Anger and Emotion Regulation Associated With Borderline and Antisocial Personality Features Within a Correctional Sample

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Abstract

Although diagnostically distinct, research indicates that antisocial personality disorder (ASPD) and borderline personality disorder (BPD) share common features, including anger impulses and emotion dysregulation. It is unclear, however, how these variables are expressed and experienced differentially. The current study sought to examine independent associations of forms of anger expression and emotion dysregulation among a sample of incarcerated males. Participants were 30 males incarcerated in a county jail who completed self-report measures of BPD and ASPD features, emotion dysregulation, and anger. Results revealed that when controlling for the co-occurrence of the other disorder, anger expression and emotion dysregulation were significantly associated with BPD. Difficulties engaging in goal-directed behavior were significantly associated with ASPD. BPD may confer unique clinical challenges among incarcerated samples.

Keywords

borderline personality disorder, antisocial personality disorder, emotion regulation, anger, correctional mental health

Although borderline personality disorder (BPD) and antisocial personality disorder (ASPD) are diagnostically distinct, they have considerable characteristic overlap and frequently co-occur, with rates of comorbidity of up to 26% (Becker et al., 2000). Specifically, the two disorders share diagnostic characteristics of anger, aggressive behavior, and difficulties regulating impulsivity (Fossati et al., 2004). Aside from diagnostic criteria, BPD and ASPD also share common negative outcomes including substance abuse, engagement in risky behaviors, and suicidality (McCloskey & Ammerman, 2018). Although in the community the prevalence rate of BPD is 1% to 6% and ASPD

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is 1% to 4% (Grant et al., 2008; Lenzenweger, 2008), a disproportionately high proportion of inmates present with BPD and ASPD (up to 30% to 60%, respectively; Black et al., 2007; Gunter et al., 2007). Comorbid ASPD may be present in upward of 90% of inmates with BPD, whereas comorbid BPD may be present in about 44% of inmates with ASPD (Black et al., 2010; Wetterborg et al., 2015).

The management of ASPD and BPD is of utmost concern for correctional health care professionals as the disorders have substantial consequences within correctional settings and the community postrelease. Within the prison context, antisocial and borderline personality features are associated with frequent physical and verbal aggression and noncompliance, suicidality and self-injury, and poorer physical and emotional functioning (Black et al., 2007; Dixon-Gordon et al., 2012; Wang & Diamond, 1999). Following release into the community, inmates with these disorders are significantly more likely to recidivate, violate parole, and face reincarceration (Abracen et al., 2014; Black et al., 2007; Shepherd et al., 2018). Additionally, these disorders bear a substantial burden to society more broadly, given their associations with recurrent inpatient hospitalizations, incarceration, unemployment, and overall mental health care (DeLisi et al., 2018; Salvador-Carulla et al., 2014). Properly screening, diagnosing, and treating these disorders are therefore essential for correctional professionals as mitigating their consequences may have substantial impacts on the well-being of the inmate as well as the community at large.

Problematic anger, irritability, and aggression are central components of both disorders and constitute a shared diagnostic criterion between BPD and ASPD (American Psychiatric Association, 2013; McCloskey & Ammerman, 2018). Problematic anger is associated with poorer treatment response, quality of life, and greater symptom severity (Cassidello-Robbins & Barlow, 2016). Inmates report more intense, frequent, and prolonged anger than nonincarcerated samples (Fernandez et al., 2014) and in isolation, anger is associated with a variety of negative outcomes among forensic populations, including recidivism (Çorapçioğlu & Erdoğan, 2004; Walters, 2007). Emotion regulation refers to the ability to influence the quality, intensity, and duration of an emotional response (Gross, 1998) in pursuit of one's goals (Gratz & Roemer, 2004). Emotion regulation strategies play an important role in regulating anger experiences (Szasz et al., 2011). The relationship between BPD and emotion regulation difficulties has been well established in research literature (Aldao et al., 2010; Lynch et al., 2006; Lynch et al., 2007). Broadly, individuals with BPD report more intense negative emotions, have more variability in their experience of negative emotions, struggle to downregulate these emotions, and tend to avoid unwanted emotional experiences (Beblo et al., 2013; Bland et al., 2004; Lynch et al., 2006; Santangelo et al., 2014; Silvers et al., 2016). Evidence from studies investigating ASPD and emotion experiences suggests inmates with antisocial traits are less likely to demonstrate physiological reactivity to emotional stimuli (Herpertz et al., 2001) and blunted emotional processing (Verona et al., 2012). Both BPD and ASPD share the characteristic of anger dysregulation, yet the two represent different forms of personality pathology, thus negative emotions may be experienced and regulated differently depending on the primary pathology.

Despite their overlap, particularly in forensic settings, there is a lack of literature detailing the anger and emotion regulation difficulties unique to ASPD, BPD, or their co-occurrence. The current study sought to explore the linear relationship between BPD features, ASPD features, and their interaction on expressed and controlled anger, and emotion regulation difficulties in a correctional sample prior to receiving an anger management intervention. Because literature investigating the joint and independent relationships between these variables is limited, this analysis was exploratory.

Method

Participants

Participants were 30 adult male inmates held in a county jail in western Massachusetts. All 30 inmates were scheduled to complete a mandated 12-week anger management training by personnel at the facility. Upon admission to the group intervention and prior to the group's initiation, inmates completed a battery of self-report measures described below. All participants provided written informed consent to participate in the study, and a subsample of 23 inmates consented to a review of their criminal record. All study procedures were approved by an institutional review board before data collection began.

Measures

BPD and ASPD features. The Personality Assessment Inventory (PAI; Morey, 1991) assesses several facets of dysfunction relating to personality attributes and personality disorders. The PAI has evidenced validity in forensic samples (Douglas et al., 2001) and is in fact a commonly used self-report personality measure in correctional research (see Gardner et al., 2015). Furthermore, the PAI corresponds to clinical diagnoses of BPD (Jacobo et al., 2007). For the purposes of this study, only the scales assessing borderline personality (PAI-BOR) and antisocial personality (PAI-ANT) were administered (possible ranges = 0 to 72, where higher scores indicate more personality pathology). The PAI-BOR's total score internal consistency for this study was adequate ($\alpha = .71$); the PAI-ANT's total score internal consistency was high ($\alpha = .89$).

Anger. The State-Trait Anger Expression Inventory-2 (STAXI-2; Spielberger, 1999) is a self-report measure that evaluates the severity of anger and has demonstrated strong validity in forensic samples (Etzler et al., 2014; Mela et al., 2008). A primary outcome in this study was the total Anger Index score where greater scores indicate greater anger expression, relative to control. The Anger Index is calculated based on the difference between the anger expression subscales and the anger control subscales (possible range = 0 to 96, where higher scores indicate less control over anger expressions; Spielberger, 1999). There are seven subscales on the STAXI-2 (possible ranges = 8 to 32): Inward Anger Control, Outward Anger Control, Inward Anger Expression, Outward Anger Expression, Anger Temperament, Anger Reactivity, and Trait Anger. Each of these subscales demonstrated good internal consistency (all $\alpha > .80$).

Emotion regulation difficulties. The Difficulties with Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) is a 36-item measure that assesses overall emotion regulation difficulties (possible range = 36 to 180, where higher scores indicate more difficulties). The DERS demonstrates good test-retest reliability and construct and predictive validity and is significantly associated with objective measures of emotion regulation (Gratz & Roemer, 2004; Gratz & Tull, 2010). Subscales on the DERS include (1) nonacceptance of emotional responses, (2) lack of emotional awareness, (3) limited access to emotion regulation strategies, (4) difficulties engaging in goal-directed behavior, (5) impulse control difficulties, and (6) lack of emotional clarity. Internal consistency scores for the DERS for this study were strong ($\alpha = .88$ for total emotion dysregulation, $\alpha = .84$ for nonacceptance, $\alpha = .86$ for awareness, $\alpha = .76$ for strategies, $\alpha = .64$ for goal-directed behavior, $\alpha = .90$ for impulse control, $\alpha = .77$ for clarity).

Data Analytic Plan

We first examined participant characteristics in terms of average personality disorder features as measured by raw scores on the PAI to inspect the normality of data distribution (i.e., skewness,

Table 1. Demographic Characteristics of the Sample.

Demographic Characteristics	<i>n</i> (%) or Mean (<i>SD</i>)
Gender	
Male	30 (100%)
Age (years)	M29.87 (8.1)
Race/ethnicity	
Caucasian	12 (40.0%)
African American	5 (16.7%)
Hispanic/Latinx	7 (23.3%)
Multiracial	5 (20.0%)
Education (years)	
Less than high school diploma	2 (6.7%)
Some high school	7 (23.3%)
High school graduate	2 (6.7%)
GED	9 (30.0%)
Technical school	1 (3.3%)
Some college	9 (30.0%)
Marital status	
Single	24 (80.0%)
Living with someone as married	6 (20.0%)
Charged with ≥ 1 violent crime ^a	16 (69.6%)
Clinical Characteristics	Mean (<i>SD</i>)/[Range]
PAI BOR raw score total	36.10 (8.47)/[20 to 53]
PAI ANT raw score total	33.77 (12.58)/[9 to 57]
STAXI AI total	45.10 (14.21)/[13 to 77]
DERS total	87.28 (18.55)/[58 to 140]

Note. *N* = 30. PAI = Personality Assessment Inventory; BOR = Borderline Personality subscale; ANT = Antisocial Personality subscale; STAXI AI = State-Trait Anger Expression Index, Anger Index subscale; DERS = Difficulties in Emotion Regulation Scale.

^aFrequency of violent crime is based on a subset of inmates who consented to criminal record review (*n* = 23).

kurtosis). We next conducted preliminary analyses, including examining descriptive statistics and zero-order correlations among personality features and emotion and anger variables. To address our primary analyses, we conducted a series of stepwise linear regressions to examine the effect of BPD, ASPD, and BPD × ASPD on anger and emotion dysregulation outcomes. Our sample size (*N* = 30) is expected to detect large effects ($f^2 = .35$) with adequate ($1 - \beta \geq .80$) power (Faul et al., 2007).

Results

Characteristics of the Sample

Forty percent of the sample was White, 23.3% identified as Hispanic/Latinx, 16.7% identified as African American/Black, and 20% identified as multiracial. The average age of the sample was 29.87 (*SD* = 8.12; range = 20 to 54). Approximately 70% of the sample had completed at least a high school education. The majority of those who consented to a criminal record review were charged with at least one violent crime (69.6%). The average trait anger in the sample fell at the 90th percentile relative to a nonpatient population, suggesting that they presented with fairly severe anger-related issues at intake (Spielberger, 1999). Compared to adult community samples' borderline personality and antisocial personality traits, this sample scored at the 96th percentile and 99th percentile, respectively, and compared to outpatient clinical samples at the 61st and 91st percentile,

Table 2. Descriptive Statistics and Intercorrelations Among Personality Features, Anger, and Emotion Regulation.

Variable	1	2	3	4	5	6
1. Age	1					
2. Race (minority = 1)	−0.432*	1				
3. BPD	0.007	0.034	1			
4. ASPD	−0.382*	0.012	0.579**	1		
5. DERS total	0.065	0.003	0.683**	0.549**	1	
6. AXI	−0.026	0.181	0.485**	0.346	0.703	1
Mean (SD) or %	29.87 (8.11)	60%	36.10 (8.47)	33.77 (12.58)	87.28 (18.55)	45.10 (14.21)

Note. BPD = borderline personality disorder; ASPD = antisocial personality disorder; DERS = Difficulties in Emotion Regulation Scale; AXI = Anger Expression Index.

suggesting that this sample presented with substantially problematic personality disorder traits (Morey, 1991). Sample characteristics are presented in Table 1.

Preliminary Analyses

Descriptive statistics and intercorrelations are presented in Table 2. All variables exhibited relatively normal distribution properties (skewness and kurtosis $< \pm 2$). Of note, there were zero-order associations between both BPD and ASPD and emotion dysregulation on the DERS, whereas only BPD evidenced a zero-order association with the Anger Expression Index.

Regression Analyses

Results describing the relationship between personality features and dependent variables are shown in Tables 3 and 4. In Step 1 of these models predicting anger outcomes from the STAXI, results revealed that BPD features positively predicted overall anger expression, inward expressed anger, anger temperament, and trait anger after controlling for ASPD features. Yet ASPD was not significantly associated with any of these anger outcomes with BPD in the model. In Step 2 of these models, there were no significant interactions of ASPD with BPD.

In terms of emotion dysregulation, higher BPD features were associated with greater overall emotion dysregulation, nonacceptance of emotions, lack of regulation strategies, and difficulties with impulse control, controlling for ASPD. Higher ASPD features were associated with greater difficulties engaging in goal-directed behavior when controlling for BPD. In Step 2 of these models, there were no significant interactions of ASPD with BPD.

Discussion

The current study sought to investigate the differential anger and emotional experiences of inmates with ASPD and BPD features by controlling for comorbid personality traits. Although anger is an important diagnostic feature of both ASPD and BPD, the results of this study suggest that, at least within correctional samples, experiences of anger and emotion dysregulation may be more strongly reflective of BPD than of ASPD features. When controlling for ASPD features, BPD was significantly associated with several forms of anger experiences and domains of emotion regulation, namely overall anger expression, inward expressed anger, anger temperament, trait anger, overall emotion dysregulation, nonacceptance, lack of regulation strategies, and impulsivity. When controlling for BPD features, ASPD features were only significantly related to difficulties engaging in

STAXI

Variable	Anger Expression Index		Outward Expressed Anger		Inward Expressed Anger		Outward Controlled Anger		Inward Controlled Anger		Anger Temperament		Anger Reactivity		Trait Anger	
	B (SE)	95% CI	B (SE)	95% CI	B (SE)	95% CI	B (SE)	95% CI	B (SE)	95% CI	B (SE)	95% CI	B (SE)	95% CI	B (SE)	95% CI
Step 1																
BPD	.72* (.35)	[.13, 1.43]	.22 (.12)	[-.02, .46]	.25* (.10)	[.03, .46]	-.21 (.13)	[-.47, .06]	-.04 (.11)	[-.28, .19]	.18** (.06)	[.05, .31]	.08 (.08)	[-.08, .25]	.28* (.14)	[.00, .57]
ASPD	.11 (.23)	[-.37, .59]	.00 (.08)	[-.16, .16]	-.02 (.07)	[-.16, .13]	-.02 (.09)	[-.19, .16]	-.11 (.08)	[-.27, .05]	.04 (.04)	[-.05, .12]	.03 (.05)	[-.08, .14]	.11 (.09)	[-.08, .31]
	$\Delta R^2 = .24^*$		$\Delta R^2 \leq .01$		$\Delta R^2 \leq .01$		$\Delta R^2 \leq .01$		$\Delta R^2 = .02$		$\Delta R^2 = .07$		$\Delta R^2 \leq .01$		$\Delta R^2 \leq .01$	
Step 2																
BPD	.76* (.35)	[.01, 1.44]	.22 (.12)	[-.02, .47]	.25* (.11)	[.03, .46]	-.21 (.13)	[-.48, .06]	-.05 (.11)	[-.28, .19]	.18** (.06)	[.06, .31]	.08 (.08)	[-.08, .25]	.29 (.14)	[-.01, .58]
ASPD	.08 (.24)	[-.42, .58]	.00 (.08)	[-.17, .17]	-.02 (.07)	[-.18, .13]	-.01 (.09)	[-.20, .18]	-.10 (.08)	[-.28, .07]	.02 (.04)	[-.07, .11]	.03 (.06)	[-.08, .15]	.11 (.10)	[-.10, .31]
BPD × ASPD	.01 (.02)	[-.04, .06]	.00 (.01)	[-.02, .02]	.00 (.01)	[-.01, .02]	.00 (.01)	[-.02, .02]	-.01 (.01)	[-.02, .01]	.01 (.00)	[.00, .02]	.00 (.01)	[-.01, .01]	.00 (.01)	[-.02, .02]
	$\Delta R^2 = .24^*$		$\Delta R^2 \leq .01$		$\Delta R^2 \leq .01$		$\Delta R^2 \leq .01$		$\Delta R^2 = .02$		$\Delta R^2 = .07$		$\Delta R^2 \leq .01$		$\Delta R^2 \leq .01$	

Note. BPD = borderline personality disorder; ASPD = antisocial personality disorder; STAXI = State-Trait Anger Expression Index.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4. Regression Models Examining BPD, ASPD, and Their Interaction as Predictors of Emotion Regulation Difficulties.

Variable	DERS																					
	Total Dysregulation			Emotional Acceptance			Emotional Awareness			Access to Strategies			Goal Directed Behavior			Impulse Control			Emotional Clarity			
	B (SE)	95% CI		B (SE)	95% CI		B (SE)	95% CI		B (SE)	95% CI		B (SE)	95% CI		B (SE)	95% CI		B (SE)	95% CI		
Step 1	$R^2 = .50^{***}$																					
BPD	1.20** (.37)	[.45, 1.95]		.37* (.14)	[.09, .64]		-.12 (.15)	[-.42, .18]		.48* (.12)	[.23, .73]		.04 (.09)	[-.15, .22]		.37* (.12)	[.12, .62]		.08 (.10)	[-.14, .29]		
ASPD	0.34 (.25)	[-.16, .85]		-.03 (.09)	[-.22, .15]		.10 (.10)	[-.10, .30]		-.02 (.08)	[-.19, .15]		.18* (.06)	[.05, .30]		.04 (.08)	[-.14, .21]		.08 (.06)	[-.06, .23]		
Step 2	$\Delta R^2 = .04$																					
BPD	1.22** (.36)	[.48, 1.95]		.37* (.13)	[.09, .65]		-.12 (.14)	[-.41, .18]		.48* (.12)	[.24, .73]		.03 (.09)	[-.15, .21]		.37* (.13)	[.12, .63]		.08 (.10)	[-.13, .29]		
ASPD	0.25 (.25)	[-.26, .77]		-.06 (.09)	[-.25, .13]		.07 (.10)	[-.14, .27]		-.05 (.08)	[-.22, .12]		.21* (.06)	[.08, .33]		.02 (.09)	[-.15, .20]		.07 (.07)	[-.08, .22]		
BPD × ASPD	0.03 (.03)	[-.02, .09]		.01 (.01)	[-.01, .03]		.01 (.01)	[-.01, .03]		.01 (.01)	[-.01, .03]		-.01 (.01)	[-.02, .00]		.01 (.01)	[-.01, .02]		.01 (.01)	[-.01, .02]		
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goal-directed behavior. These results are not to suggest that inmates with predominately ASPD features do not report anger, aggressive behavior, or emotion dysregulation; in fact, the items that compose the difficulties engaging in the goal-directed behavior scale may indicate more ruminative thought patterns (i.e., “when I’m upset, I have difficulty thinking about anything else”). This finding suggests that rumination may be salient within inmates with antisocial personality features. Nonetheless, our findings highlight that anger and emotion dysregulation may be particularly attributable to BPD traits.

Our study presents with several limitations that warrant mention. As mentioned above, our sample size was small, which may compromise the ability to detect effects and potentially increases the likelihood of committing a Type II error. Indeed, our power analysis indicated that we were only likely to detect large effects. Given the association between ASPD and generalized aggression and anger dysregulation (McCloskey & Ammerman, 2018; Verona et al., 2012), this may reflect a Type II error or a relatively smaller effect size in the link between ASPD and anger outcomes among a sample with high levels on many of these variables. Future studies should replicate this analysis in a larger sample to investigate these effects in more detail. Conducting this study in a forensic setting was both a strength and limitation; our sample had elevated personality pathology features and anger symptoms, but it is unclear whether these results would generalize to other settings. Future research should investigate these issues in additional samples to promote external validity. The sample in the present study was entirely male. Given evidence suggesting differential expression of antisocial and borderline features across gender (Sher et al., 2019; Sher et al., 2015), future research should examine whether the obtained pattern of findings replicates to female inmates. Nevertheless, the present study supports the relevance and importance of screening for BPD in adult male offenders, especially given diagnostic biases regarding personality pathology that may be rooted in participant gender (Skodol & Bender, 2003). In addition, not all of the inmates in our sample consented to a criminal record review, and thus we were unable to determine whether type of crime influenced results. Future research with larger samples may consider investigating whether these results differ across criminal histories. Finally, future research should investigate how these findings translate to a dimensional model of personality pathology, particularly regarding shared trait domains as classified by the DSM-5 alternative model of personality disorders (i.e., disinhibition, antagonism, negative affectivity; Morey et al., 2016). These limitations notwithstanding, we believe this study contributes to both forensic assessment and personality conceptualization literature.

These results have important treatment implications for clinicians treating individuals in forensic settings. Both BPD and ASPD patients may present with complex clinical issues and are often met with negative attitudes and frustration by clinicians (James & Cowman, 2007; Reid & Gacono, 2000; Treloar, 2009). These attitudes are especially common among clinicians in medium- and high-security settings (Beryl & Völlm, 2018). Therefore, a clearer understanding of the unique roles of BPD and ASPD may offer a pathway to understand and target anger and emotion dysregulation more effectively in this population. Clinicians working with inmates who present with problematic anger and emotion dysregulation may consider prioritizing treatment targets related to BPD features rather than ASPD. Indeed, there is emerging data supporting the use of BPD treatments in forensic samples (Chapman & Ivanoff, 2018; Ivanoff & Marotta, 2018). These findings also suggest the importance of screening for both ASPD and BPD features as our sample scored high on these features, and the two have differential associations with anger and emotion regulation. For example, inmates exhibiting significant anger and dysregulation should be screened for both antisocial personality traits and borderline personality traits to ensure proper diagnosis and effective treatment dissemination.

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