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Sample

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Convergent and Discriminant Validity of Personality Inventory for DSM-5-BF in a Primary Care Sample

The Personality Inventory for DSM-5 (PID-5; Krueger et al., 2012) was developed by the DSM-5 Personality and Personality Disorders Work Group to assess maladaptive traits that describe variation in the presentation of patients with personality disorder diagnoses. Several reviews document the emerging body of research on the instrument in general (Al-Daljani, Gralnick, & Bagby, 2016) and in specific populations and applications, including psychiatric assessment (Krueger & Markon, 2014; Krueger et al., 2014), forensic assessment (Hopwood & Sellbom, 2013), organizational assessment (Dilchert, Ones, & Krueger, 2014), basic research on the neurobiological underpinning of psychopathology (Krueger & DeYoung, 2016), and differentiating psychiatric outpatients from community controls (Bach, Maples-Keller, Bo, & Simonsen, 2016).

Several general themes are noteworthy from this body of research. First, the PID-5 has a relatively stable five-factor structure that closely resembles the Five Factor Model from normative trait psychology (Anderson, Sellbom, & Salekin (in press); Crego & Widiger, 2016; De Fruyt et al., 2013; Gore & Widiger, 2013; Griffin & Samuel, 2014; Helle et al., 2017; Morey, Krueger, & Skodol, 2013; Suzuki, Griffin, & Samuel, 2017; Thomas et al., 2013; Watson et al., 2013; Wright et al., 2012; Wright & Simms, 2014) such that Negative Affectivity (NA) is like neuroticism, Detachment (DET) is like low extraversion, Antagonism (ANT) is like low agreeableness, Disinhibition (DIS) is like low conscientiousness, and Psychoticism (PSY) is like openness. Given the relative comprehensiveness of the Five-Factor Model, it follows that PID-5 scores have the potential to capture a wide variety of issues related to psychological functioning.

Second, these domains tend to be inter-correlated, such that it is meaningful to extract a general factor representative of nonspecific personality pathology (Wright et al., 2012). This factor might be of particular value in screening situations, where the question is not so much about what kind of personality disorder a patient has, but rather the overall level of personality functioning. An emerging body of research shows that the common features of personality and other forms of psychopathology can be

summarized with a single severity estimate which is useful for clinical predictions (Caspi et al., 2014; Sharp et al., 2016; Wright et al., 2015). As conceptual views of personality and other diagnostic categories (e.g., Kotov et al., 2017) move toward a spectrum-based outlook, measures such as the PID-5-BF that provide an overall indicator of psychiatric severity will become more useful and informative in clinical settings.

Third, PID-5 scores are strongly and systematically correlated with a range of clinically relevant outcomes, including personality disorder categories (Anderson et al., 2015; Bach, Anderson, & Simonsen, 2017; Bastiaens et al., 2016; Few et al., 2013; Fossati et al.,2015; Hopwood et al., 2012; Morey, Benson, & Skodol, 2016; Yam & Simms, 2014) and symptoms (Anderson, Sellbom, & Salekin, in press), maladaptive schema (Hopwood, Schade, et al., 2013), interpersonal problems (Southard et al., 2015; Williams & Simms, 2016; Wright, Pincus, et al., 2012), psychosocial functioning (Simms & Calabrese, 2016; Wright et al., 2015), emotion regulation (Pollock et al., 2016), substance abuse (Creswell et al., 2016), relationship violence (Dowgwillo et al., 2016), post-traumatic stress (James et al., 2015), and pathological gambling (Carlotta et al., 2015). Thus PID-5 scores can be informative about a range of issues that may be relevant for patients in different kinds of settings.

Fourth, a range of alternative measures can be used to assess maladaptive traits, including other instruments (e.g., Simms et al., 2011) and other versions of the PID-5. Of particular relevance for screening situations is the 25-item Brief Form (PID-5-BF; Krueger et al., 2013), which allows clinicians to quickly score the five major domains and estimate the overall level of severity in personality pathology with the total score. Within particular settings, such as primary care, the ease of use and timeliness of a measure is important when conducting quick examinations in a 15-20 minute framework (Porcerelli & Jones, 2017).

Research on the PID-5 specifically and maladaptive traits in general has thus far been primarily used in community and clinical samples. However, there is significant potential for the use of maladaptive trait models in primary care settings to screen for significant psychopathology, both because personality pathology can impact health conditions and significantly complicate their treatment (Durvasala, 2017).

This is important because of the high prevalence rates (e.g., upwards of 30% of patients) of personality pathology that are seen in this setting (Casey & Tyrer, 1990; Moran, Jenkins, Tylee, Blizard, & Mann, 2000; Patience, McGuire, Scott, & Freeman, 1995). Moreover, an emerging body of evidence suggests that the major domains of personality and personality pathology also organize symptoms of other major mental disorders (Kotov et al., 2017; Wright & Simms, 2015). As such, using maladaptive trait constructs provides for a general screening of psychiatric issues in medical patients, such as those presenting for outpatient services in a primary care setting.

The purpose of this study was to examine the validity of the PID-5-BF as a general psychiatric screener among primary care outpatients. We had three hypotheses. First, we expected the PID-5-BF scales to be moderately correlated with one another, consistent with prior research (Wright et al., 2012) and suggestive of the possible utility of adding them up to compute an overall composite of psychological health with potential utility in screening situations. Second, we expected PID-5 domain and total scale scores to converge with indicators of psychological dysfunction from other screening measures that have been previously validated in primary care settings. Third, we expected the PID-5-BF to correlate more strongly with other measures of mental health problems than indicators of physical health and healthcare utilization.

<center>Method</center>

A total of 100 adult primary care clinic patients (74% women) ranging in age from 18 to 70 were recruited from a suburban family medicine residency training clinic on the campus of a community-based hospital. The mean age of participants was 38.62 (SD = 13.99). The majority of participants were Caucasian (66%), followed by African American (17%), Other (8%), Asian (6%), and Hispanic (3%). A total of 62% were single, separated, divorced, or widowed while 38% were married/living with partner. The majority of participants (75%) had at least some college education while 83% had annual family incomes of $60,000 or less.

A total of 313 consecutive patients were approached for participation; 118 consented to participate, 18 withdrew prior to completing the study, and 100 (32%) completed all study measures. The

most frequent reasons given for not participating were, *Not enough time to see the doctor and complete all measures* and *Not feeling well enough to participate*. Patients were provided an information sheet describing the study upon entering the clinic. If interested in participating, a research assistant obtained their consent in the waiting room. If study measures could not be completed prior to their medical appointment, a research assistant accompanied them to the exam room. If needed, measures were completed in the waiting room following their appointment. The study was approved by the IRBs of Wayne State University and University of Detroit Mercy.

Materials

Personality Inventory for DSM-5 Brief Form (PID-5-BF) is a 25 item scale that includes five maladaptive trait domains: Negative Affect (NA: emotional lability, anxiousness, and separation insecurity), Detachment (DET: withdrawal, anhedonia, and intimacy avoidance), Antagonism (ANT: manipulativeness, deceitfulness, and grandiosity), Disinhibition (DIS: irresponsibility, impulsivity, and distractibility), and Psychoticism (PSY: unusual beliefs & experiences, eccentricity, and perceptual dysregulation). Respondents rate each item on a 4-point scale ranging from 0 (*very false or often false*) to 3 (*very true or often true*). PID-5-BF scores range from 0 to 75. Research supports the organization of PID-5-BF items into five correlated factors (Anderson, Sellbom, & Salekin, in press). Each domain includes 5 items. In this sample, the reliability (coefficient α) for the 5 domain scales were: NA = .73, DET = .77, ANT = .68, DIS = .73, and PSY = .81. As expected, these domains were significantly inter-correlated (Table 1), supporting the computation of a total score that had a coefficient alpha of .91.

Personality Assessment Screener (PAS; Morey, 1997) is a 22 item self-report measure derived from the Personality Assessment Inventory (PAI; Morey, 1991). Ten PAS element scores were developed through factor analysis of the PAI item pool. They include: Negative Affect (NA), Acting Out (AO), Health Problems (HP), Psychotic Features (PF), Social Withdrawal (SW), Hostile Control (HC), Suicidal Thinking (ST), and Alienation (AN), Alcohol Problems (AP), and Anger Control (AC). Respondents rate each item on a 4-point scale ranging from 0 (*false*) to 3 (*very true*). Total scores range from 0 to 66. A total score of 19 is the cut-off for significant psychopathology. Test–retest reliability of PAS subscales and

total score, ranges from .66 to .92 in a community sample (M = .79) (Morey, 1997). Evidence of convergent and discriminant validity, comparing the PAS with measures of personality and psychopathology, is also reported in the PAS manual and in Porcerelli, Kurtz, Cogan, Markova, & Mickens (2012) with a primary care sample of urban women. Internal consistency (coefficient α) for the PAS element and total scores were: NA = .69, AO = .58, HP = .65, PF = .71, SW = .76, HC = .31, ST = . 81, AN = .66, AP = .38, and AC = .65.

Early Memory Index (EMI). The EMI (Shedler, Karliner, & Katz, 2003) is a 9-item rating scale of covert mental health that is applied to early memory narratives. For this study, four early memories were obtained: earliest childhood memory, earliest memory of mother and father, and high-point memory. Each memory is rated on each EMI item using a 5-point Likert-type scale, ranging from 1 (*not applicable*) to 5 (*highly applicable*). EMI items include: 1) Predominant affect tone is positive, 2) Predominant affect tone is negative, 3) The memories have predominantly positive outcomes, 4) The memories have predominantly negative outcomes, 5) Others are depicted as benevolent, 6) Subject comes across as confident, self-assured, 7) Subject comes across as ignored, deprived, not cared for, 8) Others are depicted as malevolent, and 9) Caregivers are portrayed as abandoning or underproductive. The items were originally developed to assess experiences of self and other as well as feeling tone of relationships. For ease of coding, items that were the mirror opposite of other items (item 2, 4, and 8) were not used. Reliability and validity of the EMI has been reported by Shedler et al. (2003) and Porcerelli et al. (2015). After reverse coding, a total mean score of the 6 items was used for data analysis. The 6 EMI Mental Health items yielded an alpha coefficient of .91. Two graduate students trained in coding the EMI independently coded all narratives and achieved excellent interrater agreement (ICC[2,1] = .82). Higher mean EMI scores indicated greater mental health.

General Health & Healthcare Utilization. The general health item from the Medical Outcomes Study Short Form (SF-20; Stewart, Hays, & Ware, 1988) was used to assess overall health. The item is rated on a 5-point Likert-type scale ranging from 5 (*poor health*) to 1 (*excellent health*). Scores were revered so that higher scores were related to better health. Three items from the Multidimensional Health

Profile, Health Functioning Scale (Karoly, Ruehlman, & Lanyon, 2005) were used to assess healthcare

utilization: office (outpatient visits), emergency department (ED) visits, and overnight hospitalizations.

Items were rated for the frequency in the past year on 6-point scales ranging from 1 (*0 visits*), 2 (*1 visit*), 3

(*2 visits*), 4 (*3–5 visits*), and 5 (*5 or more*). The three utilization items yielded an alpha coefficient of .49.

Validity data for the general health and utilization items are reported in their respective manuals.

<div align="center">Results</div>

All study variables were relatively normally distributed with none of the skewness or kurtosis

values exceeding the recommended cut-offs of greater than 2.0 and 7.0, respectively (Curran, West, &

Finch, 1996). Inter-correlations of the PID-5-BF subscale and total scores, reported in Table 1, supported

our first hypothesis. PID-5-BF inter-correlations ranged from .43 to .71 ($p < .0001$).

Convergent validity coefficients reported in Table 2 supported our second hypothesis. The PID-5-

BF domain and total scores significantly correlated with the PAS total scores. Correlations ranged from .

49 to .71 ($p < .01$ with Bonferroni correction). Of the 66 correlations between the PID-5-BF domains and

PAS subscales and total score, 43 reached a medium ($p = .30$) or large effect size ($p = .50$). Overall, the

PID-5-BF total score performed well, strongly and significantly correlating with the PAS total score, EMI

Mental Health score and 7 of 10 PAS subscale scores. Nonsignificant correlations between the

externalizing domains of the PID-5-BF (Antagonism and Disinhibition) and internalizing PAS element

scores (Negative Affect, Social Withdrawal, and Alienation) provided discriminant validity of both

measures. Likewise, the externalizing domains of the PID-5-BF also failed to significantly correlate with

the Mental Health score of the EMI. As in previous research (Few et al., 2013; Hopwood et al., 2012) , the

correlates with Psychoticism suggest that this scale is a fairly general marker of problems.

Four of 6 correlations between PID-5-BF and a free response measure of mental health, the EMI

mental health score, were negatively and significantly correlated at $p < .01$ with Bonferroni correction.

Our third hypothesis of discriminant validity was also supported through nonsignificant correlations

between PID-5-BF domains and measures of overall health and healthcare utilization – outpatient visits,

emergency department visits, and overnight hospitalizations (within the past year).

Discussion

The ability to effectively differentiate or identify potentially problematic personality dysfunction is essential for the clinician in the primary care setting. In particular, healthcare utilization can be improved when correctly identifying those patients that would benefit from psychological treatment rather than further medical testing and repeating frustrating doctor's visits. As mentioned previously, those with personality pathology or other severe and complicated forms of psychopathology can be high utilizers of healthcare resources.

As such, the findings from this study suggest that the PID-5-BF offers a valuable screening measure for psychopathology in primary care settings. Not only did the PID-5-BF correlate as expected with another validated self-report measure of personality/psychopathology, it significantly correlated with a free-response measure of mental health. These multi-method findings guard against the interpretation that the associations between the PID-5-BF and measures used in the study were inflated due to method variance. A strong negative correlation between the PID-5-BF total score and EMI-MH is representative of the sensitivity the PID-5-BF to pathological covert mental health issues. While the current data did not show a correlation between the PID-5-BF indices and healthcare utilization, it can still be valuable in conjunction with other established measures of pathology commonly used in primary care (e.g., PHQ-9, GAD-7).

Given the associations identified here with the EMI and PAS, the PID-5-BF is a viable alternative to other psychopathology screeners. Scoring for the PID-5-BF is brief and intuitive, in contrast to more elaborate measures (e.g., EMI), and it is freely available via the American Psychiatric Association (DSM-5, APA, 2013), in contrast to proprietary measures (e.g., PAS). Within the primary care setting, where speed and ease of use are important features of screening measures, the PID-5-BF fulfills these requirements without loss of clinically relevant information pertaining to psychopathology.

While mental health screeners that account for personality are not always indicated with every primary care visit, there are significant advantages to using instruments that are sensitive to a wide range of psychiatric constructs in screening situations. For instance, adding personality screening to the

evaluation of patients with depressive symptoms can help healthcare providers determine which patients can be treated in a limited primary care setting and which need to be referred out to mental health specialists. The same is true for chronic pain patients. Although there is little empirical support the concept of a pain-prone personality, patients with chronic pain do have a higher prevalence of psychiatric issues than the general population (Gatchel, Robinson, Block, & Benedetto, 2017; Weiseberg & Keefe, 1997). Psychiatric issues are also common in primary care clinics (Dubovsky & Kiefer, 2014). The patient-provider relationship can be significantly improved when healthcare providers have a better understanding of psychiatric symptoms with the potential to interfere with treatment and can communicate that understanding to other providers. Knowledge of the interpersonal styles and behavioral problems common to various forms of personality and psychopathology can minimize unnecessary polypharmacy and help providers respond in a patient-centered way.

In order for personality assessment instruments to be adopted by primary care physicians and psychologists they must be brief, easy to use, and perceived as helpful to the task of assessment, management and/or referral. Future research could focus on obtaining provider opinions of the usefulness of personality screeners in primary care as well as studies to determine the added value of their use above and beyond the more common and narrower screening instruments such as the PHQ-9 and GAD-7.

These finding will need to be replication given the limitation of a having a small sample size and a significantly greater number of female than male participants.

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Table 1

PID-5-BF Total Score Means, Standard Deviations, and Inter-Correlations

	M	*SD*	NA	DET	ANT	DIS	PSY
NA	5.33	3.67					
DET	3.72	3.36	.71				
ANT	2.08	2.55	.43	.48			
DIS	2.57	2.68	.56	.48	.58		
PSY	3.65	3.62	.71	.67	.50	.57	
TOT	16.97	12.75	.86	.84	.70	.75	.87

Note. All correlations are significant at *p* < .0001.
PID-5-BF = Personality Inventory for DSM-5 Brief Form; NA = Negative Affect; DET = Detachment; ANT = Antagonism; DIS = Disinhibition; PSY = Psychoticism; TOT = Total score.

Table 2

PID-5-BF Correlations with Validity Coefficients

	PAS-NA	PAS-OA	PAS-HP	PAS-PF	PAS-SW	PAS-HC	PAS-ST	PAS-AN	PAS-AP	PAS-AC	PAS-T
NA	.58**	.20	.37**	.51**	.26	.12	.49**	.31	.05	.49**	.63**
DET	.39**	.20	.32	.49**	.39**	.07	.48**	.40**	.08	.32	.59**
ANT	.23	.33	.28	.37**	.01	.40**	.44**	.33	.36*	.26	.50**
DIS	.29	.48**	.20	.41**	.00	.22	.39**	.28	.21	.35*	.49**
PSY	.42**	.36*	.33	.50**	.24	.12	.63**	.37*	.19	.34*	.62**
TOT	.49**	.35*	.36*	.57**	.24	.18	.64**	.44**	.21	.44**	.71**

EMI Mental Health	SF-20 General Health	MHP-H Outpatient Visits	MHP-H Emergency Department Visits	MHP-H Overnight Hospitalization
-.44**	-.29	.01	.17	.10
-.43**	-.22	-.05	.24	.22
-.20	-.24	.05	.20	.10
-.25	-.23	.15	.13	-.01
-.42**	-.25	.03	.24	.15
-.44**	-.28	.01	.20	.16

Note. * = *p* < .05 with Bonferroni correction (.05/96 = .0005, two-tailed), ** = *p* < .01 with Bonferroni correction (.01/96 = .0001, two-tailed).

PID-5-BF = Personality Inventory for DSM-5 Brief Form; NA = Negative Affect; DET = Detachment; ANT = Antagonism; DIS = Disinhibition; PSY = Psychoticism; TOT = Total score; PAS = Personality Assessment Screener. PAS-NA = Negative Affect; PAS-AO = Acting Out; PAS-HP = Health Problems; PAS-PF = Psychotic Features; PAS-SW = Social Withdrawal; PAS-HC = Hostile Control; PAS-ST = Suicidal Thinking; PAS-AN = Alienation; PAS-AP = Alcohol Problems; PAS-AC = Anger Control; PAS-T = Total score; EMI = Early Memory Index Mental Health; SF-20 = Short Form-20; MHP-H = Multidimensional Health Profile - Health Functioning scale. Outpatient Visits, Emergency Department Visits, and Overnight Hospitalizations within the past year.