



Published in final edited form as:

Alcohol Clin Exp Res. 2012 July ; 36(7): 1188–1195. doi:10.1111/j.1530-0277.2011.01730.x.

Borderline Personality Symptoms in Short-Term and Long-Term Abstinent Alcohol Dependence

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Abstract

Background—Comorbidity of Borderline Personality Disorder (BPD) and Substance and Alcohol Use Disorders (SUDs and AUDs) is very high. The literature suggests a negative synergy between BPD and SUDs, which may impact an individual's ability to achieve and maintain remission of either disorder in the face of the other.

Methods—We examined lifetime and current (past year) BPD symptom counts in three gender- and age-comparable groups: short-term abstinent alcoholics (STA, 6–15 weeks abstinent), long-term abstinent alcoholics (LTA, more than 18 months abstinent), and non-substance-abusing controls (NSAC). Abstinent individuals were recruited primarily from mutual-help recovery networks and about half had comorbid drug dependence. BPD symptoms were obtained using the SCID-II, followed up with questions regarding currency, but did not require that BPD symptoms represent persistent or pervasive behavior such as would meet criteria for BPD diagnosis. Thus our study dealt only with BPD symptoms, not BPD diagnoses.

Results—Alcoholics had more lifetime and current symptoms for most all BPD criteria than NSAC. In general, STA and LTA did not differ in BPD symptoms, except for a group-by-gender effect for both lifetime and current anger-associated symptoms and for lifetime abandonment-avoidance symptoms. For these cases, there were much higher symptom counts for STA women vs. men, with comparable symptom counts for LTA women vs. men.

Conclusions—Our results suggest for the most part that BPD symptoms do not prevent the maintenance of recovery in AUD and SUD individuals who have established at least six weeks abstinence within the mutual-help recovery network – in fact the presence of BPD symptoms is the norm. However, we did find difficulty in establishing longer-term abstinence in women with anger-associated symptoms and abandonment avoidance symptoms.

Keywords

Personality Disorder; chronic alcoholism; psychiatric comorbidity

Introduction

Borderline personality disorder (BPD) is often a complicating comorbid factor in Alcohol Use Disorders (AUDs) and Substance Use Disorders (SUDs). BPD is a serious mental illness characterized by pervasive instability and impulsivity in interpersonal relationships, self-image, and behavior (First and Tasman, 2004). It was formerly thought to be relatively rare, affecting approximately 1 to 2% of the general population, with a 3 to 1 female-to-male ratio (First and Tasman, 2004). More recent data, however, suggest that BPD prevalence is

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much greater than previously recognized and is prevalent in men and women at nearly equal ratios (5.6% in men, 6.2% in women (Grant et al., 2008)). Earlier views held that individuals exhibiting BPD were on the “borderline” of psychosis (Barnow et al., 2010). However, when psychotic features are present, they may be due to the high comorbidity of BPD and Axis I psychotic disorders (Grootens et al., 2008; Zanarini et al., 1990; 1998; 2004).

The comorbidity of BPD and SUDs (including AUDs) is very high (Barnow et al., 2010; Trull et al., 2000). In a study comparing comorbidity in BPD, 84.6% of men and 58.3% of women exhibited a co-occurring SUD (Johnson et al., 2003). Trull et al. (2000) performed a meta-analysis of 26 studies investigating the prevalence of comorbid BPD in SUD- and AUD-diagnosed patients and found that 27.4% of SUD patients met BPD diagnostic criteria, while 14.3% of AUD patients were diagnosed with BPD. Skodol et al. (1999) found a 59% comorbidity rate of personality disorders and SUDs and concluded that subjects with a lifetime AUD and/or SUD are significantly predisposed to a BPD diagnosis.

In an analysis of data taken from Wave 2 of the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), Grant et al. (2008) found that individuals with a lifetime BPD diagnosis have a lifetime prevalence rate of 50.7% for SUDs (including AUDs). It has been suggested that much of the comorbidity can be attributed to the consistent personality traits that characterize both disorders, including mood reactivity and emotional instability and detrimental impulsivity, and may be associated with shared risk factors such as past trauma (Brown and Anderson, 1991; Sabo, 1997) and neurobiological vulnerabilities (e.g., serotonergic depletion; (Trull et al., 2000)). In a seven-year follow-up study, BPD individuals with a co-occurring SUD demonstrated increased BPD pathology (Links et al., 1995) and SUD individuals with comorbid BPD exhibited a greater range of psychoactive substance abuse than those without comorbid BPD (Kruegelbach et al., 1993). These findings suggest a negative synergy between BPD and SUDs that may impact an individual’s ability to achieve remission of either disorder in the presence of the other.

Over a six-year period, Zanarini et al. (2004) investigated BPD remission in individuals with comorbid Axis I disorders and found that the presence of a SUD is strongly associated with failure to achieve remission of BPD symptoms. They also found that the absence of a comorbid SUD predicted BPD remission more strongly than absence of any other Axis I disorder.

BPD may complicate SUD treatment by magnifying impulsivity and disinhibition. SUD patients with co-occurring BPD are described as more resistant to entering into treatment, less compliant with treatment, and demonstrating high behavioral disinhibition associated with a subsequent return to heavy drug or alcohol use (Bradizza et al., 2006; Van Horn and Frank, 1998). Karterud et al. (2009) found that patients being treated for personality disorders (including BPD) who were comorbid for an SUD displayed more aggression during treatment and dropped out more frequently. Both Shevlin et al. (2007) and Thatcher et al. (2005) have also demonstrated that AUDs (and mood and anxiety disorders) are strongly associated with a high BPD symptom class group (endorsement of more criteria).

We have previously shown that the use of continuous measures (i.e., symptom counts) of psychiatric symptomatology yields a much fuller picture of psychiatric illness comorbid with alcoholism (Fein et al., 2007). We have also demonstrated that the presence of a lifetime mood, anxiety, or externalizing disorder did not prevent individuals from achieving long-term alcohol abstinence, nor did the presence of any of these disorders or symptoms interfere with maintaining abstinence (Di Sclafani et al., 2007).

In this study, we build on this previous work by now examining lifetime and current BPD symptoms in gender- and age-comparable groups of abstinent alcoholics and controls. We

compiled BPD symptom data from three groups: 1) short-term abstinent alcoholics (STAs) with 6 to 15 weeks of abstinence, 2) long-term abstinent individuals (LTAs) with greater than 18 months, and 3) non-substance-abusing controls (NSACs).

It must be noted that, for a BPD diagnosis, at least five of the standard criteria listed in Table 1 must be present. Furthermore, each symptom is coded positive only if it represents an enduring pattern and experience over time. Determining whether this is the case requires a reasonable level of clinical judgment and often means ignoring BPD-related symptoms that do not meet represent such enduring patterns. We chose in this investigation to focus on SCID-II BPD symptoms that subjects endorsed, but *did not require* that such symptoms presented enduring patterns. As such, our investigation is limited to BPD symptoms only, and is necessarily silent with regard to BPD diagnoses.

To determine whether alcohol dependence alone differs from alcohol dependence with co-occurring drug dependence in its association with BPD symptoms, we studied divided the STA and LTA groups further into those individuals with a lifetime diagnosis of alcohol dependence only (ALC) vs. those with a lifetime diagnosis of alcohol and co-occurring other drug dependence (ALC+DRG).

Methods

Participants

A total of 262 individuals between 35 and years of age were recruited in Honolulu, HI, USA, via postings at A.A. and N.A. meetings, bars and clubs, transitional houses, community centers, treatment centers, universities, colleges, Craigslist, and participant referrals. The study consisted of five subject groups: two long-term abstinent (LTA) groups, lifetime dependence on alcohol only (LTA ALC) and lifetime dependence on alcohol and abuse of another drug (LTA ALC+DRG); two short-term abstinent (STA) groups, similarly defined by dependence on alcohol vs. alcohol plus another drug (STA ALC and STA ALC +DRG); and a group of non-substance-abusing controls (NSAC). Each subject group was composed of both men and women.

The STA and LTA alcohol ALC groups met DSM-IV (American Psychiatric Association, 2000) criteria for lifetime alcohol dependence and did not meet lifetime criteria for abuse or dependence on any other drug (other than nicotine or caffeine). The STA and LTA ALC +DRG groups met DSM-IV criteria for lifetime alcohol dependence and lifetime dependence on another drug. LTA samples reported being abstinent from alcohol and drugs (other than nicotine and caffeine) for at least 18 months and the STA samples reported being abstinent between 6 and 15 weeks. The inclusion criteria for the NSAC group was a lifetime drinking average of less than 30 standard drinks per month, with no periods of drinking more than 60 drinks per month and no lifetime history of alcohol and/or substance abuse or dependence.

Exclusion criteria for all groups were: 1) significant history of head trauma or cranial surgery, 2) history of diabetes, stroke, or hypertension that required medical intervention, 3) history of significant neurological disease, 4) laboratory evidence of hepatic disease, 5) clinical evidence of Wernicke-Korsakoff syndrome, and 6) lifetime or current diagnosis of schizophrenia or schizophreniform disorder as determined by the computerized Diagnostic Interview Schedule (CDIS)(Robins et al., 1999).

Procedures

All participants were fully informed of the study's procedures and aims, and signed a consent form prior to participation. Participants completed four sessions: clinical,

neuropsychological, electrophysiological, and neuroimaging assessments, each of which lasted between an hour and a half to four hours. Trained research associates administered all assessments and all participants completed all sessions. NSAC subjects were asked to abstain from consuming alcohol for at least 24 hours prior to any lab visit. A Breathalyzer test (Intoximeters, Inc., St. Louis, MO) was administered to each participant and an alcohol concentration of 0.000 was required of all participants in all sessions. A rapid screening test, Oral Fluid Drug Screen Device (Innovacon, Inc., Sand Diego, CA), was also administered to all participants to detect the presence of cocaine, PCP, THC, opiates, and methamphetamine or other amphetamine. A negative result was required for all participants in all sessions. Participants were compensated for their time and travel expenses upon completion of each session. Participants who completed the entire study were also given a completion bonus. The data presented here were part of the first day clinical psychiatric and psychological assessments.

Alcohol, Substance, and Nicotine Use Measures

Participants were interviewed on their lifetime use of alcohol and each drug that they had taken (including nicotine) using a timeline follow-back assessment. (Skinner and Allen, 1982; Skinner and Sheu, 1982; Sobell et al., 1988; Sobell and Sobell, 1992). After assessing for alcohol, nicotine, methamphetamine, cocaine, and marijuana, subjects were asked if they were dependent on any other drug of abuse (including prescription drugs). Subjects only acknowledged additional dependence on prescription and illicit opioids.

Family History of Drinking Problems and Substance Use Problems

The Family Drinking Questionnaire was administered based on the methodology of Mann and colleagues (Mann et al., 1985; Stoltenberg et al., 1998). The questionnaire asked participants to rate the members of their family as being alcohol abstainers, alcohol users with no problem, or problem drinkers. The family history density of problem drinking (FDPD) was defined as the proportion of first-degree relatives that were problem drinkers. The same questionnaire was modified to ask participants to rate the members of their family as being substance abstainers, substance users with no problem, or problem substance users. The family history density of problem substance use (FDPSU) was defined as the proportion of first-degree relatives that were problem substance users.

BPD Symptom Counts

BPD symptoms were obtained using the SCID-II. As we were not trying to obtain diagnoses indicative of a pervasive pattern of BPD symptoms, we asked each individual whether they had ever experienced each symptom from the SCID-II BPD section. For each endorsed symptom, we asked whether the symptom was current.

Statistical Analysis

Multivariate analyses were first carried out across all categories of lifetime BPD symptoms and then across all categories of current BPD symptoms. Only if the multivariate analyses were significant were individual categories of symptoms examined, implementing Fisher's protected t-test as a way to address multiple comparison issues (Cohen, 2003). STA and LTA groups were first combined for a 2-by-2 analysis of alcoholics (i.e., STA and LTA vs. NSAC) by gender. This was followed by 2-by-2-by-2 analyses within the alcoholic samples (i.e., excluding NSAC) comparing STA vs. LTA, ALC vs. ALC+DRG, and men vs. women. Effect size for the multivariate comparisons is partial η^2 , the proportion of multiple dependent variable variance independently accounted for by the effect being examined. Wilcoxon Mann-Whitney Odds Ratios (O'Brien and Casteloe, 2006) are also presented as effects sizes when comparing two groups on a single symptom count, giving the ratio of the

odds of the symptom count for a random individual in one group being higher than the symptom count for a random individual in the other group.

Results

Demographic and Alcohol Use Variables

Table 2 presents demographic and alcohol use variables for all participants and compares all women to all men. The only age difference was that LTA were slightly older than STA. STA and LTA were comparable in years of education but had less education than NSAC. There were no education effects of gender (within group) or between individuals ALC and ALC+DRG. STA and LTA also had significantly greater proportions of first-degree relatives who were problem drinkers when compared to NSAC, with no difference between STA and LTA, or between ALC and ALC+DRG in the two abstinent groups. Women had a higher family density of alcohol problems than men.

STA and LTA had a significantly greater proportion of first-degree relatives who were problem drug users than NSAC. STA and LTA did not differ in this proportion, but ALC+DRG had a greater family density of drug problems than ALC, and women had a somewhat higher family density of drug problems than men. As would be expected from inclusion criteria, STA and LTA drank orders of magnitude more than NSAC. Males drank more than females for all groups, but this was only a trend ($p < 0.08$). In STA ALC+DRG, 51% had lifetime cocaine dependence, 59% had lifetime methamphetamine dependence, 31% had lifetime marijuana dependence, and 5% had lifetime opioid dependence. For LTA ALC+DRG, 67% had lifetime cocaine dependence, 57% had lifetime methamphetamine dependence, 44% had lifetime marijuana dependence, and one individual had lifetime opioid dependence. Only nine NSAC had ever smoked cigarettes and only three were current smokers; this compared to proportions of ever and current smokers of over 50% across STA and LTA. LTA smoked more than STA and ALC+DRG smoked more than ALC.

BPD Symptoms

Tables 3 presents the lifetime and current number of endorsed BPD symptoms by group, presence of lifetime drug dependence, and gender for each of the BPD diagnostic criteria. The numbers are scaled by the number of questions in the SCID-II for each of the criteria so that they all have the same scale. Alcoholics (STA and LTA) had more lifetime symptoms than NSAC for all BPD criteria ($F_{9,250} = 8.38$, $p < 0.0001$, effect size = 23.2%), with the effect sizes for individual criteria varying from an odds ratio of 3.1 for unstable identity to 1.6 for anger symptoms. For current symptoms, alcoholics had more symptoms than NSAC ($F_{9,250} = 5.52$, $p < 0.0001$, effect size = 16.6%) for all criteria, except anger-related symptoms and, in general, the effect sizes were marginally smaller than for lifetime symptoms.

LTA differed from STA ($F_{9,182} = 2.20$, $p = 0.024$, effect size = 9.8%) on one lifetime criterion: they exhibited less transient, stress-related paranoid ideation and/or dissociative symptoms. They also differed on one current symptom, having *more* feelings of emptiness. However, the multivariate effect for current symptoms was only a trend ($F_{9,182} = 1.75$, $p = 0.082$, effect size = 7.9%). There was a significant group-by-gender interaction for both lifetime symptoms ($F_{9,182} = 3.20$, $p < 0.001$, effect size = 13.7%) and current symptoms ($F_{9,182} = 3.22$, $p < 0.001$, effect size = 13.7%). This effect was present for both the lifetime and current symptom of intense, inappropriate, and/or difficult-to-control anger, and for lifetime frantic efforts to avoid real or imagined abandonment. There were much higher symptom counts for STA women vs. STA men, with symptom counts in LTA women vs. men being comparable. There were no multivariate differences between ALC+DRG vs.

ALC. Nevertheless, for both lifetime and current symptoms, ALC+DRG had more anger-associated symptoms than ALC. However, given the lack of multivariate significance, this effect must be considered cautiously. Women overall had more BPD lifetime symptoms ($F_{9,182} = 2.02$, $p = 0.039$, effect size = 9.1%) and current symptoms ($F_{9,182} = 3.02$, $p = 0.002$, effect size = 13.0%) than men. This effect was significant for lifetime symptoms of suicidal and self-harming behaviors, affective instability, and anger-associated symptoms; as well as for current symptoms related to perceived abandonment avoidance, interpersonal relationship instability, and affective instability. Within STA and LTA, there were no differences in lifetime or current BPD symptoms (in all instances, $p > 0.30$) dependent on whether individuals smoked (ever or currently).

Discussion

There were two primary findings in the current study. First, abstinent alcoholics (STA and LTA) endorsed lifetime and current symptoms of most all BPD criteria at much higher rates than NSAC, with the effect sizes varying dramatically across criteria, and being somewhat smaller for current vs. lifetime symptoms. Second, although STA did not differ from LTA in symptom counts for most BPD criteria, there were group-by-gender effects for both lifetime and current anger-associated symptoms as well as for lifetime symptoms of frantic abandonment avoidance. The group-by-gender effects reflected much higher symptom counts for STA women than men, with relatively comparable symptom counts for LTA women vs. men.

Our results do not directly speak to the effects of BPD symptoms on treatment seeking or initial success in stopping drinking. In fact, all of our subjects have achieved at least six weeks abstinence prior to study entrance. The group-by-gender effects are consistent with women who exhibit the BPD-related symptoms of intense, inappropriate, or difficult-to-control anger and frantic efforts to avoid real or imagined abandonment, who are in early abstinence being at greater risk for relapse than women who do not evidence such symptoms. This greater risk for relapse can be inferred by the gender difference in these symptom categories not being present in LTA. Direct evidence for this greater risk for relapse could only come from longitudinal data; however, the current cross-sectional data suggest that such longitudinal assessment is warranted. Further, it would not be surprising if such symptoms also interfered with treatment seeking and initial efforts to stop drinking. However, although we believe this is a reasonable hypothesis from the current data, it begs direct confirmation.

We do show that BPD symptoms do not prevent the maintenance of recovery in AUD and SUD individuals who have established at least six weeks abstinence within the mutual-help recovery network – in fact the presence of such symptoms is the norm. We find only minor differences in BPD symptom counts between STA and LTA, consistent with alcoholics with current BPD symptoms progressing from short-term to long-term abstinence at rates comparable to those of alcoholics without BPD symptoms (with exceptions noted above regarding specific symptom categories in women). The majority of the STA and LTA subjects were recruited through the 12-step recovery network in the Honolulu area. It is our belief that A.A. and N.A. are highly supportive of individuals with ongoing BPD problems. It is tolerant of disturbed relatedness, behavioral dysregulation, and affective dysregulation, and provides an environment in which individuals with BPD problems can feel accepted and supported. In other words, our study was limited to individuals who had already engaged sufficiently in treatment (including mutual-help recovery in the form of A.A. or N.A.) to achieve a minimum of six weeks abstinence. Thus, our study participants had already achieved early engagement in treatment and had not dropped out of treatment. Our results

suggest that, in such individuals (with the exceptions noted above for women), BPD symptoms do not affect maintenance of recovery.

Women generally evidenced more BPD disturbance than men; however, consistent with Grant et al. (2008), the gender effects were relatively small, especially in comparison to the effects of substance abuse. Additionally, we did find higher family history density of alcohol and drug problems in women vs. men. Both of these gender findings may be partially a result of there being a potentially higher threshold for women's substance-related problems precipitating treatment seeking (Dawson, 1996; Schober and Annis, 1996), leading to an over-representation of the most severely affected women in treated samples.

As noted above, there are a number of limitations to our study. First and foremost, we deal exclusively with BPD symptoms, and do not require that such symptoms represent enduring patterns and behaviors. Thus, our study is silent with regard to BPD diagnoses. Further, in dealing with (other than alcohol) substance dependence, we did not specifically assess for prescription drug dependence.

Acknowledgments

This work was supported by the National Institutes for Health, NIH Grant #AA016944.

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Table 1

Criteria for Borderline Personality Disorder (At least 5 of the following:)

<ul style="list-style-type: none">• Frantic efforts to avoid real or imagined abandonment• A pattern of unstable and intense interpersonal relationships characterized by extremes between idealization and devaluation (also known as "splitting")• Identity disturbance: Markedly or persistently unstable self-image or sense of self• Impulsive behavior in at least two areas that are potentially self-damaging (e.g., spending, sex, substance abuse, reckless driving, binge eating)• Recurrent suicidal behavior, gestures, or threats, or self-harming behavior• Emotional instability in reaction to day-to-day events (e.g., intense episodic sadness, irritability, or anxiety usually lasting a few hours and only rarely more than a few days)• Chronic feelings of emptiness• Inappropriate, intense anger or difficulty controlling anger (e.g., frequent displays of temper, constant anger, recurrent physical fights)• Transient, stress-related paranoid ideation or severe dissociative symptoms
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Table 2

Demographics and Alcohol Use Variables

	STA				LTA				NSAC				Effect Size Partial η^2							
	ALC (n=36)		ALC+DRG (n=56)		ALC (n=47)		ALC+DRG (n=59)		Men (n=30)		Women (n=34)		STA & LTA vs. NSAC		STA vs. LTA		ALC+DRG vs. ALC		Women vs. Men (All)	
Demographics																				
Age (years)	46.6±6.8	49.9±6.2	45.1±7.5	44.1±5.3	48.3±6.8	50.1±5.4	49.3±7.0	47.8±7.0	47.8±6.9	49.0±7.9	0.4	3.6**	1.6	0.3						
Years of education	13.4±2.2	13.7±2.3	13.2±1.7	13±2.1	13.4±2.2	13.6±2.6	13.8±2.7	13.5±2.0	15.5±4.3	16.4±2.9	14.6***	0.3	0	0.5						
Family density of problem drinkers	.29±.35	.35±.28	.25±.25	.39±.34	.25±.28	.40±.26	.28±.29	.48±.34	.10±.14	.21±.24	8.0***	0.3	0.2	3.9**						
Family density of problem drug users	.11±.17	.07±.14	.20±.22	.28±.29	.09±.20	.20±.20	.21±.29	.35±.30	.03±.10	.07±.15	8.6***	0.8	7.4***	1.7*						
Lifetime smokers # (%)	7 (28%)	3 (27%)	21 (62%)	12 (55%)	13 (48%)	12 (60%)	17 (59%)	25 (83%)	5 (17%)	4 (12%)	13.3***	3.8**	5.4***	0.5						
Current smokers # (%)	6 (24%)	3 (27%)	18 (55%)	12 (55%)	11 (41%)	11 (55%)	14 (48%)	23 (77%)	1 (3%)	2 (6%)	16.7***	2.3*	4.3**	1.4						
Alcohol use variables																				
Average alcohol dose (drinks/month)	235±243	117±78	154±124	150±104	224±173	161±170	140±137	127±140	8±10	4±6	20.0 ^a	0	1.9	0.6						
Peak dose (drinks/month)	333±375	220±176	278±187	246±156	288±234	267±176	257±188	220±182	17±16	19±16	25.1 ^a	0.1	0.7	0.4						
Abstinence duration (months)	2.16±0.6	2.52±0.6	2.4±0.6	2.16±0.72	91.2±97.2	92.4±86.4	73.2±61.2	108±81.6	N/A	N/A	n/a	32.8 ^a	0	0.4						

Effect is significant:

p .05 *

p .01 **

p .001 ***

^a Statistical probabilities are inappropriate since this was a group selection variable.

^b n = 32

Table 3

Borderline Personality Disorder Symptoms by Diagnostic Criteria

	STA				LTA				NSAC				Effect Size (Wilcoxon Mann-Whitney Odds Ratios)					
	ALC (n=36)		ALC+DRG (n=56)		ALC (n=47)		ALC+DRG (n=59)		NSAC (n=64)		STA & LTA vs. NSAC		STA vs. LTA		ALC+DRG vs. ALC		Women vs. Men (All)	
	Men (n=25)	Women (n=11)	Men (n=34)	Women (n=22)	Men (n=27)	Women (n=20)	Men (n=29)	Women (n=30)	Men (n=30)	Women (n=34)								
<i>Lifetime Symptoms</i>																		
Frantic avoidance of abandonment	.60±.50	.73±.47	.56±.50	.86±.35	.74±.45	.60±.50	.79±.41	.73±.45	.23±.43	.32±.48	2.4***	0.9	1.1	1.1	1.1			
Intense, unstable interpersonal relationships	.52±.51	.46±.53	.41±.50	.64±.49	.52±.51	.50±.51	.55±.51	.57±.50	.20±.41	.29±.46	1.7***	0.9	1.1	1.1	1.1			
Markedly unstable identity or self-image	.45±.28	.23±.33	.33±.35	.44±.39	.39±.34	.51±.39	.36±.30	.43±.40	.08±.21	.12±.25	3.1***	0.9	0.9	1	1			
Detrimental impulsivity in at least two areas	.64±.49	.55±.52	.65±.49	.82±.40	.67±.48	.65±.49	.62±.49	.83±.38	.37±.49	.32±.48	2.0***	1	1.2	1.1	1.1			
Suicidal or self-harming behavior	.28±.41	.32±.41	.12±.22	.59±.45	.19±.34	.33±.41	.16±.24	.53±.39	.10±.28	.10±.27	1.8***	1	1.2	1.7***	1.1			
Marked mood reactivity & emotional instability	.24±.44	.27±.47	.32±.48	.46±.51	.41±.50	.55±.51	.35±.48	.50±.51	.07±.25	.27±.45	1.6***	0.8	1.1	1.3*	1.3*			
Feelings of emptiness	.64±.49	.46±.47	.47±.51	.46±.51	.48±.51	.40±.50	.46±.50	.40±.50	.07±.25	.12±.33	2.2***	1	1.1	1.1	1.1			
Intense, inappropriate, or uncontrollable anger	.09±.26	.33±.37	.19±.32	.52±.41	.31±.40	.27±.38	.38±.41	.36±.42	.89±.19	.15±.29	1.6***	0.8	1.4*	1.3*	1.3*			
Transient paranoia or dissociative symptoms	.32±.48	.09±.30	.24±.43	.36±.49	.33±.48	.65±.49	.35±.48	.37±.49	.07±.25	.59±.24	1.8***	0.7*	0.9	1.1	1.1			
<i>Current Symptoms (past 12 months)</i>																		
Frantic avoidance of abandonment	.20±.41	.27±.47	.17±.38	.64±.49	.22±.42	.40±.50	.35±.48	.40±.50	.03±.18	.03±.17	1.8***	0.9	1.2	1.3***	1.3***			
Intense, unstable interpersonal relationships	.24±.44	.27±.47	.24±.43	.64±.49	.37±.49	.35±.49	.35±.48	.43±.50	.10±.31	.18±.39	1.6***	0.9	1.2	1.3*	1.3*			
Markedly unstable identity or self-image	.34±.30	.18±.32	.25±.30	.42±.37	.27±.33	.33±.37	.22±.27	.28±.32	.06±.20	.08±.20	3.1***	0.9	0.9	1	1			
Detrimental impulsivity in at least two areas	.52±.48	.27±.47	.50±.51	.68±.48	.59±.50	.40±.50	.41±.50	.60±.50	.17±.38	.18±.39	2.0***	1	1.1	1.1	1.1			
Suicidal or self-harming behavior	.10±.25	.00±.00	.03±.12	.41±.45	.06±.19	.27±.42	.07±.23	.13±.32	.03±.18	.00±.00	1.3***	1.2	1.1	1.1	1.1			
Marked mood reactivity & emotional instability	.20±.41	.27±.47	.24±.43	.41±.50	.22±.42	.45±.51	.28±.46	.40±.50	.07±.25	.21±.41	1.4***	0.9	1.1	1.1	1.3***			

	STA				LTA				NSAC				Effect Size (Wilcoxon Mann-Whitney Odds Ratios)					
	ALC (n=36)		ALC+DRG (n=56)		ALC (n=47)		ALC+DRG (n=59)		NSAC (n=64)		STA & LTA vs. NSAC		STA vs. LTA		ALC+DRG vs. ALC		Women vs. Men (All)	
	Men (n=25)	Women (n=11)	Men (n=34)	Women (n=22)	Men (n=27)	Women (n=20)	Men (n=29)	Women (n=30)	Men (n=30)	Women (n=34)	NSAC	NSAC	LTA	STA	ALC	ALC	Women	Men
Feelings of emptiness	.64±.49	.27±.48	.41±.50	.41±.50	.30±.47	.20±.41	.26±.44	.30±.47	.03±.18	.09±.29	1.8***	1.5**	1	1	1	1	0.8	0.8
Intense, inappropriate, or uncontrollable anger	.04±.15	.21±.31	.09±.24	.38±.40	.17±.30	.07±.23	.23±.32	.17±.29	.08±.19	.10±.24	1.3	1	1	1	1.3*	1.3*	1.2	1.2
Transient paranoia or dissociative symptoms	.32±.48	.09±.30	.19±.33	.32±.48	.20±.41	.24±.44	.21±.41	.30±.47	.07±.25	.03±.17	1.5***	0.9	0.9	0.9	0.9	0.9	1.1	1.1

Effect is significant: p 0.05*, p 0.01**, p 0.001***