Published in final edited form as:

J Psychoactive Drugs. 2016 ; 48(2): 115–123. doi:10.1080/02791072.2015.1130885.

The relationship between antisocial and borderline features and aggression in young adult men in treatment for substance use disorders

Ryan C. Shorey, PhD¹ [Assistant Professor of Psychology], Joanna Elmquist, M.A.² [Clinical Psychology Graduate Student], Scott Anderson, PhD³ [Clinical Director], and Gregory L. Stuart, PhD² [Professor of Psychology]

¹Ohio University

²University of Tennessee, Knoxville

³Cornerstone of Recovery, Louisville, TN

Abstract

There is a large literature documenting that adult men in treatment for substance use disorders perpetrate more aggression than men without substance use disorders. Unfortunately, there is minimal research on aggression among young adult men (i.e., 18–25 years of age) in treatment for substance use. Moreover, although aggression is more likely to occur when individuals are acutely intoxicated by alcohol or drugs, research also suggests that antisocial (ASPD) and borderline (BPD) personality features increase the chances an individual will use aggression. The current study therefore examined the associations between ASPD and BPD features, including specific features that are reflective of impulsivity, and aggression in young adult men in treatment for substance use disorders ($N = 79$). Controlling for age, education, alcohol and drug use, ASPD features were positively associated with various indicators of aggression (e.g., physical, verbal, attitudinal), whereas BPD features were only associated with physical aggression. However, ASPD and BPD features that were specific to impulsivity were robustly related to indicators of aggression. Findings suggest that substance use treatment should attempt to target ASPD and BPD features in young adult men, which may help reduce aggression after treatment.

Keywords

Aggression; antisocial personality; borderline personality; substance use

Alcohol and drugs are a likely contributing cause of aggression (Leonard, 2005). Research shows that substance use temporally precedes and increases aggression, including physical, verbal, and sexual aggression, in various populations (Mulvey et al., 2006; Shorey, Stuart, McNulty, & Moore, 2014; Stuart et al., 2013). Research also shows that adult men in treatment for substance use disorders evidence higher levels of aggression than men in the general population (Stuart, O'Farrell, & Temple, 2009), including aggression against

intimate partners (e.g., Mattson, O'Farrell, Lofgreen, Cunningham, & Murphy, 2012) and general aggression (i.e., aggression against friends, strangers; Stuart, Moore, Ramsey, & Kahler, 2004). For instance, Chermack, Fuller, and Blow (2000) demonstrated that 75.3% of individuals in treatment for substance abuse reported partner or non-partner violence in the 12 months prior to treatment. Moreover, research also demonstrates that aggression decreases following substance use treatment (O'Farrell, Murphy, Stephan, Fals-Stewart, & Murphy, 2004; Stuart et al., 2009) and that aggression is more prevalent among individuals who relapse to substance use relative to those who remain abstinent following treatment (e.g., Schumm, O'Farrell, Murphy, & Fals-Stewart, 2009). Still, even when substance use is treated and aggression decreases, research suggests that aggression still occurs, albeit less frequently and more consistent with rates found in the general population (Stuart et al., 2009). Thus, it is important to examine correlates of aggression among substance users.

Unfortunately, there little research on aggression among young adult men (i.e., ages 18–25) in substance use treatment, despite this being the developmental time period when aggression peaks (O'Leary, 1999). Specifically, there is a notable lack of research on correlates of aggression other than substance use in this population.

ASPD and BPD are Related to Substance Use

There are high rates of co-morbidity between ASPD and/or BPD and substance use disorders. For instance, approximately 7% to 40% of men with substance use disorders meet criteria for ASPD (Hasin et al., 2011). This stands in stark contrast to the estimated 3 – 4% prevalence of ASPD among men in the general population (Grant et al., 2004). Regarding BPD, 30% to 57% of men with substance use disorders meet diagnostic criteria (Trull, Sher, Minks-Brown, Durbin, & Burr, 2000; Tull, Gratz, & Weiss, 2011). Again, this stands in contrast to the estimated 6% prevalence of BPD among men in the general population (Grant et al., 2008). Although there is considerable overlap between ASPD and BPD (Becker, Grilo, Edell, McGlashan, 2000; Paris, 1997), there are important differences between ASPD and BPD in terms of symptomatology. Specifically, individuals with ASPD often display a lack of remorse for their harmful behaviors, demonstrate a disregard for the safety of themselves and others, and often deceive others for personal pleasure (American Psychiatric Association, 2013). It should be noted that one of the diagnostic criteria for ASPD is aggressive behavior (American Psychiatric Association, 2013). In contrast, individuals with BPD are concerned that close others will abandon them, often have an unstable sense of self, and engage in self-injurious and suicidal behavior (American Psychiatric Association, 2013). ASPD and BPD are the most common personality disorder diagnoses among individuals in treatment for substance use (Rounsaville et al., 1998).

ASPD and BPD are Related to Aggression

Crick and colleagues (2005) examined the relationship between borderline features and social aggression in a sample of fourth graders. Results indicated that over the course of a year an increase in borderline symptoms was associated with an increase in social aggression. The longitudinal relationship between borderline features and aggression is supported in numerous studies indicating that borderline features at baseline are associated

with interpersonal aggression and aggressive behaviors at follow-up (Stepp et al., 2012). Moreover, in a sample of individuals seeking treatment for alcoholism, Burt and Hopwood (2010) found that an earlier age of onset of antisocial behaviors was related to increased aggression, anger, and alcohol use. Hyde and colleagues (2015) examined the relationship between antisocial behaviors during adolescence and negative outcomes during adulthood (e.g., aggression, arrests, ASPD diagnoses, substance use disorders) and found that an earlier onset of antisocial behaviors was associated with an increased likelihood of ASPD diagnoses, aggression, and adolescent and adult arrests. Research examining the relationship between comorbid ASPD and substance use disorders and aggression suggests that individuals with comorbid ASPD and substance use disorders are more prone to aggression compared to those with only substance use disorders (Moeller & Dougherty, 2001; Moeller et al., 1997). For example, Moeller and Dougherty (2001) reported that individuals with ASPD exhibit greater aggression following alcohol consumption compared to individuals without ASPD. In all, ASPD and BPD features are robustly related to aggression, and one possible explanation is that both disorders are characterized, in part, by high levels of impulsivity (Critchfield, Levy, & Clarkin, 2004), which is a known correlate of aggression (Wakai & Trestman, 2008). Indeed, one feature of ASPD is “stimulus seeking”, or risk-taking behavior that is often impulsive in nature (Morey, 1991), which is robustly associated with various indicators of aggression and substance use (Joireman, Anderson, & Strathman, 2003). Specific to BPD, “affective instability”, or marked shifts in emotional expression, is often used as one indicator of impulsivity among individuals with BPD (Morey, 1991), and may be associated with aggression. In addition, there is substantial research documenting that impulsivity is associated with substance use, including substance use severity and relapse (e.g., De Wit, 2009; Verdejo-García, Lawrence, & Clark, 2008). Thus, in addition to examining overall ASPD and BPD features and their relation to aggression, it is important to examine whether impulsivity is the feature of these disorders that is related to aggression among individuals in treatment for substance use, consistent with theoretical suppositions.

Current Study

Based on existing research with adult men in treatment for substance use, we examined whether ASPD and BPD features were uniquely associated with various indicators of aggression (attitudinal, physical, and verbal) in a sample of young adult men in treatment for substance use disorders. To our knowledge, there is minimal research on aggression among young adult men in substance use treatment, and no known research on whether ASPD and BPD features are correlates of aggression in this population. Moreover, we are unaware of research on the unique contributions of ASPD and BPD features to aggression. Thus, the current study extends past research by examining the unique contributions of ASPD and BPD features to aggression in young adult men in treatment for substance use disorders. We hypothesized that both ASPD and BPD features would be positively and uniquely associated with indicators of aggression, even after controlling for alcohol and drug use, age, and education, all correlates of aggression (O’Leary, 1999; Stuart et al., 2009). We also expected to find these associations when examining specific features of ASPD (i.e., sensation seeking) and BPD (i.e., affective instability) that are closely related to impulsivity, as impulsivity is robustly associated with aggression.

METHODS

Procedures and Participants

The treatment records from young adult men in residential substance use treatment at a private facility located in the Southeastern United States were reviewed. At admission, and as part of their treatment informed consent, patients are informed that their records may be de-identified and used for research. The treatment facility provides a 28–30 day program guided by the traditional 12-step model. All patients must have a primary substance use disorder and be approximately 18–25 years of age to be admitted into the young adult program. Patients with comorbid mental health conditions are admitted to the treatment facility, unless the comorbid mental health problem would interfere with substance use treatment (e.g., active psychosis). After admission, and after medical detoxification (when necessary), patients complete an intake assessment that includes urine drug screens, unstructured interviews, and self-report measures. All substance use diagnoses are based on the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition – Text Revision (DSM-IV-TR: American Psychiatric Association, 2000). Diagnoses were made through consultation of the treatment team, which included a licensed psychologist, a psychiatrist, physician, and substance abuse counselors. Treatment team members do not routinely diagnose non-substance use disorders (e.g., depression; personality disorders) due to a lack of structured assessment regarding these comorbid disorders. Study procedures were approved by the University of Tennessee's Institutional Review Board.

Patient records were examined from May 2012 to August 2013, which resulted in a sample of 79 patients. The primary substance use diagnoses were opioid dependence (28.2%), polysubstance dependence (24.4%), sedative/hypnotic/anxiolytic dependence (19.2%), and alcohol dependence (14.1%). The remaining patients had other substance use diagnoses (e.g., cannabis dependence; amphetamine dependence). Participants were non-Hispanic Caucasian (95%), African American (2.5%) and Hispanic (2.5%). The mean age was 21.35 ($SD = 2.03$; Range = 18–26) and the mean number of years of education completed was 12.61 ($SD = 1.63$).

Measures

Aggression—The Personality Assessment Inventory (PAI; Morey, 1991) was used to measure aggression. The PAI consists of 4 scales that measure aggression: physical (prone to physical displays of anger, such as physical fights and damage to property), verbal (tendency to be verbally aggressive with little or no provocation), attitude (easily angered, low anger control, and perceived by others to be hostile), and an overall aggression composite score (the combination of the three subscales). All items are rated on a 4-point likert scale (1=Not true at all, False, 2=Slightly true, 3=Mainly true, and 4=Very true) and summed to create a total score. Morey (1991) reported that average scores on the PAI aggression scales are T scores of 59 or below, with scores from 60–69 indicative of impatience, irritability and being quick-tempered; 65–69 are individuals who are provoked easily; and 70 or higher are individuals who evidence chronic hostility and anger, placing them at high risk for aggression. The PAI aggression scales have demonstrated good internal consistency,

convergent validity with other measures of aggression and hostility, and validity (Crawford, Calhoun, Braxton, & Beckham, 2007; Morey, 1991).

Antisocial Personality Disorder (ASPD) Features—The Personality Assessment Inventory ASPD scales (Morey, 1991) were used to examine ASPD features. The PAI contains 24-items that assess ASPD features, including antisocial behaviors (a history of conduct problems and criminality), egocentricity (self-centered, callous, and remorseless behavior), and sensation seeking (a tendency to seek thrills and excitement; low boredom tolerance). Items are scored on a 4-point likert scale (1=Not true at all, False, 2=Slightly true, 3=Mainly true, and 4=Very true) and summed to create a total score. Morey (1991) reports that average scores on the PAI scales are *T* scores of 59 or below, with scores from 60–69 indicative of potential problems and scores of 70 or higher reflecting serious problems and likely diagnostic consideration. The ASPD scale has demonstrated good internal consistency in various populations (Crocker et al., 2005; Morey, 1991). In addition to the total ASPD features scale, we used the sensation seeking subscale, as this subscale is one indicator of impulsivity associated with ASPD.

Borderline Personality Disorder (BPD) Features—The PAI BPD scales (Morey, 1991) were used to examine BPD features. The PAI contains 24-items that assess BPD features, including affective instability (mood fluctuations; difficulty regulating emotions), identity problems (feelings of uncertainty about life and unfulfillment), negative relationships (history of betrayal and exploitation in relationships), and self-harm (impulsivity that can result in self-harm). Items are scored on a 4-point scale (1=Not true at all, False, 2=Slightly true, 3=Mainly true, and 4=Very true), and a total score is obtained by summing all 24-items. The PAI-BPD subscale has demonstrated high internal consistency and good convergent and discriminant validity (Morey, 1991; Trull, 2001). The same *T* scores described above for the ASPD subscale is also used to interpret scores on the BPD scale. In addition to the total BPD features scale, we used the affective instability subscale, as this subscale is one indicator of impulsivity associated with BPD.

Alcohol Use—The Alcohol Use Disorders Identification Test (AUDIT; Saunders, Asaland, Babor, de la Fuente, & Grant, 1993) assessed alcohol use in the 12 months prior to treatment. The AUDIT contains 10-items and examines the intensity and frequency of alcohol use, symptoms that might indicate dependence or tolerance to alcohol, and negative consequences associated with alcohol use. Items are summed to create a total score with higher scores corresponding to greater alcohol use and negative consequences.

Drug Use—The Drug Use Disorders Identification Test (DUDIT; Stuart, Moore, Kahler, & Ramsey, 2003; Stuart et al., 2004) assessed drug use in the 12 months prior to treatment entry. The DUDIT contains 14 items and is modeled after the AUDIT. The DUDIT examines the frequency of drug use and symptoms that may indicate tolerance or dependence for 7 different types of drugs (cannabis, cocaine, hallucinogens, stimulants, sedatives/hypnotics/ anxiolytics, opiates, and other substances). Items are summed to create a total score with higher scores corresponding to greater drug use frequency and negative consequences.

Data Analytic Strategy

All analyses were conducted using SPSS version 18.0. Variables were first examined for skewness and kurtosis, with results demonstrating that all variables fell within normal limits (e.g., skewness less than 1.20). Bivariate correlations were then conducted to examine basic relationships among study variables. Next, to examine whether ASPD and BPD features were associated with aggression after controlling for alcohol use, drug use, age, and years of education, we used multiple regression analyses. In the first step, alcohol use, drug use, age, and years of education were entered as correlates of aggression. In the second step, ASPD and BPD features were added to the model. This allowed us to determine the extent to which ASPD and BPD features added unique variance to the prediction of aggression. Analyses were conducted separately for each of indicator of aggression.

RESULTS

Table 1 displays bivariate correlations, means, and standard deviations among study variables. Consistent with prior research, ASPD features were positively and significantly associated with the total aggression score, as well as all three aggression subscales. BPD features were positively and significantly associated with the total aggression score, as well as aggressive attitude and physical aggression. ASPD Stimulus Seeking and BPD Affective Instability were both positively and significantly associated with all indicators of aggression. Alcohol use, drug use, and age were not significantly related to aggression. Education was negatively and significantly associated with all indicators of aggression, with the exception of verbal aggression. ASPD and BPD features were positively associated with each other.

Table 2 displays results of the multiple regression analyses predicting aggression. For the overall aggression score, education and ASPD features were uniquely associated with aggression in the final model. Results from the additional models examining the aggression subscales demonstrated that ASPD features were the only predictor significantly associated with all three indicators of aggression (attitudinal, physical, and verbal). BPD features were associated with physical aggression only. No other variables were significantly associated with aggression after accounting for ASPD and BPD features.

Finally, Table 3 displays results of the multiple regression analyses predicting aggression using the affective instability BPD subscale and stimulus seeking ASPD subscale. The ASPD stimulus seeking subscale was positively and significantly associated with each aggression scale. The BPD affective instability subscale was positively and significantly associated with all aggression subscales, other than verbal aggression. Education was a unique predictor of total aggression and aggressive attitude.

DISCUSSION

The current study examined whether ASPD and BPD personality features were associated with aggression among young adult men in residential treatment for substance use disorders. Findings were consistent with a large body of research demonstrating that ASPD features were associated with aggression, even after controlling for substance use, age, education, and borderline features. Total ASPD features were associated with each indicator of

aggression, whereas total BPD features were only related to physical aggression. These findings suggest that even if substance use were to be successfully treated, it is possible that aggression levels would remain high in this population due to ASPD features.

Total ASPD features were associated with increased aggression, as this is a known predictor of aggression across multiple populations. It is notable, though, that total BPD features were only uniquely associated with physical aggression, but not attitudinal or verbal aggression, when accounting for relevant demographic and clinical control variables. This is counter to some previous research demonstrating BPD features to be associated with various indicators of aggression in different populations (Ross & Babcock, 2009; Shorey et al., 2012). It is possible that ASPD features are a better predictor of aggression than BPD features among young adult men in substance use treatment. However, when ASPD and BPD features that are indicators of impulsivity were examined (i.e., Stimulus Seeking and Affective Instability) both indicators were strongly related to all indicators of aggression (with the exception of verbal aggression for Affective Instability). These findings suggest that characteristics of ASPD and BPD that reflect high impulsivity is robustly related to aggression among young men in treatment for substance use disorders, which is consistent with theoretical suppositions of why ASPD and BPD may be related to aggression.

Alcohol and drug use were not associated with any indicator of aggression in the bivariate analyses and after accounting for ASPD and BPD features. These findings stand in contrast to the literature documenting an association between substance use and aggression among adult men in substance use treatment (Stuart et al., 2009). There are a number of possible explanations for this finding. First, substance use is believed to influence aggression during the acute, intoxicating period of use (Leonard, 2005), which was not assessed in the current study. Thus, it is possible that more global evaluations of substance use is not an accurate indicator of the relationship between substance use and aggression. Of course, prior work with adult men using similar measures of substance use have found an association with aggression. Another explanation could be that substance use is not a robust predictor of aggression in our sample. Indeed, ASPD features was a robust predictor of aggression, and it is possible that there are other factors that are more consistently linked with aggression in this population than substance use. It is also possible that this association was not evident due to limited variability in substance use in this sample, which may be partly due to the small sample size.

Age was not related to aggression in the current study, which stands in contrast to previous research suggesting that age is associated with aggression (O'Leary, 1999). One possible reason for this finding is the lack of range in age in our sample (i.e., age ranged from 18–26). Aggression tends to peak in young adulthood and then decline thereafter (O'Leary, 1999). Since our sample was comprised of individuals in young adulthood, we likely did not have enough variability in age to detect significant associations.

Directions for Future Research

Replication and extension of our findings are needed. Future research should employ structured diagnostic interviews to evaluate the presence of ASPD and/or BPD, which will provide a more accurate test of the association between ASPD/BPD and aggression in this

population. In addition, research should examine potential mediators and moderators of the relationship between ASPD/BPD and aggression among young adults in treatment for substance use. According to most theories of aggressive behavior (e.g., Bell & Naugle, 2008), personality traits/disorders likely influence aggression through more proximal factors to aggression, such as acute intoxication and state negative affect (e.g., anger). For example, aggression may be more likely to occur in the presence of state anger if an individual also has ASPD/BPD, which may make it more difficult to implement adaptive, non-violent, emotion regulation skills. Continued research in this area will help to elucidate the role that ASPD/BPD plays in aggression among young adult men in treatment for substance use.

One area for future research is to determine whether aggression for young adult men reduces following substance use treatment, consistent with research on adult men who receive substance use treatment. Although substance use treatment may reduce the risk for aggression in young adult men, it is also possible that reductions seen in aggression would not be as large as those seen in adult men. That is, research has demonstrated that aggression remains relatively stable during young adulthood (Capaldi et al., 2003), but begins to decline after this developmental period irrespective of intervention (e.g., Fritz & O'Leary, 2004). Thus, although substance use is known to precede and increase the risk for aggression among young adult men (Shorey et al., 2014), reductions in substance use may impact aggression less in this population, where other correlates of aggression may play a larger role (e.g., ASPD features), as suggested in the results presented here.

Targeting ASPD and BPD features in substance use treatment may help to reduce aggression following substance use treatment. However, there has only been a small body of research that has investigated treatments designed to concurrently target substance use and personality disorders, such as ASPD and BPD, in substance use populations. For instance, Ball, Maccarelli, LaPaglia, and Ostrowski (2011) examined whether Dual-Focused Schema Therapy (DFST), a treatment designed for substance use patients with comorbid personality disorders, resulted in better treatment outcomes relative to individual drug counseling. However, results did not support that DFST produced better outcomes. Some research has also examined Dialectical Behavior Therapy (DBT; Linehan, 1993) as a treatment for substance use disorders and comorbid BPD, although findings have been mixed in regards to its effectiveness (e.g., van den Bosch, Verheul, Schippers, & van den Brink, 2002). Thus, continued research is needed to determine the most appropriate treatment for substance use patients with comorbid ASPD and/or BPD features, and whether reductions in personality features concurrently reduces aggression.

Limitations

The sample was comprised of primarily non-Hispanic Caucasian young adult men, which limits the generalizability of findings to other treatment populations. Future research should examine these relations among young adult women in treatment for substance use, as they are also a population with high levels of aggression (e.g., Stuart et al., 2009), as well as outpatient treatment populations and non-treatment seeking populations. As this was a chart review study, we only had access to total scores for the self-report measures, precluding our ability to examine internal consistency in our sample. The treatment facility where charts

were reviewed does not use structured diagnostic interviews, such as the SCID (First, Spitzer, Gibbons, & Williams, 1995), for assessing substance use disorders, or personality disorders, limiting confidence in diagnoses. Future research should use structured diagnostic interviews to control for comorbid mental health diagnoses. The cross-sectional, chart-review design of our study precludes the determination of causality among study variables. There is a need for longitudinal research on the relation between ASPD and BPD features and aggression among young adult men. We also do not have information on whether patients were taking prescribed medication prior to treatment that may have impacted their risk for aggression (e.g., antidepressants). Future research should assess for and control for this possibility. Information on patients socioeconomic status (e.g., income) was also not available, and this should be assessed in future studies.

Additionally, future research should use aggression measures that identify specific forms or targets of aggression (e.g., aggression against intimate partners) to further examine the relation between ASPD and BPD features and aggression among young adult men in substance use treatment. Our sample size was small which may have precluded the detection of significant effects. Finally, there is concern in the literature regarding the validity of assessments of ASPD among individuals with a substance use disorder (e.g., Kaye, Darke, & Finlay-Jones, 1998). That is, it has been suggested that for some, if not the majority, of individuals with a substance use disorder, features of ASPD (e.g., criminal behavior, lack of remorse) may be due to substance use and remit following substance use treatment and/or abstinence.

Conclusion

The findings from the current study add to a robust literature on the association between aggression, ASPD, and BPD features among men in treatment for substance use disorders, but extend the literature by examining these associations among young adult men. Total ASPD features, as well as the specific feature of Stimulus Seeking, were associated with all four indicators of aggression, even after controlling for age, education, alcohol use, drug use, and BPD features. In addition, total BPD features was associated with physical aggression after controlling for these same covariates (including ASPD features), and the BPD Affective Instability subscale was associated with total aggression, aggressive attitude, and physical aggression. Substance use treatment centers have the difficult task of not only treating substance use disorders, but should also focus attention on ASPD and BPD features as a means to reduce aggressive behavior. Continued research in this area is needed, including research on effective interventions for aggression among young adult men in treatment for substance use disorders.

Acknowledgments

This work was supported, in part, by grant K24AA019707 from the National Institute on Alcohol Abuse and Alcoholism (NIAAA) awarded to the last author. The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIAAA or the National Institutes of Health.

References

- American Psychiatric Association. Diagnostic and statistical manual-text revision. Washington, DC: Author; 2000.
- American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders (DSM-5®). Washington, DC: Author; 2013.
- Ball SA, Maccarelli LM, LaPaglia DM, Ostrowski MJ. Randomized trial of dual-focused versus single-focused individual therapy for personality disorders and substance dependence. *The Journal of Nervous and Mental disease*. 2011; 199:319–328. DOI: 10.1097/NMD.0b013e3182174e6f [PubMed: 21543951]
- Becker DF, Grilo CM, Edell WS, McGlashan TH. Comorbidity of borderline personality disorder with other personality disorders in hospitalized adolescents and adults. *American Journal of Psychiatry*. 2000; 157:2011–2016. <http://dx.doi.org/10.1176/appi.ajp.157.12.2011>. [PubMed: 11097968]
- Bell KM, Naugle AE. Intimate partner violence theoretical considerations: Moving towards a contextual framework. *Clinical Psychology Review*. 2008; 28:1096–1107. DOI: 10.1016/j.cpr.2008.03.003 [PubMed: 18430501]
- Burt SA, Hopwood CJ. A comparison of two different approaches to characterizing the heterogeneity within antisocial behavior: Age-of-onset versus behavioral sub-types. *Journal of Personality Disorders*. 2010; 24:272–283. DOI: 10.1521/pedi.2010.24.2.272 [PubMed: 20420480]
- Capaldi DM, Shortt JW, Crosby L. Physical and psychological aggression in at-risk young couples: Stability and change in young adulthood. *Merrill-Palmer Quarterly*. 2003; 49:1–27. DOI: 10.1353/mpq.2003.0001
- Chermack ST, Fuller BE, Blow FC. Predictors of expressed partner and non-partner violence among patients in substance abuse treatment. *Drug and Alcohol Dependence*. 2000; 58:43–54. DOI: 10.1016/S0376-8716(99)00067-8 [PubMed: 10669054]
- Crawford EF, Calhoun PS, Braxton LE, Beckham JC. Validity of the personality assessment inventory aggression scales and violence potential index in veterans with PTSD. *Journal of Personality Assessment*. 2007; 88:90–98. DOI: 10.1080/00223890709336839 [PubMed: 17266419]
- Crick NR, Murray-Close D, Woods K. Borderline personality features in childhood: A short-term longitudinal study. *Development and Psychopathology*. 2005; 17:1051–1071. doi: <http://dx.doi.org/10.1017/S0954579405050492>. [PubMed: 16613430]
- Critchfield KL, Levy KN, Clarkin JF. The relationship between impulsivity, aggression, and impulsive-aggression in borderline personality disorder: an empirical analysis of self-report measures. *Journal of Personality Disorders*. 2004; 18:555–570. DOI: 10.1521/pedi.18.6.555.54795 [PubMed: 15615667]
- Crocker AG, Mueser KT, Drake RE, Clark RE, McHugo GJ, Ackerson TH, Alterman AI. Antisocial personality, psychopathy, and violence in persons with dual disorders a longitudinal analysis. *Criminal Justice and Behavior*. 2005; 32:452–476. DOI: 10.1177/0093854805276407
- De Wit H. Impulsivity as a determinant and consequence of drug use: a review of underlying processes. *Addiction Biology*. 2009; 14:22–31. DOI: 10.1111/j.1369-1600.2008.00129.x [PubMed: 18855805]
- First, MB.; Spitzer, RL.; Gibbon, M.; Williams, JBW. Structured clinical interview for DSM-IV axis I disorders—patient edition (Ver. 2.0). New York: New York State Psychiatric Institute; 1995.
- Grant BF, Chou SP, Goldstein RB, Huang B, Stinson FS, Saha TD, ... Ruan WJ. Prevalence, correlates, disability, and comorbidity of DSM-IV borderline personality disorder: results from the Wave 2 National Epidemiologic Survey on Alcohol and Related Conditions. *The Journal of Clinical Psychiatry*. 2008; 69:533–545. <http://dx.doi.org/10.4088/JCP.v69n0404>. [PubMed: 18426259]
- Grant BF, Stinson FS, Dawson DA, Chou SP, Ruan WJ, Pickering RP. Co-occurrence of 12-month alcohol and drug use disorders and personality disorders in the United States: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Archives of General Psychiatry*. 2004; 61:361–368. DOI: 10.1001/archpsyc.61.4.361 [PubMed: 15066894]

- Hasin D, Fenton MC, Skodol A, Krueger R, Keyes K, Geier T, ... Grant B. Personality disorders and the 3-year course of alcohol, drug, and nicotine use disorders. *Archives of General Psychiatry*. 2011; 68:1158–1167. DOI: 10.1001/archgenpsychiatry.2011.136 [PubMed: 22065531]
- Hyde LW, Burt SA, Shaw DS, Donnellan MB, Forbes EE. Early starting, aggressive, and/or callous–unemotional? Examining the overlap and predictive utility of antisocial behavior subtypes. *Journal of Abnormal Psychology*. 2015; 124:329–342. <http://dx.doi.org/10.1037/abn0000029>. [PubMed: 25603360]
- Joireman J, Anderson J, Strathman A. The aggression paradox: understanding links among aggression, sensation seeking, and the consideration of future consequences. *Journal of Personality and Social Psychology*. 2003; 84:1287–1302. <http://dx.doi.org/10.1037/0022-3514.84.6.1287>. [PubMed: 12793590]
- Kaye S, Darke S, Finlay-Jones R. The onset of heroin use and criminal behaviour: does order make a difference? *Drug and Alcohol Dependence*. 1998; 53:79–86. DOI: 10.1016/S0376-8716(98)00058-1 [PubMed: 10933342]
- Leonard KE. Alcohol and intimate partner violence: when can we say that heavy drinking is a contributing cause of violence? *Addiction*. 2005; 100:422–425. DOI: 10.1111/j.1360-0443.2005.00994.x [PubMed: 15784050]
- Linehan, M. Cognitive-behavioral treatment of borderline personality disorder. New York, NY: Guilford Press; 1993.
- Lobbestael J, Cima M, Arntz A. The relationship between adult reactive and proactive aggression, hostile interpretation bias, and antisocial personality disorder. *Journal of Personality Disorders*. 2013; 27:53–66. DOI: 10.1521/pedi.2013.27.1.53 [PubMed: 23342957]
- Mattson RE, O'Farrell TJ, Lofgreen AM, Cunningham K, Murphy CM. The role of illicit substance use in a conceptual model of intimate partner violence in men undergoing treatment for alcoholism. *Psychology of Addictive Behaviors*. 2012; 26:255–264. <http://dx.doi.org/10.1037/a0025030>. [PubMed: 21875168]
- Moeller FG, Dougherty DM. Antisocial personality disorder, alcohol, and aggression. *Alcohol Research and Health*. 2001; 25:5–11. [PubMed: 11496966]
- Moeller FG, Dougherty DM, Rustin T, Swann AC, Allen TJ, Shah N, Cherek DR. Antisocial personality disorder and aggression in recently abstinent cocaine dependent subjects. *Drug and Alcohol Dependence*. 1997; 44:175–182. DOI: 10.1016/S0376-8716(96)01335-X [PubMed: 9088790]
- Morey, LC. Personality assessment inventory (PAI). PAR; 1991.
- Mulvey EP, Odgers C, Skeem J, Gardner W, Schubert C, Lidz C. Substance use and community violence: a test of the relation at the daily level. *Journal of Consulting and Clinical Psychology*. 2006; 74:967–979. <http://dx.doi.org/10.1037/0022-006X.74.4.743>. [PubMed: 17032100]
- O'Farrell TJ, Murphy CM, Stephan SH, Fals-Stewart W, Murphy M. Partner violence before and after couples-based alcoholism treatment for male alcoholic patients: the role of treatment involvement and abstinence. *Journal of Consulting and Clinical Psychology*. 2004; 72:202–217. <http://dx.doi.org/10.1037/0022-006X.72.2.202>. [PubMed: 15065955]
- O'Leary KD. Developmental and affective issues in assessing and treating partner aggression. *Clinical Psychology: Science and Practice*. 1999; 6:400–414. DOI: 10.1093/clipsy.6.4.400
- Paris J. Antisocial and borderline personality disorders: Two separate diagnoses or two aspects of the same psychopathology? *Comprehensive Psychiatry*. 1997; 38:237–242. DOI: 10.1016/S0010-440X(97)90032-8 [PubMed: 9202881]
- Ross JM, Babcock JC. Proactive and reactive violence among intimate partner violent men diagnosed with antisocial and borderline personality disorder. *Journal of Family Violence*. 2009; 24:607–617. DOI: 10.1007/s10896-009-9259-y
- Rounsaville BJ, Kranzler HR, Ball S, Tennen H, Poling J, Triffleman E. Personality disorders in substance abusers: relation to substance use. *The Journal of Nervous and Mental Disease*. 1998; 186:87–95. DOI: 10.1097/00005053-199802000-00004 [PubMed: 9484308]
- Saunders JB, Aasland OG, Babor TF, de la Fuente JR, Grant M. Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO Collaborative Project on Early Detection of Persons

- with Harmful Alcohol Consumption--II. *Addiction*. 1993; 88:791–804. <http://dx.doi.org/10.1111/j.1360-0443.1993.tb02093.x>. [PubMed: 8329970]
- Schumm JA, O'Farrell TJ, Murphy CM, Fals-Stewart W. Partner violence before and after couples-based alcoholism treatment for female alcoholic patients. *Journal of Consulting and Clinical Psychology*. 2009; 77:1136–1146. <http://dx.doi.org/10.1037/a0017389>. [PubMed: 19968389]
- Shorey RC, Stuart GL, McNulty JK, Moore TM. Acute alcohol use temporally increases the odds of male perpetrated dating violence: A 90-day diary analysis. *Addictive Behaviors*. 2014; 39:365–368. DOI: 10.1016/j.addbeh.2013.10.025 [PubMed: 24199932]
- Shorey RC, Elmquist J, Ninnemann A, Brasfield H, Febres J, Rothman EF, ... Stuart GL. The association between intimate partner violence perpetration, victimization, and mental health among women arrested for domestic violence. *Partner Abuse*. 2012; 3:3–21. DOI: 10.1891/1946-6560.3.1.3 [PubMed: 22792418]
- Stapp SD, Smith TD, Morse JQ, Hallquist MN, Pilkonis PA. Prospective associations among borderline personality disorder symptoms, interpersonal problems, and aggressive behaviors. *Journal of Interpersonal Violence*. 2012; 27:103–124. <http://dx.doi.org/10.1037/per0000070>. [PubMed: 21859760]
- Stuart GL, Moore TM, Elkins SR, O'Farrell TJ, Temple JR, Ramsey SE, Shorey RC. The temporal association between substance use and intimate partner violence among women arrested for domestic violence. *Journal of Consulting and Clinical Psychology*. 2013; 81:681–690. <http://dx.doi.org/10.1037/a0032876>. [PubMed: 23647284]
- Stuart GL, Moore TM, Ramsey SE, Kahler CW. Hazardous drinking and relationship violence perpetration and victimization in women arrested for domestic violence. *Journal of Studies on Alcohol*. 2004; 65:46–53. doi: <http://dx.doi.org/10.15288/jsa.2004.65.46>. [PubMed: 15000503]
- Stuart GL, Moore TM, Kahler CW, Ramsey SE. Substance abuse and relationship violence among men court-referred to batterers' intervention programs. *Substance Abuse*. 2003; 24:107–122. DOI: 10.1080/08897070309511539 [PubMed: 12766378]
- Stuart GL, O'Farrell TJ, Temple JR. Review of the association between treatment for substance misuse and reductions in intimate partner violence. *Substance Use & Misuse*. 2009; 44:1298–1317. DOI: 10.1080/10826080902961385 [PubMed: 19938919]
- Trull TJ. Structural relations between borderline personality disorder features and putative etiological correlates. *Journal of Abnormal Psychology*. 2001; 110:471–481. <http://dx.doi.org/10.1037/0021-843X.110.3.471>. [PubMed: 11502090]
- Trull TJ, Sher KJ, Minks-Brown C, Durbin J, Burr R. Borderline personality disorder and substance use disorders: A review and integration. *Clinical Psychology Review*. 2000; 20:235–253. DOI: 10.1016/S0272-7358(99)00028-8 [PubMed: 10721499]
- Tull MT, Gratz KL, Weiss NH. Exploring associations between borderline personality disorder, crack/cocaine dependence, gender, and risky sexual behavior among substance-dependent inpatients. *Personality Disorders: Theory, Research, and Treatment*. 2011; 2:209–219. <http://dx.doi.org/10.1037/a0021878>.
- van den Bosch LM, Verheul R, Schippers GM, van den Brink W. Dialectical behavior therapy of borderline patients with and without substance use problems: Implementation and long-term effects. *Addictive Behaviors*. 2002; 27:911–923. DOI: 10.1016/S0306-4603(02)00293-9 [PubMed: 12369475]
- Verdejo-García A, Lawrence AJ, Clark L. Impulsivity as a vulnerability marker for substance-use disorders: review of findings from high-risk research, problem gamblers and genetic association studies. *Neuroscience & Biobehavioral Reviews*. 2008; 32:777–810. DOI: 10.1016/j.neubiorev.2007.11.003 [PubMed: 18295884]
- Wakai, ST.; Trestman, RL. Impulsivity and Aggression. In: Simon, RI.; Tardiff, K., editors. *Textbook of Violence Assessment and Management*. Arlington, VA: American Psychiatric Publishing; 2008. p. 211-234.

Table 1

Bivariate correlations, means, and standard deviations among study variables.

	1	2	3	4	5	6	7	8	9	10	11	12
1. Age	---	.50***	-.16	-.01	-.21	-.15	-.24*	-.16	-.13	-.16	-.21	-.11
2. Education		---	.01	-.05	-.14	-.22	-.07	-.21	-.31**	-.25*	-.29*	-.21
3. Alcohol Use			---	-.27*	.16	.23*	.15	.27*	.13	.15	.16	.08
4. Drug Use				---	.30**	.29**	.13	.11	.19	.19	.15	.18
5. ASPD Features					---	.41***	.36**	.45***	.41***	.41***	.35**	
6. BPD Features						---	.28*	.39***	.37**	.45***	.16	
7. ASPD Stimulus Seeking							---	.31**	.36**	.49***	.50***	.44***
8. BPD Affective Instability								---	.52***	.47***	.55***	.25*
9. Aggression (Total)									---	.85***	.82***	.77***
10. Aggressive Attitude										---	.82***	.74***
11. Physical Aggression											---	.68***
12. Verbal Aggression												---
<i>M</i>	21.35	12.61	10.20	28.01	73.75	68.88	69.13	59.72	58.86	54.73	61.82	54.44
<i>SD</i>	2.03	1.63	10.07	13.39	11.89	12.31	14.46	11.76	14.27	13.87	16.56	12.98

Note: ASPD = antisocial personality disorder; BPD = borderline personality disorder. Correlations were not conducted between ASPD Features and ASPD Stimulus Seeking, or BPD Features and BPD Affective Instability, as the subscales (Stimulus Seeking and Affective Instability) are included in the total scores for each respective disorder (ASPD and BPD).

* $p < .05$,

** $p < .01$,

*** $p < .001$

Table 2

Multiple Regression Analyses Examining Aggression

	Aggression (Total) β (SE)	Aggressive Attitude β (SE)	Physical Aggression β (SE)	Verbal Aggression β (SE)
Model 1	$F = 3.81^{**}$ $R^2 = .17$	$F = 3.07^*$ $R^2 = .14$	$F = 3.26^*$ $R^2 = .15$	$F = 1.92$ $R^2 = .09$
Age	.07 (.87)	.06 (.86)	-.04 (1.03)	.03 (.83)
Education	-.34 (1.07) ^{**}	-.26 (1.06) ^{**}	-.26 (1.26) [*]	-.22 (1.02)
Alcohol Use	.21 (.16)	.23 (.16)	.22 (.18)	.15 (.15)
Drug Use	.23 (.12) [*]	.25 (.12) [*]	.19 (.14)	.21 (.11)
Model 2	$F = 4.46^{**}$ $R^2 = .27$ ($R^2 = .10$)	$F = 6.87^{***}$ $R^2 = .36$ ($R^2 = .22$)	$F = 8.10^{***}$ $R^2 = .40$ ($R^2 = .25$)	$F = 4.18^{**}$ $R^2 = .26$ ($R^2 = .17$)
Age	.11 (.84)	.13 (.76)	.03 (.88)	.10 (.77)
Education	-.28 (1.04) [*]	-.21 (.95)	-.18 (1.09)	-.21 (.96)
Alcohol Use	.06 (.16)	.04 (.15)	-.00 (.17)	.04 (.15)
Drug Use	.06 (.13)	.02 (.12)	-.06 (.13)	.07 (.12)
ASPD Features	.23 (.14) [*]	.48 (.13) ^{***}	.46 (.15) ^{***}	.44 (.13) ^{***}
BPD Features	.22 (.14)	.14 (.12)	.24 (.15) [*]	-.09 (.13)

Note: ASPD = antisocial personality disorder; BPD = borderline personality disorder

* $p < .05$,

** $p < .01$,

*** $p < .001$

Table 3

Multiple Regression Analyses Predicting Aggression

	Aggression (Total) β (SE)	Aggressive Attitude β (SE)	Physical Aggression β (SE)	Verbal Aggression β (SE)
Model 1	$F = 3.81^{**}$ $R^2 = .17$	$F = 3.07^*$ $R^2 = .14$	$F = 3.26^*$ $R^2 = .15$	$F = 1.92$ $R^2 = .09$
Age	.07 (.87)	.06 (.86)	-.04 (1.03)	.03 (.83)
Education	-.34 (1.07) ^{**}	-.26 (1.06) ^{**}	-.26 (1.26) [*]	-.22 (1.02)
Alcohol Use	.21 (.16)	.23 (.16)	.22 (.18)	.15 (.15)
Drug Use	.23 (.12) [*]	.25 (.12) [*]	.19 (.14)	.21 (.11)
Model 2	$F = 7.57^{***}$ $R^2 = .38$ ($R^2 = .21$)	$F = 8.03^{***}$ $R^2 = .40$ ($R^2 = .36$)	$F = 10.16^{***}$ $R^2 = .45$ ($R^2 = .30$)	$F = 4.23^{**}$ $R^2 = .26$ ($R^2 = .17$)
Age	.13 (.78)	.15 (.76)	.05 (.88)	.12 (.77)
Education	-.27 (.96) [*]	-.22 (.95) [*]	-.20 (1.09)	-.22 (.96)
Alcohol Use	.05 (.15)	.07 (.15)	.03 (.17)	.06 (.15)
Drug Use	.12 (.10)	.12 (.12)	.06 (.13)	.13 (.10)
ASPD Stimulus Seeking	.23 (.09) [*]	.38 (.13) ^{***}	.36 (.15) ^{***}	.41 (.09) ^{***}
BPD Affective Instability	.39 (.12) ^{***}	.29 (.12) ^{**}	.38 (.15) ^{***}	.07 (.12)

Note: ASPD = antisocial personality disorder; BPD = borderline personality disorder

* $p < .05$,

** $p < .01$,

*** $p < .001$