were no group differences when comparing the three groups. Only one of the participants of the group at risk for ED (S-CG) showed these features with a score similar to those with an ED. Finally, no women without a known pathology (NS-CG) showed clinical MCMI-II borderline personality traits. With respect to the percentage of women who had them (see figure 1 and table 2), the greatest proportion found was in the BNp group (45.2%,  $n=14$ ), with significant differences, followed by the ANr group (16.1%,  $n=5$ ) and ANp (12.9%,  $n=4$ ) (see figure 2).

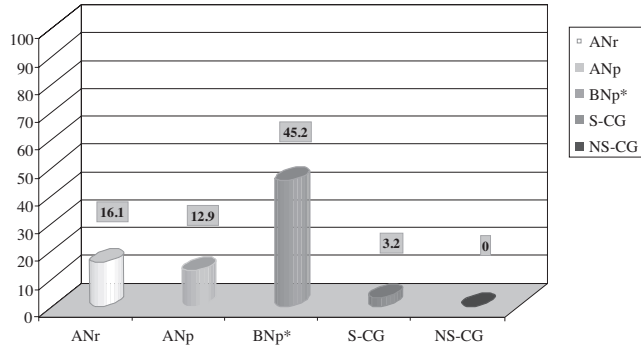
Table 2  
Descriptive statistics of the sample

Groups	Descriptive statistics			
	MCMI-II	N	Mean	SD
ANr	Borderline (C)*	31	67.90	23.693
	BR >74 <85	5	79.00	4.123
	BR >85	9	93.77	3.700
ANp	Borderline (C)*	31	74.23	20.739
	BR >74 <85	4	81.75	2.872
	BR >85	13	93.69	6.101
BNp	Borderline (C)*	31	75.45	23.229
	BR >74 <85	14	80.21	3.042
	BR >85	9	96.11	9.075
S-CG	Borderline (C)*	31	62.55	8.567
	BR >74 <85	1	78.00	
	BR >85	0		
NS-CG	Borderline (C)*	31	48.23	17.161
	BR >74 <85	0		
	BR >85	0		

\* Kruskal-Wallis test  $\chi^2 = 36.577$ ;  $l.g. = 4$ ;  $p = 0.000$   
SD= Standard Deviation

With regard to the presence of the MCMI-II possible disorder of BPD (BR>84), we observed that it was present in the three groups having an ED (see figure 3); but not in the two comparative groups. The women in the BNp group had the highest mean scores, followed equally by those with ANr and ANp (there were no significant differences among the three groups) (see table 2). All the mean scores were notably high (exceeding the BR score of 90) which indicated the severity of the BPD in these patients, especially in those with BNp (mean=96.11).

As regards the percentages of patients with the possible MCMI-II disorder of BPD, the highest percentage, 41.9% (n=13), were women with ANp, followed by the ANr and the BNp groups



\* Comparisons (two tails) ANr and BNp ( $\chi^2=33.82$ ;  $p<0.001$ ), ANp and BNp ( $\chi^2=23.08$ ;  $<0.001$ )

Figure 1. Percentages of women having BPD traits (BR>74 and BR<85)

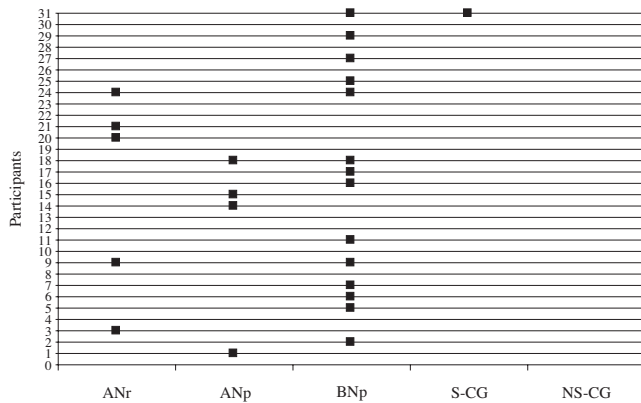


Figure 2. Participants having BPD traits (BR>74 and BR<85)

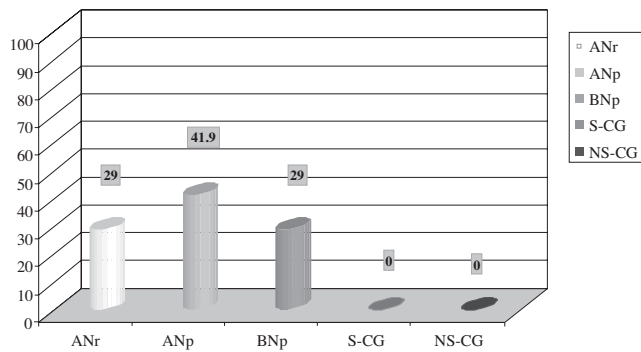


Figure 3. Percentages of women having the possible BPD (BR>84)

both in 29% of the cases (n=9) (see figure 3). In comparative groups, both the S-CG and the NS-CG, no case with a disorder of BPD was found (see figure 4).

Discussion

The findings of this study, in general, are consistent with those described in the specialized literature, since a link has been found between the BPD and bulimic characteristics in groups both clinical and non-clinical (Carroll, Touyz, & Beamont, 1996; Davis et al., 1997; Garner, Marcus, Halmi, & Loranger, 1989; Meyer et al., 2001; Sansone et al., 2005; Steiger et al., 1992; Wonderlich et al., 1994), although in our research the results from non-clinical groups do not substantiate this relationship.

Our findings evidenced that women having any type of ED showed in turn, in a significantly greater proportion, MCMI-II borderline personality traits or style as well as the possible MCMI-II BPD disorder, in comparison with the two comparative groups. Furthermore, the presence of disordered eating symptomatology in the non-clinical groups was not associated with a greater probability of borderline personality style, not even mild, as proved by our results, since we found only one case in the S-CG group. Contrary to that, Steiger et al. (1992) and Davis et al. (1997) found that the relationship between bulimic and borderline personality characteristics in a non-clinical population were frequent. And more recently, Meyer et al. (2001) found, in a non-clinical sample of women, that the borderline personality characteristics might play an important role within a wide range of non-healthy beliefs (core beliefs) and would specifically mediate the relationship between these beliefs and the bulimic symptomatology. Also, Davis et al. (1997) found that the borderline personality features could be strong predictors of the concern about weight since in some persons it might result in an ED (together with narcissist personality characteristics).

Among the group of women with an ED, those who showed in a greater proportion both MCMI-II borderline personality traits and the possible BPD disorder of a more severe type, were those who had a purging type symptomatology, i.e., those in the ANp and BNp groups. These findings are consistent with those of other researchers (Wonderlich et al., 1990). However, contrary to expected we found that women with BNp showed more clinical symptoms (clinical traits or personality style) than possible disorder of MCMI-II BPD (though in those who showed them they

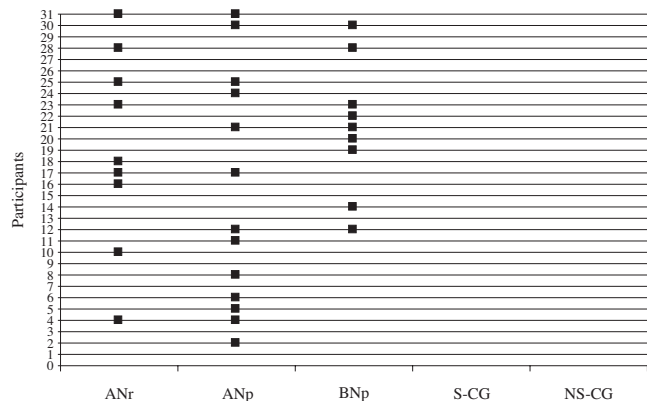


Figure 4. Participants having possible BPD (BR>84)



were more severe), while women with ANp had borderline personality alterations in contrast to those in the BNp group (more disorders than traits).

Another surprising finding contrary to the descriptions in the literature is the fact that restricting women (with ANr) showed possible disorder of BPD in the same proportion as those having BNp. We believe that this finding would reflect, rather than a long-standing stable personality, a consequence of the diet restriction or of the effects of starvation, as recently Fessler (2002) suggested in his study.

We found some differences in our findings compared with the Wiederman & Pryor (1997), despite using the same measurement instrument, the MCMI-II, though they used a cutoff (BR) score of >74. These researchers found significant differences as regards the mean score obtained in the borderline scale between the women with ANp and those with BNp (we not found among the three groups with ED) and, on the other hand, they obtained percentages of BPD higher in women with BNp (31.4%) -similar to 29% in our sample-, followed by those with ANp (30.3%) -lower than 41.9% in our study- and finally, those in the ANr group (18.5%) -below the 29% in our sample.

To sum up, women who had some subtype of ED also had MCMI-II borderline personality traits as well as possible complete BPD disorder. Furthermore, the presence of disordered eating symptomatology in persons who have not yet developed an ED might be accompanied by a greater probability of borderline personality traits, though this data should be taken cautiously to confirm it should be studied with larger samples. In addition, assessment of PD using self-report measures should be interpreted with caution in acutely symptomatic patients with eating disorders (Kennedy, McKey, & Katz, 1990). The MCMI-II shows moderate convergent validity with similar self-report inventories but low convergent validity with structured psychiatric rating scales (Craig, 1999). Therefore it should be used as screening instrument together with diagnostic interviews to confirm a PD diagnostic.

Therefore, it would be recommendable to add to the therapy plans for persons with ED specific therapeutic indications for the possible comorbid PDs, as recently have suggested Levitt (2005) in the case of ED/BDP patient. And, on the other hand, consider the need of introducing into prevention programs the study of these personality features for the purpose of establishing the appropriate strategies for their control.

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