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GENDER DIFFERENCES IN BORDERLINE PERSONALITY DISORDER: RESULTS FROM A MULTINATIONAL, CLINICAL TRIAL SAMPLE

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This study aims to extend previous research by considering gender differences in borderline personality (BPD) using both dimensional self-reported and clinical measures of symptomatology. Drawing from a cross-cultural, clinical trial sample, the authors compared female and male BPD subjects (N = 770; 211 male) between the ages of 18 and 65 using diagnostic and self-report data. The authors found that women with BPD have greater hostility and relationship disruption than men. Gender differences in eating disorders, particularly bulimia, are more divergent than in the general population. Generally, gender differences in BPD in this sample are consistent with known general population differences. Women show greater overall symptomatology, including depressive, anxious, and somatic symptoms. Men have higher rates of antisocial personality disorder and a trend toward higher rates of narcissistic personality disorder. However, several gender differences consistently found in the general population are not present in this BPD sample. There are no differences in aggression, suicidality, substance abuse, panic disorder, or obsessive-compulsive disorder. Gender differences in major depression and posttraumatic stress disorder are attenuated. These findings support the conclusion that BPD may diminish normal gender differences.

Borderline personality disorder (BPD) is a complex and serious psychiatric disorder associated with severe functional impairment. There has been some controversy regarding gender disparity in the prevalence of BPD. A meta-analysis of clinical studies showed that females make up 76% of individuals with BPD (Widiger & Trull, 1993). These results are probably due to sampling bias rather than a reflection of a true female preponderance (Skodol & Bender, 2003). Epidemiological studies have not found a

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gender difference in prevalence in either the United States (Grant et al., 2008, Lenzenweger, Lane, Loranger, & Kessler, 2007) or Norway (Torgersen, Kringlen, & Cramer, 2001). However, Coid, Yang, Tyrer, Roberts, and Ullrich (2006) did find a higher weighted prevalence of BPD in males in Great Britain (1% vs. 0.4%). Nevertheless, as a consequence of greater prevalence of females in clinical settings, males are underrepresented in BPD research. Significant questions remain regarding potential gender differences in the expression of BPD. Studies with sufficient numbers of male BPD subjects are needed for sufficient power to detect gender differences.

Most studies have focused on *DSM* Axis I and II comorbidities. The literature suggests that females with BPD tend to express an "internalizing" clinical picture characterized by higher rates of comorbidity of posttraumatic stress disorder (PTSD) (Grant et al., 2008; Johnson et al., 2003; Zanarini et al., 1998a), other anxiety disorders (McCormick et al., 2007; Tadic et al., 2009), somatoform disorder (McCormick et al., 2007), affective disorder (Grant et al., 2008; Tadic et al., 2009), eating disorders (Johnson et al., 2003; Tadic et al., 2009; Zanarini et al., 1998a), and histrionic personality disorder (McCormick et al., 2007). Conversely, men tend to express an "externalizing" picture with higher rates of substance use disorders (Johnson et al., 2003; Grant et al.. 2008; Tadic et al., 2009; Zanarini et al., 1998a,) antisocial personality disorder (ASPD; Banzhaf et al., 2012; Grant et al., 2008; Johnson et al., 2003; Zanarini et al., 1998b), narcissistic personality disorder (Banzhaf et al., 2012; Grant et al., 2008; Johnson et al., 2003; Zanarini et al., 1998b), schizotypal personality disorder (Johnson et al., 2003), passive aggressive personality disorder (Zanarini et al., 1998b), and sadistic personality disorder (Zanarini et al., 1998b). Paranoid personality disorder has been found to have a greater incidence in men (Zanarini et al., 1998b) as well as women (Grant et al., 2008) in different study populations.

There is a scarcity in the literature examining gender differences in symptom expression and disability. Few studies have looked beyond gender differences in Axis I and II comorbidities, and several of those have been limited by relatively small sample sizes, particularly with regard to male subjects (McCormick et al., 2007, $N = 163$, 25 male; Tadic et al., 2009, $N = 159$, 49 male).

In the present study, we aim to fill these gaps in the literature by using dimensional measures of symptomatology and disability, as well as Axis I and II diagnoses, in a large, cross-cultural, clinical trial sample with a significant number of men with BPD.

METHODS

SUBJECTS

Seven hundred and seventy outpatient subjects (211 male) between the ages of 18 and 65 who met *DSM-IV* criteria as determined by the Diagnos-

tic Interview for *DSM-IV* Personality Disorders (DIPD-IV; American Psychiatric Association [APA], 1994) for BPD were recruited into the study from 107 sites in 17 countries (Argentina, Belgium, Chile, France, Germany, Italy, Norway, Peru, Poland, Portugal, Romania, Spain, Sweden, Turkey, UK, US, and Venezuela). Sites included academic centers, hospitals, freestanding clinics, and clinical trial research facilities. All subjects were outpatient at the time of study and were recruited via community advertisement and clinical referral. Appropriate ethics review boards approved the study before recruitment. All subjects gave written informed consent after a thorough explanation of the study protocol prior to participation in the study.

The present study was conducted as a subset of a 12-week, double-blind, placebo-controlled clinical trial examining the efficacy of atypical antipsychotic treatment for BPD (Schulz et al., 2008; Zanarini et al., 2011). Subjects had a Zanarini Rating Scale for Borderline Personality Disorder (ZAN-BPD) score or 9 or greater at the time of randomization. Subjects were excluded if they had ever met criteria for schizophrenia, schizoaffective disorder, schizophreniform disorder, bipolar I disorder, delusional disorder or a Cluster A personality disorder. Additionally, subjects were excluded for a history within the past 3 months of major depressive disorder, bipolar disorder II, or substance dependence. Subjects could not be actively suicidal, have a body mass index of less than 17, or have a current diagnosis of post-traumatic stress disorder, panic disorder, or obsessive-compulsive disorder.

Subjects were allowed no more than 1 mg lorazepam equivalents/day. Episodic use of anticholinergics to treat extrapyramidal symptoms was permitted at a dose of up to 6 mg/day benzatropine mesilate or biperiden, or up to 12.0 mg/day trihexyphenidyl. The use of anticholinergics as prophylaxis for extrapyramidal symptoms was not allowed. Participants could not be on antidepressant , mood stabilizer, or antipsychotic medication within 1 week of randomization (4 weeks for fluoxetine and one injection interval for depot antipsychotics). Subjects were allowed to enter the study if they had been in psychotherapy for more than 3 months, but they could not change their psychotherapy regimen during the course of the study or begin any type of psychotherapy 3 months prior to enrollment or during the double-blind study period.

MEASURES

Axis I comorbidity was assessed using the Structured Clinical Interview for Diagnosis I (SCID-I). Axis II comorbidity was assessed using the Diagnostic Interview for *DSM-IV* Personality Disorders (DIPD-IV, APA, 1994). Characterization of BPD symptoms was further assessed using the clinician-administered Zanarini Rating Scale for Borderline Personality Disorder (ZAN-BPD; Zanarini et al., 2003). The ZAN-BPD is a semistructured clinician interview to assess the nine *DSM-IV* criteria for BPD. Each

item is rated on a scale of 0 (no symptoms) to 4 (severe symptoms) in the following categories: affective disturbance, cognitive disturbance, impulsivity, and disturbed relationships. The item scores total from 0 to 36 to provide a total score of BPD pathology.

The Montgomery-Asperg Depression Rating Scale (MADRS; Montgomery & Asberg, 1979) was used to assess depressive symptoms. The MADRS is a 10 item clinician-rated scale.

The Overt Aggression Scale-Modified (OAS-M; Coccaro, 2000) was used to assess aggression. The OAS-M is a 25-item clinician-administered semistructured interview comprising three domains: aggression, irritability, and suicidality.

The Symptom Checklist 90 Revised (SCL-90-R; Derogatis & Sevitz, 1999) is a self-report scale used to assess a broad range of psychopathology. It includes nine dimensions: anxiety, depression, hostility, obsessive-compulsive, paranoid ideation, phobic anxiety, psychoticism, interpersonal sensitivity, and somatization. All completed items can be totaled as an overall measure of psychological distress, the Global Severity Index.

The Sheehan Disability Scale (SDS; Sheehan, 1983) is a self-report scale used to assess functional impairment in three domains: family life, social life, and work/school life. The subject assesses each section regarding how much disruption symptoms caused in each domain by a single 10-point Likert scale (0 = not at all to 10 = severely disruptive). Total Disability can be aggregated from the three domains ranging from 0 to 30.

STATISTICS

We compared female and male subjects on age, race, family history of mental illness, lifetime and current Axis I and II disorders, and self-report measures. For demographic and diagnostic categorical variables, we used Pearson's chi-square test. For age and continuous symptomatology variables, we used two-tailed t tests. The significance level was set at $p < 0.05$. Data analysis was completed using the Statistical Package for the Social Sciences. Bonferroni correction was applied to the alpha level for multiple comparisons. Corrected p values of < 0.05 were considered significant. For self-report measures, Bonferroni correction was exclusively applied to the total score. If the total score was statistically significant or showed a trend toward statistical significance (defined as $p < 0.05$ without Bonferroni correction), follow-up analyses were performed. Follow-up analyses of the subscales were not corrected and were considered significant at the $p < 0.05$ level. For the OAS-M, which does not have a total score, all scores were included in the Bonferroni correction. Post-hoc power for the study's t test was calculated using an alpha of .0045 (two-tailed) after Bonferroni correction and small to medium effect sizes ($d = 0.3$, $d = 0.5$). With a sample size of 559 females and 211 males, power estimates ranged from 81% to 99%.

TABLE 1. Baseline Patient Demographic Information for Females and Males With BPD

	Females $n = 559$	Males $n = 211$	t or χ^2	p
Age in years, mean (*SD*)	32.1 (10.3)	33.2 (10.6)	1.30	.19
Caucasian (%)	74.1	74.9	0.05	.82
Family history of mental illness (%)	66.5	64.1	0.40	.53

RESULTS

Seven hundred and seventy subjects were included in the present data analysis. There are no significant differences between groups on age, percent Caucasian, or family history of mental illness (see Table 1).

AXIS I

Women had a higher prevalence than men of any lifetime Axis I pathology ($p = .002$). This difference is driven by greater lifetime prevalence among women of anorexia nervosa ($p = .004$), and bulimia nervosa ($p < .001$). Notably, both posttraumatic stress disorder (PTSD; $p = .011$) and major depressive disorder (MDD; $p = 0.009$) show a trend toward greater prevalence among women but are not significant after Bonferroni correction. No Axis I pathology was significantly more prevalent among men in our sample (see Table 2).

AXIS II

Women and men did not differ in overall rates of concurrent Axis II pathology ($p = .55$). However, men have higher rates of antisocial personality disorder ($p = .003$) and, after Bonferroni correction, a statistical trend toward higher rates of narcissistic personality disorder ($p = .022$). No Axis II pathology was significantly more prevalent in women than in men (see Table 3).

TABLE 2. Lifetime Prevalence (%) of Comorbid Disorders for Females and Males With BPD

	Female	Male	χ^2	p
Panic disorder	4.2	1.9	2.19	.14
Obsessive-compulsive disorder	1.1	0.0	2.27	.13
Posttraumatic stress disorder	5.8	1.4	6.47	.011
Social phobia	2.4	1.4	0.60	.44
Anorexia	4.0	0.0	8.50	.004
Bulimia	8.5	0.0	18.79	<.001
Dysthymia	4.7	2.9	1.22	.27
Bipolar II disorder	2.0	1.0	0.94	.33
Major depressive disorder	30.3	20.8	6.76	.009
Substance dependence disorder	10.7	14.0	1.62	.20
Any lifetime comorbid disorder(s)	46.0	33.3	9.90	.002

Note. Bonferroni correction was applied to the alpha level for multiple comparisons, $p = .05/11 = .0045$.

TABLE 3. Prevalence (%) of Concurrent Comorbid Axis II Cluster B and C Personality Disorders (PD) for Females and Males With BPD

	Female	Male	χ^2	*p*
Antisocial PD	1.4	5.2	9.11	.003
Histrionic PD	5.4	3.3	1.41	.24
Narcissistic PD	1.8	4.7	5.27	.022
Avoidant PD	11.4	10.9	0.05	.83
Dependent PD	5.5	2.8	2.44	.12
Obsessive-compulsive PD	4.3	5.2	0.30	.59
Depressive PD	12.0	9.0	1.37	.24
Passive-aggressive PD	4.8	4.7	0.01	.96
Any comorbid PD(s)	24.0	26.1	0.36	.55

Note. Bonferroni correction was applied to the alpha level for multiple comparisons, $p = .05/9 = .006$.

SYMPTOMATOLOGY AND DISABILITY

On the SCL-90-R, women have a higher Global Severity Index ($p = .002$). This difference is being driven by higher scores among women in the areas of anxiety ($p = .013$), depression ($p < .001$), hostility ($p = .011$), phobic anxiety ($p = .014$), and somatization ($p = .001$). Women have a trend toward higher total ZAN-BPD scores than men ($p = .032$), driven largely by higher scores on the disturbed relationships subscale ($p = .008$). Women also showed a trend toward significantly higher total depressive symptoms on the MADRS ($p = .024$). There are no significant differences between the genders on aggression or disability in our sample (see Table 4).

DISCUSSION

Questions of differences in symptomatology between male and female BPD patients are of great interest to the field. Previous epidemiological and clinical studies have shown various differences in Axis I and II comorbidities between the genders, but there is a relative paucity of studies using measures of symptomatology and overall disability. Those studies that exist include relatively few subjects and very few men. This large, cross-cultural, clinical-trial sample confirms previous comorbidity findings and extends our current understanding of how the genders differ using dimensional measures of symptomatology.

SYMPTOMATOLOGY AND DISABILITY

To our knowledge, this is the first study to quantify differences in aggression between male and female BPD subjects. Perhaps surprisingly given that males in the general population are consistently found to be more aggressive than females (for a meta-analysis, see Archer, 2004), there are no gender differences in measures of aggression. Similarly, there is no gender difference in suicidality, yet in the general population women report greater suicidal ideation (see Schrijvers, Bollen, & Sabbe, 2012, for a review).

TABLE 4. Means (*SD*s) on Self-Report Measures for Females and Males With BPD

	Female		Male			
Variables	***M***	***SD***	***M***	***SD***	***t***	***p***
MADRS Total	12.41	4.66	11.54	4.99	2.26	.024
OAS-M						
Aggression	47.94	82.76	39.90	55.70	1.30	.193
Irritability	5.57	1.81	5.61	1.72	0.28	.778
Suicidality	0.89	1.13	0.74	1.18	1.64	.100
SCL-90-R						
Total	153.59	63.52	137.35	66.82	3.10	.002
Anxiety	1.67	0.90	1.49	0.88	2.50	.013
Depression	2.23	0.82	1.85	0.89	5.61	<.001
Hostility	2.16	1.02	1.95	1.06	2.54	.011
OCD	1.79	0.88	1.65	0.88	1.90	.058
Paranoid	1.73	0.96	1.80	0.94	0.82	.413
Phobic Anxiety	1.30	0.92	1.12	0.87	2.48	.014
Psychoticism	1.19	0.79	1.21	0.86	0.28	.779
Interpersonal Sensitivity	1.91	0.87	1.77	0.90	1.87	.062
Somatic	1.32	0.83	1.10	0.83	3.35	.001
SHEEHAN						
Total	18.97	6.45	18.55	7.20	0.77	.440
ZAN-BPD						
Total	17.51	4.96	16.65	4.98	2.15	.032
Affective Disturbance	7.12	1.94	6.90	1.99	1.39	.164
Cognitive Disturbance	3.62	1.76	3.49	1.61	0.97	.333
Impulsivity	2.72	1.58	2.58	1.64	1.07	.278
Disturbed Relationships	4.05	1.71	3.68	1.71	2.68	.008

Note. Bonferroni correction was applied to the alpha level for multiple comparisons, $p = .05/7 = .00714$. Subscales are not included in the Bonferroni correction and are considered significant at the $p = .05$ level.

Women with BPD have more symptomatology overall, including depressive and anxious symptoms and somatic complaints. Notably, women are more hostile than men. Perhaps relatedly, women experience greater turmoil in their relationships. It is possible that these findings in concert may help to explain the greater prevalence of women with BPD in clinical settings. Some studies (Grant et al., 2008; McCormick et al., 2007) have found that women with BPD experience greater disability. Our results, like those of Johnson et al. (2003), show that men and women are equally disabled by BPD.

AXIS I AND II PATHOLOGY

Our results replicate previous findings that women with BPD have higher rates than men of anorexia nervosa (Tadic et al., 2009; Zanarini et al., 1998a) and bulimia nervosa (Banzhaf et al., 2012; Zanarini et al., 1998a). We also found a statistical trend mirroring previous findings of higher rates of PTSD among women (Banzhaf et al., 2012; Grant et al., 2008; Johnson et al., 2003; Zanarini et al., 1998a) and MDD (Grant et al., 2008; Zanarini et al., 1998a). We further replicated previous findings that men with BPD have higher rates than women of antisocial personality disorder (Banzhaf et al., 2012; Grant et al., 2008; Tadic et al., 2009; Zanarini et al.,

TABLE 5. Comparison of Present Sample Data With Population Data

	Present Sample Prevalence data (%)		Population Prevalence data (%)		
Variables	**Female**	**Male**	**Female**	**Male**	**Source**
Panic disorder	4.2	1.9	6.2	3.1	National Comorbidity Survey
Obsessive-compulsive disorder	1.1	0.0	3.1	1.6	National Comorbidity Survey
Posttraumatic stress disorder	5.8	1.4	9.7	3.6	National Comorbidity Survey
Anorexia*	4.0	0.0	0.9	0.3	National Comorbidity Survey
Bulimia*	8.5	0.0	1.5	0.5	Hudson et al., 2007
Major depressive disorder	30.3	20.8	20.2	13.2	National Comorbidity Survey
Substance dependence disorder	10.7	14.0	4.8	11.6	National Comorbidity Survey
Antisocial PD*	1.4	5.2	3:1 M > F**		Compton et al., 2005
Narcissistic PD	1.8	4.7	7.7	4.8	Stinson et al., 2008

*Significant in the present sample at $p < .05$ after Bonferroni correction. **Original literature presents data as a ratio, not a percent prevalence.

1998b) and a trend toward previously established higher rates of narcissistic personality disorder (Banzhaf et al., 2012; Grant et al., 2008; Zanarini et al., 1998b).

These gender differences have now been replicated in several large-scale studies. Perhaps the more interesting question is how does a diagnosis of BPD change one's psychopathology risk profile with respect to gender? In many ways, our BPD sample mirrors the general population (see Table 5). The National Comorbidity Survey (NCMS, 2007) found that the lifetime prevalence of anorexia nervosa is three times as great in females as in males (0.9% vs. 0.3%). Bulimia nervosa shows a similar disparity (1.5% vs. 0.5%; Hudson, Hiripi, Pope, & Kessler, 2007). Males have a 3:1 prevalence ratio of ASPD (Compton, Conway, Stinson, Colliver, & Grant, 2005) and elevated rates of narcissistic personality disorder (7.7% vs. 4.8%; Stinson et al., 2008) in community samples.

While the gender differences in our sample may be broadly similar to the general population, some findings appear specific to BPD. The gender gap in eating disorders, particularly bulimia nervosa, becomes increasingly disparate. Conversely, the expected gender gap in obsessive-compulsive disorder disappears (3.1% vs. 1.6% F > M; NCMS, 2007). Both MDD (20.2% vs. 13.2% F > M) and PTSD (9.7% vs. 3.6%; F > M) are clearly more prevalent in women in the community, but the difference only rises to the level of statistical trend in our sample despite adequate statistical power (NCMS, 2007).

Our results differ from previous findings in important ways. We fail to replicate previous findings that men with BPD have a greater incidence of substance dependence (Grant et al., 2008; Zanarini et al., 1998a). It is possible this is a function of our relatively stringent exclusion criteria. In the present study, subjects with substance dependence within the past 3 months were excluded. However, a few facts challenge this interpretation. Both Banzhaf et al. (2012) and McCormick et al. (2007) found no significant gender differences in substance dependence in BPD. Men in the gen-

eral population also have higher rates of substance abuse/dependence (11.6% vs. 4.8%; NCMS, 2007). Perhaps most tellingly, in our sample, BPD men have a rate of substance dependence similar to that of the general population. The lack of a difference is explained by a higher than expected rate of substance dependence in women. If excluding subjects with current substance dependence was masking a gender difference in substance dependence, one would not expect to find a higher rate of substance dependence in women.

Likewise, some previous studies have also shown gender differences in panic disorder rates among BPD subjects (Banzhaf et al., 2012; Grant et al., 2008). Other studies have not (Johnson et al., 2003; McCormick et al., 2007; Zanarini et al., 1998a). Women in the community have approximately twice the incidence of panic disorder (6.2% vs. 3.1%; NCMS, 2007). Our results show a pattern similar to that of the general population, but they do not reach the threshold of significance, although our sample size should be adequate to detect even relatively subtle differences. While the true difference between men and women with BPD with respect to incidence of panic disorder is unclear from the literature, our study and others cast doubt that the expected gender difference exists.

Of note, we compare our sample to epidemiological data taken from a general American population. These comparison data were selected on the basis of the strongest methods and diagnostic specificity (e.g., antisocial disorder vs. Cluster B personality disorders). However, the prevalence of Axis I and II disorders in the general population of the United States may not perfectly generalize to the type of cross-cultural sample from which we draw. This comparison, therefore, represents a best estimate based on the available data. Furthermore, ours is a sample of convenience drawn from a pool of participants volunteering for clinical trial with relatively stringent exclusion criteria. With increasing stringency of exclusion criteria comes a clearer picture of BPD that ensures our results are not due to any underlying comorbidity or additional factor (e.g., pharmacology). However, many common features of BPD patients were excluded, including most current comorbid mental illnesses, current use of antidepressant or antipsychotic medications, and active suicidal ideation. Together with the voluntary nature of the study, it also has the limitation of creating sampling bias by eliminating the lowest functioning end of the BPD spectrum and making these results less generalizable to BPD individuals in general.

SUMMARY AND CONCLUSIONS

Women with BPD have greater overall symptomatology, specifically in the areas of hostility, relational, depressive, anxious, and somatic symptoms. However, neither gender is more disabled by their symptoms. Consistent with the general population and previous BPD research, women with BPD have higher rates of eating disorders and perhaps MDD and PTSD; men have higher rates of antisocial and perhaps narcissistic personality disor-

der. However, like Johnson et al. (2003), we find evidence of unexpected convergence between the genders in our BPD sample. Among people with BPD in our sample, men are not more aggressive. Women do not have greater suicidal ideation. Women develop substance dependence at rates on par with men. The expected gender gaps in panic and obsessive-compulsive disorder are not apparent. The expected gender gaps in MDD and PTSD are attenuated. Although women experience more symptoms overall, their symptoms are largely consistent with known Axis I differences. Only the gender gaps in eating disorders are greater than expected. While the literature is full of investigators theorizing that women with BPD "internalize" while men "externalize" BPD pathology, our data suggest that the gender-related differences in BPD are small and often not even as great as the differences in the general population. Speculation as to the cause of this convergence is beyond the scope of this article. However, this finding does turn the question on its head. Rather than (exclusively) asking how women and men with BPD are different, perhaps it is time to begin to ask, "Why aren't they?"

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