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CHARACTERISTICS OF BORDERLINE PERSONALITY DISORDER IN A COMMUNITY SAMPLE: COMORBIDITY, TREATMENT UTILIZATION, AND GENERAL FUNCTIONING

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Abstract

This study provides estimates of the prevalence and demographic features of borderline personality disorder (BPD) in a community sample as well as BPD comorbidity rates with Axis I and II disorders. In addition, the authors provide data on general functioning and treatment seeking among individuals with BPD. Data from 34,481 participants in the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) were analyzed. Results suggest that 2.7% of adults in the United States meet diagnostic criteria for BPD, with slightly higher rates of the disorder in females, people in lower income brackets, people younger than 30, and individuals who are separated or divorced. Racial/ethnic differences were evident, with Native Americans (5.0%) and Blacks (3.5%) having significantly higher rates of the disorder, on average, and Asians having significantly lower rates (1.2%). Individuals with a BPD diagnosis were likely to have co-occurring lifetime mood disorders, anxiety disorders, substance use disorders, and other personality disorders. Specifically, 84.8% of individuals with BPD also had a lifetime anxiety disorder, 82.7% had a lifetime mood disorder/episode, and 78.2% were diagnosed with a lifetime substance use disorder. Individuals with BPD showed significant impairment in functioning and were highly likely to seek therapy or receive medication for mental health concerns.

Borderline personality disorder (BPD) is a severe form of psychopathology characterized by instability of affect, impulsivity, self-harm, chaotic interpersonal relationships, and identity disturbance (American Psychiatric Association [APA], 2000; Paris, 2009). Most research estimates that BPD occurs in 1–3% of nonclinical samples (Lenzenweger, Lane, Loranger, & Kessler, 2007; Torgerson, Kringlen, & Cramer, 2001; Trull, Jahng, Tomko, Wood, & Sher, 2010) and in up to 10% of outpatient populations (Zimmerman, Rothschild, & Chelminski, 2005). BPD is highly comorbid with other Axis I and II disorders (e.g., Koenigsberg, Kaplan, Gilmore, & Cooper, 1985; Shea et al., 2004; Sher & Trull, 2002). In addition, BPD is often associated with poorer treatment outcomes except when patients are given specialized forms of psychosocial treatment (Paris, 2009).

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Due to the severity of the disorder and the implications for public health, it is essential to accurately identify the demographic features of BPD, its comorbid conditions, and treatment trends within a community sample. Most studies of BPD and BPD features have used college students and individuals recruited from treatment settings, or have had too few community participants from which to reliably estimate prevalence rates. For these reasons, accurate estimates of the disorder's prevalence and comorbidity rates in the general population are largely unknown. Furthermore, there are few estimates of the level of functioning and treatment trends for representative samples of those with BPD.

BPD-AXIS I COMORBIDITY

BPD is highly comorbid with a number of Axis I disorders in both clinical and community samples (Coid, Yang, Tyrer, Roberts, & Ullrich, 2006; Lenzenweger et al., 2007; Skodol, Gunderson, Pfohl, et al., 2002). BPD is distinct from many conditions in that it has commonalities with both internalizing and externalizing disorders (e.g., Eaton et al., 2010). Concerning internalizing disorders, features of BPD such as affective instability, emptiness, and interpersonal difficulties may be driving the high rates of comorbidity between BPD and mood/anxiety disorders.

Concerning externalizing disorders, previous research has established a strong link between PDs and substance use disorders (SUDs); BPD and antisocial PD (ASPD) have the greatest overlap with SUDs (e.g., Sher & Trull, 2002; Trull, Sher, Minks-Brown, Durbin, & Burr, 2000). To the extent that BPD is related to impulse control disorders, we might expect that BPD also shares genetic risk with both ASPD and SUD and falls on an externalizing factor of psychopathology. However, BPD is not generally considered to be solely an externalizing disorder (Eaton et al., 2010). Thus, the BPD–SUD co-occurrence may be explained by a combination of impulsivity and negative emotionality (Sher & Trull, 2002; Skodol, Siever, et al., 2002; Trull et al., 2000).

BPD-AXIS II COMORBIDITY

In addition to extensive Axis I comorbidity, BPD is highly comorbid with other Axis II disorders (Bell & Jackson, 1992; Cohen, Chen, Crawford, Brook, & Gordon, 2007; Lenzenweger et al., 2007; McGlashan, Grilo, & Skodol, 2000; Westen & Shedler, 1999). For example, Lenzenweger and colleagues (2007) found BPD to have an average tetrachoric correlation of .56 with Cluster A PDs and .55 with Cluster C PDs. Although there were no instances of histrionic or narcissistic PD in this sample, the correlation with the remaining Cluster B PD, ASPD, was the highest at .64.

GENERAL FUNCTIONING AND MENTAL HEALTH TREATMENT UTILIZATION IN BPD

BPD is not only associated with more impairment than many psychiatric disorders (Ansell, Sanislow, McGlashan, & Grilo, 2007), but this impairment also appears to be more stable over time (Skodol et al., 2005). Specifically, individuals with BPD show impaired functioning in social relationships, occupation, and leisure activities (Ansell et al., 2007;

Skodol et al., 2005). They are also more likely to have legal problems and financial difficulties (Coid et al., 2009). Consistent with BPD being a severely debilitating condition, individuals with the disorder frequent mental health treatment settings more so than individuals with mood, anxiety, or other personality disorders (Ansell et al., 2007). For example, a large epidemiological study in Great Britain estimated that 56.3% of individuals with BPD had sought help from a professional for mental health concerns in the past year (Coid et al., 2009).

THE CURRENT STUDY

The National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) is a recent, large national face-to-face survey conducted by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) that provides a unique opportunity to explore the distribution of BPD and its correlates in a large representative sample of U.S. residents. Earlier, Grant et al. (2008) reported information about comorbidity and general functioning among NESARC respondents with BPD. However, Trull et al. (2010) proposed an alternative PD diagnostic scoring algorithm for the NESARC data, which resulted in markedly different prevalence estimates for PDs than those reported in previous NESARC publications. Because Grant and colleagues (2008) used more liberal diagnostic rules, they estimated a community prevalence rate of BPD around 5.9%. This prevalence rate is much higher than estimates found in previous community samples (e.g., Lenzenweger et al., 2007; Torgerson et al., 2001; Trull et al., 2010). Due to these seemingly higher prevalence estimates of BPD, it is likely that individuals with subthreshold BPD were included in the estimate by Grant et al., potentially clouding the comorbidity picture, as well as assessments of functioning and treatment utilization.

Using the alternative scoring system for personality disorder diagnosis proposed by Trull et al. (2010), we will (a) examine demographic correlates of the BPD diagnosis; (b) provide estimates of the association between BPD and both Axis I and II diagnoses; (c) examine levels of impairment of those with BPD diagnosis; and (d) determine rates of health care utilization.

METHOD

Data from Wave 1 and Wave 2 of the NESARC were used for the present analyses. The NESARC is a face-to-face, nationally representative survey of noninstitutionalized U.S. citizens designed to assess the prevalence and correlates of alcohol use and alcohol use disorders in the nation (http://niaaa.census.gov/). Wave 1 data collection was conducted from 2001 to 2002, and participants (N = 43,093) were sampled according to 2000–2001 census data. Stratified sampling methods were used for demographic and population features, and the data were weighted to account for the oversampling of particular demographic subgroups of the population (see Grant, Kaplan, Shepard, & Moore, 2003). At Wave 2 (2004–2005), attempts were made to recontact and reinterview participants; a total of 34,653 individuals provided Wave 2 data. An average of 1,113 days elapsed between interviews for participants (Elbogen & Johnson, 2009). In the present analyses, Wave 1 data

were used only when the psychiatric disorder of interest was not assessed independently at Wave 2 (i.e., seven of the personality disorders, as described here).

PARTICIPANTS

Participants in the current analyses (n = 34,481) included individuals who participated in both Wave 1 and Wave 2 of the NESARC and provided information on all items necessary to assess for *DSM-IV* BPD. All individuals were 18 years of age or older at Wave 1. Young adults (ages 18 to 25), African Americans, and Hispanic Americans were oversampled. The demographic information for the sample is presented in Table 1 for BPD and non-BPD participants.

MATERIALS

The NIAAA Alcohol Use Disorder and Associated Disabilities Interview Schedule-*DSM-IV* Version (AUDADIS-IV) was used to assess for PD, mood disorder, anxiety disorder, and substance use disorder symptoms. With the exception of the personality disorders (see below), both lifetime and 12-month disorders were assessed at each wave of the study. In this report, we focus on lifetime Axis I disorders.

Personality Disorder Assessment—Lifetime PD symptoms and diagnoses were determined using the AUDADIS-IV. Interview questions were keyed to *DSM-IV* PD criteria and asked respondents about long-term patterns of cognition, emotional experience, and behavior that were context-free and not limited to periods of depression, mania, anxiety, heavy drinking, medication or drug influence, or withdrawal (Grant, Hasin, et al., 2004). Wave 1 of the NESARC included lifetime measurement of antisocial, avoidant, dependent, histrionic, obsessive-compulsive, paranoid, and schizoid personality disorders. Borderline, narcissistic, and schizotypal PD were assessed at Wave 2, and antisocial PD was assessed a second time (incorporating Wave 1 diagnostic information). Diagnostic criteria for each PD were measured by asking participants whether each *DSM-IV* PD criterion, as assessed by at least one interview question, was (a) descriptive of the participant (0 = no, 1 = yes) and (b) a cause of problems at work/school or in personal relationships (0 = no, 1 = yes). In the present study, PD diagnoses were assigned to those individuals meeting the requisite number of criteria associated with significant distress, impairment, or dysfunction for the disorder (e.g., four or more of the seven diagnostic criteria for paranoid PD). These diagnostic rules produced lower prevalence rates of PDs, as well as higher comorbidity with substance dependence, than the original AUDADIS diagnostic rules for PDs, which only required at least one of the requisite number of PD symptoms to have caused social or occupational dysfunction (see Trull et al., 2010). Our more conservative PD diagnostic decision rules did produce prevalence estimates roughly similar to those obtained from other nationally representative diagnostic interview-based studies conducted in Great Britain (Coid et al., 2006) and in the United States (National Comorbidity Survey Replication, NCS-R; Lenzenweger et al., 2007).

Previous reports indicate that 10-week test–retest reliability estimates for the seven Wave 1 PD diagnoses were fair to good (Grant, Dawson, et al., 2003). Kappas for diagnoses ranged from .40 to .67, and intraclass correlation coefficients (ICCs) for PD symptom counts ranged

from .55 to .79. Concerning the three Wave 2 PDs (borderline, narcissistic, schizotypal), 6-week test–retest reliabilities for diagnoses ranged from .67 to .71 (kappas) and for symptom counts ranged from .71 to .75 (ICCs) (Ruan et al., 2008).

Mood and Anxiety Disorder Assessment—Lifetime mood episodes included in the current analyses include major depressive disorder, dysthymia, mania, and hypomania. Lifetime anxiety disorders included panic disorder (with and without agoraphobia), social phobia, specific phobia, generalized anxiety disorder, and posttraumatic stress disorder. Previous studies suggest that these diagnostic categories have adequate test–retest reliability and validity (Canino et al., 1999; Grant, Dawson, et al., 2003; Grant, Harford, Dawson, Chou, & Pickering, 1995).

Substance Use Disorder Assessment—Lifetime diagnoses were assessed for substance abuse, dependence, and SUDs. Specifically, the AUDADIS assessed for alcohol, nicotine (dependence only), opioid, cocaine, heroin, amphetamine, cannabis, hallucinogens, tranquilizer, sedative, inhalant/solvent, and "other" drug abuse and dependence. If a participant met criteria for abuse or dependence for any of the aforementioned substances, he or she was diagnosed with a "substance use disorder." If the substance of abuse/dependence was something other than alcohol or nicotine, the participant was also diagnosed with a "drug use disorder." Previous research has suggested adequate to good test–retest reliabilities for AUDADIS alcohol and drug diagnoses (Grant et al., 1995; Hasin, Carpenter, Mc-Cloud, Smith, & Grant, 1997).

Treatment Utilization—Participants who met criteria for any Axis I disorder or episode were asked follow-up *treatment utilization* questions tailored to their specific symptoms. For example, if a respondent endorsed depression, these questions included, "Have you ever had a doctor prescribe you medication to improve your mood?," "Have you ever seen a doctor, therapist, counselor, or other person for help improving your mood?," "Have you ever stayed overnight in a hospital for low mood?," and "Have you ever gone to an emergency room because of low mood?"

General Functioning—Three items from the Wave 2 interview were used as indicators of *interpersonal functioning*. These included dichotomous items (yes/no) concerning divorce or separation in the previous 12 months, serious problems with a boss or employer in the previous 12 months, and serious problems with neighbors, friends, or relatives in the past 12 months. In addition, those who endorsed depression were asked about *suicide attempts*, *suicidal ideation*, *wanting to die*, and *thinking a lot about one's own death* both over their lifetime as well as since the Wave 1 interview.

Finally, the Short Form 12 Health Survey-Version 2 (SF12-V2; Gandek et al., 1998a, 1998b; Ware, Kosinski, & Keller, 1996), administered at Wave 2, was also used to assess various forms of functioning, including mental health, social functioning, role emotional functioning, physical functioning, bodily pain, vitality, general health, and role physical functioning. The role emotional and physical functioning subscales assessed role and occupational impairment due to emotional or physical problems. For example, one item

asked, “In the past 4 weeks, how often did you accomplish less than you would have liked as a result of emotional problems?” Higher scores on the subscales represent better functioning.

PROCEDURE

Data Collection—Lay interviewers from the U.S. Bureau of Census were employed for the NESARC door-to-door interview process (Grant, Kaplan, et al., 2003). Each interviewer completed 10 days of training prior to interviewing participants. Interviewers were supplied with laptop interview software with automatic skipouts and consistency checks. Regional supervisors re-contacted 10% of the sample to ensure interviewer protocol compliance.

Analytic Approach—SAS™ 9.2 was used to compute all prevalence rates and odds ratios, as well as to conduct regression analyses. All analyses were conducted separately for men and women. Because individuals of certain sociodemographic characteristics were oversampled in the NESARC, all analyses were weighted to reflect true population estimates. First, we computed the prevalence of BPD given lifetime psychiatric disorders and then the prevalence of lifetime psychiatric disorders given BPD. The prevalence of BPD among lifetime treatment seekers and lifetime treatment utilization was determined similarly. Second, to index overall levels of association, we computed the odds ratios between BPD and other psychiatric disorders as well as types of treatment. A stricter 99% confidence interval was used for the odds ratios due to the large sample size. Finally, multiple linear regression analyses were used to predict functioning (i.e., social, emotional, physical) from BPD diagnostic status while controlling for the presence of current Axis I disorders, lifetime personality disorders, and demographics. For the functioning scales that pertain to physical health (i.e., physical functioning, role physical functioning, vitality, bodily pain, and general health), we controlled for past year medical conditions in the model.

RESULTS

DEMOGRAPHICS

An estimated 2.7% (95% CI = 2.5–3.0) of the U.S. population meets criteria for BPD, with slightly elevated rates of the disorder in females (3.0%, 95% CI = 2.7–3.3 versus 2.4%, 95% CI = 2.2–2.7 in males), individuals with a family income less than $20,000 per year (4.8%, 95% CI = 4.2–5.4), people younger than 30 (4.3%, 95% CI = 3.6–5.0), and individuals who are separated, divorced, or widowed (4.5%, 95% CI = 3.9–5.0). Sex differences were evident such that males in the lowest income bracket were significantly more likely to have BPD than females in the same income bracket ($p < .001$), men with BPD were more likely to be separated or divorced ($p < .001$) while women were more likely to be married or in a relationship ($p < .001$), and BPD was more prevalent among women between the ages of 30 and 44 than among men in that age range ($p = .003$). Racial/ethnic differences were evident, with Native Americans (5.0%, 95% CI = 3.2–6.9) and Blacks (3.5%, 95% CI = 2.9–4.1) reporting higher rates of the disorder, on average, than Whites (2.7%, 95% CI = 2.4–2.9) or Hispanics (2.5%, 95% CI = 2.0–3.0), and Asian Americans having a significantly lower rate (1.2%, 95% CI = 0.4–2.0). Individuals with less than a high school education also showed slightly elevated rates of BPD (3.3%, 95% CI = 2.7–3.9) compared to those with at least a

high school degree. Urban and rural respondents showed similar rates of the disorder (2.8%, 95% CI = 2.4–3.2, vs. 2.6%, 95% CI = 2.1–3.1, respectively). Regional differences were also minimal, and no significant region × sex difference was found.

In an earlier study using a different diagnostic algorithm for BPD in the NESARC data set, Grant et al. (2008) reported an overall BPD prevalence rate of 5.9%, with women showing a slightly, but not significantly, higher prevalence rate than men (6.2% vs. 5.6%). Similar to our findings, younger individuals, those with lower family incomes, and individuals who were separated, divorced, or widowed showed significantly higher prevalence rates of BPD. Finally, similar to the present findings, significantly higher prevalence rates of BPD were observed among Native Americans and among those with lower educational attainment.

COMORBIDITY[1]

Table 2 presents the odds ratios between BPD and lifetime Axis I and II disorders. All odds ratios were significant except the associations between BPD with alcohol abuse and BPD with substance abuse. It is worth noting that the associations of BPD with alcohol dependence as well as substance dependence were significant, however (OR = 5.38, 99% CI = 4.37–6.58; OR = 5.29, 99% CI = 4.27–6.54, respectively). Of these significant odds ratios, only one sex difference was evident. Men with BPD were significantly more likely to have panic disorder without agoraphobia (OR = 7.52, 99% CI = 4.88–11.49) than women with BPD (OR = 4.22, 99% CI = 3.09–5.78). Odds ratios presented in Table 2 also show that BPD was most highly associated with schizotypal, narcissistic, and dependent personality disorders.[2]

We cannot directly compare the current odds ratios to those reported by Grant et al. (2008) because Grant et al. controlled for a number of sociodemographic characteristics and other psychiatric disorders in their analyses. We chose not to control for these variables in order to present a pure descriptive picture. However, we can examine the patterns of comorbidity within studies. Despite differences in prevalence rate of BPD, the patterns in odds ratios are comparable to those reported by Grant et al., with a few exceptions. We estimated similar odds ratios between BPD and any mood disorder (OR = 14.93) as between BPD and any anxiety disorder (OR = 14.29), suggesting that both are approximately equally likely to occur. Grant et al. reported *slightly* higher odds for mood disorders than for anxiety disorders (OR = 9.1, OR = 7.7 respectively), controlling for demographics. They also found that dysthymia (OR = 2.5) is slightly more likely to occur than major depressive disorder (OR = 3.2) among those with BPD, while we found the reverse pattern (see Table 2).

[1]We obtained a similar pattern of results (albeit lower comorbidity rates in general) when examining BPD comorbidity with both lifetime and 12-month mood, anxiety, and substance use disorder diagnoses. Tables presenting these results are available from the corresponding author. Individuals with BPD showed high rates of lifetime psychiatric disorders, with the majority of individuals meeting criteria for BPD reporting a comorbid Axis I disorder during their lifetime. Specifically, 84.8% (*SE* = 1.36) of individuals with BPD had a lifetime anxiety disorder diagnosis, with posttraumatic stress disorder being the most frequent anxiety disorder. Of those with BPD, 82.7% (*SE* = 1.44) had a lifetime mood episode, with a major depressive episode being the most common; 78.2% (*SE* = 1.53) had a lifetime substance use disorder. BPD was most common among individuals diagnosed with lifetime panic disorder with agoraphobia (24.8%, *SE* = 2.06), mania (22.0%, *SE* = 1.18), and drug dependence (18.5%, *SE* = 1.46). About half (52.6%, *SE* = 1.93) of the individuals with a BPD diagnosis had at least one other personality disorder diagnosis. The most common comorbid PDs were narcissistic (19.9%, *SE* = 1.48), antisocial (18.4%, *SE* = 1.56), schizotypal (16.3%, *SE* = 1.36), and paranoid (15.5%, *SE* = 1.36).

[2]Borderline, narcissistic, schizotypal, and antisocial personality disorders were all assessed at Wave 2 of the NESARC. Thus, the higher comorbidity rates between these disorders may be partially due to a method effect. See Discussion.

Finally, they reported higher odds for comorbid paranoid PD (OR = 5.8) than for comorbid schizoid PD (OR = 4.5), whereas we found the reverse pattern (see Table 2).

TREATMENT UTILIZATION

Individuals with BPD report high rates of lifetime mental health treatment utilization (see Table 3). Individuals with BPD are highly likely to seek mental health services, with 74.9% (*SE* = 1.67) presenting to a physician, therapist, counselor, or other mental health professional for diagnosable mental health concerns (OR = 10.53, 99% CI = 8.33–13.33). Similarly, 63.1% (*SE* = 1.87) of individuals diagnosed with BPD were prescribed medication for mental health issues. Although women had slightly elevated rates of treatment utilization, the odds ratio was not significantly different from that of men.

Our results suggest that approximately 8.7% (*SE* = 0.37) of individuals with an Axis I disorder who present for outpatient treatment from a mental health professional also have BPD (see Table 3). The percentage of patients with BPD increases in an inpatient or drug/alcohol rehabilitation setting (15.2%, *SE* = 0.88). Approximately 14.5% (*SE* = 0.87) of individuals with an Axis I disorder that present to an emergency room or crisis center with a mental health issue have diagnosable BPD. The odds of having BPD and receiving mental health treatment range from 8.55 (medication usage) to 10.53 (see mental health professional), depending on the type of treatment received (Table 3).

GENERAL FUNCTIONING

Concerning interpersonal functioning, a lifetime diagnosis of BPD was significantly associated with reports of separation or divorce over the preceding 12 months (OR = 4.48; 99% CI = 3.40–5.88), with having significant trouble with one's boss or employer (OR = 4.33; 99% CI = 3.40–5.49), and with having serious problems with neighbors, friends, or relatives (OR = 7.14; 99% CI = 5.62–9.90). Among those endorsing depression/low mood at Wave 2, a BPD diagnosis was also significantly associated with attempted suicide (OR = 6.7; 99% CI = 4.3–10.6), presence of suicidal ideation (OR = 5.3; 99% CI = 4.1–6.9), wanting to die (OR = 4.9; 99% CI = 3.8–6.4), and thinking a lot about one's own death (OR = 3.3; 99% CI = 2.6–4.3) since the Wave 1 interview (i.e., over the past 3 years). No significant gender differences in these associations were found.

Individuals with BPD showed significant impairment on seven of the eight functioning scales of the Short Form 12 Health Survey (SF12-V2), even after controlling for the presence of other personality disorders, current Axis I disorders, sociodemographic risk factors (e.g., age, ethnicity/race, family income), and medical conditions (where relevant). BPD was a significant predictor of impaired social functioning ($M = 39.64$, $SD = 13.71$, $B = -0.07$, $p < .001$), role emotional functioning ($M = 38.45$, $SD = 13.20$, $B = -0.06$, $p < .001$), and mental health ($M = 38.98$, $SD = 12.39$, $B = -0.07$, $p < .001$). BPD did not significantly predict impairment on the physical functioning scale of the SF12 ($M = 46.67$, $SD = 12.50$, $B = -0.01$, $p = .149$). However, BPD was a significant predictor of impairment in role physical functioning ($M = 44.13$, $SD = 11.88$, $B = -0.02$, $p = .001$). In addition, BPD significantly predicted increased bodily pain ($M = 43.55$, $SD = 13.94$, $B = -0.02$, $p = .006$), poorer general health ($M = 42.93$, $SD = 13.79$, $B = -0.02$, $p = .001$), and decreased vitality ($B =$

−0.03, $p < .001$). Compared to Grant et al. (2008), it appears that our diagnostic method indicated lower mean functioning scores, on average, suggesting more severe impairment. For example, our BPD sample had a mean emotional functioning score of 38.45 and Grant et al. (2008) reported a mean of 41.6 on this subscale. Overall, we found the same pattern of impairment as reported by Grant and colleagues (2008).

DISCUSSION

Several important findings emerged from our analyses. First, as noted in our previous analyses (Trull et al., 2010), we found a lower overall prevalence of BPD (2.7% vs. 5.9%) than reported in previous studies using NESARC data (Grant et al., 2008). Still, our finding that approximately 3% of adults meet criteria for a lifetime BPD diagnosis is striking. Given that those with BPD may incur on average $50,000 per year in health care costs (e.g., emergency room visits, physician visits, mental health visits; Bateman & Fonagy, 2003), this prevalence rate reinforces the perspective that BPD is a major public health problem and requires more attention as a target of both prevention and treatment. Our findings also indicate that men and women meet diagnostic criteria for BPD at approximately equal rates. For some time, it has been assumed that women are much more likely to meet criteria for BPD than men (as high as a ratio of 3:1). However, epidemiological data from this and other recent studies (e.g., Lenzenweger et al., 2007) suggest that the previously reported wide gender disparity in BPD prevalence is likely a result of sampling only clinical patients in treatment settings.

Our finding that BPD was diagnosed at a higher percentage rate among those under 30 years old and among those from families with lower incomes is consistent with previous findings. Studies report that BPD is more prevalent in young adulthood, and that the rates decline steadily after age 30 (Paris, 2009). This strong age gradient is consistent with studies of alcohol use disorders (Kessler et al., 2005) and bipolar disorder (Cicero, Epler, & Sher, 2009) and appears to track normative developmental trends in traits related to impulsivity (e.g., conscientiousness; Roberts, Walton, & Viechtbauer, 2006). In addition, the impairment and dysfunction associated with BPD might be expected to result in either unemployment or underemployment, resulting in fewer resources available for families of adults with BPD.

The racial/ethnicity differences in rates of BPD are more challenging to explain. It is important to note that there are no previous epidemiological studies on BPD that allow for prevalence estimates in White, Black, Native American, Asian American, *and* Hispanic populations in the United States. We found BPD more prevalent among Native Americans and African Americans, while the rate for BPD in Asian Americans was significantly lower than that for White Americans. Concerning the elevated rates of BPD in Native Americans, they were twice as likely as White Americans to endorse the BPD symptom “recurrent suicidal behavior, threats, or self-harm,” and more than 10% of the Native American sample endorsed “unstable, intense interpersonal relationships,” “impulsivity,” and “anger problems.” Some of these disparities may be understood in terms of previous findings that Native Americans endorse higher rates of alcohol abuse and dependence, higher levels of mental distress, and higher rates of exposure to traumatic stress than those in the general

population (Alcántara & Gone, 2007; Centers for Disease Control and Prevention, 1998; Pole, Gone, & Kulkarni, 2008).

Concerning comorbidity, BPD showed the strongest associations with lifetime mood episodes (especially major depressive episodes and mania) and with lifetime anxiety disorders (especially panic disorder with agoraphobia, generalized anxiety disorder, and posttraumatic stress disorder). BPD was significantly associated with a range of other personality disorders, especially schizotypal, narcissistic, and dependent. Overall, these comorbidity findings are consistent with those obtained in other epidemiological samples as well as in clinical samples (Lenzenweger et al., 2007; Paris, 2009). Furthermore, they suggest that even in community samples, BPD is rarely diagnosed alone. Such comorbidity, in turn, is associated with impairment and dysfunction.

Indeed, BPD was significantly associated with almost all indices of impairment that we examined, and this was true even after controlling for age, ethnicity/race, other sociodemographic risk factors, physical conditions, and other Axis I and Axis II diagnoses. Those with BPD were significantly more likely to report interpersonal conflict and problems in the previous 12 months (with romantic partners, with employers, and with neighbors, friends, or relatives), and reported significantly lower levels of functioning in a variety of domains.

A large majority of BPD respondents sought mental health treatment, with outpatient therapy or consultation with a mental health professional being the most common form. The lifetime rate of receiving therapy/consultation among individuals with BPD is 74.9%, which is similar to the 10-year therapy utilization rate of 73% reported by Hörz, Zanarini, Frankenburg, Riech, and Fitzmaurice (2010). As expected, the lifetime rate substantially exceeds past year reports from other epidemiological studies (Coid et al., 2009). Although the rate of those with BPD who seek treatment is perhaps not surprising, one intriguing finding is that the rate of BPD among those seeking mental health treatment in an inpatient/rehabilitation setting or in an emergency room/crisis center was approximately 15%. These findings suggest that it is especially important to assess for BPD and BPD symptoms in these settings in order to provide the most appropriate treatment (Paris, 2009).

Overall, these results suggest that BPD is a common diagnosis among community residents, and it is associated with other serious mental health conditions, high levels of impairment, and treatment seeking in a variety of contexts. Therefore, these results support the position that BPD is a public health problem and one that deserves more attention from policy-makers, researchers, and clinicians alike. Before concluding, however, it is important to acknowledge several limitations to the current study. First, our results are limited by the assessment methodology of the NESARC study. Because of feasibility concerns, trained lay interviewers and not clinicians were used to collect diagnostic data. There is some controversy about the use of lay interviewers versus clinicians in diagnostic research. However, as noted earlier, the NESARC investigators have presented evidence supporting the reliability and validity of the ratings. Some have criticized that the NESARC assessment of personality disorders did not include verbatim items from existing Axis II interviews (Lenzenweger et al., 2007). Although true, it is worth noting that NESARC personality

disorder items were generated after examining both existing interviews and the *DSM-IV* criteria for personality disorders. Furthermore, as it turns out, the agreement among existing, traditional Axis II interviews (often held up as gold standards) is moderate to poor (e.g., Farmer, 2000). Clearly, more research is needed to evaluate the validity of all Axis II interviews, including NESARC items. Second, not all personality disorders were assessed in the same wave of data collection; seven were assessed at Wave 1 and four at Wave 2 (However, only previously denied ASPD symptoms were assessed at Wave 2). Because of this, estimates of comorbidity rates across PDs are to some extent confounded with method factors associated with measurement occasion, making it difficult to compare comorbidity rates across PDs. According to these data, BPD appears to be highly comorbid with narcissistic and schizotypal PDs, both of which were assessed at Wave 2. Additional studies are clearly necessary to replicate these findings concerning personality disorder comorbidity, given that it may be reasonable to believe that some personality disorders are developmentally graded as a function of age. Third, NESARC participants were asked treatment utilization questions only if they endorsed certain psychiatric disorder symptoms (Axis I only). The treatment items specifically asked if participants sought treatment for the symptoms they had endorsed. Participants were not asked if they sought therapy or other mental health services for interpersonal problems or in response to the PD symptom endorsement. Thus, treatment utilization rates presented here may be underestimated. Lastly, lifetime diagnoses require respondents to retrospect, often over many years. Thus, the NESARC 12-month disorders Axis I disorders may be more reliable than the lifetime disorders because they require less retrospection. However, we chose to report lifetime prevalence rates of Axis I disorders given that the personality disorders were assessed over the lifetime as well. In this way, comparable periods of time were covered in each Axis I and Axis II assessment. The lifetime perspective also should serve to minimize the methodological bias occasioned by different times of assessment for different personality disorders.

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TABLE 1

Demographics of Study Sample (*n* = 34,481)

Characteristic	BPD (*n* = 1,030)[b] % (*SE*)	Non-BPD (*n* = 33,451) % (*SE*)
Women (*n* = 19,984)	57.3 (1.92)	51.9 (0.34)
Age[a]		
20–29 years (*n* = 4,904)	25.7 (1.75)	16.1 (0.26)
30–44 years (*n* = 10,549)	37.2 (1.86)	29.5 (0.30)
45–64 years (*n* = 11,912)	32.7 (1.79)	34.7 (0.32)
65 and up (*n* = 7,116)	4.4 (0.67)	19.7 (0.25)
Race-ethnicity		
White (*n* = 20,069)	69.8 (1.66)	71.0 (0.28)
Black (*n* = 6,562)	13.9 (1.18)	11.0 (0.16)
Native American (*n* = 573)	4.0 (0.75)	2.1 (0.12)
Asian (*n* = 951)	1.8 (0.61)	4.3 (0.16)
Hispanic (*n* = 6,326)	10.5 (1.00)	11.6 (0.19)
Family income		
<$20,000 (*n* = 8,290)	34.0 (1.82)	19.1 (0.25)
$20,000–$34,999 (*n* = 6,952)	21.3 (1.59	18.8 (0.26)
$35,000–$69,999 (*n* = 10,616)	29.3 (1.75)	32.3 (0.32)
≥$70,000 (*n* = 8,623)	15.3 (1.42)	29.7 (0.31)
Marital Status		
Married/cohabiting (*n* = 18,792)	45.2 (1.93)	64.3 (0.31)
Separated/divorced/widowed (*n* = 9,086)	30.6 (1.74)	18.5 (0.23)
Never married (*n* = 6,603)	24.2 (1.61)	17.2 (0.25)
Education		
Less than high school (*n* = 5,469)	16.9 (1.45)	13.9 (0.23)
High school (*n* = 9,402)	30.9 (1.79)	27.4 (0.30)
Some college or higher (*n* = 19,610)	52.2 (1.92)	58.7 (0.33)
Urbanicity		
Urban (*n* = 11,469)	33.5 (1.84)	32.7 (0.31)
Rural (*n* = 5,580)	15.3 (1.35)	16.3 (0.25)
Region		
Northeast (*n* = 6,069)	18.1 (1.49)	17.8 (0.24)
Midwest (*n* = 6,536)	16.5 (1.36)	18.6 (0.25)
South (*n* = 13,094)	37.6 (1.85)	38.4 (0.31)
West (*n* = 8,782)	27.8 (1.78)	25.2 (0.28)

Notes.

[a]The groups significantly differed on mean age ($p < .0001$), with the BPD group ($M = 41.8$) being significantly younger than the Non-BPD group ($M = 49.2$).

[b]2.9% of the current sample meets criteria for BPD. This differs from the 2.7% estimated prevalence rate of BPD due to weighting of the data in order to reflect the true population.

Table 2

Odds Ratios for Lifetime Borderline Personality Disorder and Other Lifetime Psychiatric Disorders Associations

Psychiatric Disorder	Total OR (99% CI)	Men OR (99% CI)	Women OR (99% CI)
Any Substance Use Disorder	4.50 (3.57–5.71)	4.42 (2.80–6.99)	5.41 (4.10–7.14)
Substance abuse	0.58 (0.42–0.81)	0.46 (0.28–0.75)	0.83 (0.53–1.30)
Substance dependence	5.29 (4.27–6.54)	5.21 (3.62–7.52)	5.92 (4.55–7.69)
Any Alcohol Use Disorder	3.36 (2.73–4.12)	4.29 (2.90–6.33)	3.80 (2.93–4.93)
Alcohol abuse*	0.77 (0.59–1.01)	0.60 (0.41–0.89)	1.14 (0.78–1.65)
Alcohol dependence	5.38 (4.37–6.58)	6.25 (4.52–8.62)	5.92 (4.46–7.81)
Nicotine Dependence	4.07 (3.32–4.98)	3.75 (2.71–5.18)	4.57 (3.51–5.92)
Any Drug Use Disorder	5.78 (4.67–7.14)	6.06 (4.39–8.33)	6.54 (4.90–8.77)
Drug abuse	2.63 (2.03–3.41)	2.55 (1.76–3.70)	3.08 (2.14–4.42)
Drug Dependence	10.10 (7.69–13.33)	9.52 (6.41–14.08)	12.20 (8.26–17.86)
Any Mood Episode	14.93 (11.63–19.61)	13.51 (9.35–19.61)	17.54 (12.20–25.64)
Major depressive episode	11.76 (9.35–14.93)	11.36 (8.13–15.87)	13.16 (9.52–17.86)
Dysthymia	8.33 (6.62–10.53)	7.25 (4.76–10.99)	8.85 (6.67–11.76)
Manic episode	16.39 (13.33–20.41)	16.95 (11.90–24.39)	16.13 (12.20–21.28)
Hypomanic episode	3.70 (2.71–5.05)	2.62 (1.49–4.63)	4.69 (3.22–6.80)
Any Anxiety Disorder	14.29 (10.87–18.87)	15.15 (10.20–22.22)	14.71 (10.00–21.72)
Panic disorder with agoraphobia	13.89 (10.20–18.87)	13.33 (7.19–25.00)	13.70 (9.71–19.61)
Panic disorder without agoraphobia*	5.29 (4.12–6.85)	7.52 (4.88–11.49)	4.22 (3.09–5.78)
Social phobia	9.17 (7.41–11.49)	7.87 (5.49–11.24)	10.10 (7.63–13.33)
Specific phobia	5.03 (4.08–6.17)	5.08 (3.61–7.09)	5.03 (3.86–6.49)
Generalized anxiety disorder	11.11 (9.01–13.70)	11.36 (8.00–16.39)	11.11 (8.55–14.49)
Posttraumatic stress disorder	10.42 (8.47–12.82)	11.76 (8.40–16.67)	10.00 (7.63–12.99)
Any Other Personality Disorder	15.87 (12.82–19.61)	14.93 (10.64–20.83)	18.18 (13.70–23.81)
Any Cluster A PD	20.83 (16.13–27.03)	21.74 (14.71–33.33)	20.00 (14.29–27.78)
Paranoid	12.20 (8.93–16.39)	10.87 (6.49–18.18)	12.66 (8.70–18.52)
Schizoid	14.29 (8.40–24.39)	11.90 (5.46–25.64)	17.24 (8.40–34.48)
Schizotypal	111.11 (66.67–200.00)	125.00 (55.56–250.00)	100.00 (50.00–200.00)
Any Other Cluster B PD	13.16 (10.42–16.39)	13.89 (9.80–19.23)	16.67 (11.90–23.26)
Histrionic	14.49 (6.85–31.25)	14.29 (4.18–50.00)	14.93 (5.95–37.04)
Narcissistic	55.56 (40.00–83.33)	62.50 (40.00–100.00)	55.56 (33.33–90.91)
Antisocial	6.33 (4.76–8.40)	6.33 (4.31–9.35)	8.47 (5.46–13.16)
Any Cluster C PD	9.52 (7.19–12.66)	7.63 (4.72–12.35)	10.87 (7.63–15.38)
Avoidant	11.63 (7.87–17.24)	7.81 (3.47–17.54)	13.70 (8.70–21.74)
Dependent	20.41 (9.71–41.67)	12.82 (3.03–55.56)	23.26 (10.20–52.63)
Obsessive-Compulsive	7.75 (5.65–10.64)	6.94 (4.15–11.63)	8.40 (5.56–12.66)

Note.

*Signifies significant gender differences in the odds ratios for this disorder ($p < .01$).

TABLE 3

Lifetime Mental Health Treatment Utilization

	Total % (*SE*)	Men % (*SE*)	Women % (*SE*)
Treatment Utilization Among Respondents with BPD			
Type of Treatment			
Physician/Therapist/Counselor	74.9 (1.67)	68.8 (2.83)	79.4 (1.97)
Inpatient/Rehab	38.5 (1.88)	40.6 (2.98)	37.0 (2.41)
ER/Crisis Center	38.0 (1.90)	33.5 (2.94)	41.4 (2.47)
Medication	63.1 (1.87)	49.1 (3.05)	73.6 (2.15)
Prevalence of BPD Among Lifetime Mental Health Treatment Utilizers			
Type of Treatment			
Physician/Therapist/Counselor	8.7 (0.37)	9.3 (0.65)	8.4 (0.45)
Inpatient/Rehab	15.2 (0.88)	13.4 (1.19)	17.0 (1.28)
ER/Crisis Center	14.5 (0.87)	13.4 (1.37)	15.3 (1.12)
Medication	9.6 (0.44)	10.0 (0.82)	9.4 (0.52)
Odds Ratios for BPD and Treatment Utilization			
Type of Treatment			
Physician/Therapist/Counselor	10.53 (8.33–13.33)	10.87 (7.69–15.38)	10.53 (7.69–14.29)
Inpatient/Rehab	9.71 (7.81–12.05)	9.71 (6.94–13.51)	9.90 (7.46–13.16)
ER/Crisis Center	9.09 (7.30–11.36)	8.77 (6.10–12.50)	9.17 (6.99–12.20)
Medication	8.55 (6.90–10.53)	7.75 (5.59–10.75)	9.90 (7.41–13.16)