

EXAMINING THE PREDICTIVE VALIDITY OF *DSM-5* PERSONALITY TRAITS
AS MEASURED BY THE PERSONALITY ASSESSMENT INVENTORY

A Dissertation

by

SHANNON ELAINE KELLEY

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Chair of Committee,	John F. Edens
Committee Members,	M. Brent Donnellan
	Leslie C. Morey
	Timothy R. Elliott
Head of Department,	Heather C. Lench

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ABSTRACT

The prevailing categorical system of classifying personality disorders in the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)* demonstrates serious weaknesses in conceptual precision and clinical utility. To address the disadvantages of this approach, the *DSM-5* Personality and Personality Disorders Work Group developed an alternative model for personality disorders (AMPD) that focuses attention on 25 pathological personality traits, which are organized into five maladaptive domains of personality. By assessing symptom severity from a transdiagnostic personality trait perspective, the AMPD provides valuable information about individual functioning that might be absent from or obscured by the current criterion-based nosology of personality disorder.

The AMPD was ultimately incorporated into the *DSM-5* Section III as an emergent conceptualization with the goal of stimulating further empirical inquiry. This has generated a number of developments, including proposed strategies for assessing the AMPD pathological trait facets and domains using the Personality Assessment Inventory (PAI). The purpose of the present study was to cross-validate these new measurement strategies in an offender sample and demonstrate how they can be effectively applied to promote and refine the AMPD, particularly with respect to operationalizing antisocial personality disorder (ASPD) and psychopathy. Findings suggest that the PAI *DSM-5* scoring strategies provide comprehensive coverage of AMPD pathological traits, and are comparable to measures intentionally designed for this purpose.

The resulting personality dimensions converged in theoretically consistent ways with criterion measures assessing ASPD and psychopathic features, psychological dysfunction, and future problems with institutional adjustment, criminal activity, and treatment compliance. Beyond assessing the core personality characteristics and consequences of ASPD at least as well as the original PAI Antisocial Features scale, PAI *DSM-5* pathological traits were particularly useful in capturing psychopathic features that are not well represented by any one existing scale or subscale of the instrument (e.g., fearless dominance). However, adjustments to the *DSM-5* AMPD psychopathy specifier might contribute to a more precise and complete conceptualization of the construct. Overall, this study was successful in showcasing one of many ways in which the PAI and *DSM-5* AMPD can work together to advance personality assessment, shape diagnostic criteria, and expand our understanding of psychopathology.

DEDICATION

To everyone who has had the strength to keep going and the courage to write their own story.

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INTRODUCTION

Personality can be found in nearly every aspect of daily life. The personality characteristics that we perceive in ourselves and notice in others have a powerful influence on important outcomes, including careers, relationships, and general well-being (Krueger & Eaton, 2010; Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007). This pervasive relevance is one of several arguments supporting recent attempts to integrate dimensions of personality into a comprehensive conceptualization of psychopathology. Over the years, the *Diagnostic and Statistical Manual of Mental Disorders (DSM; American Psychiatric Association [APA], 1952)* has steadily given more attention to pathological expressions of personality. However, numerous challenges remain in developing a scientifically and clinically useful system that not only accurately describes the structure and nature of personality disorders, but also brings together perspectives from diverse areas, including basic personality, general psychopathology, and genetics (Krueger & Markon, 2006).

Personality disorders are a debilitating and relatively common condition, with an estimated mean prevalence of 11.4% for any specified type (Lenzenweger, 2008). In the contemporary diagnostic system, personality disorders are defined as persistent and pervasive maladaptive patterns of thought, emotion, and behavior that cause significant functional impairment across a variety of settings. This conceptualization is the product of a series of evolutions following the introduction of the categorical personality disorder diagnosis tradition in the 1952 publication of the *DSM*. Although disturbances in personality had previously been recognized and documented by scholars, the *DSM*

represented the emergence of personality disorders as a unique diagnostic category (Coolidge & Segal, 1998). Under this nosology, personality disorders were thought to be intractable deficiencies in development resulting in a lifelong pattern of impairment. The original delineation also set in motion a strong emphasis on characteristic actions and behaviors, and even explicitly downplayed the manifestation of “mental or emotional symptoms” (p. 34). Three separate sections were developed to organize and describe twelve specific personality disorders: the first category containing “cardinal personality types”; the secondary category “basic personality maldevelopment”; and the third category “sociopathic personality disturbances” (p. 34 – 38). Importantly, the descriptions provided for each personality disorder were largely illustrative and did not provide concrete symptom criteria, making it difficult to establish the reliability and construct validity of diagnoses.

The revised second edition (*DSM-II*; APA, 1968) included only ten specific personality disorders, but maintained continuity by stressing the centrality and chronicity of problematic behaviors, which were thought to be qualitatively different from psychotic and neurotic symptoms. In addition to retaining this general conceptualization, the updated text recognized that onset typically occurs before or during adolescence. Two additional categories for “other” and “unspecified” types of personality disorder were offered as diagnostic options, though without any guiding elaboration. With only modest changes, *DSM-II* was subject to the same major shortcomings of the preceding edition, namely, the absence of reliable symptom criteria and empirical grounding. In response, the *DSM-III* (APA, 1980) dramatically advanced personality disorder

classification by developing specific polythetic criteria for each diagnosis and by placing personality disorders on a separate axis to be routinely considered when assessing psychiatric symptoms. The availability of symptom criteria was particularly revolutionary, providing a standardized approach to assessment and diagnosis. Now anchored to observable and objective behaviors, personality disorders were amenable to studies of reliability and validity. However, despite early optimism, years of scrutiny suggest that this fundamentally categorical and behaviorally-oriented perspective suffers from a number of weaknesses. Recently, researchers have moved beyond merely criticizing the existing system to offer a transformative alternative to conceptualizing and assessing personality pathology.

DSM-5 Section III Alternative Model for Personality Disorders

The increasing dissatisfaction with the categorical system of personality disorder diagnosis targets multiple shortcomings in conceptual accuracy and practical utility (e.g., Clark, 2007; Widiger & Mullins-Sweatt, 2010), yet to date only modest revisions have been made to this section in subsequent editions of the *DSM*. Most notably, criticisms point out that the prevailing categorical approach directly contributes to excessive diagnostic comorbidity and creates problems by allowing for highly heterogeneous symptom configurations within personality disorders (Morey, Benson, Busch, & Skodol, 2015; Skodol et al., 2011). Operating within the current framework can be plagued by confusion and inefficiency, as these overlapping and mixed-bag diagnoses do not provide reliable guidance for decision-making and treatment planning. For example, two people receiving the same personality disorder diagnosis may require very different

interventions to accommodate symptomatic polymorphism. Conversely, the same recommendations may be equally appropriate for two people diagnosed with different personality disorders (or different combinations of personality disorders) that share core maladaptive features. The litany of complaints about the categorical approach further draws attention to inadequate coverage of symptomatic expressions of personality pathology, the prevalence of vague “not otherwise specified” personality disorders, troubling inter-rater reliability, temporal instability of dichotomous classifications, diagnostic thresholds that are not informed by severity of symptoms or impairment, and poor convergent and discriminant validity across diagnostic categories (Morey et al., 2015; Widiger, Livesley & Clark, 2009).

To address these serious disadvantages, the *DSM-5* Personality and Personality Disorders Work Group developed and proposed an alternative model for personality disorders (AMPD) that conceptualizes personality disorders as configurations of maladaptive traits, which vary along a continuum of severity. This revised system repositions criterion-based categories of personality disorders within a hybrid model, with the goal of improving diagnostic clarity and efficiency. Each categorical diagnosis of the AMPD is determined by a bifurcated and dimensional assessment of dysfunction. First, personality disorders are thought to reflect core impairments in self (identity and self-direction) and interpersonal (empathy and intimacy) functioning (Criterion A). The degree of characteristic difficulty in these areas can be aggregated to attain an index of general impairment in personality functioning.

Currently, several approaches to assessing this global severity are in various phases of development (e.g., Morey, 2017), including a description-based rating system available in Section III of the *DSM-5* (Level of Personality Functioning Scale; APA, 2013). There are generally mixed findings about whether specifying the level of personality functioning separate from stylistic elements of personality pathology is an empirically defensible and clinically meaningful practice (Calabrese & Simms, 2014; Sleep, Wygant, & Miller, 2017). However, research has demonstrated that the severity of problems with self and interpersonal functioning identifies personality disorders with high sensitivity and specificity (Morey, Bender, & Skodol, 2013) and emerges as the most important single predictor of current and prospective dysfunction (Hopwood et al., 2011).

Second, the AMPD defines personality disorders by specific constellations of maladaptive personality traits (Criterion B). These are drawn from a set of twenty-five pathological personality traits that are hierarchically organized into five domains. These dimensions ostensibly represent the more stable aspects of personality dysfunction that characterize a wide range of symptoms and may therefore account for issues such as diagnostic comorbidity. Their inclusion was at least partially motivated by a desire to enhance the discriminant validity of personality disorder diagnoses, which might be accomplished by focusing on core maladaptive personality traits as opposed to specific problematic behaviors that not only wax and wane over time, but are often shaped by factors outside of personality.

Each of the five domains – Negative Affectivity, Detachment, Antagonism, Disinhibition, and Psychoticism – are comprised of three to seven pathological trait facets. Negative Affectivity is characterized by frequent and intense experiences of a range of negative emotions, including anxiety, depression, shame, guilt, and anger. Additionally, this domain captures the behavioral and interpersonal manifestations of mood dysregulation (e.g., self-harm, reactivity, dependency). Detachment is characterized by avoidance of interpersonal and emotional experiences, including withdrawal from close relationships and everyday social activity. This domain further encompasses pessimistic attitudes about others and problems with restricted affectivity, particularly an impoverished ability to experience engagement and pleasure.

Antagonism refers to a callous and manipulative interpersonal style that promotes insensitivity to the well-being of others and the use of exploitation for personal gain. These tendencies may be joined by a grandiose sense of self-importance and feelings of entitlement. Disinhibition represents problems with acting on impulses in the interest of immediate gratification without considering future consequences or drawing upon past learning to constrain behavior. This type of orientation can take the form of carelessness and irresponsibility, engagement in reckless or self-destructive behavior, and difficulty focusing and planning. Finally, Psychoticism captures patterns of thinking and behaving that are odd, eccentric or unusual, including characteristic disturbances of thought quality (e.g., dissociation, poor reality testing) and thought content (e.g., peculiar beliefs).

Collectively, the AMPD pathological traits provide a flexible yet precise way of describing the nature and severity of personality dysfunction. Whereas categorical diagnoses often condense and obscure important variations in personality expression, this approach retains information about narrow dimensions using a parsimonious language that facilitates communication and understanding. For continuity, however, the AMPD does organize specific impairments in personality functioning and pathological personality traits into diagnostic criteria for six categorical diagnoses. Additionally, the system provides for a diagnosis of Personality Disorder – Trait Specified (PD-TS) as a way of summarizing other configurations of clinically significant patterns.

Previous research supports the utility of these pathological traits, demonstrating that they are meaningfully distinguishable from ratings of generalized personality pathology severity as well as significantly and incrementally indicative of specific areas of dysfunction (Morey et al., 2015). The trait-based approach also appears to provide adequate coverage of the *DSM-IV/DSM-5* criterion-based personality disorders (Hopwood, Thomas, Markon, Wright, & Krueger, 2012; Jopp & South, 2015; Kelley et al., 2018; Yam & Simms, 2015). Much of the emerging scholarly work on the AMPD discusses the significance of this new perspective for personality disorders, and further highlights the potential relevance of maladaptive dispositions for understanding other psychological disorders (e.g., Krueger & Eaton, 2010; Krueger & Markon, 2014). For example, the AMPD closely aligns with existing efforts to develop a quantitative and empirically based model of psychopathology (Krueger & Eaton, 2014), and may prove useful in constructing a more meaningful and integrative diagnostic system. Taking a

synthesized approach to psychological assessment could help identify transdiagnostic features that contribute to diagnostic co-occurrence and uncover more about the etiology, expression, prognosis, and treatment of disorders that commonly present alongside personality pathology.

Despite these promising and exciting qualities of the AMPD, the proposed revision was ultimately rejected by the American Psychiatric Association Board of Trustees. The rationale for this decision emphasized concerns that an attempt to dislodge the current system would not be well-received or well-navigated by mental health professionals – allegations which have since been disputed (e.g., Morey, Skodol, & Oldham, 2014; Garcia et al., 2018). Regardless, the traditional categorical framework remains in *DSM-5* Section II. While not yet adopted as a replacement for diagnosing personality disorders, the AMPD was incorporated into *DSM-5* Section III as an emergent conceptualization and measurement approach to encourage further empirical consideration of its strengths and weaknesses.

Measures of DSM-5 Pathological Personality Trait Dimensions

One advancement facilitating research on the AMPD is the development of an instrument to measure the pathological personality features of Criterion B. The Personality Inventory for DSM-5 (PID-5; Krueger, Derringer, Markon, Watson, & Skodol, 2011) is a 220-item self-report questionnaire designed to operationalize, refine, and directly assess the personality trait domains and facets comprising the dimensional classification system. Present support for the validity of the PID-5 is favorable and includes evidence of a replicable factor structure, acceptable reliability, convergent

validity with existing measures of personality, and expected associations with various clinically relevant constructs (Al-Dajani, Gralnick, & Bagby, 2016; Hopwood et al., 2013; Quilty, Ayearst, Chmielewski, Pollock, & Bagby, 2013). However, the relative nascence of this instrument places some noteworthy limitations on its utility, including the absence of validity scales, particularly those assessing biased reporting of symptoms (Ng et al., 2016). Proposed validity scales for inconsistent responding (Bagby & Sellbom, 2018; Keeley, Webb, Peterson, Roussin, & Flanagan, 2016; Somma, Borroni, Kelley, Edens, & Fossati, 2018) and overreporting (Sellbom, Dhillon, & Bagby, 2017) are now available for the PID-5; however, these are not yet well-researched and are also not likely to be readily adopted by clinical practitioners in their current supplementary form.

In addition to lacking definite validity scales and empirical demonstrations of clinical utility, many practitioners may be reluctant to use the PID-5 for pragmatic reasons. For example, administering and scoring an additional measure is a time-consuming process, which can motivate continued reliance on established measures of personality and psychopathology. Researchers have accordingly begun to investigate the potential for existing omnibus measures of psychological functioning to capture pathological traits as conceptualized by the *DSM-5* AMPD. Anderson et al. (2013) first pursued this avenue of inquiry using the Personality Psychopathology Five (PSY-5; Harkness & McNulty, 1994, 2007) of the Minnesota Multiphasic Personality Inventory-2 Restructured Form (MMPI-2-RF; Ben-Porath & Tellegen, 2008). The PSY-5 assesses the dimensions of Negative Emotionality/Neuroticism, Introversion/Low Positive

Emotionality, Aggressiveness, Disconstraint, and Psychoticism, which are conceptually analogous to the *DSM-5* pathological domains and demonstrate expected patterns of convergence with these emergent personality constructs (Anderson et al., 2013; Finn, Arbisi, Erbes, Polusny, & Thuras, 2014; Sellbom, Anderson, & Bagby, 2013).

The *DSM-5* AMPD also closely resembles contemporary conceptualizations of normal personality, with the hierarchical organization of pathological traits mirroring the structure of basic personality espoused by the Five Factor Model (FFM; McCrae & Costa, 2003). Indeed, relationships between the PID-5 and measures of normal personality suggest that the five higher-order domains can be thought of as maladaptive variants of the Big Five, although there are mixed findings for the correspondence between Openness to Experience and Psychoticism (De Fruyt et al., 2013; Gore & Widiger, 2013; Griffen & Samuel, 2014; Thomas et al., 2013; Wright & Simms, 2014). The convergent validity of PID-5 pathological facets similarly suggests that the AMPD, by purposeful design (APA, 2013), is an extension of the FFM (Crego, Gore, Rojas, & Widiger, 2015; Gore & Widiger, 2013; Helle, Trull, Widiger, & Mullins-Sweatt, 2017; Quilty et al., 2013; Watson, Stasik, Ro, & Clark, 2013). Conceptually and empirically, the structure of the PID-5 also aligns with other personality trait organizations, including the HEXACO (Ashton, Lee, de Vries, Hendrickse, & Born, 2012), Big Three (Watson et al., 2013) and Dimensional Assessment of Personality Pathology (Van den Broeck et al., 2014).

The PID-5 has further demonstrated theoretically consistent relationships with the scale scores of the Personality Assessment Inventory (PAI; Morey, 1991) within an

undergraduate sample (Hopwood et al., 2013). The PAI is a widely-used comprehensive self-report measure of emotional and behavioral dysfunction with an extensive research base articulating its utility in detecting features of psychopathology and predicting clinically relevant outcomes. Twenty-two non-overlapping scales provide a range of information for consideration in diagnostic determinations, risk management, treatment planning, and assessment of interpersonal functioning. Moreover, the measure already includes validity scales to assess response style and allows for a more meaningful interpretation of scores by using established norms for community, psychiatric, and offender populations. That is to say, there are compelling reasons to investigate the potential for this instrument to effectively index the *DSM-5* AMPD domains and facets of personality pathology.

Reconfiguring the underlying content of the PAI for specific assessment purposes is hardly a new concept. There are a number of supplemental indexes already available from the instrument manual and scoring system (e.g., Treatment Process Index, Suicide Potential Index; Morey, 2007), as well as several clinically relevant combinations of features proposed by outside researchers (e.g., Violence and Aggression Risk Index, Roche et al., 2017; Level of Care Index, Sinclair et al., 2015). Additionally, previous findings suggest that scales of the PAI can be effectively organized into higher-order dimensions of internalizing and externalizing dysfunction (Ruiz & Edens, 2008). The pathological traits of the *DSM-5* AMPD likewise appear to be represented within and across various scales and subscales of the PAI (Hopwood et al., 2013). Findings of both commonalities and idiosyncrasies in the convergence of PID-5 trait facets with PAI

scales further implies that an integrated perspective might provide some insights into diagnostic comorbidity and symptomatic heterogeneity.

Currently, however, the PAI does not explicitly assess pathological trait facets and domains in a manner corresponding to the AMPD. Busch et al. (2017) recently addressed this shortcoming by developing regression-based algorithms that estimate the 25 pathological traits of the *DSM-5* AMPD/PID-5 using PAI scale and subscale scores. These estimates were found to have strong convergent and divergent validity in the college undergraduate derivation sample. Moreover, the structure of algorithm-based scores in a cross-validation sample of community members was generally congruent with the five-factor structure of the AMPD/PID-5. Together, findings substantiate hypotheses about the coverage of *DSM-5* AMPD pathological traits by existing instrument content and provide encouraging support for the validity of a specific measurement approach. The developers of these algorithms also took notice of a number of advantages to using an omnibus measure of psychological functioning over the PID-5, including the availability of normative data for different populations. For example, they were able to apply the *DSM-5* algorithms to the PAI community and clinical normative samples to obtain descriptive statistics for pathological trait facets, which provide a valuable reference for interpreting severity.

Ruiz, Hopwood, Edens, Morey, and Cox (2018) subsequently investigated an alternative approach to extracting dimensions of the *DSM-5* AMPD from the PAI. Rather than using algorithms, the authors applied a back-engineering technique to reconfigure existing items of the PAI into new scales measuring the five higher-order

pathological trait domains of the AMPD/PID-5. The resulting scales provided adequate coverage of pathological domains – which were not explicitly addressed by Busch et al. (2017) – and were psychometrically defensible across undergraduate, community, psychiatric, and offender populations. However, emerging research also supports aggregating algorithm-based facet estimates into domain scores according to PID-5 scoring procedures (Kelley et al., 2018). Specifically, the algorithm-based domain estimates appear comparable to PID-5 scores in terms of inter-correlations and associations with Big Five personality traits. These two approaches to assessing the domains of the *DSM-5* AMPD have not yet been subject to direct comparison, leaving the relative advantages and disadvantages of each strategy mostly unknown.

The criterion-related validity of PAI *DSM-5* AMPD facet and domain scores remains largely unexplored as well. Findings from Kelley et al. (2018) using an archival sample of psychiatric patients suggest that the PAI *DSM-5* algorithm-based estimates are comparable in structure to the PID-5, and possess equivalent validity in predicting *DSM-IV* personality disorder symptoms, cognitive functioning, and maladaptive behavior. This is a promising start, yet there are still many questions to ask and answer before advocating for widespread adoption of the PAI *DSM-5* algorithms and/or scales or using these to guide decision-making. The first purpose of the present study is investigate the generalizability of research on the PAI *DSM-5* algorithms and scales to a sample of adult offenders in custody. Additionally, this study evaluates the criterion-related validity of PAI *DSM-5* domain and facet scores for a wide range of criminal justice outcomes and clinically relevant constructs, including antisocial and psychopathic personality traits.

DSM-5 AMPD Antisocial/Psychopathic Personality Traits

The *DSM-5* Section III diagnostic criteria for antisocial personality disorder (ASPD) consider the predominant impairments in self functioning to be egocentricity (identity) and lack of regard for the expectations of society (self-direction). Typical difficulties with interpersonal functioning include insensitivity and remorselessness (empathy) as well as a domineering approach to relationships marked by exploitative, coercive, and duplicitous strategies (intimacy). There are seven pathological personality traits designated to this diagnosis, including elements of Antagonism (Manipulativeness, Callousness, Deceitfulness, Hostility) and Disinhibition (Risk Taking, Impulsivity, Irresponsibility). Additionally, the accompanying presence of “primary” psychopathic features can be specified through endorsement of certain pathological traits beyond those required for a diagnosis of ASPD.

Psychopathy is recognized as a severe personality disorder manifesting as a configuration of deficiencies in affective processing, interpersonal relations, and behavioral functioning (e.g., Hare & Neumann, 2008). The psychopathy specifier for *DSM-5* Section III ASPD largely captures the socially potent interpersonal style and emotionally resilient demeanor associated with the putative boldness component of the construct (Patrick, Fowles, & Krueger, 2009). In particular, the psychopathy specifier emphasizes elevations in Attention-Seeking (from the domain of Antagonism) in combination with the absence of Anxiousness (Negative Affectivity) and Withdrawal (Detachment). The accumulating research on *DSM-5* pathological personality traits suggests that the Section III conceptualization of ASPD provides comprehensive

coverage of Section II ASPD diagnoses and meaningfully relates to contemporary operationalizations of psychopathy (Anderson, Sellbom, Wygant, Salekin, & Krueger, 2014; Few, Lynam, Maples, MacKillop, & Miller, 2015; Strickland, Drislane, Lucy, Krueger, & Patrick, 2013; Wygant et al., 2016).

Previously, features of psychopathy have demonstrated associations with the PSY-5 personality domains of Aggressiveness, Disconstraint, and, with respect to interpersonal and affective components, Negative Affectivity (Wygant & Sellbom, 2012), which closely approximates the domains emphasized in the *DSM-5* specification of the disorder. Strickland et al. (2013) subsequently investigated the convergence of pathological trait domains and facets measured by the PID-5 with features of an emergent conceptualization of psychopathy in a mixed community and university sample. The findings of this study similarly indicated strong associations between the personality traits of Section III ASPD and the meanness and disinhibition domains of the triarchic model of psychopathy (Patrick et al., 2009), which represent tendencies toward aggression and externalizing, respectively. The psychopathy specifier traits were preferentially associated with boldness, although this aspect of psychopathy further demonstrated relationships with PID-5 Risk Taking and Manipulativeness.

Crego and Widiger (2014) expanded upon these findings by examining the *DSM-5* psychopathy specifier among persons in the general population with reported histories of criminal activity. Although the psychopathy specifier was strongly associated with various operationalizations of fearless dominance/boldness, the observed relations appeared to be primarily due to the contribution of PID-5 Anxiousness. In contrast, PID-

5 Withdrawal and Attention Seeking did not display particularly specific correlations with fearless dominance, but rather demonstrated moderate associations with a range of psychopathic features, including meanness and disinhibition. In a sample of incarcerated offenders, Wygant et al. (2016) found further evidence of the validity of trait facets of Section III ASPD and the psychopathy specifier in terms of convergence with Section II ASPD and ratings of psychopathy from different perspectives. Specifically, the psychopathy specifier incrementally added to the seven trait facets of Section III ASPD in predicting components of psychopathy associated with a bold interpersonal style. Moreover, the authors noted that consideration of the pathological trait facets of grandiosity and restricted affectivity as additions to the psychopathy specifier may be advantageous in more fully operationalizing features of the construct.

The ability of the *DSM-5* dimensional model of ASPD and psychopathy to comprehensively represent these constructs is an important advancement in psychiatric assessment; however, continued study examining predictive validity is necessary to advocate for the use of this approach in research and clinical settings. For ASPD and psychopathy, establishing the extent to which composite trait facets are associated with violence, recidivism, and institutional adjustment is particularly paramount given the robust connection between these personality problems and antisocial conduct using other operationalizations of the two constructs (see Douglas, Nikolova, Edens, & Kelley, 2014 for review). Further study is also required to determine whether omnibus measures of psychological functioning can effectively capture the pathological traits of the

alternative model for ASPD and psychopathy such that the estimated dispositional facets are similarly predictive of these key outcomes.

Forensic Application of the Personality Assessment Inventory

The availability of a valid system for recognizing personality pathology may be especially pertinent in forensic and correctional settings based on the prevalence of personality dysfunction among offenders compared with the general population (e.g., Douglas, Hart, & Kropp, 2001; Fazel & Danesh, 2002). Examination of ASPD and psychopathy are often of particular focus in these contexts due to the greater occurrence of diagnostic features among incarcerated offenders (Hare, 2003; Krueger, Markon, Patrick, Benning, & Kramer, 2007). Both within and outside diagnoses of ASPD and psychopathy, the AMPD contains many constructs commonly encountered within forensic settings (e.g., antagonism, impulsivity, hostility) that may be relevant to risk assessment, offender management, and perhaps even to addressing questions of competency and criminal responsibility (Hopwood & Sellbom, 2013). However, as mentioned, one shortcoming of the instruments developed to directly assess AMPD pathological traits concerns the absence of readily adoptable validity scales to assist in identifying defensive responding and malingering.

Validity indicators are frequently used in forensic contexts due to the increased prevalence of biased reporting in offender populations (Ardoff, Denney, & Houston, 2007). These response styles are important to detect, as validity coefficients may be attenuated among inmates engaging in response distortion (e.g., Edens & Ruiz, 2005, 2006). For example, Edens and Ruiz demonstrated that the predictive utility of PAI ANT

for inmate disciplinary infractions could be appreciably improved by distinguishing between respondents who did and did not complete the measure in a defensive manner according to the embedded index of positive impression management. The use of a comprehensive measure of personality and psychopathology with established validity scales (e.g., MMPI-2-RF, PAI) could therefore be valuable in facilitating forensic research on and application of the *DSM-5* AMPD.

Psychological evaluations in a variety of criminal justice settings commonly include the PAI to address questions pertaining to psychopathology, personality disorder, and risk of harm to self and others (Edens, Cruise, & Buffington-Vollum, 2001; Morey & Meyer, 2013; Mullen & Edens, 2008). These applications are supported by a number of studies, such as those identifying certain scores on the instrument as predictors of violence, criminal reoffending, and institutional misconduct. Recently, Gardner, Boccaccini, Bitting, and Edens (2015) conducted a meta-analysis to summarize observed effects for conceptually relevant elements of the PAI that have emerged as promising predictors, including Antisocial Features (ANT), Aggression (AGG), Borderline Features (BOR), Violence Potential Index (VPI), Dominance (DOM) and Warmth (WRM). The ANT scale provides an assessment of core components of antisocial and psychopathic personality, ranging from criminality to egocentricity and sensation-seeking, whereas the AGG scale corresponds to fundamental difficulties with anger regulation, aggression, and hostility (Morey, 2007). In meta-analytic review, scores on ANT ($d = .26$ to $.39$) and AGG ($d = .23$ to $.40$) demonstrated the most robust associations with each type of misconduct examined and were particularly strong

predictors of institutional misconduct in correctional settings (Gardner et al., 2015). Prior research does, however, suggest that controlling and overbearing tendencies (DOM) and detachment from affiliative relationships (WRM) predict general and aggressive disciplinary infractions among male incarcerated offenders, and the extent of interpersonal domineering is further associated with treatment compliance and response (Edens, 2009).

Notably, the above scales that most strongly relate to offender misconduct correspond conceptually and empirically to trait domains and facets of the DSM-5 alternative model for personality disorders (Busch et al., 2017; Hopwood et al., 2013; Ruiz et al., 2018). For example, in the regression-based algorithms of pathological trait facets developed by Busch and colleagues, ANT, AGG, DOM, WRM, and BOR each make sizable contributions to traits associated with DSM-5 AMPD Antagonism, particularly to callousness and hostility. PAI ANT further makes contributions to estimating features of Disinhibition (e.g., irresponsibility, impulsivity), DOM to aspects of Negative Affectivity (e.g., anxiousness, suspiciousness), and WRM to aspects of Detachment (e.g., withdrawal, intimacy avoidance). Similarly, the pattern of individual items retained by Ruiz and colleagues (2018) to construct scales for the DSM-5 pathological domains of personality suggest that BOR, ANT, AGG, and DOM comprise key features of Antagonism. Additionally, a number of items from ANT and BOR were included to measure Disinhibition, and Detachment appears largely captured by items from WRM. Although previous studies have applied multivariate analyses to investigate the incremental utility of PAI scale scores in predicting outcomes among offenders (e.g.,

Edens, 2009), the extent to which configurations of these features as represented by the newly developed indices of DSM-5 pathological trait domains and facets predict offender maladjustment remains unknown.

The Current Study

The present study consists of three main research objectives. The first purpose of the study was to cross-validate two recently developed approaches to assessing *DSM-5* AMPD constructs (Busch et al., 2017; Ruiz et al., 2018) within an archival sample of adult offenders. This involves estimating pathological trait domain and facet scores from PAI *DSM-5* algorithms and scales to examine their factor structure, internal consistency, and associations with a wide range of conceptually and empirically relevant criterion measures. Based on supportive evidence from previous studies (Busch et al., 2017; Kelley et al., 2018; Ruiz et al., 2018), the PAI *DSM-5* algorithms and scales were expected to demonstrate psychometric properties comparable with those of the PID-5. The following analyses of criterion-related validity largely depend on establishing that these new measures are a reasonable alternative to the PID-5 in capturing AMPD personality traits. Paradoxically, the extent to which pathological trait estimates converge in theoretically and empirically consistent ways with other expressions of psychopathology has implications for the validity of proposed scoring procedures.

The second phase of this study focuses on the clinical utility of *DSM-5* AMPD dimensions of ASPD and psychopathy. Specifically, analyses investigate the extent to which global scores on these dimensions demonstrate continuity with *DSM-IV/DSM-5* Section II ASPD and with contemporary conceptualizations of psychopathic traits. This

provides an opportunity to identify potential areas of strength and weakness in content coverage. However, to justify widespread adoption of the *DSM-5* AMPD, researchers must establish that the system not only captures meaningful variations in personality pathological, but actually represents an improvement over existing practices. To this end, we compare the *DSM-5* AMPD measures of ASPD and psychopathy with the PAI Antisocial Features (ANT) scale in terms of convergent and predictive validity. More specifically, we examine whether *DSM-5* AMPD scores more strongly and/or uniquely relate to self-report and structured interview ratings of antisocial and psychopathic features and to important criminal justice outcomes (e.g., institutional disciplinary infractions). The main hypothesis for this set of analyses was that the *DSM-5* AMPD psychopathy specifier would preferentially and incrementally assess “primary” interpersonal and affective features (e.g., fearless dominance) of the disorder beyond PAI ANT and *DSM-5* ASPD.

The third goal of this study was to assess whether traits proposed for the psychopathy specifier in the *DSM-5* AMPD provide a precise and complete measure of “primary” psychopathy features. To inform this assessment, analyses compare the criterion-related validity of individual pathological trait facets assigned to the *DSM-5* AMPD psychopathy specifier against other facets that are potentially relevant to manifestations of social potency and stress immunity. These candidates, including Low Submissiveness, Restricted Affectivity, Grandiosity, and Distractibility were chosen based on previous theory and research (e.g., Anderson et al., 2014; Strickland et al.,

2013; Wygant et al., 2016) and were hypothesized to augment the psychopathy specifier in predicting interpersonal and affective features of fearless dominance.

To summarize, study aims mostly focus on validating the PAI *DSM-5* AMPD algorithms and scales and investigating competing operationalizations of ASPD and psychopathy using this new approach as a substitute for PID-5 scores. However, we also use this opportunity to explore relationships from the perspective of pathological personality domains. The *DSM-5* AMPD domains are capable of characterizing specific personality disorders, and at the same time represent transdiagnostic dispositions that are relevant to important outcomes outside of any particular syndrome. We examine associations between domain scores and study criterion measures to replicate evidence for basic personality conceptualizations of ASPD and psychopathy (e.g., Miller & Lynam, 2003) and identify core vulnerabilities for behavioral dysfunction in criminal justice settings. Looking at the scales and subscales that contribute to the PAI *DSM-5* algorithms and scales provides a unique opportunity to connect findings with existing research predicting aggression and misconduct from scores on this instrument (e.g., Gardner et al., 2015). Furthermore, these analyses allow for direct comparison between the algorithm-based and item reconfiguration approaches to obtaining *DSM-5* AMPD domain scores. The original study also collected data on several measures of psychological functioning have conceptual and empirical relevance to particular domains and their underlying facets. To comment more extensively on the validity of the PAI *DSM-5* AMPD scoring approaches and the overall value of this new conceptualization, we examine associations of impulsivity measures with Disinhibition; early abusive and

traumatic experiences with Negative Affectivity (e.g., Kent & Waller, 1998; Sanders & Becker-Lausen, 1995); and dissociative experiences with Psychoticism.

METHOD

Participants

The present study examined an existing data set of adult offenders ($N = 1,658$) who participated in a National Institute of Mental Health-funded research project examining personality features and social deviancy (see Poythress et al., 2010, for a review). The sample consisted of participants completing court-mandated residential substance abuse treatment programs (47.3%) or serving prison sentences (52.7%) at sites in Florida, Nevada, Oregon, Texas, and Utah. Persons receiving psychotropic medication for acute psychotic symptoms and those undergoing detoxification from substance use were excluded from study participation due to concerns about their ability to validly respond to interview and survey questions. Similarly, eligibility criteria required proficiency in the English language and demonstration of an $IQ \geq 70$ on a brief screening measure of intelligence (Quick Test; Ammons & Ammons, 1962) to ensure sufficient participant comprehension of study measures. Those reporting a race other than Black or White were also excluded from study participation.

Participants were predominantly male (80.8%) with a mean age of 30.51 years ($SD = 6.53$; Range = 17 – 59). The majority of participants self-reported as Caucasian (61.9%; African American, 33.6%) and 7.0% additionally self-identified as ethnically Hispanic. Data were excluded for 39 (2.4%) participants who responded to the PAI (Morey, 1991) in a manner suggesting significant inattentiveness, idiosyncratic item interpretation, or difficulties with language comprehension (i.e., Infrequency or Inconsistency $> 79T$; Edens & Ruiz, 2005).

Measures

Personality Assessment Inventory (PAI). The PAI (Morey, 1991, 2007) is a comprehensive self-report measure of adult personality and psychopathology. The instrument organizes 344 items into 22 non-overlapping scales that assess various clinically relevant constructs, including 4 response validity scales (Inconsistency [INC], Infrequency [INF], Negative Impression Management [NIM], Positive Impression Management [PIM]), 11 psychopathology scales (Somatic Complaints [SOM], Anxiety [ANX], Anxiety-Related Disorder [ARD], Depression [DEP], Mania [MAN], Paranoia [PAR], Schizophrenia [SCZ], Borderline Features [BOR], Antisocial Features [ANT], Alcohol Problems [ALC], Drug Problems [DRG]), 5 treatment consideration scales (Aggression [AGG], Suicidal Ideation [SUI], Stress [STR], Nonsupport [NON], Treatment Rejection [RXR]) and 2 interpersonal scales (Dominance [DOM], Warmth [WRM]). Respondents rate items on a 4-point scale as *false, not at all true* (0), *somewhat true* (1), *mostly true* (2), or *very true* (3). The relatively brief administration time of this instrument and its minimum requirement of a fourth grade reading ability are especially attractive features for assessing offender populations (Edens & Ruiz, 2005; Reidy, Sorensen, & Davidson, 2016), although the inventory was not developed specifically for this use.

Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II) ASPD Module. The SCID-II (First, Spitzer, Gibbon, Williams, & Benjamin, 1997) is a semi-structured interview guide that is frequently used in evaluating the 22 DSM-IV symptom criteria for ASPD (APA, 1994), which were retained without

modification in Section II of DSM-5. This diagnostic instrument provides both dimensional (i.e., symptom count) and categorical assessment of ASPD and has demonstrated high inter-rater reliability (e.g., Maffei et al., 1997) and high concurrent validity for consensus diagnoses of the disorder (e.g., Skodol, Rosnick, Kellman, Oldham, & Hyler, 1988). For the current study, we primarily examined symptom counts aggregated from dichotomous determinations concerning the presence (1) or absence (0) of the conduct disorder criterion and the seven adult symptom criteria ($M = 4.68$; $SD = 2.21$; Range = 0 – 8). Inter-rater reliability for ASPD symptom counts was $ICC_{1A} = .86$ ($n = 46$; see Guy, Poythress, Douglas, Skeem, & Edens, 2008 for details on reliability ratings).

Psychopathy Checklist-Revised (PCL-R). The PCL-R (Hare, 1991, 2003) is the most frequently used measure of psychopathic personality in forensic and correctional settings. Each of 20 items is scored by the rating clinician on a 3-point scale as *No* (0), *Maybe/In Some Respects* (1), or *Yes* (2) using a semi-structured interview and review of collateral information (e.g., official documentation). The instrument yields a total score ($M = 22.53$, $SD = 7.50$; Range 0 – 40) and four subscale, or “facet” scores, which assess the core interpersonal (e.g., superficial charm, manipulateness), affective (e.g., callousness, lack of remorse or guilt), lifestyle (e.g., irresponsible, parasitic) and antisocial (e.g., disruptive, criminal) features of the psychopathy construct. Facet ratings can further be arranged into two higher-order factors representing interpersonal-affective deficits (Factor 1; $M = 8.13$, $SD = 4.12$) and social deviancy (Factor 2; $M = 12.36$, $SD = 3.91$). For this sample, factor scores were moderately correlated ($r = .49$, $p < .001$). Inter-

rater reliability of research assistant total scores with ratings independently made by a visiting senior investigator ($n = 51$) was $ICC_1 = .88$.

Psychopathic Personality Inventory (PPI). The PPI (Lilienfeld & Andrews, 1996) is a self-report measure of psychopathy suitable for use in community and forensic samples. The instrument contains 187 items that are rated on a 4-point scale as *false* (1), *mostly false* (2), *mostly true* (3), or *true* (4). These items are organized into eight subscales, which, with the exception of Coldheartedness, represent two higher-order factors: Fearless Dominance (Fearlessness, Stress Immunity, and Social Potency) and Impulsive Antisociality (Machiavellian Egocentricity, Carefree Nonplanfulness, Impulsive Nonconformity, Blame Externalization). The Fearless Dominance and Impulsive Antisociality factors show some correspondence to PCL-R Factor 1 ($r = .26, p < .001$) and Factor 2 ($r = .40, p < .001$), respectively. However, the two factors were only weakly related to one another in the present sample ($r = .07, p < .01$).

Levenson Self-Report Psychopathy Scales (LSRP). The LSRP (Levenson, Kiehl, & Fitzpatrick, 1995) is a self-report measure containing a 16-item Primary scale that assesses the interpersonal and affective features of psychopathy and a 10-item Secondary scale that assesses the impulsive and socially deviant features of psychopathy. Items are rated on a 4-point scale as *disagree strongly* (1), *disagree somewhat* (2), *agree somewhat* (3), or *agree strongly* (4). For the present sample, the two scales were correlated at $r = .50, p < .01$ and reliability was acceptable (Primary $\alpha = .78$; Secondary $\alpha = .72$). Although the LSRP was designed with the purpose of capturing content assessed by the PCL-R, the Primary ($M = 32.95, SD = 8.06$) and Secondary ($M =$

23.04, $SD = 5.26$) scales did not as strongly relate to Factor 1 ($r = .23, p < .001$) and Factor 2 ratings ($r = .29, p < .001$), respectively, as might be expected from the original conceptualization. In fact, LSRP Primary actually converged more strongly with PCL-R Factor 2 ($r = .29, p < .011$), to the same degree as the Secondary scale. This observation raises concerns about the construct validity and interpretation of LSRP scores in the present sample. Findings from proposed analyses concerning this instrument are reported, but should be regarded with caution and are not heavily emphasized or relied upon in study conclusions.

Multidimensional Personality Questionnaire – Harm Avoidance (MPQ-HA).

The Harm Avoidance scale is a 28-item primary trait dimension of the MPQ (Tellegen, 1982) that provides a reverse measure of the fearlessness construct described in Lykken's (1995) theory of primary psychopathy. Higher scores are indicative of a preference for safe activities and experiences, even if they are monotonous, and also represent an aversion to dangerous situations and risk taking. Respondents rate most items as either *true* (1) or *false* (0). Reliability in the present sample was $\alpha = .86$ ($M = 16.50, SD = 6.17$).

Behavioral Inhibition System (BIS) and Behavioral Activation System (BAS)

Scales. The BIS/BAS (Carver & White, 1994) is a 24-item measure developed to capture constructs from Gray's (1987) theory of reinforcement sensitivity that have previously been associated with psychopathic personality (e.g., poor inhibition, heightened activation; Fowles, 1980; Lykken, 1995). The 7-item BIS scale ($\alpha = .75; M = 15.03, SD = 3.63$) assesses avoidance of aversive experiences. In contrast, there are three BAS

subscales assessing individual differences in appetitive motivation: Drive (4 items; $\alpha = .85$; $M = 7.84$, $SD = 2.72$); Fun Seeking (4 items; $\alpha = .78$; $M = 7.82$, $SD = 2.54$); and Reward Responsiveness (5 items; $\alpha = .75$; $M = 6.99$, $SD = 2.45$). Items are rated on a 4-point scale as *very true* (1), *somewhat true* (2), *somewhat false* (3), or *very false* (4).

Barratt Impulsiveness Scale – Version 11 (BIS-11). The BIS-11 (Patton, Stanford, & Barratt, 1995) is a commonly used self-report questionnaire designed to assess impulsivity through 30 items describing relevant behaviors and personality characteristics. Items are rated on a 4-point scale as *rarely/never* (1), *occasionally* (2), *often* (3), or *almost always/always* (4). Factor analyses suggest that the instrument contains three independent dimensions of impulsivity: difficulties with focus and vigilance (Attention); disregarding future consequences (Non-planning); and struggling to constrain activity (Motor). Collectively, these dimensions combine to represent a total impulsivity score ($\alpha = .86$; $M = 72.14$, $SD = 12.27$).

Child Abuse and Trauma Scale (CATS). The CATS (Sanders & Becker-Lausen, 1995) is a 38-item self-report measure of the frequency of various types of abuse and trauma experienced during childhood and adolescence. Items are rated on a 5-point scale from *never* (1) to *always* (5) and produce a total score ($\alpha = .95$; $M = 86.45$, $SD = 29.03$) in addition to three subscales: Neglect (14 items; $M = 34.60$, $SD = 13.27$), Sexual Abuse (6 items; $M = 8.53$, $SD = 4.19$), and Punishment (6 items; $M = 16.00$, $SD = 4.32$).

Previous findings suggest the CATS demonstrates concurrent validity with measures of dissociation, depression, interpersonal dysfunction, and anxiety (Kent & Waller, 1998; Sanders & Becker-Lausen, 1995).

Dissociative Experiences Scale – Version II (DES-II). The DES-II (Carlson & Putnam, 1993) is a 28-item self-report screening measure concerning the frequency of dissociative experiences. The instrument contains three factors assessing symptoms of memory dysfunction (Amnesia), experiences of unreality or detachment (Depersonalization/Derealization), and excessive preoccupation that interferes with outside awareness (Absorption). Respondents indicate the percentage of time each experience occurs on a scale from 0% (*Never*) to 100% (*Always*) in ten unit increments. These responses are aggregated into a total score ($\alpha = .93$; $M = 51.69$, $SD = 37.81$).

GoNoGo Task (GNG). The GoNoGo Task (Newman & Kosson, 1986) was administered using a laptop computer to assess difficulties with passive avoidance learning (i.e., abstaining from a response to avoid a punishing or aversive stimulus). Participants completed forty learning trials by pressing or refraining from pressing a button as a stimulus was presented on the computer monitor. The learning objective was to discriminate which four (of eight) 2-digit numbers yielded a reward following a response (earning \$0.10) and which were instead associated with punishment (loss of \$0.10). The key dependent measure was the frequency of commission errors (responding to a punished number) during a second block of forty trials.

Criminal Recidivism. The post-release arrest records for participants from substance abuse treatment facilities and those released from prison during the course of the study ($n = 1,073$) were obtained from the National Crime Information Center. These records consist of criminal offenses reported by divisions of law enforcement from every state to the U.S. Federal Bureau of Investigation. For each participant, the number and

types of offenses were retrieved and two dichotomous variables were coded indicating whether during a one-year follow-up period the individual had been arrested for any offense and whether he or she had been arrested for any violent offense (i.e., murder, manslaughter, assault, robbery, rape, sexual assault). The base rate for general recidivism was 40.6% and the base rate for violent recidivism was only 3.8%.

Institutional Misconduct. For a subsample of prison inmates ($n = 356$) newly admitted at the time of study recruitment, disciplinary records were obtained from participants' respective institutions after a one-year follow-up period. Documented instances of misconduct were coded into three hierarchical outcome variables: (a) general infractions of any type (e.g., possession of contraband); (b) aggressive infractions (including both verbal and physical aggression); and (c) physically violent infractions (e.g., assault or use of a deadly weapon). Given the relative infrequency of disciplinary infractions over the course of the study, these variables were dichotomized as either *no infractions* or *one or more infractions*. Over the follow-up period, 41.6% of the sample were written-up for at least one general infraction and 25.8% for at least one aggressive infraction. The base rate for violent infractions, however, was only 5.6%.

Treatment-Related Outcomes. For a subsample of participants undergoing court-ordered substance abuse treatment ($n = 331$), information concerning behavior and progress during treatment was prospectively gathered through a standardized review of institutional records and post-discharge interviews with participants' primary therapists (see Magyar et al., 2011). Therapists provided judgments regarding treatment response and outcomes (e.g., success or failure) based on standardized questions and quantitative

rating scales administered by research assistants. General noncompliance, including both aggressive and nonaggressive behavior (e.g., gambling, lying to a staff member, stealing), was coded dichotomously as *no infractions* or *one or more infractions* according to incidents reported by the treatment agency or described in participant progress notes. Similarly, aggressive misbehavior was operationalized separately as the presence or absence of incidents reflecting either verbal (e.g., threatening language) or physical (e.g., assaulting a staff member, use of a weapon) aggression. The base rates for these behaviors were 48.9% for general noncompliance and 17.2% for specifically aggressive infractions.

To assess disruptive or countertherapeutic behavior that occurred during the course of treatment, participants' therapists rated the frequency of necessary confrontations or dismissals from group meetings and other therapeutic activities as *never*, *rarely*, *occasionally*, or *often*. These response options were dichotomized as *never/rarely* and *occasionally/often* due to the infrequency of recurrent disruptive behavior (25.4%). Therapists further indicated the extent of each participant's illicit drug use during the course of treatment using a 3-point scale of *no suspected or confirmed drug use*, *suspected drug use but not confirmed via tests/screens*, or *confirmed drug use*. Ratings of *confirmed drug use* may have been based on, for example, positive urine analysis, as residents at these treatment facilities were routinely tested for illicit substances. Given the infrequency of suspected and confirmed drug use in the present sample (18.7%), these two responses were combined into one category.

Finally, therapists provided subjective assessments of each participant's cumulative treatment progress, which was categorized as either *failed treatment or made minimal gains* or *achieved substantial gains or succeeded in treatment*. In addition, treatment progress was assessed objectively using agency records documenting the status of each participant over the course of treatment. This rating was determined on the basis of whether or not a participant had successfully advanced to the highest level of the standardized multi-tiered system used across treatment programs. The base rates for success in treatment were 44.1% for subjective ratings and 34.4% for objective ratings.

Procedure

Participants meeting preliminary inclusion criteria were randomly selected for enrollment at each site. Following a description of the study, participants provided informed consent according to procedures approved by university institutional review boards. Next, a brief screening measure of intelligence was administered (Quick Test; Ammons & Ammons, 1962). Participants meeting eligibility criteria then completed study measures, including administration of self-report measures and diagnostic interviews. The PAI was individually administered as a paper-and-pencil measure in a quiet, private room at each facility where data collection took place. Structured and semi-structured interviews were conducted by trained clinical psychology graduate student research assistants, who provided ratings on these study measures based on participants' responses as well as information obtained from reviewing individual institutional records. The remaining self-report and objective measures were completed using a software program on a laptop computer.

For a minority of participants demonstrating difficulty with reading comprehension ($n = 44$), self-report measures were read aloud by research assistants. On average, completion of the study required 4.5 hours in-person (typically over two sessions). Compensation of \$20 was provided to participants at all but one facility where reimbursement was not permitted.

RESULTS

Preliminary Analyses

Table 1 presents descriptive statistics for the 25 *DSM-5* AMPD pathological traits and the Global Severity Level (Criterion A), which were estimated from participant scale and subscale scores on the PAI using previously developed regression-based algorithms. Mean trait facet scores ranged from .50 (Depressivity) to 1.78 (Risk Taking), with a median of 1.21 on the 0 – 3 rating scale. To provide a frame of reference, scores from the offender sample were compared to those of the census-matched community and clinical normative samples of the PAI, which were previously calculated and reported by Busch and colleagues (2017). The effect sizes (Cohen's *d*) from these comparisons suggest that, relative to individuals in the general community, participants from the offender sample were higher in most pathological personality traits, on average (median $d = .80$). This was particularly true for traits from the domains of Antagonism (Manipulativeness, Deceitfulness, Callousness, Attention Seeking) and Disinhibition (Irresponsibility, Impulsivity, Risk Taking), as well as for Suspiciousness ($ds > 1.00$).

Participant scores on AMPD dimensions generally aligned more closely to those from the clinical normative sample (median $d = .18$). However, relative elevations in Antagonism (Manipulativeness, Deceitfulness, Callousness, Attention Seeking, Grandiosity) and Disinhibition (Irresponsibility, Impulsivity, and Risk Taking) remained apparent ($ds > .50$). Additionally, participants were moderately lower in Submissiveness and Depressivity ($ds < -.50$) compared with their counterparts in clinical settings. Overall, the mean severity of problems in personality functioning was substantially

greater among offenders in comparison with the community sample ($d = 1.19$), but virtually indistinguishable from that observed for the clinical sample ($d = .01$).

The regression-based algorithms developed by Busch et al. (2017) do not extend to estimating domain scores. However, there are two available approaches to calculating scores for these higher-order constructs using trait facet score estimates. First, domain scores may be computed according to the scoring procedures of the PID-5 (i.e., summing and then averaging the three facet scores that most strongly contribute to a specific domain). Second, domain scores may be computed according to the hierarchical organization of traits provided by the *DSM-5* AMPD (i.e., averaging across all facet scores that comprise a specific domain), although some facets contribute to more than one domain using this procedure. Table 2 includes descriptive statistics for estimates of the five domain scores using both approaches, which appear to produce equivalent means (maximum absolute difference = .17), reasonably close standard deviations (maximum absolute difference = .16), and high correlations between corresponding scores ($r_s = .93 - 1.00$, $p_s < .01$). Of note, because Psychoticism contains only three facets, the PID-5 and *DSM-5* AMPD scoring procedures for this domain produce identical scores. Given this congruence and to facilitate more interpretable comparisons with research on the PID-5, the remaining study analyses were conducted using domain scores computed according to PID-5 scoring procedures.

There is also a third approach for calculating domain scores that was recently developed by Ruiz et al. (2018), which reconfigures individual items on the PAI into five non-overlapping scales representing the *DSM-5* AMPD domains. For the present

sample, reliability across these scales was acceptable (Cronbach's $\alpha = .79 - .90$). The estimates computed from this approach (Table 2) were largely consistent with those obtained by the PID-5 procedure of averaging regression-based facet scores, both in a relative ($r_s = .80 - .92, p_s < .01$) and absolute sense, with the exception of a sizeable mean difference observed for Psychoticism ($\Delta M = .52, d = 2.06$).

Exploratory Structural Equation Modeling. To understand the generalizability of previous support for the five-factor structure of PAI-estimated *DSM-5* pathological trait scores, exploratory structural equation modeling was conducted in Mplus Version 7.11 (Muthén & Muthén, 2013). This involved a principal axis factoring of the 25 trait facet estimates with a varimax rotation. Table 3 displays the pattern of loadings from the five-factor solution, which reasonably aligns with the *DSM-5* AMPD five-factor organization of pathological traits. The facets thought to most strongly contribute to each domain according to the PID-5 were generally consistent with the rank-ordering of factor loadings in the present offender sample. The most glaring deviation from expectations was for Distractibility, which had a much higher loading on Negative Affectivity (.78) than on its hypothesized higher-order domain of Disinhibition (.34). It is also worth noting that Distractibility is one of the three facets contributing to the Disinhibition domain score on the PID-5, whereas Risk Taking does not contribute to the domain score, yet demonstrated a sizeable factor loading (.94) on Disinhibition in the offender sample.

Tucker coefficients of congruence are provided in Table 3 to quantify the extent of agreement between factor loadings from PAI-estimated facet scores and those from

scores on the PID-5 in the derivation sample (Krueger et al., 2012). For Antagonism and Psychoticism, the congruence coefficients (.90 and .94, respectively) suggested fair similarity between corresponding factors (.85 - .94; Lorenzo-Seva & ten Berge, 2006), whereas the congruence coefficients for Negative Affectivity, Detachment, and Disinhibition fell below this interpretive threshold (.79 - .83). However, a Procrustean rotation to the Krueger et al. (2012) solution yielded five factors with congruence coefficients ranging from .87 to .92. The strength of similarity observed in these analyses exceeds the 99% confidence interval for replication according to distribution statistics provided by Paunonen (1997). Consistent with findings from Busch et al. (2017) using a community sample, these results suggest satisfactory cross-instrument and cross-sample congruence between the five-factor structure of AMPD trait facet scores estimated from the PAI and the five-factor structure of the PID-5. Despite this, there are potential concerns about the organization and scoring of domains when measuring Disinhibition in a criminal justice population.

Discriminant Validity of DSM-5 AMPD Domain Scores. Researchers have previously commented on issues with the discriminant validity of the PID-5 (e.g., Crego et al., 2015; Hopwood et al., 2013; see Al-Dajani et al., 2016 for review). Although promising convergent and discriminant validity was found for the Section III pathological trait facets when examining correlations between the PID-5 and PAI measurement approaches (Busch et al., 2017), the developers of the PAI algorithm-based scoring procedures acknowledged that there is appreciable overlap among the scales and subscales contributing to the 25 trait facet scores. This overlap may be particularly

apparent from the inter-correlations of domain scores (Table 4), which were moderate to large ($r_s = .34 - .70$, $p_s < .01$, median $r = .59$) and generally mirror previous findings for the PID-5 domains ($r_s = .32 - .63$, Anderson et al., 2013; $r_s = .17 - .76$, Crego et al., 2015; $r_s = .28 - .73$, Kelley et al., 2018). The use of an item reconfiguration approach to arrive at PAI-estimated domain scores generally yielded smaller inter-correlations, particularly for associations with Detachment.

Comparison of PAI ANT and DSM-5 Section III ASPD/Psychopathy

The above findings suggest that the algorithms developed by Busch et al. (2017) can be applied to PAI scores in an offender sample as a reasonable alternative to measuring *DSM-5* AMPD pathological traits with the PID-5. Given that this approach appears to be sufficiently supported for estimating participants' standing on AMPD constructs, analyses were next conducted to investigate the extent to which pathological trait configurations might improve upon PAI ANT in capturing antisocial personality disorder (ASPD) and/or psychopathic personality features. Total scores for *DSM-5* Section III ASPD were computed by summing values for the seven pathological trait facets assigned to this diagnosis (Manipulativeness, Deceitfulness, Callousness, Hostility, Irresponsibility, Impulsivity, and Risk Taking; $M = 9.02$, $SD = 2.79$). Total scores for the *DSM-5* Section III psychopathy specifier were computed by summing values for the three pathological trait facets comprising this designation (Low Anxiousness, Low Withdrawal, Attention Seeking; $M = 4.97$, $SD = 1.03$). Finally, Section III ASPD and psychopathy specifier scores were summed to create a variable representing *DSM-5* Section III Total Psychopathy ($M = 13.99$, $SD = 2.81$). For

conciseness, scores assessing *DSM-5* Section III/AMPD constructs are subsequently referred to as “*DSM-5*” measures.

To begin with, PAI ANT was highly correlated with *DSM-5* ASPD ($r = .91, p < .001$) and Total Psychopathy ($r = .90, p < .001$), although entirely unrelated to the psychopathy specifier alone ($r = .00, p = .92$). *DSM-5* ASPD demonstrated a slight negative association with the psychopathy specifier ($r = -.17, p < .001$). Table 5 provides a comparison of PAI ANT and *DSM-5* ASPD/Psychopathy and their associations with self-report and interview-based measures of antisocial and psychopathic features. Given that null hypothesis testing was strongly influenced by the large sample size of the study, the presentation of findings emphasizes effect sizes of medium strength or greater ($|r| \geq .30$). Broadly speaking, convergent validity findings were consistent with expectations: PAI ANT and *DSM-5* ASPD demonstrated strong relationships with SCID-II ASPD symptoms counts, global psychopathy, and social deviance (PPI-II/LSRP Secondary/PCL-R Factor 2), whereas the psychopathy specifier was most highly associated with PPI Fearless Dominance and manifested negligible or negative correlations with measures of maladaptive behavioral functioning (PPI-II/LSRP Secondary/PCL-R Factor 2).

In addition to bivariate correlation coefficients, Table 5 reports predicted residual sum of squares (PRESS) correlations, which provide an estimate of predictive power corrected for potential model overfitting (Stevens, 2002). The PRESS correlation coefficients are based on a “leave-one-out” statistical procedure in which, for each participant, data from every case is included in the model with the exception of the

participant whose score is being predicted. This analysis thus provides a means of estimating the generalizability of convergent validity values in a cross-validation sample. Overall, there was negligible shrinkage of effect sizes in PRESS cross-validation, although there were a few modest differences in non-significant associations between the psychopathy specifier and criterion measures.

Next, Steiger's *t*-tests for dependent correlations were used to compare bivariate correlations for PAI ANT and *DSM-5* ASPD/Psychopathy with other assessments of antisocial and psychopathic features. Relative to PAI ANT, *DSM-5* ASPD was more strongly associated with PPI Total, Impulsive Antisociality, and LSRP Primary and Secondary, but demonstrated significantly weaker correlations with PPI Fearless Dominance, PCL-R Lifestyle and MPQ-HA. Comparisons between PAI ANT and the *DSM-5* psychopathy specifier revealed a number of contrasting associations with criterion measures. Expectedly, the correlation between the *DSM-5* psychopathy specifier and PPI Fearless Dominance was much stronger. However, in direct opposition to PAI ANT, the *DSM-5* psychopathy specifier was significantly *negatively* correlated with Impulsive Antisociality and LSRP Secondary. The psychopathy specifier also demonstrated significantly weaker correlations with PPI Total, LSRP Primary, PCL-R Total, PCL-R Factor 2, PCL-R Lifestyle, PCL-R Antisocial, SCID-II ASPD, and MPQ-HA relative to PAI ANT.

In comparison with PAI ANT, the combined scores for *DSM-5* ASPD and Psychopathy were significantly more associated with PPI Total, PPI Fearless Dominance, PPI Coldheartedness, LSRP Primary, PCL-R Total, PCL-R Factor 1, PCL-R

Interpersonal, PCL-R Affective, and PCL-R Antisocial. PAI ANT did, however, correlate more strongly with PCL-R Lifestyle and MPQ-HA, which speaks to the emphasis of PAI ANT subscales on sensation-seeking and disregard for responsibility in relationships and in general.

Table 6 provides a comparison of PAI ANT and *DSM-5* ASPD/ Psychopathy in prospectively predicting institutional misconduct, recidivism, and substance use treatment conduct and progress. Findings from Receiver Operating Characteristic (ROC) curve analyses indicated that PAI ANT, *DSM-5* ASPD, and *DSM-5* Total Psychopathy significantly predicted whether participants were written-up for one or more general disciplinary infractions in the context of incarceration during the follow-up period. This pattern of predictive ability remained when examining the more specific outcome measure of one or more aggressive disciplinary infractions. Within a treatment setting, PAI ANT, *DSM-5* ASPD and *DSM-5* Total Psychopathy did not prospectively predict general noncompliance with expectations, although each of these scores was significantly predictive of aggressive misconduct and disruptive behavior during therapeutic activities. Interestingly, participants with higher scores on PAI ANT, *DSM-5* ASPD, and *DSM-5* Total Psychopathy were more likely to engage in treatment successfully based on subjective ratings, although only PAI ANT demonstrated significant positive predictive validity for objective ratings of treatment success. The psychopathy specifier exclusively distinguished whether or not participants were arrested for a general offense during the follow-up period. Neither PAI ANT nor any

measure of *DSM-5* ASPD/Psychopathy was significantly related to future institutional or post-release violence, or to suspected drug use while in treatment.

Comparison of ROC curves was conducted with MedCalc v.18.2.1 software using the methodology developed by DeLong, DeLong, and Clarke-Pearson (1988). These analyses (Table 6) revealed no significant differences in AUC values between PAI ANT and any measure of *DSM-5* ASPD/Psychopathy for the majority of criterion variables. The exceptions were that *DSM-5* Total Psychopathy was significantly more predictive of aggression in treatment settings relative to PAI ANT, and that PAI ANT was significantly more predictive of disruptive behavior during therapeutic activity relative to the *DSM-5* psychopathy specifier.

Next, a series of hierarchical linear regression analyses were conducted to determine whether *DSM-5* ASPD/Psychopathy scores added incrementally beyond PAI ANT in predicting total and factor scores on extant measures of psychopathic personality (Table 7). For each analysis, PAI ANT was entered as a predictor in the first step, *DSM-5* ASPD in the second step, and *DSM-5* psychopathy specifier scores in the third step. Results showed that *DSM-5* ASPD contributed to significant incremental validity in the prediction of total and factor scores on the PPI, LSRP, and PCL-R, with the exception of the interpersonal/affective domain (Factor 1) of the PCL-R. This augmentation was especially apparent with respect to PPI Impulsive Antisociality and LSRP Secondary. For each analysis the *DSM-5* psychopathy specifier explained a significant amount of unique variance above and beyond PAI ANT and *DSM-5* ASPD in predicting psychopathy scores. The psychopathy specifier particularly added to the prediction of

PPI Fearless Dominance, which expectedly reflects the overlapping emphasis of these measures on quasi-adaptive components of psychopathy that are not well captured by PAI ANT or *DSM-5* ASPD.

Table 8 summarizes findings from the extension of these hierarchical linear regression analyses to predicting structured interview and self-report ratings of exclusively antisocial personality features. These results indicated a slight incremental contribution of *DSM-5* ASPD to predictions of SCID-II ASPD symptom counts beyond PAI ANT. There was also evidence for significant, albeit weak, augmentation in predicting MPQ-HA with the addition of *DSM-5* ASPD. Notably, *DSM-5* ASPD evidenced a sign reversal when examining unique predictive power, indicating a positive association with concern for safety in opposition to the negative contribution of PAI ANT. The *DSM-5* psychopathy specifier did not significantly increment these predictions, as would be expected given the distinctiveness of these features from the core antagonism and impulsivity of ASPD.

Finally, hierarchical binary logistic regression analyses were conducted examining the incremental validity of *DSM-5* ASPD/Psychopathy in relation to future misconduct and treatment compliance. Of the prospective behavioral outcome variables in the study, only those significantly predicted by PAI ANT in ROC analyses were considered for examination of incremental validity. As can be seen in Table 8, neither *DSM-5* ASPD nor the psychopathy specifier demonstrated significant incremental utility beyond PAI ANT in predicting general or aggressive misconduct during the period of follow-up. Additionally, *DSM-5* ratings did not improve predictions of subjective or

objective treatment success. However, *DSM-5* ASPD demonstrated incremental validity in prospectively predicting aggressive conduct and disruptive behavior in the residential treatment program. The *DSM-5* psychopathy specifier further augmented predictions of aggressive behavior in this setting.

Comparison of *DSM-5* ASPD, Psychopathic, and Additional Trait Facets

Psychopathic Features. The associations between *DSM-5* pathological trait facets and measures of psychopathic features are presented in Table 9. These analyses focused on the *DSM-5* traits that are most conceptually and empirically relevant to the constructs of ASPD and/or psychopathy, including (1) those assigned to a *DSM-5* diagnosis of ASPD according to the Section III hybrid approach, (2) those comprising the psychopathy specifier, and (3) those that potentially capture the construct according to some existing theory and research, but are not currently considered to be defining features of psychopathy by the *DSM-5* AMPD.

The seven pathological traits defining *DSM-5* ASPD were moderately to strongly associated with self-reported global psychopathy (PPI Total), Impulsive Antisociality, LSRP Primary and Secondary scales, and PCL-R Factor 2, Lifestyle, and Antisocial. However, *DSM-5* ASPD traits were not highly associated with PPI Fearless Dominance, with the exception of moderate positive correlations observed for Manipulativeness and Risk-Taking. Similarly, only small associations emerged between *DSM-5* ASPD traits and PCL-R ratings of interpersonal and affective deficits, predominantly for the Manipulativeness, Callousness, and Deceitfulness facets of Antagonism.

Although the AMPD conceptualization of psychopathy assigns *Low Anxiousness* and *Low Withdrawal* to the specifier, these two dimensions demonstrated relatively weak associations with total psychopathy scores. Further examination shows this finding to be the product of diverging associations with individual factors of psychopathy assessment instruments. In particular, Anxiousness and Withdrawal were negatively associated with PPI Fearless Dominance to a moderate degree, but were positively associated with PPI Impulsive Antisociality and LSRP Secondary at similar magnitudes. Consistent with expectations, Anxiousness was inversely related to PPI Coldheartedness and, to a lesser extent, the Interpersonal and Affective ratings of the PCL-R. To the contrary, Withdrawal was somewhat positively related to the interpersonal and affective deficits of psychopathy, demonstrating small correlations with PPI Coldheartedness and LSRP Primary, yet also correlating modestly with PCL-R Factor 2. The third trait facet of the psychopathy specifier, Attention-Seeking, showed small to moderate positive correlations with each criterion measure of psychopathy except for PPI Coldheartedness for which there was instead a modest negative association.

The relevance of certain other AMPD pathological traits to the psychopathy construct was supported by evidence of significant bivariate associations with most criterion measures. Indeed, a number of these effect sizes were equivalent to or exceeded corresponding values observed for the three trait facets assigned to the *DSM-5* psychopathy specifier. First, Submissiveness was, perhaps not surprisingly, moderately and negatively associated with PPI Fearless Dominance. To a lesser extent, Submissiveness scores also negatively related to PPI Coldheartedness and the majority

of PCL-R ratings, including total scores, Factor 1, Factor 2, and the Interpersonal, Affective, and Antisocial facets. Interestingly, participants describing themselves as more submissive tended to self-report greater impulsivity and antisocial features on PPI Impulsive Antisociality and LSRP Secondary. Restricted Affectivity emerged as moderately related to PPI total scores and modestly related to global PCL-R ratings. With respect to factor scores, this dimension was moderately associated with PPI Impulsive Antisociality, PPI Coldheartedness, and LSRP Primary and Secondary. Notably, Restricted Affectivity was not substantially related to the potentially adaptive components of psychopathy as measured by PPI Fearless Dominance and PCL-R Interpersonal ratings.

Grandiosity demonstrated a rather widespread pattern of associations, correlating moderately with PPI Total, Fearless Dominance, and Impulsive Antisociality, though not with Coldheartedness. Grandiosity was also significantly related to each facet of the PCL-R, as well as the factor and total scores. In fact, of the seven pathological traits examined as potentially distinguishing features of psychopathy, Grandiosity was most highly associated with PCL-R Total. This trait dimension also showed the strongest correlation with PCL-R Factor 1 ratings of any of the AMPD facets considered relevant to antisocial or psychopathic personality. Correlations with the PPI Fearless Dominance and Impulsive Antisociality were rather uniform, as were those with PCL-R Factors 1 and 2. However, Grandiosity was more highly associated with interpersonal/affective (Primary) than with impulsive/antisocial (Secondary) psychopathic features when these were assessed using the LSRP. Lastly, Distractibility emerged as a strong correlate of

PPI Impulsive Antisociality and LSRP Secondary. With respect to the PCL-R, Distractibility was most related to the Lifestyle facet, although only modestly. Significant and positive correlations of meaningful size were also observed with PPI Total and LSRP Primary. This dimension was negatively associated with PPI Fearless Dominance to a similarly moderate degree.

Overall, these select AMPD pathological traits were more strongly related to self-reported psychopathy (PPI and LSRP) than to the interview-based measure of psychopathic traits (PCL-R). Across approaches, facets of *DSM-5* ASPD were preferentially associated with the impulsive and antisocial features of psychopathy, whereas the three psychopathy specifier traits, as well as four other potentially relevant AMPD traits, appeared to more consistently capture the interpersonal and affective components of psychopathy, including characteristics such as fearlessness and interpersonal dominance that may manifest as adaptive functioning. The potential incremental utility of individual psychopathy specifier traits and of additional traits is returned to in further analyses below.

Antisocial Features. Table 10 summarizes associations between select *DSM-5* AMPD trait facets and measures of antisocial personality features, including ASPD adult symptom counts from SCID-II ratings and self-reported MPQ-HA. Each *DSM-5* ASPD trait was moderately associated with interview-based ratings of diagnostic criteria. Higher scores on these dimensions also corresponded to less regard for personal safety, with Impulsivity and Risk Taking demonstrating the strongest negative associations with MPQ-HA. The psychopathy specifier traits were relatively weaker predictors of ASPD

symptoms counts and only Attention-Seeking emerged as significantly and negatively related to MPQ-HA. Three of the four additional trait facets with potential relevance to antisocial and/or psychopathic personality were associated with SCID-II and MPQ-HA ratings in a manner comparable to that of Attention-Seeking, and convergence was actually stronger in the case of Restricted Affectivity and MPQ-HA. Notably, Submissiveness was not significantly associated with either ASPD symptom counts or MPQ-HA.

Recidivism and Institutional Misconduct. Table 11 presents the results of ROC curve analyses investigating the validity of select AMPD trait facets in prospectively predicting institutional misconduct and recidivism. As can be seen, each trait facet assigned to *DSM-5* ASPD significantly predicted the occurrence of one or more general disciplinary infractions over the follow-up period. However, when examining aggressive infractions only Manipulativeness, Hostility, and Callousness emerged as significant predictors. No *DSM-5* ASPD trait facet was individually a significant predictor of violent infractions or general recidivism, and Hostility was the only trait facet significantly differentiating participants who were and were not rearrested for one or more violent offenses over the follow-up period.

The trait facets comprising the *DSM-5* psychopathy specifier were not generally predictive of institutional misconduct or recidivism. Similar to the ASPD traits facets, Attention-Seeking significantly predicted the presence of a documented general infraction. Unlike the ASPD trait facets, however, Attention-Seeking was also a significant predictor of general recidivism. The other trait facets considered in

association with psychopathy were relatively more useful in prospectively predicting rule-breaking, aggressive, and even violent behaviors. The results of these analyses indicated that general reoffending was more likely among participants reporting lower Submissiveness and violent reoffending more likely among those lower in Distractibility. Restricted Affectivity and Grandiosity significantly predicted general and aggressive disciplinary infractions, with Grandiosity additionally differentiating participants arrested for general offenses over the follow-up period, as well as those arrested for violent offenses.

Treatment-Related Outcomes. The results of ROC curve analyses investigating the predictive validity of select AMPD trait facets for treatment compliance and progress are provided in Table 12. The vast majority of *DSM-5* ASPD trait facets were significantly predictive of subjective treatment success, aggression, and disruptive behaviors. Hostility, Callousness, and Risk Taking were distinguished as the only significant predictors of general noncompliance. Interestingly, this pattern of generality and specificity is the reverse of above findings concerning general and aggressive institutional misconduct outside of treatment. Few significant AUC values were observed in analyses of the remaining trait facets associated with psychopathy. Categories of subjective treatment success were significant predicted by Anxiousness and Attention-Seeking, and both Attention Seeking and Grandiosity were significantly predictive of aggression. Greater utility was observed for predicting disruptive behaviors, with Withdrawal, Restricted Affectivity, Grandiosity, and Distractibility each obtaining a significant AUC value. None of the trait facets included in these analyses

demonstrated the ability to significantly predict objective treatment success or suspected drug use.

Incremental Validity of *DSM-5* Psychopathy and Additional Trait Facets

Next, a series of hierarchical linear regression analyses were conducted to assess the unique association of AMPD traits with criterion variables as well as the potential incremental validity of the *DSM-5* psychopathy specifier traits and additional facets with potential relevance to the psychopathy designation. Table 13 summarizes the results of these analyses for predictions of PPI, LSRP, and PCL-R total and factor scores. For each analysis, the seven *DSM-5* ASPD traits were entered as predictors in the first step, the three *DSM-5* psychopathy specifier traits in the second step, and the four additional pathological trait facets in the third step.

Consistent with above findings in this study, the psychopathy specifier traits collectively demonstrated significant incremental utility in predicting total and factor scores across psychopathy measures. Findings provided mixed support for the individual trait facets comprising this designation. Anxiousness emerged as a significant positive predictor of PPI Impulsive Antisociality and LSRP Secondary, and a significant negative predictor of PCL-R Total, PPI Fearless Dominance, PCL-R Factor 1, and, interestingly, PCL-R Factor 2. Similarly, Attention Seeking added incrementally to the prediction of PCL-R Total, LSRP Total, PPI Fearless Dominance, LSRP Primary, PCL-R Factor 1, and PCL-R Factor 2, although the standardized regression coefficients for LSRP scores were actually negative. Withdrawal was not found to aid in predicting any total or factor psychopathy scores.

Following this, analyses assessed whether certain additional facets could add to the prediction of psychopathy total and facet scores, as hypothesized based on previous studies. Lower Submissiveness was predictive of PPI Total, PCL-R Total, PPI Fearless Dominance, PCL-R Factor 1, and PCL-R Factor 2. Grandiosity also improved predictive validity with respect to PPI Total, Fearless Dominance, and Impulsive Antisociality, PCL-R Factor 1, and, in opposing directions, LSRP Primary and Secondary. The addition of Restricted Affectivity, however, was only found to augment predictions of PPI Total and Fearless Dominance. Likewise, Distractibility was not well-supported as a distinguishing component of psychopathy, demonstrating incremental utility for only LSRP Total and Secondary.

Table 14 summarizes results from a second series of hierarchical linear regression analyses assessing the unique association and potential incremental utility of *DSM-5* pathological traits in predicting features of antisocial personality. Looking at the first step, these analyses indicate that Callousness was the strongest (and only significant) predictor of SCID-II ASPD symptom counts. Risk Taking, in the negative direction, emerged as the only significant trait facet of ASPD predicting MPQ-HA. The addition of the psychopathy specifier traits significantly improved the prediction of SCID-II ASPD, with Attention Seeking demonstrating a significantly positive contribution. For MPQ-HA, significant incremental variance was attributable to both Attention Seeking and Withdrawal, which were found to have negative unique relationships with these scores. In the final step, support was found for the incremental validity of additional trait facets, namely Grandiosity and Restricted Affectivity, which

both aided in predicting SCID-II ASPD and MPQ-HA as evidenced by significant negative standardized regression coefficients. Low Submissiveness also incrementally added to the prediction of SCID-II ASPD beyond the *DSM-5* ASPD and psychopathy specifier traits.

The final hierarchical binary logistic regression analyses examined the individual and incremental contribution of select *DSM-5* pathological traits in prospectively predicting misconduct and treatment-related outcomes (Table 14). Only outcome variables significantly predicted by more than one facet of *DSM-5* ASPD in ROC curve analyses were selected for these analyses. Despite the variations in AUC values observed above, no individual trait facet emerged as a significant predictor of misconduct or treatment progress in these regressions. Collectively, neither the traits of the psychopathy specifier nor the set of additional traits considered provided incremental utility beyond *DSM-5* ASPD traits in predicting future conduct and compliance, with the exception of a significant improvement in predictions of aggression in a treatment setting with the addition of the psychopathy specifier.

Overall, the results of this investigation highlight the usefulness of AMPD traits beyond those assigned to *DSM-5* ASPD for more comprehensively measuring psychopathic and antisocial features. Moreover, findings suggest that additions to and/or substitutions of the trait facets comprising the psychopathy specifier could potentially improve the construct validity of *DSM-5* AMPD diagnostic criteria.

Convergent and Predictive Validity of *DSM-5* AMPD Domains

The scope of analyses was then broadened to investigate associations between the five pathological trait domains of the AMPD and criterion measures of psychopathy. For each domain, side-by-side findings are presented comparing the algorithm-based PID-5 scoring procedure and the item reconfiguration approach in obtaining domain estimates (Table 15). Consistent with the five-factor model of psychopathy (Miller & Lynam, 2003), the domain most strongly associated with global psychopathy on the PPI and PCL-R was Antagonism, which was also positively correlated with each subscale of the PPI, LSRP, and PCL-R. Additionally, Disinhibition was significantly related to global psychopathy indices and captured a substantial amount of variance in PPI Impulsive Antisociality, LSRP Secondary, and PCL-R Lifestyle ratings.

The remaining AMPD domains demonstrated non-significant to modest relations with to PPI and PCL-R total scores, which, once again, appears to be a consequence of opposing associations at the subscale level. For example, Negative Affectivity was positively associated with PPI Impulsive Antisociality and, to a lesser extent, PCL-R Factor 2, whereas negative correlations were observed with PPI Fearless Dominance and Coldheartedness and PCL-R Factor 1. A similar pattern of contrasting associations between PPI Fearless Dominance and Impulsive Antisociality was present for Detachment, although this domain was not significantly negatively associated with any PCL-R ratings and related positively to PPI Coldheartedness. For Psychoticism, moderately strong positive correlations with PPI Impulsive Antisociality were observed in juxtaposition to weak and modest negative correlations with PPI Fearless Dominance and Coldheartedness, respectively. Table 15 also presents bivariate associations with the

Global Severity Level. Differential correlates emerged here as well; level of personality dysfunction was strongly and positively associated with PPI Impulsive Antisociality and LSRP Secondary, but moderate negative associations were found with PPI Fearless Dominance and Coldheartedness.

For measures of antisocial features, the AMPD domains demonstrated a pattern of associations consistent with those observed above on subscales of psychopathy measures (Table 16). Each domain was significantly and positively associated with SCID-II ASPD symptom counts. Conforming to the Section III conceptualization of ASPD, Antagonism and Disinhibition most strongly corresponded to these ratings. The bivariate correlations with MPQ-HA were not as strong, although Antagonism and Disinhibition were, again, most meaningfully related to these scores. Findings regarding institutional misconduct and recidivism are presented in Table 17. Not surprisingly, Antagonism best predicted general and aggressive disciplinary infractions and was the only domain to significantly differentiate participants who were arrested for any type of reoffending over the follow-up period. Disinhibition, Psychoticism, and Global Severity Level were also significant predictors of general institutional misconduct, although to a slightly weaker degree. Detachment and Psychoticism both demonstrated modest utility in predicting specifically aggressive infractions during confinement, and Psychoticism additionally was the only domain to significantly predict violent recidivism.

Finally, Table 18 summarizes the utility of domains in prospectively predicting treatment compliance and progress. The most robust predictive power was observed with respect to subjective ratings of treatment success and disruptive conduct during

therapeutic activity. Subjective determinations of treatment failure or success were significantly predicted by algorithm- and item-based estimates of Negative Affectivity, Antagonism, Disinhibition, and Psychoticism, as well as by the Global Severity Level. Similarly, disruptive behavior was significantly predicted by algorithm and item-based estimates of Antagonism and Disinhibition and, to a lesser extent, Detachment, Psychoticism and Global Severity Level. Antagonism, Disinhibition, and Psychoticism further emerged as significant predictors of aggression in the treatment setting.

Overall, domains scores obtained using the algorithm-based approach and those obtained using the item-based approach yielded highly similar validity coefficients in terms of direction, significance, and effect size. For example, the absolute value of the differences in correlation coefficients between corresponding domains ranged from 0 to .16, with the median absolute difference in r ranging from .03 for Detachment and Disinhibition to .06 for Psychoticism. Neither approach clearly demonstrated an advantage over the other in capturing variations in personality expression relevant to antisocial or psychopathic personality disorder, or in predicting future behaviors of interest in criminal justice populations.

Convergent Validity of *DSM-5* AMPD Dimensions with Psychological Dysfunction

The final set of analyses took advantage of the availability of self-report questionnaires assessing other constructs associated with psychopathology and dysfunction to further investigate the convergent validity of PAI estimates of AMPD Criterion B dimensions.

Behavioral Regulation. Table 19 summarizes bivariate correlations between estimates of Disinhibition and both self-report and performance-based measures of behavioral regulation. As can be seen, the trait facets comprising the Disinhibition domain were moderately to strongly correlated with self-reported impulsivity (BIS-11), with the exception of Rigid Perfectionism. Notably, there was no differentiation among Irresponsibility, Impulsivity, and Distractibility scores in their association with this measure. Correlations with self-reported inhibitory tendencies (BIS Total) were relatively less strong, although consistently significant. Distractibility emerged as the facet most negatively associated with constraint, whereas Risk Taking surprisingly demonstrated a weak positive correlation with these ratings. Generally speaking, Disinhibition trait facet scores, particularly Risk Taking and Impulsivity, moderately converged with BAS Fun-Seeking and modestly related to BAS Drive. However, facet scores were generally unrelated to BAS Reward-Seeking and to commission errors on the GoNoGo task. The same pattern of findings was observed at the domain level with the algorithm- and item-based estimation approaches producing essentially equivalent effect sizes (maximum discrepancy of $r = .12$ for BIS-11).

Dissociative Experiences. Table 20 displays bivariate correlations between estimates of Psychoticism and self-reported dissociative experiences. Findings indicate that Psychoticism facet and domain scores estimated from PAI responses were rather uniformly associated with DES Total to a significant and moderately strong degree.

Adverse Childhood Events. Bivariate correlations between estimates of Negative Affectivity and self-reported adverse childhood events are reported in Table 21. Overall,

Negative Affectivity domain scores were moderately associated with more severe childhood abuse and trauma. Similarly sizeable correlations were observed across the majority of facets comprising Negative Affectivity, including Depressivity, Separation Insecurity, Anxiousness, Emotional Lability, Suspiciousness, and Hostility. Restricted Affectivity and Submissiveness were only weakly related to CATS Total. The most pronounced relationships between CATS subscales and Negative Affectivity were those for Neglect, although significant and meaningful correlations were also observed between measures of Negative Affectivity and the Abuse and Punishment subscales.

DISCUSSION AND SUMMARY

The present study applied recently developed approaches to assessing the pathological traits of the *DSM-5* alternative model for personality disorders (AMPD) using the Personality Assessment Inventory (PAI) to an existing data set of adult offenders who completed this measure as part of an extensive research battery. This methodology was used to conduct a set of secondary analyses addressing three primary research questions. First, this study investigated the potential utility of the PAI *DSM-5* algorithms and scales as alternatives to the PID-5 in obtaining scores on Section III pathological trait dimensions. This was accomplished by evaluating the generalizability of their psychometric properties to an offender sample, and by providing new evidence of convergence with a range of criterion measures. Second, the current study sought to determine in what ways reconfiguring PAI content into *DSM-5* AMPD concepts might improve clinical utility beyond the existing structure of this instrument, specifically in assessing antisocial personality and psychopathy. Finally, the present research considered whether the proposed psychopathy specifier for Section III ASPD optimally operationalizes the construct by examining the convergent and predictive validity of AMPD trait dimensions that are potentially relevant to psychopathic personality.

Measuring *DSM-5* AMPD Constructs with the PAI

The first goal of this study was to investigate the validity of a recently developed strategy for assessing *DSM-5* AMPD constructs (Busch et al., 2017) that estimates pathological trait facet scores by applying regression-based algorithms to PAI scale and subscale scores. Findings were favorable, suggesting that these algorithms are a

potentially viable substitute for the PID-5 in measuring *DSM-5* AMPD pathological traits. Converging with previous research (Kelley et al., 2018), algorithm-based estimates of pathological personality domains and facets displayed similar psychometric properties to the PID-5 in terms of factor structure, domain inter-correlations, and associations with a range of criterion variables.

First, study findings supported cross-instrument and cross-sample congruence between the five-factor structure of PAI *DSM-5* AMPD estimates and the five-factor structure of the PID-5. The median coefficient of congruence with Krueger et al. (2012) for the present offender sample (.84) was highly consistent with the extent of structural similarity found by Busch et al. (2017) using a community sample (.87), and by Wright et al. (2012) using the PID-5 in an undergraduate sample (.82). Further replicating observations from Busch and colleagues (2017), Distractibility, purportedly a dimension of Disinhibition, actually displayed a much stronger cross loading on the domain of Negative Affectivity. Additionally, the highest loading on Disinhibition was for Risk Taking, which is consistent with the hierarchical organization of the *DSM-5* AMPD but raises concerns about the exclusion of this facet in calculating domain total scores according to PID-5 scoring procedures, at least in forensic and correctional settings.

The developmental research on the PAI *DSM-5* algorithms does not provide statistics concerning the five domains of maladaptive personality. However, the above findings of moderate to large domain inter-correlations are consistent with previous studies pointing out the questionable discriminant validity of the PID-5 (e.g., Anderson et al., 2013; Crego et al., 2015; Hopwood et al., 2013, cf. Bach, Sellbom, & Simonsen,

2017) and replicate the pattern of inter-correlations found when applying the PAI *DSM-5* algorithms in a psychiatric sample (Kelley et al., 2018). Despite providing encouraging evidence of generalizability across different operationalizations and populations, the extent of overlapping content among domains is much higher than is typical of general personality measures (Crego et al., 2015) and presents a challenge for future attempts to refine the organization and measurement of the AMPD.

For the present study, these issues with discriminant validity are perhaps not surprising given the tendency for PAI scales and subscales to each contribute to multiple *DSM-5* pathological trait estimates using the algorithm approach. Although Busch et al. (2017) reported generally good discriminant validity across individual facets, the influence of overlapping content is potentially more conspicuous for aggregate scores representing the higher-order domains. When using the item reconfiguration approach, domain scores were generally less overlapping, particularly for associations with Detachment and with Psychoticism. Overall, however, the two approaches to obtaining domain scores were highly comparable in terms of relative and absolute agreement, as well as associations with criterion measures. There was no definitive pattern in the strength of validity coefficients to suggest a sweeping advantage of one approach over the other, perhaps with the exception of scoring Psychoticism, which warrants further consideration.

Consistent with hypotheses, *DSM-5* Psychoticism and the underlying facets of Unusual Beliefs, Eccentricity, and Perceptual Dysregulation were strongly associated with self-reported dissociative experiences. However, other observations regarding this

domain are concerning, including particularly significant issues with poor discriminant validity, which has been similarly apparent in previous research using the PID-5 (Crego et al., 2015; Hopwood et al., 2013) and PAI *DSM-5* algorithms (Kelley et al., 2018). One possible explanation for these marked associations is that *DSM-5* Psychoticism is inadvertently capturing general experiences of distress. The algorithm-based approach may be especially vulnerable to saturation with widespread dysfunction given that PAI DEP-C, BOR-A, and MAN-G contribute positively to score estimates. Indeed, using the item reconfiguration approach to assess *DSM-5* Psychoticism yields substantially lower mean scores, somewhat improves discriminant validity, and generally attenuates correlations with antisocial and psychopathic features, understandably because the content coverage is more specific to psychotic experiences. These findings suggest that the algorithms for estimating facets of *DSM-5* Psychoticism (which were developed using a college undergraduate sample where psychotic experiences would be relatively rare) may require some adjustments to improve construct validity. Additionally, continuing to evaluate the potential superiority of the item reconfiguration approach may provide a stronger justification for favoring this procedure, at least when computing domain scores.

In addition to factor structure and domain inter-correlations, the convergence of PAI *DSM-5* AMPD pathological trait facets and domains with a variety of study criterion measures aligns with expectations from previous research and theory, including studies using the PID-5. Supportive findings includes significant hypothesized associations with measures of behavioral dysregulation, childhood and adolescent

trauma, and, as mentioned, dissociative experiences. Specifically, domain and facet scores for PAI *DSM-5* Disinhibition were strongly associated with self-reported impulsivity and fun-seeking, and to a more modest degree, with goal motivation and poor inhibitory control. Notably, Rigid Perfectionism was not particularly predictive of these tendencies, especially in comparison with the other four facets constituting Disinhibition. The moderate correlations between Negative Affectivity and the severity of self-reported childhood abuse and trauma similarly conformed to study hypotheses. However, a number of facet scores emerged as correlates of early trauma, particularly experiences of neglect, with only Submissiveness and Restricted Affectivity demonstrating noticeably smaller effect sizes. The observed relationships between PAI *DSM-5* AMPD estimates and measures of antisocial/psychopathic personality and behavior likewise support the validity of this measurement approach, and are discussed further below with particular attention to construct and incremental validity. Finally, it is worth noting that algorithm-based estimates of level of personality functioning (AMPD Criterion A) were positively associated with other measures of maladaptive personality (e.g., impulsive and socially deviant aspects of psychopathy) and predictive of unruly behavior during incarceration and during mandatory treatment for substance use. This finding is consistent with previous assertions that general severity is an important gauge of current and prospective dysfunction (e.g., Hopwood et al., 2011), and suggests the PAI may be a practical means of quantifying transdiagnostic difficulties with self- and interpersonal functioning.

Taken together, study findings indicate that the PAI *DSM-5* algorithms developed by Busch et al. (2017) are a promising substitute for the PID-5 in measuring pathological trait dimensions of the AMPD in forensic and correctional populations. Hopefully the current evidence of validity among offenders, psychiatric patients (Kelley et al., 2018), and community members (Busch et al., 2017) will inspire others to continue expanding the empirical foundation for this approach, as there are a number of potential advantages to its application in research and clinical settings. For example, researchers could apply the PAI *DSM-5* algorithms to existing databases as a convenient way of obtaining new information about clinically-relevant constructs from an AMPD perspective, as was done in the current study. The ability to obtain estimates of *DSM-5* AMPD pathological traits in large and representative archival samples could also aid in establishing normative bases for interpretation, allowing group and individual scores to be placed in a meaningful context. Similarly, the PAI validity scales might improve accurate interpretation of *DSM-5* AMPD estimates by identifying problematic response styles, which threaten the integrity of study data and can contribute to misguided clinical impressions and decision-making (e.g., Benning & Freeman, 2017).

Finally, by measuring these personality constructs alongside other symptoms of psychological disorders, the PAI *DSM-5* algorithms might facilitate the integration of personality into a comprehensive conceptualization of psychopathology. This structural linkage could motivate psychological scientists and clinical practitioners to more intentionally consider the influence of transdiagnostic personality dimensions on different types of psychopathology and to develop a system for applying this information

to case conceptualization and treatment planning. In summary, the *DSM-5* AMPD promises to substantially contribute to our understanding of diagnostic comorbidity, symptom heterogeneity and severity, as well as differential prognosis and response to various interventions. Measuring these constructs using the PAI offers a number of advantages to catalyze advancement and is a compelling area for future research and refinement.

Convergent Validity of *DSM-5* Section III ASPD/Psychopathy

DSM-5 ASPD. *DSM-5* Section III ASPD as a single aggregate score converged with self-report and structured interview ratings of antisocial and psychopathic personality in theoretically consistent ways. This composite demonstrated moderate to strong correlations with SCID-II ASPD symptom counts and with subscales of psychopathy measures that capture behavioral dysregulation and disregard for the standards of society (e.g., PPI Impulsive Antisociality, PCL-R Factor 2). When individually examining the seven trait facets designated as diagnostic criteria for *DSM-5* Section III ASPD, the magnitudes of associations with criterion measures were relatively uniform and generally followed the same pattern of findings observed for the global score. One notable exception was for PPI Fearless Dominance, which was positively and preferentially related to Manipulativeness and Risk Taking. These findings reinforce accumulating research suggesting that the *DSM-5* Section III conceptualization of ASPD provides adequate coverage of Section II ASPD diagnostic criteria and meaningfully relates to relevant components of psychopathy (Anderson et al., 2014; Few et al., 2015; Strickland et al., 2013; Wygant et al., 2016).

DSM-5 Psychopathy Specifier. Likewise, the psychopathy specifier for *DSM-5* Section III ASPD, as a composite score, captured significant variation in aspects of psychopathy that are argued to be important distinguishing features of the construct. The psychopathy specifier strongly converged with PPI Fearless Dominance and appeared protective against the maladaptive features of PPI Impulsive Antisociality and LSRP Secondary. Additionally, this composite score was meaningfully associated with PCL-R Interpersonal ratings. These findings are encouraging given that the trait dimensions assigned to this specifier were intentionally chosen to represent “a lack of anxiety” and “a bold interpersonal style” (APA, 2013, p. 765). However, the functioning of certain individual trait dimensions comprising the specifier raises some concerns.

First, Attention Seeking manifested a wide range of positive associations spanning Fearless Dominance/Factor 1 and Impulsive Antisociality/Factor 2. Like four of the seven traits assigned to *DSM-5* Section III ASPD, this dimension is from the domain of Antagonism and demonstrates a moderate positive correlation with SCID-II symptom counts. The observed lack of *specific* validity for Attention Seeking in measuring the “social potency (assertive/dominant) component of psychopathy” (APA, 2013, p. 765) as professed in *DSM-5* Section III has been similarly observed in studies of psychopathy using the PID-5 (e.g., Anderson et al., 2014, Crego & Widiger, 2014, Strickland et al., 2013, Wygant et al., 2016). Low Withdrawal was significantly associated with PPI Fearless Dominance, but only weakly converged with ratings on PCL-R Interpersonal. In fact, correlations were relatively stronger with PCL-R Factor 2. The potential shortcomings of Withdrawal as a specific psychopathic feature are further

supported by an absence of any unique contribution to total or factor scores on study measures of psychopathy. Here again findings echo previous research with the PID-5 concluding that Withdrawal is a fairly poor proxy for interpersonal dominance (Crego & Widiger, 2014; Wygant et al., 2016). One possible reason for this weak performance concerns the original intention of the facet: to assess avoidance of social activity and disinterest in close relationships. Thus, lower scores on this dimension reflect the absence of interpersonal detachment, but not necessarily the confidence and influence in social situations that would be characteristic of psychopathy.

Low Anxiousness, on the other hand, did demonstrate specific and unique correlations with PPI Fearless Dominance and PCL-R Factor 1. Additionally, this dimension was moderately associated with PPI Coldheartedness, suggesting that such immunity to stress is related to a more general constriction of emotion. Conversely, higher scores on Anxiousness converged with PPI Impulsive Antisociality and LRSP Secondary. This pattern of diverging correlates implies that Low Anxiousness may be particularly useful in identifying the presence of psychopathic features beyond antisocial personality. Research using the PID-5 has likewise supported the appropriateness of assigning this dimension to the specifier by providing evidence of strong and specific relationships with boldness and emotional stability on self-report psychopathy measures (Crego & Widiger, 2014; Wygant et al., 2016). However, there are important implications of relying on reverse keyed items to assess personality constructs that might constrain the validity of the psychopathy specifier when measured using the PID-5 or PAI *DSM-5* algorithms (Crego & Widiger, 2014).

DSM-5 AMPD Domains. Given that the trait facets comprising Section III ASPD are organized under Antagonism and Disinhibition, it is not surprising that these two higher-order domains were the most strongly associated with SCID-II ASPD counts and impulsive/antisocial expressions of psychopathic personality (although each domain at least modestly and sometimes strongly converged with these maladaptive features). Antagonism further emerged as the domain most highly predictive of PCL-R Factor 1 ratings. The preferential associations of Antagonism and Disinhibition with various aspects of psychopathic personality align with previous research linking PSY-5 Aggressiveness and Disconstraint (Wygant & Sellbom, 2012) and well as FFM Low Agreeableness and Low Conscientiousness (Miller & Lynam, 2015) to characteristics of the disorder. Negative Affectivity and Detachment both displayed inverse associations with PPI Fearless Dominance, which is consistent with research on basic personality traits linking FFM Neuroticism and Extraversion to psychopathic dimensions involving emotional stability and boldness (e.g., Miller & Lynam, 2015). The adaptive potential of certain psychopathic characteristics was also reflected in associations of PPI Coldheartedness and PCL-R Factor 1 with lower scores on Negative Affectivity.

Prospective Predictive Validity of *DSM-5* Section III ASPD/Psychopathy

DSM-5 Section III ASPD composite scores were significantly predictive of unruly and aggressive behavior in the context of incarceration and mandatory substance use treatment. When examining the *DSM-5* ASPD trait facets individually, both common and unique contributions to this predictive ability emerged, which across outcome measures suggest that Hostility and Callousness and the particular ingredients of ASPD

that predispose for institutional misconduct. Despite the low frequency of future violence in this sample, Hostility also emerged as a risk factor for committing a violent offense during post-release follow-up.

The majority of the *DSM-5* ASPD trait facets were positively predictive of success in treatment according to perceptions of treatment providers, which is difficult to reconcile with this heightened propensity toward antisocial behavior. One possibility is that participants self-reporting more severe personality pathology were those more willing to acknowledge their shortcomings and develop insight into areas of dysfunction. Or, participants with a greater degree of personality impairment at the outset may have given the impression of more dramatic change. Regardless, it is important to note that these personality dimensions only predicted *subjective* ratings of treatment success, which did not translate to objective success in progressing through stages of the program.

Composite scores for the *DSM-5* psychopathy specifier demonstrated no utility in prospectively predicting institutional adjustment or treatment compliance, with the exception of a slight association with general recidivism. Facet-level analyses demonstrated that this was primarily due to the predictive power of Attention Seeking, which also differentiated participants with respect to general disciplinary infractions in a prison setting, aggression in an involuntarily treatment setting, and subjective ratings of treatment success. The salience of these traits in predicting a variety of problematic behaviors across multiple settings can be framed not only in terms of diagnostic groupings, but also in terms of their organization under the *DSM-5* domains of

personality pathology. That is, Antagonism and, to a lesser extent, Disinhibition were also generally predictive of difficulties with aggressive, disruptive, and rebellious behavior during institutional follow-up.

By capturing the severity of pathological personality traits, assessments of *DSM-5* constructs may be more useful for identifying persons at greater risk for negative outcomes compared with the *DSM-IV/DSM-5* Section II ASPD diagnostic criteria, which demonstrate virtually no predictive ability for future institutional misconduct (Edens et al., 2015). The dimensional framework of the AMPD captures important variations in personality expressions that are largely disregarded when making dichotomous determinations about symptom endorsement. Notably, participant scores on the trait facets assigned to *DSM-5* ASPD demonstrated the greatest elevations above community and clinical sample means. Whereas diagnostic status may not provide optimally meaningful differentiation among offenders to achieve a nuanced understanding of the consequences of ASPD, the dimensions of the AMPD offer multiple lenses for identifying configurations of personality that heighten risk for undesirable outcomes.

Clinical Utility of *DSM-5* AMPD Constructs Beyond PAI ANT

The present study joins an ample body of evidence that the trait-based operationalization of ASPD comprehensively assesses key features of Section II ASPD and psychopathic personality (Anderson et al., 2014; Few et al., 2015; Stickland et al., 2013; Wygant et al., 2016), and expands upon this research by providing evidence of prospective predictive validity for negative criminal justice outcomes. Previous research has additionally shown that *DSM-5* Section III ASPD and the psychopathy specifier

incrementally capture variance in other psychopathy ratings beyond *DSM-IV/DSM-5* Section II ASPD symptom counts, “which was expected given the former’s emphasis on personality characteristics rather than behavioral manifestations” (Anderson et al., 2014, p.690). In contrast to Section II ASPD diagnostic criteria, PAI ANT dimensionally assesses not only past antisocial behavior, but also characteristic tendencies toward egocentricity and sensation-seeking. Particularly given the intent of the AMPD to balance parsimony and improved clinical utility, this raises the question of whether reconfiguring PAI scale and subscales into the *DSM-5* pathological traits actually supplements information about ASPD and psychopathy already available from the instrument’s existing structure.

In comparing the strength of associations with criterion measures, there was mixed evidence for the superiority of *DSM-5* ASPD over PAI ANT in capturing specifically antisocial features. Considering the substantial overlap ($r = .91$) between these two global ratings, it is perhaps not surprising that they were equally predictive of SCID-II ASPD symptom counts¹, future misconduct, and outcomes in mandatory substance use treatment. From a hierarchical regression perspective, *DSM-5* ASPD incrementally added to the prediction of SCID-II ASPD beyond PAI ANT, as well as to the prediction of aggressive and disruptive behaviors in a treatment setting. These statistically significant findings, however, are not especially convincing in effect size,

¹ Supplementary analyses further revealed that PAI ANT and *DSM-5* ASPD were equally strong predictors of dichotomous diagnoses of *DSM-IV/5* Section II ASPD (AUCs = .71, $ps < .001$).

with, for example, *DSM-5* ASPD increasing explained variation by only 1% in the model predicting SCID-II ASPD from PAI ANT.

There are, as mentioned, numerous advantages to assessing the severity of the individual building blocks of personality pathology, rather than condensing information into dichotomous diagnoses or even global scores. Nonetheless, if the purpose of assessment is simply to achieve a sense of whether an individual (or group) is relatively high in general antisociality, there is not yet adequate evidence that applying the PAI *DSM-5* algorithms to measure ASPD would be worth the extra effort. Future research in this area will be helpful for clarifying the conditions under which the *DSM-5* Section III conceptualization of ASPD outperforms PAI ANT. Whether the individual facets of *DSM-5* ASPD confer any advantages over the three subscales of PAI ANT will similarly be an important avenue for future study.

However, there is persuasive evidence from the present study that the *DSM-5* pathological traits provide a more comprehensive assessment of psychopathic personality traits in comparison with PAI ANT. Although PAI ANT demonstrated significant relations with extant conceptualizations of psychopathy, these scores preferentially capture relevant impulsive and antisocial features. Scores on the psychopathy specifier were thus particularly more effective in capturing the fearless dominance components of the construct and, when combined with *DSM-5* ASPD scores, contributed to stronger relations with the interpersonal and affective ratings of the PCL-R relative to PAI ANT. Furthermore, the psychopathy specifier added incrementally to the prediction of total and factor scores for each criterion measure of psychopathy. This

was, again, most sizeable for PPI Fearless Dominance, with an additional 31% of explained variance attributable to the specifier ratings.

Less support for the incremental validity of the *DSM-5* psychopathy specifier was found among prospective predictions of problematic behavior, with the exception of adding significantly to the odds of acting aggressively in a treatment setting. This is consistent with findings that associations of psychopathy with violence and criminality are by and large due to the predictive utility of scales assessing criminal background and social deviancy, as opposed to the interpersonal and affective components (e.g., Hawes, Boccaccini, & Murrie, 2013; Kennealy, Skeem, Walters, & Camp, 2010). However, future research may reveal the role of the psychopathy specifier for other types of illegal and immoral behaviors, as there is increasing evidence that boldness/fearless-dominance can manifest in maladaptive ways, including predisposing men to engage in sexually coercive tactics (e.g., Marcus & Norris, 2014).

Overall, the coverage of interpersonal and affective traits provided by the psychopathy specifier represents a promising improvement to the clinical utility of PAI ANT (and *DSM-5* Section III ASPD) in identifying psychopathic features. Previous findings have similarly demonstrated that the psychopathy specifier does function as designed to increment *DSM-5* ASPD in measuring boldness and fearless dominance (e.g., Anderson et al., 2014; Wygant et al., 2016). One possible counterargument to calculating scores on *DSM-5* AMPD constructs is that there are existing scales for measuring anxiousness (PAI ANX), as well as interpersonal dominance (PAI DOM), and grandiosity (PAI MAN-G). These are represented to some extent through the PAI

DSM-5 algorithms, but were not assessed separately or in combination as an alternative to the psychopathy specifier, which will be an important task for future research to justify computing new indicators of psychopathy.

Potential Improvements to the *DSM-5* Psychopathy Specifier

The growing consensus from investigations of *DSM-5* psychopathy, including the present study, is that Low Withdrawal and Attention Seeking less than optimally realize their purpose of capturing social potency. Several other pathological trait facets have been proposed as either substitutes or additions to the psychopathy specifier based on their conceptual and empirical relevance to stress immunity and/or interpersonal dominance. Of these, Low Submissiveness appears most promising (e.g., Anderson et al., 2014; Strickland et al., 2013; cf. Wygant et al., 2016), especially as an alternative to Low Withdrawal. In the present study, Low Submissiveness was as strongly related to PPI Fearless Dominance as Low Withdrawal, with the added utility of meaningfully predicting PCL-R Factor 1 ratings and demonstrating relatively good discriminant validity. This dimension was also significantly predictive of general recidivism over a one-year follow-up period and uniquely contributed to the prediction of PPI Fearless Dominance above and beyond *DSM-5* ASPD and the psychopathy specifier.

Although Low Submissiveness is also assessed from the PID-5 approach using reverse-keying, this may not be as interpretively problematic as for Low Withdrawal. The PID-5 contains four items assessing Submissiveness that emphasize adapting behavior to the interests of others, such that non-endorsement of these items suggests a disregard for the wishes or authority of others and adaptation of behavior according to

one's own motivations. This resistance to outside influence is not necessarily equivalent to wielding power over others, but is arguably more active and suggestive of dominance than Low Withdrawal. It is worth noting, for example, that the PAI *DSM-5* regression-based algorithm for calculating Submissiveness gives the most weight (negatively) to PAI DOM, whereas PAI DOM *is not even included* in the algorithm for calculating estimates of Withdrawal, which instead is most heavily determined by the Social Detachment subscale of PAI SCZ (Busch et al., 2017). Interestingly, there are no known rationalizations available for the inclusion of Low Withdrawal as opposed to Low Submissiveness during the process of developing the AMPD. However, further research and productive debate concerning such a revision to the specifier configuration is strongly encouraged.

Findings also provided some support for the inclusion of Grandiosity and Restricted Affectivity in more completely capturing what are widely regarded as specific components of psychopathy. The addition of Restricted Affectivity improved predictions of PPI Total and Fearless Dominance beyond the traits assigned to ASPD and those currently characterizing the psychopathy specifier. This dimension appears to be tapping important and distinguishing deficiencies in appropriate emotional responsiveness over and above low anxiety, perhaps including immunity to guilt, shame, embarrassment, depression, or other negative emotions commonly experienced in reaction to stress. Grandiosity demonstrated a rather diffuse pattern of associations with measures of psychopathy, paralleling the performance of Attention Seeking, but nevertheless contributing to improved predictive validity for multiple ratings across the interpersonal,

affective, and socially deviant features of the construct. Consistent with Wygant et al. (2016), Distractibility did not make a convincing case for designation to the psychopathy specifier.

In previous studies using the PID-5, both Restricted Affectivity and Grandiosity were found to be candidates worth further consideration in designing a more precise psychopathy specifier (Anderson et al., 2014; Strickland et al., 2013; Wygant et al., 2016). However, before any definitive revisions are made to the specifier additional research on the consequences of different configurations is necessary, particularly with respect to redressing the limitations of the *DSM-IV/DSM-5* Section II categorical diagnostic system. For example, Wygant and colleagues (2016) urge caution in adding Grandiosity alongside Attention Seeking to the psychopathy specifier, as these are the only pathological traits defining Section III Narcissistic Personality Disorder. In summary, there are several potential changes to the *DSM-5* psychopathy specifier that may increase its utility in identifying the severity of core psychopathic traits; however, any revisions to the *DSM-5* AMPD should be grounded in replicable empirical observation and avoid perpetuating issues with the Section II nosology as much as possible.

Additional Limitations and Future Directions

There are several limitations of the present study not referenced above that warrant consideration. To begin with, the algorithms estimating *DSM-5* AMPD pathological trait facets from PAI scales and subscales are newly developed and additional research is necessary to determine their equivalency with the PID-5.

Presently, there are no known reports of the relative and absolute convergence of scores from these approaches beyond statistics provided on the derivation sample (Busch et al., 2017). Although research with patients in psychiatric settings (Kelley et al., 2018) and the current findings on offenders in custody suggest that the algorithms provide a functionally equivalent measure of PID-5 constructs, direct comparison of the two strategies would greatly increase our understanding of their interchangeableness.

Similarly, future cross-validation research on these algorithms should attempt to replicate findings in diverse populations and expand analyses of external validity to a variety of outcomes. This study had the advantage of recruiting a large number of participants involved in the criminal justice system, resulting in a wide representation of antisocial and psychopathic traits. However, participants were primarily male and either White or Black. Questions thus remain about the presence of significant differences in the psychometric properties of *DSM-5* pathological trait algorithms based on gender, race, and ethnicity. The present study also benefitted from the availability of multiple criterion measures, including self-report ratings, structured interview judgments, and objective follow-up data concerning behavioral functioning. There are, nonetheless, a number of unexplored areas to consider for future investigation, including assessing the convergence of PAI estimates of *DSM-5* psychopathy specifier traits with relatively recent measures of psychopathy (e.g., Triarchic Psychopathy Measure, Patrick, 2010; Comprehensive Assessment of Psychopathic Personality, Cooke, Hart, Logan, & Michie, 2012) that heavily emphasize personality characteristics thought to influence self- and interpersonal functioning. Additionally, refining the measurement and

organization of traits in the hybrid categorical model of *DSM-5* Section III will involve evaluating the convergent validity of assessment approaches using diverse techniques, including biological, neurological and genetic paradigms.

The accumulating body of research on the PID-5 provides a wealth of possibilities for cross-instrument/cross-sample replication using the PAI *DSM-5* algorithms, which could help clarify any interpretive constraints on the approach. Moreover, branching out beyond self-report operationalizations of the *DSM-5* AMPD constructs to examine convergence with informant-report and clinical perspectives may prove a valuable next step. Establishing the scope of support for these algorithms in capturing the personality dimensions of the *DSM-5* AMPD is an exciting enterprise meriting further attention and development. Namely, this approach has the potential to generate even more support for the AMPD by opening up opportunities for archival, naturalistic, and primary research using a comprehensive and routinely-administered instrument. However, this does not preclude researching alternative approaches to assessing *DSM-5* pathological traits with the PAI, such as an expansion of the item reconfiguration approach to compute facet scores or a more parsimonious non-weighted combination of scale and subscale scores.

Relatedly, the present study primarily focused on pathological traits assigned to *DSM-5* Section III ASPD and the psychopathy specifier, with comparisons emphasizing incremental utility over PAI ANT. There are a number of interesting inquiries that were beyond the scope of the present study, but might provide valuable information about the circumstances under which PAI *DSM-5* algorithms augment the existing structure of this

instrument. For example, does the constellation of traits assigned to *DSM-5* Section III Borderline Personality Disorder have any advantages over relying on PAI BOR and comprising subscales? Or might evidence of incremental utility be more apparent for personality disorders that do not necessarily have an intentionally corresponding scale on the PAI, such as Narcissistic or Avoidant Personality Disorder? Are there ways in which the *DSM-5* pathological traits might add to the predictive utility of ratings for other forms of psychopathology, both those that are explicitly addressed by the PAI (e.g., substance use disorders, anxiety disorders) and those lacking in overt item content coverage (e.g., eating disorder pathology)? What is the role of the Global Severity Level for profile interpretation? Clearly, there are many ways to continuing exploring the potential advantages of extracting *DSM-5* AMPD scores from PAI responses and integrating the two perspectives in research and clinical settings.

Indeed, one particularly important milestone in the adoption of the AMPD will be demonstrating its applied clinical utility. The present study provides encouraging findings regarding the ability of *DSM-5* pathological trait facets to predict problematic behavior, which has not been attainable using traditional diagnostic criteria and categorical determinations of ASPD (Edens et al., 2015). As previously mentioned, the usefulness of the *DSM-5* AMPD partially comes from its ability to isolate specific personality characteristics and examine their unique associations irrespective of a categorical diagnosis. This may be of particular value in attempts to uncover the interactive effects of certain personality traits in predicting problematic attitudes and behaviors (e.g., Marcus & Norris, 2014; Smith, Edens, & McDermott, 2013).

Furthermore, the availability of embedded validity scales when assessing *DSM-5* AMPD constructs with the PAI might promote greater attention to the possible influences of impression management on criterion-related validity (e.g., Edens & Ruiz, 2005, 2006; Kelley, Edens, Donnellan, Mowle, & Sörman, 2017).

However, future research is required to establish whether the use of this dimensional perspective actually improves upon existing assessment paradigms in terms of identifying individuals with psychological vulnerabilities and reducing negative outcomes through appropriate intervention. In forensic and correctional settings, this might involve studying the extent to which applying the *DSM-5* AMPD to mental health screening, risk management, and other types of clinical decision-making translates to more effective prevention of treatment failure, institutional maladjustment, and post-release reoffending. Broadly speaking, the acceptability of the AMPD will also benefit from developing and evaluating creative practical uses of this system that potentially contribute to priority initiatives in clinical psychological science, such as increasing the personalization and scalability of treatment interventions (e.g., Cohen & DeRubeis, 2018; Meier & Meier, 2017).

Conclusions

Efforts to demonstrate the scientific and applied value of the *DSM-5* AMPD are integral to achieving widespread acceptance and adoption of this system. The present study contributes to this agenda by showing that the PAI can be reconfigured using regression-based algorithms, and new item combinations, to capture pathological personality traits and domains of the *DSM-5* AMPD in an offender sample. The PAI

DSM-5 composites, originally developed with reference to the *PID-5*, demonstrate external validity with a variety of self-report and structured interview instruments assessing psychological dysfunction and have utility in prospectively predicting important outcomes in forensic and correctional settings.

In addition to assessing the core personality characteristics and consequences of ASPD at least as well as PAI ANT, the PAI *DSM-5* trait estimates capture interpersonal and affective components of psychopathy (e.g., fearless dominance) that are not well represented by any one existing scale or subscale of this instrument. Simultaneously, findings from the present study suggest that adjustments to the *DSM-5* conceptualization of psychopathy may contribute to an even more precise and comprehensive approach to measuring the construct. The present study offers only a fragment of the many possibilities for mutual expansion and advancement of the PAI and *DSM-5* AMPD with the hope of inspiring others to continue exploring such developments and to continue building the future of psychological assessment and diagnosis.

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APPENDIX A

TABLES

Table 1

Descriptive Statistics for PAI-Estimated DSM-5 AMPD Trait Facet Scores and Comparison with PAI Community and Clinical Normative Samples

Scale	<i>M</i>	<i>SD</i>	Community <i>d</i>	Clinical <i>d</i>
Emotional Lability	1.16	.65	.48	-.41
Anxiousness	1.46	.56	.53	-.40
Separation Insecurity	1.24	.47	.80	-.18
Submissiveness	1.20	.39	-.30	-.60
Hostility	1.22	.54	.46	-.07
Perseveration	1.26	.47	.81	.00
Depressivity	0.50	.48	.56	-.52
Suspiciousness	1.29	.46	1.03	.20
Restricted Affectivity	1.16	.39	.80	.45
Withdrawal	1.04	.50	.51	-.17
Intimacy Avoidance	0.63	.35	.65	-.03
Anhedonia	1.21	.50	.62	-.42
Manipulativeness	1.55	.49	1.24	.82
Deceitfulness	1.19	.43	1.23	.63
Grandiosity	1.05	.38	.73	.80
Attention Seeking	1.47	.45	1.02	.68
Callousness	0.83	.38	1.18	.68
Irresponsibility	0.92	.41	1.34	.55
Impulsivity	1.55	.56	1.62	.94
Distractibility	1.34	.58	.75	.00
Risk Taking	1.78	.50	1.25	1.06
Rigid Perfectionism	1.37	.48	.34	.34
Unusual Beliefs	1.02	.51	.65	.18
Eccentricity	1.43	.51	.85	.27
Perceptual Dysregulation	0.99	.42	.97	.13
Global Severity Level	141.26	27.11	1.19	.01

Note. PAI = Personality Assessment Inventory. Effect sizes (*d*) were computed by comparing means and standard deviations from the present sample ($n = 1,603$) with those for the PAI community ($n = 1,000$) and clinical ($n = 1,246$) normative samples as reported in Busch et al. (2017).

Table 2

Descriptive Statistics, Internal Consistency and Convergence of PAI Regression-Based and Item-Based DSM-5 AMPD Domain Estimates

Domain	Algorithm-Based PID-5 Scoring		Algorithm-Based DSM-5 Scoring		Item-Based Scales			
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	α	<i>r</i>
Negative Affectivity	1.29	.52	1.24	.36	1.16	.62	.90	.92**
Detachment	0.96	.41	0.97	.37	1.00	.53	.83	.80**
Antagonism	1.26	.39	1.22	.37	1.26	.55	.80	.81**
Disinhibition	1.27	.47	1.44	.36	1.40	.56	.79	.81**
Psychoticism	1.15	.46	1.15	.46	0.63	.46	.84	.85**

Note. Regression-based domain scores were calculated according to the scoring procedures of the PID-5, as well as by averaging facet scores according to the hierarchical organization of the AMPD. Pearson's *r* represents the association of domain scores from item-based scales with those from regression-based scoring using PID-5 procedures.

Table 3

Five-Factor Varimax Rotated Solution for Estimated DSM-5 AMPD Trait Facets

Facet	NEG	DET	ANT	DIS	PSY
Emotional Lability	.76	.19	.30	.10	.18
Anxiousness	.86	.21	.07	.01	.06
Separation Insecurity	.84	.09	.23	.08	.14
Perseveration	.80	.31	.32	.09	.31
Submissiveness	.73	-.05	-.11	-.05	.04
Hostility	.37	.40	.56	.22	.09
Restricted Affectivity	-.13[†]	.80	.09	.33	.09
Depressivity	.63	.59	.02	.09	.21
Suspiciousness	.48	.42	.44	.00	.28
Withdrawal	.32	.85	.04	-.08	.10
Anhedonia	.53	.73	-.03	.14	.11
Intimacy Avoidance	.22	.71	.21	.01	.20
Manipulativeness	.05	.26	.83	.42	.06
Deceitfulness	.23	.53	.62	.42	-.01
Grandiosity	-.11	.09	.80	.02	.33
Attention Seeking	.18	-.30	.79	.28	.12
Callousness	.08	.57	.59	.36	.15
Irresponsibility	.53	.50	.32	.45	.13
Impulsivity	.41	.27	.27	.79	.12
Rigid Perfectionism	.25	.07	.39	-.18[†]	.18
Distractibility	.78	.33	.03	.34	.17
Risk Taking	-.04	.04	.18	.94	.04
Unusual Beliefs	.32	.21	.38	.01	.83
Eccentricity	.43	.29	.36	.32	.60
Perceptual Dysregulation	.59	.37	.28	.19	.61
Congruence with Krueger et al. (2012)	.79	.83	.90	.79	.94

Note. DSM-5-based hypothesized factor specifications are presented in bold print. NEG = Negative Affectivity. DET = Detachment. ANT = Antagonism. DIS = Disinhibition. PSY = Psychoticism.

[†]Trait relationship hypothesized to be negative.

Table 4
PAI-Estimated DSM-5 AMPD Domain Intercorrelations

Algorithm-Based Scores					
Construct	Negative Affectivity	Detachment	Antagonism	Disinhibition	Psychoticism
Negative Affectivity	-				
Detachment	.57**	-			
Antagonism	.34**	.40**	-		
Disinhibition	.70**	.63**	.57**	-	
Psychoticism	.66**	.58**	.59**	.69**	-
Global Severity Level	.93**	.61**	.46**	.73**	.69**

Item-Based Scales					
Construct	Negative Affectivity	Detachment	Antagonism	Disinhibition	Psychoticism
Negative Affectivity	-				
Detachment	.36**	-			
Antagonism	.42**	.04	-		
Disinhibition	.62**	.31**	.55**	-	
Psychoticism	.69**	.22**	.45**	.45**	-
Global Severity Level	.87**	.42**	.45**	.66**	.60**

** $p < .01$

Table 5
Associations of PAI/DSM-5 AMPD Scores with Measures of Personality

	PAI ANT	DSM-5 ASPD	DSM-5 Total Psychopathy	Psychopathy Specifier Only	ANT-ASPD	ANT-TP	ANT-PS
	<i>r</i> (PRESS)	<i>r</i> (PRESS)	<i>r</i> (PRESS)	<i>r</i> (PRESS)	Steiger's <i>z</i>	Steiger's <i>z</i>	Steiger's <i>z</i>
PPI Total	.71** (.71)	.73** (.73)	.77** (.76)	.09** (.07)	2.63**	7.85**	-20.91**
Fearless Dominance	.29** (.29)	.18** (.17)	.40** (.39)	.59** (.59)	-10.12**	9.98**	9.72**
Impulsive Antisociality	.69** (.69)	.79** (.79)	.69** (.69)	-.27** (.27)	14.11**	.00	-31.37**
Coldheartedness	.08** (.07)	.10** (.09)	.11** (.10)	.02 (-.04)	1.79	2.54*	-1.60
LSRP Primary	.57** (.57)	.62** (.62)	.61** (.61)	-.04 (.00)	5.67**	4.28**	-18.59**
LSRP Secondary	.52** (.52)	.65** (.65)	.52** (.52)	-.37** (.37)	14.97**	.00	-27.20**
PCL-R Total	.35** (.34)	.34** (.34)	.39** (.38)	.11** (.10)	-.97	3.72**	-6.87**
Factor 1	.19** (.18)	.19** (.18)	.25** (.24)	.16** (.15)	.00	5.30**	-.84
Factor 2	.42** (.42)	.42** (.42)	.42** (.42)	.01 (-.11)	.00	.00	-11.89**
Interpersonal	.18** (.17)	.16** (.15)	.23** (.22)	.19** (.19)	-1.85	4.40**	.28
Affective	.15** (.15)	.17** (.17)	.21** (.20)	.09** (.08)	1.83	5.26**	-1.65
Lifestyle	.40** (.40)	.38** (.37)	.36** (.36)	-.05 (.02)	-1.98*	-3.74**	-12.95**
Antisocial	.31** (.30)	.32** (.32)	.35** (.34)	.06* (.04)	.96	3.66**	-7.05**
SCID-II ASPD	.46** (.46)	.47** (.46)	.45** (.45)	-.05 (.02)	1.00	-.95	-14.59**
MPQ-HA	-.29** (.29)	-.25** (.24)	-.25** (.25)	-.02 (-.05)	3.70**	3.51**	7.41**

* $p < .05$, ** $p < .01$. PAI = Personality Assessment Inventory. ANT = Antisocial Features. ASPD = Antisocial Personality Disorder. TP = Total Psychopathy. PS = Psychopathy Specifier. PPI = Psychopathic Personality Inventory. PCL-R = Psychopathy Checklist – Revised. SCID-II = Structured Clinical Interview for DSM-IV Axis II Personality Disorders. MPQ-HA = Multidimensional Personality Questionnaire – Harm Avoidance. PRESS = Predicted residual sum of squares.

Table 6

Predictive Validity of PAI/DSM-5 AMPD Scores for Future Misconduct and Treatment-Related Outcomes

	PAI ANT	DSM-5 ASPD	DSM-5 Total Psychopathy	DSM-5 Psychopathy Specifier	ANT-ASPD	ANT-TP	ANT-PS
	AUC (SE)	AUC (SE)	AUC (SE)	AUC (SE)	z statistic	z statistic	z statistic
General Infraction	.59** (.030)	.59** (.031)	.60** (.030)	.50 (.031)	.17	1.07	1.94
Aggressive Infraction	.58* (.034)	.58* (.035)	.58* (.034)	.49 (.034)	.20	.37	1.26
Violent Infraction	.57 (.069)	.56 (.072)	.56 (.075)	.49 (.055)	.46	.45	.55
General Recidivism	.52 (.018)	.52 (.018)	.53 (.018)	.54* (.018)	.61	.52	.58
Violent Recidivism	.50 (.048)	.53 (.046)	.53 (.048)	.54 (.048)	.34	.27	.51
Treatment Variables							
Subjective Success	.60** (.031)	.60** (.032)	.59** (.032)	.48 (.032)	.14	.74	1.90
Objective Success	.57* (.034)	.55 (.034)	.54 (.034)	.48 (.034)	1.01	1.51	1.11
General Noncompliance	.56 (.032)	.56 (.031)	.56 (.032)	.48 (.032)	.29	.19	.93
Aggression	.63** (.038)	.65** (.037)	.67** (.036)	.55 (.038)	1.26	2.47*	1.46
Disruptive Behavior	.65** (.034)	.67** (.034)	.66** (.034)	.46 (.037)	1.43	.61	2.16*
Suspected Drug Use	.56 (.040)	.54 (.040)	.53 (.040)	.48 (.039)	1.07	1.56	.78

* $p < .05$, ** $p < .01$. PAI = Personality Assessment Inventory. ANT = Antisocial Features. ASPD = Antisocial Personality Disorder. TP = Total Psychopathy. PS = Psychopathy Specifier. AUC = Area under the curve.

Table 7

Hierarchical Regression Analyses Predicting Measures of Psychopathy from Global PAI/DSM-5 AMPD Scores

	PPI			LSRP			PCL-R		
	ΔR^2	β	<i>p</i>	ΔR^2	β	<i>p</i>	ΔR^2	β	<i>p</i>
Total Score									
<i>Step One:</i> PAI ANT	.504**	.71	<.001	.398**	.63	<.001	.119**	.35	<.001
<i>Step Two:</i> DSM-5 ASPD	.044**	.50	<.001	.134**	.87	<.001	.005**	.17	.003
<i>Step Three:</i> DSM-5 PS	.041**	.22	<.001	.002*	-.05	.018	.027**	.18	<.001
Factor 1									
<i>Step One:</i> PAI ANT	.086**	.29	<.001	.323**	.57	<.001	.035**	.19	<.001
<i>Step Two:</i> DSM-5 ASPD	.044**	-.50	<.001	.062**	.59	<.001	.002	.10	.108
<i>Step Three:</i> DSM-5 PS	.311**	.61	<.001	.006**	.08	<.001	.039**	.22	<.001
Factor 2									
<i>Step One:</i> PAI ANT	.479**	.69	<.001	.274**	.52	<.001	.176**	.42	<.001
<i>Step Two:</i> DSM-5 ASPD	.148**	.91	<.001	.182**	1.01	<.001	.009**	.22	<.001
<i>Step Three:</i> DSM-5 PS	.013**	-.12	<.001	.045**	-.23	<.001	.004**	.07	.009

p* < .05, *p* < .01. PAI = Personality Assessment Inventory. ANT = Antisocial Features. ASPD = Antisocial Personality Disorder. PS = Psychopathy Specifier. PPI = Psychopathic Personality Inventory. LSRP = Levenson Self-Report Psychopathy Scales. PCL-R = Psychopathy Checklist-Revised.

Table 8

Hierarchical Regression Analyses Predicting Antisocial Features, Misconduct, and Treatment-Related Outcomes from PAI/DSM-5 AMPD Scores

	SCID-II ASPD			MPQ-HA		
	ΔR^2	β	<i>p</i>	ΔR^2	β	<i>p</i>
<i>Step One: PAI ANT</i>	.217**	.47	<.001	.088**	-.30	<.001
<i>Step Two: DSM-5 ASPD</i>	.010**	.24	<.001	.003*	.13	.026
<i>Step Three: DSM-5 PS</i>	.000	.00	.947	.000	-.01	.869

	General Infraction			Aggressive Infraction		
	χ^2	Exp(B)	<i>p</i>	χ^2	Exp(B)	<i>p</i>
<i>Block One: PAI ANT</i>	7.50**	1.02	.007	5.82*	1.02	.016
<i>Block Two: DSM-5 ASPD</i>	3.39	1.19	.067	2.19	1.17	.141
<i>Block Three: DSM-5 PS</i>	1.20	1.14	.277	.11	1.04	.74

	Subjective Treatment Success			Objective Treatment Success		
	χ^2	Exp(B)	<i>p</i>	χ^2	Exp(B)	<i>p</i>
<i>Block One: PAI ANT</i>	10.33**	1.03	.002	4.52*	1.02	.035
<i>Block Two: DSM-5 ASPD</i>	.45	1.07	.505	.46	.93	.499
<i>Block Three: DSM-5 PS</i>	.10	.97	.757	.26	.94	.613

	Treatment Aggression			Treatment Disruptive Behavior		
	χ^2	Exp(B)	<i>p</i>	χ^2	Exp(B)	<i>p</i>
<i>Block One: PAI ANT</i>	9.45**	1.04	.002	15.57**	1.05	<.001
<i>Block Two: DSM-5 ASPD</i>	4.19*	1.30	.042	5.29*	1.30	.023
<i>Block Three: DSM-5 PS</i>	5.17*	1.42	.027	.09	.96	.770

* $p < .05$, ** $p < .01$. PAI = Personality Assessment Inventory. ANT = Antisocial Features. ASPD = Antisocial Personality Disorder. PS = Psychopathy Specifier. SCID-II = Structured Clinical Interview for DSM-IV Axis II Personality Disorders. MPQ-HA = Multidimensional Personality Questionnaire – Harm Avoidance.

Table 9

Associations of PAI-Estimated DSM-5 AMPD Trait Facet Scores with Measures of Psychopathy

Trait Facet	PPI Total	PPI-I	PPI-II	PPI-C	LSRP Primary	LSRP Secondary	PCL-R Total	PCL-R F1	PCL-R F2	PCL-R f1	PCL-R f2	PCL-R f3	PCL-R f4
DSM-5 ASPD Facets													
Manipulativeness	.69**	.32**	.66**	.08**	.61**	.46**	.35**	.26**	.35**	.25**	.21**	.29**	.29**
Deceitfulness	.66**	.07**	.75**	.16**	.62**	.61**	.33**	.20**	.39**	.16**	.20**	.34**	.30**
Hostility	.51**	-.01	.65**	.04	.47**	.61**	.26**	.14**	.32**	.10**	.15**	.23**	.30**
Callousness	.66**	.14**	.69**	.24**	.60**	.55**	.38**	.23**	.44**	.17**	.25**	.32**	.40**
Irresponsibility	.54**	-.13**	.76**	.05*	.51**	.69**	.21**	.05	.32**	.03	.06*	.34**	.20**
Impulsivity	.63**	.14**	.72**	-.02	.49**	.63**	.25**	.09**	.35**	.09**	.08**	.38**	.22**
Risk Taking	.65**	.49**	.49**	.11**	.42**	.34**	.27**	.14**	.33**	.15**	.11**	.33**	.22**
Psychopathy Specifier													
Anxiousness	.07**	-.42**	.43**	-.31**	.11**	.51**	-.09**	-.15**	.02	-.12**	-.14**	.11**	-.07**
Withdrawal	.16**	-.39**	.42**	.13**	.25**	.43**	.08**	.01	.16**	-.06*	.07**	.15**	.12**
Attention-Seeking	.47**	.40**	.39**	-.19**	.33**	.27**	.25**	.19**	.22**	.23**	.12**	.19**	.18**
Additional Trait Facets													
Submissiveness	-.14**	-.42**	.17**	-.33**	-.07*	.28**	-.20**	-.23**	-.11**	-.18**	-.22**	.02	-.19**
Restricted Affectivity	.45**	.06*	.46**	.32**	.41**	.32**	.23**	.16**	.26**	.09**	.19**	.23**	.20**
Grandiosity	.47**	.36**	.37**	.02	.39**	.18**	.31**	.30**	.24**	.26**	.27**	.15**	.24**
Distractibility	.29**	-.30**	.59**	-.13**	.28**	.64**	.02	-.08**	.14**	-.08**	-.06*	.23**	.00

* $p < .05$, ** $p < .01$; $n = 1423-1424$ for PPI; $n = 1449$ for LSRP; $n = 1476 - 1490$ for PCL-R. PPI = Psychopathic Personality Inventory. PPI-I = Fearless Dominance. PPI-II = Impulsive Antisociality. PPI-C = Coldheartedness. LSRP = Levenson Self-Report Psychopathy Scales. PCL-R = Psychopathy Checklist – Revised. F1 = Interpersonal/Affective. F2 = Social Deviance. f1 = Interpersonal. f2 = Affective. f3 = Lifestyle. f4 = Antisocial. Bolded values indicate medium effects sizes of $|r| \geq .30$.

Table 10

Associations of PAI-Estimated DSM-5 AMPD Trait Facet Scores with Antisocial Features

Trait Facet	SCID-II ASPD	MPQ-HA
DSM-5 III ASPD Facets		
Manipulativeness	.40**	-.16**
Deceitfulness	.42**	-.17**
Hostility	.34**	-.11**
Callousness	.44**	-.17**
Irresponsibility	.40**	-.16**
Impulsivity	.42**	-.28**
Risk Taking	.36**	-.36**
Psychopathy Specifier		
Anxiousness	.14**	-.02
Withdrawal	.18**	-.05
Attention-Seeking	.27**	-.13**
Additional Trait Facets		
Submissiveness	-.02	.00
Restricted Affectivity	.25**	-.22**
Grandiosity	.22**	-.11**
Distractibility	.26**	-.11**

* $p < .05$, ** $p < .01$. $n = 1408$ for SCID-II; $n = 1423$ for MPQ-HA. SCID-II = Structured Clinical Interview for DSM-IV Axis II Personality Disorders. ASPD = Antisocial Personality Disorder. MPQ-HA = Multidimensional Personality Questionnaire – Harm Avoidance. Bolded values indicate medium effects sizes of $|r| \geq .30$.

Table 11

Prospective Prediction of Recidivism and Institutional Misconduct from DSM-5 AMPD Trait Facets

Trait Facet	General Infraction		Aggressive Infraction		Violent Infraction		General Recidivism		Violent Recidivism	
	AUC	SE	AUC	SE	AUC	SE	AUC	SE	AUC	SE
DSM-5 III ASPD Facets										
Manipulativeness	.59**	.031	.59*	.035	.57	.079	.53	.018	.53	.048
Deceitfulness	.57*	.031	.56	.035	.55	.070	.52	.018	.51	.043
Hostility	.59**	.031	.60**	.035	.59	.069	.52	.018	.60*	.043
Callousness	.60**	.030	.59**	.034	.56	.065	.52	.018	.57	.045
Irresponsibility	.57*	.031	.55	.035	.52	.071	.49	.018	.47	.048
Impulsivity	.57*	.031	.56	.035	.53	.070	.50	.018	.48	.047
Risk Taking	.57*	.030	.55	.033	.55	.063	.51	.018	.40	.047
Psychopathy Specifier										
Anxiousness	.50	.031	.50	.034	.51	.054	.48	.018	.45	.043
Withdrawal	.55	.031	.57	.035	.56	.051	.49	.018	.54	.045
Attention Seeking	.58*	.031	.57	.034	.57	.078	.54*	.018	.54	.047
Additional Trait Facets										
Submissiveness	.48	.031	.48	.035	.54	.072	.46*	.018	.44	.047
Restricted Affectivity	.58*	.031	.57*	.035	.55	.073	.50	.018	.55	.042
Grandiosity	.61**	.031	.60**	.035	.57	.070	.54*	.018	.62*	.045
Distractibility	.53	.031	.53	.035	.55	.063	.47	.018	.40*	.045

* $p < .05$, ** $p < .01$. $n = 356$ for infraction variables; $n = 1,073$ for recidivism variables. ASPD = Antisocial Personality Disorder. AUC = Area under the curve.

Table 12

Prospective Prediction of Treatment Compliance and Progress from DSM-5 AMPD Trait Facets

Trait Facet	Subjective Success		Objective Success		General Noncompliance		Aggression		Disruptive Behaviors		Suspected Drug Use	
	AUC	SE	AUC	SE	AUC	SE	AUC	SE	AUC	SE	AUC	SE
DSM-5 ASPD Facets												
Manipulativeness	.59**	.032	.56	.034	.53	.032	.60*	.040	.63**	.035	.53	.042
Deceitfulness	.59**	.032	.55	.034	.54	.032	.60*	.040	.64**	.035	.51	.041
Hostility	.59**	.032	.55	.034	.58*	.032	.66**	.035	.65**	.035	.54	.041
Callousness	.57*	.032	.53	.034	.59**	.031	.66**	.038	.66**	.036	.53	.041
Irresponsibility	.59**	.032	.54	.034	.56	.032	.61*	.041	.63**	.036	.52	.041
Impulsivity	.60**	.032	.55	.034	.54	.032	.62**	.039	.65**	.036	.54	.041
Risk Taking	.56	.032	.54	.033	.57*	.031	.65**	.037	.63**	.037	.56	.037
Psychopathy Specifier												
Anxiousness	.57*	.032	.56	.033	.56	.033	.49	.039	.52	.037	.56	.039
Withdrawal	.54	.032	.52	.034	.52	.034	.50	.040	.59*	.038	.53	.042
Attention-Seeking	.59**	.032	.56	.034	.56	.034	.62**	.042	.57	.037	.54	.040
Additional Trait Facets												
Submissiveness	.54	.033	.52	.034	.52	.034	.47	.041	.46	.038	.52	.038
Restricted Affectivity	.54	.033	.52	.034	.52	.034	.53	.040	.62**	.037	.52	.044
Grandiosity	.54	.033	.52	.035	.52	.035	.62**	.042	.61**	.037	.53	.040
Distractibility	.55	.032	.51	.034	.51	.034	.56	.040	.60**	.036	.50	.038

* $p < .05$, ** $p < .01$. $n = 310 - 331$. ASPD = Antisocial Personality Disorder. AUC = Area under the curve.

Table 13

Hierarchical Regression Analyses Predicting Measures of Psychopathy from PAI/DSM-5 AMPD Trait Facet Scores

	PPI			LSRP			PCL-R		
	ΔR^2	β	<i>p</i>	ΔR^2	β	<i>p</i>	ΔR^2	β	<i>p</i>
Total Score									
<i>Step One:</i>	.611**			.543**			.187**		
Manipulativeness		.27	<.001		.12	.003		.05	.313
Deceitfulness		.10	.035		.23	<.001		.08	.227
Hostility		-.04	.247		.12	<.001		-.14	.001
Callousness		.20	<.001		.04	.352		.51	<.001
Irresponsibility		.11	.018		.28	<.001		-.30	<.001
Impulsivity		-.19	.001		-.05	.410		.11	.192
Risk Taking		.47	<.001		.12	.003		.06	.244
<i>Step Two:</i>	.003*			.005**			.024**		
Anxiousness		-.07	.024		.03	.271		-.20	<.001
Withdrawal		-.02	.406		-.05	.118		.06	.147
Attention-Seeking		.06	.087		-.15	<.001		.26	<.001
<i>Step Three:</i>	.020**			.003*			.015**		
Submissiveness		-.13	<.001		.00	.904		-.16	<.001
Restricted Affectivity		.11	.001		.02	.577		-.03	.560
Grandiosity		.18	<.001		.02	.577		.04	.461
Distractibility		.02	.652		.12	.003		-.09	.092
Factor 1									
<i>Step One:</i>	.536**			.433**			.118**		
Manipulativeness		.65	<.001		.26	<.001		.17	.001
Deceitfulness		-.41	<.001		.22	<.001		.08	.263
Hostility		-.16	<.001		-.05	.164		-.13	.003
Callousness		.21	<.001		.15	.003		.37	<.001
Irresponsibility		-.30	<.001		.21	<.001		-.36	<.001
Impulsivity		-.31	<.001		-.28	<.001		.06	.491
Risk Taking		.68	<.001		.25	<.001		.00	.991

Table 13 Continued

	PPI			LSRP			PCL-R		
	ΔR^2	β	<i>p</i>	ΔR^2	β	<i>p</i>	ΔR^2	β	<i>p</i>
<i>Step Two:</i>	.024**			.011**			.016**		
Anxiousness		-.16	<.001		-.02	.546		-.19	<.001
Withdrawal		-.06	.063		-.05	.198		.08	.075
Attention-Seeking		.20	<.001		-.21	<.001		.20	<.001
<i>Step Three:</i>	.030**			.003			.021**		
Submissiveness		-.16	<.001		.01	.733		-.14	<.001
Restricted Affectivity		.12	.002		.03	.447		.07	.199
Grandiosity		.22	<.001		.11	.008		.19	<.001
Distractibility		-.05	.191		.03	.512		-.03	.543
Factor 2									
<i>Step One:</i>	.655**			.541**			.224**		
Manipulativeness		.07	.051		-.14	<.001		-.12	.014
Deceitfulness		.24	<.001		.17	.001		.10	.136
Hostility		.14	<.001		.34	<.001		-.11	.007
Callousness		-.03	.436		-.14	.003		.55	<.001
Irresponsibility		.32	<.001		.31	<.001		-.23	<.001
Impulsivity		.15	.005		.32	<.001		.22	.005
Risk Taking		.03	.334		-.11	.006		.05	.299
<i>Step Two:</i>	.003**			.004**			.021**		
Anxiousness		.09	.001		.11	.001		-.17	<.001
Withdrawal		-.01	.863		-.04	.217		.05	.197
Attention-Seeking		.01	.738		-.02	.680		.25	<.001
<i>Step Three:</i>	.006**			.013**			.016**		
Submissiveness		-.03	.155		-.01	.734		-.12	<.001
Restricted Affectivity		.07	.032		.00	.957		-.09	.063
Grandiosity		.12	<.001		-.13	.001		-.10	.044
Distractibility		.04	.280		.22	<.001		-.13	.015

p* < .05, *p* < .01. PAI = Personality Assessment Inventory. ANT = Antisocial Features. ASPD = Antisocial Personality Disorder. PS = Psychopathy Specifier. PPI = Psychopathic Personality Inventory. LSRP = Levenson Self-Report Psychopathy Scales. PCL-R = Psychopathy Checklist-Revised.

Table 14
Hierarchical Regression Analyses Predicting Antisocial Features, Misconduct, and Treatment-Related Outcomes from PAI/DSM-5 AMPD Trait Facet Scores

	SCID-II ASPD			MPQ-HA		
	ΔR^2	β	<i>p</i>	ΔR^2	β	<i>p</i>
Total Score						
<i>Step One:</i>	.232**			.136**		
Manipulativeness		.02	.662		.12	.028
Deceitfulness		.03	.663		-.08	.247
Hostility		-.08	.054		.02	.627
Callousness		.32	<.001		-.03	.655
Irresponsibility		.04	.538		-.01	.937
Impulsivity		.11	.179		.03	.743
Risk Taking		.10	.062		-.40	<.001
<i>Step Two:</i>	.007**			.015**		
Anxiousness		.00	.950		.01	.872
Withdrawal		.03	.455		-.19	<.001
Attention-Seeking		.16	.001		-.20	<.001
<i>Step Three:</i>	.016**			.011**		
Submissiveness		-.10	.003		-.04	.254
Restricted Affectivity		-.16	.002		-.15	.004
Grandiosity		-.17	.001		-.14	.006
Distractibility		.05	.333		.03	.564

	General Infraction			Aggressive Infraction		
	χ^2	Exp(B)	<i>p</i>	χ^2	Exp(B)	<i>p</i>
<i>Block One:</i>	16.33*			15.27*		
Manipulativeness		.95	.924		.93	.906
Deceitfulness		.46	.286		.65	.583
Hostility		1.32	.450		1.29	.545
Callousness		4.78	.058		6.06	.053
Irresponsibility		.51	.402		.19	.075
Impulsivity		1.98	.366		3.79	.124
Risk Taking		.82	.705		.47	.214
<i>Block Two:</i>	3.89			1.65		
Anxiousness		.53	.072		1.21	.652
Withdrawal		1.28	.527		1.01	.988
Attention-Seeking		1.83	.289		.35	.208
<i>Block Three:</i>	3.87			1.24		
Submissiveness		1.03	.949		1.72	.426
Restricted Affectivity		1.76	.361		1.38	.646
Grandiosity		2.73	.116		.96	.930
Distractibility		.75	.525		.23	.137

Table 14 Continued

	Subjective Treatment Success			Treatment Noncompliance			
	χ^2	Exp(B)	<i>p</i>	χ^2	Exp(B)	<i>p</i>	
<i>Block One:</i>	14.24*			16.01*			
Manipulativeness		2.28	.109		.66	.416	
Deceitfulness		.54	.430		.54	.433	
Hostility		1.59	.250		.91	.819	
Callousness		.43	.298		4.07	.081	
Irresponsibility		2.52	.282		3.04	.197	
Impulsivity		1.07	.928		.39	.199	
Risk Taking		1.05	.926		2.47	.098	
<i>Block Two:</i>	2.56			1.49			
Anxiousness		1.43	.332		1.16	.679	
Withdrawal		1.18	.669		.63	.226	
Attention-Seeking		1.69	.350		.74	.582	
<i>Block Three:</i>	6.70			5.15			
Submissiveness		1.52	.378		1.94	.156	
Restricted Affectivity		1.32	.685		.38	.148	
Grandiosity		.35	.106		1.13	.851	
Distractibility		.44	.061		1.43	.407	
		Treatment Aggression			Treatment Disruptive Behavior		
	χ^2	Exp(B)	<i>p</i>	χ^2	Exp(B)	<i>p</i>	
<i>Block One:</i>	22.82**			23.23**			
Manipulativeness		.934	.919		.78	.670	
Deceitfulness		.254	.193		1.02	.980	
Hostility		1.59	.393		1.55	.344	
Callousness		4.15	.188		2.40	.338	
Irresponsibility		2.44	.425		.61	.607	
Impulsivity		.57	.564		1.97	.424	
Risk Taking		2.98	.132		1.07	.910	
<i>Block Two:</i>	9.08*			1.46			
Anxiousness		.61	.302		.66	.311	
Withdrawal		.44	.113		1.47	.379	
Attention-Seeking		2.36	.254		1.40	.594	
<i>Block Three:</i>	4.27			4.67			
Submissiveness		1.30	.675		.68	.473	
Restricted Affectivity		.39	.309		1.74	.466	
Grandiosity		4.04	.111		2.53	.307	
Distractibility		1.63	.401		1.97	.167	

p* < .05, *p* < .01. PAI = Personality Assessment Inventory. ANT = Antisocial Features. ASPD = Antisocial Personality Disorder. PS = Psychopathy Specifier. PPI = Psychopathic Personality Inventory. LSRP = Levenson Self-Report Psychopathy Scales. PCL-R = Psychopathy Checklist-Revised.

Table 15
Associations of PAI-Estimated DSM-5 AMPD Domain Scores with Measures of Psychopathy

Trait Facet	PPI Total	PPI-I	PPI-II	PPI-C	LSRP Primary	LSRP Secondary	PCL-R Total	PCL-R F1	PCL-R F2	PCL-R f1	PCL-R f2	PCL-R f3	PCL-R f4
Negative Affectivity													
Algorithm-Based	.19**	-.33**	.53**	-.32**	.19**	.60**	-.01	-.10**	.10**	-.08**	-.10**	.16**	.01
Item-Based	.21**	-.27**	.51**	-.33**	.21**	.57**	.04	-.06*	.14**	-.05*	-.05*	.19**	.06*
Detachment													
Algorithm-Based	.25**	-.36**	.52**	.12**	.32**	.52**	.10**	.01	.19**	-.05	.07*	.20**	.12**
Item-Based	.19**	-.32**	.39**	.22**	.21**	.40**	.12**	.03	.19**	-.03	.09**	.16**	.15**
Antagonism													
Algorithm-Based	.69**	.28**	.68**	.10**	.61**	.48**	.37**	.28**	.37**	.25**	.25**	.30**	.31**
Item-Based	.62**	.32**	.58**	-.01	.56**	.45**	.31**	.22**	.31**	.23**	.17**	.25**	.26**
Disinhibition													
Algorithm-Based	.52**	-.11**	.74**	-.04	.45**	.70**	.17**	.02	.29**	.01	.02	.34**	.14**
Item-Based	.49**	.02	.62**	-.07*	.38**	.60**	.18**	.02	.30**	.03	.00	.33**	.18**
Psychoticism													
Algorithm-Based	.41**	-.03	.58**	-.19**	.35**	.54**	.17**	.09**	.22**	.07**	.08**	.23**	.14**
Item-Based	.27**	-.08**	.45**	-.25**	.25**	.50**	.11**	.05	.15**	.04	.05*	.16**	.10**
Global Severity Level	.31**	-.21**	.60**	-.25**	.28**	.64**	.09**	-.04	.20**	-.03	-.03	.22**	.11**

* $p < .05$, ** $p < .01$; $n = 1374 - 1425$ for PPI; $n = 1397 - 1449$ for LSRP; $n = 1426 - 1490$ for PCL-R. PPI = Psychopathic Personality Inventory. PPI-I = Fearless Dominance. PPI-II = Impulsive Antisociality. PPI-C = Coldheartedness. LSRP = Levenson Self-Report Psychopathy Scales. PCL-R = Psychopathy Checklist – Revised. F1 = Interpersonal/Affective. F2 = Social Deviance. f1 = Interpersonal. f2 = Affective. f3 = Lifestyle. f4 = Antisocial. Bolded values indicate medium effects sizes of $|r| \geq .30$.

Table 16

Associations of PAI-Estimated AMPD Domain Scores with Antisocial Features

Trait Facet	SCID-II ASPD	MPQ-HA
Negative Affectivity		
Algorithm-Based	.20**	-.05
Item-Based	.27**	-.16**
Detachment		
Algorithm-Based	.23**	-.09**
Item-Based	.20**	-.09**
Antagonism		
Algorithm-Based	.40**	-.17**
Item-Based	.38**	-.20**
Disinhibition		
Algorithm-Based	.38**	-.20**
Item-Based	.22**	-.08**
Psychoticism		
Algorithm-Based	.27**	-.16**
Item-Based	.18**	-.10**
Global Severity Level	.27**	-.10**

* $p < .05$, ** $p < .01$. $n = 1360 - 1408$ for SCID-II; $n = 1374 - 1423$ for MPQ-HA.

SCID-II = Structured Clinical Interview for DSM-IV Axis II Personality

Disorders. ASPD = Antisocial Personality Disorder. MPQ-HA =

Multidimensional Personality Questionnaire – Harm Avoidance. Bolded values indicate medium effects sizes of $|r| \geq .30$.

Table 17

Prospective Prediction of Institutional Misconduct and Recidivism from DSM-5 AMPD Domains

Trait Facet	General Infraction		Aggressive Infraction		Violent Infraction		General Recidivism		Violent Recidivism	
	AUC	SE	AUC	SE	AUC	SE	AUC	SE	AUC	SE
Negative Affectivity										
Algorithm-Based	.53	.031	.52	.034	.54	.058	.50	.018	.49	.046
Item-Based	.54	.031	.54	.034	.57	.063	.51	.018	.50	.045
Detachment										
Algorithm-Based	.56	.031	.57*	.035	.57	.057	.49	.018	.54	.048
Item-Based	.55	.031	.53	.035	.57	.065	.48	.018	.51	.050
Antagonism										
Algorithm-Based	.61**	.031	.60**	.035	.63	.074	.54*	.018	.57	.047
Item-Based	.61**	.031	.61**	.034	.64	.074	.54*	.018	.53	.052
Disinhibition										
Algorithm-Based	.56*	.031	.55	.036	.57	.074	.48	.018	.44	.046
Item-Based	.57*	.031	.54	.035	.55	.063	.49	.018	.46	.049
Psychoticism										
Algorithm-Based	.60**	.031	.58*	.034	.59	.069	.52	.019	.57	.046
Item-Based	.56*	.031	.55	.035	.55	.074	.52	.019	.60*	.043
Global Severity Level	.56*	.031	.57	.033	.56	.058	.51	.018	.51	.048

* $p < .05$, ** $p < .01$. $n = 344$ for infraction variables; $n = 1,019$ for recidivism variables. AUC = Area under the curve.

Table 18

Prospective Prediction of Treatment Compliance and Progress from DSM-5 AMPD Trait Facets

Trait Facet	Subjective Success		Objective Success		General Noncompliance		Aggression		Disruptive Behaviors		Suspected Drug Use	
	AUC	SE	AUC	SE	AUC	SE	AUC	SE	AUC	SE	AUC	SE
Negative Affectivity												
Algorithm-Based	.60**	.033	.57*	.035	.52	.033	.54	.039	.55	.038	.55	.041
Item-Based	.60**	.033	.56	.035	.51	.033	.56	.040	.56	.037	.54	.042
Detachment												
Algorithm-Based	.55	.033	.53	.035	.53	.033	.53	.040	.60**	.039	.53	.043
Item-Based	.53	.033	.54	.034	.53	.033	.52	.040	.58*	.038	.54	.041
Antagonism												
Algorithm-Based	.58*	.033	.55	.035	.53	.033	.62**	.040	.64**	.035	.52	.042
Item-Based	.60**	.033	.56	.035	.50	.033	.61*	.038	.62**	.036	.54	.043
Disinhibition												
Algorithm-Based	.59**	.033	.54	.035	.55	.033	.61*	.041	.65**	.036	.52	.041
Item-Based	.60**	.033	.57*	.034	.52	.033	.58	.041	.62**	.035	.58	.040
Psychoticism												
Algorithm-Based	.58*	.033	.54	.036	.56	.033	.61**	.040	.61**	.037	.55	.043
Item-Based	.62**	.032	.58*	.035	.56	.033	.59*	.043	.59*	.037	.56	.042
Global Severity Level	.60**	.032	.57	.035	.51	.033	.58	.038	.61**	.037	.55	.041

* $p < .05$, ** $p < .01$. $n = 310 - 331$. ASPD = Antisocial Personality Disorder. AUC = Area under the curve.

Table 19

Associations of PAI-Estimated Disinhibition with Measures of Behavioral Regulation

Trait Facet	BIS-11	BIS Total	BAS Reward	BAS Drive	BAS Fun	GoNoGo ^a
Disinhibition Facets						
Irresponsibility	.69**	-.21**	-.04	.16**	.31**	.08**
Impulsivity	.69**	-.14**	.04	.28**	.47**	.05
Distractibility	.69**	-.35**	.01	.06*	.27**	.06*
Risk Taking	.41**	.11**	.05*	.32**	.47**	-.01
Rigid Perfectionism	.04	-.13**	.10**	.17**	.08**	.02
Algorithm-Based Total	.75**	-.26**	.01	.18**	.38**	.06*
Item-Based Total	.63**	-.21**	.07*	.23**	.39**	.05

* $p < .05$, ** $p < .01$. $n = 1401 - 1452$ for BIS-11; $n = 1376 - 1425$ for BIS/BAS; $n = 1288 - 1340$ for GoNoGo. BIS-11 = Barratt Impulsiveness Scale. BIS = Behavioral Inhibition System. BAS = Behavioral Activation System. Bolded values indicate medium effects sizes of $|r| \geq .30$.

^aLearning Trial I commissions

Table 20

Associations of PAI-Estimated Psychoticism with Dissociative Experiences

Trait Facet	DES Total
Psychoticism Facets	
Unusual Beliefs	.55**
Eccentricity	.52**
Perceptual Dysregulation	.56**
Algorithm-Based Total	.57**
Item-Based Total	.54**

* $p < .05$, ** $p < .01$. $n = 1364 - 1411$. DES = Dissociative Experiences Scale.

Table 21

Associations of PAI-Estimated Negative Affectivity with Adverse Childhood Events

Trait Facet	CATS Total	CATS Neglect	CATS Abuse	CATS Punish
Negative Affectivity Facets				
Emotional Lability	.37**	.36**	.22**	.27**
Anxiousness	.30**	.31**	.19**	.19**
Separation Insecurity	.36**	.37**	.22**	.26**
Submissiveness	.09**	.11**	.04	.03
Hostility	.32**	.30**	.16**	.25**
Perseveration	.31**	.31**	.19**	.23**
Depressivity	.37**	.37**	.23**	.26**
Suspiciousness	.34**	.32**	.20**	.29**
Restricted Affectivity	.15**	.16**	.04	.10**
Algorithm-Based Total	.37**	.37**	.23**	.26**
Item-Based Total	.40**	.40**	.26**	.28**

* $p < .05$, ** $p < .01$. $n = 1377-1424$. CATS = Childhood Abuse and Trauma Scale. Bolded values indicate medium effects sizes of $|r| \geq .30$.