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Borderline Personality Disorder symptom comorbidity within a high externalizing sample: Relationship to the internalizing-externalizing dimensional structure of psychopathology

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Abstract

Background: Borderline personality disorder (BPD) is highly comorbid with both internalizing and externalizing psychopathology. The current study replicates previous findings (Eaton et al. 2011) that indicate that BPD symptomatology is best conceptualized at the intersection of the distress subfactor of the internalizing dimension and the externalizing dimension of psychopathology.

Methods: Confirmatory factor analysis of the covariance among continuous measures of lifetime alcohol problems, marijuana problems, other drug problems, antisocial behavior, and conduct problems, and measures of depression, trait-anxiety, neuroticism, and BPD symptoms assessed in 837 young adults. The sample was recruited to obtain a roughly normal distribution of externalizing problems ranging from no problems to individuals of high externalizing severity leading to an overrepresentation of externalizing problems in the current sample.

Results: Results indicated BPD symptoms were associated with both the externalizing dimension and the distress subfactor of the internalizing dimension and lay at the intersection of the two dimensions. Interestingly, in the current study BPD had a stronger association with the externalizing dimension than was observed in previous studies.

Conclusions: The results replicated earlier findings that BPD symptoms lie at the intersection of the externalizing and internalizing-distress dimensions while using different and more dimensional measures of the pathology assessed. Current findings indicate that perhaps BPD is more heavily influenced by the externalizing dimension of psychopathology within a high externalizing sample, such as those presenting for treatment for alcohol use disorder or substance use disorder.

Keywords

Borderline Personality Disorder; externalizing; internalizing; HiTOP; comorbidity

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Conflict of interest

None

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Introduction

Borderline personality disorder (BPD) is a serious form of psychopathology associated with a wide variety of severe negative outcomes including increased risk for suicidal behavior, distress, functional impairment, and increased utilization of psychiatric services (Yen et al., 2004; Ansell, Sanislow, McGlashan, & Grilo, 2007). The prevalence rate of BPD in the United States was estimated to be between about 1–3% using data from the National Comorbidity Survey Replication (NCS-R, Lenzenweger, Lane, Loranger, & Kessler, 2007). A major complicating factor in the diagnosis and treatment of BPD is its high comorbidity with other mental disorders (Zanarini et al., 1998; Zimmerman & Mattia, 1999). Grant et al. (2008), reported that about 73% of participants with a lifetime BPD diagnosis also had a lifetime substance use disorder (SUD), 75% had a lifetime mood disorder, and about 74% had a lifetime anxiety disorder.

Given the high comorbidity of BPD with many other psychiatric diagnoses, multivariate methods have been employed to gain better understanding of the underlying structural nature of these observed comorbidities. Several studies applying multivariate methods to modeling the structures of common psychiatric disorders have converged on a model with two fundamental dimensions of psychopathology (Krueger, Caspi, Moffitt, & Silva 1998; Eaton et al., 2011). One dimension, commonly referred to as externalizing, is a construct that represents a proclivity to experience disinhibitory disorders such as alcohol use disorder (AUD), substance use disorder (SUD), antisocial personality disorder (ASPD) and conduct disorder (CD). The second dimension, commonly referred to as internalizing, is a construct that signifies the proclivity to experience disorders associated with depressed mood and various forms of anxiety. Several studies have also demonstrated that the internalizing dimension may be best conceptualized as having two subfactors, which have been labeled distress and fear (Krueger, 1999; Vollebergh et al., 2001; Slade & Watson 2006). The distress subfactor is associated with disorders such as major depression, dysthymia, and generalized anxiety disorder. The fear subfactor is associated with disorders such as social/specific phobias and panic disorder. This dimensional approach to psychological nosology has engendered the creation of the Hierarchical Taxonomy of Psychopathology (HiTOP) which attempts to create an empirically informed structure to explain the common symptomology and comorbidities of psychiatric disorders (Kotov et al., 2017). These dimensional approaches to psychopathology use the co-occurrence of disorders and traits to identify empirically defined constructs (e.g. externalizing dimension) that influence variation at the disorder/symptom level, which can subsequently be used to make inferences about disorder etiology. Understanding the latent structure influencing BPD symptomology can provide valuable insights into shared risk factors, genetic and otherwise, influencing development and course of BPD, along with other disorders.

Given the high rate of comorbidity of BPD and a wide array of psychological disorders, its place in this hierarchical taxonomy has posed an interesting challenge. James & Taylor (2008) showed that in their sample of young adults, BPD should be best conceptualized at the intersection of the externalizing dimension and the anxious-misery (equivalent to distress) internalizing subfactor in males, but provided mixed results on whether this structure was equivalent in females. Eaton and colleagues (2011), using a large

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epidemiological data set, demonstrated that BPD best fits in this framework at the intersection of the externalizing dimension and the distress subfactor of the internalizing dimension in both men and women. This current study intends to provide a replication of the Eaton et al. (2011) finding that placed BPD at the intersection of externalizing and the distress subfactor in both females and males. Furthermore, this study will provide convergent validity, as the current study will use continuous and trait like measures of internalizing, externalizing, and BPD psychopathology consistent with a more dimensional approach to these constructs in contrast to the categorical variables (i.e. DSM diagnoses) used by Eaton et al. 2011. Thus, this paper reports what is essentially a replication of Eaton et al (2011), albeit with a different sample and different measures. Nonetheless, given the reproducibility problem observed in psychological science (Aarts et al., 2015), we think the study has substantial value to the field.

Methods

Sample Characteristics

The sample was originally recruited for a study of alcohol abuse/dependence and related externalizing psychopathology (see Finn, Gunn, & Gerst, 2015). The sample was recruited to obtain a roughly normal distribution of externalizing problems ranging from no externalizing problems to individuals of high externalizing severity. This lead to an overrepresentation of externalizing problems as evident by the high prevalence of externalizing disorders listed in table 1. The sample consisted of 837 young adults (452 male, 385 female) ranging from 18 to 30 years of age. On average participants had completed 14.04 years of education (SD = 1.74) and about 81% were currently enrolled as a student. The sample was predominately Caucasian 79%, 7% Black/African American, 6% Asian, 5% Hispanic/Latino, and 3% endorsing another race or endorsing multiracial heritage. This study was reviewed and approved by the Indiana University-Bloomington Institutional Review Board (IRB).

Recruitment

Participants were recruited using flyers, advertisements in local newspapers, and business cards placed around the community, along with postings on the Indiana University student classifieds web page. The flyers and postings were designed utilizing the approach used by Finn and colleagues (Bobova, Finn, Rickert, & Lucas, 2009; Finn et al., 2015) to obtain a sample with a large proportion and range of individuals with externalizing pathology specifically: alcohol use, alcohol problems, other substance use problems, and antisocial psychopathology. The postings and flyers asked for *"adventurous, daring"* individuals, *"impulsive individuals", "heavy drinkers wanted for psychological research", "more reserved and introverted type person", "social drinkers"*, persons who *"got in a lot of trouble as a child" or "have trouble with the law and authority"*, persons with "*drinking problems"*, and those who *"drink modest amounts of alcohol" and "quiet reflective and introspective persons"*.

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Telephone screening interview

Those who responded to advertisements were screened via telephone to determine whether they met study inclusion criteria. Respondents who met study inclusion criteria could read and speak English, had at least a 6th grade education, did not report any history of severe head injuries, did not report a history of psychosis, had consumed alcohol on at least one occasion in their life, and were between ages 18 and 30. Participants were informed that they must abstain from using alcohol and other drugs for at least 12 hours before study sessions.

Test session exclusion criteria

Before every testing session participants were required to meet a set of criteria before proceeding. All participants were required to (1) have no self-reported use of drugs or alcohol within the past 12 hours prior to testing, (2) have gotten at least 6 hours of sleep the previous night, (3) have a breath alcohol level of 0.0% (tested with an AlcoSenor IV, Intoximeters Inc., St. Louis MO), and (4) not be experiencing symptoms of withdrawal or of any illness. Subjects were rescheduled if they did not meet this criteria.

Externalizing Measures

Participants were administered the Semi-Structured Assessment for the Genetics of Alcoholism (SSAGA-II, Bucholz et al., 1994) to assess lifetime DSM-IV diagnoses of alcohol, marijuana, and other drug abuse and dependence, conduct disorder, antisocial personality disorder and to ascertain lifetime problems with alcohol, childhood conduct, antisocial behavior, marijuana. The SSAGA has demonstrated good test-retest reliability (*kappas* = .72–.90; Bucholz et al., 1994), inter-rater reliability (*kappas* =.70 to .90; Bucholz et al., 1994, 1995), and good construct validity when compared with other semi-structured interviews (*kappas* =.60 to .70; Hesselbrock, Easton, Bucholz, Schuckit, & Hesselbrock, 1999). Lifetime problem counts were calculated by summing positive responses to relevant SSAGA-II questions in the respective diagnostic sections of the interview. SSAGA-II interviews were administered by trained lay-people. Table 1 presents the percentage of individuals with a diagnosed externalizing disorder and levels of externalizing and internalizing pathology assessed by dimensional measures.

Internalizing Measures

Measures of internalizing psychopathology were obtained using a range of standard self-report questionnaire assessments. Anxiety was assessed using the Trait Anxiety Inventory (TAI) section of the State-Trait Anxiety inventory (Spielberger, 1983), which has demonstrated very good test-rest reliability (average r =.88; Barnes, Harp, & Jung, 2002). The TAI asks participants to what degree they endorse certain anxious characteristics and experiences. Depression was assessed using the Beck Depression Inventory-II (BDI; Beck, Steer, & Brown, 1996), which has shown good test-retest reliability (1-week r =.93; Beck et al., 1996). Neuroticism was assessed using the neuroticism section of the Eysenck personality questionnaire (EPQ; Eysenck & Eysenck, 1975). The neuroticism subscale of the EPQ has demonstrated good test-retest reliability (r = .92; Sato, 2005).

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Borderline Personality Disorder Measure

Borderline Personality disorder symptomology was assessed using the SCID-II (Structured Clinical Interview for DSM-IV Axis II Personality Disorders) screening questionnaire for BPD symptomatology (First et al. 1995). The screening questionnaire version of the SCID-II BPD section dichotomizes the items into “yes” or “no” questions asking whether a participant “generally” endorses these types of traits/behaviors in the past several years. SCID-II screening questionnaires have demonstrated good reliability and high correlation with symptom counts obtained from diagnostic interviews (Ekselius, Lindström, von Knorring, Bodlund, & Kullgren, 1994; Jacobsberg, Perry, & Frances, 1995). The SCID-II screening questionnaires are designed to be intentionally over inclusive (lower thresholds than diagnostic interview) which is useful when examining BPD symptoms within a sample with a diverse range of BPD symptomology. BPD in the current study was measured by summing the number of BPD symptoms endorsed using the SCID-II BPD screening questionnaire.

Statistical Analyses

R version 3.4.0 was used for these analyses (R Core Development Team, 2013), including utilization of “psych” package for computing Cronbach’s *alpha* (Revelle, 2016) and “lavaan” package for confirmatory factor analysis (CFA)(Rosseel, 2012).

CFA, using maximum likelihood estimator with robust (Huber-White) standard errors (Browne & Arminger, 1995; Huber, 1967) and scaled global fit statistics including a scaled test statistic (labeled $\chi 2^*$) asymptotically equal to the Yuan-Bentler test statistic (Yuan & Bentler, 2000), was used to fit four models in the full sample, males only, and females only. This robust variant of maximum likelihood (MLR in lavaan) was used to account for the possible effects of non-normality in the data. The first model, labeled Baseline Dis/EXT, did not include BPD, it consisted of all internalizing measures loading onto the distress subfactor and all externalizing measures onto the externalizing factor. This model served as a baseline model before testing the best place for BPD within this structure. The second model, labeled Distress model, placed BPD within the distress factor exclusively. The third model, labeled EXT model, placed BPD within the externalizing factor only. Finally, a Distress/EXT model placed BPD at the intersection of the distress and externalizing factors such as in Eaton et al. (2011). The fit indices used for confirmatory factor analysis were the root mean squared error of approximation (RMSEA), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Bayesian Information Criteria (BIC) and chi-square test statistic. Adequate model fit is reflected by a RMSEA of < .08, a CFI and TFI of >.94 (Bentler & Bonett, 1980; Browne & Cudeck, 1992; Hu & Bentler, 1999), and a non-significant chi-square. Important to note that studies with larger sample sizes ($n > 200$) the chi-square tends to be significant (indicating poor model fit) even in models with very good model fit based on other fit indices (Brown, 2006). Chi-square difference tests with test scaling correction were used to compare the improvement between the Distress/EXT model and the Distress and EXT models (Satorra & Bentler, 2001). BIC was also used for model comparisons, which is a useful fit statistic as it stresses parsimony by penalizing models that are more complex and can be especially useful in comparison of non-nested models. Models with lower BIC values should be preferred, with BIC differences of 0–2 showing weak evidence,

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2–6 showing positive evidence, 6–10 showing strong evidence, and difference of >10 indicating very strong evidence in favor of the model with lower value (Raftery, 1995).

Results

Variable correlations and internal consistency

Correlation matrix for variables modeled in CFA is provided in Table 2. The self-report measures used in the current study demonstrated good internal-consistency with Cronbach's *alpha* values of .89, .90, .87, .83 for the BDI, TAI, neuroticism subscale of the EPQ, and SCID-II BPD screener respectively.

Confirmatory Factor Analysis

Modification indices indicated the greatest source of misfit in the Baseline model was residual covariation among the three substance use measures: lifetime alcohol problems, lifetime marijuana problems, and lifetime drug problems. Consequently, to achieve adequate model fit a substance use specific latent factor was added to the model within the externalizing dimension (see figure 1) to capture the residual covariance of these three measures. This factor was labeled as an SUD factor and was included in all models. Table 3 presents the fit indices of the three competing models that included BPD and the baseline model. The best fitting model for females, males, and the full sample, was the model that placed BPD at the intersection of the distress dimension and the externalizing factor. BPD was a moderate indicator of both the externalizing factor (loadings of .52 in females and .47 in males) and the distress factor (loadings of .40 in females and .47 in males). The Distress/EXT model was a significant improvement over the Distress model in females ($\chi 2^*_{diff}$ (1) = 177.12, p < .001), males ($\chi 2^*_{diff}$ (1) = 135.95, p < .001), and in the full sample ($\chi 2^*_{diff}$ (1) = 291.62, p < .001) and also a significant improvement over the EXT model in females ($\chi 2^*_{diff}$ (1) = 63.85, p < .001), males ($\chi 2^*_{diff}$ (1) = 117.04, p < .001), and the full sample ($\chi 2^*_{diff}$ (1) = 180.65, p < .001). BIC statistic showed very strong evidence in favor of the Distress/EXT model, as the BIC statistic of the Distress/EXT models were >10 less than the Distress and EXT models in females, males, and in the full sample (see Table 3). Figure 1 displays the Distress/EXT model path diagram with standardized loadings for both females and males.

Discussion

The main purpose of this study was to replicate a finding by Eaton and colleagues (2011) that places borderline personality disorder at the intersection of the externalizing disorder dimension and the distress subfactor of the internalizing dimension in both men and women. A major difference of this study was the use of continuous variables of symptom domains and trait measures instead of categorical diagnostic groups as was used in Eaton et al. (2011). This study provides convergent validity, as we were able to replicate the Eaton et al. (2011) structure using more dimensional measures of both distress and externalizing pathology.

Despite our findings overall consistency with that of Eaton et al. (2011) there are several discrepancies that warrant discussion. Firstly, the association between the externalizing

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factor and BPD symptoms was substantially stronger in our model than in Eaton et al. (2011). Squaring factor loadings from the current study indicated that the externalizing dimensions accounted for 27% and 22% of the variance of BPD symptoms in females and males respectively, whereas in Eaton et al. (2011) the externalizing dimension accounted for a modest 5.3% and 6.3% in women and men respectively. Conversely, Eaton et al. (2011) observed a stronger association between the distress subfactor and BPD, with the distress factor accounting for 36% and 32.5% of BPD variance in females and males respectively, whereas in the current study the distress subfactor accounted for 16% and 22% of BPD variance in females and males respectively. This is most likely related to the differences in sample composition. Eaton et al. (2011) used a large nationally representative sample, while participants in this study were primarily recruited to represent a wide array of externalizing disorders and symptoms, from none to many. Therefore, our sample certainly has an overrepresentation of externalizing psychopathology perhaps leading to a stronger relationship between the externalizing dimension and other psychopathology assessed in the current sample. Secondly, the association between distress factor and externalizing dimension was substantially weaker (female $r = .48$, male $r = .44$) than the correlation between the broader internalizing dimension and externalizing dimension in Eaton et al. (2011) (female $r = .68$, $r = .68$). This may suggest there is a stronger relationship between externalizing pathology and the broader dimension of internalizing pathology, rather than a specific association with the distress subfactor within the internalizing dimension.

Thirdly, our model included a SUD specific subfactor within the externalizing dimension to explain the residual covariance of our three SUD measures. We believe this stems from the differences in assessment of externalizing pathology used in the current study and that used by Eaton and colleagues (2011). Eaton et al. (2011) used categorical variables corresponding to DSM derived diagnoses whereas our externalizing measures were problem counts obtained from an extensive semi-structure interview. Consequently, our measures sampled a far more diverse array of SUD symptomology and experiences and therefore were more likely to identify other meaningful latent factors. Several other studies that have utilized continuous measures of externalizing pathology have identified an SUD subfactor within the externalizing spectrum (Krueger, Markon, Patrick, Benning, & Kramer, 2007; Verona, Javdani, & Sprague, 2011; Witkiewitz et al., 2013). It is possible that these findings suggest the existence of a theoretically meaningful subfactor within the externalizing spectrum that is not identified when relying on DSM categorical variables. Future studies may serve to further explore whether other meaningful factors aid to explain variance in the externalizing domain of psychopathology.

Although the current study provides a useful examination of the placement of BPD within the internalizing-externalizing structure of common mental disorders, this structure represents only a subset of the greater latent space underlying psychopathology. Kotov and collegues (2011) examined covariation of a large number of categorical psychological diagnoses including a wide range of personality disorders and found that BPD was a manifestation of an internalizing, externalizing, and antagonism dimension. The antagonism dimension was characterized by a propensity to experience histrionic personality disorder, narcissistic personality disorder, and BPD, with CD and ASPD cross-loading onto both the externalizing and antagonism dimensions. Similarly, Wright & Simms (2015) when

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examining the covariation of psychological diagnoses and a variety of personality traits (e.g. “perfectionism”) found BPD to be an indicator of an internalizing, disinhibition, and antagonism factor. The disinhibition factor in Wright and Simms (2015) had many similarities to the externalizing dimension with drug use, alcohol use, and ASPD indicators along with personality constructs commonly associated with externalizing pathology such as impulsivity and risk-taking. Furthermore, several studies have found evidence for the existence of a general factor of disordered personality underlying covariation within a wide array of personality disorders indicative of perhaps an important higher order structure underlying personality problems (Sharp et al., 2015; Wright, Hopwood, Skodol, & Morey, 2016). While the current study continues to highlight the important association of BPD with externalizing and internalizing pathology, the integration of the latent structure underlying a diverse array of psychological disorders and personality disorders remains a challenging task for future work that will provide valuable insights to the etiology of BPD.

This study needs to be interpreted in light of its limitation. Our study sample was predominantly Caucasian and consisted of a relatively narrow age range of young adults. This may hinder generalizability to other samples and individuals at different time points of development. As stated before, our sample was predominantly recruited for a diverse range of externalizing problems and may have less variability of internalizing pathology in absence of externalizing pathology than could be desired. Lastly, our study design did not assess Post-Traumatic Stress Disorder, as in Eaton et al. (2011), which was included in their distress factor. Our distress model in this way is more consistent with that used by James & Taylor (2008), and still benefited from three strong indicator variables.

In conclusion, our results support the conceptualization of borderline personality disorder as a disorder placed at the intersection of externalizing psychopathology and the distress subfactor of internalizing psychopathology in both males and females. This study extends the findings by James & Taylor (2008) and Eaton et al. (2011) by demonstrating the generalizability of their findings to more continuous measures of externalizing and internalizing-distress symptomology in both males and females. Our internalizing-distress factor consisted of continuous measures of depression, trait-anxiety, and neuroticism in lieu of categorical diagnoses of major depression disorder, dysthymia, generalized anxiety disorder, and PTSD. As stated in Eaton et al. (2011), continuous variables serve to embrace the spectrum approach that is central to hierarchical taxonomies of psychological dysfunction and allowed for chi-square difference tests between nested models for model comparison/selection.

This placement within the psychological hierarchical structure may help to explain the high comorbidity rates observed in BPD with a wide array of psychopathology. It also may give some insights into the complexity of diagnosing, studying, and treating BPD as it is a disorder that unites symptoms they may not be commonly seen together. Furthermore, understanding the relationship between BPD psychopathology and common psychological disorders may provide a framework for the use of BPD measures in subsequent research. BPD symptoms, even in absence of a BPD diagnosis, may serve as a valuable marker of dysfunction stemming both from propensities for internalizing-distress and externalizing dysregulation. Lastly, the stronger relationship between the externalizing domain and BPD

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symptoms in our sample, compared to previous research, perhaps indicates that the "balance" between the influence of internalizing-distress domain and externalizing domain on BPD psychopathology may vary given the make-up of the sample. This may provide valuable insight into understanding the heterogeneity of those suffering with BPD. Specifically in high externalizing populations, such as those seeking treatment for AUD and SUD, BPD symptoms may be more strongly influenced by propensity for externalizing pathology than observed in the general population.

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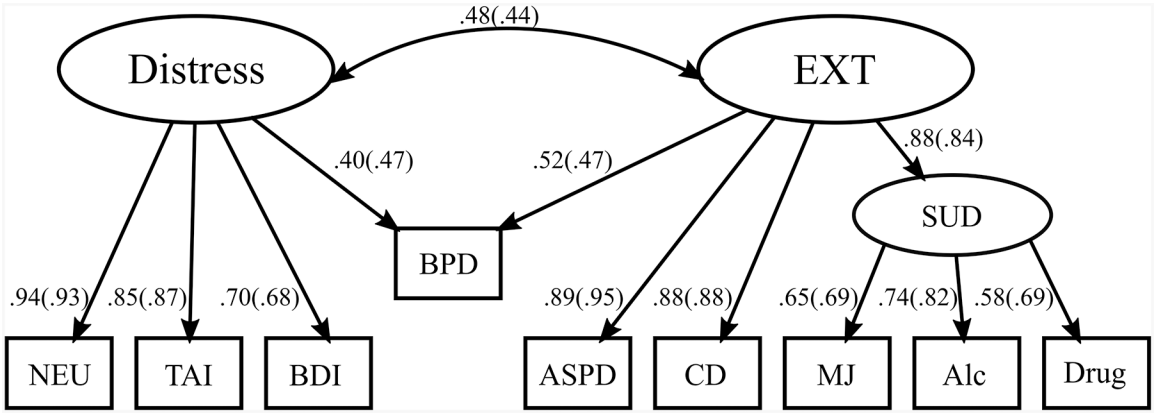

Figure 1.

Confirmatory Factor Analytic Model of BPD symptoms, internalizing psychopathology and externalizing psychopathology in females and males. Values outside of parentheses are the standardized loadings for females, values inside parentheses are standardized loadings for males. All other paths are significant at $p < .001$. EXT = externalizing, SUD = substance use, NEU = neuroticism Eysenck personality questionnaire, TAI = trait anxiety inventory, BDI = Beck depression inventory, BPD = borderline personality disorder symptoms, Drug= drug problem counts, MJ = marijuana problem counts, Alc = alcohol problem counts, CD = conduct disorder problems, ASPD = antisocial personality disorder problems

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Table 1.

Sample Characteristics

Characteristic	Value	Range (Min - Max)
n (male/female)	837 (452/385)	-
% (n) with Alcohol abuse or dependence	67% (563)	-
% (n) with Marijuana abuse or dependence	48% (402)	-
% (n) with other Drug abuse or dependence	19% (163)	-
% (n) with Childhood Conduct Disorder	24% (202)	-
% (n) with Antisocial Personality Disorder	13% (105)	-
Externalizing Measures		
Alcohol Lifetime Problems *M* (± *SD*)	17.06 (± 14.08)	0 – 67
Antisocial Lifetime Problems *M* (± *SD*)	6.69 (± 6.46)	0 – 37
Conduct Lifetime Problems *M* (± *SD*)	7.97 (± 6.09)	0 – 32
Marijuana Lifetime Problems *M* (± *SD*)	6.89 (± 8.89)	0 – 38
Other Drug Lifetime Problems	6.65 (± 17.95)	0 – 134
Internalizing: Distress Measures		
Trait Anxiety Inventory	38. 98 (± 9.50)	21 – 71
Beck Depression Inventory	6.46 (± 5.15)	0 – 21
Neuroticism Questionnaire	8.60 (± 5.55)	0 – 23
Borderline Personality Measure		
BPD SCID-II Screening Questionnaire	3.80 (± 3.38)	0 – 15

Lifetime alcohol, conduct, antisocial, marijuana, and drug problems were the summed positive responses to questions from the respective sections of the Semi-Structured Assessment for the Genetics of Alcoholism (SSAGA; Bucholtz et al, 1994).

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Table 2.

Bivariate Correlations of Alcohol, antisocial, conduct, marijuana, and drug problems, trait anxiety, depression, neuroticism, and borderline personality symptoms (N = 837)

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Alcohol	1	-	-	-	-	-	-	-	-
2. Antisocial	.635	1	-	-	-	-	-	-	-
3. Conduct	.596	.820	1	-	-	-	-	-	-
4. Marijuana	.529	.538	.512	1	-	-	-	-	-
5. Drug	.505	.557	.430	.488	1	-	-	-	-
6. Trait Anxiety	.319	.290	.298	.261	.234	1	-	-	-
7. Depression	.365	.328	.377	.309	.279	.592	1	-	-
8. Neuroticism	.335	.331	.358	.275	.206	.807	.632	1	-
9. Borderline PD	.492	.605	.630	.445	.322	.535	.541	.610	1

All correlations are significant at $p < .01$.

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Table 3.

Fit indices and number of free parameters for models' fit

Model	CFI	TLI	RMSEA	BIC	No. of free parameters	$\chi 2^*(df)$
Females (n = 385)						
Baseline Dis/EXT	.962	.941	.078	19963.186	26	60.695(18)
Distress	.885	.835	.127	21826.013	29	179.763(25)
EXT	.914	.876	.110	21780.743	29	141.633(25)
Distress/EXT	.963	.944	.074	21698.709	30	74.427(24)
Males (n = 452)						
Baseline Dis/Ext	.963	.943	.085	23997.517	26	77.338(18)
Distress	.906	.864	.128	26107.280	29	211.432(25)
EXT	.907	.866	.127	26104.789	29	208.236(25)
Distress/EXT	.966	.949	.079	25968.402	30	91.193(24)
Full (n = 837)						
Baseline Dis/EXT	.971	.954	.073	44019.311	26	98.962(18)
Distress	.900	.857	.126	47997.224	29	355.529(25)
EXT	.912	.872	.119	47960.834	29	321.998 (25)
Distress/EXT	.970	.955	.071	47717.913	30	124.649(24)

Comparative Fit index (CFI), Tucker-Lewis Fit Index (TLI), Root mean square error of approximation (RMSEA), Bayesian Information Criteria (BIC). No. of free parameters is the number of parameters that was estimated in the model. $\chi 2^*$ = scaled chi-square test statistic for that model. All chi-square statistics were significant at p <.001.