

Assessment

<http://asm.sagepub.com>

Psychometric Properties of an Abbreviated Instrument of the Five-Factor Model

Stephanie N. Mullins-Sweatt, Janetta E. Jamerson, Douglas B. Samuel, David R. Olson and Thomas A. Widiger

Assessment 2006; 13; 119

DOI: 10.1177/1073191106286748

The online version of this article can be found at:
<http://asm.sagepub.com/cgi/content/abstract/13/2/119>

Published by:

 SAGE Publications

<http://www.sagepublications.com>

Additional services and information for *Assessment* can be found at:

Email Alerts: <http://asm.sagepub.com/cgi/alerts>

Subscriptions: <http://asm.sagepub.com/subscriptions>

Reprints: <http://www.sagepub.com/journalsReprints.nav>

Permissions: <http://www.sagepub.com/journalsPermissions.nav>

Citations (this article cites 34 articles hosted on the SAGE Journals Online and HighWire Press platforms):
<http://asm.sagepub.com/cgi/content/abstract/13/2/119#BIBL>

Psychometric Properties of an Abbreviated Instrument of the Five-Factor Model

Stephanie N. Mullins-Sweatt

Janetta E. Jamerson

Douglas B. Samuel

University of Kentucky

David R. Olson

Morehead State University

Thomas A. Widiger

University of Kentucky

Brief measures of the five-factor model (FFM) have been developed but none include an assessment of facets within each domain. The purpose of this study was to examine the validity of a simple, one-page, facet-level description of the FFM. Five data collections were completed to assess the reliability and the convergent and discriminant validity of the rating form with other measures of the FFM and to replicate correlations with measures of maladaptive personality functioning that have been obtained with more extensive measures. Results appeared to support the validity of the FFM rating form (FFMRF) because it obtained relatively good internal consistency, convergent validity, and discriminant validity. In addition, self-descriptions of persons in terms of the FFMRF related to maladaptive personality traits in a manner that was consistent with theoretical expectations. Negative findings and limitations of the rating form also are discussed.

Keywords: five-factor model; assessment; facet descriptions; maladaptive personality; abbreviated measure

The five-factor model (FFM) was derived originally from studies of the English language to identify those traits that are most significant in describing oneself and other persons (Digman, 1990; John & Srivastava, 1999). Studies of English and many other languages have generally supported the identification of five broad domains of personality: extraversion (surgency or positive affectivity) versus introversion, agreeableness versus antagonism, conscientiousness versus undependability, neuroticism (emotional instability or negative affectivity) versus emotional stability, and openness (intellect or unconventionality) versus closedness to experience, referred to as the FFM or the Big Five (Ashton & Lee, 2001).

Each of these five broad domains has been differentiated into six more specific facets by Costa and McCrae (1995). For example, Costa and McCrae suggest that the domain of extraversion (vs. introversion) can be differentiated into the more specific facets of warmth, gregariousness, assertiveness, activity, excitement-seeking, and positive emotionality. There is a great deal of empirical support for the construct validity of the facet and domain levels of the FFM. This has been shown with convergent and discriminant validation in self-report, peer ratings, and spouse ratings (McCrae, Stone, Fagan, & Costa, 1998); temporal stability (McCrae & Costa, 2003); generalizability across age, gender, and culture (Digman, 1990;

Correspondence concerning this article should be addressed to Stephanie N. Mullins-Sweatt, 115 Kastle Hall, Department of Psychology, University of Kentucky, Lexington, KY 40506-0044; e-mail: snmull2@uky.edu.

Assessment, Volume 13, No. 2, June 2006 119-137

DOI: 10.1177/1073191106286748

© 2006 Sage Publications

McCrae & Allik, 2002); and heritability (Jang, McCrae, Angleitner, Rieman, & Livesley, 1998; Loehlin, McCrae, Costa, & John, 1998).

The FFM also has been used successfully as an integrative model for personality description in a number of applied fields, including health psychology (Artistico, Baldassarri, Lauriola, & Laicardi, 2000) and industrial organizational psychology (Hogan & Holland, 2003) as well as developmental research such as child and adolescent studies (Shiner, 1998) and aging (Costa, McCrae, & Siegler, 1999). The applicability of the FFM to the diagnoses of personality disorders also has been of interest for clinicians and researchers alike (Mullins-Sweatt & Widiger, *in press*). It has been proposed that each of the personality disorders can be understood as maladaptive variants of these personality traits that are evident in all persons. Elevations on a measure of the FFM need not themselves indicate the presence of a personality disorder but personality disorder symptomology has been associated with these elevations (Widiger, Costa, & McCrae, 2002). More than 50 studies have supported an understanding of personality disorders from the FFM perspective (Ball, 2001; O'Connor, 2005; Ostendorf, 2000; Saulsman & Page, 2004; Widiger & Costa, 2002). In a meta-analysis examining 15 independent samples, Saulsman and Page (2004) concluded that "each of the personality disorders shows associations with the five-factor model that are meaningful and predictable given their diagnostic criteria" (p. 1075). Livesley (2001) concluded on the basis of his review of the research that "multiple studies provide convincing evidence that the DSM personality disorders diagnoses show a systematic relationship to the five-factors and that all categorical diagnoses of DSM can be accommodated within the five-factor framework" (p. 24).

The further dissemination, study, and application of the FFM could be facilitated by the presence of abbreviated measures. The most frequently used measure of the FFM is the Revised NEO Personality Inventory (NEO PI-R; Costa & McCrae, 1992). The NEO PI-R is a self-report inventory consisting of 240 questionnaire items scored on a 5-point Likert-type scale. The NEO PI-R is recognized as the most well-validated measure of the FFM (Briggs, 1992; Widiger & Trull, 1997). Nevertheless, there also can be situations in which the administration of a more abbreviated measure can be advantageous and practical, including (but not limited to) experience-sampling studies that require quick assessments, prescreening packets, large scale surveys that must assess a wide variety of other variables within a limited period of time, and studies that require participants to assess multiple targets (Burish, 1997; Gosling, Rentfrow, & Swann, 2003; Robins, Hendin, & Trzesniewski, 2001; Saucier, 1994).

A number of abbreviated measures of the FFM have been developed, including the NEO-Five Factor Inventory (NEO-FFI; Costa & McCrae, 1992), the Big Five Inventory (BFI; John & Srivastava, 1999), Saucier's (1994) Mini-Markers, and the 10-Item Personality Inventory (TIPI; Gosling et al., 2003). The NEO-FFI is a 60-item, self-report questionnaire that assesses the five domains of the FFM. The BFI is a 44-item self-report questionnaire that contains adjectives that are augmented with clarifying or contextual information to assess the broad domains of the Big Five. Saucier's (1994) Mini-Markers is a 40-item adjective checklist that provides unipolar markers for the Big Five personality factor structure (it is essentially an abbreviated version of Goldberg's, 1992, 100-trait descriptive adjectives of the Big Five). The TIPI is the briefest of all these measures because it is a 10-item self-report measure of the Big Five dimensions where respondents rate the extent to which pairs of traits apply to themselves. Each of these instruments has shown convergence with widely used measures of the FFM in self, observer or peer reports, adequate test-retest reliability, reliable patterns of predicted external correlates, and convergence between self- and other ratings (Blais, 1997; Costa & McCrae, 1992; Gosling et al., 2003; John & Srivastava, 1999; Saucier, 1994). These studies together support the validity of using abbreviated measures of the FFM.

However, a potential limitation of these existing abbreviated measures is the absence of items or scales to assess the lower-order facets of the FFM (Gosling et al., 2003). The FFM facets identified by Costa and McCrae (1995) have been shown to be particularly relevant in clinical studies when describing and differentiating among persons diagnosed with DSM-IV personality disorders (e.g., Axelrod, Widiger, Trull, & Corbitt, 1997; Dyce & O'Connor, 1998; Reynolds & Clark, 2001; Trull, Widiger, & Burr, 2001). For example, some facets of neuroticism (i.e., angry hostility and impulsivity) correlate positively with psychopathy, whereas other facets in the same domain (i.e., anxiousness, self-consciousness, and vulnerability) correlate negatively with psychopathy (Miller, Lynam, Widiger, & Leukefeld, 2001). Research outside the realm of personality disorders has reached similar conclusions. Paunonen and his colleagues, for example, have suggested that including the facets has assisted in predicting a substantial number of behavioral criteria, such as alcohol consumption and grade point average, by accounting for more criterion variance than the broad factors alone (Paunonen & Ashton, 2001; Paunonen, Haddock, Fosterling, & Keinonen, 2003).

It is possible that an abbreviated measure of the FFM that includes assessments of the 30 facets of the NEOPI-R is

feasible. Single-item assessments are unlikely to obtain the same level of reliability or validity as multiitem scales. Nevertheless, effective use of single-item assessments has been demonstrated in studies of life satisfaction (Campbell, Converse, & Rodgers, 1976), affect (Russell, Weiss, & Mendelsohn, 1989), attachment style (Bartholomew & Horowitz, 1991), global self-esteem (Robins et al., 2001), job satisfaction (Wanous, Reichers, & Hudy, 1997), and subjective well-being (Sandvik, Diener, & Seidlitz, 1993). In addition, there have been a few studies in which single-item assessments of the FFM facets identified by Costa and McCrae (1995) have been used effectively by clinicians and researchers to describe personality disorders.

Sprock (2002) sent 89 licensed clinical psychologists brief (one-page) descriptions of prototypic and nonprototypic cases of schizoid, antisocial, and obsessive-compulsive personality disorders (three case vignettes were sent to each psychologist) and asked them to describe the patient in terms of the 30 facets of the FFM. The case was presented at the top of a page followed by a dimensional rating scale and the facets of the FFM. The facets were presented in the order they appear in the NEO PI-R with the name of the dimension in boldface type along with the opposite pole of the dimension. Additional descriptors were presented for facets that were thought to be less familiar (e.g., for the facet of compliance the items were cooperative, docile vs. oppositional, combative, aggressive). Internal consistency of the FFM descriptions was good for each of the personality disorders (.99 for the six cases). Average interrater reliability correlations ranged from a low of .51 for the two schizoid cases to .64 for the obsessive-compulsive and antisocial cases. The descriptions of the prototypic cases converged significantly with the FFM descriptions of these disorders provided by Widiger, Trull, Clarkin, Sanderson, and Costa (1994), obtaining correlations of .44 for the schizoid, .60 for the antisocial, and .66 for the obsessive-compulsive. Sprock (2002) concluded that "most of the core features proposed by Widiger et al. (1994) were supported" (p. 419) and that the findings of the study "suggest that practicing clinicians can directly apply the dimensions of the FFM to cases of disordered personality with a moderate level of reliability" (p. 417).

Samuel and Widiger (2004) obtained FFM descriptions by clinicians of all 10 DSM-IV personality disorders. They asked clinicians to describe prototypic DSM-IV personality disorders using a one-page FFM rating form (FFMRF) developed by the second author to provide assessments of both poles of each of the 30 facets of the FFM. The FFMRF includes an identifying term for each of the 30 FFM facets, along with two to four adjectives that describe both poles of each facet. For example, the neuroticism facet of anxiousness

was assessed with the descriptors "fearful, apprehensive versus relaxed, unconcerned, cool"; the order facet of conscientiousness was assessed with the descriptors "ordered, methodical, organized versus haphazard, disorganized, sloppy"; and the openness facet of ideas was assessed with the descriptors "strange, odd, peculiar, creative versus pragmatic, rigid." Members of Division 42 (private practitioners, $n = 154$) of the American Psychological Association provided descriptions of prototypic cases of two personality disorders using the FFMRF. The clinicians were asked to use a 5-point scale "where 1 is *extremely low* (i.e., extremely lower than the average person), 2 is *low*, 3 is *neither high nor low* (i.e., does not differ from the average person or not enough information to decide), 4 is *high*, and 5 is *extremely high*." A total of 308 FFM descriptions of prototypic cases were obtained. The results indicated that clinicians were able to provide reliable descriptions of the 10 personality disorders in terms of the FFM. The average correlation between one individual's profile description with the composite profile (after deleting his or her contribution to the composite) ranged from .60 for the schizotypal profile to .76 for the dependent. Reliability of the composite profile using Cronbach's alpha (raters serving as variables and facets serving as cases) ranged from .94 for the schizotypal and narcissistic to .98 for the dependent. Average interrater reliability correlations within each profile ranged from .64 for the schizotypal to .78 for the dependent. The FFMRF descriptions of the obsessive-compulsive, schizoid, and antisocial personality disorders also agreed well with the FFM descriptions obtained by Sprock (2002), with convergent validity coefficients ranging from .83 (obsessive-compulsive) to .91 (schizoid and antisocial).

In addition, the clinicians' FFM facet descriptions of prototypic cases agreed well with the descriptions of the personality disorders provided by researchers using the same FFMRF (Lynam & Widiger, 2001). Average interrater reliability for the researchers' FFM profiles ranged from .48 (schizotypal) to .66 (obsessive-compulsive), average item-total correlations ranged from .91 (paranoid and schizotypal) to .97 (antisocial, avoidant, and obsessive-compulsive). The convergent validity coefficients ranged from .91 for the FFM descriptions of the schizoid and schizotypal personality disorders to .97 for the antisocial.

Samuel and Widiger (2004) also suggested that the FFM facet-level descriptions provided more thorough and comprehensive descriptions of the DSM-IV personality disorders than is being provided by the DSM-IV diagnostic criteria. For example, for DSM-IV paranoid personality disorder "criteria are essentially seven indices of a single trait, chronic mistrust" (Westen & Shedler, 1999, p. 274), whereas the FFM descriptions by clinicians

went beyond the DSM-IV criteria and included low positive emotionality, low openness to values, high anxiousness, low warmth, low gregariousness, low altruism, and low tender-mindedness. Similarly, the FFM description of the antisocial personality disorder included low self-consciousness, low modesty, and low anxiousness that are present in the traditional conceptualization of psychopathy (Lilienfeld, 1994) but are not included in the DSM-IV criterion set for antisocial personality disorder (Hare, Hart, & Harpur, 1991).

In sum, the results of the research by Gosling et al. (2003), John and Srivastava (1999), and Saucier (1994) indicate that abbreviated measures can provide reliable and valid descriptions of the FFM. However, none of these brief measures of the FFM (NEO-FFI, Mini-Markers, BFI, TIPI) include assessments at the facet level. The studies by Lynam and Widiger (2001), Sprock (2002), and Samuel and Widiger (2004) suggest that abbreviated measures of the FFM can provide clinically meaningful information at the level of the 30 facets of the FFM, but none of these latter studies provided data on the validity of the FFM rating forms. Before the FFMRF is used in additional studies and settings, data on its psychometric properties, particularly its convergent and discriminant validity, should be obtained.

The purpose of the current study was to obtain discriminant and convergent validity data on the FFMRF used by Lynam and Widiger (2001) and Samuel and Widiger (2004) with respect to its assessment of the FFM. It was hypothesized in the current studies that the FFMRF would obtain good to excellent convergent validity with other FFM measures. Furthermore, the FFMRF was expected to obtain good discriminant validity in the assessment of the five domains as well as the facets within each domain that would be comparable to that of the NEO PI-R (Costa & McCrae, 1992). Finally, the FFMRF was predicted to replicate correlations with measures of maladaptive personality functioning that have been obtained with more extended measures of the FFM. These hypotheses were tested across five studies, four of them using the NEO PI-R as a criterion measure, along with a number of other additional measures of the FFM and maladaptive personality functioning. None of the findings from any one of the five studies have been previously published.

METHOD

Participants

For each of the five studies, written informed consent was obtained from the participants. In each instance

participants received course credit for their participation in the study. Order of administration of the various personality instruments was randomized.

Study 1

The participants were 200 undergraduates (42 men, 158 women) at the University of Kentucky enrolled in introductory psychology courses. The mean age of the sample was 18.77; 87.5% was Caucasian. The participants were asked to describe themselves using the FFMRF and NEO PI-R.

Study 2

The participants were 189 University of Kentucky undergraduates (72 men, 117 women) enrolled in introductory psychology courses. The mean age of the sample was 19.82 years; 84.7% of the participants was Caucasian. The participants were asked to describe themselves using the FFMRF, NEO PI-R, Interpersonal Adjective Scales Revised–Big Five (IASR-B5) (Trapnell & Wiggins, 1990), Mini-Markers, and the Schedule for Nonadaptive and Adaptive Personality (SNAP) (Clark, 1993).

Study 3

One hundred and thirty-three undergraduate students (35 men, 98 women) at Morehead State University volunteered to participate in the study. The mean age of the sample was 22.78 years; 92.5% of the participants was Caucasian. The participants were asked to describe themselves using the FFMRF, NEO PI-R, and the OMNI Personality Inventory (OMNI) (Loranger, 2001).

Study 4

The participants were 146 undergraduate college students (72 men, 74 women) at the University of Kentucky. The mean age of the sample was 18.72 years; 94.5% of the participants was Caucasian. The participants were asked to describe themselves using the FFMRF, Personality Diagnostic Questionnaire-4 (PDQ-4) (Hyler, 1994), and the SNAP (Clark, 1993).

Study 5

The participants were 75 undergraduate college students enrolled in introductory psychology courses at the University of Kentucky (demographic data were inadvertently not collected in this study but there is no reason to expect that the age, gender, or ethnic distribution varied significantly from the four earlier studies). The participants were asked

to describe themselves using the FFMRF, NEO PI-R, and the SNAP.

Measures

Five Factor Model Rating Form (FFMRF): Studies 1-5. The FFMRF is a one-page rating form consisting of 30 items representing each of the 30 facets of the FFM. The 30 items are organized with respect to the five domains. For example, under the heading Neuroticism are six items. Each item is rated on a 1 to 5 scale where 1 is *extremely low*, 2 is *low*, 3 is *neither high nor low*, 4 is *high*, and 5 is *extremely high*. For example, the neuroticism facet of anxiousness was assessed with the descriptors "fearful, apprehensive versus relaxed, unconcerned, cool" and the openness facet of ideas was assessed with the descriptors "strange, odd, peculiar, creative versus pragmatic, rigid." There were minor revisions to five of the FFMRF items following Study 4. These changes included adding the adjective *cordial* to the description of high warmth, replacing the words *sensitive*, *responsive* with *self-aware* for openness to feelings, and adding the word *cautious* to the description of high deliberation. A complete copy of the final version of the FFMRF can be obtained from one of the authors of this study or can be downloaded from the following Web site: www.uky.edu/~widiger.

NEO Personality Inventory-Revised (NEO PI-R; Costa & McCrae, 1992): Studies 1-3, 5. The NEO PI-R is a 240-item questionnaire designed to provide a self-report measure of the FFM. Participants rate each item on a 5-point Likert-type scale. This instrument was designed to assess five domains (neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness) and six narrower facets of the FFM. Internal consistency coefficients have ranged from .86 (agreeableness) to .92 (neuroticism), and 7-year test-retest reliability coefficients have ranged from .63 to .81 (Costa & McCrae, 1992).

Interpersonal Adjective Scales Revised-Big Five (IASR-B5; Trapnell & Wiggins, 1990): Study 2. The IASR-B5 is a 124-item adjective checklist that assesses both the interpersonal circumplex and the FFM at the level of the domains (Trapnell & Wiggins, 1990). Each participant rates how accurately each word (e.g., organized) describes himself or herself as a person on an 8-point Likert-type scale (e.g., 1 = *extremely inaccurate* to 8 = *extremely accurate*). Three of the IASR-B5 scales correspond directly to three of the five domains of the FFM (i.e., neuroticism, openness to experience, and conscientiousness). The IASR-B5 includes, in addition, eight scales to assess octants of the interpersonal circumplex. The gregarious-extraverted and warm-agreeable scales are the two octant scales that are aligned

most closely with the respective extraversion and agreeableness domains of the FFM (Trapnell & Wiggins, 1990). Trapnell and Wiggins report reliability coefficients ranging from .87 (openness) to .94 (dominance and nurturance).

Mini-Markers (Saucier, 1994): Study 2. Saucier's Mini-Markers is an abbreviated form of Goldberg's (1992) 100-item adjective checklist. This 40-item checklist provides unipolar markers for the Big-Five personality factor structure. Each participant rates how accurately each word (e.g., talkative) describes himself or herself as a person on a 7-point Likert-type scale (e.g., 1 = *extremely inaccurate* to 7 = *extremely accurate*). Saucier (1994) reported internal consistency coefficients ranging from .78 (emotional stability and intellect/openness) to .83 (extraversion and conscientiousness).

OMNI Personality Inventory (OMNI; Loranger, 2001): Study 3. The OMNI is a 390-item self-report inventory designed to measure normal and abnormal personality traits and personality disorders. Considered for the purpose of this study were the 10 personality disorder scales and five-factor scales that provide information integrating the general and abnormal personality scales (e.g., agreeableness, conscientiousness). Reported internal consistency coefficients (Loranger, 2001) for the factor scales range from .79 (conscientiousness) to .94 (agreeableness and neuroticism).

Personality Diagnostic Questionnaire-4 (PDQ-4; Hyler, 1994): Study 3, 4. The PDQ-4 is a 99-item true/false self-report inventory designed to screen for the 10 personality disorders found in the DSM-IV as well as two additional disorders located in the appendix. This inventory assesses both overall personality disturbance and specific personality diagnoses. Internal consistency coefficients reported by Hyler et al. (1989) ranged from .56 (schizoid) to .84 (dependent).

Schedule for Nonadaptive and Adaptive Personality (SNAP) (Clark, 1993): Study 2, 4, 5. The SNAP is a 375-item true-false, self-report questionnaire. The SNAP provides scores for 15 personality traits and temperaments (e.g., manipulativeness, impulsivity, workaholism, and aggression) and six validity scales. The SNAP also provides scores for the 11 DSM-III-R (APA, 1987) personality disorders. Internal consistency coefficients ranged from .70 (obsessive-compulsive) to .90 (paranoid).

RESULTS

Descriptive statistics for the FFMRF domain and facet scales across the five studies are reported in Table 1. Mean scores were similar across the five samples.

TABLE 1
Psychometric Characteristics of Domain and Facet Scales
of Five-Factor Model Rating Form (FFMRF)

Study	Mean					Standard Deviation					Coefficient Alpha				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Neuroticism	15.00	14.66	16.05	14.40	13.83	4.41	3.99	3.99	3.42	3.95	.68	.69	.69	.62	.73
Anxiousness	2.81	2.68	2.95	2.60	2.71	.97	1.09	1.05	.99	1.08					
Angry hostility	1.93	2.03	2.31	2.04	1.76	.93	.96	1.03	.92	.95					
Depressiveness	2.14	2.35	2.74	2.19	2.22	1.08	1.18	1.24	1.05	1.07					
Self-consciousness	3.02	2.81	3.00	2.78	2.69	1.10	1.10	1.12	1.02	.97					
Impulsivity	2.64	2.69	2.71	2.56	2.32	1.03	1.05	1.04	.93	.95					
Vulnerability	2.41	2.11	2.37	2.27	2.19	1.05	.90	.89	.91	.94					
Extraversion	22.83	22.75	21.12	21.78	22.25	3.43	3.88	3.50	3.81	3.16	.69	.73	.68	.76	.60
Warmth	4.32	4.26	4.14	4.10	4.09	.78	.86	.85	.83	.89					
Gregariousness	3.97	4.01	3.75	3.84	3.97	1.04	1.09	.95	.95	.93					
Assertiveness	3.24	3.34	3.05	3.08	3.16	1.02	.98	.92	1.04	.87					
Activity	4.04	3.85	3.48	3.70	3.79	.93	.95	.96	.98	1.06					
Excitement-seeking	3.18	3.41	3.04	3.15	3.17	.98	.98	.99	.94	.89					
Positive emotions	3.94	4.05	3.73	3.97	4.06	.84	.89	.97	.89	.84					
Openness	20.44	22.05	20.53	20.75	21.43	3.61	3.51	3.61	3.23	3.56	.51	.62	.65	.58	.69
Fantasy	3.41	3.62	3.32	3.34	3.51	1.12	1.17	1.17	1.78	1.02					
Aesthetic	3.20	3.74	3.40	3.53	3.70	.62	.81	.89	.84	.78					
Feelings	4.13	4.12	3.88	3.93	4.08	.80	.76	.88	.72	.66					
Actions	2.83	3.49	3.08	3.23	3.14	.94	.98	.99	.88	1.06					
Ideas	3.10	3.57	3.45	3.43	3.63	.92	.97	.93	.93	.96					
Values	3.47	3.52	3.43	3.34	3.49	1.07	1.14	1.08	1.09	1.12					
Agreeableness	22.91	22.84	22.02	21.97	22.11	3.15	3.57	3.67	3.32	3.54	.56	.71	.72	.69	.72
Trust	3.58	3.75	3.38	3.49	3.32	1.04	1.06	1.11	1.08	1.09					
Straightforwardness	3.88	4.05	3.92	3.94	4.06	.92	.86	.88	.83	.72					
Altruism	3.85	3.94	3.73	3.86	3.76	.83	.79	.93	.77	.87					
Compliance	3.86	3.73	3.63	3.62	3.70	.87	.87	.79	.81	.94					
Modesty	3.27	3.46	3.55	3.42	3.63	1.05	1.05	.97	.88	.81					
Tender-mindedness	4.15	3.90	3.82	3.65	3.69	.80	.92	.98	.89	.98					
Conscientiousness	24.00	22.58	21.69	22.19	22.35	4.63	3.62	3.50	3.46	3.47	.73	.77	.76	.78	.78
Competence	4.03	3.99	3.74	3.85	3.87	.83	.88	.85	.87	.79					
Order	3.92	3.65	3.53	3.75	3.65	1.00	1.03	.95	.90	.98					
Dutifulness	4.35	3.97	3.80	3.93	3.89	.69	.85	.80	.78	.75					
Achievement	3.97	3.57	3.53	3.49	3.67	.78	.91	.81	.86	.74					
Self-discipline	4.04	3.77	3.69	3.65	3.67	.70	.84	.92	.78	.80					
Deliberation	3.92	3.74	3.55	3.58	3.73	.79	.78	.75	.80	.85					

NOTE: Study 1: $n = 200$, undergraduates at the University of Kentucky. Study 2: $n = 189$, undergraduates at the University of Kentucky. Study 3: $n = 133$, undergraduates at Morehead State University. Study 4: $n = 146$, undergraduates at the University of Kentucky. Study 5: $n = 75$, undergraduates at the University of Kentucky.

Coefficient alphas for the domain scales were generally acceptable to good, particularly for six-item scales, ranging in value from .51 (openness [O], Study 1) to .87 (conscientiousness [C], Study 5).

Table 2 provides internal consistency statistics for the facet items of the FFMRF. Provided in Table 2 are the correlations of each FFMRF item with each of the other FFMRF items, averaged across all five studies (Hedges & Olkin, 1984; Rosenthal, 1991). Morey (2003) suggests that the recommended magnitude of average item inter-correlations tends to vary widely, ranging from .15 to .50 (Briggs & Cheek, 1986; Clark & Watson, 1995). Morey (2003) further suggests that averages for broad constructs

typically fall in the .15 to .30 range and as they increase greater than .40, "the measurement of the construct is becoming quite narrow, and it is generally advisable to keep this average comfortably below .50 unless the scale is quite brief and highly specific in nature" (p. 396). It is evident from Table 2 that the single items obtained, in most instances, good internal convergent and discriminant validity. In all but a few instances, FFMRF items correlated significantly with the other items within each respective domain and failed to correlate significantly with the items from other domains. Many of the exceptions also are consistent with findings typically obtained with the NEO PI-R, including significant correlations of

TABLE 2
Average Internal Consistency Correlations Within the Facet Scales of the Five-Factor Model Rating Form (FFMRF)

	N1	N2	N3	N4	N5	N6	E1	E2	E3	E4	E5	E6	O1	O2	O3
N1															
N2	.30														
N3	.37	.34													
N4	.35	.14	.41												
N5	.23	.29	.19	.13											
N6	.28	.09	.33	.35	.13										
E1	.11	-.11	-.12	-.03	-.02	.05									
E2	-.09	-.07	-.28	-.34	.05	-.17	.34								
E3	.08	.17	-.10	-.23	.08	-.18	.11	.42							
E4	-.07	-.09	-.33	-.25	.03	-.18	-.20	.43	.29						
E5	-.09	.07	-.11	-.20	.18	-.12	-.01	.22	.23	.32					
E6	-.17	-.26	-.44	-.26	-.08	-.14	.34	.44	.18	.45	.19				
O1	.00	.02	.00	-.04	.15	.03	.04	.01	.04	.00	.20	.04			
O2	.02	-.02	-.06	-.08	.10	-.06	.12	.15	.13	.17	.16	.19	.17		
O3	.04	-.07	-.05	-.02	-.02	.05	.39	.14	.05	.08	-.02	.22	.20	.21	.08
O4	-.10	.06	-.10	-.15	.18	-.11	.03	.18	.12	.24	.40	.15	.26	.12	.22
O5	-.10	.10	.06	-.12	.19	.00	-.02	.02	.10	.03	.21	.03	.29	.22	.14
O6	-.08	-.01	-.08	-.08	.13	-.04	.00	.08	.05	.05	.23	.15	.23	.13	.15
A1	-.01	-.19	-.13	.08	-.07	.13	.30	.19	-.08	.09	.04	.23	-.03	-.04	.08
A2	-.04	-.17	-.18	-.05	-.07	-.05	.22	.22	.09	.20	.01	.31	-.11	.10	.19
A3	.04	-.11	-.02	.02	-.03	.07	.24	.13	.07	.11	.07	.21	.04	.16	.18
A4	.02	-.19	-.10	.11	-.09	.14	.17	.10	-.14	.09	.01	.19	.00	.07	.11
A5	.16	-.05	.10	.24	-.07	.12	.11	-.12	-.17	-.07	.00	-.05	.02	.02	.16
A6	.05	-.23	-.06	.09	-.05	.15	.41	.11	-.14	.06	-.03	.26	.12	.10	.37
C1	.09	.00	-.02	.06	-.10	-.07	.11	.05	.10	.12	.02	.16	.00	.11	.13
C2	.05	-.09	-.13	.01	-.22	-.06	.14	.07	-.07	.10	-.10	.16	-.10	.07	.12
C3	-.01	-.12	-.11	-.01	-.15	-.08	.17	.14	.09	.11	.01	.21	-.07	.08	.19
C4	.04	-.07	-.07	-.05	-.14	-.15	.15	.15	.14	.14	.02	.20	-.05	.13	.09
C5	-.01	-.16	-.18	-.07	-.27	-.17	.17	.16	.09	.18	-.07	.21	-.08	.11	.20
C6	.03	-.11	-.10	-.01	-.17	-.03	.18	.07	.02	.09	-.13	.15	-.04	.17	.15

(continued)

TABLE 2 (continued)

	O4	O5	O6	A1	A2	A3	A4	A5	A6	C1	C2	C3	C4	C5	C6
O5	.31														
O6	.33	.29													
A1	-.03	-.09	.00												
A2	-.03	-.11	.01	0.25											
A3	-.01	-.06	-.08	0.29	0.28										
A4	.02	-.01	.05	0.24	0.23	0.40									
A5	-.07	-.01	.02	0.13	0.12	0.26	0.31								
A6	-.01	-.04	-.08	0.31	0.29	0.32	0.35	0.31							
C1	-.04	.03	.00	0.03	0.15	0.15	0.14	0.06	0.17						
C2	-.16	-.14	-.09	0.04	0.14	0.13	0.15	0.08	0.10	0.47					
C3	-.06	-.08	-.04	0.11	0.29	0.24	0.19	0.14	0.24	0.30	0.35				
C4	-.01	.04	-.01	0.08	0.18	0.14	0.07	0.01	0.12	0.41	0.29	0.37			
C5	-.06	-.06	-.06	0.09	0.18	0.16	0.13	0.08	0.17	0.37	0.35	0.38	0.50		
C6	-.13	-.01	-.03	0.11	0.16	0.19	0.16	0.04	0.24	0.29	0.22	0.31	0.30	0.37	

NOTE: Internal consistency coefficients were collected for each facet in each of the five studies. Facet values were then averaged (Hedges & Olkin, 1984) across the five studies. Correlations greater than .10 = $p < .01$. Convergent validity coefficients are in bold type. N = Neuroticism; E = Extraversion; O = Openness; A = Agreeableness; C = Conscientiousness.

angry hostility with facets of low agreeableness, impulsivity with facets of conscientiousness, and warmth with facets of agreeableness. However, there were also a few instances in which failures of discriminant validity were not consistent with findings generally obtained with the NEO PI-R (e.g., correlations of straightforwardness, altruism, and tender-mindedness with facets of conscientiousness). There were just three instances where the FFMRF failed to correlate significantly with another item in its respective domain (warmth with impulsivity, openness to feelings and openness to actions, and angry hostility and vulnerability), and in each instance this concerned only 2 of the 15 within-domain correlations.

Five-Factor Model Instruments

Convergent and discriminant validity coefficients for the FFMRF domain scales with the NEO PI-R are presented in Table 3. Convergent validity coefficients were generally good, particularly for the neuroticism, extraversion, agreeableness, and conscientiousness scales, ranging from .39 for openness in Study 3 to .78 for conscientiousness in Study 5. Discriminant validity coefficients were consistently lower, with only a few scattered exceptions, and these were not inconsistent with findings reported in the manual for the NEO PI-R (e.g., correlations of extraversion with agreeableness).

Space limitations prohibit the provision of all 3,600 convergent and discriminant validity coefficients for the FFMRF facet items with the NEO PI-R facet scales from Studies 1, 2, 3, and 5. Therefore, averaged values of these correlations (Hedges & Olkin, 1984) will be reported to conserve space and to provide a more reliable estimate of each correlation (a complete copy of the entire set of correlations is available on request from the first author). First, the correlations for all of the six facet items within each of the five FFM domains were averaged across the four studies (see Table 4). The averaged convergent validity coefficients of the six facet items with the six respective NEO PI-R facet scales (averaged across studies and across the items within each domain) ranged from .37 ($p < .001$) for the six facet items of openness to .50 ($p < .001$) for the six facet items of extraversion. These values, averaged across facets within each domain, do not indicate whether some of the individual facet items failed to obtain significant convergent validity coefficients. Table 4 also provides the range in values for the individual facet items, averaged across the four studies (Hedges & Olkin, 1984). There was no instance in which an FFMRF facet item failed to correlate significantly with a respective facet scale from the NEO PI-R (there were only 2 of a possible 120 instances in which an insignificant correlation occurred within any particular study).

Table 4 also provides the averaged correlation of each FFMRF facet item with the other facet scales of the NEO PI-R within the same domain. For example, each of the FFMRF facet items within the domain of neuroticism was correlated with the other five NEO PI-R facet scales within the neuroticism domain. These 30 correlations were then averaged across studies for each domain. These correlations are generally lower than those obtained with the same NEO PI-R facet scales but, consistent with their presence within the same domain, they were all statistically significant. Finally, Table 4 also provides the averaged correlation of each facet item with the NEO PI-R facet scales from other domains (e.g., correlations of FFMRF neuroticism items with the 24 NEO PI-R facet scales from other domains, averaged for the neuroticism domain and across studies). All of these values approached zero, consistent with expectations.

Convergent validity coefficients for the FFMRF with the NEO PI-R domain scales were consistent with those obtained for the IASR-B5, Mini-Markers, and OMNI. Convergent validity coefficients with NEO PI-R neuroticism, extraversion, openness, agreeableness, and conscientiousness were .47, .78, .34, .57, and .31 for the respective scales of the IASR-B5; .63, .66, .55, .61, and .69 for the respective scales of the Mini-Markers; and .70, .61, .67, .55, and .37 for the respective scales of the OMNI. Table 5 provides the convergent and discriminant validity coefficients of the FFMRF with the Mini-Markers, IASR-B5, and OMNI. Convergent validity coefficients for the FFMRF with Saucier's Mini-Markers (MM) domain scales ranged from .43 (O) to .66 (E) ($p < .01$). All but one of the discriminant validity coefficients were significantly lower than the respective convergent validity coefficients ($p < .01$). For example, the discriminant validity coefficient for FFMRF extraversion with MM agreeableness was significantly lower than FFMRF extraversion with MM extraversion, $t(186) = 4.48$, $p < .01$. The one exception was the discriminant validity for FFMRF openness with MM extraversion.

Convergent validity coefficients for the FFMRF with IASR-B5 domain scales were .25, .32, and .29 ($p < .01$) for conscientiousness, neuroticism, and openness, respectively. These values are not as high as the convergent validity coefficients obtained with the NEO PI-R; however, discriminant validity coefficients for all three were uniformly statistically insignificant. Correlation coefficients for the FFMRF with the respective IASR-B5 octants that are most closely aligned with the extraversion and agreeableness domains (i.e., gregarious-extraverted and warm-agreeable, respectively; Trapnell & Wiggins, 1990) are also presented in Table 5. Convergent validity coefficients for these two octant scales were .70 ($p < .01$) and .62 ($p < .01$).

TABLE 3
Correlations With the Domain Scales of the Revised NEO Personality Inventory (NEO PI-R) (Studies 1, 2, 3, 5)

	Neuroticism (N)					Extraversion (E)					Openness (O)					Agreeableness (A)					Conscientiousness (C)				
	1	2	3	5	5	1	2	3	5	5	1	2	3	5	5	1	2	3	5	5	1	2	3	5	5
N	.64**	.62**	.66**	.67**	.67**	-.38**	-.18*	-.11	-.20	.04	-.09	.12	.12	-.16	-.01	-.01	-.08	.01	-.01	-.01	-.07	-.08	.06	-.12	-.12
E	-.38**	-.28**	-.33**	-.33**	-.33**	.72**	.71**	.65**	.63**	.11	.20**	.32**	.32**	-.19	-.14	-.14	.32**	.32**	.45**	.17*	.17*	.17*	.07	.18	.18
O	.05	-.05	-.13	-.01	-.01	-.19*	.16	.29**	.19	.54**	.56**	.39**	.39**	.57**	-.02	-.02	.12	.04	.00	-.03	-.03	.06	.05	.02	.02
A	-.03	-.24**	-.23**	-.02	-.02	-.06	.09	.16	.19	-.04	-.03	.15	.15	-.09	.58**	.58**	.62**	.38**	.66**	.24**	.06	.06	.10	.10	
C	-.17*	-.18	-.37**	-.24	-.24	.26**	.04	.13	.29*	-.09	-.16*	-.09	-.09	-.20	.19*	.19*	.28**	.06	.33	.54**	.66**	.46**	.78**	.78**	

NOTE: Study 1: $n = 200$, undergraduates at the University of Kentucky. Study 2: $n = 189$, undergraduates at the University of Kentucky. Study 3: $n = 133$, undergraduates at Morehead State University. Study 5: $n = 75$, undergraduates at the University of Kentucky. Convergent validity coefficients are in bold.
 * $p < .05$. ** $p < .01$.

TABLE 4
Average Convergent and Discriminant Correlations of Five-Factor Model Rating Form (FFMRF) Items With the Facet Scales of the Revised NEO Personality Inventory (NEO PI-R)

	Convergent Validity		Other Facet Scales Within Same Domain	Discriminant Validity
	Items to Same Facet	Range		Scales Outside the Domain
Neuroticism (N)	.48**	.33** (N5) to .58** (N1)	.25**	-.08
Extraversion (E)	.50**	.45** (E5) to .63** (E2)	.24**	.03
Openness (O)	.37**	.32** (O2 & O3) to .54** (O1)	.15**	.01
Agreeableness (A)	.38**	.30** (A2) to .61** (A1)	.19**	.06
Conscientiousness (C)	.48**	.29** (C6) to .63** (C2)	.29**	.02

NOTE: These values were averaged (Hedges & Olkin, 1984) across correlations of the NEO PI-R with the FFMRF in Studies 1, 2, 3, and 5. Convergent correlation coefficients for each of the individual facets were then averaged across the four studies. The correlations for each of the six facet items with the respective NEO PI-R facet scales were averaged across studies and across the items within each domain (see Items to Same Facet and Range). Each of the FFMRF facet items also were correlated with the other facet scales of the NEO PI-R within the same domain for each of the four studies. These correlations values were then averaged across studies (see Other Facet Items Within Same Domain). Finally, correlations of each facet item with the NEO PI-R facet scales from other domains were averaged across the four studies (see Items Outside the Domain).

** $p < .01$.

Convergent validity coefficients for the FFMRF with OMNI domain scales were relatively weaker. Although the neuroticism domain convergent validity coefficient was similar to those obtained previously (.68, $p < .01$), the convergent validity coefficients of extraversion, agreeableness, openness, and conscientiousness were not as high as might be expected (.41, .26, .25, and .40, respectively). Discriminant validity also was problematic, with OMNI neuroticism correlating .66 ($p < .01$) with FFMRF agreeableness and OMNI agreeableness correlating .27 ($p < .01$) with FFMRF extraversion.

Maladaptive Personality Measures

Table 6 provides the correlations of each FFMRF facet item with each of the personality disorder scales, averaged across the OMNI, PDQ-4, and SNAP self-report inventories administered in Studies 2 through 5 (Hedges & Olkin, 1984). A complete copy of the entire set of correlations is available on request from the first author. A relatively conservative alpha level of .01 was used to minimize capitalization on chance. To provide an overall assessment of the extent to which the averaged correlations provided in Table 6 are consistent with expectations, we correlated the correlations within Table 6 to the FFM descriptions of each of these personality disorders provided in a survey of clinicians by Samuel and Widiger (2004). Samuel and Widiger asked 154 personality disorder researchers to describe a prototypic case of each of the 10 DSM-IV personality disorders using the FFMRF. We correlated the mean FFMRF facet values reported for each personality

disorder by Samuel and Widiger with the averaged correlations obtained for each FFMRF facet items provided in Table 6. The correlations were good to excellent for eight of the personality disorders, ranging in value from .64 for the paranoid personality disorder to .80 for the histrionic personality disorder. The two exceptions were correlations of .20 for the narcissistic personality disorder and .54 for the compulsive personality disorder.

More specifically, persons who described themselves as being high in antisocial personality disorder features also described themselves as being high in FFMRF angry hostility, impulsivity, and assertiveness and low in trust, straightforwardness, compliance, tender-mindedness, dutifulness, and deliberation. This finding is consistent with previous research using other measures of the FFM (Saulsman & Page, 2004; Widiger & Costa, 2002) and is consistent with the FFM description of a prototypic case of this personality disorder ($r = .79$, $p < .001$) provided by clinicians (Samuel & Widiger, 2004). Similarly, persons who described themselves as being high in avoidant personality disorder features also described themselves as being high in FFMRF anxiousness, self-consciousness, and vulnerability and low in gregariousness, assertiveness, excitement-seeking, and positive emotions, consistent with previous research using other measures of the FFM (Saulsman & Page, 2004; Widiger & Costa, 2002) and consistent with the FFM description of a prototypic case of this personality disorder provided by clinicians ($r = .74$, $p < .001$). Other specific findings worth highlighting are positive correlations of the histrionic personality disorder with facets of extraversion, dependent

TABLE 5
Correlations With Other Five-Factor Model (FFM) Instruments (Studies 2 & 3)

	Neuroticism (N)			Extraversion (E)			Openness (O)			Agreeableness (A)			Conscientiousness (C)		
	IASR-B5	Mini-Markers	OMNI	IASR-B5	Mini-Markers	OMNI	IASR-B5	Mini-Markers	OMNI	IASR-B5	Mini-Markers	OMNI	IASR-B5	Mini-Markers	OMNI
N	.32**	.47**	.68**	-.04	-.10	-.26**	-.02	-.13	-.01	.13	-.23**	-.09	.11	-.13	-.04
E	.31**	-.26**	-.55**	.70**	.66**	.41**	-.21**	.21**	.14	-.28**	.10	.27**	-.17**	.13	.04
O	.02	-.02	-.17	-.01	.09	.18**	.29**	.43**	.25**	-.00	.02	-.07	.03	.13	.15
A	-.10	-.15*	-.66**	.33**	.31**	.21*	.16*	.03	.08	.62**	.61**	.26**	.21	.23**	.02
C	-.01	-.15*	.04	.02	.10	.17	-.02	-.06	.02	.08	.22**	.01	.25**	.64**	.40**

NOTE: Study 2: $n = 189$, undergraduates at the University of Kentucky. Study 3: $n = 133$, undergraduates at Morehead State University. For convergent validity of the Five-Factor Model Rating Form (FFMRF) domains with the Interpersonal Adjective Scales Revised-Big Five (IASR-B5), five of the IASR-B5 scales were used. The IASR-B5 gregarious-extraverted octant was correlated with the FFMRF Extraversion domain and the IASR-B5 warm-agreeable octant was correlated with the FFMRF Agreeableness domain, whereas the other three IASR-B5 scales corresponded directly to the FFMRF scales (Neuroticism, Openness to Experience, and Conscientiousness). Convergent validity coefficients are in bold.

* $p < .05$. ** $p < .01$.

TABLE 6
Correlations of Five-Factor Model Rating Form (FFMRF)
Facet Items With Personality Disorder Scales

	<i>PAR</i>	<i>SZD</i>	<i>SZT</i>	<i>ATS</i>	<i>NAR</i>	<i>HST</i>	<i>BDL</i>	<i>AVD</i>	<i>DEP</i>	<i>CMP</i>
Neuroticism										
Anxiousness	.26***	.06	.18***	.06	.30***	.14***	.12***	.35***	.33***	.21***
Angry hostility	.36***	.19***	.30***	.26***	.40***	.13***	.17***	.22***	.18***	.22***
Depressiveness	.31***	.30***	.37***	.12***	.42***	.08	.07	.47***	.28***	.24***
Self-consciousness	.17***	.11**	.18***	-.03	.18***	.00	-.05	.41***	.33***	.12***
Impulsivity	.23***	.03	.20***	.31***	.32***	.27***	.19***	.12***	.09**	.14***
Vulnerability	.07	.05	.09	-.06	.11***	.00	-.06	.24***	.30***	.01
Extraversion										
Warmth	-.13***	-.31***	-.07	-.13***	-.06	.14***	-.01	-.11**	.11***	.00
Gregariousness	-.10**	-.38***	-.16***	.01	-.05	.24***	-.02	-.32***	.02	-.11***
Assertiveness	.08	-.10**	.05	.17***	.15***	.24***	.24***	-.04	-.02	.09
Activity	-.05	-.24***	-.09	.05	-.05	.20***	.09	-.24***	-.03	.00
Excitement-seeking	-.04	-.07	.05	.34***	.09	.23***	.15***	-.14***	-.01	.01
Positive emotions	-.25***	-.30***	-.24***	-.13***	-.28***	.10**	.04	-.30***	-.15***	-.11***
Openness										
Fantasy	.10**	-.05	.20***	.13***	.09	.13***	.18***	.06	.03	.03
Aesthetics	-.02	-.12***	-.01	.04	.02	.12***	.06	-.10**	-.05	.08
Feelings	-.06	-.18***	-.02	.06	-.03	.13***	.03	.00	.08	.00
Actions	-.02	-.03	.09	.15***	.06	.18***	.09	-.09	-.03	.04
Ideas	.04	.06	.19***	.11**	.05	.10**	.09**	-.05	-.09	.07
Values	.23***	.00	.06	-.01	-.01	-.01	-.01	.00	.00	.00
Agreeableness										
Trust	-.13***	-.20***	-.18***	-.13***	.00	.08	-.03	-.06	.20***	-.08
Straightforwardness	-.21***	-.20***	-.15***	-.18***	-.07	-.08	-.08	-.14***	.01	-.09
Altruism	-.06	-.14***	-.04	-.08	-.06	-.01	-.03	-.03	.07	.03
Compliance	-.14***	-.15***	-.14***	-.20***	-.11**	-.08	-.16***	-.04	.06	-.12***
Modesty	.01	.02	-.02	-.10**	-.06	-.16***	-.17***	.11***	.14***	-.01
Tender-mindedness	-.19***	-.21***	-.14***	-.25***	-.15***	.00	-.19***	-.05	.05	-.08
Conscientiousness										
Competence	.09	.05	.08	-.13***	-.02	.01	.07	.07	-.03	.23***
Order	-.02	-.06	.03	-.15***	-.09	-.04	.02	.03	.02	.09
Dutifulness	-.06	-.18***	-.13***	-.22***	-.15***	-.05	-.14***	-.03	-.10**	.05
Achievement-striving	.00	-.05	-.01	-.15***	-.04	.07	-.01	-.03	-.02	.15***
Self-discipline	-.02	-.03	-.05	-.08	-.06	-.01	-.01	.01	.00	.10**
Deliberation	-.08	-.09	-.06	-.24***	-.07	-.03	-.03	-.03	.01	.06

NOTE: Personality disorders: PAR = paranoid; SZD = schizoid; SZT = schizotypal; ATS = antisocial; NAR = narcissistic; BDL = borderline; HST = histrionic; AVD = avoidant; DEP = dependent; CMP = compulsive. The correlation coefficients for each of the FFMRF facet items were collected in four studies using the OMNI, Personality Diagnostic Questionnaire-4 (PDQ-4), and the Schedule for Nonadaptive and Adaptive Personality (SNAP) self-report inventories. These correlations were then averaged across both study and instrument (Hedges & Olkin, 1984).

** $p < .01$. *** $p < .001$.

personality disorder with facets of neuroticism and agreeableness, and schizoid personality disorder with facets of introversion more so than with neuroticism.

GENERAL DISCUSSION

The purpose of the current study was to provide reliability and validity data concerning a very brief, one-page instrument for the descriptions of persons in terms of the domains and facets of the FFM. There are currently a number of brief measures of the FFM (Costa & McCrae,

1992; Gosling et al., 2003; John & Srivastava, 1999; Saucier, 1994). However, all of these instruments are confined to the broad domains of the FFM, and the more informative and differentiated description of both adaptive and maladaptive personality functioning is provided at the level of the facets (Paunonen et al., 2003; Reynolds & Clark, 2001; Trull et al., 2001). Single-item assessments of the facets have been used in recent empirical studies (Lynam & Widiger, 2001; Miller et al., 2001; Samuel & Widiger, 2004; Sprock, 2002) but there has not been any published data on the convergent or discriminant validity of these assessments.

The results of the five studies presented herein do appear to provide support for the validity of a one-page, brief measure of the domains and facets of the FFM. The FFMRF domain scales obtained adequate to good internal consistency, particularly for scales that consisted of just six items. Internal consistency analyses also were good at the level of the individual facet items. All 30 of the facet items obtained significant convergent validity correlations with the five other items within each domain, and the average discriminant validity correlations with the 24 items from other domains were generally low and appreciably smaller than the convergent validity coefficients, with only a few exceptions.

Convergent and discriminant validity with what is arguably the FFM gold standard, the NEO PI-R (Costa & McCrae, 1992), also was good for all five domains of neuroticism, extraversion, openness, agreeableness, and conscientiousness across most of the studies. The particular findings for openness (.37 when averaged across all studies) were not as strong and these will be discussed below. Convergent and discriminant validity of the FFMRF domain scales and facet items were particularly good when the more reliable estimates obtained by averaging the coefficients across studies were considered (Hedges & Olkin, 1984; Rosenthal, 1991). Convergent validity coefficients for single-item facet assessments with the respective NEO PI-R facet scales were significant for each facet (ranging in value from .29 for self-discipline to .63 for gregariousness and for order). The facet items also obtained smaller but still significant correlations with the NEO PI-R facet scales within each respective domain of the FFM and they generally obtained insignificant correlations with the NEO PI-R facet scales from other domains. Finding that the single-item representations of each facet by the FFMRF demonstrated acceptable to good convergent and discriminant validity when related to the NEO PI-R is encouraging and does provide empirical support for the use of the single-item assessments.

Convergent validity with other measures of the FFM also were good, with some notable exceptions. For example, the FFMRF neuroticism, openness, and conscientiousness scales correlated weakly with the respective scales from the IASR-B5, but it is worth noting in this regard that these scales of the IASR-B5 also correlated at a comparably weak level with the respective scales of the NEO PI-R. The IASR-B5 neuroticism, openness, and conscientiousness scales correlated only .32, .29, and .25 with the respective scales from the NEO PI-R. In other words, the convergent validity of the FFMRF with the IASR-B5 was as good as the latter's convergent validity with the most strongly validated measure of the FFM.

Convergent validity with the OMNI assessment of agreeableness and openness was weak. However, this also

may reflect a limitation of the OMNI, at least with respect to its assessment of agreeableness. The OMNI is a fairly recently developed measure of the FFM (Loranger, 2001). In fact, there has not yet been a published study of the validity of the OMNI's assessment of the FFM. The FFMRF domain scales did obtain consistently acceptable to good convergent validity with the respective scales from Saucier's (1994) FFM Mini-Markers.

Discriminant validity for the FFMRF domain and facet scales was good across all five studies, with respect to the IASR-B5 and the Mini-Markers. The discriminant validity of the FFMRF assessment of neuroticism was not good when considered in relationship to the OMNI because it correlated -.55 with the OMNI assessment of extraversion and -.66 with the OMNI assessment of agreeableness. Again, however, this might say more about the OMNI assessment. The FFMRF neuroticism scale did demonstrate good discriminant validity when considered with respect to the other NEO PI-R domain scales, whereas the OMNI neuroticism scale correlated significantly with other NEO PI-R scales (e.g., -.47 with NEO PI-R conscientiousness, -.46 with NEO PI-R extraversion, and -.31 with NEO PI-R openness and agreeableness).

One of the intended applications of the FFMRF is for the description of psychiatric patients by clinicians. The FFMRF has been used in two prior studies in which clinicians (Samuel & Widiger, 2004) and researchers (Lynam & Widiger, 2001) described prototypic cases of each DSM-IV personality disorder in terms of the FFM. These studies were useful in providing hypothetical descriptions of each personality disorder in terms of the FFM but neither study provided any support for the validity of these FFMRF descriptions. The results of the current study suggest that self-descriptions of persons in terms of the FFMRF do relate to maladaptive personality traits in a manner that is consistent with theoretical expectations (Lynam & Widiger, 2001; Samuel & Widiger, 2004; Widiger, Trull, Clarkin, Sanderson, & Costa, 2002) and with previously reported results using more extensive measures of the FFM (e.g., Dyce & O'Connor, 1998; Reynolds & Clark, 2001; Saulsman & Page, 2004; Trull et al., 2001). Expectations were confirmed well for the schizoid, schizotypal, paranoid, dependent, histrionic, antisocial, borderline, and avoidant personality disorders and moderately well for the compulsive. For instance, persons who described themselves as being high in FFMRF angry hostility, impulsivity, and assertiveness and low in trust, straightforwardness, compliance, tender-mindedness, dutifulness, and deliberation also described themselves as having antisocial personality traits. Persons who described themselves as being high in FFMRF anxiousness, self-consciousness, and vulnerability and low in gregariousness, assertiveness, excitement-seeking, and positive emotion

also described themselves as having avoidant personality traits.

Weak results were obtained for one personality disorder, the narcissistic. Persons high in narcissism were expected to also describe themselves as being high in assertiveness, activity, and excitement-seeking and low in self-consciousness and all of the facets of agreeableness, particularly modesty (Lynam & Widiger, 2001; Samuel & Widiger, 2004). The FFMRF assessments of assertiveness, compliance, and tender-mindedness did correlate as expected with narcissistic personality traits, but notably discrepant with expectations were the failures to obtain a significant negative correlation with modesty or straightforwardness, and FFMRF self-consciousness correlated positively rather than negatively with narcissism. These findings could be explained in part by the difficulties experienced in many studies with obtaining a consistent description and assessment of narcissistic personality traits (Hilsenroth, Handler, & Blais, 1996). For instance, persons with narcissistic personality traits are described at times as being excessively arrogant and self-confident and at other times notably insecure and self-conscious (APA, 2000). This inconsistency in self-description can be problematic for obtaining a reliable and valid assessment, leading some to recommend that more attention be given to the assessment of narcissism through peer reports (Klonsky, Oltmanns, & Turkheimer, 2002). In fact, in one of the earliest studies of the FFM conceptualization of personality disorders, Costa and McCrae (1990) reported that narcissism correlated negatively with neuroticism when the latter was assessed via NEO PI-R self-report but not when neuroticism was assessed via NEO PI-R reports from a peer or a spouse. In sum, it is conceivable that a very brief measure of the FFM might not be able to adequately address the complexity of narcissistic traits, and researchers and clinicians should be particularly cautious when using the FFMRF in studies concerning narcissism.

The correlations of the FFMRF facet items with personality disorder measures were averaged across four studies that administered at least one of three personality disorder inventories (i.e., PDQ-4, SNAP, and OMNI). These averaged correlations were helpful not only in saving space but also in providing more reliable estimates of the correlations and in avoiding the occurrence of findings that might be idiosyncratic to a particular personality disorder self-report inventory (Rosenthal, 1991; Saulsman & Page, 2004). The personality disorder self-report inventories generally obtain significant positive correlations among their respective scales but there is variation in the extent to which they are convergent (Widiger & Coker, 2001) and this variation could have a systematic effect on the relationships of these inventories to a measure of the

FFM, as demonstrated by Hicklin and Widiger (2005) with respect to six alternative measures of the antisocial personality disorder.

For example, the correlations of the FFMRF facet items with compulsive personality traits were generally consistent with expectations. Persons who described themselves as being high in compulsive personality traits were expected to also describe themselves as being high in FFM anxiousness, low excitement-seeking, low in openness to actions and values, and high in all of the facets of conscientiousness (Samuel & Widiger, 2004). The current study did confirm these expectations for anxiousness and, perhaps most important, for three of the facets of conscientiousness: competence, achievement striving, and self-discipline. Nevertheless, significant positive correlations were not obtained for two of the facets of conscientiousness (dutifulness and deliberation) or for the two facets of openness (actions and values). The relation of compulsive personality traits to the FFM has been one area of research in which it is evident that different results are at times obtained with different personality disorder measures (Haigler & Widiger, 2001). For instance, studies have reported positive correlations of FFM conscientiousness with compulsive personality traits when the Millon Clinical Multiaxial Inventory (MCMI-III; Millon, Millon, & Davis, 1997) is used (e.g., Dyce & O'Connor, 1998; Soldz, Budman, Demby, & Merry, 1993), whereas others have failed to obtain this result when the MCMI-III was not used (e.g., Coolidge et al., 1994; Trull, 1992). Costa and McCrae (1990) administered both the MCMI-III and the Minnesota Multiphasic Personality Inventory (MMPI-2; Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989) to the same respondents and reported positive correlations for conscientiousness with the MCMI-III but not with the MMPI-2. The current study is unable to replicate this finding because the MCMI-III and the MMPI-2 were not among the three measures of personality disorder that were administered. Nevertheless, the inconsistency of findings across different measures of the compulsive personality disorder again argue for the value of aggregating the findings across alternative measures to obtain a more reliable assessment and to avoid the occurrence of findings that are idiosyncratic to a particular measure. Variation in how alternative personality disorder self-report inventories relate to a measure of the FFM is beyond the scope of the current study, but it is evident that it would be useful in future research to include additional measures, perhaps in particular the MMPI-2 and MCMI-III, to explore whether there is systematic variation across different measures.

Attention should be given in particular to the FFMRF's assessment of openness because its assessment of this domain was relatively problematic in a number of respects. The FFMRF assessment of openness obtained somewhat

weaker internal consistency across the five studies (ranging in value from .51 to .69). Convergent validity with the NEO PI-R assessment of openness also was relatively lower, ranging from .39 to .57; convergent validity with the IASR B5, Mini-Markers, and OMNI assessments of openness also were generally weaker than the convergent validity obtained for the other domains (i.e., .34, .55, and .67, respectively). This might simply be consistent with the relatively weaker results that are at times obtained with openness scales, particularly in comparison to the findings obtained with the other domains of the FFM (Clark et al., 1996). Relative to the other four domains of the FFM, openness has had more divergent conceptualizations, including intellectance, culture, and unconventionality (Digman, 1990).

It is also possible that the facets of this domain are simply less clearly defined, making it even more difficult for a one-item assessment of each construct to perform well. In this respect, the somewhat weaker findings for openness may reflect a greater difficulty the participants of this study had with the openness constructs. For example, it is likely that some of the respondents simply did not understand one of the adjectives included within the openness scale, *alexithymia* (included within the item assessing openness to feelings). *Alexithymia* is included as one of the FFMRF adjectives for openness because it is likely to be of considerable interest to many clinicians (Bagby, Taylor, & Parker, 1994), but in these studies with college students, it might have been advisable not to have included this particular adjective. This item did obtain the lowest correlations of the openness items with respect to internal consistency (see Table 2) and with respect to its convergent validity with the facet scales of the NEO PI-R (see Table 4). Nevertheless, for the purpose of using this item in studies involving clinicians, the alexithymic term may not be problematic. It is worth noting in this regard that internal consistency coefficients for the FFMRF assessment of openness was much higher in the Samuel and Widiger (2004) study that sampled clinicians ($\alpha = .78, p < .01$).

The relatively weaker results obtained for openness also may be less problematic for an application of the FFMRF within clinical settings because many studies have indicated that openness has less relevance for the assessment and conceptualization of personality disorders than the other four domains (Clark & Livesley, 2002; O'Connor, 2005; Saulsman & Page, 2004). There are fewer personality disorder hypotheses for the facets of openness than for other domains of the FFM (Lynam & Widiger, 2001; Widiger, Trull, et al., 2002). However, this is not to say that openness is irrelevant or unimportant for assessing and understanding personality disorders (Widiger & Simonsen, 2005). The current study did confirm predicted correlations of openness facets with the schizoid (low openness to feelings), schizotypal (high openness to fantasy and ideas),

and histrionic (high openness to fantasy, feelings, and actions) personality disorders. None of the openness hypotheses were confirmed, however, for the paranoid, narcissistic, borderline, avoidant, dependent, or compulsive personality disorders.

For many of the facets, FFMRF items include adjectives that refer to both adaptive and maladaptive variants of the particular facet. For example, included within the facet item for the assessment of the conscientiousness facet of achievement are "workaholic, ambitious versus aimless, desultory." The inclusion of both adaptive and maladaptive adjectives is consistent with the FFM approach to the assessment of personality disorders (Widiger, Trull, et al., 2002). However, the FFMRF does not take full advantage of this feature of the FFM. For instance, the FFMRF does not provide a systematic representation of both the adaptive and the maladaptive aspects of each of the 60 poles of the 30 facets of the FFM, as described by Widiger, Trull, et al. (2002) and included within the Structured Interview for the Five-Factor Model (SIFFM) (Trull & Widiger, 1997). A potential revision of the FFMRF would be to have the 5-point rating scale refer explicitly to the adaptive and maladaptive variants of each of the 60 poles of the 30 facets (e.g., 1 = *low and maladaptive*, 2 = *low but not maladaptive*, 3 = *does not apply*, 4 = *high but not maladaptive*, and 5 = *high and maladaptive*). Persons would then be alerted explicitly to this possible feature and the rating provided would in fact be consistent with the structure used by the SIFFM and recommended by proponents of the FFM.

It is conceivable, however, that further work on the wording of individual facet items will not result in an appreciable improvement. The unique advantage of the FFMRF relative to other abbreviated measures of the FFM (e.g., Costa & McCrae, 1992; Gosling et al., 2003; John & Srivastava, 1999; Saucier, 1994) is the inclusion of separate items for the six facets of the FFM identified by Costa and McCrae (1992). The assessments could be expanded to include additional items for each particular facet, but the instrument would then lose the distinct appeal provided by the presentation of the entire instrument within one page of text. It would be difficult, perhaps impossible, to provide descriptors (e.g., adjectives) for each of the adaptive and maladaptive variants for each of the 60 poles of the 30 facets within just one page. The results of the current study did provide support for the validity of single-item assessments, consistent with studies conducted in other areas of psychology (e.g., Bartholomew & Horowitz, 1991; Campbell et al., 1976; Robins et al., 2001; Sandvik et al., 1993). Nevertheless, it may stretch the feasibility of a single-item measure to increase the complexity by including both adaptive and maladaptive variants of each pole within just one item. The FFMRF could have included these rating distinctions without providing descriptors for each of the

adaptive and maladaptive variants, but it was believed that a provision of this degree of complexity in the absence of much, if any, supportive description or guidance would have itself been problematic and confusing.

A limitation of the five studies was that they were confined to self-descriptions by college students. One of the potential applications of the FFMRF is for clinicians to describe their patients, as well as for patients to describe themselves. The results of the current study do not necessarily suggest that clinicians would be able to use the FFMRF in a reliable manner that would provide valid descriptions of their clients. However, prior studies by Blais (1997), Samuel and Widiger (2004), and Sprock (2002, 2003) do suggest that clinicians can provide reliable and valid assessments of their clients using quite abbreviated versions of the FFM (the study by Samuel and Widiger even used the FFMRF). One purpose of the current study was to provide convergent and discriminant validity for such assessments. Nevertheless, what will be of particular importance will be for future studies to have clinicians describe their clients using the FFMRF, to have patients describe themselves, and to determine whether these FFMRF descriptions are consistent with self-report and semistructured interview FFM assessments of these same clients using more extensive assessment measures.

In sum, the results of the current study provide support for the reliability and validity of the FFMRF's single-item assessment of the 30 facets of the FFM, as described by Costa and McCrae (1995). The findings of the current study support the inclusion of the FFMRF in future studies in which it might be useful or feasible to obtain a very abbreviated assessment of the FFM. It is important to emphasize, however, that the FFMRF is not intended to provide a replacement for the more extensive FFM assessment instruments. The purpose of the FFMRF is to provide the means of obtaining an assessment of the FFM when it is not feasible to administer a more reliable and valid self-report inventory. The FFMRF scales and items correlated well with the NEO PI-R in the studies reported in this article but the NEO PI-R should be the preferred choice when adequate time is available.

REFERENCES

- American Psychiatric Association. (APA). (1987). *Diagnostic and statistical manual of mental disorders* (3rd Rev. ed.). Washington, DC: Author.
- American Psychiatric Association. (APA). (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., Text Rev.). Washington, DC: Author.
- Artistico, D., Baldassarri, F., Lauriola, M., & Laicardi, C. (2000). Dimensions of health-related dispositions in elderly people: Relationships with health behaviour and personality traits. *European Journal of Personality, 14*, 533-552.
- Ashton, M. C., & Lee, K. (2001). A theoretical basis for the major dimensions of personality. *European Journal of Personality, 15*, 327-353.
- Axelrod, S. R., Widiger, T. A., Trull, T. J., & Corbitt, E. M. (1997). Relations of the five-factor model antagonism facets with personality disorder symptomatology. *Journal of Personality Assessment, 69*, 297-313.
- Bagby, R. M., Taylor, G. J., & Parker, J. D. A. (1994). The 20-item Toronto Alexithymia Scale-II: Convergent, discriminant, and concurrent validity. *Journal of Psychosomatic Research, 38*, 23-32.
- Ball, S. A. (2001). Reconceptualizing personality disorder categories using personality trait dimensions: Introduction to special section. *Journal of Personality, 69*, 147-153.
- Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology, 61*(2), 226-244.
- Blais, M. (1997). Clinician ratings of the five-factor model of personality and DSM-IV personality disorders. *Journal of Nervous and Mental Diseases, 185*, 388-393.
- Briggs, S. R. (1992). Assessing the five-factor model of personality description. *Journal of Personality, 60*(2), 253-293.
- Briggs, S. R., & Cheek, J. M. (1986). The role of factor analysis in the development and evaluation of personality scales. *Journal of Personality, 54*(1), 106-148.
- Burish, M. (1997). Test length and validity revisited. *European Journal of Personality, 11*, 305-315.
- Butcher, J. N., Dahlstrom, W. G., Graham, J. R., Tellegen, A., & Kaemmer, B. (1989). *MMPI-2 (Minnesota Multiphasic Personality Inventory-2): Manual for administration and scoring*. Minneapolis: University of Minnesota Press.
- Campbell, A., Converse, P. E., & Rodgers, W. L. (1976). *The quality of American life: Perceptions, evaluations, and satisfactions*. New York: Russell Sage.
- Clark, L. A. (1993). *Manual for the Schedule for Nonadaptive and Adaptive Personality*. Minneapolis: University of Minnesota Press.
- Clark, V. P., Keil, K., Maisog, J. M., Courtney, S. M., Ungerleider, L. G., & Haxby, J. V. (1996). Functional magnetic resonance imaging of human visual cortex during face matching: A comparison with positron emission tomography. *NeuroImage, 4*, 1-15.
- Clark, L. A., & Livesley, W. J. (2002). Two approaches to identifying the dimensions of personality disorder: Convergence on the five-factor model. In T. A. Widiger & P. T. Costa (Eds.), *Personality disorders and the five-factor model of personality* (2nd ed., pp. 161-176). Washington, DC: American Psychological Association.
- Clark, L. A., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment, 7*(3), 309-319.
- Coolidge, F. L., Becker, L. A., Derito, D. C., Durham, R. L., Kinlaw, M. M., & Philbrick, P. B. (1994). On the relationship of five factor personality model to personality disorders. *Psychological Reports, 75*(1), 11-21.
- Costa, P. T., & McCrae, R. R. (1985). *The NEO Personality Inventory (NEO PI) professional manual*. Odessa, FL: Psychological Assessment Resources.
- Costa, P. T., Jr., & McCrae, R. R. (1990). Personality disorders and the five-factor model of personality. *Journal of Personality Disorders, 4*, 362-371.
- Costa, P. T., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO PI-R) and NEO Five Factor Inventory (NEO FFI) professional manual*. Odessa, FL: Psychological Assessment Resources.
- Costa, P., & McCrae, R. R. (1995). Domains and facets: Hierarchical personality assessment using the Revised NEO Personality Inventory. *Journal of Personality Assessment, 64*, 21-50.
- Costa, P. T., Jr., McCrae, R. R., & Siegler, I. C. (1999). Continuity and change over the adult life cycle: Personality and personality disorders. In C. R. Cloninger (Ed.), *Personality and psychopathology* (pp. 129-154). Washington, DC: American Psychiatric Association.
- Digman, J. M. (1990). Personality structure: Emergence of the five-factor model. *Annual Review of Psychology, 41*, 417-470.
- Dyce, J. A., & O'Connor, B. P. (1998). Personality disorder and the five-factor model: A test of facet level predictions. *Journal of Personality Disorders, 12*, 31-45.

- Goldberg, L. (1992). The development of markers for the Big Five factor structure. *Psychological Assessment*, 4, 26-42.
- Gosling, S. D., Rentfrow, P. J., & Swann, W. B. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in Personality*, 37, 504-528.
- Haigler, E. D., & Widiger, T. A. (2001). Experimental manipulation of NEO PI-R items. *Journal of Personality Assessment*, 77, 339-358.
- Hare, R. D., Hart, S. D., & Harpur, T. J. (1991). Psychopathy and the DSM-IV criteria for antisocial personality disorder. *Journal of Abnormal Psychology*, 100, 391-398.
- Hedges, L. V., & Olkin, I. (1984). Nonparametric estimators of effect size in meta-analysis. *Psychological Bulletin*, 96(3), 573-580.
- Hicklin, J., & Widiger, T. A. (2005). Similarities and differences among antisocial and psychopathic self-report inventories from the perspective of general personality functioning. *European Journal of Personality*, 19(4), 325-342.
- Hilsenroth, M. J., Handler, L., & Blais, M. A. (1996). Assessment of narcissistic personality disorder: A multi-method review. *Clinical Psychology Review*, 16(7), 655-683.
- Hogan, J., & Holland, B. (2003). Using theory to evaluate personality and job performance relations: A socioanalytic perspective. *Journal of Applied Psychology*, 88, 100-112.
- Hyler, S. E. (1994). *Personality Diagnostic Questionnaire-4 (PDQ-4)*. New York: New York State Psychiatric Institute.
- Hyler, S. E., Rieder, R. O., Williams, J. B., Spitzer, R. L., Lyons, M., & Handler, J. (1989). A comparison of clinical and self-report diagnoses of DSM-III personality disorders in 552 patients. *Comprehensive Psychiatry*, 30, 170-178.
- Jang, K. L., McCrae, R. R., Angleitner, A., Riemann, R., & Livesley, W. J. (1998). Heritability of facet-level traits in a cross-cultural twin sample: Support for a hierarchical model of personality. *Journal of Personality and Social Psychology*, 74, 1556-1565.
- John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed., pp. 102-138). New York: Guilford.
- Klonsky, E. D., Oltmanns, T. F., & Turkheimer, E. (2002). Informant-reports of personality disorder: Relation to self-reports and future research directions. *Clinical Psychology*, 9(3), 300-312.
- Lilienfeld, S. O. (1994). Conceptual problems in the assessment of psychopathy. *Clinical Psychology Review*, 14, 17-38.
- Livesley, W. J. (2001). Conceptual and taxonomic issues. In W. J. Livesley (Ed.), *Handbook of personality disorders: Theory, research, and treatment* (pp. 3-38). New York: Guilford.
- Loehlin, J. C., McCrae, R. R., Costa, P. T., & John, O. P. (1998). Heritabilities of common and measure-specific components of the Big Five personality factors. *Journal of Research in Personality*, 32, 431-453.
- Loranger, A. W. (2001). *The OMNI Personality Inventories Professional Manual*. Odessa, FL: Psychological Assessment Resources.
- Lynam, D. R., & Widiger, T. A. (2001). Using the five-factor model to represent the DSM-IV personality disorders: An expert consensus approach. *Journal of Abnormal Psychology*, 110, 401-412.
- McCrae, R. R., & Allik, J. (2002). *The five-factor model of personality across cultures*. New York: Plenum.
- McCrae, R. R., & Costa, P. T. (2003). *Personality in adulthood. A five-factor theory perspective* (2nd ed.). New York: Guilford.
- McCrae, R. R., Stone, S. V., Fagan, P. J., & Costa, P. T. (1998). Identifying causes of disagreement between self-reports and spouse ratings of personality. *Journal of Personality*, 66, 285-313.
- Miller, J. D., Lynam, D. R., Widiger, T. A., & Leukefeld, C. (2001). Personality disorders as extreme variants of common personality dimensions: Can the Five-Factor Model adequately represent psychopathy? *Journal of Personality*, 69, 253-276.
- Millon, T., Millon, C., & Davis, R. (1997). *MCMII-III manual* (2nd ed.). Minneapolis, MN: National Computer Systems.
- Morey, L. C. (2003). Measuring personality and psychopathology. In J. A. Schinka, W. F. Velicer, & I. B. Weiner (Eds.), *Handbook of psychology: Volume 2. Research methods in psychology* (pp. 377-405). Hoboken, NJ: John Wiley.
- Mullins-Sweatt, S. N., & Widiger, T. A. (in press). The five-factor model of personality disorder: A translation across science and practice. In R. F. Krueger & J. L. Tackett (Eds.), *Personality and psychopathology*. New York: Guilford.
- O'Connor, B. P. (2005). A search for consensus on the dimensional structure of personality disorders. *Journal of Clinical Psychology*, 61(3), 323-345.
- Ostendorf, F. (2000). Personality disorders and the five-factor model of personality: A meta-analysis. *European Psychiatry*, 15, 226s-227s.
- Paunonen, S. V., & Ashton, M. C. (2001). Big Five factors and facets and the prediction of behavior. *Journal of Personality and Social Psychology*, 81(3), 524-539.
- Paunonen, S. V., Haddock, G., Fosterling, F., & Keinonen, M. (2003). Broad versus narrow personality measures and the prediction of behaviour across cultures. *European Journal of Personality*, 17(6), 413-433.
- Reynolds, S. K., & Clark, L. A. (2001). Predicting dimensions of personality disorders from domains and facets of the five-factor model. *Journal of Personality*, 69, 199-222.
- Robins, R. W., Hendin, H. M., & Trzesniewski, K. H. (2001). Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg Self-Esteem Scale. *Personality and Social Psychology Bulletin*, 27(2), 151-161.
- Rosenthal, R. (1991). *Meta-analytic procedures for social research* (Rev. ed.). Newbury Park, CA: Sage.
- Russell, J. A., Weiss, A., & Mendelsohn, G. A. (1989). Affect grid: A single-item scale of pleasure and arousal. *Journal of Personality and Social Psychology*, 57(3), 493-502.
- Samuel, D. B., & Widiger, T. A. (2004). Clinicians' personality descriptions of prototypic personality disorders. *Journal of Personality Disorders*, 18, 286-308.
- Sandvik, E., Diener, E., & Seidlitz, L. (1993). Subjective well-being: The convergence and stability of self-report and non-self-report measures. *Journal of Personality*, 61(3), 317-342.
- Saucier, G. (1994). Mini-Markers: A brief version of Goldberg's unipolar Big-Five markers. *Journal of Personality Assessment*, 63, 506-516.
- Saulsman, L. M., & Page, A. C. (2004). The five-factor model and personality disorder empirical literature: A meta-analytic review. *Clinical Psychology Review*, 23, 1055-1085.
- Shiner, R. (1998). How shall we speak of children's personalities in middle childhood? A preliminary taxonomy. *Psychological Bulletin*, 124, 308-332.
- Soldz, S., Budman, S., Demby, A., & Merry, J. (1993). Representation of clinical disorders in circumplex and five-factor space: Explorations with a clinical sample. *Psychological Assessment*, 5, 41-52.
- Sprock, J. (2002). A comparative study of the dimensions and facets of the five-factor model in the diagnosis of cases of personality disorder. *Journal of Personality Disorders*, 16, 402-423.
- Sprock, J. (2003). Dimensional versus categorical classification of prototypic and nonprototypic cases of personality disorder. *Journal of Clinical Psychology*, 59, 992-1014.
- Trapnell, P. D., & Wiggins, J. S. (1990). Extension of the Interpersonal Adjective Scales to include the Big Five dimensions of personality. *Journal of Personality and Social Psychology*, 59, 781-790.
- Trull, T. J. (1992). DSM-III-R personality disorders and the five-factor model of personality: An empirical comparison. *Journal of Abnormal Psychology*, 101, 553-560.
- Trull, T. J., & Widiger, T. A. (1997). *Structured interview for the five-factor model of personality*. Odessa, FL: Psychological Assessment Resources.
- Trull, T. J., Widiger, T. A., & Burr, R. (2001). A structured interview for the assessment of the five-factor model of personality: Facet-level relations to the Axis II Personality Disorders. *Journal of Personality*, 69, 175-198.
- Wanous, J. P., Reichers, A. E., & Hudy, M. J. (1997). Overall job satisfaction: How good are single-item measures? *Journal of Applied Psychology*, 82(2), 247-252.
- Westen, D., & Shedler, J. (1999). Revising and assessing axis II, part II: Developing a clinically and empirically valid assessment method. *American Journal of Psychiatry*, 156, 273-285.

- Widiger, T. A., & Coker, P. T. (2001). Assessing personality disorders. In J. N. Butcher (Ed.), *Clinical personality assessment: Practical approaches* (2nd ed., pp. 407-434). New York: Oxford University Press.
- Widiger, T. A., & Costa, P. T. (2002). Five-factor model personality disorder research. In T. A. Widiger & P. T. Costa (Eds.), *Personality disorders and the five-factor model of personality* (2nd ed., pp. 59-87). Washington, DC: American Psychological Association.
- Widiger, T. A., Costa, P. T., & McCrae, R. R. (2002). A proposal for Axis II: Diagnosing personality disorders using the five-factor model. In T. A. Widiger & P. T. Costa (Eds.), *Personality disorders and the five-factor model of personality* (2nd ed., pp. 431-456). Washington, DC: American Psychological Association.
- Widiger, T. A., & Simonsen, E. (2005). Alternative dimensional models of personality disorder: Finding a common ground. *Journal of Personal Disorder*, *19*(2), 110-30.
- Widiger, T. A., & Trull, T. J. (1997). Assessment of the five-factor model of personality. *Journal of Personality Assessment*, *68*(2), 228-250.
- Widiger, T. A., Trull, T. J., Clarkin, J. F., Sanderson, C., & Costa, P. T. (1994). A description of the DSM-III-R and DSM-IV personality disorders with the five-factor model of personality. In P. T. Costa & T. A. Widiger (Eds.), *Personality disorders and the five-factor model of personality* (pp. 41-56). Washington, DC: American Psychological Association.
- Widiger, T. A., Trull, T. J., Clarkin, J. F., Sanderson, C., & Costa, P. T. (2002). A description of the DSM-IV personality disorders with the five-factor model of personality. In P. T. Costa & T. A. Widiger (Eds.), *Personality disorders and the five-factor model of personality* (2nd ed., pp. 89-99). Washington, DC: American Psychological Association.

Stephanie N. Mullins-Sweatt, MA, received her master's degree in clinical psychology from Morehead State University and is currently a doctoral candidate at the University of

Kentucky. Her primary research interests include dimensional models of personality as well as the assessment and personality-guided treatment of personality disorders.

Janetta E. Jamerson, MS, is a graduate of the clinical psychology program at the University of Kentucky who is currently on internship at the University of Tennessee, Knoxville, Student Counseling Services Center. She has clinical interests in the treatment of college students with a variety of mental health issues.

Douglas B. Samuel, MS, is a graduate student in clinical psychology at the University of Kentucky. He has interests in dimensional models of personality and personality disorders and the clinical utility of various models of psychopathology.

David R. Olson, PhD, is an associate professor at Morehead State University. He graduated from Oklahoma State University with a degree in clinical psychology. In general, his research and clinical interests are in the areas of cognitive and interpersonal processes in dysphoria.

Thomas A. Widiger, PhD, received his degree in clinical psychology from Miami University and is currently professor of psychology at the University of Kentucky. His primary research interests include the diagnosis and classification of psychopathology, dimensional models and assessment of personality disorder, and gender bias in the diagnosis of personality disorders.