Clinical Utility of Five Dimensional Systems for Personality Diagnosis

A "Consumer Preference" Study

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Abstract: This study compares the clinical relevance and utility of five dimensional diagnostic systems for personality disorders that have been proposed for the forthcoming edition of DSM (DSM-V): (1) a criteria counting model based on current DSM-IV diagnostic criteria; (2) a prototype matching model based on current DSM-IV diagnostic criteria; (3) a prototype matching model based on the Shedler-Westen Assessment Procedure (SWAP); (4) the Five Factor Model; and (5) Cloninger's Psychobiological Model. A random national sample of psychiatrists and psychologists applied all 5 diagnostic systems to a patient in their care and rated the clinical utility of each system. The SWAP Prototype Matching and DSM-IV Prototype Matching models were judged most clinically useful and relevant. The Five Factor Model and Cloninger's Psychobiological Model were judged least useful. The prototype matching systems most faithfully capture the personality syndromes seen in clinical practice, and permit rich descriptions of diagnostic constructs without a proportionate increase in user effort. A prototype matching approach to personality diagnosis deserves consideration for DSM-V.

Key Words: Personality, personality disorders, personality pathology, diagnosis, DSM-V, clinical utility.

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The system for diagnosing personality disorders (PDs) will likely undergo revision for DSM-V (Widiger et al., 2006). Although there is little consensus about how axis II should be revised, many investigators advocate a dimensional rather than a categorical approach to PD diagnosis (Widiger and Simonsen, 2006). This study compares five dimensional diagnostic systems for PDs that are plausible candidates for DSM-V. Three have been proposed by their developers as replacements for the DSM-IV system; the remaining 2 are dimensional variants of the existing DSM-IV system.

Multiple considerations are pertinent in choosing a PD classification system. One is validity: PD diagnoses should show strong and distinct relations with conceptually relevant criterion variables. Many studies have examined the validity of one or another diagnostic system but few have directly compared 2 or more systems (Morey et al., 2007; Skodol et al., 2005a, b).

Another consideration, and the subject of the present study, is clinical utility and relevance. A clinically relevant diagnostic system should encompass the spectrum of personality pathology seen in clinical practice, be user-friendly in real-world use, facilitate communication between clinicians, and facilitate a level of psychological understanding of patients that can inform treatment. Although the operational diagnostic criteria used since DSM-III have facilitated research, a major complaint has been that the diagnostic categories and criteria are not particularly useful clinically (First et al., 2004).

Thus far, dialogue about the future format of DSM has been almost exclusively by and between laboratory researchers; the voice of the clinician has gone largely unheard. This study represents an effort to reintroduce the voice of the clinician. The study compares 5-dimensional diagnostic systems with respect to clinical utility and user acceptability. It may therefore be considered a "consumer preference" study aimed at determining the value of the diagnostic systems to the clinicians who are expected to use them.

Because investigator allegiance effects (unintended bias toward one or another approach) are among the greatest threats to the validity of a comparison study, we took steps to ensure that the alternative diagnostic systems (i.e., those not based on DSM-IV) were implemented optimally, as their developers intended. The developers of the diagnostic systems (Drs. Thomas Widiger, Robert Cloninger, Dragan Svrakic, Jonathan Shedler, and Drew Westen) served as consultants to the study, wrote the instructions to clinicians on how to use their systems, and reviewed and edited all study materials before data collection. The study methodology was

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developed in consultation with the developers, both to benefit from their collective research expertise and to ensure that all parties considered the study fair and unbiased. Thus, before data collection, the study design and the specific implementations of the alternative diagnostic systems were vetted by the developers of those systems. Data collection, analysis, and interpretation were conducted exclusively by R.L.S., M.B.F., and A.E.S., who are unaffiliated with any of the alternative systems. Only after data collection and analysis were complete, the developers of the clinically preferred system (J.S. and D.W.) were invited to participate as coauthors.

Meanings of "Dimensional" Diagnosis

An important consideration for DSM-V is whether to diagnose personality at the level of syndromes or traits. Syndromes are multifaceted constellations of personality processes (encompassing cognition, affectivity, interpersonal functioning, impulse regulation, etc.; DSM-IV-TR, p. 686) which are understood to be interdependent. All editions of DSM to date have focused on syndromes. One option for DSM-V would be to preserve a syndromal approach but treat the personality syndromes as continua rather than discrete categories (Kass et al., 1985; Oldham and Skodol, 2000; Skodol et al., 2005a, b; Widiger and Sanderson, 1995). For example, dimensional scores could be derived by summing the number of diagnostic criteria met for each PD. Another alternative is the prototype matching method proposed by Shedler and Westen (Shedler and Westen, 2004a; Westen and Shedler, 2000; Westen et al., 2006b). Each PD is represented by a paragraph-length description of the syndrome in its "ideal" or "pure" form (the diagnostic prototype) and clinicians rate the overall resemblance or "match" between a patient and the prototype.

In contrast, trait approaches focus on separate trait dimensions. The diagnosis is represented by a set of scores on basic factors or dimensions (e.g., neuroticism, extroversion) supplemented by scores on subcomponents or "facets" of the dimensions (e.g., facets of neuroticism include anxiety and angry hostility). A trait approach was considered for DSM-IV but not adopted due to lack of information about clinical utility. Data addressing the clinical utility of trait approaches therefore seem especially pertinent with the approach of DSM-V.

Some investigators mistakenly conflate trait models with dimensional diagnosis, and syndromal models with categorical diagnosis. However, these are independent considerations and their association is purely historical (Westen et al., 2006a). The dimensional/categorical distinction refers to whether people are assumed to fall into discrete categories or to vary along a continuum; the syndromal/trait distinction refers to whether the unit of diagnosis is a constellation of interrelated personality characteristics or separate characteristics. Both trait and syndromal approaches can be dimensional.

The Diagnostic Systems

Five Factor Model

The Five Factor Model is a trait approach derived from decades of empirical personality research (Costa and McCrae, 1992; Widiger et al., 2002). The model consists of 5 broad personality traits or factors (neuroticism, extraversion, agreeableness, conscientiousness, openness to experience), each with 6 subcomponents or "facets." In the clinical version developed for this study, clinicians made bipolar ratings for each of 30 facets (e.g., for the conscientiousness facet "order," 1 = disorganized and haphazard, 7 = preoccupied with rules and organization). The format for this study was developed in consultation with Dr. Widiger.

Cloninger's Psychobiological Model

Cloninger's Psychobiological Model is also a trait approach, based on Cloninger's dimensional temperament/character system (Cloninger, 2000; Cloninger et al., 1993). This approach conceptualizes personality as a complex adaptive system involving interaction between heritable, social learning, and cultural factors. It distinguishes between biological temperament and experientially influenced character, and links traits to neurotransmitter systems. The model tested in this study involved a 2-step rating procedure. In step 1, clinicians made an overall personality assessment entailing 5 yes/no ratings for each of 3 character types (15 items total). In step 2, clinicians made 5 ratings (high, medium, low) for each of 3 temperament traits. The format for this study was developed in consultation with Drs. Cloninger and Svrakic.

SWAP Prototype Matching

The SWAP Prototype Matching model is a syndromal approach, based on research conducted using the Shedler-Westen Assessment Procedure-200 (SWAP-200; Shedler and Westen, 2007; Westen and Shedler, 1999a, b). The SWAP is a 200-item clinician-report (not self-report) instrument that allows clinicians to record their observations about patients' personality functioning systematically and reliably. Shedler and Westen applied statistical methods to SWAP-200 data from a large national sample of patients with PDs to empirically identify 12 diagnostic groupings or personality syndromes (Shedler and Westen, 2004a; Westen and Shedler, 1999b). Each syndrome is represented by a paragraph-length prototype description representing the syndrome in its "pure" form. Clinicians rate the extent to which patients match or resemble each prototype description (1 = no match, 5 = very good match) (for validity data, see Westen and Shedler, 2007; Westen and Weinberger, 2004; Westen et al., 2006b). The format for this study was developed in consultation with Drs. Shedler and Westen.

DSM-IV Prototype Matching

The DSM Prototype Matching system is a dimensionalized version of the existing DSM-IV diagnostic system. It borrows the prototype matching method developed by Shedler and Westen (described above) and applies it to the existing DSM-IV diagnostic categories and criteria. For each PD, DSM-IV diagnostic criteria were arranged in paragraph format and clinicians rated the overall resemblance or match between their patients and the prototypes. The instructions to clinicians were adapted from those written by Drs. Shedler and Westen for the SWAP Prototype Matching system.

DSM-IV Criterion Counting

The DSM Criterion Counting system is a dimensionalized version of the current DSM-IV diagnostic system. Clinicians check as present/absent each criterion for each Axis-II disorder. The dimensional score is the number of diagnostic criteria met for each disorder. This approach yields numeric scores for PDs ranging from 0 to 9 (see Appendix C), rather than categorizing PDs as present/absent. Criterion counting is the de facto diagnostic procedure used in most PD research today.

METHODS

Letters soliciting participation were sent to 6000 randomly selected members of the American Psychological Association engaged in clinical practice, and 6000 randomly selected members of the American Psychiatric Association. Clinicians who responded to the initial solicitation were sent complete research materials.

An introductory letter described the study as "an initial attempt to compare the clinical utility of 5 alternative dimensional systems" for personality diagnosis. Clinicians were instructed to "select one of your current patients that you know reasonably well who has significant personality problems (which may or may not reach the threshold for a specific DSM-IV PD)." Clinicians applied each of the 5 diagnostic systems to assess the patient and completed a clinical utility rating form immediately after using each diagnostic system. To control for possible order effects, the diagnostic systems were presented in randomized order.

Materials

The *information about you* form requested the clinician's age, sex, discipline (psychology/psychiatry), years of practice experience posttraining, primary practice setting, predominant theoretical orientation, and percentage of clinical hours spent treating patients with personality pathology. It also asked clinicians to rate "how clinically useful do you find the DSM system for diagnosing Axis I and II disorders?" (not at all, somewhat, very) and to rate their familiarity with each diagnostic system (not at all, somewhat, very).

The *description of this patient* form requested patient demographic information. It also provided checklists to indicate current Axis II diagnoses, the presence of comorbid mood, anxiety, or substance use disorders, the patient's typical level of adaptive functioning (very poor, poor, fair, good), and the approximate number of hours of clinical contact with the patient.

Complete instructions and excerpts from each diagnostic system are reproduced in Appendices A through E. For each diagnostic system, clinicians completed a *clinical utility rating* form. Clinicians rated the following items (5-point scale except as noted; 1 = not at all, 2 = slightly, 3 = moderate, 4 = very, 5 = extremely):

Global impression: How useful and feasible was the system for personality assessment?
How useful was the system for comprehensively describing what is important about this patient's personality?
How useful was the system for describing what you would focus on in psychotherapy with this patient?
How useful was the system for summary communication to other clinicians about the patient's personality?
How easy was it to use the system for this patient?
Does your patient have significant personality disturbance that is not covered by this system? (yes/no).
Overall, how would you compare the clinical utility of this system to the DSM-IV categorical (present vs. absent) approach to personality diagnosis? (1 = much worse, 2 = worse, 3 = about the same, 4 = better, 5 = much better).

RESULTS

Clinician Characteristics

Complete research forms were received from 397 clinician-respondents, roughly equally divided between psychologists (N = 206) and psychiatrists (N = 191). The clinicians were highly experienced with an average of 19.9 years practice experience posttraining (SD = 10.6). Mean age was 52.1 years (SD = 11); 72% were male. Eighty-three percent identified private practice as their primary practice setting. For psychologists, the most commonly reported predominant theoretical orientations were cognitive-behavioral (38%) and psychodynamic (36%); for psychiatrists, they were psychodynamic (58%) and psychopharmacologic (12%).

The overwhelming majority of the clinicians (87%) were "very familiar" with DSM-IV. Relatively few (16.8%) considered DSM-IV "very clinically useful," with the majority (73.3%) describing it as "somewhat" useful. Very few clinicians were "very familiar" with the alternative diagnostic systems (6%, 4%, and 1% for the Five Factor Model, Cloninger Psychobiological Model, and SWAP Prototype Matching model, respectively).

Patient Characteristics

The patient sample was 58% female with a mean age of 41.6 years (SD = 12.3). Eighty-two percent of clinicians reported at least 26 hours of clinical contact with the patient and 55% reported over 100 hours. The most prevalent PDs (clinician diagnosis) were borderline (48%), narcissistic (28%), PD NOS (21%), histrionic (16%), obsessive-compulsive (15%), and paranoid (14%). Most patients had comorbid Axis I diagnoses: 82% had mood disorders, 67% anxiety disorders, and 29% substance use disorders. Fifty-three percent of the patients were rated as having "poor" or "very poor" adaptive functioning and 37% were rated as having "fair" adaptive functioning.

Clinical Utility of the Diagnostic Systems

Clinical utility findings are presented in Table 1, with the diagnostic systems listed in descending order of overall preference. The SWAP Prototype Matching and DSM-IV Prototype Matching systems were rated most clinically useful and relevant, with preference for the SWAP system most often reaching statistical significance. The 2 prototype matching systems were most often rated "very" or "extremely" useful with respect to clinicians' global impression of clinical

TABLE 1. Clinical Utility Ratings for Five Dimensional Diagnostic Systems

	SWAP Prototype Matching (%)	DSM-IV Prototype Matching (%)	DSM-IV Criteria Counting (%)	Five Factor Model (%)	Cloninger Psychobiologic Model (%)
Global impression: how useful and feasible for personality assessment ("very" or "extremely")	45[a]	42	35	29	17
How useful for comprehensively describing what is important about patient's personality ("very" or "extremely")	47[a]	40	32	33	18
How useful for describing focus of psychotherapy ("very" or "extremely")	40[a]	37	27	32	17
Significant personality disturbance is not covered by this system ("yes")	23[a]	35	34	46	63
How useful for summary communication to other clinicians ("very" or "extremely")	49[b]	52[b]	42	25	15
System is "better" or "much better" than DSM-IV system	65[b]	67[b]	50	44	26
How easy to use ("very" or "extremely")	55	74[a]	68	32	34

[a]System rated as better than each of the other systems ($p < 0.01$).
[b]SWAP prototype system and DSM prototype system not different from each other, but both better than each of the other systems ($p < 0.01$).
Comparisons based on McNemar's χ^2 test for correlated proportions.

usefulness and feasibility, for describing what is important about the patient's personality, and for describing issues relevant to psychotherapy. Both systems were judged "better" or "much better" than the current DSM-IV system. The DSM-IV Prototype Matching system was rated easiest to use; the SWAP system was judged most comprehensive (i.e., few clinicians thought it omitted significant forms of personality disturbance).

The Five Factor Model and Cloninger's Psychobiological Model were rated as having the least clinical utility, and only a minority of clinicians considered them improvements over the existing DSM-IV system (Five Factor Model 44%, Cloninger's Psychobiological Model 26%). Relatively high percentages of clinicians thought they omitted significant forms of personality disturbance (Five Factor Model 46%, Cloninger's Psychobiological Model 63%, vs. 23% for the SWAP Prototype Matching system).

The findings presented in Table 1 are based on chi square tests comparing response percentages. Essentially identical results were obtained using paired *t* tests comparing mean clinical utility item ratings (available from the authors upon request).

There were no relationships between clinical utility ratings and clinician profession (psychiatry/psychology), age, sex, practice experience, theoretical orientation, primary practice setting, patient contact hours, or familiarity with the diagnostic systems.

DISCUSSION

This study is the first head-to-head comparison of the clinical utility and relevance of dimensional systems for personality diagnosis. The main conclusions are: (1) Clinicians prefer prototype matching over other diagnostic approaches, including the current DSM-IV system; and (2) Clinicians find less clinical utility in either trait model (the Five Factor Model and Cloninger's Psychobiological Model), rating them less clinically useful than the prototype matching models and less clinically useful than the existing DSM-IV system.

There are a number of mutually complementary potential explanations for these findings. First, clinicians may prefer prototype matching because the method works with, rather than against, naturally occurring cognitive decision processes. Research in cognitive science indicates that humans naturally classify using some form of cognitive prototype matching (Cantor and Genero, 1986; Horowitz et al., 1981a, b; Kim and Ahn, 2002; Millon and Klerman, 1986). A useful diagnostic system should accommodate the capacities of the humans expected to use it.

Second, prototype matching allows for rich descriptions of personality constructs without a proportionate increase in user effort. Thus, there is a high ratio of information to time and effort expended.

Third, the syndromal approaches, and especially the SWAP approach, are written in language close to that of clinical case description and emphasize psychological issues relevant to treatment (e.g., unstable relationships, coping strategies and defenses). In contrast, the Five Factor Model has its origins in factor analysis of everyday adjectives used by laypeople and may therefore omit personality constructs important to mental health professionals (e.g., quality of attachments, thought disturbance, characteristic defenses) (see Block, 1995; McAdams, 1992; Shedler and Westen, 2004b). Cloninger's Psychobiological Model includes constructs such as "self-transcendence" that also may not be compelling to clinicians of most theoretical orientations.

Fourth, dimensional trait models assume that individuals can be high or low on trait dimensions, but not both. This a priori assumption may be incorrect. For example, passive-aggressive patients may be both intensely angry and prone to suppress anger. Narcissistic patients may be arrogant at one level and feel inadequate at another (as has been shown empirically; Russ E, Shedler J, Bradley R, Westen D, in press; Shedler and Westen, 2004a). Dimensional trait models

cannot capture such psychological contradictions, which may be key to understanding many forms of personality pathology (e.g., in the Five Factor Model, a patient can be high or low on "angry hostility," but neither option adequately describes the passive-aggressive patient; likewise, a low score on the "modesty" facet may not do justice to the psychological complexities of narcissism).

Limitations and Potential Objections

One limitation is low response rate. Although a low response rate is not inherently problematic per se, it is problematic when it reflects a self-selection bias that could affect outcome. In this study, clinical utility ratings were unrelated to clinician profession, theoretical orientation, age, sex, practice setting, patient contact hours, or familiarity with the diagnostic systems. Additionally, the finding that clinicians prefer prototype matching to both categorical and dimensionalized DSM-IV diagnosis parallels findings from a recent study that achieved a response rate approximately 10 times higher (because clinicians were paid for participation) and ensured that patients were randomly selected from clinicians' practices (Westen et al., 2006b). It therefore seems unlikely that self-selection bias alone could account for the pattern of findings (nor is it clear, if self-selection were a factor, why it would lead to consistent preference for prototype matching, a method familiar to virtually none of the clinicians). Clearly, replication with a larger *N*, payment to clinicians as incentive to participate in a study that takes over an hour of their time, and more random selection of patients would be an important next step.

Another potential criticism is that clinicians simply preferred the diagnostic system that was the most familiar or the easiest to use. Clinicians' consistent preference for the SWAP Prototype Matching system renders this explanation unlikely. The SWAP system was rated least familiar by the participating clinicians, required detailed instructions, and required clinicians to read 12 lengthy paragraphs describing prototypes (e.g., Schizoid-schizotypal PD) that differed in subtle and not-so-subtle ways from the DSM disorders. If clinicians simply preferred the most familiar or easiest to use system, then the DSM-IV Criteria Counting and DSM-IV Prototype Matching systems would have substantially outperformed the SWAP system.

An anonymous reviewer noted that the average patient in the study had been in treatment for several months and was therefore well known to the clinicians. The reviewer felt that this may have been a source of bias, and that the dimensional trait approaches may have fared better had the clinicians known the patients less well. We found no relationships between clinical utility ratings and length of treatment. More importantly, we consider clinicians' knowledge of their patients a strength of the study, given that clinical diagnosis and case formulation are ongoing processes over the course of treatment. It is difficult to see the advantage of asking clinicians to assess patients they do not know well, unless the goal is to constrain and limit the sophistication of clinical personality assessment to something more akin to casual social observation by laypersons (what one investigator termed "the psychology of the stranger;" McAdams, 1992).

Finally, a critic might object that prototype matching is a "throwback" to DSM-II, losing the advantages of precise specification of diagnostic criteria that have rendered later editions of the manual so much more useful. This represents a basic misunderstanding of the prototype matching method. First, the diagnostic categories and criteria in DSM-II were not empirically based and reflected an untested mix of psychoanalytic theory, biological hypotheses, and nonsystematic clinical observation. Second, DSM-II required clinicians to make unreliable categorical (present/absent) diagnoses without any criteria for doing so.

The prototype matching approaches tested in this study differ from DSM-II on both counts. The DSM-IV prototypes were derived from diagnostic criteria that have had the benefit of 25 years of empirical refinement. They are no more or less empirically derived than the DSM-IV diagnostic criteria themselves because they are the DSM-IV criteria, simply arranged in a different format. The SWAP prototypes are entirely empirically derived (Westen and Shedler, 1999b): the descriptive statement that comprise the SWAP prototype descriptions are those that emerged empirically in a large national sample of PD patients (Shedler and Westen, 2004a; Westen and Shedler, 1999b). Additionally, the prototype matching approaches employ anchored 5-point ratings of resemblance or "match," not arbitrary binary decisions regarding presence/absence. Unpublished data suggest that prototype ratings have high interrater reliability, with a median correlation between 2 clinical observers (after listening to the first 3–5 psychotherapy sessions) of $r = 0.70$ (D. Westen, personal communication, June 2006).

CONCLUSIONS

Clinicians find the prototype matching systems more clinically useful than the current DSM-IV diagnostic system, and more clinically useful than the dimensional trait systems. The DSM-IV Prototype Matching System was rated easiest to use. The SWAP prototype matching system was rated as or more favorably on all other measures of clinical utility, and appears to capture a broader range of clinical phenomena than the other diagnostic systems. A prototype matching approach should be considered for the next edition of the DSM.

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APPENDICES

Appendix A: SWAP Prototype Matching system

Background This diagnostic system was developed empirically from descriptions of actual patients provided by over a thousand experienced clinicians. Rather than starting with pre-established disorders, we asked clinicians to provide detailed descriptions of their patients, then used a statistical procedure to group the patients based on their similarity. The result is a set of personality disorder descriptions ("prototypes") that mirror what clinicians see in real-world clinical practice.

This diagnostic system resembles the familiar Axis II system, but differs in important ways. First, the diagnostic categories and criteria are different, and are designed to be more faithful to clinical reality. Second, this system allows you to diagnose personality pathology on a continuum, from less to more severe (not just present/absent). Third, you do not count symptoms or criteria. Rather, you simply rate the overall similarity or resemblance between your patient and a prototype, which describes the personality disorder in its "purest" form.

Instructions Read the description for each prototype and form an *overall impression* of the disorder. When you have a good sense of the kind of person being described, rate the extent to which your patient matches (resembles) the prototype. Do not count symptoms or worry about whether individual statements apply. Instead, just consider the *overall* similarity between your patient and the prototype. (Note that some prototypes have the same names as Axis II categories, but the criteria are different—so please read the descriptions carefully.)

For each disorder, rate the patient's personality using the 5-point rating scale shown below. Rate each disorder independently of the others. Note that a rating of 4 or higher means the patient *has* the disorder. A rating of 3 means the patient does not reach threshold for a diagnosis, but has significant traits or *features* of the disorder.

5	very good match (patient ***exemplifies*** this disorder; prototypical case)	**Diagnosis**
4	good match (patient ***has*** this disorder; diagnosis applies)	
3	moderate match (patient has ***significant features*** of this disorder)	**Features**
2	slight match (patient has minor features of this disorder)	
1	no match (description does not apply)	

Paranoid Personality Disorder

Patients who match this prototype tend to hold grudges, and may dwell on insults or slights for long periods. They are quick to assume that others wish to harm them or take advantage, and tend to perceive malevolent intentions in others' words and actions. They tend to feel misunderstood, mistreated, or victimized. People who match this prototype also tend to express intense and inappropriate anger, out of proportion to the situation at hand; to be critical of others; to be angry or hostile; to get into power struggles; to be oppositional, contrary, or quick to disagree; and to react to criticism with feelings of rage or humiliation. They tend to see certain others as "all bad," and lose the capacity to perceive any positive qualities the person may have. They tend to blame others for own failures or shortcomings, and to believe their problems are caused by external factors. They are likely to see their own unacceptable feelings or impulses in other people instead of in themselves. Individuals who match this prototype may also become

irrational when strong emotions are stirred up. They may "catastrophize," seeing problems as disastrous, unsolvable, etc. They tend to be self-righteous or moralistic, and often elicit dislike or animosity in others.

Borderline (Emotionally Dysregulated) Personality Disorder

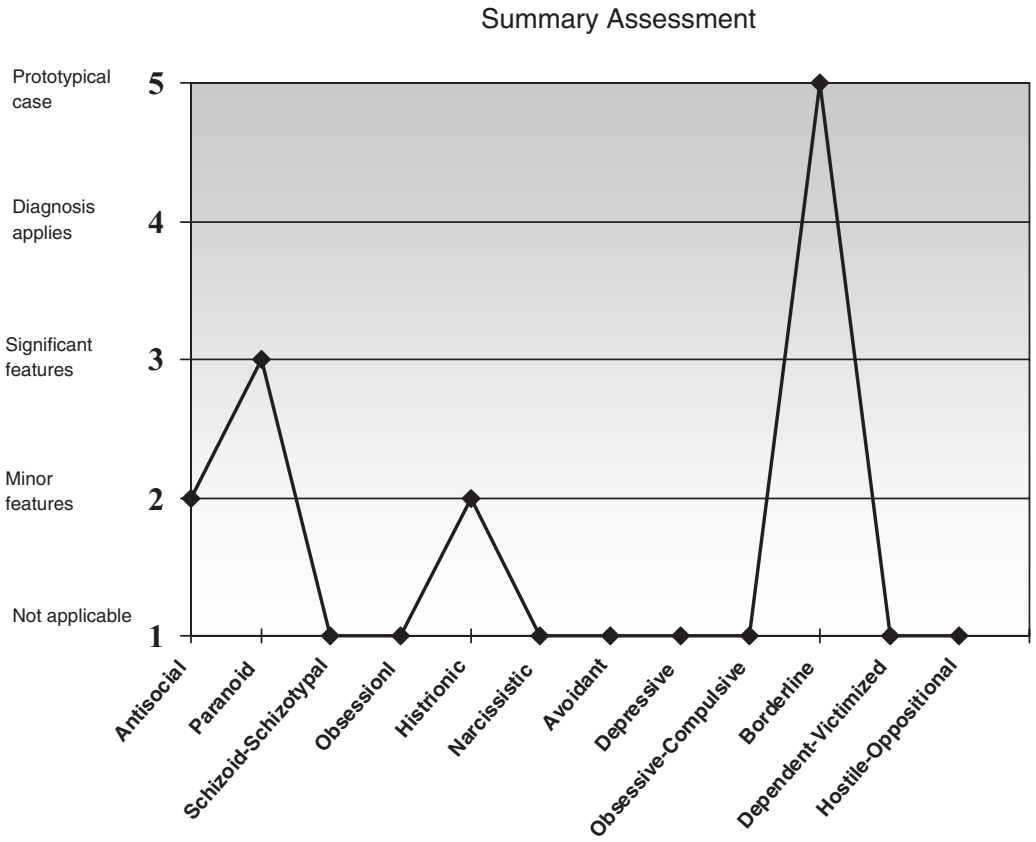
Patients who match this prototype struggle with emotions that spiral out of control, leading to extremes of anxiety, sadness, rage, etc. They are unable to soothe or comfort themselves when distressed, and may require involvement of another person to help regulate their emotions. They struggle with genuine wishes to kill themselves; tend to make repeated suicidal threats or gestures, either as a "cry for help" or as an effort to manipulate others; and tend to engage in self-mutilating behavior (e.g., self-cutting, self-burning, etc.). Individuals who match this prototype tend to feel unhappy, depressed, or despondent; to feel life has no meaning; to be preoccupied with death and dying; to feel empty; and to find little or no pleasure, satisfaction, or enjoyment in life's activities. They are likely to "catastrophize," seeing problems as disastrous or unsolvable. They tend to become irrational when strong emotions are stirred up, and may show a noticeable decline from their customary level of functioning. Their emotions tend to change rapidly and unpredictably. They tend to be angry or hostile (whether consciously or unconsciously), and to feel misunderstood, mistreated, or victimized. Patients who match this prototype tend to feel like an outcast or outsider; to feel inadequate, inferior, or a failure; and to be overly needy or dependent. They may repeatedly re-experience or re-live a past traumatic event (e.g., having intrusive memories or recurring dreams of the event, or becoming startled or terrified by present events that resemble or symbolize the past event).

Obsessional Personality Disorder

Patients who match this prototype are excessively devoted to work and productivity, to the detriment of leisure and relationships. They tend to see themselves as logical and rational, uninfluenced by emotion; prefer to operate as if emotions were irrelevant or inconsequential; tend to think in abstract and intellectualized terms, even in matters of personal import; and appear to have a limited or constricted range of emotions. They tend to be inhibited or constricted; to have difficulty allowing themselves to acknowledge or express wishes and impulses; to have difficulty allowing themselves to experience strong pleasurable emotions (e.g., excitement, joy, pride); and to have difficulty acknowledging or expressing anger. They tend to deny or disavow their own need for caring, comfort, closeness, etc., or to consider such needs unacceptable. Additionally, they tend to be controlling; competitive with others (whether consciously or unconsciously); critical of others; conflicted about authority (e.g., they may feel they must submit, rebel against, win over, defeat, etc.); prone to get into power struggles; and self-righteous or moralistic. They are also self-critical, tending to set unrealistically high standards for themselves, showing little tolerance for their own human defects, and expecting themselves to be "perfect." They may adhere rigidly to daily routines and become anxious or uncomfortable when they are altered.

(Prototype descriptions for additional disorders have been omitted.)

The results of the assessment can be presented graphically, as with this hypothetical patient with Borderline Personality Disorder with Paranoid features.



Appendix B: DSM-IV Prototype Matching system

Background This diagnostic system applies a prototype matching approach to the DSM-IV Axis II disorders. This system allows you to diagnose personality pathology on a continuum, from less to more severe (not just present/absent). With this system you do not count diagnostic criteria. Rather, you simply rate the overall similarity or resemblance between your patient and the prototype, which describes a personality disorder in its "purest" form.

Instructions Read the statements that describe each prototype and form an *overall impression* of the disorder. When you have a good sense of the kind of person being described, rate the extent to which your patient matches or resembles the prototype. Do not try to count symptoms, or worry about whether any individual statement applies. Instead, just consider the *overall* similarity between your patient and the prototype.

For each diagnostic category, rate the patient's personality using the 5-point rating scale shown below. Rate each category independently of the others. Note that in terms of a categorical diagnosis, a rating of 4 or higher means the patient *has the disorder*. A rating of 3 means the patient does not reach threshold for the diagnosis, but has significant traits or *features* of the disorder.

5	very good match (patient ***exemplifies*** this disorder; prototypical case)	**Diagnosis**
4	good match (patient ***has*** this disorder; diagnosis applies)	
3	moderate match (patient has ***significant features*** of this disorder)	**Features**
2	slight match (patient has minor features of this disorder)	
1	no match (description does not apply)	

Paranoid Personality Disorder

Patients who match this prototype tend to suspect, without sufficient basis, that others are exploiting, harming or deceiving them. They are preoccupied with unjustified doubts about the loyalty or trustworthiness of friends or associates. They are reluctant to confide in others because of unwarranted fear that the information will be used maliciously against them. They tend to read hidden demeaning or threatening meanings into benign remarks or events. They often persistently bear grudges, i.e., are unforgiving of insults, injuries, or slights. They perceive attacks on their character or reputation that are not apparent to others and are quick to react angrily or to counterattack. They often have recurrent suspicions, without justification, regarding the fidelity of a spouse or sexual partner.

Borderline Personality Disorder

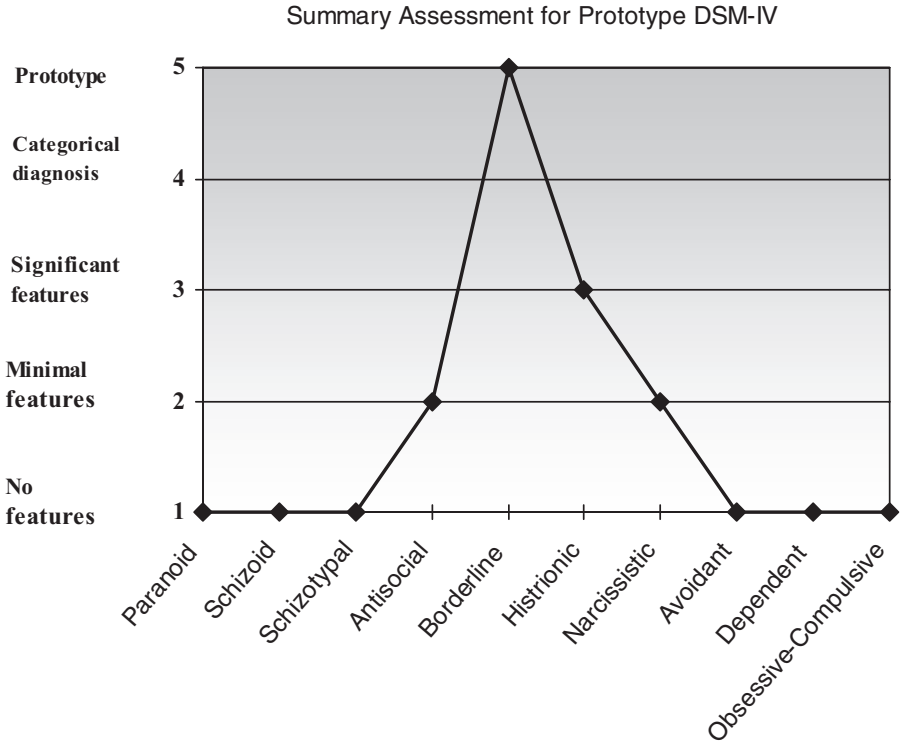
Patients who match this prototype make frantic efforts to avoid real or imagined abandonment. They tend to have a pattern of unstable and intense interpersonal relationships characterized by alternating between extremes of idealization and devaluation. They often have an identity disturbance as shown by markedly and persistently unstable self-image or sense of self. They tend to show impulsivity in at least two areas that are potentially self-damaging (e.g., spending, sex, substance abuse, reckless driving, binge eating). Recurrent suicidal behavior, gestures, or threats, or self-mutilating behavior are common. They tend to show affective instability due to a marked reactivity of mood (e.g., intense episodic dysphoria, irritability, or anxiety usually lasting a few hours and only rarely more than a few days). There often are chronic feelings of emptiness. They tend to show inappropriate, intense anger or difficulty controlling anger (e.g., frequent displays of temper, constant anger, recurrent physical fights). Transient, stress-related paranoid ideation or severe dissociative symptoms are often present.

Obsessive-Compulsive Personality Disorder

Patients who match this prototype are preoccupied with details, rules, lists, order, organization, or schedules to the extent that the major point of the activity is lost. They often show perfectionism that interferes with task completion (e.g., is unable to complete a project because his or her own overly strict standards are not met). They tend to be excessively devoted to work and productivity to the exclusion of leisure activities and friendships (not accounted for by obvious economic necessity). They are often overconscientious, scrupulous, and inflexible about matters of morality, ethics, or values (not accounted for by cultural or religious identification). They often are unable to discard worn out or worthless objects even when they have no sentimental value. They tend to be reluctant to delegate tasks or to work with others unless they submit to exactly their way of doing things. They often adopt a miserly spending style toward both self and others; money is viewed as something to be hoarded for future catastrophes. They tend to shows rigidity and stubbornness.

(Prototype descriptions for additional disorders have been omitted.)

Using this system the assessment can be presented graphically as with this hypothetical patient with Borderline Personality Disorder.



Appendix C: DSM-IV Criteria Counting

Background Since the full range of personality disorders was first described according to specified diagnostic criteria in DSM-III, clinicians and researchers have recognized that the abnormal personality characteristics represented by the criteria are distributed on a continuum in patient and nonpatient populations. The number of criteria needed to exceed a diagnostic threshold for a given disorder is somewhat arbitrary. Subthreshold pathological personality traits and behaviors can be clinically significant. And, it is generally believed that the more characteristics of a disorder that a person has, the more serious is the condition and the more impairment will result from it.

A simple modification of the current DSM-IV categorical system for diagnosing personality disorders is to transform the existing categories into dimensions, based on a count of the number of criteria met for each disorder. Dimensions have generally been found to be more reliably diagnosed than corresponding categories and are expected to have greater validity. Dimensional representations can be simply the number of criteria that are met or summary terms can be attached to the specific numbers of criteria met, in order to increase clinical utility. The terms used here are as follows: Absent = 0; Traits = 1, 2, or 3 (depending on whether the diagnostic threshold for the disorder is 4 or 5 criteria); Subthreshold = 3 or 4; Disorder (threshold) = 4 or 5; Pervasive = 5, 6, 7, or 8; and Prototypic = 7, 8, or 9 (depending on the total number of criteria for a disorder). An accurate assessment of dimensional representations requires a

thorough knowledge of a patient's personality functioning, which, in the absence of a semistructured diagnostic assessment of personality disorders, may require multiple clinical contacts with a patient over time.

Instructions For each personality disorder criteria set, check the diagnostic criteria that are met and enter the total number in the box provided. Traits and behaviors represented by criteria must begin by early adulthood, reflect a pattern that is inflexible and pervasive across a broad range of personal and social contexts, and cause clinically significant distress or impairment in functioning.

Paranoid Personality Disorder

☐ suspects, without sufficient basis, that others are exploiting, harming or deceiving him or her.

☐ Is preoccupied with unjustified doubts about the loyalty or trustworthiness of friends or associates.

☐ Is reluctant to confide in others because of unwarranted fear that the information will be used maliciously against him or her.

☐ reads hidden demeaning or threatening meanings into benign remarks or events

☐ persistently bears grudges, i.e., is unforgiving of insults, injuries, or slights

☐ perceives attacks on his or her character or reputation that are not apparent to others and is quick to react angrily or to counterattack

☐ has recurrent suspicions, without justification, regarding fidelity of spouse or sexual partner

___ Number of criteria met

Borderline Personality Disorder

☐ frantic efforts to avoid real or imagined abandonment

☐ a pattern of unstable and intense interpersonal relationships characterized by alternating between extremes of idealization and devaluation

☐ identity disturbance: markedly and persistently unstable self-image or sense of self

☐ impulsivity in at least two areas that are potentially self-damaging (e.g., spending, sex, substance abuse, reckless driving, binge eating).

☐ recurrent suicidal behavior, gestures, or threats, or self-mutilating behavior

☐ affective instability due to a marked reactivity of mood (e.g., intense episodic dysphoria, irritability, or anxiety usually lasting a few hours and only rarely more than a few days)

☐ chronic feelings of emptiness

☐ inappropriate, intense anger or difficulty controlling anger (e.g., frequent displays of temper, constant anger, recurrent physical fights)

☐ transient, stress-related paranoid ideation or severe dissociative symptoms

___ Number of criteria met

Obsessive-Compulsive Personality Disorder

- ☐ is preoccupied with details, rules, lists, order, organization, or schedules to the extent that the major point of the activity is lost
- ☐ shows perfectionism that interferes with task completion (e.g., is unable to complete a project because his or her own overly strict standards are not met)
- ☐ is excessively devoted to work and productivity to the exclusion of leisure activities and friendships (not accounted for by obvious
- ☐ is overconscientious, scrupulous, and inflexible about matters of morality, ethics, or values (not accounted for by cultural or religious identification)
- ☐ is unable to discard worn out or worthless objects even when they have no sentimental value
- ☐ is reluctant to delegate tasks or to work with others unless they submit to exactly his or her way of doing things
- ☐ adopts a miserly spending style toward both self and others; money is viewed as something to be hoarded for future catastrophes
- ☐ shows rigidity and stubbornness

___ Number of criteria met

(checklists for additional disorders omitted)

Using this system the results of an evaluation can be summarized in a table as shown below for a hypothetical patient with Borderline Personality Disorder

Summary Terms and Number of Criteria that are Met

Disorder	Absent	Traits	Subthreshold	Disorder (Threshold)	Pervasive	Prototypic
Paranoid	(0)	1 or 2	3	4	5 or 6	7
Schizoid	(0)	1 or 2	3	4	5 or 6	7
Schizotypal	(0)	1, 2 or 3	4	5	6, 7 or 8	9
Antisocial (adult criteria)	0	(1)	2	3	4, 5 or 6	7
Borderline	0	1, 2 or 3	4	(5)	6, 7 or 8	9
Histrionic	(0)	1, 2 or 3	4	5	6 or 7	8
Narcissistic	(0)	1, 2 or 3	4	5	6, 7 or 8	9
Avoidant	(0)	1 or 2	3	4	5 or 6	7
Dependent	0	1, 2 or (3)	4	5	6 or 7	8
Obsessive-Compulsive	0	1 or (2)	3	4	5, 6 or 7	8

Appendix D: Five Factor Model

Background The Five Factor Model of personality is based on several decades of research and consists of five broad domains of personality functioning: neuroticism, extraversion, openness to experience, agreeableness and conscientiousness. Each of these five broad domains is differentiated further into six more specific facets or components. For example, the domain of neuroticism is divided into the facets of anxiousness, anger-hostility, depressiveness, self-consciousness, impulsivity, and vulnerability. Therefore persons can be described with respect to each of the five broad domains and more specifically with respect to the individual facets within each domain.

The Five Factor Model was developed with the intention of providing a reasonably comprehensive description of both the adaptive and maladaptive personality traits that most persons find important in describing themselves and other persons. A principle of this dimensional model of personality functioning is that both poles of each of the 30 facets have the potential for both adaptive and maladaptive consequences (although the domains and facets vary with respect to the extent to which they are fundamentally or typically adaptive or maladaptive). For example, for the facet of modesty (within the domain of agreeableness), it is generally adaptive to be modest but maladaptive to be excessively self-effacing or self-denigrating; it is adaptive to be confident but generally maladaptive to be boastful, conceited, or arrogant.

Instructions Describe the patient on each of the 30 facets of the Five-Factor Model on a scale of from 1 to 7 (? if there is inadequate information to make a rating). In cases where there is contradictory information or the person fluctuates (e.g., at times high on trust, at other times low), indicate what is the primary or predominate direction of the trait or score as neither high nor low.

The scale ratings are:

? = Insufficient information to estimate
7 = Problematic very high on the trait
6 = Problematic high on the trait (clear presence of clinically significant impairments)
5 = High on the trait (higher than the average, typical person; may or may not have minor impairments)
4 = Neither high nor low on the trait
3 = Low on the trait (lower than the average, typical person; may or may not have minor impairments)
2 = Problematic low on the trait (clear presence of clinically significant impairments)
1 = Problematic very low on the trait

Rate each of the facets on the following five pages.

Neuroticism

?	Anxiousness
7	Extremely nervous, anxious, tense, and/or jittery, very apprehensive; worrisome; inhibited and uncertain
6	
5	Frequently concerned, cautious and wary
4	Neither high nor low
3	Calm, relaxed; rarely nervous, anxious, tense, or worried
2	Lacks appropriate feelings of anxiousness or apprehension; fails to anticipate or appreciate normal or obvious dangers, risks, threats, or consequences
1	

?	Anger-hostility
7	Intense rage, fury; hypersensitive, touchy; provokes fights & conflicts
6	
5	Sometimes argumentative, bitter, or resentful
4	Neither high nor low
3	Even-tempered, good-natured, easy to get along with
2	Suppresses all feelings of angry hostility; does not even become angry when confronted with substantial provocation, exploitation, abuse, and/or victimization
1	

?	Depressiveness
7	Depressed, gloomy, hopeless, pessimistic; feels worthless, helpless, guilty, self-blaming; may at times be suicidal
6	
5	Negativistic, discouraging, worried;
4	Neither high nor low
3	Not easily discouraged or dejected; rebounds quickly
2	Fails to appreciate actual costs or consequences of losses; unrealistic, exaggerated expectations of recovery
1	

?	Self-Consciousness
7	Often feels mortified, humiliated, embarrassed, ashamed, or disgraced
6	
5	Self-aware and concerned about reactions of others, at times chagrined or embarrassed
4	Neither high nor low
3	Very self-confident, relaxed, smooth, & poised; often charming, unfazed, and at ease with others
2	Can appear glib, superficial; commits social blunders, insults, or indiscretions; lacks feelings of shame or embarrassment even for egregious acts
1	

?	Impulsivity
7	Excessive impulse dyscontrol; excessive eating, drinking, buying, drug usage; often gives into temptations; low tolerance for frustration
6	
5	Gives into temptations; enjoys a variety of pleasurable, spontaneous activities
4	Neither high nor low
3	Resists temptations; restrained; not easily frustrated
2	
1	Dull, lacks spontaneity; excessively restrained or restricted in activities

?	Vulnerability
7	Feelings of dismay, panic, & helplessness; overwhelmed by minor stress;
6	
5	Apprehensive, concerned; perceives many dangers & risks
4	Neither high nor low
3	Feels capable & resilient to stress; calm, persevering

2	
1	Feelings of fearlessness, invincibility, or invulnerability

(Additional factors and facets have been omitted.)

Using this system the results of an evaluation could be summarized as shown below for a hypothetical patient with Borderline Personality Disorder.

Five Factor Model Summary Form

	?	Problematic Very High	Problematic High	High	Neither High nor Low	Low	Problematic Low	Problematic Very Low
Neuroticism (Optional average facet rating for domain =)								
Anxiousness	?	7	(6)	5	4	3	2	1
Anger-hostility	?	7	(6)	5	4	3	2	1
Depressiveness	?	7	(6)	5	4	3	2	1
Self-Consciousness	?	(7)	6	5	4	3	2	1
Impulsivity	?	7	(6)	5	4	3	2	1
Vulnerability	?	(7)	6	(5)	4	3	2	1
Extroversion (Optional average facet rating for domain =)								
Warmth	?	(7)	6	5	4	3	2	1
Gregariousness	?	7	6	(5)	4	3	2	1
Assertiveness	?	7	6	5	4	3	(2)	1
Activity	(?)	7	6	5	4	3	2	1
Excitement-Seeking	(?)	7	6	5	4	3	2	1
Positive Emotions	?	7	6	(5)	4	3	2	1
Openess to Experience (Optional average facet rating for domain =)								
Fantasy	?	7	(6)	5	4	3	2	1
Aesthetics	?	7	6	(5)	4	3	2	1
Feelings	?	7	(6)	5	4	3	2	1
Actions	?	7	6	(5)	4	3	2	1
Ideas	?	7	6	(5)	4	3	2	1
Values	?	7	6	5	4	3	(2)	1
Agreeableness (Optional average facet rating for domain =)								
Trust	(?)	7	6	5	4	3	2	1
Straightforwardness	(?)	7	6	5	4	3	2	1
Altruism	(?)	7	6	5	4	3	2	1
Compliance	?	7	(6)	5	4	3	2	1
Modesty	(?)	7	6	5	4	3	2	1

Tender-Mindedness	?	7	6	5	4	3	2	1
Conscientiousness (Optional average facet rating for domain =)								
Competence	?	7	6	5	(4)	3	2	1
Order	?	7	(6)	5	4	3	2	1
Dutifulness	?	7	6	(5)	4	3	2	1
Achievement Striving	?	7	6	(5)	4	3	2	1
Self-Discipline	(?)	7	6	5	4	3	2	1
Deliberation	?	7	6	5	(4)	3	2	1

Appendix E: Cloninger's Psychobiological Model

Background This model conceptualizes personality as a complex adaptive system involving a bi-directional interaction between heritable neurobiological dispositions (temperament) and social learning and cultural factors (character). The model describes six factors: three temperament traits (Harm Avoidance, Novelty Seeking and Reward Dependence) and three character traits, reflecting developing concepts of self and the external world (Self Directedness, Cooperativeness, and Self Transcendence).

Low scores on character traits represent the core feature of personality disorder and are decisive for the diagnosis. Once the diagnosis of personality disorder is established based on character (the first step), temperament is used for differential diagnosis (the second step). Extreme temperament traits of Harm Avoidance, Novelty Seeking and Reward Dependence, independently or as multifactorial combinations, create specific clinical symptoms of personality disorder.

The distinction between "biological" temperament traits and "conceptual" character traits is based on the present understanding of fundamental psychological and neurophysiological mechanisms underlying personality. Clinically, it is hoped that understanding these mechanisms will provide efficient guidelines for pharmacotherapy and psychotherapy of personality disorder.

Instructions

STEP 1: Overall Personality Disorder Assessment

Personality Disorder: An enduring pattern of inflexible responses to experience, with maladaptive behavior, social relations, feelings, and thoughts occurring since adolescence, as manifest by one or more of the character traits listed below.
Rate each trait as YES (present and causes significant problems) or NO (no evidence of trait or not problematic).

Low Self-directedness

YES NO **irresponsible:** blames most personal problems on other people or circumstances

YES NO **purposeless:** lacking in goals for life, or feels life has no meaning

YES NO **helpless:** feels inept, or lacks resourcefulness

YES NO **poor self acceptance:** feels shameful or unlovable when faults are revealed, or shows excessive vanity when successful

YES NO **poor impulse control:** lacks discipline or ability to delay gratification of bodily pleasures

Low Cooperativeness

YES NO **intolerant:** prejudiced or unable to get along with people with opposing viewpoints and backgrounds

YES NO **narcissistic:** lacks empathy, or unable to recognize and identify with the feelings and needs of others

YES NO **hostile:** argumentative, or has difficulty working in a helpful, friendly manner as part of a group

YES NO **revengeful:** prone to retaliate and get even, or unable to forgive others when feels wronged

YES NO **opportunistic:** lacks stable ethical principles, or takes advantage of others whenever possible

Low Self-Transcendence

YES NO **unstable:** no stable sense of self, or frequent marked changes in personal goals and values

YES NO **erratic world-view**: environment or world is regarded as chaotic and unpredictable, or inability to let go of struggles resisting what cannot be changed in life

YES NO **magical thinking:** perceptions are markedly distorted by wishes, or complex relations are distorted to simple dichotomies like good/bad, all/none

YES NO **Chronic feelings of emptiness of self:** or separateness from world

YES NO **aesthetic insensitivity:** no sense of beauty or awe in experiencing natural wonders or art

Rating of Severity of Personality Disorder

		Number of above traits YES
☐	Absent	0
☐	Questionable	1 or 2
☐	Mild	3 or 4
☐	Moderate	5 or 6
☐	Severe	7 or more

STEP 2. Assessment of Three Bipolar Temperament Traits

Rate each temperament item as H (high), N (neither high nor low), L (low) or ? (inadequate information).

NOVELTY SEEKING: exhilaration or excitement to novel stimuli or cues for potential rewards

H N L ? **Easily bored:** Bored without frequent variety and change, or craves stimulation and excitement (high) **VS** (low) tolerant of monotony, prefers routine activities

H N L ? **Impulsive:** Makes quick decisions with incomplete information, or frequently plays hunches on impulse (high) **VS** likes to study all details before most decisions (low)

H N L ? **Quick-tempered:** Quickly loses temper, or frequently gets angry or frequently gets into fights (high) **VS** slow to anger, and rarely fights (low)

H N L ? **Extravagant:** Spends money beyond capacity, or makes commitments that is unable to keep (high) **VS** frugal in spending money and reserved in making commitments (low)

H N L ? **Disorderly:** Dislikes rules and regulations, or actively avoids routine structured situations (high) **VS** likes rules and structure (low).

Overall clinical impression : ☐ High (DSM cluster B) ☐ Low ☐ Neither

HARM AVOIDANCE: marked worry or anxiety in response to signals of punishment

H N L ? **Pessimistic:** Frequently anticipated what might go wring, or worries excessively for little or no reason (high) **VS** optimistic that things will go well and seldom worries (low)

H N L ? **Fearful:** Goes out of way to avoid situations that involve risk, pain, or danger (high) **VS** confident in taking risks, facing pain and danger (low).

H N L ? **Shy:** Dislikes meeting strangers, or feels anxious in social settings with many people (high) ***VS*** outgoing with strangers, and bold or uninhibited in social settings (low).

H N L ? **Anxious:** Noticeably tense or inhibited most of time (high) **VS** calm and confident even under stress (low).

H N L ? **Easily fatigued:** Easily tired so that extra rest is needed on most days, or recuperates slowly from stress or exertion (high) **VS** full of energy and shows stamina and resilience (low)

Overall clinical impression: ☐ High (DSM cluster C) ☐ Low ☐ Neither

(Ratings for additional temperaments have been omitted.)

Using this system it is possible to assign a specific subtype of personality disorder as determined by the pattern of temperament traits. This is shown below for a hypothetical patient with Borderline Personality Disorder.

Specific Subtype Diagnosis	Combinations of Temperament Traits		
	Novelty Seeking	Harm Avoidance	Reward Dependence
☐ Passive-Aggressive	H	H	H
☒ Borderline	(H)	(H)	(L)
☐ Histrionic	H	L	H
☐ Antisocial	H	L	L
☐ Avoidant	L	H	L
☐ Dependent	L	H	H
☐ Narcissistic	L	L	H
☐ Schizoid	L	L	L
☐ NO SPECIFIC SUBTYPE (mixed or average)			