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Five Factors of Impulsivity: Unique Pathways to Borderline and Antisocial Personality Features and Subsequent Alcohol Problems

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Abstract

Impulsivity, a multidimensional behavioral mechanism, commonly preceding externalizing maladaptive behavior and psychopathology, is a diagnostic criterion central to both antisocial and borderline personality disorders (American Psychiatric Association; APA, 2013). This study tested a path model of associations between five facets of impulsivity (negative urgency, positive urgency, lack of premeditation, lack of perseverance, and sensation seeking), borderline personality features, antisocial personality features, and two alcohol outcomes (consumption and alcohol-related problems) in a sample of college students ($N = 624$; 69% female, 31% male) between the ages of 18–25 ($M = 19.77$, $SD = 1.55$). The model demonstrated good fit with $X^2(14, N = 624) = 17.48$, $p = .231$; $RMSEA = .020$ [90% CI: .000 - .046]; $CFI = .998$; $SRMR = .019$. Negative urgency and (lack of) perseverance predicted borderline personality features. Positive urgency, sensation seeking, (lack of) premeditation, and negative urgency predicted antisocial personality features. Antisocial, but not borderline personality features, were significantly associated with alcohol consumption. However, both antisocial and borderline personality features significantly predicted alcohol problems. Overall, the results demonstrate that impulsivity facets can differentially predict personality psychopathology and illustrate distinct paths to alcohol consumption and problems.

Keywords

impulsivity; borderline personality features; antisocial personality features; alcohol

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1. Introduction

Personality disorders are persistent patterns of functioning that conflict with societal and cultural expectations. The Diagnostic and Statistical Manual of Mental Disorders – Fifth Edition (DSM-5; American Psychiatric Association [APA], 2013) categorizes personality disorders in three distinct clusters (i.e., A, B, & C) based on characteristics and similarities. Cluster B personality disorders are characterized by emotional and behavioral dysregulation and antisocial and borderline personality disorders are both classified within cluster B. Antisocial personality disorder (ASPD) is characterized as a “pervasive pattern of disregard for, and violation of, the rights of others” (APA, 2013, p. 659). Borderline personality disorder (BPD), on the other hand, is characterized by “a pervasive pattern of instability of interpersonal relationships, self-image, and affects” (APA, 2013, p. 663). Although, by definition, ASPD and BPD are distinctly different, these diagnoses do share a significant amount of resemblance with regards to externalization and outward dysfunctional interpersonal interactions. As such, antisocial and borderline personality disorders are associated with similar behavioral outcomes, such as alcohol use and related problems (Compton, Conway, Stinson, Colliver, & Grant, 2005; Crawford, Moore, & Ahl, 2004; Goldstein et al., 2007; Stepp, Trull, & Sher, 2005; Sylvers, Landfield, & Lilienfeld, 2011) and interpersonal violence (Sijtsema, Baan, & Bogaerts, 2014). Predictably, antisocial and borderline personality disorders exhibit comorbidity, such that 21% of individuals with a diagnosis of ASPD also meet criteria for BPD (Grant et al., 2008). Despite the aforementioned commonalities, these two personality types may have etiological and developmental trajectories that are distinctly unique, but ultimately result in similar externalizing behavioral patterns. However, the externalization associated with borderline personality features (e.g., interpersonal instability and alcohol problems) may have distinct etiological pathways that are different from those features associated with antisocial personality, such that the externalization associated with borderline features may stem from poor emotion regulation, identity diffusion, and negative self-image. Thus, a need exists to identify individual mechanisms that may uniquely predict each disorder.

1.2. Impulsivity

Impulsivity, a multidimensional behavioral mechanism commonly preceding externalizing maladaptive behavior and psychopathology, is a diagnostic criterion central to both antisocial and borderline personality disorders (APA, 2013). Additionally, impulsivity is integrally associated with alcohol use and related problems (Burton, Pedersen, & McCarthy, 2012; Sher & Trull, 1994; see Coskunpinar, Dir, & Cyders, 2013 & Dick et al., 2010 for reviews). Despite this shared criterion and associations with alcohol-related outcomes, BPD and ASPD may significantly differ with regards to their underlying associations with the various facets of impulsivity and thus, their subsequent associations with alcohol-related outcomes.

Whiteside and Lynam (2001) developed the Urgency, (lack of) Premeditation, (lack of) Perseverance, and Sensation Seeking (UPPS) impulsive behavior scale as a way to measure these four respective factors of impulsivity. Negative urgency is the propensity to take rash action in response to intense negative emotion. Lack of perseverance is an individual's

inability to stay with a task through completion. Lack of premeditation is an individual's tendency to act without evaluating consequences and the inability to plan. Lastly, sensation seeking represents an individual's inclination to pursue stimulation and excitement. The development of impulsivity is conceptualized using different perspectives (e.g., genetic, cognitive-based, environmental, and temperamental; see Carver, 2005 for review). Despite the variations in theoretical explanations for the development of impulsivity, these theories all posit that impulsivity initiates development during or before early childhood. Hence, although impulsivity is a central feature of many personality disorders, its development likely precedes that of personality pathology and subsequent behavioral outcomes.

1.3. Externalization and Internalization

One major differentiation between antisocial personality features and borderline personality features is, while antisocial features are primarily associated with externalization, borderline features are associated with both internalizing and externalizing psychopathology (Crowell, Beauchaine, & Linehan, 2009; Eaton et al., 2011; James & Taylor, 2008). Similarly, the impulsivity facets associated with personality pathology can also be understood through internalization and externalization. Although the latent construct of impulsivity is generally externalizing in nature, the basis of certain facets may be more associated with internalization (i.e., negative urgency, lack of perseverance) than others, which are undoubtedly driven by externalization (i.e., sensation seeking, lack of premeditation).

With regards to impulsivity facets, negative urgency and lack of perseverance were the facets most strongly associated with internalizing pathology (Miller et al., 2003). Perseverance is an individual's ability to see a task through to completion. Similarly, the inability or reduced ability to persevere can be understood as disordered self-discipline characterized by reduced internal drive. The propensity to engage in rash action in response to intense negative emotion, namely negative urgency, can be understood as a means to alleviate or self-medicate such emotions. Thus, although the rash action is ultimately externalization, certain motives behind these behaviors may be internally based. Predictably, both lack of perseverance and negative urgency are positively associated with BPD (DeShong & Kurtz, 2013; Miller et al., 2003; Whiteside, Lynam, Miller, & Reynolds, 2005). However, Whiteside et al. (2005) also found negative urgency to be associated with antisocial personality features, but to a lesser extent than that of BPD. This finding indicates that, although negative urgency may have an internalizing etiological foundation, it is also associated with externalization. Conversely, the inability to act without planning ahead or evaluating consequences (i.e., lack of premeditation) and the propensity to seek out stimulation and excitement (i.e., sensation seeking) are both components of impulsivity that are fundamentally associated with externalization. As such, both lack of premeditation and sensation seeking are strongly associated with ASPD (DeShong & Kurtz, 2013; Miller et al., 2003; Whiteside et al., 2005). Thus, aside from the aforementioned overlap of negative urgency, ASPD and BPD have distinct associations with different facets of impulsivity.

Most recently Cyders and Smith (2007) identified a fifth facet of impulsivity, positive urgency. Opposite of negative urgency, positive urgency is the propensity to take rash action in response to intense positive emotions. Positive urgency is positively associated with

alcohol consumption and alcohol-related consequences (Cyders & Smith, 2008; Grimaldi, Napper, & LaBrie, 2014). Although positive and negative urgency both involve acting rashly in response to intense emotions, the two constructs are unique in their mechanisms for engaging in the rash behavior. For example, both negative and positive urgency are positively associated with alcohol-related outcomes (Grimaldi et al., 2014; Shishido, Gaher, & Simons, 2013), indicating that excessive alcohol use is one such behavior that could be classified as “rash action.” However, research investigating the motives for drinking indicate that individuals high in negative urgency use alcohol consumption as a coping mechanism, while individuals high in positive urgency use alcohol consumption for enhancement (Adams, Kaiser, Lynam, Charnigo, & Milich, 2012; Coskunpinar et al., 2013). In other words, the rash action associated with positive urgency is more externally motivated, while that same type behavior associated with negative urgency is more internally motivated. Thus, theoretically, positive urgency might be more strongly associated with externalizing personality pathology, such as antisocial personality.

To date, no studies have investigated positive urgency in relation to ASPD and only one study has investigated this facet with BPD (Peters, Upton, & Baer, 2013). Peters and colleagues (2013) found positive urgency to be positively correlated with borderline personality features. However, across the four Personality Assessment Inventory (PAI; Morey, 1991) – Borderline Features (BOR) subscales (i.e., affective instability, identity problems, negative relationships, and self-harm), positive urgency was only significant as a weak predictor of self-harm, while negative urgency was significant in predicting all four. This finding provides further evidence for positive urgency as a primarily externalizing facet (e.g., positive urgency only predicts externalizing behaviors such as self harm), while negative urgency shares both internalizing and externalizing qualities.

The ability to differentiate personality pathology through impulsivity traits contributes to further understanding the etiology and development of disordered personality and subsequent drinking behaviors. Although independent studies have examined the relationships between impulsivity facets, borderline and antisocial personality disorders, and alcohol outcomes (DeShong & Kurtz, 2013; Miller et al., 2003; Peters et al., 2013; Whiteside et al., 2005), the current study tested a comprehensive model aimed at understanding the unique contributions of impulsivity facets to borderline and antisocial, and subsequent associations with alcohol outcomes. Specifically, we hypothesized that

1. Lack of perseverance will be uniquely associated with borderline personality features.
2. Sensation seeking, lack of premeditation, and positive urgency will be uniquely associated with antisocial personality features.
3. Negative urgency will predict both borderline and antisocial personality features.
4. Both borderline and antisocial personality features will predict greater alcohol use and alcohol problems and account for the relationships between the impulsivity traits and alcohol variables.

2. Method

2.1. Participants

Participants were 624 undergraduate college students at a Midwest university. The sample ranged from 18–25 years of age ($M = 19.77$, $SD = 1.55$). Approximately 69% of the sample was women, and 95% of the sample was white, 2% was black, 1% was Asian, 1% was Latino, and 1% was multiracial. Participants were recruited through an online scheduling system. All questionnaires were completed online. The reliability and validity for the online assessments of individuals' characteristics and alcohol use have been supported by previous research (Gosling, Vazire, Srivastava, & John, 2004). All participants who completed the study were included in the analyses.

2.2. Measures

2.2.1. Demographics—Participants' age, gender, race, and ethnicity were assessed.

2.2.2. The Personality Assessment Inventory (PAI; Morey, 1991)—The PAI is a self-report measure designed to assess psychopathology. Borderline and Antisocial Personality Features were assessed using the BOR and ANT scales of the Personality Assessment Inventory (Morey, 1991). Each scale consists of 24 items. Higher scores indicate more endorsed features. The alpha reliabilities in this sample were .88 for both the BOR and ANT scales.

2.2.3. UPPS-P Impulsive Behavior Scale (UPPS-P; Lynam, Smith, Cyders, Fischer, & Whiteside, 2007)—The UPPS-P is a self-report measure designed to assess the five factors of impulsivity: Negative urgency, (lack of) premeditation, (lack of) perseverance, sensation seeking, and positive urgency. The UPPS-P consists of 59 items rated on a likert type scale with scores ranging from one to four. Scores for each scale were calculated by taking the mean of all items on each respective scale. Higher scores indicated higher levels of each facet. The alpha reliabilities for this sample were .87, .84, .85, .85, and .91 for negative urgency, (lack of) premeditation, (lack of) perseverance, sensation seeking, and positive urgency, respectively.

2.2.4. Daily Drinking Questionnaire-Modified (Dimeff, Baer, Kivlahan, & Marlatt, 1999)—The DDQ-M is a self-report measure of average weekly alcohol consumption. Participants are provided a grid that represents the seven days of the week and asked to provide the average number of standard alcoholic drinks (one standard drink is equal to 12 oz. of beer, 5 oz. of wine, or 1.5 oz. of 80-proof liquor) per each day of the week during the three months prior to data collection. Scores for the seven days were summed and represent the total number of drinks that participants consumed during an average week over the past three months. The DDQ is a valid and reliable measure to assess alcohol consumption (Baer, Kivlahan, Blume, McKnight, & Marlatt, 2001; Marlatt et al., 1998).

2.2.5. Young Adult Alcohol Consequences Questionnaire (YAACQ; Read, Kahler, Strong, & Colder, 2006)—The YAACQ is a 48-item self-report measure that assesses alcohol-related consequences. The measure consists of eight subscales: Academic/

occupational consequences, blackout drinking, impaired control, physical dependence, risk behaviors, self-care, self-perception, and social-interpersonal consequences. Higher scores indicate more experiences of alcohol-related problems. The YAACQ total score (i.e., sum of each item) was used for this sample. The alpha reliability was .96.

2.3. Data Handling and Analyses

Preliminary analyses were conducted to determine the range and distribution of variables. Data cleaning and examination was conducted using procedures outlined by Tabachnick and Fidell (2007). Missing data on individual measures was handled utilizing data imputation to replace missing data for participants who completed at least 90% of the respective measure. All data cleaning and descriptive analyses were conducted using Stata 13 (StataCorp, 2013). The hypotheses were tested through a path analysis using Mplus 7.3 (Muthén & Muthén, 2013) using full information maximum likelihood, which allows for the inclusion of missing data. Lastly, indirect effects were also calculated for this path analysis using bias-corrected bootstrap confidence intervals.

3. Results

3.1. Descriptive and Bivariate Statistics

For the most part, bivariate correlations indicated significant associations between the five facets of impulsivity, antisocial and borderline features, and alcohol outcomes. Borderline features were associated with each facet of impulsivity, with the exception of sensation seeking. Additionally, borderline features were significantly associated with alcohol problems, but not alcohol use. Gender was significantly associated with antisocial, such that males reported more antisocial features than females. The mean scores on the BOR ($M = 25.97$; $SD = 11.03$) and ANT ($M = 19.28$; $SD = 11.14$) were consistent with the mean scores in the PAI College Student Sample on the BOR ($M = 22.93$; $SD = 10.33$) and ANT ($M = 18.92$; $SD = 10.24$) scales (Morey, 2007). With regard to gender, there were no significant differences between males and females on the BOR scale (Males: $M = 24.82$; $SD = 10.29$ vs. Females: $M = 26.44$; $SD = 11.28$; $t[572] = 1.64$, $p = .102$). Males, however, scored significantly higher on the ANT scale compared to females (Males: $M = 24.41$; $SD = 11.01$ vs. Females: $M = 16.96$; $SD = 10.36$; $t[574] = -7.82$, $p < .001$). Sixty-seven percent of the sample was drinkers, the mean drinks per week for the entire sample was 9.35 and the mean among drinkers was 14.10. See Table 1 for descriptive statistics and Table 2 for bivariate correlations.

3.2. Path Analysis

The hypothesized path model was tested using Mplus 7.3 (Muthén & Muthén, 2013). Direct paths were specified from negative urgency and lack of perseverance to borderline personality symptoms. Additionally, direct paths were specified from positive urgency, negative urgency, sensation seeking, and lack of premeditation to antisocial personality symptoms. All impulsivity facets were allowed to covary, as were borderline and antisocial symptoms. The overall model showed a good fit: $\chi^2(14, N = 624) = 17.48$, $p = .231$; RMSEA = .020 [90% CI = .000 - .046]; CFI = .998; SRMR = .019; AIC = 34843.870; BIC = 35061.241; Sample-Size Adjusted BIC = 34905.673 (see Figure 1).

3.2.1. Direct Effects—As hypothesized, lack of perseverance had a direct relationship with borderline symptoms. Negative urgency had a significant direct effect on both borderline and antisocial symptoms. Antisocial symptoms had significant direct paths from lack of premeditation, sensation seeking, and positive urgency. Antisocial symptoms had significant direct effects on alcohol consumption and alcohol problems. Borderline symptoms did not have a significant direct effect on alcohol consumption but did with alcohol problems. Gender was also included as a covariate and was significantly associated with antisocial symptoms, alcohol consumption, and alcohol problems such that males reported greater antisocial symptoms and greater alcohol consumption and females reported greater alcohol problems.

3.2.2. Indirect Effects—The indirect effects were calculated using bias-corrected bootstrapping (MacKinnon, Lockwood, & Williams, 2004) in Mplus 7.3 (Muthén & Muthén, 2013). Traditional tests of indirect effects, such as the Sobel test, may reduce power in order to detect the effect (MacKinnon, 2008). From those samples, an empirical sampling distribution of the effects was formed. Bias-corrected bootstrapped confidence intervals increase the likelihood that the population value of the effect is contained within the interval (Kline, 2011). Table 3 reports the indirect effects of the impulsivity facets on the drinking variables via antisocial and borderline personality features. The results indicate significant indirect paths from negative urgency, positive urgency, sensation seeking, and lack of premeditation to alcohol consumption all through antisocial personality features. Those same impulsivity facets were indirectly associated with alcohol problems via two paths, one through antisocial personality features and a second through antisocial personality features and subsequent alcohol use. Additionally, there was a significant indirect path from negative urgency to alcohol problems via borderline personality features. Lack of perseverance was not indirectly associated with alcohol consumption, but was indirectly associated with alcohol problems through borderline personality features.

Lastly, although the theoretical rationale for the current model was strong, we tested an alternative model to ensure the final model fit the data well. In the alternative model, we reversed the order of the impulsivity facets and personality features such that personality features predicted the impulsivity facets (e.g., antisocial personality features → sensation seeking, etc.). This model showed poor fit $\chi^2(8, N = 624) = 132.76, p < .001$; RMSEA = .158 [90% CI = .135 - .182]; CFI = .934; SRMR = .069. Thus, the original model was retained.

4. Discussion

Results indicate that the five UPPS-P facets of impulsivity are differentially associated with antisocial and borderline personality features with the exception of negative urgency, which was associated with both. Specifically, lack of perseverance uniquely predicted borderline features, while lack of premeditation, sensations seeking, and positive urgency uniquely predicted antisocial features. Borderline features mediated the relationship between lack of perseverance, negative urgency and alcohol problems, but not consumption. Antisocial features mediated the relationship between impulsivity (i.e., urgency, lack of premeditation and sensation seeking) and both alcohol use and alcohol problems. Overall, the results were

consistent with previous studies showing that lack of perseverance is uniquely associated with borderline personality features (DeShong & Kurtz, 2013; Miller et al., 2003). Moreover, the current study demonstrated that antisocial personality features were uniquely associated with sensation seeking and lack of premeditation, also consistent with previous research (DeShong & Kurtz, 2013; Miller et al., 2003; Whiteside et al., 2005). Lastly, previous research demonstrated inconsistent findings with regard to the relationship between negative urgency, borderline personality features, and antisocial personality features. Two studies found no significant relationship between negative urgency and antisocial personality features when borderline personality features were also in the model (DeShong and Kurtz, 2013; Miller et al., 2003). However, Whiteside et al. (2005) found both borderline and antisocial features to be associated with negative urgency but showed a stronger relationship between negative urgency and borderline features. The current study found negative urgency to be associated with both borderline and antisocial personality features suggesting both internalizing and externalizing characteristics of negative urgency.

There were also a number of novel aspects to this study. First, to the best of the authors' knowledge, this was the first study to examine the relationships between positive urgency, borderline personality disorder, and antisocial personality disorder in the same model. As hypothesized, positive urgency was uniquely associated with antisocial personality features. Also, in addition to examining the impulsivity facets and personality pathology, we included alcohol consumption and alcohol problems in the model. Borderline and antisocial personality features are consistently associated with greater alcohol consumption and alcohol problems (Compton, Conway, Stinson, Colliver, & Grant, 2005; Crawford, Moore, & Ahl, 2004; Goldstein et al., 2007; Stepp, Trull, & Sher, 2005; Sylvers, Landfield, & Lilienfeld, 2011), however no studies have examined these variables in the same model. As hypothesized, positive urgency was independently associated with antisocial features. Both antisocial and borderline personality features were significantly associated with alcohol problems. However, contrary to hypotheses, borderline personality features were not significantly associated with alcohol consumption. Thus, the alcohol-related problems experienced by individuals with borderline personality features may not be a function of the quantity of their alcohol use, but rather reflects broader dysregulation associated with borderline features.

Overall, these findings demonstrate the ability to differentiate features of personality psychopathology based on impulsivity facets, as well as illustrating distinct paths to alcohol problems. Interestingly, borderline personality features were not a significant predictor of alcohol use, but it did significantly predict alcohol-related problems. This finding is more-or-less consistent with previous literature demonstrating that emotional dysregulation associated with increased negative affectivity escalates an individual's risk for alcohol-related problems, regardless of the quantity consumed (Baker, Piper, McCarthy, Majeskie, & Fiore, 2004; Kaiser, Milich, Lynam, & Charnigo, 2012; Shishido et al., 2013; Wray, Simons, Dvorak, & Gaher, 2012). Conversely, individuals with antisocial personality features were more likely to report alcohol use and experience alcohol problems, both directly and indirectly via alcohol use.

The aforementioned findings are congruent with an internalizing vs. externalizing conceptualization of impulsivity facets and borderline and antisocial symptoms. Previous research examining the internalizing-externalizing structure of borderline and antisocial personality disorders found ASPD to be uniquely externalizing (Eaton et al., 2011) while BPD shared both internalizing and externalizing factors (Eaton et al., 2011; Hudson, Zanarini, Mitchell, Choi-Kain, & Gunderson, 2014). However, previous research has not conceptualized impulsivity facets with the same internalizing and externalizing framework as BPD and ASPD. The current findings are consistent with previous findings and theory of the externalizing nature of ASPD and the dual (i.e., internalizing and externalizing) nature of BPD (see Eaton et al., 2011). Moreover, the current study supports the conceptualization of impulsivity facets of also falling under an internalizing-externalizing framework, such that positive urgency, sensation seeking, and lack of premeditation are externalizing, lack of perseverance is internalizing, and negative urgency is both internalizing and externalizing.

Although BPD and ASPD have similar substance abuse outcomes, interventions for behavioral dysregulation and substance abuse associated with these disorders may need to target different mechanisms for each of these disorders. Specifically, interventions targeting substance abuse among individuals with ASPD would likely find the most success targeting externalizing aspects of dysregulation (e.g., sensation seeking, acting without planning, taking rash action in response to intense negative emotions, etc.). However, interventions with individuals with BPD would likely benefit by targeting both internalizing and externalizing factors. For example, the strong association between negative urgency and borderline personality features and the significant indirect relationship between negative urgency and alcohol problems mediated by borderline symptoms confirm the integral role of emotional dysregulation on borderline personality disorder and subsequent problematic outcomes. Research indicates that individuals high in negative urgency use alcohol as a way to cope with their intense negative affective states (Adams, Kaiser, Lynam, Charnigo, & Milich, 2012; Coskunpinar et al., 2013). Drinking as a mechanism for alleviating negative affect may be triggered by internalizing factors, but might ultimately result in externalizing behavior (i.e., alcohol-related problems).

4.1. Limitations and Directions for Future Research

This study is not without its limitations. First, the use of a collegiate sample is a limitation of the current study and results may not generalize to the broad adult population or clinical populations. Moreover, the sample for this study was predominantly white and over two thirds of the sample was women. Lastly, the cross-sectional nature of this study poses a limitation such that no causal relationships could be tested regarding these variables. However, theory supports the temporal relationship between these variables such that impulsivity develops prior to personality (see Carver, 2005), and behavioral outcomes occur as a result of personality pathology. Future research would benefit by examining these relationships across a more diverse and clinical samples in the population that are more representative of the general population. Moreover, further research is needed to solidify the internalizing-externalizing differentiation among impulsivity facets.

4.2. Conclusion

The current study contributed to the literature in multiple ways. First, this study confirmed and extended previous research investigating the relationships between impulsivity facets and personality pathology. This study confirmed that (lack of) perseverance was uniquely associated with borderline personality features, while sensation seeking and lack of premeditation were uniquely associated with antisocial personality features (DeShong & Kurtz, 2013). Additionally, the current study found negative urgency to be associated with both borderline and antisocial personality features. Moreover, this was the first study to examine the role of positive urgency in a comprehensive model of impulsivity facets and borderline and antisocial personality features and found positive urgency to be uniquely associated with antisocial features. These findings support the theory that, not only do BPD and ASPD differ with regard to internalizing and externalizing factors, but so might the five facets of impulsivity.

Finally, the current study also examined alcohol consumption and alcohol-related problems in relation to the aforementioned variables. Although previous research has examined impulsivity, borderline personality features, and antisocial features as predictors of alcohol use independently, this is the first study to examine these variables in the same model. The relationships between the five facets of impulsivity and alcohol-related outcomes were completely accounted for by borderline and antisocial personality features. Moreover, antisocial personality features were associated with both greater alcohol consumption and alcohol problems, while borderline features were only associated with greater problems.

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Highlights

- We tested a path model of impulsivity, personality features, and alcohol outcomes.
- Impulsivity facets differentially predicted personality psychopathology.
- ASPD, but not BPD features, were significantly associated with alcohol consumption.
- Both ASPD and BPD features significantly predicted alcohol problems.

Figure 1.

Path model ($N = 624$). All values are standardized coefficients. $*p < .05$, $**p < .01$, $***p < .001$.

Gender was included as a covariate, but omitted for clarity.

Table 1

Descriptive Statistics for Sample (N=624)

	M (SD)	Range	Skew
Negative Urgency	2.17 (.54)	1.00 – 3.75	0.04
Positive Urgency	1.97 (.52)	1.00 – 3.93	0.31
(lack of) Perseverance	1.87 (.47)	1.00 – 3.40	0.28
(lack of) Premeditation	2.07 (.46)	1.00 – 3.72	0.24
Sensation Seeking	2.71 (.55)	1.08 – 3.92	–0.24
BOR	25.97 (11.03)	2 – 62	0.47
ANT	19.28 (11.14)	1 – 54	0.68
Alcohol Problems	10.56 (10.69)	0 – 47	1.25
Alcohol Use	9.35 (11.57)	0 – 51	1.62

Note. Use = Self-report of drink consumed during a typical week over the past 3 months.

BOR = PAI Borderline Scale; ANT = PAI Antisocial Scale

Table 2

Correlations Between Observed Variables (N=624)

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Gender	-								
2. Negative Urgency	-.03	-							
3. Positive Urgency	.21***	.58***	-						
4. (lack of) Perseverance	-.06	-.22***	-.20***	-					
5. (lack of) Premeditation	-.02	-.23***	-.23***	.49***	-				
6. Sensation Seeking	.26***	.20***	.31***	.11*	.29***	-			
7. BOR	-.07	.67***	.36***	.23***	.19***	.05	-		
8. ANT	.31***	.44***	.49***	.21***	.38***	.48***	.45***	-	
9. Alcohol Use	.19***	.14***	.20***	.09*	.13**	.16***	.10*	.25***	-
10. Alcohol Problems	.06	.35***	.30***	.15***	.16***	.15***	.35***	.43***	.53***

Note. Gender (Men = 1, Women = 0). Alcohol Use = Self-report of drink consumed during a typical week over the past 3 months.

p<.001

**
p<.01

*
p<.05.

Table 3

Indirect effects

Predictor	Mediator(s)	Outcome	Indirect effect	95% CI
Negative Urgency	BOR	Alcohol Use	0.012, $p = .686$	-.036 – .059
Negative Urgency	BOR	Alcohol Problems	0.121, $p < .001$	.076 – .166
(lack of) Perseverance	BOR	Alcohol Use	0.002, $p = .714$	-.007 – .011
(lack of) Perseverance	BOR	Alcohol Problems	0.020, $p = .012$	.005 – .020
Negative Urgency	ANT	Alcohol Use	0.047, $p = .001$	.024 – .070
Negative Urgency	ANT	Alcohol Problems	0.080, $p < .001$	.052 – .108
Positive Urgency	ANT	Alcohol Use	0.045, $p = .001$	.023 – .066
Positive Urgency	ANT	Alcohol Problems	0.075, $p < .001$	.047 – .104
(lack of) Premeditation	ANT	Alcohol Use	0.045, $p = .001$	.025 – .066
(lack of) Premeditation	ANT	Alcohol Problems	0.076, $p < .001$	.053 – .076
Sensation Seeking	ANT	Alcohol Use	0.056, $p < .001$	.032 – .080
Sensation Seeking	ANT	Alcohol Problems	0.094, $p < .001$	.068 – .121
ANT	Alcohol Use	Alcohol Problems	0.097, $p < .001$	.058 – .135

Note. BOR = PAI Borderline Scale; ANT = PAI Antisocial Scale; Indirect effects are standardized path coefficients; 95% CI = 95% confident interval calculated using bootstrapped confidence intervals.