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Application of Dimensional Personality Models to Personality Disorders

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APPLICATION OF DIMENSIONAL PERSONALITY MODELS TO PERSONALITY DISORDERS

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This thesis is submitted in partial fulfillment of

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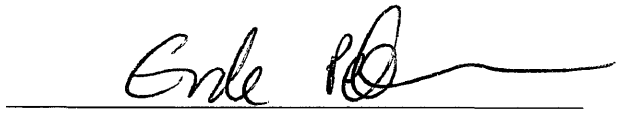

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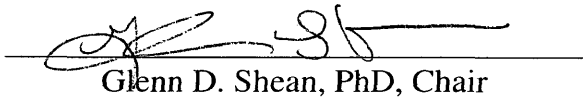

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TABLE OF CONTENTS

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LIST OF TABLES

ABSTRACT

This study investigated how well two dimensional models of personality (Dimensional Assessment of Personality Pathology, DAPP, and the Five Factor Model, FFM) described four prototypical Axis II diagnoses (Borderline, BDL, Schizotypal, SZT, Antisocial, ATS, and Dependent personality, DEP). Raters were presented with two prototypic case descriptions of each disorder and one case of Adjustment disorder. Participants read each case and completed ratings of DSM-IV-TR criteria for BDL, SZT, ATS, and DEP, adjectival descriptors of the FFM facets, and adjectival descriptors of the lower-order factors of the DAPP. While both inventories performed well, the DAPP accounted for slightly more of the variance in diagnostic ratings than the FFM, perhaps because the DAPP was developed specifically to describe problems associated with personality disorders. It is suggested that the FFM, the DAPP, or both dimensional systems provide useful information about individuals afflicted with DSM-IV personality disorders.

APPLICATION OF DIMENSIONAL PERSONALITY MODELS TO PERSONALITY DISORDERS

INTRODUCTION

With the introduction of the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III; American Psychological Association [APA], 1980), mental disorders were separated into two discrete, non-overlapping classes. The first class incorporated clinical syndromes and the second contained personality disorders, which were posited to begin early in life, follow a chronic inflexible trajectory, and manifest through problems in cognition, affect, impulse control, or interpersonal functioning (*Diagnostic and Statistical Manual-IV-TR*; DSM, American Psychiatric Association, 2000). Like disorders placed on axis I, personality disorders also lead to clinically significant distress or impairment and are treated as categorical entities, that is, a disorder is either present or it is not.

Benefits of a Categorical System

While a separate system for diagnosing personality disorders increased reliability (Frances, 1980), some have expressed discontent with the separation of personality from clinical syndromes (Watson, Clark, & Harkness, 1994; Krueger, Caspi, Moffit, Silva, & McGee, 1996) and with its categorical conceptualization (Widiger & Samuel, 2005). Despite the latter critique, there are at least two advantages of conceptualizing personality disorders as categorical in nature. First, it makes communication between clinicians easier. The presence of a diagnosis carries large amounts of information, which behooves treatment decisions and explains past behavior and predicts future outcomes. For example, by describing an individual as Antisocial (ATS), we can assume that he or she had conduct problems as a youngster, is impulsive, charming, and lacks empathy

(Cleckley, 1976; Hare, Hart, & Harpur, 1991). The second important advantage is that treatment decisions tend to be categorical (Widiger, 1993; but see Clark, 1993a). One either provides treatment to a client or one does not and it seems reasonable to retain a system of classification that aligns with this.

Costs of a Categorical System

Despite these benefits, there are several disadvantages of categorization which could be solved by incorporating a dimensional view. First, reliability decreases when disorders are treated categorically. For example, Heumann and Morey (1990) displayed that interrater reliability between clinicians was higher when dimensional rather than categorical judgments were made. Further, Grilo, Shea, Sanislow, et al. (2004) found that the temporal stability of four personality disorders decreased when they were treated as categorical rather than dimensional entities. Morey, Hopwood, Gunderson, et al. (in review) reported that the predictive validity decreased when personality disorder diagnoses were treated as categories rather than as dimensions. Thus, it seems safe to conclude that a dimensional conceptualization of personality disorders is more reliable and also perhaps more valid than categories.

A second and perhaps more serious problem with a categorical conceptualization is that there is extensive overlap between personality disorders. Despite that the *DSM-IV* states "*DSM-IV* is a categorical classification that divides mental disorders into types based on criterion sets with defining features" (American Psychiatric Association, 2000, p. xxxi), data does not seem to support such a supposition. For example, Oldham, Skodol, Kellman, Hyler, Rosnick, and Davies (1992) found that several personality disorders covaried significantly and they concluded that categorical distinctions may be

illusory. Indeed, comorbidity tends to be the norm rather than the exception (Widiger, Trull, Hurt, Clarkin, & Frances, 1987).

Dimensional Considerations

The poor fit of the categorical model has served as an impetus for implementing a dimensional conceptualization of psychopathology. Krueger, Caspi, Moffitt, and Silva (1998) applied structural equation modeling to a large longitudinal sample and found that two oblique, latent factors accounted for most of the variance and were stable across time. The factors were Externalizing (on which Antisocial Personality Disorder, Marijuana Dependence, and Alcohol Dependence loaded) and Internalizing (on which, for example, Dysthymia, Social Phobia, and Obsessive-Compulsive Disorder loaded). These constructs map quite well onto the personality disorder clusters suggested by the *DSM-IV-TR*, that is, cluster B (under which Antisocial, Borderline, Histrionic, and Narcissistic personality disorders align) and cluster C (under which Avoidant, Dependent, and Obsessive-Compulsive personality disorders align), respectively[1]. Krueger, McGue, and Iacono (2001) replicated these results using a different sample and showed that the clusters related to personality traits in meaningful ways: Negative Emotionality correlated positively with internalizing disorders and Constraint correlated negatively with externalizing disorders. Clark (2005) also took a dimensional approach to psychopathology and suggested that both clinical syndromes (axis I) and personality disorders (axis II) center around three broad continuous personality traits, namely, Positive Emotionality, Negative Emotionality, and Constraint. Supporting her claim,

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[1] While no odd or eccentric factor surfaced (i.e., cluster A in *DSM-IV-TR*), it is noteworthy that no examples of such disorders were included in their sample. Thus, perhaps a restriction of range hid the emergence of such a factor.

Markon, Krueger, and Watson (2005) found, in a meta-analysis, that these three superordinate constructs appeared across clinical and non-clinical samples and instruments, suggesting that these three traits exist (to varying degrees) in all individuals.

Thus, it seems that non-random overlap between the categorically conceptualized personality disorders (and between axes) exists due to a few broad dimensional latent variables. Further, they imply that personality disorders are an extreme variation of normal personality. If this is true, then the structure of personality should be similar in both clinical and non-clinical samples. That is, while we might expect a difference in mean levels, there should not be a difference in rank-order between the populations.

Clinical and non-Clinical Structural Comparisons

To test the hypothesis that there are no structural differences between normal and abnormal populations, Livesley, Jackson, and Shroeder (1992) administered the Dimensional Assessment of Personality Pathology (DAPP; Livesley & Jackson, in press) to a clinical (in which the primary diagnosis consisted of a personality disorder) and a normal sample (consisting of university students and employees, and community members). A 15-component solution was extracted from both samples, accounting for roughly three quarters of the variance in each sample. In addition, the factors in the samples were quite similar: across-set correlations revealed high convergence, supporting the claim that the factorial structure is similar in clinical and non-clinical samples. Attempting to replicate these results, O'Connor (2002) meta-analyzed published data from 37 studies including over 30 different measures. In general, a similar number of factors emerged in both clinical and non-clinical samples. Further, the extracted dimensions were essentially the same for the two populations. Thus, it appears that the

structure of normal personality and personality disorders is similar, that is, that personality disorders represent extreme variation of normally distributed traits.

Taxometric Concerns

Structural comparisons between clinical and non-clinical populations represent a crude way of delineating if personality disorders characterize extreme variation of continuous traits present in all individuals. A more direct way of testing if a variable (in this case, a personality disorder) is continuous or categorical is by using taxometrics, which attempt to detect if the distribution of covariance between indicators of a disorder is best represented as a difference in kind (taxonic) or degree (continuous) (Meehl, 1992). The maximum covariance analysis model (MAXCOV; Meehl & Golden, 1992) capitalizes on markers that have minimal covariance among themselves within a class, but maximal covariance between (real) classes. While Meehl posited that taxa are rare, he did conjecture that they existed in severe mental disorders, such as schizophrenia (2004). Taxometric analyses have been carried out on some personality disorders, leading to mixed results. Golden and Meehl (1979), Lenzenwegger and Korfine (1992), and Harris, Rice, and Quinsley (1994) reported taxonic structures for schizoid, schizotypal, and psychopathic personality disorders, respectively, while Trull, Widiger, and Guthrie (1990) found no taxon for Borderline personality disorder. Thus, it might be too early to conclude that all personality disorders represent extreme variation of normally distributed traits present in all individuals. However, criticisms have been voiced against taxometric methods and the conclusions one can draw from them. For example, Widiger (2001) suggested that while taxa might appear, that does not mean that their etiologies are uniform. Instead, he suggested that there are many pathways to a

particular taxon (none of which necessarily point to a specific gene). Further, he noted that indicator selection can bias the outcome, that is, the items used for the statistical procedure can change the outcome. It is also important to note that the decision to determine whether the distribution is continuous or discrete is a subjective one, which can at times be rather difficult. For example, in Trull, Widiger, and Guthrie's (1990) analysis of borderline personality disorder, there was a spike toward the end of the curve, not the flat curve that one would expect if it were a continuous variable. One could therefore argue that they found support for neither a taxonic nor a continuous distribution. To summarize, while taxometric analyses are informative, the conclusions one can draw from them has been questioned (Widiger, 2001) and the interpretation of results is perhaps too subjective for concluding that taxa indeed do exist. Nevertheless, taxometrics is as close as we can get to estimate the modality of distributions, and it might illuminate the field in time to come.

Dimensional Models of Personality

The Five-Factor Model

The Five-Factor Model (FFM; John & Srivastava, 1999) is perhaps the most prevalent model of personality. It assumes that personality traits can be described on the basis of five broad factors, each composed of six facets (Costa & McCrae, 1992). These broad factors are Extraversion, Neuroticism, Agreeableness, Conscientiousness, and Openness to Experience and they have been shown to relate to personality disorders. For example, Trull (1992) found that the FFM correlated significantly with all ten personality disorders as measured by the Minnesota Multiphasic Personality Inventory – Personality Disorder Scales (MMPI-PD) scales and Personality Diagnostic Questionnaire – Revised

(PDQ-R). Widiger and Costa (1994), after summarizing several studies, concluded that the FFM correlated significantly across studies and inventories to personality disorders. Further, Widiger and Costa (2002) compiled a list of 56 studies in which the FFM was shown to relate to various measures of personality disorders. Indeed, there is so much research on how the FFM (and other personality measures) relates to personality disorders that Clark (2005) stated "The literature is replete with correlational reports of personality trait measure *X* with personality disorder measure *Y*" (p. 509). Going beyond simple correlational analyses, O'Connor and Dyce (1998) used Confirmatory Factor Analysis to test the fit between theories of personality disorders and data. They found that the FFM provided the most parsimonious fit, with the caveat that the Openness factor did not emerge clearly. Thus, several studies have displayed that the FFM relates in meaningful ways to personality disorders and that the structure of personality disorders is similar to that of the FFM.

Despite the success of the FFM (or perhaps because of it) to describe personality pathology, the FFM has also received critiques. For example, Clark (1993a) posited that the FFM was too broad to separate personality disorders from one another. Further, she showed that the Schedule of Adaptive and Non-Adaptive Personality (SNAP; Clark, 1993b), which consists of 15 dimensions specifically designed to tap into the spectrum of personality disorders (by, e.g., including a scale of self-harm), continued to predict variance above and beyond the FFM, while the opposite was true to a much lesser extent. However, her conclusion was not based on a fair test of the FFM given that she pitted narrow lower-order constructs (the 15 oblique SNAP factors) against broad higher-order constructs (the five orthogonal FFM factors); perhaps the more specific FFM facets

would hold their ground more firmly. Indeed, Widiger, Trull, Clarkin, Sanderson, and Costa (2002) suggested that the lower-order constructs, or facets, provide greater discriminant validity and they have put forth FFM facet level predictions for all personality disorders. Lynam and Widiger (2001) went a step further by examining how well various experts on personality disorders agree in their FFM facet descriptions of personality disorders. In addition, the expert profiles were compared to theoretical and empirical profiles. The authors found that experts tended to agree with each other, that their FFM profiles of prototypical personality disorders converged with the predictions put forth by Widiger et al. (2002), and that the expert ratings correlated significantly with previous empirical results. Overall, it seems that the FFM provides a language for describing personality disorders that people can generally agree on.

Incremental Validity

Given that the FFM has displayed convergent validity (overlapped with clinical variables), the next step is to display incremental validity, or the ability to predict relevant outcomes above and beyond other related measures. For example, Ben-Porath and Waller (1992) questioned the ability of the FFM to provide information above and beyond clinical instruments. Despite their concern, it appears that the FFM, once one delves into the more specific facets, can provide important and relevant information above and beyond clinical inventories. For example, Reynolds and Clark (2001) found that the 30 FFM facets were able to pick up about the same amount of variance as the 15 SNAP factors. Likewise, Quirk, Neil, Christiansen, Wagner, and McNulty (2003) found that the FFM facets performed better than the superordinate factors, while providing incremental validity above and beyond the Minnesota Multiphasic Personality Inventory

(MMPI). Using an interview-based FFM (Structured Interview for the Five Factor Model [SIFFM]; Trull & Widiger, 1997), Stepp, Trull, Burr, Wolfenstein, and Vieth (2005) found that the facets explained slightly more variance than the SNAP scales in predicting Borderline, Antisocial, and Histrionic symptoms. However, it is not clear that an interview based FFM is directly comparable to a self-report version of the SNAP; it may be that more variance was accounted for due to the method (interview) rather than the instrument (FFM). Finally, Morey et al. (in review) warrant comment. They tracked a large cohort of individuals with Borderline, Obsessive-Compulsive, Schizotypal, and Avoidant personality disorder for several years, collecting FFM scores (using the NEO-PI-R), SNAP scores, and outcome data (e.g., the Longitudinal Interval Follow-up Examination [LIFE] and the Social Adjustment Scale, Self-Report [SAS-SR]). Because there are more FFM facets than SNAP dimensions (i.e., 30 versus 15) and because non-significant predictor variables tend to artificially elevate multiple correlations, they opted to use Predicted Residual Sums of Squares (PRESS; Stevens, 2002) in order to provide an empirical estimate free from over-fitting[2]. Using PRESS, they found that the FFM facets were outperformed by the FFM factors in predicting outcome variables. Thus, perhaps it is too early to conclusively state the facets are superior to the factors; more research in this area is certainly welcomed.

DAPP

Dissatisfied with using an inventory designed to measure non-clinical populations (i.e., the FFM), Livesley and Jackson (in press) developed the Dimensional Assessment of Personality Pathology (DAPP). It consists of 18 lower-order dimensions that form

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[2] Although the Adjusted R^2 is commonly used to correct for over-fitting, this method is algorithmic and therefore penalizes models based solely on the number of variables.

four higher-order constructs (Emotional Dysregulation, Dissocial Behavior, Inhibition, and Compulsivity; Bagge & Trull, 2003). To create the inventory, Livesley (Shroeder, Wormworth, & Livesley, 2002) used content analysis of relevant literature to compile a list of traits and descriptions that portrayed personality disorders. Clinicians then rated the prototypicality of the items in describing personality disorders. While 79 traits were sufficient to describe the disorders, 21 more were added to allow for descriptors of less common features, creating a total of 100 traits. Subsequently, self-report items were written to describe these traits, and multivariate analyses revealed that 18 factors could adequately represent these. The DAPP has been shown to relate significantly to the FFM (Shroeder, Wormworth, & Livesley, 1992) and to the SNAP (Clark, Livesley, Shroeder, and Irish, 1996). Its four higher-order factors map on well to the FFM (Openness does not seem to be represented by the DAPP) and it is suggested that the DAPP is able to describe important variables that might plague individuals with personality disorders, such as insecure attachment and cognitive dysfunction, better than FFM (Livesley & Jang, 2005).

Current Study

Despite a large body of empirical research demonstrating that dimensional inventories of personality disorders seem to fit data better and function more reliably and validly than the current categorical view expressed in the *DSM-IV-TR* (2000), clinicians are still hesitant about the value of a dimensional view. However, if most of the variance of DSM symptom ratings could be accounted for with various dimensional inventories, then there should be less reason for the skeptics to cling to the current nosological system. That is, if the information available in DSM criteria is also to a large extent available in

dimensional instruments of personality and personality disorders, then the empirically supported approach should present higher appeal to clinicians.

The current study investigates how well one clinical (DAPP) and one non-clinical dimensional (FFM) model of personality are able to account for DSM symptom ratings across four different prototypes of personality disorders. We hypothesize, first, that both the DAPP and the FFM will adequately describe all four personality disorders; that is, that they will overlap significantly with DSM symptom ratings. Second, for both inventories, the facets should outperform the factors. Third, the DAPP, given its tailored design to describe personality pathology, should account for slightly more of the variance than the FFM.

Method

Participants

A total of 509 students in Introductory Psychology classes from the College of William and Mary, VA participated in the study. Informed consent was obtained from all participants (see Appendix A) and they received one research credit hour for their participation.

Procedure

Participants signed up for the study on *SONA Systems*, a research participation website, which subsequently connected them to the study. Once signed in, each participant read five prototypical case descriptions of various personality disorders (see Appendix B, C, D, E, and F for examples of these). Immediately following completion of each case description, participants were asked to rate the individual described in the case on the thirty facets of the FFM, the eighteen lower-order factors of the DAPP-BQ,

and on diagnostic items stated as rephrased DSM-IV-TR criteria. The average time to complete the study was 34.15 minutes (*SD* = 15.40). Participants who completed the study a standard deviation below the mean time were deleted listwise to ensure rating quality. Participants were not required to complete the package in one sitting. Following completion, participants were debriefed (see Appendix G).

Each participant was administered one of four stimulus packets (A, B, C, or D). Each packet consisted of five prototypical cases adopted from DSM III and IV-TR casebooks, modified to eliminate all references to diagnostic comorbidity and gender. One-hundred and seventy-two participants in the first wave of the study were randomized to either Packet A (n = 102) or B (n = 70). Packet A and B both consisted of one Adjustment disorder prototype, two Borderline prototypes, and two Schizotypal prototypes. Packet A and B differed only in case content. Three-hundred and thirty-seven participants in the second wave of the study were randomized to either Packet C (n = 171) or D (n = 166). Packet C and D both consisted of one Adjustment disorder prototype, two Anti-social prototypes, and two Dependent prototypes. Packet C and D differed only in case content.

Measures

The dimensional inventories consisted of the Five Factor Model (FFM; Costa & McCrae, 1992) and the Dimensional Assessment of Personality Pathology (DAPP; Livesley & Shroeder, 1990). Both display adequate reliability and are widely used inventories in the realm of personality and personality pathology. The facets or subordinate factors were used rather than the complete inventory, with several adjectival descriptors presented next to each (see appendix H and I). This method of presenting only facets coupled with adjectival descriptors (rather than complete questionnaires) was

successfully used by Lynam and Widiger (2001), supporting our adoption of this technique. Adjectival descriptors of the Five-Factor Model (FFM) were obtained from the NEO-PI R manual (Costa & McCrae, 1992). Adjectival descriptors of the Dimensional Assessment of Personality Disorders – Basic Questionnaire (DAPP-BQ) were taken from Livesley, Jackson, and Shroeder (1990). Both inventories were rated from one ("very much unlike") to five ("very much like").

The dependent variable consisted of DSM-IV criteria for each disorder (see Appendix J). These were rephrased into statements and rated from 1 ("to no extent") to 5 ("to a great extent"). The ratings for each disorder were subsequently summed into one variable; that is, we created a total score for each disorder (Borderline, Schizotypal, Antisocial, and Dependent)

Results

Descriptive Statistics and Internal Consistency

Table 1 displays means, standard deviations, and internal consistency for the DSM symptom ratings. Table 2 displays the same information for the FFM, and table 3 for the DAPP. All values are standardized to simplify interpretation. Internal consistency was high for the DSM criteria, ranging from .88 to .95, justifying summation of the items to create a total score for each disorder. Analysis of Variance (ANOVA) was performed on each item to investigate potential differences between the disorders. Given the large number of variables (149), a Bonferroni correction was performed to control type I errors ($p < .0003$). All DSM items significantly separated the disorders: forty-four percent of the DSM criteria distinguished all three disorders, while 56 percent distinguished between two disorders. Further, ANOVAs revealed a general trend for the personality

disorders to be rated differently by at least one standard deviation than the Adjustment disorder prototypes. This is a fairly large effect given that Adjustment disorder is a sanctioned Axis I disorder; thus, the investigated prototypical personality disorders displayed rather severe pathology. Skodol et al. (2002) reported similar findings: they found that patients with Schizotypal and Borderline personality disorders had significantly more problems at work, in relationships, and with experiencing pleasure than patients with major depressive disorder, an Axis I disorder. Thus, our results converge quite well with their findings.

Internal consistency for the DAPP factors varied, ranging from .47 (Inhibition) to .91 (Dissocial Behavior). The lower-bound alpha increased somewhat as it was averaged between the two samples (.58), but still remained low. It is noteworthy that Inhibition consists of only two scales, a relatively small number to create a domain score, which might have decreased alpha. Regardless, previous studies (e.g., Bagge & Trull, 2003) have revealed that, in a diverse sample, Inhibition forms a reliable dimension; hence, we opted to follow their directions. Again, fairly large mean differences were observed: the personality disorders were rated at least one standard deviation above or below the Axis I syndrome (Adjustment disorder) on all DAPP domain scores but Compulsivity[3]. Forty-four percent of the DAPP facets discriminated between all three disorders, 47 percent discriminated between two disorders, and eight percent did not separate between any disorders.

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[3] The Compulsivity dimension exists primarily to detect Obsessive-Compulsive personality disorder. Therefore, it is a display of discriminant validity that there were relatively minor mean differences on this dimension.

Internal consistency for the FFM ranged from .58 (Neuroticism, sample 2) to .93 (Conscientiousness). Averaging the lower-bound alpha with the first sample led to an increase to .69, slightly more respectable. While this rather low alpha is not ideal, we do not believe that it is enough to invalidate the scale, and as we note later on, our focus is primarily on the facets rather than on the domain scores. Again, mean differences on domain scores between the disorders were rather large. Fifty-seven percent of the facets differentiated between all three disorders, 42 percent separated two disorders, and less than two percent of the facets (Aesthetics, sample 1) could not discriminate between any disorders.

Correlations between Personality Disorder Ratings and the FFM

Table 4 displays partial correlations between FFM domains and facets, and DSM symptom ratings for four personality disorders. It also shows previous predictions put forth by Widiger and Lynam (2001) and Widiger et al. (2002). Because independent t-tests (applying Bonferroni correction to control type I errors) revealed a significant difference on certain DSM criteria depending on which packet participants were randomized to and semester during which they completed the study, these two variables were subsequently partialled. Given the large number of raters for each case, significance tests are not as informative as effect sizes. Therefore, in the following interpretation, we focus on absolute values of $rs > .30$. The predictions of Widiger et al. (2002) and the expert consensus reported by Lynam and Widiger (2001) were confirmed for the most part. Prototypes of Schizotypal personality disorder were, as predicted, high on Anxiety and Self-consciousness, and low on Warmth, Gregariousness, and Positive emotions. In addition, they were high on Fantasy and low on Trust. Contrary to

predictions, they were low on Actions. Like Bagby, Costa, Widiger, Ryder, and Marshall (2005), we were unable to confirm to a positive relationship with Openness to ideas. While several facets that were not predicted to be high or low displayed large effect sizes, there was a general trend for the predicted facets to display larger correlations than the non-predicted facets, suggesting that the predictions were generally quite accurate.

Strong support for the predictions was garnered for the Antisocial personality disorder prototypes. This disorder was characterized by low interpersonal and work-related restraint, coupled with high impulsivity and excitement seeking. Only four of the seventeen predictions did not exceed an absolute value of $r > .30$, and no correlations were in the opposite direction of the predictions. In terms of discriminant validity, most non-predicted large correlations occurred under the domain of Conscientiousness, and even within this factor, the predicted correlations tended to be larger than the non-predicted ones.

Relatively strong support was also found for the Borderline prototype predictions, particularly under the Neuroticism and Conscientiousness domains, in which convergent and discriminant validity was high. No support emerged for the predicted Actions facet, and the *r*s were below .30 for the Agreeableness predictions. Generally, this disorder consisted of high Neuroticism (except for Self-consciousness) and relatively low restraint.

Finally, moderate support for prototypes of Dependent personality disorder emerged. All but two predictions displayed large *r*s, and discriminant validity was strong except under the Neuroticism domain where several large non-predicted *r*s emerged. Overall, this disorder was represented by a combination of high Agreebleness and Neuroticism.

In summary, most disorders displayed high convergent validity with the predictions but not as high discriminant validity as expected.

Correlations between Personality Disorder Ratings and the DAPP

Table 5 displays correlations between the DSM symptom ratings for each personality disorder and the DAPP domains and facets (as with the FFM correlations, packet randomization and semester of completion were partialled). Schizotypal prototypes were high on Emotional Dysregulation and Inhibition, and moderately high on Dissocial Behavior. Going beyond the domain scores, they were high on Cognitive Dysfunction, Identity Problems, Social Avoidance, Suspiciousness, and Intimacy Problems. The Antisocial prototypes were characterized by very high Dissocial Behavior and high Inhibition. While the latter might seem odd, delving into the facet level provides a plausible explanation: they were only high on the Intimacy Problem facet, an understandable rating given the generally high level of antagonism present in Antisocial personality disorder. They were high on all facets of Dissocial Behavior, and also on some Emotional Dysregulation facets (e.g., high Self-harm and Emotional Lability). Borderline prototypes were, as expected, very high on Emotional Dysregulation and also on Dissocial Behavior. Under the Emotional Dysregulation domain, particularly Identity Problems, Emotional Lability, Narcissism, and Self-harm stood out as high. Under the Dissocial behavior factor, Disesteem and Conduct Problems were high. Finally, Dependent prototypes consisted of moderately high Emotional Dysregulation and low Dissocial Behavior. Under the former domain, Diffidence and Insecure were very high. Under the latter domain, all variables but Suspiciousness were highly negatively related. Overall, the DAPP inventory seems related to DSM ratings in meaningful and expected

ways. However, because there was overlap both within and between the DAPP and the FFM dimensions, it is possible that a more parsimonious model could describe the prototypes. To explore this, we ran hierarchical regressions.

Incremental Validity of the FFM and the DAPP Domains

Table 6 displays the incremental validity of the FFM and the DAPP in predicting DSM symptom ratings. First, we entered the FFM domain scores as step one. As step two, we entered the DAPP domain scores. Because we were more interested in effect sizes rather than significance testing, only domain scores with absolute $r > .30$ were entered. On average, the FFM domain scores explained half of the DSM symptom variance. On top of this, the DAPP domain scores added another 20 percent to the prediction. Second, we entered the DAPP domain scores as step one, and the FFM as step two. On average, the DAPP predicted 66 percent of the DSM symptom ratings, to which FFM domain scores added another four percent. While the DAPP performed slightly better than the FFM, it is possible that the more specific facets of the FFM would improve its predictive ability. Therefore, we next turn to the facets of each inventory.

Incremental Validity of the FFM and the DAPP Facets

Table 7 displays the incremental validity of the FFM and the DAPP facets. Again, only facets that correlated with the DSM symptom criteria at absolute $r > .30$ were entered into the equation. First, we entered the FFM facets in step one, followed by DAPP facets in step two. On average, the FFM facets were able to predict 71 percent of the DSM criteria. The DAPP facets added, on average, nine percent to the prediction. Second, we entered the DAPP facets in step one, followed by FFM facets in step two. On

average, the DAPP facets predicted 77 percent of the DSM symptom ratings, and FFM facets added another four percent. Thus, while the DAPP facets perform slightly better than the FFM facets, the difference is small. Clearly, facets from both inventories seem to have more predictive power than the superordinate factors. The DAPP was a poor predictor of Schizotypal ratings (both on a domain and facet level), but predicted Antisocial ratings very well (both on a domain and facet level). The FFM does a relatively poor job at predicting Schizotypal and Dependent DSM ratings at the domain level; however, the more specific facets improve the predictions, particularly for Dependent personality disorder. Overall, both the factors and facets of each inventory do quite well, especially when both inventories are used for the prediction. Together, the domains of the inventories predict between 56 (Schizotypal) and 84 (Antisocial) percent of the DSM criteria. Combining the facets of the inventories predict between 73 (Schizotypal) and 88 (Antisocial) of the DSM criteria.

Discussion

This study investigated how well two dimensional models of personality could account for DSM symptom ratings of prototypical personality disorders. Across four personality disorders, the dimensional models performed well: on average, 70 percent of the variance in symptom ratings could be accounted for using both dimensional models' factor scores. In addition, when using their more specific facets, an average of 79 percent of the symptom ratings could be accounted for. Thus, roughly three quarters of the DSM variance could be explained by a combination of dimensional inventories. We also found, as hypothesized, that the DAPP, an inventory specifically developed to tap into the personality disordered realm, did slightly better than the FFM, an inventory developed to

measure normal personality. On average, the DAPP facets added nine percent after holding the FFM constant, while the FFM facets added an average of four percent after holding the DAPP constant. In addition, hierarchical regressions suggested that the DAPP facets contributed to the symptom predictions more than the FFM facets: 11 out of 14 facets with absolute standardized betas of .10 or higher derived from the DAPP.

Turning to the specific personality disorders, hierarchical regressions suggested that raters viewed Schizotypal prototypes as prone to fantasy, depersonalization, and suspiciousness, and as exhibiting little need or desire for intimacy. Antisocial prototypes were described as non-conforming, interpersonally aggressive, and hostile. Borderline prototypes were described as emotionally sensitive, as having identity problems, and as self-harming. Finally, Dependent prototypes were described as submissive, compliant, and insecure. Thus, overall, it seems that the undergraduate raters described the prototypes of disordered individuals quite accurately. Comparing the FFM and DAPP descriptions for the personality disorders display that they are both similar and different, and that each inventory provides unique information. In particular, the DAPP does a better job of incorporating problem behaviors that are likely to occur in individuals with personality disorders, while the FFM includes characteristics more commonly associated with normal functioning such as proneness to fantasy and compliance. The FFM also incorporates a more limited range of facets that describe problem characteristics under the Neuroticism factor. It does, however, allow for descriptions of functional deficits in terms of low rating scores, or the absence of normal patterns.

While it might make intuitive sense that an inventory developed specifically to describe personality disorders performs better than one developed to describe normal

personality, it is too early to conclude that the FFM is inferior to dimensional inventories of personality disorders (such as the DAPP) given that some researchers have not found support for this claim (e.g., Reynolds & Clark, 2001) and some have reported opposite results (e.g., Stepp et al., 2005). Perhaps bringing clarity to this issue, Morey et al. (in review) suggested that the FFM does well at predicting poor functioning over long periods of time (i.e., it does well at the trait level), while dimensional inventories of personality disorders do well at measuring present *and* future functioning (i.e., they do well at the state and trait level). Supporting this hypothesis, Morey and Zanarini (2000) found that the residual of what the FFM could not predict for Borderline diagnoses was significantly related to important variables such as abuse history, family history of substance abuse, and self-mutilation episodes. Likewise, Skodol, Oldham, Bender, et al. (2005) reported that dimensionalized DSM criteria predicted more concurrent functional impairment than three- or five-factor models of personality. Thus, perhaps analyses at the domain level are more important for long-term predictions given the stable nature of super-ordinate traits, while narrow facets are better at predicting temporary impairment.

Though the current study did not test the hypothesis that personality disorders represent extreme variation on normally distributed personality traits, it is clear from our results and that of others' that dimensional inventories overlap significantly with DSM criteria. As suggested by this study, dimensional models describing either normal or abnormal behavior, can contribute meaningfully to the field of diagnostics. Widiger (Widiger, Frances, Pincus, Davis, & First, 1991; Widiger & Clark, 2000) has argued in favor of a dimensionalized DSM for some time and it seems that most studies support his argument, regardless of samples (normal, clinical, prototypes) and inventories (e.g., FFM,

SNAP, DAPP). Indeed, it is a statistical truism that continuous variables that are categorized perform worse in terms of reliability and prediction because important variance is lost. Given that personality pathology seems to consist of or at least be strongly related to extreme scores on normally distributed traits, it makes intuitive sense to embrace Widiger's proposition, if for no other reason but to increase reliability.

Beyond statistical deviance

It is important to recognize that proponents of application of dimensional personality models to personality disorders do not suggest that statistical trait deviance equals the presence of a diagnosis. McCrae, Lökkenhoff, and Costa (2005) suggested that it is important to separate basic tendencies, that is, biological and genetic aspects of traits, from what they labeled characteristic adaptations, which primarily includes the interaction of traits with the environment. The pathological part of personality disorders originates not among basic tendencies but in (mal)adaptive characteristics. Therefore, according to this perspective, the goal of therapy is to re-channel clients' basic tendencies into more socially acceptable and personally rewarding adaptations – not to change their genetically determined traits. Based on this theory, Widiger, Costa, and McCrae (2002) suggest that diagnosticians should undertake four steps to classify personality disorders: 1) measure the client on the 30 FFM facets, 2) identify problems in living that are secondary to each facet, 3) determine whether problems are clinically significant, and 4) determine if the FFM profile fits a particular personality disorder pattern. Of these steps, 1 and 2 are prioritized while the remaining two are considered less essential. Step 2, or identifying problems in living that are secondary to each trait, should be carried out by inquiring of the client regarding any potential impairments relating to facet scores half a

standard deviation above or below the normative mean. Others have taken a slightly different approach: Livesley, Schroeder, Jackson, and Jang (1994) conceptualized personality disorders as statistical deviance combined with the failure to attain the evolutionary universal tasks of identity, attachment, intimacy, and affiliation. For instance, Livesley and Jang (2005) stated that "a cohesive sense of identity would help to ensure the adaptive social behaviour needed to gain access to the resources needed for reproduction and survival" (pp. 264).

Thus, despite creating different inventories, developers of dimensional models of personality disorders converge on the idea that abnormally high or low scores on a particular dimension do not constitute a disorder. The current study suggests that McCrae, Lökkenhoff, and Costa's (2005) problems in living might be easier to tease apart from trait deviance than Livesley and Jackson's (2005) evolutionary failures. For example, FFM facets with large Betas included Fantasy Oriented (Schizotypal), Angry Hostility (Antisocial), and Compliance (Dependent), none of which are inherently negative characteristics and that require further probing as to whether they cause significant problems in living. DAPP facets with large Betas included Cognitive Dysfunction (Schizotypal), Conduct Problems (Antisocial), and Self-harm (Borderline), characteristics that might hinder attainment of universal tasks such as attachment or affiliation. Thus, the distinction between abnormal DAPP deviation and failure to achieve life goals seems relatively blurry.

Despite the potential advantage of McCrae, Lökkenhoff, and Costa's (2005) theory over Livesley and Jackson's (2005), it is important to note that both suppositions suffer from limitations. O'Connor (2005), applying a non-parametric polynomial regression

procedure, showed that the covariance between the FFM and a personality disorder inventory was curvilinear: dimensions were relatively flat and overlapping up till about a standard deviation above the mean. That is, FFM dimensions did not appear to relate to personality disorders until an individual scored quite high on them. Further, low FFM scores did not relate meaningfully to disorder ratings, suggesting that personality pathology was mostly characterized by high levels of personality traits. While this study needs replication before concrete conclusions can be drawn, perhaps it is too early to suggest that small deviations (i.e., half a standard deviation) in FFM traits relate to personality disorder symptoms.

Regarding Livesley and Jang's supposition (2005), it is difficult to decide what behaviors are evolutionary beneficiary since that requires a longitudinal perspective. However, a cautious remark is worth making: humans may not necessarily have evolved to attain identity, attachment, intimacy, and affiliation, unless these were essential for the passing of genes. And there is data suggesting that such might not be the case, at least not for all individuals. For example, Graber, Lewinsohn, Seeley, and Brooks-Gunn (1997) found that externalizing psychopathology (e.g., substance abuse and disruptive behavior) was positively correlated with early timing of pubertal development among females, a mostly genetically determined event (Treloar & Martin, 1990). Early female pubertal development, in turn, is related to early sexual intercourse and following motherhood (Udry, 1979). This suggests that female externalizing behaviors, from an evolutionary standpoint, might serve a function in that it speeds up the passing of genes. Another example stems from Dawkins' (1976) *The selfish gene*: using mathematical models, he showed that it made economical sense for a few individuals to cheat in a

population of non-cheating individuals, hinting at evolutionary causes for the existence of non-conformists, such as individuals with Antisocial personality disorder. Thus, perhaps it is unsafe to assume that all individuals, from a genetic standpoint, strive to solve the life tasks presented by Livesley, Schroeder, Jackson, and Jang (1994)[4].

Study Limitations

There are several limitations to our study. First, the usage of prototypes might seem odd since most individuals with personality disorders rarely come in such easily diagnosed packages; as stated earlier, comorbidity appears to be the norm rather than the exception. The downside of using prototypes is that generalizability decreases since these are rare in real life. However, we suggest that prototypes are the cleanest way at getting at what is unique about a particular disorder. By ruling out potential confounding diagnoses, a truer depiction of a specific disorder emerges which might lead to increased understanding about it. A second limitation is the usage of undergraduates as raters of not only dimensional inventories but also of DSM symptom ratings. However, other researchers have reported that naïve raters can form accurate impressions of individuals with personality disorders. For example, Oltmanns, Friedman, Fiedler, and Turkheimer (2004) found that undergraduates were able to generate reliable personality judgments after watching a 30 second clip from an interview of a person with a personality disorder. More importantly, these personality judgments related to the targets' diagnoses in predicted ways (e.g., targets with Schizoid personality disorder were rated low on Extraversion and targets with Borderline diagnosis were rated high on Neuroticism). Our

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[4] We are not arguing that personality disorders are evolutionary adaptive, rather that there is evidence suggesting that life tasks related to subjective well-being might not be what humans (or other organisms) are ultimately designed to achieve.

participants received much more information than a 30 second clip from an interview; they received brief vignettes containing behavioral and life history information, suggesting that they should be able to generate reliable and meaningful descriptions of the prototypes. Given that their ratings were able to distinguish between disorders, overlapped for the most part with experts' generated prototypes, and predicted DSM symptom criteria in expected ways, we argue that the participants in this study were relatively successful. A third limitation pertains to the fact that the study made exclusive usage of other-report inventories, which might have led to method variance and overestimation of effect sizes. However, our correlations are also unattenuated for error, which should have weakened the results. Further, we set a rather high limit on the effect sizes that we interpreted (absolute value of *r*s > .30), which should have provided some buffer against this potential confound.

Conclusion

The current study reported ample support for the proficiency of undergraduates to describe prototypical personality disorders using two separate dimensional models of personality. Further, we found that an inventory developed specifically to describe personality pathology did slightly better than an inventory developed to describe normal personality, both at the domain and facet level. Finally, both inventories were able to explain most of the variance of DSM symptom ratings. It is suggested that ratings using the FFM, the DAPP, or both dimensional systems provide useful information about individuals afflicted with DSM-IV personality disorders.

TABLE 1

DSM SYMPTOM MEAN DIFFERENCES BETWEEN PERSONALITY DISORDERS

DSM	BDL	SZT	ADJ	α
Borderline Total	$.82_a$ (.54)	$-.32_b$ (.80)	-1.00_c (.79)	.88
Fear of abandonment	$.54_a$ (.88)	$-.36_b$ (.98)	$-.36_b$ (.77)	
Unstable relationships	$.79_a$ (.41)	$-.47_b$ (.96)	$-.65_b$ (.84)	
Unstable self-image	$.42_a$ (.62)	$.20_a$ (.85)	-1.24_b (.90)	
Impulsivity	$.64_a$ (.81)	$-.33_b$ (.91)	$-.61_b$ (.80)	
Self-harm	$.54_a$ (.79)	$-.10_b$ (.97)	$-.89_c$ (.69)	
Emotional instability	$.64_a$ (.46)	$-.32_b$ (1.01)	$-.65_c$ (1.04)	
Chronic feelings of emptiness	$.55_a$ (.64)	$-.29_b$ (1.03)	$-.53_b$ (1.01)	
Lack of anger control	$.86_a$ (.64)	$-.45_b$ (.80)	$-.81_c$ (.61)	
Stress-related suspiciousness	$.17_a$ (.92)	$.18_a$ (.96)	$-.71_b$ (.92)	
Schizotypal Total	$.02_a$ (.64)	$.69_b$ (.58)	-1.42_c (.73)	.88
Others talking behind his or her back	$.38_a$ (.79)	$.05_b$ (1.02)	$-.87_c$ (.79)	
Odd beliefs or magical thinking	$-.45_a$ (.77)	$.96_b$ (51)	$-.95_c$ (.52)	
Unusual perceptions, e.g., hallucinations	$-.39_a$ (.80)	$.85_b$ (.63)	$-.93_c$ (.54)	
Odd thinking and speech	$-.24_a$ (.85)	$.77_b$ (.57)	-1.06_c (.69)	
Suspiciousness	$.34_a$ (.75)	$.22_a$ (.92)	-1.11_b (.80)	
Constricted emotions	$.45_a$ (.76)	$.01_b$ (.92)	$-.93_c$ (.94)	
Eccentric or peculiar appearance	$.01_a$ (.83)	$.60_b$ (.61)	-1.20_c (.85)	
Lacks close friends (apart from first-degree relatives)	$.06_a$ (.84)	$.49_b$ (.70)	-1.09_c (.96)	
Social anxiety due to paranoia	$.15_a$ (.87)	$.34_a$ (.85)	$-.99_b$ (.89)	
	ATS	DEP	ADJ	
Anti-social total	1.09_a (.42)	$-.78_b$ (.48)	$-.61_c$ (.47)	.95
Fails to conform to social norms	1.02_a (.59)	$-.71_b$ (.50)	$-.62_c$ (.56)	
Deceitfulness, e.g., lying, stealing	1.03_a (.59)	$-.67_b$ (.53)	$-.72_b$ (.45)	
Impulsivity or failure to plan ahead	$.63_a$ (.74)	$-.58_b$ (.90)	$-.10_c$ (.91)	
Irritable and aggressive	1.09_a (.47)	$-.78_b$ (.37)	$-.62_c$ (.52)	

Table 1 Continued

Reckless regard for others' safety	1.06_a (.55)	$-.74_b$ (.42)	$-.64_b$ (.52)	
Consistent irresponsibility	$.74_a$ (.47)	$-.58_b$ (.93)	$-.31_c$ (.98)	
Lack of remorse and indifference	1.02_a (.54)	$-.70_b$ (.55)	$-.65_b$ (.58)	
Dependent total	$-.71_a$ (.60)	1.02_b (.43)	$-.63_a$ (.64)	.95
Needs excessive reassurance	$-.60_a$ (.77)	$.90_b$ (.51)	$-.62_a$ (.75)	
Need others to assume responsibility	$-.34_a$ (.95)	$.71_b$ (.61)	$-.74_a$ (.82)	
Difficulty expressing disagreement	$-.67_a$ (.70)	$.92_b$ (.58)	$-.50_c$ (.73)	
Difficulty initiating projects	$-.50_a$ (.82)	$.79_c$ (.58)	$-.59_a$ (.95)	
Goes to excessive lengths for nurturance	$-.69_a$ (.62)	$.95_b$ (.63)	$-.52_a$ (.66)	
Uncomfortable or helpless when alone	$-.67_a$ (.72)	$.94_b$ (.48)	$-.54_a$ (.75)	
Urgently seeks other relationships when another ends	$-.68_a$ (.71)	$.86_b$ (.64)	$-.35_a$ (.80)	
Unrealistically preoccupied with fears of being left alone	$-.69_a$ (.71)	$.94_b$ (.48)	$-.51_a$ (.76)	

Notes. BDL = Borderline, SZT = Schizotypal, ATS = Antisocial, DEP = Dependent, ADJ = Adjustment disorder. All values represent z-scores. Means in the same row that do not share subscripts differ at the $p < .05$ in the Tukey HSD test of significant difference comparison. One-hundred and seventy-two participants rated BDL, SZT, and ADJ cases; 337 participants rated ATS, DEP, and ADJ cases. N = 172-337.

TABLE 2

FFM MEAN DIFFERENCES BETWEEN PERSONALITY DISORDERS

	Sample 1 (n = 172)				Sample 2 (n = 337)			
	BDL	SZT	ADJ	α	ATS	DEP	ADJ	α
FFM								
Neuroticism	$.68_a$ (.72)	$-.27_b$ (.88)	$-.82_c$ (.82)	.79	$.46_a$ (.89)	$-.09_b$ (.85)	$-.74_c$ (1.00)	.58
Anxious	$.15_a$ (.98)	$.13_a$ (.97)	$-.56_b$ (.88)		$-.52_a$ (.86)	$.66_b$ (.81)	$-.29_c$ (.85)	
Angry hostility	$.81_a$ (.66)	$-.45_b$ (.84)	$-.73_c$ (.69)		1.04_a (.42)	$-.78_b$ (.54)	$-.52_c$ (.62)	
Depression	$.40_a$ (.78)	$-.16_b$ (1.03)	$-.48_b$ (1.03)		$-.11_a$ (1.05)	$.29_b$ (.87)	$-.36_c$ (.98)	
Self conscious	$.06_a$ (.99)	$.21_a$ (1.00)	$-.53_b$ (.84)		$-.32_a$ (.95)	$.57_b$ (.85)	$-.49_a$ (.81)	
Impulsive	$.75_a$ (.72)	$-.50_b$ (.86)	$-.49_b$ (.78)		$.86_a$ (.72)	$-.69_b$ (.65)	$-.33_c$ (.77)	
Vulnerable	$.60_a$ (.69)	$-.28_b$ (.98)	$-.64_c$ (.90)		$.37_a$ (.91)	$-.13_b$ (.98)	$-.48_c$ (.94)	
Extraversion	$.41_a$ (.84)	$-.77_b$ (.67)	$.72_c$ (.82)	.90	$-.07_a$ (.83)	$-.37_b$ (.80)	$.88_c$ (1.13)	.77
Warm	$.29_a$ (.95)	$-.69_b$ (.59)	$.79_c$ (.86)		$-.68_a$ (.64)	$.34_b$ (.96)	$.69_c$ (.85)	
Gregarious	$.42_a$ (.95)	$-.72_b$ (.55)	$.61_a$ (.90)		$-.48_a$ (.74)	$.09_b$ (.96)	$.78_c$ (.99)	
Assertive	$.26_a$ (.96)	$-.62_b$ (.63)	$.72_c$ (.98)		$.44_a$ (1.00)	$-.72_b$ (.45)	$.56_a$ (.93)	
Active	$.33_a$ (.96)	$-.62_b$ (.68)	$.59_a$ (.94)		$.11_a$ (1.01)	$-.46_b$ (.68)	$.71_c$ (1.03)	
Excitement seeking	$.62_a$ (.97)	$-.67_b$ (.66)	$.99_c$ (.74)		$.58_a$ (1.00)	$-.67_b$ (.56)	$.18_c$ (.88)	
Positive emotions	$-.02_a$ (.95)	$-.39_b$ (.79)	$.82_c$ (.99)		$-.55_a$ (.63)	$.18_b$ (.98)	$.73_c$ (1.04)	
Openness to Experience	$.03_a$ (.87)	$-.29_a$ (1.06)	$.51_b$ (.89)	.73	$.28_a$ (.79)	$-.20_a$ (.89)	$.95_b$ (1.02)	.81
Fantasy	$-.18_a$ (.95)	$.38_b$ (1.03)	$-.40_a$ (.77)		$-.21_a$ (.92)	$-.02_a$ (.99)	$.47_b$ (1.01)	
Aesthetics	.03 (1.01)	-.05 (1.05)	.04 (.86)		$-.41_a$ (.68)	$.20_b$ (1.12)	$.44_c$ (.98)	
Actions	$.17_a$ (.93)	$-.56_b$ (.74)	$.78_c$ (.95)		$-.01_a$ (.92)	$-.46_b$ (.65)	$.94_c$ (1.08)	
Feelings	$.62_a$ (.77)	$-.60_b$ (.95)	$-.05_c$ (.72)		$.08_{a,b}$ (1.04)	$-.15_a$ (.98)	$.13_b$ (.90)	
Ideas	$-.32_a$ (.74)	$-.05_a$ (1.08)	$.74_b$ (.92)		$-.31_a$ (.74)	$-.25_a$ (.77)	1.12_b (1.08)	
Values	$-.28_a$ (.77)	$-.27_a$ (.86)	1.11_b (.90)		$-.44_a$ (.64)	$-.09_b$ (.92)	1.06_c (.98)	
Agreeableness	$-.30_a$ (.82)	$-.24_a$ (.84)	1.10_b (.85)	.84	$-.93_a$ (.43)	$.73_b$ (.77)	$.40_c$ (.69)	.86
Trusting	$-.17_a$ (.94)	$-.35_a$ (.71)	1.03_b (.93)		$-.85_a$ (.43)	$.68_b$ (.91)	$.33_c$ (.71)	

Table 2 Continued

Straightforward	$.02_a$ (1.00)	$-.31_a$ (.93)	$.58_b$ (.87)		$-.10_a$ (1.08)	$-.08_c$ (.93)	$.37_b$ (.88)	
Altruistic	$-.44_a$ (.76)	$-.02_b$ (.91)	$.92_c$ (.97)		$-.85_a$ (.41)	$.74_b$ (.89)	$.22_c$ (.70)	
Compliant	$-.07_a$ (1.07)	$-.27_a$ (.82)	$.68_b$ (.89)		$-.87_a$ (.36)	$.83_b$ (.83)	$.08_c$ (.69)	
Modest	$-.32_a$ (.88)	$.01_b$ (1.03)	$.63_c$ (.86)		$-.80_a$ (.61)	$.66_b$ (.87)	$.29_c$ (.72)	
Tenderminded	$-.39_a$ (.69)	$-.14_a$ (.88)	1.07_b (1.02)		$-.80_a$ (.43)	$.48_b$ (.94)	$.64_b$ (.85)	
Conscientiousness	$-.46_a$ (.60)	$-.05_b$ (.92)	1.02_c (1.07)	.93	$-.63_a$ (.61)	$.19_b$ (.89)	$.88_c$ (1.01)	.93
Competent	$-.40_a$ (.64)	$-.19_a$ (.87)	1.17_b (.96)		$-.55_a$ (.65)	$.02_b$ (.88)	1.05_c (.95)	
Order	$-.31_a$ (.73)	$-.06_a$ (.98)	$.73_b$ (1.13)		$-.53_a$ (.78)	$.29_b$ (.96)	$.48_b$ (.99)	
Dutiful	$-.45_a$ (.66)	$.10_b$ (1.02)	$.71_c$ (1.07)		$-.69_a$ (.47)	$.42_b$ (1.02)	$.53_b$ (.94)	
Achievement oriented	$-.32_a$ (.70)	$-.22_a$ (.86)	1.09_b (1.03)		$-.48_a$ (.66)	$-.11_b$ (.79)	1.18_c (1.00)	
Self discipline	$-.43_a$ (.64)	$.03_b$ (.98)	$.80_c$ (1.12)		$-.51_a$ (.65)	$.14_b$ (.95)	$.74_c$ (1.12)	
Deliberation	$-.47_a$ (.69)	$.08_b$ (.98)	$.78_c$ (1.04)		$-.48_a$ (.82)	$.19_b$ (.97)	$.59_c$ (.94)	

Notes. BDL = Borderline, SZT = Schizotypal, ATS = Antisocial, DEP = Dependent, ADJ = Adjustment disorder. All values represent z-scores. Means in the same row that do not share subscripts differ at the $p < .05$ in the Tukey HSD test of significant difference comparison.

TABLE 3

DAPP MEAN DIFFERENCES BETWEEN PERSONALITY DISORDERS

	Sample 1 (n = 172)				Sample 2 (n = 337)			
	BDL	SZT	ADJ	α	ATS	DEP	ADJ	α
DAPP								
Emotional dysregulation	$.60_a$ (.67)	$.01_b$ (.75)	-1.23_c (.87)	.75	$.24_a$ (.86)	$.30_a$ (.73)	-1.08_b (1.00)	.65
Diffidence	.10 (1.16)	-.06 (.92)	-.96 (.76)		$-.80_a$ (.62)	1.01_b (.45)	$-.44_c$ (.56)	
Cognitive distortion	$.28_a$ (.58)	$.52_b$ (.46)	$-.16_c$ (.79)		$.53_a$ (.84)	$-.05_b$ (.87)	$-.96_c$ (.78)	
Identity problems	$.48_a$ (.60)	$.06_b$ (.95)	-1.09_c (.89)		$.24_a$ (.87)	$.25_a$ (.84)	$-.99_b$ (.92)	
Emotional lability	$.81_a$ (.38)	$-.39_b$ (.95)	$-.84_c$ (.79)		$.78_a$ (.56)	$-.48_b$ (.92)	$-.61_b$ (.78)	
Oppositionality	.06 (.89)	-.07 (.94)	.02 (1.28)		$.56_a$ (.77)	$-.49_b$ (.86)	$-.15_c$ (1.10)	
Anxiety	$.20_a$ (1.01)	$-.12_{a,b}$ (1.01)	$-.16_c$ (.91)		$-.56_a$ (.85)	$.58_b$ (.87)	$-.05_c$ (.86)	
Social avoidance	$-.60_a$ (.86)	$.91_b$ (41)	$-.68_c$ (.67)		$.20_a$ (.95)	$.10_a$ (1.01)	$-.60_c$ (.82)	
Insecure	$.49_a$ (.72)	$-.24_b$ (1.06)	$-.51_b$ (.91)		$-.55_a$ (.91)	$.78_b$ (.53)	$-.45_a$ (.87)	
Narcissism	$.86_a$ (.73)	$-.59_b$ (.73)	$-.54_b$ (.63)		$.19_a$ (.94)	$.11_a$ (1.06)	$-.60_b$ (.73)	
Self harm	$.58_a$ (.83)	$-.17_b$ (.95)	$-.82_c$ (.63)		$.74_a$ (.98)	$-.50_b$ (.63)	$-.48_b$ (.65)	
Dissocial behavior	$.77_a$ (.75)	$-.40_b$ (.83)	$-.74_c$ (.66)	.77	1.08 (.40)	-.83 (.49)	-.50 (.50)	.91
Suspiciousness	$.30_a$ (.80)	$.23_a$ (.89)	-1.07_b (.84)		$.71_a$ (.83)	$.49_b$ (.82)	$-.45_b$ (.76)	
Callousness	$.38_a$ (1.02)	$-.03_b$ (.91)	$-.70_c$ (.69)		$.96_a$ (.64)	$-.69_b$ (.61)	$-.53_b$ (.61)	
Disesteem	$.65_a$ (.85)	$-.29_b$ (.87)	$-.73_c$ (.71)		1.00_a (.45)	$-.75_b$ (.64)	$-.50_b$ (.63)	
Conduct problems	$.71_a$ (.76)	$-.30_b$ (.90)	$-.81_c$ (.64)		1.12_a (.29)	$-.81_b$ (.42)	$-.63_c$ (.50)	
Stimulus seeking	$.63_a$ (.87)	$-.59_b$ (.82)	$-.06_c$ (.82)		$.79_a$ (.77)	$-.79_b$ (53)	$.00_c$ (.86)	
Inhibition	$-.45_a$ (.94)	$.78_b$ (.60)	$-.66_a$ (.66)	.69	$.54_a$ (.87)	$-.29_b$ (.97)	$-.50_b$ (.77)	.47
Intimacy problems	$-.38_a$ (.98)	$.76_b$ (.54)	$-.77_c$ (.66)		$.71_a$ (.73)	$-.41_b$ (.92)	$-.60_b$ (.74)	
Restricted expression	-.42 (1.02)	.59 (.76)	-.35 (.77)		$.13_{a,b}$ (1.03)	$-.04_b$ (1.02)	$-.18_{b,c}$ (.86)	
Compulsivity	$-.25_a$ (.93)	$.10_b$ (1.05)	$.29_b$ (.94)		$-.26_a$ (1.01)	$.12_b$ (.95)	$.27_b$ (.96)	

Table 3 Continued

Notes. BDL = Borderline, SZT = Schizotypal, ATS = Antisocial, DEP = Dependent, ADJ = Adjustment disorder. All values represent z-scores. Means in the same row that do not share subscripts differ at the $p < .05$ in the Tukey HSD test of significant difference comparison.

TABLE 4

PARTIAL CORRELATIONS BETWEEN FFM AND DSM SYMPTOM RATINGS

	Schizotypal		Antisocial		Borderline		Dependent	
	Predicted	*r*	Predicted	*r*	Predicted	*r*	Predicted	*r*
Neuroticism		39**		42**		78**		11**
N1: Anxiety	(H) H	37**	L	-40**	(H) H	38**	(H) H	64**
N2: Angry Hostility		25**	(H) H	84**	(H) H	67**		-56**
N3: Depression		24**		-05*	(H) H	59**		.37**
N4: Self-consciousness	(H) H	39**	L	-23**		30**	(H) H	.58**
N5: Impulsiveness		10**	H	75**	(H) H	65**		-47**
N6: Vulnerability		27**		33**	(H) H	65**	(H) H	02
Extraversion		-48**		02		12**		25**
E1: Warmth	(L)L	-53**		-48**		-01	(H)	28**
E2: Gregariousness	(L)L	-47**		-31**		11**		10**
E3: Assertiveness		-38**	H	.36**		05	(L) L	-58**
E4: Activity		-38**	H	13**		11**		-33**
E5: Excitement-seeking		-22**	(H) H	55**		38**		-46**
E6: Positive emotions	(L)L	-40**		-38**		-14**		15**
Openness		-16**		-14**		05		-08**
O1: Fantasy	(H)	36**		-09**		02		07**
O2: Aesthetics		04		-26**		07*		19**
O3: Feelings		-10**		.10**	H	37**		-05
O4: Actions	(H)	-40**	H	.06*	H	01		-32**
O5: Ideas	(H) H	-19**		-19**		-25**		-14**
O6: Values		-41**		-27**		-28**		-04
Agreeableness		-44**		-70**		-22**		59**
A1: Trust	(L)	-47**	L	-63**	(L)	-23**	(H) H	54**

Table 4 Continued

A2: Straightforwardness		-28**	(L) L	-05*		-07*		-08**
A3: Altruism		-32**	(L) L	-65**		-35**	(H)	59**
A4: Compliance		-34**	(L) L	-67**	(L)	-13**	(H) H	66**
A5: Modesty		-17**	L	-61**		-20**	(H) H	55**
A6: Tendermindesness		-38**	(L) L	-60**		-33**		41**
Conscientiousness		-34**		-57**		-32**		13**
C1: Competence		-47**		-44**	(L)	-41**		01
C2: Order	L	-20**		-49**		-26**		20**
C3: Dutifulness		-20**	(L) L	-62**		-38**		31**
C4: Achievement-striving		-41**		-38**		-35**		-11**
C5: Self-discipline		-26**	(L) L	-47**		-40**		.08**
C6: Deliberation		-21**	(L) L	-47**	L	-40**		12**

Notes. L = low score on facet. H = high score on facet. Parenthesized letter refer to Widiger et al. (2002) diagnostic based prediction and non-parenthesized letters refer to Lynam and Widiger (2001) expert-based consensus predictions. N = 172-337.

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

TABLE 5

PARTIAL CORRELATIONS BETWEEN DAPP AND DSM SYMPTOM RATINGS

	Schizotypal	Antisocial	Borderline	Dependent
	r	*r*	*r*	*r*
Emotional Dysregulation	55**	25**	78**	41**
Diffidence	-02	-62**	17**	81**
Cognitive Dysfunction	73**	44**	45**	03
Identity Problems	45**	21**	63**	29**
Emotional lability	24**	64**	69**	-30**
Oppositionality	09**	55**	14**	-31**
Anxiousness	17**	-44**	35**	57**
Social Avoidance	59**	20**	12**	16**
Insecure	19**	-42**	57**	73**
Narcissism	06	18**	63**	17**
Self-Harm	25**	66**	70**	-27**
Dissocial Behavior	24**	90**	70**	-58**
Stimulus Seeking	-11**	71**	47**	-56**
Suspiciousness	58**	59**	40**	-30**
Callousness	33**	78**	41**	-51**
Disesteem	26**	83**	57**	-55**
Conduct Problems	28**	91**	68**	-57**
Inhibition	56**	47**	-07*	-13**
Restricted Expression	37**	14**	-10**	07**
Intimacy Problems	59**	59**	-02	-26**
Compulsivity	-01	-26**	-14**	09**

Notes. Decimals omitted. ** $p < 01$. N = 172-337.

TABLE 6

INCREMENTAL VALIDITY OF DAPP AND FFM: DOMAIN SCORES

	Model 1		Model 2		Final Adjusted R^2
Axis II diagnosis	Step 1 R^2 FFM	Step 2 R^2 DAPP	Step 1 R^2 DAPP	Step 2 R^2 FFM	FFM and DAPP
Schizotypal	43**	13**	51**	05**	56**
Antisocial	60**	24**	80**	05**	84**
Borderline	60**	07**	67**	04**	72**
Dependent	34**	35**	67**	02**	69**
Mean	50	20	66	4	70

Notes. Decimals omitted. Number of FFM and DAPP scale predictors with $\beta = |.10|$ or higher used for each equation: Schizotypal = Emotional Dysregulation (+), Inhibition (+), Extraversion (-), and Agreeableness (-). Antisocial = Dissocial Behavior (+) and Conscientiousness (-). Borderline = Emotional Dysregulation (+), Dissocial Behavior (+), and Neuroticism (+). Dependent = Emotional Dysregulation (+), Dissocial Behavior (-), and Agreeableness (+). N = 172-337.

** $p < 01$.

TABLE 7

INCREMENTAL VALIDITY OF DAPP AND FFM: FACET SCORES

	Model 1		Model 2		Final Adjusted R^2
Axis II diagnosis	Step 1 R^2 FFM	Step 2 R^2 DAPP	Step 1 R^2 DAPP	Step 2 R^2 FFM	FFM and DAPP
Schizotypal	60**	14**	70**	05**	73**
Antisocial	82**	06**	86**	02**	88**
Borderline	70**	09**	77**	03**	78**
Dependent	70**	08**	75**	04**	78**
Mean	71	9	77	4	79

Notes. Decimals omitted. Number of FFM and DAPP scale predictors with $\beta = .10$ or higher used for each equation: Schizotypal = Fantasy Oriented (+), Cognitive Dysfunction (+), Intimacy Problems (+), Suspiciuosness (+), and Social Avoidance (+). Antisocial = Conduct Problems (+) and Angry hostility (+). Borderline = Identity Problems (+), Emotional Lability (+), and Self-Harm (+). Dependent = Diffidence (+), Insecure (+), Self-conscious (+), and Compliance (+). N = 172-337.

** $p < 01$.

APPENDIX A

INFORMED CONSENT

Informed consent agreement: By registering for this study, I certify that I am 18 years of age or older, and have been provided with the following information with respect to my participation in this study.

The purpose of this research is to identify patterns of personality characteristics that can be used to describe different categories of DSM-IV personality disorders. I understand that I will be asked to complete separate ratings of several case studies and that my participation should require no more than 60 minutes. There are no anticipated risks or discomforts associated with participation. I also understand that my ratings will be anonymous, that my participation in this study is voluntary, that I may terminate the participation at any time, and that I will receive 1 hour of research participation credits for this study.

Questions or concerns regarding this research should be directed to Professor Glenn Shean, William and Mary College.

Questions or concerns regarding participation in this research should be directed to Professor Larry Ventis, Chair, William and Mary Psychology department.

I agree to participate in this study and have read all the information provided above.

To register for the study, click below:

APPENDIX B

EXAMPLE OF ADJUSTMENT PROTOTYPE

C went to work at a local bank after graduation from college. C did well and received several promotions, finally becoming assistant manager of one of the local branch offices. After several years the bank merged with another larger bank and a new manager was appointed to run the branch office. C's responsibilities were substantially increased without any increase in pay or authority. C also did not get along well with the new manager and applied for a transfer to another branch office. The transfer was not approved and C's relationship with the new boss deteriorated further.

C had always wanted to open a small business despite strong interest in investment and banking. C decided to quit the bank job and open a store in a nearby shopping mall. Business was slow at first and for the first 6 months the store did not make enough money to cover expenses. Gradually sales increased after C developed several clever marketing promotions. By the end of the first year the business was making a profit. By the end of the second year business was good enough to motivate C to plan to open a second store. C was in the middle of planning the second store when a nationwide discount chain opened a few blocks from the store in the mall. Within 4 months sales had dropped significantly.

C became increasingly tired and irritable, with difficulty sleeping. Appetite remained intact and C even began to gain weight from late night snacking. C tried several new marketing ploys but sales continued to decline until finally the store was closed after 3 years of operation. C spent time doing volunteer work and reestablishing some old friendships.

APPENDIX C

EXAMPLE OF BORDERLINE PROTOTYPE

E is a 24-yr old who recently arrived in a new city to begin graduate studies at a large university. E moved into an apartment with three other students who had been living together for the past 2 yrs. The relationship between E and the roommates appeared to go well initially. E became very attached to one of the roommates and idealized him/her to the point that s/he began imitating the roommate's style and dress.

The roommate started to feel uncomfortable when E confided that E felt so much like the roommate that he/she believed they might be twins adopted away at birth. The other roommates also began feeling uneasy about E's demanding behaviors. For example, E demanded more and more of their time, frequently becoming angry if one of the roommates decided not to eat dinner in the apartment with the others. E seemed to need constant attention and complained of feeling bored and empty much of the time. E also was very moody, seeming to be elated at one moment and depressed, angry, or complaining of feeling bored or empty the next.

E dated lots of people in a short period and could be charming at times. E described each of these people in glowing terms initially and usually reported having sex with them soon after the first date. These relationships were always brief, stormy and intense. They usually ended after a few weeks when the partner started to back out. One of the partners confided to a roommate, "I feel like E's consuming me. I can't talk to anyone or go anywhere without being asked where I am going and being accused of not caring about 'us'."

E complained of feeling empty when the relationships ended. One night, following the stormy end of another relationship, a roommate found E cutting him/herself on the forearm with a razor blade. The roommate yelled and E stopped and said, "Cutting makes me feel things more deeply especially when I'm upset." Two days after the razor cutting incident the roommates met and decided to ask E to move out of the apartment. E was very angry but agreed to go after telling them that they were all worthless and would be sorry for their actions. E moved out the next day. Subsequently, all three roommates found that several of their belongings and items of their clothing had been slashed with a razor blade, or stained with red wine and ruined.

APPENDIX D

EXAMPLE OF SCHIZOTYPAL PROTOTYPE

D is a 28yr old, single person who works the evening shift in the packaging division of a large company. The other workers consider D to be an "odd" person who is generally distant, displays few emotions, and has little to do with anyone. D also dresses strangely and sometimes speaks oddly and is preoccupied with the possibility of aliens from other planets assuming human form. D's hobbies involve reading science fiction novels and watching science fiction movies and TV programs. The rare casual conversations between D and the other workers inevitably shift to topics involving government suppression of evidence of UFOs, aliens, telepathy, and extrasensory perception. D is involved in an unusual religious group having to do with beliefs in witches and warlocks and is secretive about his/her involvement with this group. D periodically announces that he/she believes the other workers are attacking her/his reputation because she/he has extrasensory powers and can feel the vibrations. D is prone to interpret their casual comments as personal affronts and is often resentful of their actions. When the foreman asks for details about these accusations, D cannot or will not be specific, other than to say that she/he cannot trust the coworkers and feels they do not properly respect his/her abilities.

D has few friends because of her/his emotional distance, eccentric beliefs, and other unusual behaviors. D is anxious and remains distant from the other workers no matter how long s/he has known them. During breaks D sits alone at a table in the corner of the lunchroom and often reads books as s/he mutters under her/his breath. Otherwise, D is an efficient worker, and the factory management feels D is worth keeping as an employee despite the unusual behavior.

APPENDIX E

EXAMPLE OF ANTISOCIAL PROTOTYPE

A 20-year old student sought counseling because one of his or her parents named J, age 50, was arrested outside a bar about 70 miles from home in western Kansas. According to the police report, J was drunk, attempted to provoke a fight with several bar patrons, made inappropriate comments to patrons, and seemed confused and disoriented. At the jail, J seemed apathetic, and barely capable of communicating.

Gradually, the sad story of J's life unfolded in therapy. J had been the third of seven children. Their mother was hardworking, but died when J was 11. Their father was a drifter and periodic drunkard, who died when J was 10. The younger siblings became wards of the court and were eventually placed in foster care. J, however, ran away, wandering from town to town for over a year, occasionally staying with relatives until asked to leave (or simply thrown out) due to disruptive behavior. In the meantime, J sampled any illegal drugs hr or she could find.

On turning 18, J immediately joined the Navy, lying about a history of substance abuse, for a four-year tour of duty and education. Unfortunately, J found the structure stifling and greatly resented taking orders, getting up early day after day, and being forced to be neat, organized, and polite. Eventually, J was charged with subordination, and after a brief period of counseling, was given a dishonorable discharge. Between jobs, J sometimes stole from vulnerable elderly women "for fun" and as a means of securing rent money.

At age 30, J married a 20-year-old who was addicted to drugs, and who supported this habit through a variety of petty crimes and other illegal activities. Together they lived miserably for three years. Their only child was born six months into the marriage. After a marital fight and a domestic violence charge, J left for a new lover, though they were never legally divorced.

Thereafter, J became more heavily involved in drug-related crimes. After drifting from city to city J began dealing drugs in earnest. Eventually arrested in a sting operation, J agreed to turn the state's evidence on others in the ring in exchange for a reduced sentence of five years.

Currently, J has been on parole for four years and lives in the outskirts of a small town. J prefers not to bother people and likes to be left alone. About once a year, however, J goes on a binge, drinking, spending money, disturbing the peace, and acting out. J is know by the judge and the local police, and is regarded by them more as an musing and sometimes annoying nuisance.

APPENDIX F

EXAMPLE OF DEPENDENT PROTOTYPE

T is a 53 year old individual with three children in their 20s who comes in to the clinic at their insistence. A year ago, his/her spouse of 30 years left for a younger person. Since then, she/he has been unable to get mobilized. He/she has felt fearful every day and incapable of making decisions about what to do about any aspect of her/his life (e.g., whether to continue living in her/his house, whether to seek a job, how to handle the finances, and even what clothes to buy). She/he is constantly asking the children for the advice, guidance, and emotional support that her/his spouse had previously provided. The children love him/her and understand her/his plight but are becoming increasingly annoyed by the inability to stand on her/his own feet. Friends who had previously been very fond of T. have also been put off by the constant demands for assistance and have begun to avoid him/her.

Most of T's friends are acquaintances cannot who understand why he/she is so devastated by the spouse's desertion. He/she had been chronically unfaithful, impossible to please, and was always very tight with money. She/he did, however, make all the important decisions for T. He/she decided how they would spend and invest their money, where they would live, when and where they would go on vacation, when they would eat out and where, what movies they would see, whom they would entertain, where the children would go to school, and even what careers the children should be encouraged to pursue. The spouse always shopped with him/her and even chose his/her clothes. After the spouse left, T collapsed, felt unable to do anything, and lapsed into a helpless funk.

T was the only child of a doting mother. The father died in war when she/he was 3 years old. The mother was a strong and possessive women who dressed and treated him/her like a fragile doll, and made all her/his decisions. T's mother scheduled her/his days with a round of lessons and prearranged social activities and also selected his/her friends. She/he continued to live at home during first 3 years of college and never dated. During his/her third year of college, the mother died suddenly in a car accident.

A, the mother's lawyer and executor of the will, took charge of handling all T's affairs after the mother's death and soon became her/his adviser and confidant. T was relieved when A asked to marry him/her because he/she had quickly become totally dependent on A to fill the void left by the mother's death. Now that A had left her/him for someone else T was increasingly looking to the children to provide advice and guidance, as substitutes for the mother and former spouse.

APPENDIX G

VERBATIM DEBRIEFING FORM

Thank you for completing the questionnaires for the Personality study. You have successfully finished your participation in the study. A record of your successful completion will be sent.

Study Purpose

This study is designed to identify patterns of personality characteristics that are associated with different categories of personality disorders as described in the DSM-IV-TR diagnostic manual of mental disorders. Case descriptions were adapted from a published casebook. The goal of this study is to identify the personality dimensions that underlie DSM-IV diagnostic groupings. We hope to have the data analyzed and available in summary form by the end of Spring 2006. If you wish to receive a summary of the results, please email Erik Pettersson (email below) at that time.

If you have any questions, please contact:
Erik Pettersson email: etpett@wm.edu
or Dr. Glenn Shean email: gdshea@wm.edu

Thank you again for your time and participation. If you experienced any aspect of this study as stressful or wish to discuss your experience for any reason you may contact The Psychological Services Center on campus for a confidential appointment (757) 221-3620.

APPENDIX H

DAPP ITEMS AND ADJECTIVAL DESCRIPTORS

1. DIFFIDENCE (gives in to others, goes along, easily dominated, passive, submissive, easily led).
2. COGNITIVE DISTORTION (has unusual, irrational beliefs, or thoughts, poor reality contact).
3. IDENTITY PROBLEMS (poor self-concept, lack of pleasure, negativistic, unenthusiastic).
4. EMOTIONAL LABILITY (over-reactive, moody, unpredictable, impatient, labile).
5. STIMULUS SEEKING (spontaneous, impulsive, risk-taking, thrill seeking, excitement seeking).
6. COMPULSIVITY (systematic, orderly, thorough, exact, conscientious).
7. RESTRICTED EXPRESSION (guarded, uncomfortable with feelings, distant, cautious, uptight).
8. CALLOUSNESS (uncaring, insensitive, self-centered, manipulative, unfeeling).
9. OPPOSITIONALITY (always late, puts things off, dawdles, avoids making effort, disorganized).
10. INTIMACY PROBLEMS (unattached, distant, uncomfortable with closeness, loner, asexual).
11. DISESTEEM (critical, exploitative, no remorse, contemptuous, argumentative, irresponsible).
12. ANXIETY (guilt prone, easily overwhelmed, worrier, indecisive, doubt-ridden).
13. CONDUCT PROBLEMS (breaks rules, alcohol problems, physically threatening, dishonest).
14. SUSPICIOUSNESS (guarded, hyper-vigilant, resentful, feels like a victim, suspicious of others).
15. SOCIAL AVOIDANCE (insecure, loner, shy, socially awkward, avoids social contacts).
16. INSECURE (fearful of loss, afraid of aloneness, seeks security).
17. NARCISSISM (attention seeking, need for adulations, grandiosity, need for approval).
18. SELF HARM (ideas of self harm, self-damaging acts).

APPENDIX I

FFM ITEMS AND ADJECTIVAL DESCRIPTORS

19. ANXIOUS (a worrier, easily frightened, tense, fearful, indecisive, ruminates).
20. ANGRY, HOSTILE (ill-tempered, temperamental, resentful, easily frustrated).
21. DEPRESSION (lonely, sad, guilt prone, low self-esteem).
22. SELF-CONSCIOUS (easily embarrassed, feels inferior, uncomfortable around most people).
23. IMPULSIVE (imprudent, over indulges, impulsive, easily tempted).
24. VULNERABLE (feels mistreated, overwhelmed, unstable emotionally, makes bad decisions).
25. WARM (enjoys people, friendly, enjoys people, outgoing).
26. GREGARIOUS (outgoing, enjoys people, sociable, expressive).
27. ASSERTIVE (forceful, leader, decisive, takes charge).
28. ACTIVE (vigorous, energetic, lively, high-spirited.
29. EXCITEMENT SEEKING (craves excitement, likes being in the action, flashy).
30. POSITIVE EMOTIONS (joyful, cheerful optimist, bubbly, light hearted).
31. FANTASY ORIENTED (imaginative, fanciful, dreamer, enjoys make believe).
32. AESTHETICS ORIENTED (enjoys art, music drama, poetry).
33. FEELING ORIENTED (has strong emotions, feels strongly about things, range of feelings).
34. ACTION ORIENTED (enjoys new interests, hobbies, adventurous, enjoys trying new things).
35. IDEAS PERSON (enjoys abstract ides, problem solver, intellectually curious).
36. VALUES ORIENTED (supports change, open-minded, broad-minded, permissive).
37. TRUSTING (believes people mean well, trusting, assumes the best, has faith in people).
38. STRAIGHTFORWARD (lets people know about feelings, never tricky or hypocritical).
39. ALTRUISTIC (cooperative, forgives and forgets, avoids arguments).
40. COMPLIANT (often praises others, supportive, goes along).
41. MODEST (never brags, humble, would rather praise others than take credit).
42. TENDER MINDED (concerned about the less fortunate, humanistic values, merciful).
43. COMPETENT (common sense, informed, prepared, good judgment, successful).
44. LIKES ORDER (likes to plan ahead, neat, organized, methodical).
45. DUTIFUL (conscientious, dependable, can be counted on, follows through).
46. ACHIEVEMENT ORIENTED (goal oriented, works hard, driven, strives for excellence).
47. SELF DISCIPLINED (paces self, productive, sticks to projects till completed).
48. DELIBERATIVE (thoughtful, plans carefully, thinks twice before acting).

APPENDIX J

DSM CRITERIA

BORDERLINE DSM CRITERIA

1) To what extent does the person show efforts to avoid real or imagined abandonment?
2) To what extent does the person demonstrate a pattern of unstable and intense interpersonal relationships characterized by alternating between extremes of idealization and dissatisfaction/disappointment/depression/despondency?
3) To what extent does the person have a persistent and markedly disturbed, distorted, or unstable self-image or sense of self?
4) To what extent does the person exhibit impulsivity in at least two areas that are potentially self-damaging (like overspending, sexual promiscuity, substance abuse, reckless driving, or binge eating)?
5) To what extent does the person exhibit recurrent behavior, gestures, or threats, of self harm?
6) To what extent does the person exhibit emotional instability due to marked reactivity of mood, irritability, or anxiety?
7) To what extent does the person exhibit chronic feelings of emptiness?
8) To what extent does the person exhibit inappropriate, intense anger or lack of control of anger (like frequent displays of temper, constant anger, or recurrent physical fights)?
9) To what extent does the person exhibit transient, stress-related suspiciousness or lack of conscious awareness?

SCHIZOTYPAL DSM CRITERIA

1) To what extent does this person exhibit thoughts that others are talking behind his/her back or trying to influence his/her thoughts or behaviors?
2) To what extent does this person have odd beliefs or magical thinking that influence their behavior (like superstitiousness, belief in clairvoyance, or telepathy)?
3) To what extent does this person evidence unusual perceptual experiences, like hallucinations?
4) To what extent does this person exhibit odd thinking and speech (e.g., vague, circumstantial, or metaphorical)?
5) To what extent does this person exhibit suspiciousness?
6) To what extent does this person exhibit inappropriate or constricted emotions?
7) To what extent does this person exhibit odd, eccentric, or peculiar behavior or appearance?
8) To what extent does this person lack close friends or confidants other than first-degree relatives?
9) To what extent does this person exhibit excessive social anxiety that does not diminish with familiarity and tends to be associated with paranoid fears rather than negative judgments about self?

Appendix J Continued

ANTISOCIAL DSM CRITERIA

1) To what extent does the person fail to conform to social norms with respect to lawful behaviors as indicated by repeatedly performing acts that are grounds for arrest?

2) To what extent does this person show deceitfulness, as indicated by repeated lying, use of aliases, or conning others for personal profit or pleasure?

3) To what extent does the person demonstrate impulsivity or failure to plan ahead?

4) To what extent does this person have irritability and aggressiveness, as indicated by repeated physical fights or assaults?

5) To what extent does the person have reckless disregard for safety of self or others?

6) To what extent does this person demonstrate consistent irresponsibility, as indicated by repeated failure to sustain consistent work behavior or honor financial obligations?

7) To what extent does the person exhibit a lack of remorse, as indicated by being indifferent to or rationalizing having hurt, mistreated, or stolen from another?

DEPENDENT DSM CRITERIA

1) To what extent does this person exhibit difficulty making everyday decisions without an excessive amount of advice and reassurance from others?

2) To what extent does the person need others to assume responsibility for most major areas of his or her life?

3) To what extent does this person have difficulty expressing disagreement with others because of fear of less of support or approval?

4) To what extent does the person exhibit difficulty initiating projects or doing things on her or her own (because of a lack of self-confidence in judgment or abilities rather than a lack of motivation or energy)?

5) To what extent does this person go to excessive lengths to obtain nurturance and support from others, to the point of volunteering to do things that are unpleasant?

6) To what extent does the person feel uncomfortable or helpless when alone because of exaggerated fears of being unable to care for himself or herself?

7) To what extent does this person urgently seek another relationship as a source of care and support when a close relationship ends?

8) To what extent is the person unrealistically preoccupied with fears of being left to take of himself or herself?

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VITA

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