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New Onsets of Substance Use Disorders in Borderline Personality Disorder Over Seven Years of Follow-ups: Findings from the Collaborative Longitudinal Personality Disorders Study

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Abstract

Aims—The purpose of the study was to examine whether patients with borderline personality disorder (BPD) have a higher rate of new onsets of substance use disorders (SUD) than do patients with other personality disorders (OPD).

Design—This study uses data from the Collaborative Longitudinal Personality Disorder Study (CLPS), a prospective naturalistic study with reliable repeated measures over 7 years of follow-up.

Setting—Multiple clinical sites in four northeastern US cities.

Participants—175 patients with BPD and 396 patients with OPD (mean age 32.5 years), were assessed at baseline and at 6, 12, 24, 36, 48, 60, 72, and 84 months.

Measurements—The Structured Clinical Interview for DSM-IV Axis I Disorders and the Diagnostic Interview for DSM-IV Personality Disorders were used at baseline, the Follow-Along Version of the DIPD-IV and the Longitudinal Interval Follow-Up Evaluation at the follow-up evaluations. Kaplan-Meier analyses were calculated to generate the time to new onsets.

Findings—BPD patients showed a shorter time to new onsets of SUD. Thirteen percent of BPD patients developed a new alcohol use disorder, and 11% developed a new drug use disorder, as compared to rates of 6% and 4% respectively for OPD. Non-remitted BPD and remitted BPD patients did not differ significantly in rates of new onsets of SUD.

Conclusions—BPD patients have a high vulnerability for new onsets of SUDs even when their psychopathology improves. These findings indicate some shared etiological factors between BPD and SUD and underscore the clinical significance of treating SUD when it co-occurs in BPD patients.

Keywords

Borderline personality disorder; substance use disorder; alcohol use disorder; drug use disorder; new onset; CLPS

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Introduction

While it is well known that the psychiatric comorbidity rates in BPD patients include elevated rates of mood disorders, anxiety disorders, eating disorders, and posttraumatic stress disorder (PTSD), BPD has shown a particularly strong association with substance use disorders (SUD) (1-10). Prior studies have shown that half or more of patients with BPD have co-occurring alcohol use disorder (AUD) or drug use disorder (DUD) (11-14), and that co-occurrence of these substance use disorders (SUD) is associated with a greater severity of suicidality in BPD patients (15).

The standard explanation as to why BPD has increased rates of SUDs is a shared genetically-based disposition to poor impulse control (16-18); i.e. that both are impulse spectrum disorders (19-21). This association of BPD with high impulsivity would link it to antisocial personality disorder (ASPD), a disorder linked epidemiologically and genetically to SUD (22-28). However, although the markedly increased prevalence of both SUD and ASPD in relatives of BPD subjects (29-32) supports a likely spectrum relationship between these disorders, the genetic evidence currently available for the link between BPD and SUD is limited (33).

Environmental issues that predispose patients with either BPD or SUD to relapse may be as important. BPD subjects show significantly higher responses to psychosocial stressors than healthy control subjects (34,35) and specifically to interpersonal stressors than do patients with other personality disorders (36). In SUD patients, taking drugs is frequently driven by cravings from drug-conditioned stimuli and stress (37,38) which also play a critical role in relapse after prolonged abstinence (39,40). Thus, the psychosocial stressors may add vulnerability to both BPD and SUD and make BPD patients more vulnerable to new onsets of SUD.

The study reported here will examine whether the hypothesized spectrum relationship between BPD and SUD is demonstrated using longitudinal data. At this time there are no prior studies having examined the vulnerability to new onsets of SUDs in BPD patients. This report takes place within a new context, insofar as longitudinal studies have recently shown that most BPD patients remit (41,42). However, based on the hypothesis that both disorders share etiological factors, BPD patients might still retain a risk for developing a SUD in the long-term course. This study uses prospectively collected data from the Collaborative Longitudinal Personality Disorder Study (CLPS) (42) to investigate the risk of development a SUD in BPD versus other personality disorders (OPD). We will also examine whether non-remitted BPD have higher rates of new onsets of SUD.

Methods

Participants

Participants for this study were enrolled in CLPS, an ongoing National Institute of Mental Health-funded, multi-site, prospective naturalistic study. Detailed descriptions of aims, design, assessment methods, and sample characteristics and major findings of the Collaborative Longitudinal Personality Disorders Study (CLPS) project have been reported separately (42,43). Briefly, the CLPS included treatment-seeking patients aged 18 to 45 years with one of four study personality disorders (schizotypal personality disorder, STPD; borderline personality disorder, BPD; avoidant personality disorder, AVPD; obsessive-compulsive disorder, OCPD) for whom follow-up data were collected over seven years (6, 12, 24, 36, 48, 60, 72 and 84 months). The four personality disorders selected for the study represent those which are the most prototypic and prevalent within the three DSM personality clusters: i.e, STPD for cluster A, BPD for cluster B, AVPD for cluster C (36).

OCPD was added because factor analytic studies had shown that it is distinctive from the three DSM clusters (44). Each of the four personality disorders derive from different theoretical frameworks. By focusing on these four personality disorders, only about 15% of treatment-seeking patients meeting the criteria for any axis II disorder were excluded (43).

Exclusion criteria were schizophrenia, schizoaffective disorders, psychotic disorder due to medical conditions, and current substance intoxication or withdrawal. The study is based on 571 personality disorder participants with follow-up data over seven years. Of the participants, 65% were women, and 35% were men. The mean age was 32.5 (SD = 8.1) years.

For the purpose of the study, patients were divided into the following two groups: those diagnosed with borderline personality disorder (BPD) (n = 175) and a comparison group of those diagnosed with STPD, AVPD, and OCPD (other personality disorder, OPD) (n = 396). The BPD group consisted of 75% women and 25% men, the OPD group of 60% women and 40% men. The mean ages were 32.1 (SD = 7.8) for the BPD group and 32.7 (SD = 8.3) for the OPD group.

New onset was defined as a new diagnosis of alcohol or drug use disorder for one month or longer in the follow-up, with no current or lifetime SUD at baseline. To investigate the influence of remission from BPD upon the occurrence of *new onsets* of SUD, we divided the BPD subgroup into stably remitted and non-remitted patients after 2 years of follow-up. *Stable remission* from BPD was defined as less than 2 BPD criteria for a period of at least 12 months in the second year of follow-up.

Procedures

All participants signed or written informed consent, following a full explanation of the study. Clinically experienced interviewers trained to pay particular attention to distinguishing Axis I mental state conditions from Axis II personality trait phenomena interviewed subjects who screened positive for the four targeted personality disorders with the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I/P) (45) and the Diagnostic Interview for DSM-IV Personality Disorders (DIPD-IV) (46). The participants were evaluated again at 6, 12, 24, 36, 48, 60, 72 and 84 months with a follow-along version of the DIPD (DIPD-FAV) that records monthly variations in BPD criteria (47), and the Longitudinal Interval Follow-up Evaluation (LIFE) (48) that records weekly variations in DSM-IV SUD criteria.

The DIPD-FAV (47) was used to determine criteria-based outcome. It provided a record of the presence of BPD crieria for each month of the follow-up period. The follow-along reliability showed that the correlations between new raters for the number of borderline criteria (mean range 0.71-0.92), and the correlation of new raters with original raters (mean range 0.75-0.94), was similar. Reliability for retrospective reporting on the DIPD-FAV was found to be good, with kappa scores ranging from 0.68 to 0.78 (42).

The LIFE (48) is a semistructured interview rating system which assesses the longitudinal course of Axis I disorders. Good to excellent reliability has consistently been demonstrated for the LIFE (49).

Analyses

All statistical analyses were performed with SPSS/15.0 for Windows. The Kaplan-Meier product-limit technique (50) was used to generate time to new onset curves. A probability of $p < 0.05$ was defined as the level of significance.

Results

SUD at baseline

Table 1 shows the frequency of current and lifetime substance use disorders (SUD) for BPD and the other personality disorders (OPD) at baseline. The rate for alcohol use disorder and drug use disorder was 52.0% and 54.9% respectively in the BPD group, and 38.4% and 30.6% in the OPD group. Whereas BPD patients had a significantly higher rate of both alcohol dependence and drug dependence than OPD patients, they were not more apt to have alcohol and drug abuse.

New onsets of SUD

The 84 patients with BPD and 244 patients with OPD without a current or lifetime alcohol use disorder at baseline, and the 79 BPD patients and 275 OPD patients without a current or lifetime drug use disorder at baseline were investigated for new onsets of SUD during the 7 years of follow-up. New onsets of alcohol use disorder were 13% for BPD, and 6% for OPD patients. Omnibus chi-square analysis revealed that the groups differed significantly in time to new onsets of alcohol abuse/dependence (log-rank $\chi^2 = 4.04$, df = 1, p = 0.044) (Figure 1). As shown in Figure 2, the groups (BPD, OPD) also differed significantly in their time to new onset of drug use disorder (log-rank $\chi^2 = 7.64$, df = 1, p = 0.006): 11% (BPD), and 4% (OPD).

New onsets of SUD in remitted vs. non-remitted BPD

After two years of follow-up, 85 BPD patients (48.6%) showed a stable remission from their BPD diagnosis, whereas 90 BPD patients (51.4%) did not. The co-occurring SUDs for the two groups at baseline are shown in Table 2. The remitted BPD patients had a significantly higher frequency of drug use disorder at baseline than the BPD patients who do not have remissions. The frequency of alcohol use disorder and any SUD at baseline in remitted and non-remitted BPD patients did not differ. As shown in Table 2, there were no significant differences in the new onset rates of SUD between remitted and non-remitted BPD groups.

Discussion

This is the first study, to our knowledge, to examine the new onsets of alcohol use disorder (AUD) and drug use disorder (DUD) in patients with borderline personality disorder (BPD). Consistent with previous findings (5), we found that the prevalence rates of AUD and DUD in BPD at baseline was significantly higher than in OPD -- a result that was biased by the absence of the other cluster B disorder, antisocial personality disorder, that has even higher rates of SUD (51,52). This report notes, in addition, that the BPD patients showed a higher prevalence rate in alcohol and drug *dependence* than the OPD patients, but not in alcohol and drug *abuse*, suggesting that SUD in BPD patients is more severe than in OPDs. This conclusion is consistent with prior reports where severe substance use problems has been associated with BPD and ASPD more than with any other personality disorder (53-55).

The main finding that the rates of new onsets of AUD is more than two times higher and of DUD is more than three times higher in BPD than in OPD. This confirms that BPD patients have particularly high vulnerability for the development of SUDs over the course of time. Our finding that new onsets of SUD does not differ significantly between remitted and non-remitted BPD patients adds to the impression of shared etiological factors between BPD and SUD. This conclusion is consistent other studies which have shown that adolescents with a Cluster B personality disorder have an increased risk of SUD in adulthood (56,57), and that a higher BPD criterion count is associated with early-onset of SUD (58).

Although these findings suggest that SUDs share underlying pathologies with BPD, (i.e., have a spectrum relationship), we could not rule out the possibility that other comorbid Axis I disorders -- most notably, mood disorders -- may have influenced the new onsets of SUD. However, the baseline comorbidity of major depressive disorder (MDD) and bipolar disorder were only moderately higher for BPD than for OPD (59,60). Moreover, in other CLPS reports, we found that BPD patients fail to have higher rates of new onsets for MDD (61), and they have only a slightly higher rates of new onsets of bipolar disorders than do CLPS patients with OPD (60). It is also possible that these BPD patients with higher rates of new onsets of SUD are a BPD subgroup whose vulnerability reflects a higher level of impulsivity (62) than other BPD patients. Use of neurobiological measures for impulsivity that could shed light on whether that mechanism is present could add to future studies. Because our samples was restricted to four personality disorders, we could not examine rates of new onsets of SUDs in other personality disorders, particularly ASPD. Furthermore our findings are limited by a lack of information as to which specific substances were used, no information of stressful life events during the follow-up period which could influence the onsets of SUD and because of the limited sample sizes for assessing the role of remission in later years. Each of these limitations identify important questions that future studies will need to answer.

These limitations notwithstanding, we think our results retain some significant clinical implications. Continued substance dependence is a formidable resistance to treatment of BPD and is associated with a poor outcome (63-65). Remission of SUD sometimes is followed by remission of BPD (66). For these reasons from a clinical point of view we believe that when substance abuse is comorbid with BPD, it should become a priority in treatment planning (1). Our finding that remitted BPD patients have a rate of new onsets of SUD as high as non-remitted patients points out the clinical importance of sustained attention to this risk. Clinicians should recognize that specific psychotherapeutic strategies have been developed to treat the interrelated symptoms of substance abuse and co-occurring personality disorders (67,68) and specifically for treating BPD patients with comorbid substance abuse (69,70).

This is the first examination of new onsets of alcohol use disorder and drug use disorder in BPD patients in a prospective longitudinal design with adequate sample size. It establishes that BPD patients -- even when remitted -- seem to have a higher vulnerability than patients with other personality disorders -- with the likely exception of ASPD -- for the development of a SUD. This conclusion is consistent with both the concept of a spectrum relationship and with the clinical wisdom that substance abuse is a particularly hazardous form of comorbidity for patients with BPD.

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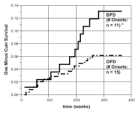

Figure 1. Time to new onsets of alcohol use disorder

BPD = Borderline personality Disorder (n = 84). OPD = Other Personality Disorder (n = 244). [a] Significance difference between test conditions (log-rank $\chi^2 = 4.04$, df = 1, p = 0.044)

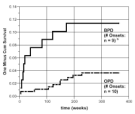

Figure 2. Time to new onsets of drug use disorder

BPD = Borderline personality Disorder (n = 79). OPD = Other Personality Disorder (n = 275). [b] Significance difference between test conditions (log-rank $\chi^2 = 7.64$, df = 1, p = 0.006)

Table 1

Frequency and percentage of co-occurrence of current and lifetime substance use disorder (SUD) in patients with personality disorder at baseline

SUD	**BPD (n=175)**	**OPD (n=396)**	***p***
	n (%)	**n (%)**	
Alcohol use disorder	91 (52.0)	152 (38.4)	$\chi^2 = 9.20$, df = 1, p = 0.002
Alcohol Abuse	30 (17.1)	52 (13.1)	$\chi^2 = 1.59$, df = 1, n.s.
- Current alcohol abuse	6 (3.4)	7 (1.8)	$\chi^2 = 1.51$, df = 1, n.s.
- Lifetime alcohol abuse	24 (13.7)	45 (11.4)	$\chi^2 = 0.63$, df = 1, n.s.
Alcohol Dependence	61 (34.9)	100 (25.3)	$\chi^2 = 5.53$, df = 1, p = 0.013
Drug use disorder	96 (54.9)	121 (30.6)	$\chi^2 = 30.42$, df = 1, p < 0.0001
Drug Abuse	18 (10.3)	29 (7.3)	$\chi^2 = 1.41$, df = 1, n.s.
- Current drug abuse	4 (2.3)	6 (1.5)	$\chi^2 = 0.42$, df = 1, n.s.
- Lifetime drug abuse	14 (8.0)	23 (5.8)	$\chi^2 = 0.96$, df = 1, n.s.
Drug Dependence	78 (44.6)	92 (23.2)	$\chi^2 = 26.43$, df = 1, p < 0.0001

BPD=Borderline Personality Disorder, OPD= Other Personality Disorder

Table 2

Frequency and percentage of SUD in stably-remitted vs. non-remitted BPD

SUD	**Remitted BPD (n=85)**	**Non-Remitted BPD (n=90)**	***p***
	n (%)	**n (%)**	
Baseline:			
Alcohol use disorder	36 (42.4)	31 (34.4)	$\chi^2 = 1.16$, df = 1, n.s.
Drug use disorder	48 (56.5)	36 (40.0)	$\chi^2 = 6.13$, df = 1, p = 0.013
Follow-up:			
New onsets of SUD	3 (13.0)	13 (24.2)	log-rank $\chi^2 = 0.97$, df = 1, n.s.

BPD=Borderline Personality Disorder