A PSYCHOMETRIC EVALUATION OF THE BRIEF FORM OF THE PID-5 IN AN INPATIENT ADOLESCENT SAMPLE

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A Thesis

Presented to

The Faculty of the Department

of Psychology

University of Houston

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In Partial Fulfillment

Of the Requirements for the Degree of

Master of Arts

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By

Kristin M. Korycinski

May, 2017

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ABSTRACT

Borderline Personality Disorder (BPD) is a severe mental disorder characterized by dysfunction related to conceptualizations of the self and interpersonal processes. Research suggests that BPD may first emerge in adolescence and persist into adulthood, which makes this period of development particularly relevant within the field of personality disorder (PD) research. In an effort to continue expanding research in this area, the most recent iteration of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; APA, 2013) includes a new *hybrid model* of PD in Section III, "Emerging Measures and Models". In this approach, PD are specified by two broad criteria: Criterion A, which notes impairment in at least two areas of personality functioning in domains of the self (i.e., instability of self-image or personal goals) and interpersonal processes (i.e., empathy or intimacy), and Criterion B, which outlines five pathological personality traits that appear to be indicative of personality pathology and disorders (i.e., Antagonism, Disinhibition, Negative Affectivity, Psychoticism, and Detachment). DSM-5 Section III proposes that BPD may best be captured by the three maladaptive traits of Negative Affectivity, Disinhibition, and Antagonism (APA, 2013). The Personality Inventory for DSM-5, Brief Form (PID-5-BF; Krueger et al. 2012) is a 25-item self-report questionnaire that was developed as a means of assessing the presence and severity of the five maladaptive personality traits outlined in this proposed model of PD in DSM-5 Section III. Though there is evidence to suggest that the PID-5-BF demonstrates adequate psychometric properties within adult and adolescent samples, the clinical utility of the PID-5-BF has not yet been explored in a sample of American, inpatient adolescents with formally diagnosed mental illnesses including BPD. Considering the above, the aims of the present study were to (1) assess the relationship between PID-5-BF pathological traits and

theoretically similar measures of BPD (i.e., BPFS-C, BPFS-P, and PAI-BOR) and (2) establish diagnostic accuracy of the PID-5-BF as it pertains to BPD in an inpatient sample (n = 126) of adolescents aged 12- to 17-years-old. Results indicated that DSM-5 personality traits were highly correlated with self-report measures of BPD, suggesting good construct validity. However, the parent-report BPD measure, the BPFS-P, demonstrated notably fewer significant correlations with each of the five proposed traits. In terms of diagnostic accuracy, Negative Affectivity emerged as the single best predictor of BPD rather than a cluster of the three proposed traits outlined in Section III (i.e., Antagonism, Disinhibition, and Negative Affectivity). The results of this study suggest that, while DSM-5 traits as captured by the PID-5-BF are associated with self-reported BPD features, this particular brief measure should not be utilized as an independent diagnostic instrument for BPD. Results were discussed in relation to our understanding of pathological personality traits, maladaptive interpersonal behaviors, diagnostic accuracy, and self-injurious or damaging behavior.

TABLE OF CONTENTS

LIST OF TABLES AND FIGURES

A PSYCHOMETRIC EVALUATION OF THE BRIEF FORM OF THE PID-5 IN AN
INPATIENT ADOLESCENT SAMPLE

DSM-5: Diagnosing Borderline Personality Disorder

Borderline Personality Disorder (BPD) is a severe mental illness characterized by

persistent interpersonal problems, impulsivity, and instability of mood and self-image (APA,

2013). BPD was introduced as a mental disorder in the second edition of the Diagnostic and

Statistical Manual for Mental Disorders (DSM-II; APA, 1968) and has been retained in each

successive version of the DSM with only minor changes (DSM-III-R, 1987; DSM-IV, 1994;

DSM-IV-TR, 2000). Indeed, in the most recent iteration, DSM-5 (APA, 2013), the criteria

for BPD in Section II, "Diagnostic Criteria and Codes", remained identical to those in DSM-

IV-TR. In order for an individual to receive a diagnosis for BPD per DSM-5 Section II, they

must endorse at least five out of nine potential symptoms considered to be typical of those

presenting with the disorder (e.g., marked impulsivity, identity disturbance, etc.). Although

this categorical approach to personality disorders (PD) is considered to be an improvement

over the previous heuristic models of mental illness seen in DSM-II, some argue that

requiring only five of nine potential symptoms to warrant a diagnosis is a non-empirical,

arbitrary cutoff that was proposed as a solution due to the unfounded expectation that one

should endorse "about half" of the noted criteria (see Krueger, 2013). This likely artificially

inflates the prevalence of the diagnosis in the population (Samuel, Hopwood, Krueger,

Thomas, & Ruggero, 2013) while creating vast heterogeneity among those with the diagnosis

(Krueger & Eaton, 2010; Zimmerman, Rothschild, & Chelminski, 2005). Additionally, the

frequency of comorbid PD diagnoses (Becker, Grilo, Edell, & McGlashan, 2000) and the fact

that those presenting with personality pathology are most likely to receive a diagnosis of

"Personality Disorder- Not Otherwise Specified" (PDNOS; Skodol & Bender, 2009) suggests

that those with maladaptive personality traits severe enough to warrant therapeutic

intervention may not fit into any one specific category of PD.

A dimensional approach

In an effort to address issues permeating the current diagnostic approach to

personality disorders, the American Psychiatric Association tasked the Personality and

Personality Disorders Work Group (PDWG) with constructing an improved system for

categorizing personality disorders for DSM-5. Many personality researchers in this

workgroup favored the implementation of a *dimensional approach* to personality, which

suggests that personality disorders are best understood as clusters of maladaptive personality

traits that exist on a spectrum as opposed to discrete diagnoses (Widiger & Simonsen, 2005).

Ideally, this approach would allow researchers and clinicians to note individual differences

amongst patients with the same PD by identifying the presence of various, specific

maladaptive personality traits. Further, many argue that such an approach may accurately

capture general personality dysfunction occurring within the context of another disorder (e.g.,

interpersonal deficits due to depression) that do not, in and of themselves, warrant a

diagnosis of personality disorder (Cohen, Crawford, Johnson, & Kasen, 2005). Researchers

in psychology who defend a radical shift to a wholly trait-based approach in DSM-5 initially

proposed a dimensional model to capture PD, citing empirical research supporting the

viability of a trait-oriented model (Krueger et al., 2011; Widiger, 2011; Clark, Livesly, &

Morey, 1997). However, many individuals in the PDWG who favored the categorical model

were hesitant to introduce a radical shift to PD classification in lieu of retaining the

traditional approach (Krueger, 2013). After much debate, the PDWG ultimately reached a

compromise and agreed to utilize a "hybrid model" of PD that blended both trait and categorical approaches to personality disorders.

Given that the implementation of a new, pathological trait-based model would be a significant departure from the existing, strictly categorical approach, the hybrid model was relegated to Section III of the DSM-5, titled "Emerging Measures and Models", while the traditional categorical approach was retained as the formal diagnostic approach to PD in Section II. In this hybrid approach, personality disorders are largely specified by two new, broad criteria: Criterion A, which notes moderate to severe impairment in personality functioning (both *self* and *interpersonal*) and Criterion B, which specifies five pathological personality traits that individuals with PD may exhibit (DSM-5, 2013). Specifically, Section III Criterion B maladaptive traits are identified as Antagonism, Disinhibition, Negative Affectivity, Psychoticism, and Detachment (see Table 1 for definition of each). This particular model of maladaptive personality traits clearly resembles, and was in fact modeled after, the empirically-supported Five Factor Model of normative personality (FFM; Costa & McCrae, 1992a; see Costa & McCrae, 1992b) and the Personality Pathology-Five (PSY-5; Harkness, McNulty & Ben-Porath, 1995), which is utilized to detect the presence of maladaptive traits in the Minnesota Multiphasic Personality Inventory (MMPI-2). These trait domains may be further divided into 25 refined facets that specifically identify and differentiate personality disorders. For example, the broad trait domain of Detachment consists of the five facets identified as withdrawal, anhedonia, intimacy avoidance, restricted affectivity, and suspiciousness.

Within the proposed hybrid model framework, individuals must first meet Criterion A of BPD, which is characterized by the presence of at least two of the following four

impairments in personality functioning: instability of self-image or personal goals, and reduced capacity for empathy or intimacy. Meeting Criterion B for BPD, which is evaluated at the trait facet-level, necessitates that an individual with Criterion A personality dysfunction exhibit at least four of the seven proposed trait facets intended to capture the nature of BPD. These proposed facets include: impulsivity, risk taking, hostility, emotional lability, anxiousness, separation insecurity, and depressivity. Additionally, Criterion B specifies that at least one of the four presenting traits must include impulsivity, risk taking, or hostility, with the remaining traits serving to capture individual variability in the presentation of personality pathology. It is also of note that this new approach to personality disorders retained only six specific personality disorders from DSM-IV-TR; Antisocial, Avoidant, Borderline, Narcissistic, Obsessive-Compulsive, and Schizotypal. Additionally, this hybrid model implemented a new diagnosis of Personality Disorder-Trait Specified (PD-TS), which is intended to serve as a replacement for the oft-diagnosed PDNOS. Within this proposed framework, PD-TS is considered to be an improvement upon PDNOS as it allows clinicians and researchers to identify and report the *specific* maladaptive traits that are contributing to personal and interpersonal distress.

Borderline Personality Disorder in adolescence

As with other DSM-5 personality disorders, many researchers argue that BPD can emerge during adolescence (see De Fruyt & De Clercq, 2014; Zanarini, Frankenburg, Khera, & Bleichmar, 2001; Sharp & Fonagy, 2015) and persist into adulthood thereafter (Crawford, Cohen, & Brook, 2001; Bornovalova, Hicks, Iacono, & McGue, 2009). Despite increasing evidence that BPD symptoms may be present as early as childhood, many mental health professionals report that they remain reluctant to diagnose this disorder in youth (Griffiths,

2011; Laurenssen, Hutsebaut, Feenstra, Van Bussenbach, & Luyten, 2013). Those who resist assigning a formal diagnosis of BPD to adolescents typically attribute their hesitance to changes in personality disorder that suggest relative decline in symptom severity compared to adults (see Johnson, Cohen, Kasen, Skodol, Hamagami, & Brook, 2000), potential stigma surrounding an early diagnosis of BPD (Kernberg, Weiner, & Bandenstein, 2000), and the difficulty of disentangling emerging BPD traits from normative adolescent development (Meijer, Goedhart, & Treffers, 1998; Miller, Muehlenkamp, & Jacobson, 2008). Indeed, many believe that PD traits that emerge early in life will cease once an adolescent reaches adulthood due to the relative instability of personality traits in this age group as compared to adults (Caspi, Roberts, & Shiner, 2005), the progressive changes in personality traits toward psychological maturity due to biological processes (McCrea et al., 2000), and the influence of social development and interpersonal relationships (Roberts & Wood, 2006; Roberts, Wood, & Smith, 2005).

It is important to note that, while individuals' trait constellations certainly do change over time, the pattern of change occurring at the *mean-level* (i.e., change in the mean presentation of a trait within an individual) must be differentiated from changes observed in terms of *rank-order* (i.e., the tendency for individuals to present with more or less of a trait relative to their same-age peers over time). To this end, research has consistently supported the notion that traits are particularly susceptible to mean-level change during the transition from adolescence to adulthood (Shiner, 2005; Roberts, Walton, & Viechtbaur, 2006) and that rank-order stability, in contrast, appears to remain consistent across the lifespan (Roberts & DelVecchio, 2000). This pattern of personality development suggests, for example, that an adolescent with BPD traits may experience a mean-level reduction in symptom severity as

they develop, but will likely continue to exhibit more impairing, interpersonally ineffective behavior and emotion dysregulation relative to their peers as they reach adulthood (Caspi, 2000; Caspi, Bem, & Elder, 1989; Bornovalova et al., 2009; Chanen, Jackson, McGorry, Allot, Clarkson, & Yuen, 2004; Hopwood et al., 2009; Hopwood et al., 2011). With this in mind, deepening our understanding of the ways in which personality disorders emerge at the *trait-level* in early adolescence and childhood may pave the way for researchers to gain a more nuanced understanding of the extent to which personality pathology may develop and persist over time.

Personality Inventory for DSM-5

In order to operationalize Criterion B – that is, the five-factor model of personality pathology that includes the proposed maladaptive personality trait domains and their lower-order facets-- the Personality Inventory for DSM-5 (PID-5) was created (Krueger, Derringer, Markon, Watson, & Skodol, 2012). This 220-item self-report instrument was made publicly available by the American Psychiatric Association (APA, 2012) in order to encourage researchers and clinicians to use the measure in practice and potentially further the argument for its viability in a wide variety of populations. Since its release, an ever-expanding body of literature has emerged in support of the proposed five-factor structure of the PID-5 (see Morey, Benson, Busch, & Skodol, 2015; Al-Dejani, Gralnick, & Bagby, 2016), as well as a newly identified hierarchical structure of the PID-5 domains in both adults (Wright, Thomas, Hopwood, Markon, Pincus, & Krueger, 2012) and adolescents (De Clercq, De Fruyt, De Bolle, Van Heil, Markon, & Krueger, 2013). The release of the original, self-report PID-5 was then followed by both informant- (Markon, Quilty, Bagby, & Krueger, 2013) and clinician-report (Morey, Krueger, & Skodol, 2013) versions of the measure. The PID-5 has

also been validated in both adult (Bastiaens, Claes et al., 2016; Van den Broeck, Bastiaansen,

Rossi, Dierckx, & De Clercq, 2013) and adolescent (De Clercq et al., 2013) Dutch

community samples. Recent findings also note that a short, 100-item form of the PID-5 may

accurately measure pathological traits in adult samples without sacrificing information that

would otherwise be observed in the original version (PID-5-SF; Maples et al., 2015), which

presents the argument for validation of shorter measures of maladaptive traits.

PID-5 Brief Form. In addition to the PID-5, the APA released a brief, 25-item

version of this measure (PID-5-BF; Krueger, Derringer, Markon, Watson, & Skodol, 2013)

designed to assess the presence of the five higher-order traits outlined in Section III. The

PID-5-BF features items intended to capture these five overarching traits, each of which is

represented by five items that are measured for presence and severity using a Likert-type

scale (see Appendix A for PID-5-BF; see Appendix B for scoring procedures). However,

unlike the original, 220-item PID-5, the PID-5-BF is not intended to capture the 25 proposed

lower-order trait facets. As this is the case, the PID-5-BF cannot measure maladaptive traits

at the facet level and, thus, was initially proposed as a means of broadly capturing personality

pathology. To this end, research utilizing adult Danish (Bach, Maples-Keller, Bo, &

Simonsen, 2015) and Italian adolescent community (Fossati, Somma, Borroni, Markon, &

Krueger, 2015) and inpatient samples (Somma et al., 2016) suggest that the PID-5-BF is a

potentially viable instrument in terms of accurately screening broad PD traits.

Though the PID-5-BF has yet to be formally standardized, recent studies evaluating

the validity of this measure have yielded promising results. Indeed, studies validating the

PID-5-BF in American adults have largely supported its proposed five-factor structure and

utility as an effective measure for capturing general personality pathology (Anderson,

7

Sellbom, & Salekin, 2016; Debast, Rossi, & van Alphen, 2017). Additional studies have evaluated PID-5-BF traits against a range of variables, with results suggesting that pathological traits as measured by the PID-5-BF may be associated with emotion dysregulation, (Pollock, McCabe, Southard, & Zeigler-Hill, 2016), interpersonal styles and motives (Southard, Noser, Pollock, Mercer, & Zeigler-Hill, 2015; Zeigler-Hill & Noser, 2016; Zeigler-Hill & Hobbs, 2017; Mogilski & Welling, 2016), and even preferred styles of humor (Zeigler-Hill, McCabe, & Vrabel, 2016). Previous research has also evaluated the extent to which PID-5-BF traits may be associated with addictive behaviors such as persistent and problematic internet usage (Gervasi, La Marca, Lombardo, Mannino, Iacolino, & Schimmenti, 2017) and opioid dependence (Massaldjieva, Georguiev, Hadzhiyska, 2016).

Advantages of a dimensional measure of Borderline Personality Disorder

Previous research utilizing measures that evaluate both maladaptive and normative personality features at the trait-level has demonstrated support for the use of dimensional measures of BPD. Studies evaluating the ability of the FFM to evaluate personality disorders as outlined by the DSM have consistently suggested that personality disorders may, in fact, be best described and characterized by maladaptive variants of FFM traits (see Lynam & Widiger 2001; Trull, 2012). For instance, the NEO Personality Inventory-Revised (NEO-PI-R; Costa & McCrae, 1992c) has been shown to predict personality disorders and maladaptive traits, despite being designed as a measure of non-pathological personality traits. In fact, an item response theory (IRT) analysis of both normative and pathological trait measures conducted by Samuel and colleagues (2010) suggested that these measures, specifically the NEO-PI-R, Schedule for Nonadaptive Personality (SNAP; Clark, 1993), and Dimensional Assessment of Personality Pathology-Basic Questionnaire (DAPP-BQ; Livesley & Jackson,

2009), evaluate the same underlying construct of personality and may be combined into a common metric to assess varying levels of personality pathology. The NEO-PI-R's ability to detect BPD has also been directly assessed, with several studies demonstrating the viability of a dimensional, trait-oriented approach to this disorder (e.g., Trull, Widiger, Lynam, & Costa, 2003; Miller, Morse, Nolf, Stepp, & Pilkonis, 2012; Few, Miller, Grant et al., 2016).

In regards to Section III traits, several studies have suggested that the original PID-5 is able to effectively differentiate individuals with BPD from those without this diagnosis (Bach, Sellbom, & Simonsen, 2016; Calvo, Valero, Saez-Francas, Gutierrez, Casas, & Ferrer, 2016; Fossati, Somma, Borroni, Maffei, Markon, & Krueger, 2016b). Further, several studies have produced results that implicate the three DSM-5 Section III traits proposed to capture BPD (i.e., Negative Affectivity, Disinhibition, and Antagonism) as unique predictors of BPD in adults. For instance, Fossati et al. (2016b) identified several facets of Negative Affectivity (i.e., emotional lability, separation insecurity, depressivity), Disinhibition (i.e., impulsivity and risk taking), and Antagonism (i.e., hostility) as being significantly associated with BPD based on associations between facets of the full PID-5 and SCID-II (First et al., 1997) identification of BPD. Results from a study conducted by Rojas & Widiger (2016) produced similar results, identifying facets of separation insecurity and emotional lability (i.e., Negative Affectivity), impulsivity and risk taking (i.e., Disinhibition), and hostility (i.e., Antagonism). Hopwood et al. (2012) also identified these three higher-order trait domains as being most highly correlated with Section II diagnoses of BPD, noting that no other traits provided incremental information that would further identify the presence of BPD. Finally, findings outlined by Morey, Benson, & Skodol (2016) identified the three aforementioned traits as being most highly correlated with diagnoses of BPD in a clinical sample of adults,

though it is of note that diagnoses in this particular sample were based on clinician judgment rather than a singular diagnostic approach (p. 639). As it pertains to adolescents, a recent study by De Clercq and colleagues (2013) assessed the relationship between PID-5 trait facets and maladaptive personality traits as assessed by the Dimensional Personality Symptom Item Pool (DIPSI; De Clercq, De Fruyt, Van Leeuwen, & Mervielde, 2006). Their results suggested strong correlations between DIPSI traits identified to be most relevant to BPD (i.e., Affective Lability, Impulsivity, Ineffective Coping) and all PID-5 trait domains, suggesting that the PID-5 to evaluate personality pathology may be a viable option within this population.

Though categorical measures of BPD may effectively lead to an appropriate diagnosis as outlined in Section II of the DSM-5, many argue that there are significant advantages to embracing dimensional measures of personality. The primary benefit of utilizing dimensional measures of personality pathology is their ability to capture maladaptive traits that may not necessarily lend themselves to a formal diagnosis of personality disorder (see Krueger et al., 2011). Though diagnostic interviews such as the Childhood Interview for DSM-IV Borderline Personality Disorder (CI-BPD; Zanarini, 2003) can effectively evaluate all nine criteria of BPD, these assessments may not capture more nuanced expressions of personality dysfunction. Thus, it appears as though these categorical approaches paradoxically adhere to a model of personality disorder that simultaneously creates vast heterogeneity among individuals with a single diagnosis (Krueger & Eaton, 2010; Zimmerman & Rothschild, 2005) while failing to evaluate individual differences in trait expression in a way that would allow for more refined clinical conceptualizations of BPD (see Eaton, Krueger, South, Simms, & Clark, 2011).

A PSYCHOMETRIC EVALUATION OF THE BRIEF FORM OF THE PID-5 IN AN
INPATIENT ADOLESCENT SAMPLE

The Present Study

To our knowledge, only two studies thus far have attempted to validate the PID-5-BF

in a sample of adolescents (Fossati et al., 2015; Somma et al., 2016). However, the clinical

utility of the PID-5-BF has never been validated in an American, inpatient sample of

adolescents. Further, it appears the only studies examining the viability of the 220-item PID-

5 in inpatient samples were conducted using adult participants (Bastiaens, Claes et al., 2016;

Sellbom, Sansone, Songer, & Anderson, 2014). Researchers, and especially clinicians, must

be able to effectively identify maladaptive personality traits in adolescents. Recognition and

direct assessment of maladaptive personality traits in adolescents is particularly critical, since

research suggests that nearly half of all mental illnesses emerge in adolescence (Kessler et

al., 2005) and that early intervention is associated with improved treatment outcomes for

individuals within this population (Chanen, Jovev, McCutcheon, Jackson, & McGorry, 2008;

Sharp & Fonagy, 2015). Additionally, a growing body of literature suggests that personality

is closely related to the development and expression of general psychopathology (Krueger &

Tackett, 2003; Widiger, Verheul, & van den Brink, 1999). Indeed, both normal and abnormal

personality traits that are present early in life appear to predispose individuals to a wide

variety of psychopathology and may ultimately influence individual differences in clinical

presentations and treatment needs (Caspi & Shiner, 2006).

Thus far, studies suggest that scores obtained from the full PID-5 in adults are

associated with a multitude of mental health-related issues and symptomatology, including

psychopathy (Strickland, Drislane, Lucy, Krueger, & Patrick, 2013), dysfunctional beliefs

and cognitive distortions (Hopwood, Schade, Krueger, Wright, & Markon, 2012), broadband

clinical scale elevations of pathology (e.g., PAI; Hopwood, Wright, Krueger, Schade,

Markon, & Morey, 2012), and behavioral problems and emotion dysregulation in children and adolescents (e.g., CBCL; De Caluwé, Decuyper, & De Clercq, 2013). Additionally, some research has suggested that the PID-5 may be somewhat more effective at capturing personality pathology than existing measures (e.g., PDQ-4+; Fossati, Somma, Borroni, Maffei, Markon, & Krueger, 2016a). While previous research has supported the use of the PID-5 in adolescent samples in European, outpatient adolescents (De Clerq et al., 2013), it remains unclear whether the PID-5-BF may effectively capture Borderline-specific pathology in adolescents. By evaluating the capacity of the PID-5-BF to do so in an inpatient sample, we ensure that we may use this tool to obtain crucial information from a population that (1) typically exhibits the most severe presentations of psychopathology, (2) are more likely to report behaviors and thought patterns that occur in low-frequency in the general population (e.g., self-injury and suicidal ideation or attempts; Ferrara, Terrononi, & Williams, 2012), and (3) are likely to directly benefit from a measure that can quickly and effectively assesses personality pathology in at-risk adolescents in a time-sensitive treatment setting (Vreugdenhil, van den Brink, Ferdinand, Wouters, & Doreleijers, 2006). As such, the present study aims to evaluate the construct validity of the PID-5-BF as compared to previously validated measures of BPD pathology, as well as the extent to which the PID-5-BF may accurately detect diagnoses of BPD in an inpatient, adolescent sample.

Specific Aims and Hypotheses

Against the above, the specific aims and hypotheses for the current study are, broadly, as follows:

Aim 1: Assess the relationship between PID-5-BF pathological traits and theoretically similar measures of BPD traits and maladaptive behaviors via bivariate correlation analysis.

Hypothesis: In reviewing the current literature, it appears as though several studies have identified each of the proposed higher-order traits as positive correlates of BPD, with each trait exhibiting varying levels of significance (De Clercq et al., 2013; Bastiaens, Smits et al., 2016; Anderson, Sellbom, & Salekin, 2016). Given this previous validation, we hypothesize that we will see positive correlations amongst each of these traits as they relate to BPD. However, to our knowledge, only one study appeared to implicate Psychoticism as indicative of BPD (Bastiaens, Smits et al. 2016). As this particular trait appears to be the least associated with this disorder, we anticipate that this will exhibit the lowest positive correlation with BPD. Additionally, the proposed, empirically supported diagnostic criteria comprised of the higher-order trait domains of Negative Affectivity, Disinhibition, and Antagonism have been consistently identified as the most diagnostically salient cluster of traits in uniquely identifying diagnoses of BPD (see Fossati et al., 2016b; Rojas & Widiger, 2016; Hopwood et al. 2012). Therefore, we anticipate that these three traits will exhibit the most significant positive correlations with our measures of BPD.

Aim 2: Establish diagnostic accuracy and clinical utility of the PID-5-BF as it pertains to BPD. The ability of the PID-5-BF to predict diagnosis of BPD in our inpatient sample will be determined through the use of ROC analyses.

Hypotheses: Given the previous literature examining the three higher-order traits proposed to diagnose BPD in Section III of DSM-5, we anticipate that this suggested

composite of Negative Affectivity, Disinhibition, and Antagonism will be the most diagnostically accurate (i.e., demonstrating the greatest AUC).

No direct hypotheses were made for the remaining traits and composites due to their exploratory nature. The composites that were created based on previous literature have minimal external validation (i.e., have not been replicated or are corroborated by few studies) and were, thus, also considered to be exploratory.

Method

Participants

Individuals admitted to the adolescent unit of a psychiatric inpatient facility were approached for parental consent and youth assent to participate in a larger research study concerning child and adolescent mental health. In order to participate, adolescents needed to be fluent in English and between the ages of 12 and 17. Adolescents were excluded from study participation if consent or assent were declined, or if the initial admission evaluation indicated active psychosis or a neurocognitive impairment (i.e., Autism Spectrum Disorder or IQ < 70). In total, N = 248 adolescents were initially approached to participate in the present study. Of these, n = 44 were ultimately excluded from participation due to lack of parental consent (n = 15), lack of English fluency or the presence of a significant neurocognitive impairment (n = 12), active psychosis (n = 6), youth discharge from the inpatient unit prior to completion of the evaluation (n = 6), or other unreported reasons (n = 5). Of those who were deemed eligible to participate based on inclusion criteria, n = 78 did not complete the PID-5-BF upon intake and were ultimately excluded from analyses. Thus, our final sample consisted of n = 126 adolescents, which was majority female (71.4%) with an average age of 15.23 years. Of this sample, n = 47 (37.3%) were assigned a diagnosis of BPD based on a

structured diagnostic interview, with n = 77 (61.1%) failing to meet full criteria. It is of note

that the BPD status of n = 2 (1.6%) participants was not reported and, as such, these

individuals were not included in analyses regarding the diagnostic accuracy of the PID-5-BF.

The racial and ethnic breakdown of the sample was as follows: 69.8% White, 8.7% Hispanic,

7.9% multiracial (or "other"), 3.2% Asian, 1.2% African American, and 0.8% American

Indian or Alaskan Native, with 16.7% choosing not to report this information. Adolescents

recruited from this inpatient facility tend to report high income backgrounds, with 63.5% of

those in our sample reporting an annual income of over $100,000.

Measures

Personality Inventory for DSM-5—Brief Form—Child Age 11-17 (PID-5-BF).

Participants completed the PID-5-BF (Krueger et al., 2013) as part of an initial battery of

assessments administered upon intake. The PID-5-BF is a brief, 25-item self-report measure

assessing the maladaptive trait domains proposed in Section III of DSM-5. The PID-5-BF is

an adapted version of the original 220-item PID-5 (Krueger et al., 2012) and assesses traits as

they load onto five broad, overarching domains (i.e., Negative Affectivity, Detachment,

Antagonism, Disinhibition, and Psychoticism). Each domain is assessed by five items rated

on a four-point Likert scale ranging from 0 (*very false or often false*) to 3 (*very true or often*

true). Within the present sample, the PID-5-BF demonstrated overall good psychometric

properties. Specifically, Chronbach's alpha values were .64 (Detachment), .69 (Negative

Affectivity), .74 (Antagonism), .78 (Psychoticism), and .80 (Disinhibition), with mean inter-

item correlation values in the .27 to .44 range (see Table 2). Cronbach's alpha values for the

PID-5-BF total score was .83 (mean inter-item r = .17). A previous study examining the

reliability and construct validity of the PID-5-BF (Fossati et al., 2015) in a community

sample of Italian adolescents also demonstrated adequate temporal stability in regards to two-month test-retest reliability, with intraclass r values ranging from .78 (Negative Affectivity) to .97 (Detachment).

Childhood Interview for DSM-IV Borderline Personality Disorder (CI-BPD). The CI-BPD (Zanarini, 2003) is a semi-structured interview adapted from the Diagnostic Interview for Personality Disorders (Zanarini et al., 1987) for use with children and adolescents. Specifically, the items assess the extent to which individuals exhibit each of the nine criteria for BPD outlined in DSM-IV. These criteria include inappropriate and/or intense anger, affective instability, chronic feelings of emptiness, identity disturbance, stress-related paranoid ideation or dissociation, efforts to avoid abandonment, recurrent suicidal behaviors, impulsivity, and patterns of unstable or "stormy" interpersonal relationships. Each item consists of an initial, open-ended question followed by several prompts that the interviewer may use to further investigate that criterion. Upon completion, the interviewer reviews each answer and assigns a score of 0 (*absent*), 1 (*probably present*), or 2 (*definitely present*) to each criterion. Based on CI-BPD protocol, an adolescent is considered to meet DSM-IV criteria for BPD if they endorse five or more of the nine criteria at the 2-level. Each interview was conducted and scored by trained, doctoral-level graduate students. Previous studies utilizing this measure with participants recruited from the same inpatient facility have reported that the CI-BPD demonstrates adequate interrater reliability ($\kappa = .89$ for 15% of the sample; Sharp, Ha, Michonski, Venta, & Carbone, 2012). For the present study, the CI-BPD was used as a means to categorize participants into groups in which individuals either met criteria for BPD (i.e, meeting five or more criteria at the 2-level) or did not (i.e., all who exhibit less than five criteria at the 2-level).

Personality Assessment Inventory for Adolescents Borderline Subscale (PAI -

BOR). The PAI-BOR (Morey, 2007) is a 20-item subscale from a 264-item assessment of

broadband domains of personality and emotional functioning that was developed for use in

adolescents between the ages of 12-18 years old. The PAI-A was adapted from and closely

resembles the original adult version of the Personality Assessment Inventory (PAI), but

contains fewer items and was adjusted for differences pertaining to diagnostic and

developmental significance of content. The PAI-A contains 22 non-overlapping scales, which

include four validity scales, 11 clinical scales, five treatment consideration scales, and two

interpersonal scales. The PAI-BOR scale is comprised of the four subscales of affective

instability, identity problems, negative relationships, and self-harm, which are intended to

capture broad presentations of personality pathology in BPD. Respondents record their

answer by indicating one of four potential response options, ranging from 0 (false) to 3 (very

true). The original study producing standardized guidelines for score interpretation was

conducted using a normative sample of both community (N=707) and clinical (N=1,160)

adolescents ages 12-18 years old. Adequate psychometric properties were established for the

PAI-A and comparable properties have been demonstrated in the adult PAI (Morey, 2007).

For the purposes of our study, we intended to utilize the PAI-BOR to evaluate the construct

validity of the PID-5-BF as a potential measure of BPD features.

Borderline Personality Features Scale for Children (BPFS-C). The BPFS-C (Crick

et al., 2005) is a 24-item self-report measure of borderline personality features intended for

children and adolescents aged 9 years and older. This measure was adapted from the

borderline subscale of the PAI as a means to more accurately capture adolescent symptoms

and experiences of BPD symptoms by using language that is more developmentally sensitive.

As it was directly adapted from the PAI-BOR the BPFS-C assesses the same four subscales

(i.e., affective instability, identity problems, negative relationships, and self-harm).

Responses are recorded using a 5-point likert scale, ranging from 1 (not at all true) to 5

(always true). All items are summed after completion, with high scores indicating presence

of BPD symptoms and low scores suggesting lower symptom levels. Previous research has

demonstrated adequate psychometric properties for the BPFS-C in both community (Sharp,

Mosko, Chang, & Ha, 2010) and inpatient (Chang, Sharp, & Ha, 2011) adolescents. In the

present sample, Chronbach's Alpha values for each subscale of the BFPS-C were .50

(identity problems), .71 (affective instability), .71 (negative relationships), and .77 (self-

harm) with mean inter-item correlations ranging from .14 to .35 (see Table 2). Chronbach's

alpha for the total score on the BPFS-C was .86 (mean inter-item r = .20). In addition to the

PAI-BOR, the present study utilized this well-validated measure of BPD as a means to

evaluate the construct validity of the PID-5-BF. Additionally, the present study utilized the

parent-report version of this measure (BPFS-P; Sharp, Mosko, Chang, & Ha, 2010) in an

effort to gain an additional perspective on adolescent inpatients' symptoms of BPD and

account for potential shared method variance between the PAI-BOR and BPFS-C.

Chronbach's Alpha values for each subscale of the BFPS-P were .55 (identity problems), .63

(affective instability), .69 (negative relationships), and .84 (self-harm) with mean inter-item

correlations ranging from .17 to .47 (see Table 2). Chronbach's alpha for the total score on

the BPFS-P was .87 (mean inter-item r = .23).

Analytic Strategy

The following data analytic strategies were conducted using SPSS statistical software.

The strategies relevant to each specific aim of the outlined research plan are as follows:

Aim 1: We used *bivariate correlation analysis* to assess relationships between PID-5-BF pathological traits and the aforementioned measures of personality pathology (i.e., BPFS-C, BPFS-P, and PAI-BOR). These correlations were conducted at the proposed factor-level of the PID-5-BF (i.e., each of the five Section III traits) and the measures of BPD (i.e., Affective Instability, Identity Problems, Negative Relationships, Self-Harm), and also included total scores of each measure within these analyses. Additionally, we analyzed convergent correlations within each PID-5-BF trait and the total scores produced by each measure of BPD. These analyses were conducted with the intention of evaluating the concurrent validity of our two self-report measures of BPD (i.e., BPFS-C and PAI-BOR), as well as to compare statistical significance between the self- and parent-reports of the BPFS. These analyses were also conducted to account for shared method variance that may be observed between our self-report measures by evaluating the extent to which our parent-report measure, the BPFS-P, correlated with the PID-5-BF as compared to its analogous self-report measure, the BPFS-C. These correlation comparisons were conducted using a computational program developed by Lee and Preacher (2013). This program operates by first converting correlation coefficients using Fisher's *r*-to-*z* transformation, which allows these values to be translated into standardized z-scores for direct comparison. This is then followed by implementation of Steiger's (1980) equations, which execute an asymptotic z-test in order to evaluate the magnitude of difference between two dependent correlations.

Aim 2: The second aim sought to establish the predictive ability and clinical utility of the PID-5-BF as it pertains to BPD. To accomplish this goal, we used *receiver operating characteristics* (ROC) analysis to evaluate the ability of the PID-5-BF to predict BPD. A ROC curve is created by plotting the true-positive rate (sensitivity) against the false positive

rate (1-specificity) on a graph. The area under the curve (AUC) can then be calculated according to the nonparametric trapezoid method (Hanley & McNeil, 1982), which yields an index of accuracy that has been used in several other studies to establish criterion validity (Fombonne, 1991; Thapar & McGuffin, 1998). AUC scores below .7 suggest low diagnostic accuracy, scores of .7 to .9 indicate moderate accuracy, and high accuracy is indicated by scores greater than .9 (Swets & Pickett, 1982). The cutoff score for the PID-5-BF can then be determined by locating the intersection of the sensitivity and specificity curves. Diagnosis of BPD was established using the CI-BPD, in which individuals fully endorsing five or more criteria at a level of "2" were identified as having the disorder, whereas those endorsing four criteria or fewer at a level of "2" were classified as not having BPD.

Traits and composites analyzed: In order to directly evaluate the diagnostic ability of the PID-5-BF, several composites were created in addition to exploratory ROC analyses planned for each individual trait:

1) Disinhibition, Negative Affectivity, and Antagonism: First, we assessed the diagnostic sensitivity of the PID-5-BF in capturing BPD by creating a composite of the three higher-order traits proposed in Criterion B of DSM-5 Section III (e.g., Disinhibition, Negative Affectivity, and Antagonism; APA, 2013).

2) Negative Affectivity and Disinhibition: We created a composite of Negative Affectivity and Disinhibition based on previous work by Calvo et al. (2016), whose results suggested that these traits were most predictive of a BPD diagnosis in Spanish adults based on clinical interpretations formulated upon completion of a structured diagnostic interview (SCID-II; First, Gibbon, Spitzer, Benjamin, & Williams, 1997).

3) <u>Negative Affectivity, Disinhibition, and Psychoticism:</u> We created a composite based on the results of Bach & Sellbom (2016), which suggested that trait facets of Emotional lability, Anxiousness, Separation Insecurity, Depressivity, Impulsivity, Risk taking, and Hostility largely captured BPD criteria. This translates to high associations of Negative Affectivity, Disinhibition, & Psychoticism at the domain-level, which comprise this proposed composite. This particular trio is further validated by Bastiaens, Smits et al. (2016), whose work also identified these three traits as appearing to be the most highly associated with DSM-IV-TR diagnoses of BPD.

4) <u>All Five Traits and Total Score:</u> The final composite consisted of all five of the proposed PID-5-BF traits. Additionally, we analyzed the extent to which each individual trait could independently detect diagnoses of BPD. These were all largely exploratory in nature and were executed in an attempt to capture the extent to which overall reports of pathological personality traits may predict BPD.

Results

Preliminary Analyses

Exploratory and descriptive analyses were conducted in order to assess for outliers and normality of distributions for all study variables (see Table 2). Our analyses of frequency revealed that all of our participants (n = 126) completed the BPFS-C, while n = 122 completed the PAI-BOR and n = 111 parents completed the BPFS-P. Completed measures for these individuals were retained in our bivariate correlation analyses for Aim 1, and PID-5-BF scores for these participants were included in our Aim 2 ROC analyses.

In order to test for potential deviation from normal distribution, a series of Shapiro-Wilk tests were conducted. In regards to total scores on our measures of BPD features, a significant negative skew was observed for the PAI-BOR ($W(107)=.97$, $p=.03$) while both the BPFS-C ($W(107)=.99$, $p=.28$) and BPFS-P ($W(107)=.99$, $p=.50$) appeared to approximate normal distributions. For the PID-5-BF, normality was observed for both Psychoticism ($W(107)=.98$, $p=.05$) and total score ($W(107)=.99$, $p=.61$) distributions, a significant negative skew was observed for Negative Affectivity ($W(107)=.97$, $p=.01$), and the remaining traits of Detachment ($W(107)=.98$, $p=.05$), Antagonism ($W(107)=.90$, $p=.000$), and Disinhibition ($W(107)=.96$, $p=.003$) each demonstrated significant positive skews. Given these violations of normality, non-parametric analyses were utilized when testing the specific aims of the present study.

Aim 1: Bivariate correlation analysis

PAI-BOR

Correlations between PID-5 domains and the PAI-BOR. Table 3 provides the results for bivariate correlations between the PAI-BOR and PID-5-BF. Affective Instability shows strong positive correlations with PID-5 trait domains of Negative Affectivity, Disinhibition, Psychoticism, and total score, and a modest correlation with detachment. The Identity Problems subscale was most positively associated with Negative Affectivity, Detachment, Disinhibition, Psychoticism, and total scores. Higher reports of Negative Relationships were positively associated with Negative Affectivity, Detachment, Disinhibition, Psychoticism, and total scores. Reports of Self-Harm behavior demonstrated strong positive correlations with Negative Affectivity, Antagonism, Disinhibition, Psychoticism, and total scores. The overall score obtained from the PAI-BOR demonstrated a

strong positive correlation with each trait domain and the total score for the PID-5-BF, with

the exception of Antagonism, which demonstrated only modest correlation.

BPFS-C

   Correlations between PID-5 domains and the BPFS-C. Table 3 also provides the

results for bivariate correlations between the BPFS-C and PID-5-BF. Affective Instability

shows strong positive correlations with PID-5 trait domains of Negative Affectivity,

Disinhibition, Psychoticism, and total scores. The Identity Problems subscale showed strong,

positive associations with Negative Affectivity, Detachment, Psychoticism, and total scores,

with modest associations with Disinhibition. Higher scores on the Negative Relationships

subscale were positively associated with Negative Affectivity, Detachment, Psychoticism,

and total scores, with modest associations with Disinhibition. Reports of Self-Harm behavior

demonstrated strong positive correlations with Negative Affectivity, Antagonism,

Disinhibition, and total scores, with modest associations with psychoticism. Finally, the total

score obtained from the BPFS-C demonstrated a strong positive correlation with each trait

domain and the total score for the PID-5-BF, with the exception of Antagonism which

demonstrated only modest correlation.

BPFS-P

   Correlations between PID-5 domains and the BPFS-P. In contrast to both self-

report measures of BPD (i.e., BPFS-C, PAI-BOR), the BPFS-P demonstrated notably fewer

significant correlations with the five domains outlined in the PID-5-BF (see Table 3). Both

Affective Instability and Negative Relationships exhibited positive correlations with

Disinhibition, but not with any other PID-5-BF traits or its total score. Identity Problems

demonstrated a positive correlation with Negative Affectivity only. Self-Harm demonstrated

strong positive correlations with both Antagonism and Disinhibition, and a negative

correlation with Detachment. Finally, the total score obtained from the BPFS-P yielded a

strong correlation with Disinhibition, but no other PID-5-BF traits.

Correlation Comparisons

The results of our correlational comparison analyses revealed no significant

differences between the BPFS-C and PAI-BOR total scores in regards to any individual trait

or total score from the PID-5-BF (see Table 4). That is to say, for example, that there was no

statistically significant difference between BPFS-C and PAI-BOR total score correlations

with PID-5-BF Negative Affectivity. However, several notable differences emerged when

comparing BPFS-C and BPFS-P correlations. Compared to the BPFS-C, the BPFS-P

demonstrated significantly lower correlations with Negative Affectivity, Detachment,

Psychoticism, and the total score obtained from the PID-5-BF.

Additional correlation comparisons were conducted in order to evaluate the statistical

differences between PID-5-BF trait correlations with total scores obtained on self-report

measures of BPD symptoms (i.e., PAI-BOR and BPFS-C). These analyses were approached

with consideration to the three traits proposed to capture BPD (i.e., Negative Affectivity,

Disinhibition, Antagonism) and the extent to which these compared to the remaining traits of

Psychoticism and Detachment. Table 5 presents correlation comparisons between each PID-

5-BF trait in regards to their correlations with BPFS-C and PAI-BOR total scores. Results of

these comparisons suggest that Negative Affectivity and Disinhibition do not significantly

differ from one another in terms of their observed correlations with total scores on either self-

report measure. While no statistical difference was noted between Negative Affectivity and

Psychoticism in regards to their associations with the BPFS-C, Negative Affectivity

demonstrated significantly greater correlations than all remaining PID-5-BF traits on both the

BPFS-C and PAI-BOR. Similarly, Disinhibition tended to exhibit statistically greater

correlations with these measures in comparison to the other PID-5-BF traits, with the

exceptions of Psychoticism (PAI-BOR and BPFS-C) and Detachment (BPFS-C) in which no

significant differences were observed. It is also of note that Antagonism did not differ

significantly from Detachment, but demonstrated significantly lower correlations with BPD

total scores in comparison to Negative Affectivity, Disinhibition, and Psychoticism.

Detachment demonstrates significantly lower correlations with total scores obtained from the

PAI-BOR in comparison to each of the three remaining traits.

Aim 2: Diagnostic accuracy of the PID-5-BF in detecting BPD via ROC analysis

Figure 1 represents the ROC curve produced by evaluating the predictive validity of a

composite comprised of the three traits proposed in Criterion B of DSM-5 Section III (e.g.,

Negative Affectivity, Antagonism, & Disinhibition; APA, 2013). This particular composite

produce an ROC curve with AUC = .620, indicating low diagnostic accuracy.

Figure 2 represents the composite comprised of Negative Affectivity & Disinhibition,

which Calvo & colleagues (2016) identified as the most predictive of BPD. This composite

yielded an AUC = .691, which indicates low diagnostic accuracy. The composite of Negative

Affectivity, Disinhibition, & Psychoticism (see Bach & Sellbom, 2016; Bastiaens, Smits et

al., 2016), produced an AUC = .687, which suggests low diagnostic accuracy (see Figure 3).

Figure 4 represents the exploratory ROC curves produced by each of the five

pathological personality traits. Of these, our results suggested that only Negative Affectivity

(AUC = .729) appeared to have at least moderate diagnostic accuracy. The remaining traits,

Detachment (AUC = .609), Antagonism (AUC = .478), Disinhibition (AUC = .591), and

Psychoticism (AUC = .628) each produced ROC curves that indicated low diagnostic accuracy. The total score produced by the summation of all items of the PID-5-BF also appeared to have low diagnostic accuracy (Figure 5; AUC = .640).

Discussion

Borderline Personality Disorder is a severely impairing disorder characterized by significant deficits in self-concept, interpersonal relationships, emotion regulation, and constraint (APA, 2013). Though many researchers defend the notion that BPD can emerge as early as childhood (De Fruyt & De Clercq, 2014; Zanarini, Frankenburg, Khera, & Bleichmar, 2001), hesitance to diagnose BPD prior to adulthood still permeates clinical psychology and psychiatry (Johnson, Cohen, Kasen, Skodol, Hamagami, & Brook, 2000; Kernberg, Weiner, & Bandenstein, 2000; Meijer, Goedhart, & Treffers, 1998; Miller, Muehlenkamp, & Jacobson, 2008). This is particularly problematic due to treatment outcome research that suggests that adolescents who receive therapeutic intervention soon after symptom onset tend to experience greater symptom reduction relative to those who are not immediately identified as having BPD (Chanen, Jovev, McCutcheon, Jackson, & McGorry, 2008; Sharp & Fonagy, 2015). Given additional literature that suggests that BPD and other pathological presentations of personality functioning can persist well into adulthood (Bornovalova et al., 2009; Chanen, Jackson, McGorry, Allot, Clarkson, & Yuen, 2004; Hopwood et al., 2009; Hopwood et al., 2011), it is imperative that methods and criteria intended to capture BPD in adolescence are both diagnostically accurate and developmentally sensitive. As with adults, there are several advantages to a dimensional, trait-oriented approach to classifying BPD in adolescents. Specifically, utilizing measures that allow researchers to observe the five DSM-5 pathological personality traits in

adolescence may pave the way for further research regarding the identification of specific traits, facets, and behaviors that precede the onset of BPD. This information would also be invaluable in clinical settings that utilize dimensional measures as a means to screen patients for emerging and current BPD symptoms, as this may inform treatment recommendations.

In considering the potential advantages of dimensional approaches to BPD, the DSM-5 Section III hybrid model of PD attempts to combine traditional categorical approaches for PD diagnosis with a newly proposed dimensional approach. Researchers in favor of a dimensional approach to PD cite previous literature that has consistently found evidence to support the viability of such a model (see Krueger et al., 2011; Widiger, 2011; Krueger & Markon, 2014). Indeed, many proponents of dimensional or hybrid approaches to PD argue that this method, unlike the strictly categorical model utilized in DSM-IV-TR and Section II of DSM-5, incorporates previous research that suggests that both normal and maladaptive personality traits on a continuum rather than as discrete categories that are wholly present or absent (see Widiger & Simonsen, 2005). Ideally, this proposed model could provide clinicians and researchers with a more precise conceptualization of PD by identifying the severity of presenting traits within this continuum. Dimensional measures of personality pathology may also provide the additional benefit of providing therapists and clinicians with vital information regarding individual differences in presentations of BPD. Having the ability to readily identify the specific traits or facets that are most salient and problematic for a single individual seeking psychotherapy may inform treatment planning by allowing clinicians to more accurately identify the areas of personality functioning that require the most therapeutic intervention.

A PSYCHOMETRIC EVALUATION OF THE BRIEF FORM OF THE PID-5 IN AN INPATIENT ADOLESCENT SAMPLE

The overarching goal of the present study was to evaluate the effectiveness of the brief form of the PID-5 in regards to detecting BPD in adolescents in an inpatient sample. The original, 220-item PID-5 was designed to assess the overall presence and severity of the five pathological personality traits outlined in Section III of the DSM-5 (i.e,. Negative Affectivity, Detachment, Psychoticism, Antagonism, and Disinhibition), as well as the 25 lower-order, refined trait facets. Our interest in evaluating the PID-5-BF emerged from our recognition that the field is in need of further evaluation of the Section III approach to BPD (and other personality disorders) in adolescent, inpatient samples. As such, we were primarily interested in observing the extent to which this brief, time-conscious measure could predict BPD that has been formally diagnosed via a well-validated, structured interview of BPD symptoms intended for children and adolescents (i.e., CI-BPD). To achieve this goal, we first conducted bivariate correlational analyses in order to determine the extent to which the PID-5-BF and its traits correlated with existing, validated measures of BPD: the BPFS-C, BPFS-P, and PAI-BOR. Then, we conducted several ROC analyses in order to evaluate the clinical utility of the PID-5-BF in identifying adolescents who meet criteria for BPD. Then, prior to ROC analysis, several composites were created in order to identify the trait or cluster of traits that may best capture BPD as it is proposed in Section III. These composites were produced based on previous literature indicating high correlation between various DSM-5 maladaptive traits and diagnoses of BPD. To date, the vast majority of research pertaining to the clinical utility and structure of the PID-5 has largely focused on the original, 220-item form of this measure, with few studies attempting to utilize or validate the PID-5-BF. To our knowledge, this study is the first to utilize ROC analyses to directly evaluate the diagnostic

accuracy of the PID-5-BF in terms of differentiating inpatient adolescents with a positive

diagnosis of BPD from those who have not been diagnosed with BPD.

The results of our bivariate correlation analyses revealed similar patterns of

correlations between the PID-5-BF and both of our adolescent self-report measures of BPD

(i.e., the BPFS-C and PAI-BOR). Indeed, the correlations observed in both the BPFS-C and

PAI-BOR were nearly identical, and our correlation comparison analyses indicated that there

was no significant difference between BPFS-C and PAI-BOR total score correlations with

any PID-5-BF trait (see Table 2). Recall that the BPFS-C was adapted from the PAI-BOR,

with the BPFS-C producing similar items that were adjusted in order to incorporate more

developmentally appropriate language. This may largely account for the observed similarities

in correlations between the two measures, as they are both validated measures of BPD with

similar content and are evaluated with the consideration of four identical subscales (i.e.,

Affective Instability, Identity Problems, Negative Relationships, and Self-Harm).

Additionally, these two measures were both completed via self-report by our adolescent

participants, which may indicate that these similarities could be partially accounted for by

shared method variance.

Our results suggest that both Antagonism and Detachment demonstrated significantly

lower correlations with total scores of the PAI-BOR and BPFS-C in comparison to the

remaining three traits (see Table 3). However, these low correlations on self-report measures

of BPD are particularly problematic in the case of Antagonism, as this trait has been included

in Section III proposed criteria for BPD. Additionally, unlike the remaining four PID-5 traits,

Antagonism demonstrated no significant correlations with Affective Instability, Identity

Problems, and Negative Relationships. Within Section III, "hostility" is the only lower-order

29

trait facet of Antagonism included in Criterion B for BPD and is defined as "persistent or frequent angry feelings; anger or irritability in response to minor slights and insults; and mean, nasty, or vengeful behavior" (APA, 2013; p. 767). Considering this conceptualization of hostility, which is dually represented by Negative Affectivity, it is particularly surprising that Antagonism was not significantly correlated with Negative Relationships or Affective Instability. Individuals with BPD who endorse experiencing frequent, intense anger in response to minimal provocation often indicate that these outbursts may occur within interpersonal contexts, which may lead to strain and instability within close relationships. With this in mind, we anticipated that Antagonism would demonstrate at least a modest relationship to subscales related to these interpersonal processes.

Results suggesting that the total score of the BPFS-P was not significantly different from the BPFS-C in regards to Antagonism and Disinhibition are quite interesting when considering the significant differences in correlations observed with the remaining three traits and total score. However, this discrepancy is not particularly surprising when considering the nature of these pathological traits. As outlined in DSM-5 Section III, Antagonism is largely characterized by behaviors that create significant conflict with others, including an excessive sense of self-importance, lack of empathy, and use of others for personal gain (APA, 2013; p. 770). Disinhibition, on the other hand, captures engagement in impulsive behaviors that offer instant gratification without properly considering the consequences of engaging in this behavior. In both cases, behaviors outlined within these conceptualizations of Antagonism and Disinhibition are likely to be observed by or have direct, adverse effects on people in the individual's life. Indeed, previous research pertaining to informant discrepancies suggests that parents and children tend to demonstrate higher agreement on measures of externalizing

behaviors (i.e., impulsive, antagonistic, or risky behavior) than internalizing behaviors (i.e., rumination; for review, see De Los Reyes & Kazdin, 2005). As such, it is likely that any discrepancies observed between the two correlations were minimal and non-significant because both the parent and adolescent are able to recognize and report this interpersonally problematic or self-damaging behavior.

Interestingly, Antagonism is highly correlated with Self-Harm behavior on both self-report BPD measures (i.e., BPFS-C and PAI-BOR), but not with any other subscales outlined in these measures. Given that non-suicidal self-injury (NSSI) is a relatively common feature of BPD, it is important to consider the precipitants of this behavior. In many cases, individuals who engage in NSSI report that they do so in response to intense emotions that are out of proportion to the situation at hand, with self-injury serving as a form of grounding and emotion-regulating behavior (Brown, Comtois, & Linehan, 2002; Klonsky, 2007; Niedtfeld et al., 2010). Additionally, those with BPD who engage in NSSI may occasionally use this behavior as a means of influencing others' emotions and behaviors (Allen, 1995). In considering the above, this correlation between Antagonism and NSSI may be at least partially explained by the nature of PID-5-BF items identified as capturing trait Antagonism, as these are largely focused on interpersonal processes and efforts to control the behaviors of others. For instance, items such as "I crave attention", "I use people to get what I want", and "It is easy for me to take advantage of others" may lend themselves to identification of interpersonal motives for engaging in NSSI (see Appendix A for PID-5-BF). To this end, it is reasonable to suggest that this correlation may have emerged within individuals with BPD who engage in NSSI for the sake of interpersonal, secondary gains (e.g., gaining sympathy,

attention-seeking by demonstrating to others that they are in emotional pain, etc.; APA, 2013) rather than a self-soothing behavior.

It is also of note that, while both the BPFS-C and PAI-BOR demonstrated significant positive correlations between the Self-Harm subscale and PID-5-BF Detachment, the BPFS-P produced a significant negative correlation between these two variables. Though this result was somewhat surprising, the nature of Detachment may lend itself to explaining this negative relationship. Within DSM-5 Section III, behaviors that are intended to capture the broad trait domain of Detachment include avoidance of and withdrawal from interpersonal interactions and relationships (APA 2013, p. 770). These Detachment-related behaviors may be related to incidence and frequency of NSSI behaviors, as literature evaluating adolescent motives for self-harm has suggested that many adolescents may engage in this behavior in order to relieve distressing emotions related to loneliness, social isolation, alienation, and self-criticism (for review, see Lloyd-Richardson, Perrine, Dierker, and Kelley, 2007). It is also important to consider that, in contrast to instances in which adolescents engage in NSSI as a means of influencing others, adolescents often make active efforts to conceal their self-injurious behavior and resulting wounds from their parents and others (Levenkron, 1998). When taking hesitance to engage in interpersonal interactions that lend themselves to maintaining and building relationships into account, coupled with efforts to avoid disclosure of self-injurious behaviors, we posit that the observed negative association may be accounted for by the extent to which informant reporters (e.g., parents) are able to directly observe and report these behaviors (see De Los Reyes & Kazdin, 2005). Therefore, it can be argued that the more "detached" an adolescent is from others (in this case, their parents), the less likely it is that they may openly disclose self-injury or interact with their parent to the extent that

would be necessary in order for them to witness this behavior or detect it due to visible wounds or scars.

The results of our ROC analyses within the present study suggested that the higher-order traits proposed to capture BPD in Section III (i.e., Disinhibition, Negative Affectivity and Antagonism; APA 2013) may provide only low diagnostic accuracy. That is to say that, within our sample, this particular trait profile did not appear to accurately detect the presence of BPD. This finding is quite surprising given that this particular trait constellation has been largely supported in the PID-5 and BPD validation literature (e.g., Fossati et al., 2016b; Rojas & Widiger, 2016; Morey, Benson, & Skodol, 2016). This result may be at least partially explained by the nature of the PID-5-BF itself. In contrast to the full PID-5, the PID-5-BF does not evaluate the presence of each trait's lower-order facets, but simply all five of the proposed pathological traits. This may have affected this measure's ability to accurately detect BPD, given that Section III criterion B specifically outlines seven lower-order trait facets that may be present in order to warrant a diagnosis of BPD (i.e,. at least four of the following: impulsivity, risk taking, hostility, emotional lability, anxiousness, separation insecurity, and depressivity). Nevertheless, given the previous research supporting this particular model at the trait-level, we had hypothesized that this particular composite would serve as the most predictive of the presence of BPD.

In regards to ROC analysis involving individual traits, Negative Affectivity appeared to be the most accurate in terms of predicting the presence of BPD in our sample. These results appear to be at odds with the previously reviewed literature that implicated multiple PID-5 trait clusters as generally indicative of BPD, which includes the trait profile proposed in Criterion B of DSM-5 Section III. However, the presence and predictive ability of

Negative Affectivity was largely consistent across previous literature identifying the

relationship between the PID-5 and BPD criteria. Indeed, Negative Affectivity was identified

as being highly predictive of BPD in each validation study we identified and, thus, was

included in each composite produced in the present study. One study in particular concluded

that emotional lability, a facet of Negative Affectivity, was a key feature of BPD that served

to differentiate individuals with this diagnosis from individuals with other PD diagnoses as

well as healthy controls (Bach, Sellbom, Bo, & Simonsen, 2016). This relationship is further

supported by a study conducted by Hopwood et al. (2012), which identified Negative

Affectivity as the DSM-5 trait most highly correlated with symptoms of BPD, as measured

by the PDQ-4+ (Hyler, 1994). Additionally, research directly evaluating personality

dysfunction in adolescents has noted significant relationships between high Affective

Lability and BPD (De Clercq, De Fruyt, Van Leeuwen, & Mervielde, 2006).

Recall that the PID-5 trait domains were largely modeled after the consistently

validated Five Factor Model of personality. The trait of Negative Affectivity was modeled

after the normative personality trait of "Neuroticism", with high levels of this trait indicating

an individual's propensity to respond to situations with negative emotions (i.e., irritability,

sadness, anger, anxiety, etc.; see Costa & McCrae, 1992a; Costa & McCrae, 1992b). High

trait Neuroticism appears to be directly related to a variety of psychopathologies (Clark

& Watson, 1991; Broeren, S., Muris, P., Bouwmeester, S., van der Heijden, K. B., & Abee,

A., 2011; Latzman, R. D., & Masuda, A., 2013), lower subjective well-being (Costa &

McCrae, 1980), and personality pathology (Samuel & Widiger, 2008; Saulsman & Page,

2004; 2005), despite the original intent of representing normative personality traits. Some

researchers have also identified high trait neuroticism in childhood and adolescence as a

direct risk factor for the future development of a variety of mental disorders (Aldinger, et al., 2014). Given this previous literature implicating Neuroticism and Negative Affectivity as salient factors involved in overall mental health and personality functioning, further research should continue evaluating the extent to which Negative Affectivity and its lower-order facets may serve as unique predictors of BPD.

When interpreting these results, the nature of our sample should be considered. Adolescents recruited from the inpatient unit utilized in this study have a wide variety of psychopathology and a relatively high level of suicide risk and symptom severity compared to both the general population and individuals with BPD who are seeking outpatient treatment (Ferrara, Terrononi, & Williams, 2012). Therefore, one should consider the extent to which these factors may have increased the likelihood that individuals within our sample would, on average, report higher levels of maladaptive personality traits compared to outpatient or healthy control adolescents. However, the null results observed in the majority of our ROC analyses of traits and composites remain somewhat problematic given the fact that the PID-5-BF was intended to identify personality dysfunction in clinical populations. To this end, future validation studies should seek to determine the extent to which the PID-5-BF may be able to differentiate less severe presentations of BPD (e.g., outpatient) from individuals without a diagnosis of PD.

It is important to note that diagnosis of PD in Section III of the DSM-5 largely hinges upon both Criteria A and B. Criterion A indicates the "Level of Personality Functioning", which notes problematic personality function in domains of the self (i.e., identity disturbance, poor or unclear self-direction) and interpersonal relations (i.e., empathy and intimacy). Given that we utilized a measure that only examines Criterion B, the diagnostic accuracy of the

PID-5-BF may be hindered due to this exclusion of Criterion A. Busch, Morey, & Hopwood (2016), for instance, utilized the General Personality Pathology Scale (GPP) in order to tap into overall personality functioning in terms of self and other deficits. Studies further evaluating the diagnostic utility of the PID-5 or PID-5-BF should consider the implications of including, or excluding, measures of Criterion A levels of personality functioning.

Another limitation of this study may include the method used to discriminate adolescents with BPD via the CI-BPD. As outlined in our methods, this interview consists of 9 items that are rated on a scale of "0", "1", or "2", which indicates that the symptom is either not present, probably present, or definitely present, respectively. An individual must obtain a score of "2" on at least 5 criteria in order to warrant a diagnosis, while those endorsing only four items at a "2" level will receive a total score of "1" and would be coded as not meeting full criteria for BPD. Therefore, it is possible that an individual may receive a mark of "2" on four items and a score of "1" on a fifth. In this hypothetical situation, the individual in question would clearly be exhibiting several symptoms of BPD, but would be considered sub-clinical and subsequently would not receive a formal diagnosis of BPD. Additionally, having five or more ratings of "1" would indicate that an individual is exhibiting mild symptoms of BPD, but again would not warrant a diagnosis of BPD. Therefore, it is important to consider the methods with which these diagnoses were operationalized. It is worth noting, however, that this particular limitation may simply be a function of the current categorical approach to diagnosing BPD. Despite exhibiting significant self-concept and interpersonal deficits, individuals who do not fit into rigid, categorical criteria may be misdiagnosed, despite the possibility that these individuals may benefit from psychotherapy targeting BPD symptoms (e.g., Dialectical Behavioral Therapy;

Linehan et al., 2006). While the CI-BPD has consistently demonstrated good interrater reliability, it is imperative that researchers continue examining the potential benefits of dimensional or hybrid models of PD that allow these disorders to exist on a spectrum of severity, rather than dichotomizing these disorders as being wholly present or absent.

Despite these limitations, the present study addresses a critical issue in terms of evaluating the clinical utility of a brief measure of DSM-5 Section III personality traits. This study is the first to directly evaluate the clinical utility of the PID-5-BF in an inpatient facility treating adolescents with severe presentations of a variety of psychopathologies, with these individuals representing the population that is most likely to benefit from brief assessments of personality pathology. Unlike the original PID-5, the PID-5-BF itself was not created with the intention of fully capturing the nuanced picture of BPD that can be identified at the facet-level (as proposed in Section III criteria). As such, the present study reaffirms the notion that BPD cannot be effectively captured by utilizing DSM-5 measures that solely evaluate personality pathology at the trait-level. Indeed, our results indicate that the most predictive construct was Negative Affectivity, a higher-order trait intended to measure general emotion dysregulation and affective distress, which demonstrated only modest predictive ability. However, this study did identify significant correlations amongst scores on two measures of BPD (i.e., BPFS-C and PAI-BOR) with the PID-5-BF, suggesting that this brief measure is highly correlated with these validated, self-report measures of BPD. This result is particularly noteworthy as the PID-5-BF was able to exhibit high, positive correlations with the developmentally-sensitive BPFS-C, which provides additional evidence for the use of the PID-5-BF in inpatient, adolescent samples. Thus, this study validates the PID-5-BF to the extent that is able to correlate with measures specifically evaluating the presence of BPD, but

does not support its utility as an independent, diagnostic measure of BPD. Further research is

needed to evaluate the potential clinical utility and diagnostic accuracy of the PID-5-BF in

regards to other forms of personality pathology and general psychopathology in a variety of

adolescent populations.

Tables and Figures

Table 1

DSM-5 Section III definitions of five higher-order trait domains

Traits	Description
Negative Affectivity	Frequent and intense experiences of high levels of a wide range of negative emotions and their behavioral and interpersonal manifestations.
Detachment	Avoidance of socioemotional experience, including both withdrawal from interpersonal interactions and restricted affective experience and expression, particularly limited hedonic capacity.
Antagonism	Behaviors that put the individual at odds with other people, including an exaggerated sense of self-importance and a concomitant expectation of special treatment, as well as a callous antipathy toward others, encompassing both an unawareness of others' needs and feelings and a readiness to use others in the service of self-enhancement.
Disinhibition	Orientation toward immediate gratification, leading to impulsive behavior driven by current thoughts, feelings, and external stimuli, without regard for past learning or consideration of future consequences.
Psychoticism	Exhibiting a wide range of culturally incongruent odd, eccentric, or unusual behaviors and cognitions, including both process content.

Note: Definitions obtained from DSM-5 Section III (APA, 2013; p.779-781)

Table 2

Descriptive statistics for main study variables (N=126)

	Range	M (SD)	Median	Skew (Std. error)	Kurtosis (Std. error)	Shapiro-Wilk	α (MIC)
PID-5-BF (n = 126)							
Neg. Aff.	0-15	8.64 (3.531)	9	-.38 (.22)	-.45 (.43)	.965**	.69 (.31)
Detachment	1-15	6.85 (3.23)	7	.27 (.22)	-.46 (.43)	.976*	.64 (.27)
Antagonism	0-14	3.57 (3.34)	2	1.13 (.22)	.85 (.43)	.902***	.74 (.38)
Disinhibition	0-15	6.19 (3.96)	5	.41 (.22)	-.70 (.43)	.96**	.80 (.44)
Psychoticism	0-15	7.43 (3.92)	8	.02 (.22)	-.58 (.43)	.976	.78 (.42)
Total Score	2-63	32.60 (11.79)	33	-.03 (.22)	-.07 (.43)	.990	.83 (.17)
BPFS-C (n = 126)							
Affect.	8-30	19.06 (4.60)	19	-.001 (.22)	-.33 (.43)	0.989	.71 (.28)
Identity	8-29	18.50 (3.91)	18	.14 (.22)	-.31 (.43)	0.973*	.50 (.14)
Relationship	8-28	17.67 (4.42)	18	.03 (.22)	-.43 (.43)	0.987	.71 (.28)
Self-Harm	6-29	16.56 (4.83)	16	.08 (.22)	-.52 (.43)	0.987	.77 (.35)
Total Score	32-100	71.79 (13.80)	72	-.09 (.22)	-.15 (.43)	0.985	.86 (.20)
BPFS-P (n = 111)							
Affect.	10-27	18.90 (3.91)	19	.08 (.23)	-.80 (.46)	0.977	.63 (.21)
Identity	9-26	16.72 (3.70)	17	.09 (.23)	-.57 (.46)	0.979	.55 (.17)
Relationship	8-28	17.12 (3.83)	17	.25 (.23)	-.24 (.46)	0.986	.69 (.28)
Self-Harm	6-30	17.04 (5.21)	17	-.01 (.23)	-.35 (.46)	0.988	.84 (.47)
Total Score	40-106	69.77 (13.37)	69	.18 (.23)	-.43 (.46)	0.988	.87 (.23)
PAI-BOR (n = 122)							
Affect.	1-15	9.17 (3.32)	9	-.35 (.22)	-.401 (.44)	.969*	
Identity	2-15	9.78 (2.92)	10	-.29 (.22)	-.105 (.44)	.971*	
Relationship	1-15	8.86 (3.50)	9	-.37 (.22)	-.585 (.44)	.963**	
Self-Harm	0-15	6.11 (3.72)	6	.13 (.22)	-.876 (.44)	.974*	
Total Score	6-55	34.00 (1.38)	34	-.08 (.22)	-.713 (.44)	.968*	

Note: Neg. Aff. = Negative Affectivity; Affect. = Affective Instability; Identity = Identity Problems; Relationship = Negative Relationships; MIC = mean inter-item correlation

Table 3

Correlations between PID-5-BF trait domains and PAI-BOR, BPFS-C, and BPFS-P subscales

	PID-5-BF Trait Domains					
	Negative Affectivity	Detachment	Antagonism	Disinhibition	Psychoticism	Total Score
PAI-BOR						
Affect.	.500**	.238*	.098	.292**	.394**	.474**
Identity	.639**	.285**	.141	.312**	.399**	.550**
Relationship	.463**	.251**	.096	.228*	.312**	.417**
Self-Harm	.233**	.062	.289**	.660**	.254**	.479**
Total Score	.583**	.259**	.202*	.494**	.431**	.616**
BPFS-C						
Affect.	.474**	.175*	.024	.329**	.357**	.477**
Identity	.537**	.382**	.112	.229*	.404**	.542**
Relationship	.435**	.255**	.125	.220*	.333**	.430**
Self-Harm	.249**	.084	.330**	.631**	.208*	.497**
Total Score	.537**	.278**	.195*	.466**	.413**	.625**
BPFS-P						
Affect.	.006	-.145	0.069	.251**	-.038	.055
Identity	.193*	.058	0.033	.124	.023	.132
Negative	.076	-.085	.146	.243*	.005	.125
Self-Harm	-0.094	-.214*	.271**	.430**	-.053	.12
Total Score	0.04	-.134	.177	.345**	-.024	.135

Note: Affect. = Affective Instability; Identity = Identity Problems; Relationship = Negative Relationships.

*p<.05, **p<.01.

Table 4

Convergent validity for measures of BPD with PID-5-BF

PID-5-BF Traits	r	Comparison	Z-score
PID-5-BF Neg. Affectivity			
1. PAI-BOR Total	.583[**]		
2. BPFS-C Total	.537[**]	1 > 2	.49
3. BPFS-P Total	0.04	2 > 3	4.513[^^^]
PID-5-BF Detachment			
4. PAI-BOR Total	.259[**]		
5. BPFS-C Total	.278[**]	4 < 5	.164
6. BPFS-P Total	-.134	5 > 6	3.446[^^^]
PID-5-BF Antagonism			
7. PAI-BOR Total	.202[*]		
8. BPFS-C Total	.195[*]	7 < 8	.084
9. BPFS-P Total	.177	8 > 9	.15
PID-5-BF Disinhibition			
10. PAI-BOR Total	.494[**]		
11. BPFS-C Total	.466[**]	10 > 11	.308
12. BPFS-P Total	.345[**]	11 > 12	1.124
PID-5-BF Psychoticism			
13. PAI-BOR Total	.431[**]		
14. BPFS-C Total	.413[**]	13 > 14	.179
15. BPFS-P Total	-.024	14 > 15	3.768[^^^]
PID-5-BF Total Score			
16. PAI-BOR Total	.616[**]		
17. BPFS-C Total	.625[**]	16 > 17	.108
18. BPFS-P Total	.135	17 > 18	4.612[^^^]

Note: *p<.05, **p<.01;
Correlation comparisons: ^^^p<.001

Table 5

Correlation comparisons between PID-5-BF traits with self-report measures of BPD

	r	Comparison	Z-score
PAI-BOR Total Score			
1. Neg. Affectivity	.583**		
2. Disinhibition	.494**	1 > 2	1.023
3. Antagonism	.202*	1 > 3	3.852^^
		2 > 3	3.494^^^
4. Detachment	.259**	1 > 4	3.801^^^
		2 > 4	2.289^
		3 < 4	.448
5. Psychoticism	.431**	1 > 5	1.939^
		2 > 5	.686
		3 < 5	2.214^
		4 < 5	1.898^
BPFS-C Total Score			
6. Neg. Affectivity	.537**		
7. Disinhibition	.466**	6 > 7	.781
8. Antagonism	.195*	6 > 8	3.162^^^
		7 > 8	3.222^^^
9. Detachment	.278**	6 > 9	2.985^^
		7 > 9	1.808
		8 < 9	.753
10. Psychoticism	.413**	6 > 10	1.531
		7 > 10	.566
		8 < 10	2.064^
		9 < 10	1.477

Note: *p<.05, **p<.01;
Correlation comparisons: ^p<.05, ^^p<.01; ^^^p<.001

Figure 1
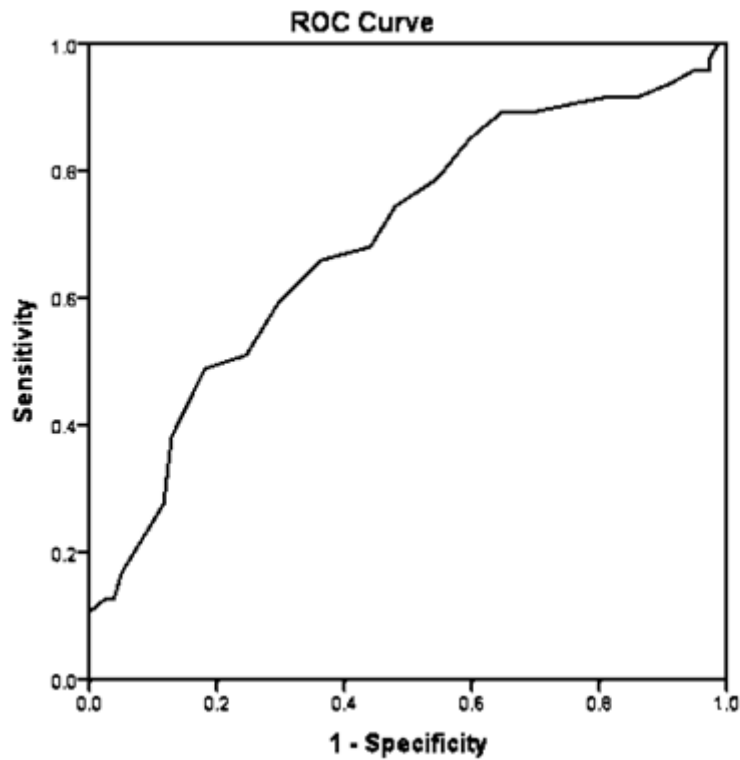*ROC Curve of proposed DSM-5 Section III Criterion B diagnostic traits*
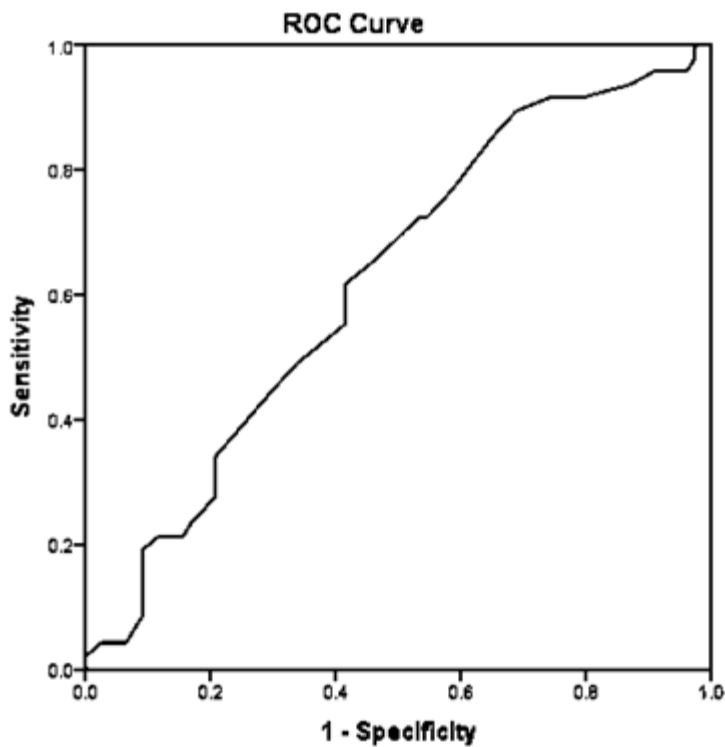
Note: Composite is comprised of the three traits proposed to capture BPD in Section III (Disinhibition, Negative Affectivity, and Antagonism).
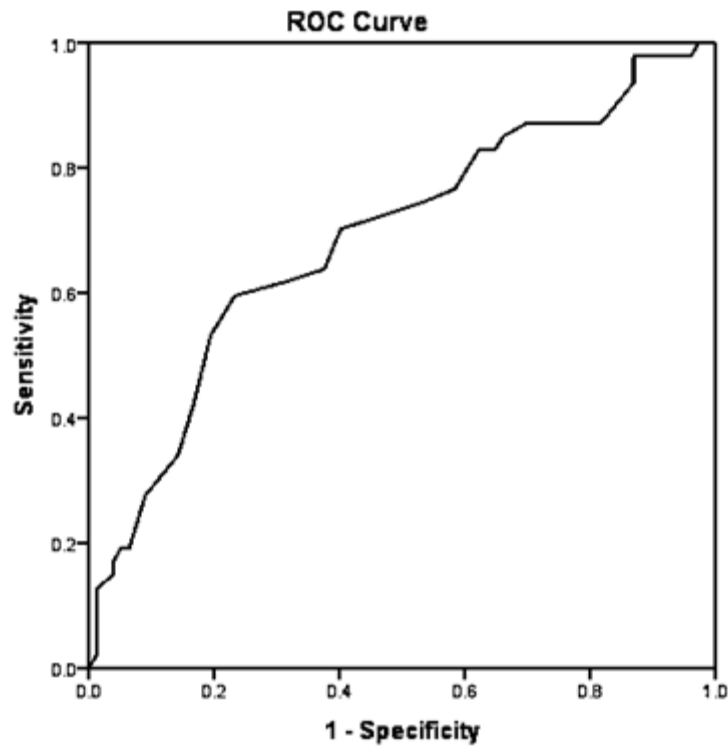AUC = .620

Figure 2
ROC Curve produced by a composite comprised of Negative
Affectivity and Disinhibition

Note: Composite is based on work by Calvo et al. (2016).
AUC = .691

Figure 3
ROC Curve produced by a composite comprised of
Negative Affectivity, Disinhibition, and Psychoticism

Note: Composite is based on work by Bach & Sellbom (2016) and Bastiaens, Smits et al., (2016).
AUC = .687.

Figure 4

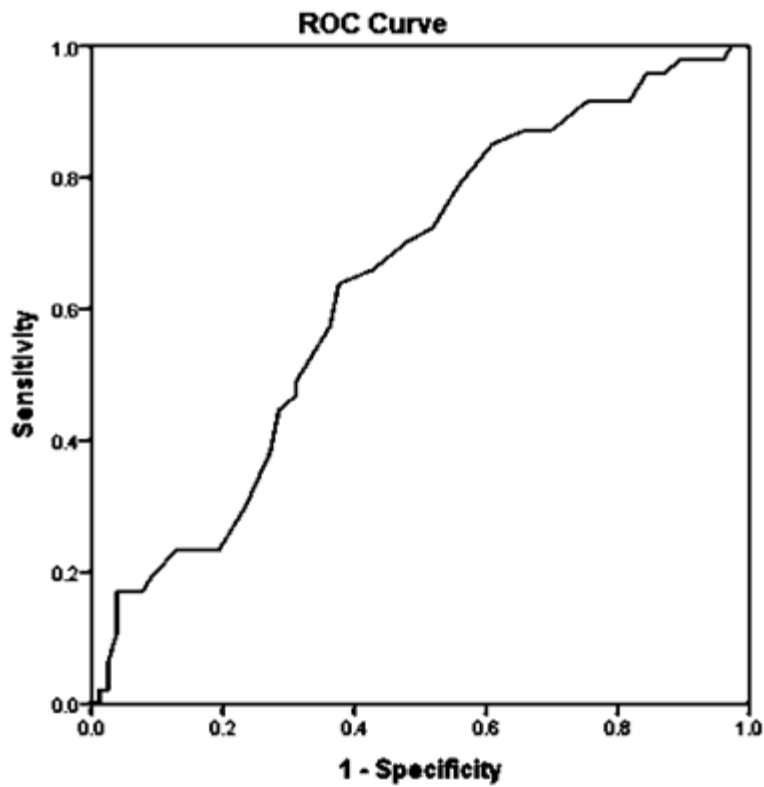*ROC Curves produced by each PID-5-BF trait*
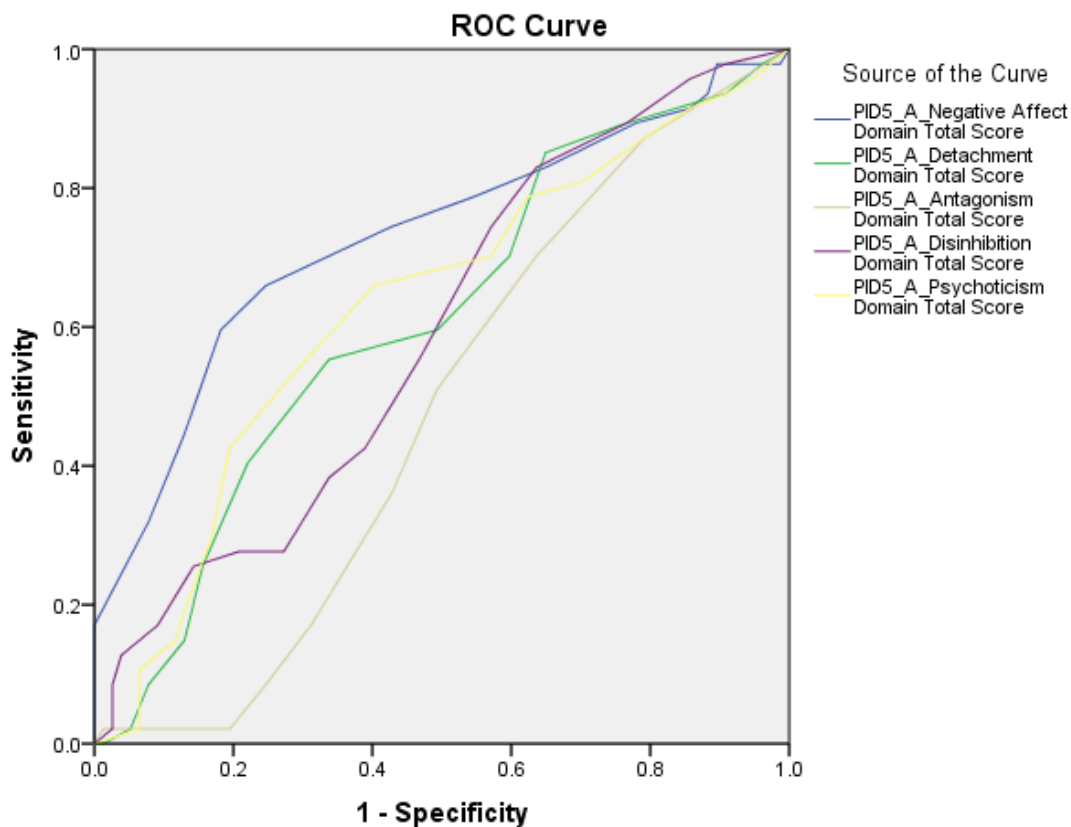
Note: Figure 4 presents the following ROC Curves: Negative Affectivity (AUC = .729), Detachment (AUC = .609), Antagonism (AUC = .478), Disinhibition (AUC = .591), and Psychoticism (AUC = .628)

Figure 5

ROC Curve produced by the total score obtained on the PID-5-BF

Note: Composite is produced by total scores obtained on the PID-5-BF.

AUC = .640

A PSYCHOMETRIC EVALUATION OF THE BRIEF FORM OF THE PID-5 IN AN INPATIENT ADOLESCENT SAMPLE

Appendix A

The Personality Inventory for DSM-5—Brief Form (PID-5-BF)—Child Age 11-17

	Instructions: This is a list of things different people might say about themselves. We are interested in how you would describe yourself. There are no right or wrong answers. So you can describe yourself as honestly as possible, we will keep your responses confidential. We'd like you to take your time and read each statement carefully, selecting the response that best describes you.					**Clinician Use**
		Very False or Often False	**Sometimes or Somewhat False**	**Sometimes or Somewhat True**	**Very True or Often True**	**Item Score**
1	People would describe me as reckless.	0	1	2	3	
2	I feel like I act totally on impulse.	0	1	2	3	
3	Even though I know better, I can't stop making rash decisions.	0	1	2	3	
4	I often feel like nothing I do really matters.	0	1	2	3	
5	Others see me as irresponsible.	0	1	2	3	
6	I'm not good at planning ahead.	0	1	2	3	
7	My thoughts often don't make sense to others.	0	1	2	3	
8	I worry about almost everything.	0	1	2	3	
9	I get emotional easily, often for very little	0	1	2	3	
10	I fear being alone in life more than anything	0	1	2	3	
11	I get stuck on one way of doing things, even when it's clear it won't work.	0	1	2	3	
12	I have seen things that weren't really there.	0	1	2	3	
13	I steer clear of romantic relationships.	0	1	2	3	
14	I'm not interested in making friends.	0	1	2	3	
15	I get irritated easily by all sorts of things.	0	1	2	3	
16	I don't like to get too close to people.	0	1	2	3	
17	It's no big deal if I hurt other peoples' feelings.	0	1	2	3	
18	I rarely get enthusiastic about anything.	0	1	2	3	
19	I crave attention.	0	1	2	3	
20	I often have to deal with people who are less important than me.	0	1	2	3	
21	I often have thoughts that make sense to me but that other people say are strange.	0	1	2	3	
22	I use people to get what I want.	0	1	2	3	
23	I often "zone out" and then suddenly come to and realize that a lot of time has passed.	0	1	2	3	
24	Things around me often feel unreal, or more real than usual.	0	1	2	3	
25	It is easy for me to take advantage of others.	0	1	2	3	
					Total/Partial Raw Score:	
					Prorated Total Score: (if 1-6 items left unanswered)	
					Average Total Score:	

Krueger RF, Derringer J, Markon KE, Watson D, Skodol AE.

Appendix B

Personality Trait Domain Scoring

	Personality Trait Domain	PID-5 BF items	Total/Partial Raw Domain Score	Prorated Domain Score	Average Domain Score
FOR CLINICIAN USE ONLY	Negative Affectivity	8, 9, 10, 11, 15			
	Detachment	4, 13, 14, 16, 18			
	Antagonism	17, 19, 20, 22, 25			
	Disinhibition	1, 2, 3, 5, 6			
	Psychoticism	7, 12, 21, 23, 24			

Instructions to Clinicians

This Personality Inventory for DSM-5—Brief Form (PID-5-BF)—Child Age 11–17 is a 25-item self-rated personality trait assessment scale for children ages 11–17. It assesses 5 personality trait domains including negative affect, detachment, antagonism, disinhibition, and psychoticism, with each trait domain consisting of 5 items. The measure is completed by the child prior to a visit with the clinician. Each item on the PID-5-BF asks the child to rate how well the item describes him or her generally.

Scoring and Interpretation

Each item on the measure is rated on a 4-point scale (i.e., 0=very false or often false; 1=sometimes or somewhat false; 2=sometimes or somewhat true; 3=very true or often true). The overall measure has a range of scores from 0 to 75, with higher scores indicating greater overall personality dysfunction. Each trait domain ranges in score from 0 to 15, with higher scores indicating greater dysfunction in the specific personality trait domain. The clinician is asked to review the score on each item on the measure during the clinical interview and indicate the raw score for each item in the section provided for "Clinician Use." The raw scores on the 25 items should be summed to obtain a total raw score. The scores on the items within each trait domain should be summed and entered in the appropriate raw domain score box. In addition, the clinician is asked to calculate and use **average scores for each domain and for the overall measure. The average scores** reduce the overall score as well as the scores for each domain to a 4-point scale, which allows the clinician to think of the child's personality dysfunction relative to observed norms[1]. The **average domain score** is calculated by dividing the raw domain score by the number of items in the domain (e.g., if all the items within the "negative affect " domain are rated as being "sometimes or somewhat true" then the average domain score would be $10/5 = 2$, indicating moderate negative affect). The **average total score** is calculated by dividing the raw overall score by the total number of items in the measure (i.e., 25). The average domain and overall personality dysfunction scores were found to be reliable, easy to use, and clinically useful to the clinicians in the DSM-5 Field Trials.

Note: If 7 or more items are left unanswered on the measure (i.e., more than 25% of the total items are missing) the total score should not be calculated. Similarly, if 2 or more items are left unanswered on any one domain, the domain score should not be calculated. Therefore, the child should be encouraged to complete all of the items on the measure. However, if 7 or more of the total items on the measure are left unanswered but 4 or 5 items for some of the domains are completed, the raw or average domain scores may be used for those domains. If for the overall measure 1 to 6 items are left unanswered, or for any domain only one item is left unanswered, you may prorate the total raw score or domain score by first summing the scores of items that were answered to get a **partial raw score**. Next, multiply the partial raw score by the total number of items on the measure (i.e., 25) or in the domain (i.e., 5). Finally, divide the value by the number of items that were actually answered to obtain the prorated total or domain raw score.

Prorated Score = (Partial Raw Score x number of items on the PID-5 BF)
Number of items that were actually answered
Note: If the result is a fraction, round to the nearest whole number.

Frequency of Use
To track change in the severity of the child's personality dysfunction over time, it is recommended that the measure be completed at regular intervals as clinically indicated, depending on the stability of the child's symptoms and treatment status. Consistently high scores on a particular domain may indicate significant and problematic areas for the child receiving care that might warrant further assessment, treatment, and follow-up. Your clinical judgment should guide your decision.

[1] Krueger RF, Derringer J, Markon KE, Watson D, Skodol AE. (2013). *The Personality Inventory for DSM-5 Brief Form (PID-5-BF)*. Manuscript in preparation.

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