
COMMENTARIES

Dimensional, Categorical, or Hybrid Analyses of Personality: A Response to Widiger's Proposal

Lorna Smith Benjamin
University of Utah

Widiger offers a clear review and a compelling critique of the shortcomings of the definitions of personality disorder appearing in the third revised edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R)*; American Psychiatric Association, 1987). An advisor to *DSM-III-R* and director of research for *DSM-IV*, Widiger is extremely well informed about the process by which the current manuals have been constructed. His objections are based on firsthand knowledge about committee process and on comprehensive familiarity with the literature as well as data from the field studies. He writes:

The *DSM-III-R* categorical system also results in a variety of confusing multiple diagnoses (Cloninger, 1989; Widiger & Rogers, 1989). The average number of personality disorder diagnoses per patient tends to be around four (e.g., Skodol, Rosnick, Kellman, Oldham, & Hyler, 1991), and yet most clinical charts provide just one personality disorder diagnosis (Morey & Ochoa, 1989). One reason that clinicians fail to provide all the diagnoses that apply is that it is confusing and not particularly meaningful to indicate that the patient is suffering from four, five, or even six distinct and co-morbid personality disorders.

Widiger notes that he and others have suggested that the "frequency of multiple diagnoses supports the argument for a dimensional—rather than a categorical—system of personality diagnosis" (Frances, Clarkin, Gilmore, Hurt, & Brown, 1984, p. 1083). He concludes:

It is anticipated that, with additional experience and training (Costa & Widiger, in press), clinicians will find that it is more helpful to conceptualize treatment as involving an effort to decrease the extent to which a person is impulsive, self-conscious, mistrusting, unassertive, overly compliant, or closed to emotions within particular situations in which such tendencies are maladaptive, than to cure an avoidant, borderline, or histrionic personality disorder.

Widiger develops good arguments to suggest that the *DSM* categories should be replaced by such dimen-

sional descriptions, especially the NEO five-factor model (Costa & McCrae, 1988). He addresses possible reasons that a dimensional alternative to the *DSM* has not been adopted by clinicians. These include unfamiliarity, complexity, and lack of clear links to clinical decision-making. Widiger answers these objections by suggesting, in effect, that the familiar may not be the most effective, that reality may require complex description, and that quantitative dimensional scores could inform clinicians more precisely than do the present unreliable categories. In support of his proposal that the NEO five-factor model (perhaps combined with the Psychiatric Epidemiology Research Interview) serve as a dimensional alternative to the *DSM*, Widiger notes that the five NEO factors have been replicated within a wide variety of samples, languages, and perspectives (ratings by self and other).

As I began to reread Widiger's article preparatory to writing this commentary, the phone rang. An imperious and unfamiliar voice commanded me to insist that my patient Maxine discuss some very recent memories at her therapy session the next day. The unknown person intoned that this is very important and I must be sure that Maxine doesn't get away with denial this time. Maxine has shown several signs of posttraumatic stress disorder including self-mutilations, suicide attempts, depression, difficulty in functioning in work and relationship, and terror over threats of separation. Maxine, who later could not recall having made this phone call, is very reluctant to consider the idea that she is the victim of sexual abuse, although the objective evidence, some of which is offered by her husband, is highly suggestive.

After I hung up the phone, I reflected briefly on how to describe Maxine with the five-factor NEO.

1. She has neurotic features (impulsive, hostile, depressed, anxious, vulnerable).
2. She shows extroversion. She can be very warm, assertive, and active, and she often seeks excitement.
3. She is open to new experiences. In fact, she instructs me often in alternative (intuitive) ways of knowing.

4. At times she is very agreeable. She is gentle-hearted, charitable, and sympathetic. Yet, she also can suddenly swing into states in which she is ruthless, uncharitable, cruel, and cold.

5. Last, Maxine can show strong self-discipline. There have been times when she has maintained more than one job at once. But, then, she can shift into periods during which she does little but sleep, cry, fight, and think about harming herself. At these times, she seems to be quite out of control.

The preceding description of Maxine in terms of the five-factor NEO captures some of her behaviors. However, it misses some features that concern me as a clinician. For example, Maxine often feels the need to make such phone calls or to ask for extra appointments. On the other hand, she is ever ready to announce that therapy is harming her and that she is terminating forthwith. Her proclivity for making razor cuts on herself and her fantasies about overdosing are remarkable and of great concern. The five-factor NEO does not convey the intensity of Maxine's turmoil, the threat of suicide, or the ritualistic-like painful carving on her own body. According to the *DSM-III-R*, Maxine meets the criteria for borderline personality disorder (BPD), major depressive disorder and perhaps multiple personality disorder (Axis I). The *BPD* label highlights what affects our relationship most, and I am not at all troubled by the fact that the criteria are, as Widiger notes, mostly the result of "expert consensus." As an interpersonal theorist, I believe patient problems show up in the therapy relationship. With Maxine assigned to the category BPD, I have many useful associations. The label informs my decision about how to respond to such a phone call and guides my overall approach. This ability to draw practical meaning from the *DSM* categories does not come from the *DSM* itself. The reason is that the writers of *DSM-III* and *DSM-III-R* explicitly avoided theory. My inferences about pathogenesis and treatment for the *DSM* category BPD (and others) are based on my own analysis, clinical experience, and reading of the literature. Presumably, comparable associations could be developed to a nomenclature based on the five-factor NEO. It would not be accurate to say that the *DSM* informs the clinician about pathogenesis and treatment, whereas the five-factor NEO could not. On the other hand, the categorical *DSM* and the dimensional NEO models do have different goals and long-range implications. The long-range goal of the *DSM* is to define categories that specifically address pathogenesis and treatment. By contrast, the empirically based descriptions provided by the five-factor NEO dimensional analysis of personality do not seek to define specific clusters of symptoms that can be viewed as disorders. The dimensional modelers shun the medical

model that seeks to delineate disorders that have shared etiologies, similar prognoses, and predictable responses to given treatment interventions. Widiger argues forcefully against *DSM* attempts to define categories, or psychological "entities" like BPD. Instead, he marks traits that comprise specific (presumably behavioral) treatment targets. Widiger proposes that clinicians attend to traits like assertiveness, neuroticism, antagonism, and so on. Such a system would not invite the clinician to consider underlying motivation, personal history, or other such ideas usually associated with the notion of BPD as a category.

Technically speaking, the five-factor NEO is a data-based descriptive system that invokes intervening variables rather than hypothetical constructs. Morey (1991) presented a clear review of the differences between hypothetical constructs and intervening variables. He noted that the highly operationalized *DSM* categories presently represent intervening variables but presume to describe—and are often treated as if they describe—hypothetical constructs. The reason for the "slippage" probably is that the *DSM* was operationalized tightly to improve the reliability of the descriptions, whereas clinicians want to treat the categories as constructs. The medical model has its power through its ability to mark hypothetical constructs. For example, the construct "tuberculosis" means a great deal more to the clinician that does a "profile" of measurements of fever, joint pain, energy level, and symptoms like coughing, expectorating, and so on. The *DSM-III* authors backed away from theory and hypothetical constructs and embraced pure description because they recognized that high reliability is essential to a useful nomenclature. The (psychoanalytic) theory that drove the definitions in *DSM-II* did not yield reliable judgments. In *DSM-III*, the emphasis on operationalization and pure description was to improve reliability. The strategy was to solve the reliability problem first and later build clinical validity. After syndromes could be described reliably as intervening variables, then additional research might convert them into hypothetical constructs having surplus meaning. By using a categorical model, the *DSM* offers the potential to define personality disorders as hypothetical constructs that can address an infinite number of questions, including pathogenesis and treatment.

As Widiger notes, *DSM-III-R* has not been successful in reliably defining categories of personality disorder. The "entities" cannot be identified. The idea of finding surplus meanings to "nonexistent" categories seems absurd. In a forthcoming book, however, I attempt to translate the specific symptom lists for the *DSM* personality disorders to interpersonal terms that draw sharper boundaries among the categories and that have testable and refutable theoretical implications about pathogenesis and treatment. I have tried to trans-

form the implicit clinical wisdom inherent in the *DSM* into reliable categories that delineate hypothetical constructs. My interpersonal translations of the *DSM* personality disorders seek to improve their reliability and to enhance their construct validity. The method was to apply a dimensional model—Structural Analysis of Social Behavior (Benjamin, 1974, 1984, 1993)—to the *DSM* categories. The result is a hybrid approach. A *dimensional* model is used to define *categories*.

The success of the approach has not yet been documented in a formal, scientific manner. However, the chair of the DSM-IV Axis II Task Force said that it has made some useful contributions to the forthcoming definitions of personality disorders. Psychiatric residents, psychology graduate students, and practicing clinicians attending workshops or reading the manuscript have reported that it is very helpful in making differential diagnoses. Overlap is reduced, and reliability is improved. The approach contributes to their understanding of why people like Maxine react in such vexing ways. Last, it has helped clinicians choose treatment approaches. The interpersonal explication of the *DSM* categories improves their reliability and construct validity. Even if formal tests eventually belie my present claims of increased reliability and clinical validity for the *DSM* categories, the *goals* of the *DSM* categorical approach will remain so important that they will demand continued attention.

Of course, I believe that the *DSM* is further along than does Widiger. I think that my dimensional analysis of the *DSM* categories makes them more reliable and moves them in the direction of hypothetical constructs. The remainder of this commentary is devoted to the technical considerations of dimensional versus the hybrid models. This technical analysis is divided into two parts: (a) the meaning of the concept of dimension and (b) the manner in which dimensions are used to define personality. Widiger advocates a “profile” approach that defines individuals directly in terms of dimensions. I recommend a hybrid approach that uses dimensions to define categories within which individuals can be placed.

These two points may seem at first to be “academic” and therefore not of much practical importance. To the contrary, the following discussion establishes that Widiger’s proposal will result in a dimensional analysis of individuals, whereas the hybrid approach can result in a dimensional analysis of categories. The history of science shows that the most helpful advances have come with the discovery of hypothetical constructs—of principles or theories that account for groupings of individual observations.

1. Widiger uses the word *dimensional* as if it means *continuous*. For example, he writes:

Widiger (1992) summarized the results of 16 personality disorder studies in which the data were analyzed both categorically (i.e., with *DSM-III* or *DSM-III-R* diagnoses) and dimensionally (e.g., using the total number of criteria). In all but one instance, the reliability and/or validity data were better with the dimensional analyses.

That argument on behalf of dimensions assumes that the *DSM* criteria measure dimensions represented by the respective categories. Each person is assessed in terms of the number of items met for the respective categories of personality. An individual conforming to six of the BPD items would be more “borderline” than a person who met only five. The person with six items would have the higher score on the BPD “dimension.” To avoid the arbitrary cutoff point of five items recommended by *DSM-III-R*, Widiger recommends a “dimensional” approach that uses number of items as a continuous measure.

In physics and mathematics, *dimension* ordinarily means more than “continuous.” The concept of independence, or orthogonality, is added. The *American Heritage Electronic Dictionary* (1990) offers these explanations for the word *dimension*:

1. A measure of the spatial extent, especially width, height, or length.
2. Often dimensions. Extent; magnitude; size; scope.
3. a. Any of the least number of independent coordinates required to specify a point in space uniquely.
- b. A physical property, often mass, length, time, or some combination thereof, regarded as a fundamental measure.

If the concept of dimension of personality is to include the feature of independence, then the *DSM* categories cannot be treated as dimensions. Indeed, their non-independence is the very basis of the whole critique of *DSM*. The bothersome overlap problem and the associated problems with reliability are at the core of criticisms of the *DSM*.

On the other hand, Widiger’s proposal on behalf of the five-factor NEO would seem to invoke independent dimensions. However, the five-factor NEO—and, indeed, any data set based on principal-components factor analysis—does not yield orthogonal factors. Principal-components analysis finds factors that will place individuals in a space having as many orthogonal dimensions as there are factors. The N-space of individuals is reduced to an F-space that describes the individuals with a criterion level of accuracy. The factors themselves are not orthogonal.

The distinction can be demonstrated empirically. After principal-components analysis, the correlations among factor scores of individuals will be zero. By contrast, the correlations among the factor loadings are often not at all near zero. Investigators who rely on the

“orthogonality” of principal-components analysis to define independent dimensions will be safe if they confine their interpretation to factor scores of individuals. However, if investigators use factor loadings themselves to define “independent” dimensions, they will not be working with orthogonal sets of variables. Factors loadings alone cannot be viewed as independent dimensions.

The sciences of mathematics and physics use truly independent, orthogonal dimensions to define categories. For example, circles, squares, and triangles are categories defined within the orthogonal dimensional space that is based on length, width, and height (l, w, and h).¹ A theory of geometry is used to define categories within space that has truly orthogonal dimensions. This is a hybrid model that combines dimensional and categorical concepts. Plane geometry offers 100% reliability and clear construct validity. The concepts of “triangle,” “square,” and “sphere” are reliably identifiable and fully operationalized. The emphasis is on categories of shape, not on specifically characterizing each individual shape that might exist in a given sample of objects. Geometricians do not organize their concepts around the need to characterize specific objects in the same way that a schoolteacher might characterize his or her students in terms of their performance on subtests of an IQ test. By defining categories of shape, by invoking hypothetical constructs rather than characterizations of individuals, the science of geometry generates an infinitude of useful concepts at highly abstract as well as at extremely concrete levels.

2. A second technical consideration is the way that dimensions—whatever dimensions are selected—are used to define personality. Widiger in particular and personality trait theorists in general have proposed that “dimensional” models be used to describe individuals in terms of their “profile” on the underlying dimensions. For example, using the *DSM* Axis II categories as “dimensions,” an individual might conform to high numbers of items for borderline, histrionic, and narcissistic personality disorders. That person might fit relatively few items for compulsive and schizoid personality disorders. His or her profile would be high on the first three, low on the other two, and moderate on the rest. Similarly, Widiger recommends that an individual’s personality (or personality disorder) should be described by his or her profile on the five NEO factors.

The meaning of the profiling recommendation can be appreciated by another comparison to mathematics and physics. Circles, triangles, and rectangles could be

“profiled” in terms of their scores on the dimensions l, w, and h. Presumably, l, w, and h would emerge in a factor analysis of measurements taken on differently shaped objects. For practical use, there might also need to be measures of angles connecting the sides of the figures. Perhaps a “dimension” would have to be included that would report the total number of sides of the figure. Maybe an “irregularity rating” should be added to bring the profile description closer to what we see “naturally.” Users of such a “dimensional” profiling method would find it easiest to define regular figures like cubes or spheres. For example, a cube might be defined by equal loadings on the factors for l, w, and h; by a loading on an angular factor suggesting 90° angles; by a moderate number of sides (six); and by very low loading on an “Irregularity” factor. A circle might also be defined by equal loadings on l, w, and h and by very low irregularity loadings. Its angular factor would be very near zero (infinitely small angulation), and the factor representing the number of sides would be maximal (infinite). Some other shapes would be quite difficult to describe in such a dimensional profile.

The measures on the “dimensions” could be continuous and quite exact. They could be highly operationalized by use of questionnaires and computer algorithms, but they would not easily capture the surplus meaning—the construct validity—of the shapes. Such a profiling method for defining shape is unlikely to be widely used. It is needlessly complex and does not have conceptual coherence. Description of personality in terms of profiles on underlying dimensions compares to the “profile method” of defining objects in space. The profile method does relate in some meaningful ways to the categories of interest, but, with its emphasis on assessing individual events rather than classes of events, the approach is more cumbersome, less precise, and less amenable to useful theory than the traditional alternative.

The “circles and squares” of personality disorder were drawn by experts on the *DSM* task forces. They were natural objects recognized on the basis of clinical experience. They await adequate description within orthogonal dimensions and adequate theory to define them as hypothetical constructs within that dimensional space. Daunting though the task may be, it cannot be avoided. I have attempted to draw the *DSM* closer to that goal. My proposed hybrid approach will be reviewed and compared to the personality trait approach in a subsequent target article in this journal. In that issue, Widiger will no doubt offer the reader interesting counterarguments.

Note

Lorna Smith Benjamin, Department of Psychology, 1405 Behavioral Sciences Building, University of Utah, Salt Lake City, UT 84112.

¹The theory of analytic geometry permits these three orthogonal dimensions to be converted for convenience into polar coordinates. Solutions in polar coordinates can always be converted back to the traditional three-dimensional space defined by l, w, and h.

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Variants of Categorical and Dimensional Models

Roger K. Blashfield

*Department of Psychiatry
University of Florida*

There are two types of people in the world: those who divide people into two types and those who don't.

—Robert Benchley

In his target article, Widiger dichotomizes models for the classification of personality disorders into two types: categorical and dimensional. He reviews several reasons why the categorical model has been the dominant of the two models when applied to psychiatric classification. These reasons include (a) familiarity, (b) simplicity, (c) communication, and (d) consistency with clinical decision-making. However, Widiger offers cogent counterarguments to these alleged strengths of the categorical model. He also argues that there is no strong evidence that the personality disorders represent descriptively distinct entities. Widiger concludes that a dimensional approach to the personality disorders using the "five-factor model" should replace the categorical model of the third and revised edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R)*; American Psychiatric Association, 1987).

The categorical versus dimensional approach to psychiatric classification has been a long-standing focus of debate in the literature on psychopathology. Some of the most important clinical theoreticians of the last half of the 20th century have become involved in this debate

(Eysenck, 1961; Guze, 1978; Kendell, 1968; Meehl, 1979). Moreover, discussions of this debate have appeared in many of the recent books on classification (Blashfield, 1984; Kendell, 1975; Millon & Klerman, 1986; Robins & Barrett, 1989). Given the extensive history of the debate, this terse commentary on Widiger's article does not attempt to provide a definitive solution or even to provide a detailed critique of Widiger's position within the context of this large body of literature. Instead, I suggest that the division of classificatory models into two types—categorical and dimensional—is overly simplistic. There are many variations of categorical, dimensional, and hybrid models.

Variants of the Categorical Model

One way that the categorical models might differ is in terms of how many categories of personality disorders there are. Another way in which categorical models might differ concerns the relations that are assumed to occur among the categories.

1. The "11-personality-disorders model" is based on *DSM-III* and *DSM-III-R* and asserts that there are 11 descriptively separable categories of personality disorders. As such, this model could be contrasted to the

