

## **FIVE FACTOR MODEL PROTOTYPE MATCHING SCORES: CONVERGENCE WITHIN ALTERNATIVE METHODS**

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The Five Factor Model of Personality (FFM) has been proposed as a potential alternative to the current *DSM-IV-TR* model, which conceptualizes personality disorders (PDs) as categorical constructs. While an extensive literature has pointed out the flaws of the diagnostic categories, they are quite familiar to clinicians and there may still be instances when identifying these constructs for clinical purposes, such as for rapidly communicating information about a patient, is warranted. From the perspective of the FFM, the PDs represent specific constellations of personality traits and research has demonstrated that the PDs can be recovered by assessing the degree to which an FFM profile matches the FFM description of a prototypic PD case. The current study builds upon that research by assessing the convergent and discriminant validity of prototype scores and *DSM-IV* PD measures using self-report, informant report, semi-structured interview, and clinician descriptions. The results suggest that the prototype matching scores are largely valid across these methods for all PDs, with perhaps the exception of obsessive-compulsive. These findings are related to previous research and the clinical implications of these findings are discussed.

A considerable body of research has supported the hypothesis that the personality disorders of the American Psychiatric Association's (APA) Diagnostic and Statistical Manual of Mental Disorders (*DSM-IV-TR*; American Psychiatric Association, 2000) can be understood as maladaptive variants of the domains and facets of the five-factor model (FFM) of gen-

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eral personality structure (Clark, 2007; O'Connor, 2005; Samuel & Widiger, 2008). This research has suggested that the FFM adequately covers the range of pathology encoded in *DSM-IV-TR* personality disorders (PDs) and can address many of the limitations inherent to the current categorical system.

However, despite their limitations, the diagnostic labels associated with categorical constructs do have the advantage of providing relatively straightforward and rapid communication about a person. As stated by Frances (1993) "there is an economy of communication and vividness of description in a categorical name that may be lost in a dimensional profile" (p. 110). Additionally, many of the categorical constructs have relatively lengthy histories and are quite familiar to clinicians. Another potential advantage of the diagnostic categories is to stimulate research and generate specific treatment recommendations. Although, this has not occurred for a majority of the disorders (Blashfield & Intoccia, 2000), there are certain PDs (e.g., borderline, antisocial, schizotypal, narcissistic, as well as perhaps dependent) that are being actively studied. For these reasons, there may be times when clinicians or researchers will seek to identify specific constellations of traits that are reflective of a given PD.

Recognizing this, Widiger, Costa, and McCrae (2002) proposed a four-step procedure for diagnosing personality disorders using the FFM. The fourth step of this procedure is determining whether an individual's FFM traits match the profile for specific PDs. Miller, Lynam, Widiger, and Leukefeld (2001) proposed that this could be accomplished by correlating one's FFM profile with the FFM description of a prototypic case of a PD. Lynam and Widiger (2001) developed FFM descriptions for prototypic cases of the 10 *DSM-IV-TR* diagnoses by collecting ratings from nationally recognized experts in terms of the 30 facets of the FFM. For example on a 1 to 5 Likert-type scale, a prototypic case of borderline PD obtained a mean rating of 4.75 on the neuroticism facet of angry hostility and a mean rating of 1.88 on the conscientiousness facet of deliberation. These mean ratings agreed well with previously hypothesized descriptions of the PDs and a subsequent study found that they also converged highly with descriptions provided by practicing clinicians (Samuel & Widiger, 2004).

Subsequent studies have demonstrated that these prototype matching indices (PMIs) perform much like explicit PD measures. They obtain similar relationships with external variables (Gudonis, Miller, Miller, & Lynam, 2008) and performance on laboratory tasks (Miller & Lynam, 2003), and have even provided incremental prediction of behavioral outcomes beyond measures specifically designed to assess the PD (Trull, Widiger, Lynam, & Costa, 2003). The technique is also robust across alternative assessment methods. Miller, Pilkonis, and Morse (2004) demonstrated that PMIs generated from self and informant report correlated significantly with one another and had strong convergence with consensus PD ratings ( $mdn = .36$  and  $.29$ , respectively). Miller, Bagby, and Pilkonis (2005) then showed that self-report PMIs also agreed strongly with those obtained from the Struc-

tured Interview for the Five Factor Model of Personality (SIFFM; Trull & Widiger, 1997). Further, both methods had strong convergent validity with scores from an explicit PD instrument ( $mdn = .39$  for interview,  $.38$  for self-report).

These studies have demonstrated that PMIs generated from self-report, informant-report, and semi-structured interview show convergent and discriminant validity with explicit PD measures. However, each of the studies examined two assessment methods for the FFM, but assessed the DSM PDs using only a single method. In this way, validity and method-variance were confounded in their criterion measures. Another study, by Miller, Reynolds, and Pilkonis (2004) did employ multiple criterion measures, assessing the DSM-IV PDs via self-report and semi-structured interview, but only included PMIs generated from self-reported FFM ratings.

Additionally, there are no published studies that have examined the validity of PMIs derived from FFM ratings made by clinicians. Although there have been a handful of studies that have collected FFM ratings from clinicians (e.g., Samuel & Widiger, 2006), none have correlated these ratings with Lynam and Widiger's (2001) prototypes. It would be important to examine the validity of clinicians' FFM prototype scores to demonstrate validity within clinical practice. As such, the current study replicates and extends previous findings in a sample of patients for whom semi-structured interview, self-report, informant, and clinician ratings were obtained for both the FFM and the DSM-IV-TR personality disorders.

## METHOD

The sample consists of 88 females who were receiving ongoing psychotherapy. Eighty-one of the 88 patients were recruited from a residential substance-abuse treatment facility for women, while an additional seven patients were obtained from outpatient clinics within the community. They ranged in age from 19 to 60, with a mean of 34.8 years ( $sd = 8.8$ ). They were primarily Caucasian (72.9%), with 23.5% indicating African-American. Primary chart diagnoses within the sample were substance dependence disorders, with cocaine (59.5%), alcohol (43.0%), and opioid (30.4%) the most prevalent substances. Additional Axis I disorders included major depressive disorder (11.4%), bipolar disorder (10.1%, secondary diagnosis, by history), and posttraumatic stress disorder (7.6%). Based on a semi-structured interview, 57 individuals (67.9%) met criteria for any PD. Each of the 10 PDs were represented in the sample, with antisocial the most prevalent (35.7%). Additionally, 19 individuals (22.6%) met criteria for borderline PD and 18 (21.4%) met criteria for avoidant.

A total of 14 clinicians, who served as the primary therapists, provided ratings for 79 of the participants. The number of patients assessed by each clinician ranged from a low of one to a high of 18, with a median of two. The clinicians were all female and predominantly Caucasian (78.6%), with two Asian-Americans (14.3%) and one African-American (7.1%).

Three had doctoral degrees (21.4%), eight had master's degrees (57.2%), and three were enrolled in graduate programs. Their experience ranged from a low of one year to a high of 21, with a mean of 4.2 years. The percentage of working time they spent providing clinical services ranged from 20% to 100%, with a mean of 53.2% of their work hours. All clinicians identified their theoretical orientation as cognitive, while 78.6% also listed behavioral, 57.1% interpersonal, 28.6% humanistic, and 21.4% psychodynamic. The mean length of treatment (all patients were engaged in individual therapy) at the time the ratings were provided was 4.9 months ( $sd = 5.4$ ).

The two semi-structured interviews were administered by five different interviewers who read both manuals before the study began and received extensive training from an author of both instruments (i.e., T. A. Widiger). The semi-structured interviews were audiotaped and selected sessions were coded by other interviewers to calculate interrater reliability. Finally, patients also designated an informant who knew them well to complete the other-report version of the NEO-PI-R, as well as an informant version of a *DSM-IV-TR* rating form. Sixty-seven nominated informants provided ratings on the participating patients (76.1% of the sample). All of these methods of description were blind to each other (e.g., the clinicians and interviewers were not aware of the self or informant ratings).

## MATERIALS

*NEO Personality Inventory—Revised* (NEO PI-R; Costa & McCrae, 1992). The NEO PI-R assesses five broad domains of personality functioning and 30 lower-order facets using 240 statements answered on a 5-point Likert-type scale. In the current sample alphas ranged from a low of .82 (extraversion) to a high of .89 (conscientiousness), with a median of .86. The informant version of the NEO PI-R is identical, except that the items are written in the 3rd person (Form R; Costa & McCrae, 1992). The alphas for the informant version ranged from .78 (openness) to .94 (conscientiousness), with a median of .90.

*Schedule of Nonadaptive and Adaptive Personality* (SNAP; Clark, 1993). The SNAP consists of 375 true/false statements and provides a self-report assessment of a dimensional personality model as well as the 10 PDs included within *DSM-IV*. In the current sample, the SNAP PD scales obtained reasonable internal consistency, with exception of the obsessive-compulsive scale which had an alpha of .36. The other PDs ranged from .62 (schizoid) to .81 (paranoid), with an overall median of .70.

*Structured Interview for the Five-Factor Model* (SIFFM; Trull & Widiger, 1997). The SIFFM assesses the 5 domains and 30 facets of the FFM using a series of guided questions. The SIFFM is the only existing interview measure of the FFM and has strong convergence with other measures of the FFM (Trull et al., 1998). Interrater reliability was excellent at the domain level with Pearson correlations ranging from a low of .90 (openness) to a high of .99 (agreeableness and conscientiousness), with a median of .97.

Agreement was also strong at the facet level with a median correlation of .94. Alphas ranged from a low of .74 (openness) to a high of .87 (conscientiousness), with a median value of .86.

*Personality Disorder Interview—IV* (PDI-IV; Widiger, Mangine, Corbitt, Ellis, & Thomas, 1995). The PDI-IV is a semi-structured interview that yields a dimensional rating for each of the 10 *DSM-IV-TR* PDs. A set of three to four open-ended questions assess each individual diagnostic criteria for the 10 *DSM-IV* PDs. The interrater reliability ranged from a low of .57 (narcissistic) to a high of .92 (dependent) with a median of .83. In the current sample alphas ranged from .41 (schizoid) to a high of .72 (borderline), with a median of .58.

*Clinician and Informant Rating Forms.* Descriptions of the patient in terms of the *DSM-IV-TR* and FFM constructs were also obtained from the clinicians and informants. In order to be consistent with their routine unstructured clinical assessments (i.e., not informed by a supplementary or validated instrument) the clinicians' descriptions of the patients were confined to straightforward recordings of their current clinical understanding. For the *DSM-IV-TR*, the clinicians used a one-page rating form to indicate the extent to which the patient exhibited characteristics for each of the ten PDs on a 1–5 point Likert scale (hereafter referred to as the DSMRF). The clinician version listed each of the ten *DSM-IV* PDs as well as a brief description of their central features drawn from the diagnostic manual (e.g., "pattern of disregard for and violation of the rights of others" for antisocial PD). The informant version did not include the diagnostic labels (as these terms were not likely to be understood) and the descriptive features of each disorder were altered to avoid jargon when necessary (e.g., "they feel strong, fleeting emotions and seek to be the center of attention" for histrionic, consistent with the informant methodology of Oltmanns and Turkheimer (2006). Because each PD was assessed by only a single-item on the DSMRF, internal consistency statistics could not be computed. However, in a previous study, reliability of clinicians' ratings using the same form was adequate with a mean intraclass correlation of .61 between DSMRF profiles across clinicians (Samuel & Widiger, 2006).

For the FFM, clinicians were provided a comparable one-page rating form that asked them to describe the patient on the 30 facets of the FFM using a 1–5 Likert-type scale, hereafter referred to as the Five Factor Model Rating Form (FFMRF). Two adjective descriptors were included at both poles of each facet. The alphas for the therapists' FFMRF ratings had a median of .78, but ranged from a low of .61 (neuroticism) to a high of .83 (conscientiousness).

## RESULTS

Facet-level FFM scores from the self-report NEO PI-R, SIFFM, informant NEO PI-R, and clinician FFMRF were correlated with the FFM profiles for prototypic cases of each of the 10 *DSM-IV-TR* personality disorders as re-

ported by Lynam and Widiger (2001). Consistent with previous studies (e.g., Miller et al., 2001), intraclass correlations were used because they take into account both the shape and magnitude of the profiles. These prototype matching indices (PMIs) measure the extent to which an FFM profile is consistent with a prototypic case of each PD.

Table 1 provides the correlations between the self-report NEO PI-R PMIs and the SNAP PD scales. Significant convergence was obtained for all 10 PDs, ranging from a low of .35 for obsessive-compulsive (OCPD) to .73 for borderline, with a median correlation of .53. Although there were many cases where the discriminant correlations also reached significance, the convergent correlations along the diagonal were generally larger than those off the diagonal. Schizoid was the only PMI for which a discriminant correlation (.62 with SNAP avoidant) was significantly higher than the convergent correlation (.40),  $t = 2.7$ ,  $p = .008$ .

Table 2 provides the correlations of SIFFM PMIs with the PD scales from the PDI-IV. Significant convergence was obtained for nine of the 10 personality disorders, ranging from .32 (schizotypal) to .56 (avoidant), with a median of .47 across all 10 PDs. OCPD was the only diagnosis for which the convergent correlation did not reach significance ( $r = .12$ ). There was again only a single instance (schizotypal) where the PMI correlation with another disorder (.59 with avoidant) was significantly higher than with the convergent scale (.32),  $t = 2.3$ ,  $p = .026$ .

Table 3 provides the correlations between the PMIs generated from the informant NEO PI-R and the DSMRF. The convergent correlations ranged from .21 (OCPD) to .65 (borderline) with a median value of .43. Only dependent and OCPD failed to reach significance. Discriminant correlations were larger than the convergent correlation for 3 PDs, but only the paranoid PMI correlated significantly higher with the schizotypal scale (.56) than its own scale (.32),  $t = 2.6$ ,  $p = .012$ .

Table 4 provides the correlations between the PMIs generated from the clinicians' FFMRF descriptions and their PD descriptions from the DSMRF. The convergent values ranged from .14 (OCPD) to .59 (borderline) with a median of .27. They were significant for eight of the PDs, but the values for schizoid and OCPD failed to reach significance. Although there were PDs for which a discriminant value was larger than the convergent, the differences were not significant.

Finally, Table 5 provides the cross-method convergent validity coefficients of the self-report PMI indices with the interview PD assessments, as well as the convergence of the interview PMI indices with the self-report PD assessments. Not surprisingly there is a decrease in the magnitude of the convergent validity coefficients in all but a few instances. Nonetheless, 17 of the 20 coefficients were still statistically significant. Table 5 also provides the convergent validity across methods for the PMI indices with one another. These values, which ranged from .48 to .71 with a median of .62, are consistently higher than those between the self-report and interview assessments of the PD constructs obtained in the same data collection,

TABLE 1. Correlations Between Self-Report NEO PI-R Prototype Scores and SNAP Personality Disorder Scales

Self-report Prototypes	SNAP PD Scales									
	Paranoid	Schizoid	Schizotypal	Antisocial	Borderline	Histrionic	Narcissistic	Avoidant	Dependent	OCPD
Paranoid	<b>.59**</b>	.43**	.45**	.23	.52**	.05	.37**	.53**	.05	.14
Schizoid	.29*	<b>.40**</b>	.44**	-.11	.16	-.40**	-.06	.62**	.14	-.08
Schizotypal	.46**	.38**	<b>.51**</b>	.14	.50**	-.07	.23	.63**	.31*	-.19
Antisocial	.35**	.22	.23	<b>.55**</b>	.50**	.37**	.58**	.01	-.16	-.02
Borderline	.53**	.21	.38**	.45**	<b>.73**</b>	.38**	.48**	.37**	.28*	-.15
Histrionic	.08	-.14	.03	.45**	.39**	<b>.50**</b>	.46**	-.20	.02	-.24
Narcissistic	.27*	.19	.19	.43**	.35**	.33**	<b>.58**</b>	-.07	-.29*	.10
Avoidant	.30*	.24	.34**	-.20	.21	-.27*	-.12	<b>.66**</b>	.43**	-.09
Dependent	-.06	-.10	.03	-.29*	-.06	-.26*	-.33**	.31*	<b>.45**</b>	-.19
OCPD	.01	.12	-.05	-.34**	-.31*	-.30*	-.25	.12	-.10	<b>.35**</b>

Notes.  $n = 88$ ; NEO PI-R = NEO Personality Inventory—Revised (Costa & McCrae, 1992); SNAP = Schedule for Nonadaptive and Adaptive Personality (Clark, 1993); OCPD = Obsessive-Compulsive Personality Disorder; Convergent correlations are in boldface type along the diagonal.

\*\* = significant at  $p < .01$  level (2-tailed).

\* = significant at  $p < .05$  level (2-tailed).

TABLE 2. Correlations Between SIFFM Prototype Match Scores and PDI-IV PD Scales

Interview Prototypes	PDI-IV PD Scales									
	Paranoid	Schizoid	Schizotypal	Antisocial	Borderline	Histrionic	Narcissistic	Avoidant	Dependent	OCPD
Paranoid	<b>.48**</b>	.15	.20	.15	.19	-.06	.11	.24*	-.04	.33**
Schizoid	.20	<b>.36**</b>	.20	-.22	.13	-.31**	-.28*	.50**	.18	.05
Schizotypal	.47**	.19	<b>.32**</b>	-.03	.43**	.03	-.06	.59**	.24*	.11
Antisocial	.10	-.10	-.01	<b>.43**</b>	.05	.31**	.51**	-.19	-.26*	.09
Borderline	.48**	-.12	.22	.33**	<b>.49**</b>	.45**	.28*	.23*	.13	.16
Histrionic	.01	-.26*	-.03	.34**	.14	<b>.46**</b>	.37**	-.23*	-.10	-.01
Narcissistic	.07	-.05	.01	.38**	-.10	.16	<b>.52**</b>	-.33**	-.39**	.16
Avoidant	.33**	.17	.16	-.24*	.31**	-.11	-.33**	<b>.56**</b>	.36**	.04
Dependent	.11	.04	.04	-.27*	.29*	-.02	-.42**	.49**	<b>.50**</b>	-.09
OCPD	-.07	.14	-.09	-.18	-.27*	-.41**	-.26*	.00	-.05	<b>.12</b>

Notes.  $n = 88$ ; SIFFM = Structured Interview for the Five-Factor Model (Trull & Widiger, 1997); Personality Disorder Interview—IV (Widiger, Mangine, Corbett, & Ellis, 1995); OCPD = Obsessive-Compulsive Personality Disorder; Convergent correlations are in boldface type along the diagonal.

\*\* = significant at  $p < .01$  level (2-tailed).

\* = significant at  $p < .05$  level (2-tailed).

TABLE 3. Correlations Between Informant NEO PI-R Prototype Match Scores and Informant DSM Rating Form Personality Disorder Scales

Informant Prototypes	Informant DSM Rating Form									
	Paranoid	Schizoid	Schizotypal	Antisocial	Borderline	Histrionic	Narcissistic	Avoidant	Dependent	OCPD
Paranoid	<b>.32*</b>	.47**	.56**	.24	.30	.18	.30	.26	.11	.28
Schizoid	.03	<b>.33*</b>	.24	.08	.02	-.25	-.01	.19	.08	.09
Schizotypal	.37*	.32*	<b>.48**</b>	.33*	.39*	.12	.08	.51**	.30	.07
Antisocial	.51**	.27	.45**	<b>.48**</b>	.55**	.55**	.49**	.13	.03	.02
Borderline	.61**	.27	.56**	.51**	<b>.65**</b>	.57**	.34*	.51**	.37*	.07
Histrionic	.33*	-.08	.08	.25	.37*	<b>.47**</b>	.22	.12	.10	-.09
Narcissistic	.41**	.30	.40**	.33*	.43**	.47**	<b>.49**</b>	.02	-.08	.15
Avoidant	.06	.19	.22	.06	.01	-.22	-.13	<b>.39**</b>	.29	.07
Dependent	-.17	-.18	-.20	-.10	-.25	-.38*	-.35*	.20	<b>.24</b>	-.17
OCPD	-.26	.12	-.03	-.26	-.36*	-.41**	-.10	-.14	-.14	<b>.21</b>

Notes:  $n = 67$ ; NEO PI-R = NEO Personality Inventory—Revised (Costa & McCrae, 1992); DSM = Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2000); OCPD = Obsessive-Compulsive Personality Disorder; Convergent correlations are in boldface type along the diagonal.

\*\* = significant at  $p < .01$  level (2-tailed).

\* = significant at  $p < .05$  level (2-tailed).

TABLE 4. Correlations Between Therapist FFMRF Prototype Match Scores and Therapist DSMRF Personality Disorder Scales

FFM Prototypes	DSMRF PD Scales									
	Paranoid	Schizoid	Schizotypal	Antisocial	Borderline	Histrionic	Narcissistic	Avoidant	Dependent	OCPD
Paranoid	<b>.24*</b>	.15	.19	.37**	.25*	-.03	.10	.11	.01	.22
Schizoid	.01	<b>.20</b>	.23*	-.02	-.05	-.16	-.20	.26*	.20	-.04
Schizotypal	.10	.19	<b>.27*</b>	.22	.33**	.03	-.07	.33**	.23*	-.02
Antisocial	.16	-.04	.00	<b>.52**</b>	.42**	.26*	.35**	-.14	-.17	.09
Borderline	.15	.04	.06	.49**	<b>.59**</b>	.24*	.21	.10	-.02	.07
Histrionic	.06	-.14	-.04	.35**	.45**	<b>.41**</b>	.34**	-.01	-.02	.03
Narcissistic	.22	-.05	-.01	.48**	.37**	.28*	<b>.42**</b>	-.13	-.16	.20
Avoidant	-.02	.20	.18	-.15	-.10	-.24*	-.32**	<b>.27*</b>	.20	-.09
Dependent	-.16	.09	.08	-.33**	-.22	-.23*	-.37**	.25*	<b>.23*</b>	-.16
OCPD	.01	.08	.05	-.25*	-.36**	-.34**	-.15	.01	-.01	<b>.14</b>

Notes.  $n = 79$ ; FFMRF = Five-Factor model Rating Form; DSMRF = DSM-IV Rating Form; OCPD = Obsessive-Compulsive Personality Disorder; Convergent correlations are in boldface type along the diagonal.

\*\* = significant at  $p < .01$  level (2-tailed).

\* = significant at  $p < .05$  level (2-tailed).

**TABLE 5. Cross-Method Convergent Validity**

	NEO with PDI	SIFFM with SNAP	NEO with SIFFM
Paranoid	.48**	.23	.59**
Schizoid	.22	.30*	.56**
Schizotypal	.32*	.23*	.71**
Antisocial	.36**	.43**	.48**
Borderline	.38**	.51**	.69**
Histrionic	.33*	.51**	.62**
Narcissistic	.35**	.32**	.58**
Avoidant	.42**	.50**	.62**
Dependent	.26*	.55*	.61**
Obsessive-Compulsive	.09	.24*	.62**
Median	.34	.37	.62

*Notes.* NEO with PDI = Correlation between the prototype matching scores from the NEO PI-R and the PD scales from the Personality Disorder Interview (PDI). SIFFM with SNAP = Correlation between the prototype matching scores from the SIFFM and the PD scales from the Schedule of Nonadaptive and Adaptive Personality (SNAP). NEO with SIFFM = Correlation of the prototype matching score for each PD as calculated from the self-report NEO Personality Inventory—Revised (NEO PI-R) and the Structured Interview for the Five Factor Model (SIFFM).

\* $p < .01$ ; \*\* $p < .05$

which ranged from .19 to .50 with a median of .38, as reported previously by Samuel and Widiger (2010).

**DISCUSSION**

Consistent with previous studies, the current research indicates that PMIs generated from FFM profiles converge well with explicit measures of the *DSM-IV* PDs. In fact, the results from the current study indicated higher median convergence than reported elsewhere. For example, the median correlation for the self-report PMIs was .53, compared with .38 from Miller et al. (2005) and .36 from Miller, Pilkonis, and Morse (2004). These differences are perhaps attributable to the method and instrument used to assess the *DSM* PDs. Miller, Reynolds, and Pilkonis (2004) used self-report instruments identical to those employed in the current study and obtained a very similar median value (.62).

Instrumentation issues might also explain why the semi-structured interview PMIs were higher than previous research. No prior study has reported agreement between FFM prototype scores and *DSM-IV-TR* PD scales when both were assessed via a semi-structured interview. Miller et al. (2005) reported the median convergent value between PMIs generated using a semi-structured interview (i.e., the SIFFM) and a self-report PD measure was .39. This value increased to .47 in the current study, when an interview measure of the PDs was also employed. Similarly, the median convergent value in this study (.43) for the informant data was appreciably larger than the .29 from Miller, Pilkonis, and Morse (2004), which utilized consensus PD ratings rather than informant descriptions. This illustrates that PMIs converge more strongly with explicit PD measures when they share method variance.

The present study provides the first data on the validity of PMIs derived from clinicians' FFM descriptions based on an unstructured clinical interview. This preliminary evidence indicates reasonable convergence between the clinicians' PMIs and their explicit ratings of the *DSM-IV* PDs, particularly for borderline, antisocial, narcissistic, and histrionic. This convergence occurred despite using rating forms that assessed each of the *DSM-IV* PDs and FFM facets with only a single item. While these brief ratings are externally valid to clinical settings, they might produce correlations that are lower than would be obtained if clinicians completed lengthier and more robust instruments.

In general, the convergent validity of the PMIs was quite good as 35 of the 40 correlations across the four assessment methods reached statistical significance. The primary exception occurred for OCPD, which obtained the lowest convergent correlation within each assessment method and was insignificant for all but self-report. These findings are consistent with prior research (Samuel & Widiger, 2008) and may reflect the fact that the NEO PI-R and SIFFM have less fidelity for maladaptive variants of high conscientiousness that characterize the OCPD diagnosis (Haigler & Widiger, 2001). However, the fact that OCPD failed to reach significance even for the clinicians' ratings, which did not use either the NEO PI-R or the SIFFM, cautions against the use of prototype matching for its assessment.

In addition, even when the convergent correlations did reach statistical significance the correlations were typically in the range of .30–.50. While most of these values would be considered medium to large effect sizes (Cohen, 1992), this still leaves a majority of the variance unexplained. Although it is not likely that any single measure will be able to fully account for a clinical construct, it is possible that there are some aspects of PD pathology that are not well captured by the FFM. However, it is also the case that one would not expect a measure of general personality to account for all of the variance within a measure of personality disorder (Trull et al., 2003; Samuel & Widiger, 2008).

It is also important to recognize the convergent values obtained by the PMIs in the current study are in the same range as the typical correlations between any two individual PD instruments. If one ignores the assessment of OCPD (which has a median convergent validity of only  $-.07$  due in large part to one instrument), the median convergent validity for any two self-report PD measures is  $.61$  as reported across 28 studies (Widiger & Boyd, 2009). The median convergent validity obtained in the current study for the self-report PMI indices with the SNAP (i.e.,  $.55$ ) was not appreciably lower (again ignoring OCPD).

In addition, the cross method convergence of the self-report and interview PMIs in the current study were consistently higher than between the SNAP (self-report) and PDI-IV (interview) PD assessments obtained within the same data collection and reported earlier by Samuel and Widiger (2010). The latter finding could reflect a methodological artifact of the particular PDI-IV and/or SNAP assessments, but the median convergent va-

lidity between any self-report and semi-structured interview PD assessments across 27 other studies was only .39 as reported by Widiger and Boyd (2009). This value is appreciably lower than was obtained for the SIFFM and NEO PI-R PMI assessments within the current study.

Discriminant validity of the PMIs was typically adequate, but there were a few instances in which a discriminant value was larger than a convergent value. Nonetheless, it is consistent with previous reports and is readily attributable to the weak discriminant validity that characterizes the assessment of the *DSM-IV* PDs (Clark, 2007). For example, there were only three cases where a discriminant value was significantly larger than the convergent correlation and each of these involved some combination of paranoid, schizoid, schizotypal, or avoidant PD, which have extensive conceptual overlap and diagnostic co-occurrence.

### LIMITATIONS AND FUTURE DIRECTIONS

While the current study is the first to examine the validity of the FFM prototype matching technique using four different methodologies, including clinician report, it is not without limitation. The current sample size, while comparable to previous studies examining the PMIs within clinical samples, is still somewhat small. In addition, this sample was drawn from a residential substance abuse treatment facility and thus might not be representative of other clinical settings. For example, the fact that it was confined solely to women may have restricted the range of certain PD pathology and thus suppressed the correlations. It should also be noted that the informant ratings for the *DSM-IV* PDs and the clinician ratings for both models were collected using brief, one-page rating forms. While this is consistent with previous research using clinicians (Samuel & Widiger, 2006) and informants (Oltmanns & Turkheimer, 2006), future research with lengthier instruments is warranted. More globally, this study is also conceptually limited by the use of the *DSM-IV* PD assessments as the criterion measures. The ultimate promise of the FFM or any dimensional model is in its ability to provide a more valid assessment of personality pathology than do the current diagnostic categories. In this way, future research that examines the ability of FFM assessments to predict external, perhaps behavioral, criteria is warranted. Nonetheless, it is useful to know that the prototype matching technique does allow the estimation of PDs from an FFM description.

### CONCLUSIONS

The current study provides further evidence that the extent to which a person's FFM facet profile is consistent with the profile for a prototypic case of a *DSM-IV* PD has as about as much convergent validity as do any two direct, explicit measures of these PDs. This occurs despite the fact that the explicit PD measures contain items specific to each PD's respec-

tive symptomatology, whereas the FFM measures are confined to an assessment of general personality traits. This suggests that assessing for the FFM will still allow for the continued consideration of *DSM-IV-TR* diagnostic constructs in clinical research and practice.

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