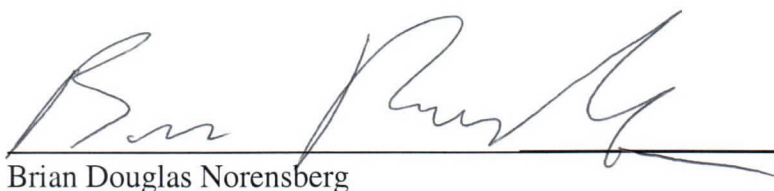
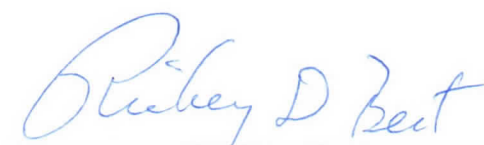


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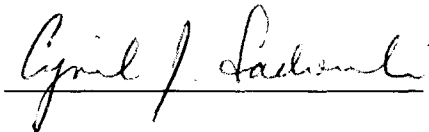

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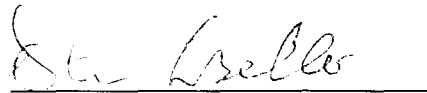
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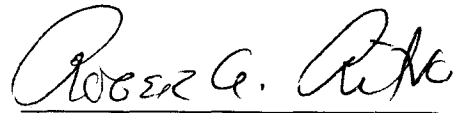
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NEUROTIC STYLES AND THE FIVE FACTOR MODEL
OF PERSONALITY

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A Thesis

Submitted to

The Graduate Faculty of
Auburn University Montgomery

In Partial Fulfillment of the

Degree of

Master of Science

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May 21, 2000

NEUROTIC STYLES AND THE FIVE FACTOR MODEL
OF PERSONALITY

Brian Douglas Norensberg

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Brian Douglas Norensberg, son of Gerald Norensberg and Rosalyn Norensberg, was born July 26, 1974, in New York. He attended the University of Florida in Gainesville, Florida and graduated with a Bachelor of Science degree in Psychology in December, 1996. After receiving his degree, he enrolled as a post-baccalaureate in the clinical psychology graduate program at the University of Florida at Shands hospital in Gainesville, pursuing interests in neuropsychology. While there he enrolled in class, attended meetings, and conducted epilepsy research. Pursuing a master's degree in clinical psychology, he entered the graduate program at Auburn University Montgomery, in the Fall of 1998. While there he interned at an inpatient chemical addictions treatment center for five months and was an Introduction to Psychology instructor for a year and a half.

THESIS ABSTRACT
NEUROTIC STYLES AND THE FIVE FACTOR MODEL
OF PERSONALITY

Brian Douglas Norensberg

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Directed by Peter Zachar

This study investigates the relationship between David Shapiro's (1965) concept of neurotic styles (a categorical model) and the five-factor model of personality (a dimensional model). Although the neurotic styles are often thought of as being discrete categories, Shapiro claims that these categories are organized on a dimension called mode of cognition, with diffuseness at one end and rigidity at the other. Shapiro's description of diffuseness and rigidity parallels certain facet scales that make up the Openness to Experience and Conscientiousness domain scales of the five-factor model. Therefore, a traditional categorical model and the modern dimensional model may be integratable.

To test this possibility, the five-factor model of personality was operationalized by Costa and McCrae's (1992) NEO Personality Inventory (NEO-PI). Shapiro's neurotic styles were operationalized by both Millon's (1997) Clinical Multiaxial-Inventory (MCMI) and a new scale constructed for this study called the Cognitive Diffuseness Questionnaire (CDQ). According to Shapiro's model, those styles thought to be more rigid in tone should positively correlate with the Conscientiousness facets and negatively correlate with the Openness facets. Those styles thought to be more diffuse in tone should positively correlate with the Openness facets and negatively correlate with Conscientiousness facets.

The results provide mixed support for Shapiro's theory in the context of the five-factor model. This study provides almost no support for the existence of a single continuum with diffuseness on one end and rigidity on another. Rather diffuseness and rigidity appear to best be described as two separate continua.

The results indicate that both the impulsive (or antisocial) style and the obsessive-compulsive style are very much what Shapiro describes - especially with respect to the Conscientiousness facets. Both the MCMI and the CDQ capture what Shapiro means by impulsiveness in the context of the five-factor model. With respect to obsessive style, the MCMI compulsive scale captures Shapiro's notion much better than does the CDQ obsessive-compulsive scale.

The results also provide some support for Shapiro's notion of hysteria, as it is measured by the CDQ. With respect to the MCMI histrionic scale, however, Shapiro's model has limited support. Further analyses suggest that the notion of 'histrionic personality' refers to what may be called an emotional extrovert, and is somewhat different from the traditional notion of 'hysterical personality'. The MCMI somataform disorder, which also reflects the traditional notion of hysteria, better supports Shapiro's model than does the MCMI histrionic personality disorder.

This study does not support Shapiro's description of the paranoid style. Shapiro's model holds that the paranoid person is very rigid and, therefore very low on diffuseness. In NEO terms, they should be high on the Conscientiousness facets. As measured by both the MCMI, and the CDQ, greater paranoia is associated with higher levels of both rigidity and diffuseness. Furthermore, paranoia is not associated with greater Conscientiousness. High diffuseness suggests that those with greater levels of paranoia are willing to make cognitive leaps in order to confirm their hunches.

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The author would like to thank Dr. Cryril Sadowski for first introducing me to Shapiro's "Neurotic Styles", which has changed the way I view personality disorders and for his valuable contributions regarding conceptualization of data analysis. Also, I would like to sincerely thank Dr. Steven LoBello for his effort in editing and valuable contributions in locating possible research design problems and especially for his assistance in conceiving the forced choice questionnaire used in the study. Most importantly, I would like to thank Dr. Peter Zachar, for assistance in all phases of this study which included problem formulation, theory formulation, valuable editing (and lots of it), paper organization, detailed data analysis, and his expertise in conceptualizing the results into a worthy discussion. Aside from the writing and analyses, Dr. Zachar also took the time to teach me important aspects of science, scientific work, and academic pursuits, including the important lesson of not trying to confirm your hypothesis, but learning from your results. His special efforts not only made this paper a success but also made my graduate experience a success. Special thanks are also given to my family for their support of my academic pursuits; especially my parents, Gerald Norensberg, D.O., and Rosalyn Norensberg, M.S.W., and my older brother Brett Norensberg.

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Introduction to the Problem

The Diagnostic and Statistical Manual of the American Psychiatric Association (DSM III, 1980; DSM-IV, 1994) is based on a categorical model that classifies various disorders as discrete entities. Because of theoretical and methodological problems with conceptualizing personality as discrete entities, many researchers believe that the categorical model is ineffective with the Axis II personality disorders. For example, there is much overlap among Axis II personality disorders. On average, when individuals are diagnosed with a personality disorder, they are diagnosed with more than one (Costa & Widiger, 1994). Such redundancy suggests that there is overlap between the categories; they are not discrete entities. This problem has led some theorists to suggest that personality can be better conceptualized dimensionally, as a collection of traits that exist on various continua. Personality can be understood as where individuals lie on various continua.

Recently there has been growing support for the five-factor model of personality, a model that conceptualizes personality in terms of the “Big Five” trait dimensions of personality (Costa & Widiger, 1994). The five-factor model is supposedly a universal model of personality and other models of personality can, in theory, be understood within the “Big Five” structure. The “Big Five” traits are Neuroticism, Extraversion, Openness to Experience, Conscientiousness, and Agreeableness. Whether the five-factor model can also be used to understand psychopathology has become an important question.

A growing body of research supports the contention that personality disorders can be viewed as maladaptive variants of everyday personality (Widiger, 1993).

The question is “what happens to the old categories?” For example, David Shapiro (1965) developed a categorical model of psychopathology based on an individual’s characteristic and enduring style of functioning. Shapiro defines a style as a person’s characteristic way of thinking, perceiving, and experiencing. Shapiro identifies four categories of psychopathology he calls “neurotic styles.” Neurotic styles were a forerunner of today’s concept of personality disorder, and like other categorical models, their fate in the era of the “big five” factor dimensions is uncertain.

As is true of psychodynamic models in general, however, Shapiro thinks in terms of dimensions. For example, Shapiro believes that an individual’s characteristic mode of cognition creates the matrix for one’s personality style, influencing a person’s general subjective experience and degree to which that person may distort reality. Shapiro’s primary dimension, mode of cognition, can be conceptualized as a continuum from a rigid mode of cognition to a diffuse mode of cognition. A rigid mode of cognition is characterized by adjectives such as acute, intense, narrowly focused, directed, purposeful, and intentional. A diffuse mode of cognition is characterized by adjectives such as suggestible, transient, impressionable, non-directed, and distractible. In addition, Shapiro distinguishes the neurotic styles based on severity along this continuum, another dimensional trait. He states that sometimes the less severe types of neurotic styles (such as obsessive-compulsive style and hysterical style) are the premorbid state of the more severe type of neurotic style such as the paranoid and impulsive styles.

The implicit dimensionality in Shapiro's model suggests possible room for integrating traditional categories and the five-factor model. This study investigates the overlap between Shapiro's categorical model and the five-factor model. Shapiro's primary dimension discussed in his model of psychopathology, mode of cognition, seems to encompass some of the facet scales of the big five factor of Conscientiousness (C) and some of the facet scales on the Openness to Experience factor (O). It may be that traditional psychiatric categories are not as opposed to dimensional models as some have suggested.

However, past studies using the five-factor model have found no correlation or only a minor correlation between personality disorders and the Openness to Experience factor (Costa & McCrae, 1989; Wormworth & Livesley, 1992). In contrast, Costa and McCrae (1989), speculate that individuals can be too open. Excessive high levels of Openness with particularly low levels of Conscientiousness may contribute to a personality disorder. The current study investigates the role that the Openness to Experience and Conscientiousness factors and their facet scales, may play in the domain of personality disorders.

In general, this study investigates whether or not the five-factor model provides a structure for elaborating on Shapiro's mode of cognition dimension. Widiger and Costa (1994) note that even committed proponents of the five-factor model agree that it may lack the detail needed for clinical purposes. The mapping of Shapiro's mode of cognition dimension onto the five-factor model could therefore bring the five-factor model increased clinical relevance.

Literature Review

Theoretical Background

David Shapiro (1965) developed a categorical model of psychopathology focusing on a person's general style of functioning. According to Shapiro, a style of functioning is a person's characteristic way of thinking, perceiving, and experiencing. His description of a style is consistent with the ego psychology tradition, where a person's functioning is analyzed with respect to how the ego is organized and how it contributes to adaptation.

Classical psychoanalysts such as Freud (1913), distinguish between neuroses by identifying the drive content (repressed wish) represented in the symptom. For example, a classical analyst may conceptualize a boy's paralyzed arm as a hysterical reaction to a wish to hit his father. According to ego psychologists, however, ego organization is not reducible to drives. It is autonomous and can explain behavior by itself. As an ego psychologist, Shapiro rejects the idea that all motivation can be reduced to 'id' impulses which he refers to as the marionette concept. Shapiro states that we are more than just puppets whose strings are pulled by the 'id.'

In Freud's (1923) structural model, the ego refers to a collection of brain functions responsible for adaptation to the external world. According to Weinberger (1998), ego psychology has reemphasized the central importance of individual differences in personality organization, where symptoms and traits are conceptualized as predictable elements of the whole. For the ego psychologists, adaptation to our external

environment is a function of the ego, and studying the different ways the ego is organized (styles) to accomplish this task can explain why people behave as they do. With respect to normal psychology, ego styles influence cognitive inclinations, emotional inclinations, and behavioral inclinations.

According to Shapiro, certain types of ego organizations are pathological. He refers to the pathological type of organization as neurotic styles. These neurotic styles of functioning constitute a matrix for symptoms and traits. In other words, styles influence symptoms, defenses, and behavior. Very importantly, Shapiro believes that the person's attitudes and interests help create and continue the neurotic process. The neurotic person does not just suffer from neurosis but actively participates in it. His or her ego organization (or personality) is part of the problem. According to Shapiro (1965):

One cannot study neurotic styles of functioning without being impressed by the fact that what the neurotic person does and the special way in which he does it, his conscious attitudes and the way he sees things, are essential parts of the neurosis. He seems to think in such a way and his attitudes and interests are such as to continue and sustain the neurotic process and to make the characteristic neurotic experiences inevitable, however discomforting they may be.... His make-up and the way he sees things, about which he has no choice, move him to feel, think, and do things that continue the neurotic process and are indispensable to it (p. 18).

To summarize, Shapiro introduced a model of psychopathology, based on the concept of style. Styles are forms of functioning, ways of thinking, experiencing, and

behaving, that are characteristic of distinct types of psychopathology. Styles of functioning constitute a matrix for specific symptoms, traits, and defenses and determine the shape a trait may take in the individual.

Neurotic Styles

Shapiro's model of psychopathology consists of four neurotic styles: obsessive-compulsive, paranoid, hysterical, and impulsive. In describing similarities and differences between the neurotic styles, Shapiro focuses on characteristic modes of cognition that influence subjective experience and reality distortion.

Shapiro emphasizes an individual's mode of cognition or characteristic way of thinking and perceiving as the primary material from which inferences concerning diagnosis, defense mechanisms, and character traits can be drawn. Shapiro asserts that these characteristic ways of thinking must in themselves represent psychological structures of importance, and these structures might be of a more general type than the specific traits or mechanisms that could be inferred from them. Moreover, an individual's mode of cognition directly influences that person's subjective experience and the extent to which he or she may distort reality.

The fact that human beings tend to be consistent over broad areas of functioning supports this theory. Shapiro notes that symptoms or pathological traits regularly appear in contexts of attitudes, interests, intellectual inclinations, and even vocational aptitudes and social affinities. Shapiro provides the example of the hysterical person who is inclined toward emotional outbursts and although bright, has no interest in mathematics or science. We are not particularly shocked to find that she is an actress because her

general mode of thinking creates the matrix through which attitudes and interests are expressed.

Obsessive-Compulsive Style

Cognition. The obsessive-compulsive style is best described as rigid. Persons with the obsessive-compulsive style are intense and always searching for technical details. They focus only on what is relevant to them at the time, leaving no room for attending to anything else. Shapiro describes the obsessive-compulsive cognition as a type of “tunnel vision.”

Rigidity is also seen in their inattention to new facts or points of view. The particular type of inattention that obsessive-compulsive people exhibit makes them uninfluencible. Also, their restricted attention prevents the obsessive-compulsive person from having cognitive flexibility. According to Shapiro, cognitive flexibility can be described as having the capacity for volitional mobility of attention or voluntarily shifting of attention. As a matter of fact, Shapiro describes the obsessive-compulsive mode of cognition as “active inattention” due to the effort spent in keeping such sharp but narrowed attention.

Shapiro notes that in certain aspects, the sharp focus of the obsessive-compulsive is limited in mobility and range. These people are not impressionistic. Their sharp focus does not allow anything into their attention that was not in the original focus of attention.

Subjective Experience. Most types of subjective experiences, such as feeling emotion, suffer in the person with the obsessive-compulsive style. Actions feel deliberate and directed. According to Shapiro, the obsessive-compulsive continuously experiences a feeling of tense deliberateness, a sense of effort, and of trying. Whatever activity the

obsessive-compulsive person is engaged in, a quality of effort is always present, even during free time. According to Shapiro, activities that require a relaxation of the attitude of deliberateness are minimized. These people have a difficult time enjoying vacations or even any occasion where there are no responsibilities.

Another aspect of the obsessive-compulsive's subjective experience is their constant "police" state. According to Shapiro, the activities of obsessive-compulsive individuals appear to be forced by some necessity other than the person's own wants. They feel as if they are carrying out duties ordered by a higher authority. The person with the obsessive-compulsive style lives under a feeling of constant external pressure. This pressure is however, self-imposed. Shapiro describes the obsessive-compulsive person as being their own overseers that issue commands, warnings, and reminders. They have the subjective experience of someone constantly working under pressure.

Reality Distortion. Obsessive-compulsive people are only concerned with technical details and avoid spontaneity. As a result, they have a limited view of the world. The obsessive-compulsive's ego constantly avoids impulse and conforms to the exaggerated demands of the superego. From an ego psychology standpoint, the ego is not strong enough to integrate impulse into its reality-testing matrix.

According to Shapiro, the obsessive-compulsive person distorts reality sometimes to the point of logical absurdity. Shapiro provides the example, of the obsessive-compulsive person who meticulously cleans a table and shortly after acts as though the table has become dirty again. Shapiro points out that this should not be considered a delusion, for he or she does not actually believe the table has become dirty, but believes it could be, which is an important distinction.

Paranoid Style

Shapiro notes that this style is the most severe of all the styles because, in its extreme forms, it can lead to a psychotic break with reality. Shapiro discusses two types of people who fall within the category of paranoid style. The first type is furtive, constricted, and apprehensively suspicious. The second type is rigidly arrogant, more aggressively suspicious, and megalomaniac. According to Shapiro, persons with a paranoid style exhibit pervasive and long-standing paranoid traits but are not psychotic.

Cognition. Shapiro describes the paranoid mode of cognition as marked by chronic and habitual suspiciousness. Persons with a paranoid style have constant preoccupations or unwarranted apprehensions, such as always expecting to be tricked.

An important quality of suspicious thinking is its extreme rigidity. The paranoid character is constantly searching for a confirmation of a belief or preoccupation and ignores contradictory information. Like the obsessive-compulsive character, the paranoid person's mode of cognition is marked by a rigid directness of attention. The difference is that rather than focusing on technical details, persons with a paranoid style focus their attention on clues that could confirm their original beliefs or suspicions. They are extremely biased when listening to information and believe that anything that does not confirm their suspicions is just a cover. Paranoid attention always has an aim, constantly searching with an intense sharp focus. Shapiro calls this type of attention rigidly intentional. This type of bias is, in a sense, the extreme psychological opposite of suggestibility.

Shapiro notes that another difference between persons with obsessive-compulsive and paranoid styles can be found in how they handle the unusual or novel. The person

with an obsessive-compulsive style ignores anything unusual, narrowly following his/her line of thought. The person with a paranoid style, on the other hand, can't tolerate surprises. They will scrutinize the unexpected and focus all attention on it, in order to satisfy themselves that the unexpected thing is no longer surprising. Therefore, the paranoid's suspicious mode of cognition involves a more severely rigid distortion than the obsessive-compulsive neurotic style.

To summarize, the paranoid's mode of cognition is extremely rigid. The person seeks out information that confirms their suspicions and ignores everything else. Anything that does not confirm their suspicion is written off as illusion, anything that confirms their suspicion is exaggerated. Unlike the obsessive-compulsive, paranoid people notice everything, but inflexibly categorize it as relevant or not.

Subjective Experience. The subjective experience of persons with a paranoid style is severely constricted. Persons with a paranoid style never do anything impulsively or for its own sake, and consequently, they have a limited capacity for spontaneity. Actions feel deliberate and directed, even more so than the obsessive-compulsive person. In general, all affective experience suffers under this rigid directedness of behavior and attention. Persons with a paranoid style are tense, edgy, cautious, and vigilant. They are constantly suspicious, alert, and controlled. This would be expected, given that the paranoid person's general aim is defense against threat.

Reality Distortion. Persons with a paranoid style distort reality more than any other style. Like obsessive-compulsives, the paranoid constructs his/her subjective world from indicators. The paranoid person's indicators, clues, are much narrower than the technical details of the obsessive-compulsive character and are also tied to preexisting

suspicions. Therefore, paranoid loss of reality is much greater than obsessive-compulsive loss of reality. For the obsessive-compulsive, the extreme manifestation of reality distortion is logical absurdity, whereas for the paranoid, the extreme manifestation of reality distortion is projective delusion, which is a more severe distortion. Unlike the obsessive-compulsive person, the paranoid person's type of reality distortions should be considered a delusion, for he or she does actually believe the preoccupation.

While the actual facts that persons with a paranoid style collect are accurate, their interpretations are flawed. A person with a paranoid style is concerned only with the hidden world. For him or her, this world is here only to give clues. They do not disagree with facts, just their significance. They ignore the obvious and look for hidden meanings, assuming that they are always there. Shapiro notes that this style is the most severe of all the neurotic styles because in its extreme forms it can lead to a psychotic break with reality. Persons with a paranoid style minimize or exaggerate events based on biases and generally meet reality only halfway.

Hysterical Style

Cognition. Shapiro discusses two main aspects of the hysterical mode of cognition; incapacity for intellectual concentration and impressionability. He notes that when people with a hysterical style are asked to solve a problem, such as a mathematics problem, they passively look to be inspired for the answer rather than actively concentrate on the problem at hand, regardless of their intellectual abilities. Shapiro states that a person with a hysterical style will often answer a question, such as an arithmetic question on an intelligence test, and not be able to show how they arrived at

the answer, even if, they are correct. They ignore all details and prefer to remain as global as possible.

This lack of intellectual concentration leads to impressionability and diffuseness. Except for those with obsessive-compulsive and paranoid styles, most people experience the kinds of hunches or inspirations we call intuition. For the hysterical style, intuition is the final cognitive product. The impressionistic cognitive style of the hysterical person tends to stop at the obvious and immediately seen. They are not curious and others experience them as shallow. In addition, this impressionistic style of cognition makes the person with a hysterical style very susceptible to suggestion. This type of attention not only makes them suggestible but also generally very distractible. Unlike the obsessive-compulsive and paranoid styles, hysterics are easily interrupted by transient influences and are easily surprised.

Subjective Experience. The subjective experience of a person with a hysterical style is marked by a preoccupation with romantic fantasies and emotional dramatics. An idealized recollection of experiences that leaves out specific contents or facts is consistent with the impressionistic mode of cognition of the hysterical style. According to Shapiro, unlike the obsessive-compulsive and paranoid styles, hysterical characters do not search for things like technical information or clues; rather things strike them. What grabs the hysterical person's attention is the emotionally vivid.

A romantic view of the world is also seen in how they experience themselves. People with a hysterical style have a shaky grasp on their factual history, which leads to their not feeling real or substantial. Their recollection of their own history is full of impressions lacking sharp detail. Shapiro states that many times, although people with a

hysterical style claim they do not know what mood they are “really” in, they actually mean that they do not know what they are really like in general. This naïveté is a reflection of the hysterical attitude toward reality.

Another characteristic of the hysterical style is the tendency for emotional outbursts, i.e., emotional immaturity. People with a hysterical style regard their exaggerated emotional outbursts as not representing what they really feel. They believe that they are caused by something out of their control. Generally, actions feel non-deliberate and non-directed. These outbursts exist only in the moment and are quickly forgotten. Due to their shifting impressions and emotional reactivity, they are rarely described as being deep. The emotional outbursts of the person with a hysterical style, i.e., quick discharges of affect that are experienced later as alien, are consistent with this style of functioning and could only exist within such a style. These emotional outbursts enter consciousness quickly and constitute the final affective product just like global impressions enter consciousness and constitute the final cognitive product.

Reality Distortion. A common consequence of the impressionist mode of cognition is a lack of factual knowledge. Shapiro is not only referring to the known fact that people with a hysterical style are naïve about sexual knowledge or other emotionally charged knowledge, but also to emotionally neutral knowledge. A deficiency in general knowledge, such as the information subtest on the WAIS-III, is a reliable indicator of the hysterical style. Shapiro notes that this type of reality distortion leads to a general lack of responsibility for facts and is inconsistent with intellectual curiosity. In addition, this general lack of responsibility for facts is consistent in most areas of functioning. Shapiro

provides the example of a woman whom when asked to describe her father, seemed unable to understand the question and just replied “he was wham-bang”.

The hysterical person’s ego focuses more on hunches than on the facts of reality. It is tied to the immediate present and remains impressionistic rather than organizing and connecting the world together. The hysterical ego also shows limited concern for practical consequences.

Impulsive Style

In his description of the impulsive neurotic style, Shapiro includes those diagnosed as impulsive characters or psychopathic characters, which include passive-neurotic characters and narcissistic characters. Despite the diversity in this style, common features include a general mode of action that is associated with a particular and consistent mode of cognition and a characteristic type of subjective experience.

Cognition. The mode of cognition of people with an impulsive style is characterized by an insufficiency of active integrative processes. Whereas the attention of the person with hysteria is diffuse, the ego structure of the impulsive person is diffuse. The experiences of impulses are regular and are central to the impulsive mode of cognition. Shapiro states, the cognitive characteristics of an impulse, i.e., quickness and a lack of planning, reflect deficiencies in mental processing. The whims of the impulsive person are not integrated into a matrix of aims and interests. Even more than for the hysterical style, impressions constitute conclusions.

For most people, half-formed impulses are just the beginning of a complex process of decision making. For people with an impulsive style, they are the end point. Most people have the ability to critically scrutinize the impulses, leading them to

organize information and consider possibilities. Shapiro calls this "judgement." As described earlier, persons with obsessive-compulsive and paranoid styles exaggerate this process. The person with the impulsive style skips it completely. Deliberate thinking about consequences and questions about what they "should do" never arise. The impulse is immediately translated into action.

Subjective Experience. The subjective experience of a person with an impulsive style centers on an impairment of normal feelings of deliberateness. They do not experience their behavior as intentional, rather in their mind, things just happen to them. As opposed to the hysterical person who takes no responsibility for their outbursts, the person with the impulsive style takes no responsibility for their behavior in general. They have a limited sense of autonomy in terms of an active "I" who makes choices. A strong distinction can be made when compared with the obsessive-compulsive and paranoid styles, which are associated with a constant feeling of deliberateness.

Reality Distortion. The reality distortion of the impulsive style is similar in kind to that of the hysteric, but more extreme. Rather than taking no responsibility for facts, they take no responsibility for their behavior. With respect to social reality, questions about "shoulds," "guilt," and "duty," do not exist for them in any consistent, deliberate, or sustained way. This can lead to moral shallowness, such as telling someone about an affair that they had last weekend, to be followed by a proclamation of their constant fidelity every second of every day. Shapiro notes that this type of reality distortion leads to a general disregard for responsibility of their behavior.

Dimensional Characteristics of Shapiro's Mode of Cognition

Figure I illustrates Shapiro's mode of cognition dimension. Shapiro states that an individual's characteristic style of cognition influences his or her general subjective experience and the extent to which he or she distorts reality. Shapiro identifies the individual's mode of cognition as providing the matrix for which symptoms, behaviors, and attitudes formed. This dimension ranges from a severely rigid mode of cognition to a severely diffuse mode of cognition. Although Shapiro's model is categorical, it is implicitly dimensional. Dimensional characteristics include a continuum along a specific dimension with severity along the continuum at the poles. Also, the opposing ends of the continuum (poles) represent opposing characteristics of the specific dimension.

Opposing Ends of the Continuum

On the end of the continuum representing rigidity, Shapiro identifies the neurotic styles of the paranoid and obsessive-compulsive individuals. Shapiro states there are commonalities between these two styles. A rigid mode of cognition is characterized by adjectives such as acutely intense, narrowly focused, directed, purposeful, and intentional. On the other end of the continuum representing diffuse cognition, Shapiro identifies the neurotic styles of the impulsive and hysterical individuals. Shapiro also states there are commonalities between these two styles. A diffuse mode of cognition is characterized by adjectives such as suggestible, transient, impressionable, non-directed, and distractible.

Severity Along the Continuum

The more severe the neurotic style, the closer it is to a pole of the continuum. On the side of the continuum representing rigidity, the paranoid style is more severe than the

obsessive-compulsive style. For example, Shapiro notes that it is not uncommon to learn that a paranoid individual with delusions, was, before the onset of his present condition, a severely obsessional person. On the side of diffuseness, the impulsive style is more severe than the hysterical style.

Shapiro's Model of Psychopathology

A more comprehensive illustration of Shapiro's model of psychopathology is given in Figure II. Shapiro states that an individual's mode of cognition and consistent way of perceiving the world determines one's neurotic style. It is this general mode of thinking that determines the shape or form of symptoms, defense mechanisms, and adaptive traits. Also, mode of cognition influences an individual's general subjective experience and the extent to which he or she distorts reality.

The more cognitively diffuse an individual, the more actions feel non-deliberate and non-directed, such as a hysterical person's emotional outburst or the subjective experience of an impulse in the impulsive style. The more cognitively rigid a person, the more actions feel deliberate and directed, such as the subjective experience of the obsessive who constantly works under pressure or the subjective experience of the paranoid person's hypervigilance.

Also, the more cognitively diffuse a person, where actions feel non-deliberate and non-directed, the more the severe the person tends to distort reality. For example, the hysterical person takes no responsibility for knowledge of facts, while the impulsive person takes no responsibility for their behavior. The same is true for extreme cognitive rigidity. The more cognitively rigid a person, where actions feel deliberate and directed, the more severe the person tends to distort reality. For example, the paranoid person's

projective delusion is a more severe distortion than the obsessive-compulsive person's logical absurdities.

Categorical Versus Dimensional Models

As used by clinicians, personality disorders in the DSM III and the DSM IV are conceptualized as categories. To make a diagnosis, the clinician counts symptoms to decide whether or not the person can be placed into a particular category. The diagnosis recorded concerns only the presence or absence of a personality disorder. Patients are referred to as possessing or not possessing a personality disorder, not the degree to which a personality style is present.

Advantages and Disadvantages of the Categorical Model

Advantages. According to Widiger and Frances (1994), three major advantages of the categorical approach are (a) ease in a conceptualization and communication, (b) familiarity, and (c) consistency with people's natural decision making style. A categorical model is simpler than a dimensional model because it is easier to consider whether or not a person has a disorder than it is to consider the degree to which a person might have that disorder. In addition, it is easier to remember and communicate the presence of one or two categorical diagnoses than it is to remember and describe a profile of scores along five or more dimensions.

The second advantage of the categorical approach is that it is more familiar to clinicians. In the DSM, personality disorder diagnoses are categorical. DSM personality disorders have over fifty years of very rich description regarding their development and dynamics. As Frances (1990) notes, it would therefore represent a major shift in education and in clinical practice to convert to a dimensional system.

The third argument made in favor of the categorical model is that clinical decision making is institutionally categorical. For example, insurance companies want to know whether or not a person has borderline personality disorder. Identifying subgroups and syndrome types is a categorical process. Widiger and Frances (1993) suggest that if treatment, insurance, forensic, and other clinically relevant decisions were made along a continuum rather than being largely categorical, then the diagnostic system would probably have been more quantitative than qualitative. Even if the DSM used dimensions rather than categories, most clinicians would convert the dimensions to categories in order to make decisions.

Disadvantages. An important disadvantage to the categorical model is that in practice, the DSM categorical system can be more complex and cumbersome than a dimensional model. The DSM system requires the assessment of 104 diagnostic criteria (DSM III-R). A systematic and comprehensive assessment of the eleven DSM III-R personality disorders requires two to four hours (Pfohl, Blum, Zimmerman, & Stangl, 1989). A systematic and comprehensive assessment of five personality dimensions (e.g. Extraversion, Agreeableness, Openness to Experience, etc.) would require much less time and effort (Widiger & Frances, 1993). Clinicians rarely provide a complete assessment of the DSM personality disorders because it is neither feasible nor practical. Frances, Clarkin, Gilmore, Hurt, and Brown (1984) found that the frequency of multiple diagnoses supports the argument for a dimensional rather than a categorical system of personality diagnosis. In their study of seventy-six outpatients, Frances, et al.(1984), found that the DSM III criteria for personality disorders do not select mutually exclusive, categorical

diagnostic entities. This suggests that dimensions more accurately reflect the nature of real traits.

Kass, Skodal, Charles, Spitzer, Lyons, & Hendler (1985) also found evidence against the usefulness of the categorical system. Research found that because many patients did have some maladaptive personality traits but did not meet full DSM criteria for a personality disorder diagnosis, categorical judgements resulted in the loss of information. Nestadt, Romanoski, Chahal, Merchant, Folstein, Gruenberg, and McHugh (1990) obtained histrionic ratings from a representative sample of a local community and reported that "this personality diagnosis is rather arbitrarily given to individuals who extend beyond a cut off level, others less severe but similar in the nature of their dispositional features might have identical symptoms under certain life circumstances" (p. 420).

In addition, any dimensional variable will show reduced relationships with external variables when it is dichotomized as a result of loss of information (Cohen & Cohen, 1975). According to Widiger and Frances (1994), of the personality disorder studies that reported results with the data analyzed both categorically and dimensionally, results in all but one have favored the dimensional analyses. In the case that was the exception (Zimmerman & Coryell, 1989), it was found that if the additional information with respect to the degree to which a person has a personality disorder was not providing reliable or valid information, then including it would have decreased the reliability and validity of the diagnosis. In other words, when making categorical distinctions, much information is lost, making the dimensional analysis much richer in comparison, as well as increasing the reliability and validity of the diagnosis. However, if this extra

information gathered with the dimensional analysis is faulty, then including it reduces reliability and validity of the diagnosis.

Advantages and Disadvantages of the Dimensional Model

Advantages. According to Widiger and Frances (1994), the major advantages of dimensional models are (a) resolution of a variety of classificatory dilemmas, (b) retention of information, (c) flexibility, and (d) better adaptability to statistical analysis. The advantage of ease of communication in the categorical approach is useful only if the model provides accurate information. If it involves the loss of valid information, it is likely to impair decision-making and contribute to classificatory dilemmas. In the DSM III-R, only cut off points for establishing a diagnosis for borderline and schizotypal personality disorders were based on empirical data (Spitzer, Endicott & Gibbon, 1979). Research suggests that the cut off points would have been different if the data had been collected in different settings.

The arbitrary nature of the cut off points is especially problematic for cases close to the boundaries. For example, Widiger, Sanderson, and Warner (1986) indicated that, with respect to MMPI profile scores, patients with five borderline personality disorder symptoms were more like patients with four or fewer symptoms (patients without the disorder) than they were like patients with more than five symptoms (other patients with the disorder). The arbitrariness of the categorical distinctions contributes to diagnostic dilemmas and diagnostic disagreements. All studies that have compared inter-rater reliability of the categorical models with that of the dimensional models have found better reliability for the latter (e.g., Heumann & Morey, 1990).

The second advantage of a dimensional model is the retention of information. Members of a category tend not to be homogenous with respect to the criteria that were used to make the diagnosis. There can be hundreds of ways a person can meet the DSM criteria for any personality disorder, but only one diagnostic label is given. There can also be many combinations of symptomatology in people who are labeled as not having a particular personality disorder. People not diagnosed with a particular personality disorder can in fact have some personality disorder symptoms.

Categories do provide clear images of each personality disorder, but only if the person is a prototypical case. If not, the communication will be misleading and stereotypical (Cantor & Genero, 1986). The simpler categorical format has the hidden cost of not helping clinicians recognize the complexity that exists. A dimensional model diminishes stereotyping by providing more precise information.

A third advantage of the dimensional model is its flexibility. A handicap of the DSM is that it must respond to a variety of needs. It is unlikely that the diagnostic thresholds for each of the categories in the DSM will be optimal for all needs such as making decisions regarding hospitalization, medication, psychotherapy, insurance coverage, scientific research, criminal responsibility, and disability. All of these decisions are currently guided by one diagnostic threshold that is unlikely to be optimal for all these needs (Widiger & Trull, 1991).

A fourth advantage of the dimensional model is that dimensions are better adapted to statistical analysis. Psychiatric research based on dimensions that are normally distributed could utilize many more statistical techniques than can research based on categories. Many of the statistical techniques used in psychology such as, analysis of

variance, multiple regression, and factor analysis require variables that have a range of values distributed over a continuum.

Disadvantages. One disadvantage of the dimensional model may be the lack of apparent clinical utility. Clinicians are more familiar with treatment implications for a particular personality disorders than for excessive Conscientiousness or other factors. Also, it has been suggested that a dimensional model could impede the effort to discover and validate discrete syndromes and specific etiologies (Gunderson, Links, & Reich, 1991).

Although dimensional models lack apparent clinical utility, no concluding statements can be made. Many surveys have been conducted with respect to the DSM, but no surveys address the question of whether clinicians prefer a categorical or a dimensional format for diagnosing personality disorders. Hine and Williams (1975) suggested that there would be little difficulty in gaining acceptance of a dimensional approach within psychiatry based on their study with medical students. Kass, Skodol, Charles, Spitzer, and Williams (1985) indicated that feedback from staff and trainees during their study indicated that a four-point severity rating was both feasible and acceptable in routine clinical practice.

The Five Factor Model of Personality

Personality disorders became a leading area of research due to the creation of a special axis, Axis II, released in the third edition of the DSM. As explained in the last section, there are serious methodological and theoretical problems with the DSM's personality disorder diagnostic system, i.e., the DSM-III and IV use diagnostic criteria sets designed to place patients into mutually exclusive, categorical entities.

According to Costa and Widiger (1994), many of the problems on axis II might be resolved using continuous dimensions instead of categories. For example, the average number of personality disorders diagnosed is often greater than four (Skodol, Rosnik, Kellman, Oldham, & Hyler, 1988; Widiger, Trull, Hurt, Clarkin, & Frances, 1987). This comorbidity problem suggests redundancy in the eleven diagnostic categories. It appears than when discussing personality traits, a dimensional model is more appropriate.

According to Costa and Widiger (1994), many dimensional alternatives have been proposed, but until recently there was no consensus on which personality dimensions should be used. Many psychologists now believe that the five-factor model is the one to choose. The five-factor model (FFM; Digman, 1990; McCrae, 1992) is a taxonomy of personality traits in terms of five broad dimensions (the "Big Five"): Neuroticism (N), Extraversion (E), Openness to Experience (O), Agreeableness (A), and Conscientiousness (C).

A large body of research has confirmed the importance of the FFM and its use in studying individual differences in personality (Costa & Widiger, 1994). Many psychologists believe that the dimensions used to describe normal personality could also describe pathological personality structure. Many trait psychologists believe that the rigid dichotomy between "normal" and "abnormal" psychology does not make sense. Trait psychologists interpret individual differences in most characteristics as continuously distributed and hypothesize that different forms of psychopathology might also be related to normal variations in basic personality dispositions.

According to McCrae & Costa (1990), personality traits are often defined as enduring "dimensions of individual differences in tendencies to show consistent patterns

of thoughts, feelings and actions” (p.23). The five-factor model is a hierarchical model of personality traits and had its origins in analyses of trait descriptors in the natural language. Precursors to the five-factor model include the “Big Two” dimensions of N and E associated with Hans Eysnck and the circumplex models of Kiesler (1986), Leary (1957), and Wiggins (1982). According to Costa and McCrae (1989), the interpersonal circle model (dimensions of Agreeableness and Extraversion) was frequently used by clinical psychologists because personality disorders often involve disturbed interpersonal relations. Recently, Wiggins and Pincus (1989) have argued that the interpersonal circumplex, although necessary for a description of traits relevant to personality disorders, is not sufficient and recommend the broader taxonomy of personality traits offered by the five-factor model.

Another dimensional model that contains more than the familiar five is seen in Cattell’s model of sixteen primary personality traits. According to Costa and Widiger (1994), this system is useful in understanding personality disorders, but is generally regarded as tapping trait dimensions at a lower level in the hierarchy. In other words, multiple factor theories do analyze important traits of personality, but do so at a lower level in the trait hierarchy. According to Costa and Widiger (1994), the consensus currently is that the five dimensions of N, E, O, A, and C are the basic dimensions of personality. (Tellegen [1984] however, has proposed a seven factor model that he claims is more comprehensive than the five factor model.)

Description of Factors

According to Costa and McCrae (1989), neuroticism (N) is the predisposition to experience psychological distress in the form of anxiety, anger, depression, and other

negative affects. Neuroticism refers to the chronic level of emotional adjustment and instability. Neuroticism includes facet scales for anxiety, anger hostility, depression, self-consciousness, impulsivity, and vulnerability.

Costa and Widiger (1994) state that extraversion refers to the quantity and intensity of preferred interpersonal interactions, activity level, need for stimulation, and capacity for joy. Extraversion includes not only sociability but also liveliness and cheerfulness. Individuals who are low in extraversion tend to be aloof, independent, and quiet. Extraversion facets include warmth, gregariousness, assertiveness, activity, excitement seeking, and positive emotions.

Openness to Experience involves actively seeking and appreciating experiences for their own sake. Open individuals are curious, imaginative, and willing to entertain novel ideas and unconventional values. Closed individuals tend to be conventional in their attitudes and beliefs. Openness to Experience facets include fantasy, aesthetics, feelings, actions, ideas, and values.

Individuals who are high in Agreeableness tend to be softhearted, good-natured, trusting, and altruistic. Agreeableness is an interpersonal dimension that refers to the kinds of interactions people prefer along a continuum from compassion to antagonism. These people are contrasted with cynical and antagonistic individuals. Agreeableness facets include trust, straightforwardness, altruism, compliance, modesty, and tender mindedness.

Conscientiousness assesses the degree of organization, persistence, control, and motivation in goal-directed behavior. Conscientiousness includes both a disciplined

striving after goals and strict adherence to principles. Conscientiousness facets include competence, order, dutifulness, achievement striving, self-discipline, and deliberation.

Neurotic Styles and the Five-factor Model

In terms of the five-factor model, Shapiro's single dimension of Mode of cognition ranging from extremely diffuse to extremely rigid encompasses two separate dimensions, Conscientiousness (C) and Openness to Experience (O). Conscientiousness can be understood to parallel Shapiro's idea of cognitive rigidity and Openness to Experience can be understood to parallel Shapiro's idea of a diffuse cognition. If we were to conceptualize Shapiro's mode of cognition continuum in terms of the distinctions made by the five-factor model factors of Conscientiousness and Openness to Experience, we would get a model like Figure III.

The continuum representing Conscientiousness ranges from low to high. On the low side of the continuum lie the impulsive and hysterical styles, with the impulsive style being furthest to the end. On the high side of the continuum lie the obsessive-compulsive and the paranoid styles, with the paranoid style being furthest to the end. The second continuum representing Openness to Experience ranges from low to high. On the low side of the continuum lie the paranoid and obsessive-compulsive styles, with the paranoid style being furthest to the end. On the high side of the continuum lie the hysterical and impulsive styles, with the impulsive style being furthest to the end. It appears that Shapiro's mode of cognition continuum can be localized and elaborated in the five-factor model using the "Big Five" factors of Conscientiousness and Openness to Experience.

The Interrelationship Between Conscientiousness and Openness

Figure IV illustrates the hypothesized interactions of the dimensions of Conscientiousness and Openness to Experience with Shapiro's neurotic styles. Each dimension is treated as a separate axis. Shapiro's model of psychopathology assumes a negative relationship between Conscientiousness and Openness, the more severe the style of cognition (rigid or diffuse), the more negative the relationship between the factors.

The impulsive and hysterical styles are characterized by high Openness paired with low Conscientiousness (quadrant I of Figure IV). The impulsive style is seen as being extremely low in Conscientiousness and extremely high in Openness to Experience. The hysterical style is shown as being low in Conscientiousness and high in Openness to Experience.

The obsessive-compulsive and paranoid styles are characterized by high Openness paired with low Conscientiousness (quadrant IV of Figure IV). The obsessive-compulsive style is seen as high in Conscientiousness and low in Openness to Experience. The paranoid style is shown as being extremely high in Conscientiousness and extremely low in Openness to Experience.

MCM I and II and NEO PI Correlation Findings

Correlations between the MCM I and II personality disorder scales and the NEO Personality Inventory factors lend some support to the above model. According to Costa and McCrae (1989), the MCM I Narcissistic and Antisocial scales, which relate to Shapiro's impulsive style, positively correlate with Openness and negatively correlate with Conscientiousness. Furthermore, the MCM I and II Histrionic scales positively correlate with Openness and negatively correlate with Conscientiousness.

The MCMI I and II and the NEO Personality Inventory correlation for the Compulsive and Paranoid scales also lend support to Shapiro's model. The MCMI I and II Compulsive scale and the MCMI I Paranoid scale negatively correlate with Openness and positively correlate with Conscientiousness.

Although these findings lend support to Shapiro's model, the findings do not perfectly match Shapiro's hypotheses. For example, because the paranoid neurotic style is more severely rigid than the obsessive-compulsive, Shapiro would hypothesize that the MCMI Paranoid scale would have a higher negative correlation with the Openness factor and a higher positive correlation with the Conscientiousness factor than the MCMI Compulsive scale. In fact, the opposite was true. Both the MCMI I and II Compulsive scales negatively correlate with Openness more than the MCMI I paranoid scale. Also, both the MCMI I and II Compulsive scales positively correlate with Conscientiousness more than the MCMI I and II paranoid scales.

Problems in Reconceptualizing Shapiro's Continuum

One problem encountered in conceptualizing Shapiro's single continuum as two continua is the constructs measured by Openness to Experience and Conscientiousness factors are conceptually different than what Shapiro meant by diffuse and rigid cognition.

Although there are many similarities between Shapiro's concept of a diffuse cognitive style and the five-factor trait of Openness to Experience, there are also many differences. McCrae and Costa (1997) argue that , "Openness is seen in the breadth, depth, and permeability of consciousness, and in the recurrent need to enlarge experience" (p. 826).

This is not what Shapiro meant by diffuse cognition, which relates to psychopathology. For the most part, Openness to Experience is conceptualized as a health factor and has been shown not to correlate with personality disorders (Costa and McCrae, 1989).

Many of the other aspects of Openness to Experience completely contradict Shapiro's description of hysterical and impulsive styles. For example, the sub-scale or facet scale Ideas refers to an intellectual curiosity, which is an aspect of Openness long recognized. According to Shapiro, the impulsive and hysterical styles are noted by their lack of intellectual curiosity.

Also, the five-factor conceptualization of Conscientiousness is not exactly what Shapiro meant by cognitively rigid. Costa and McCrae (1998) note that Conscientiousness encompasses a diverse set of traits that can be divisible into two major groups called proactive and inhibitive. The proactive group refers to facets such as Achievement striving and Competence associated with traits such as dependability and responsibility. The traits associated with the proactive group contradict Shapiro's notion of a rigid mode of cognition. For example, competence is the facet of Conscientiousness most closely related to measures of self-esteem and is itself sometimes considered a marker of mental health (Costa, McCrae & Dye, 1991). Shapiro's concept of cognitive rigidity clearly refers to psychopathology not mental health.

The inhibitive group refers to facets such as deliberation, which relate to a reduction in both activity and spontaneity. Although there are many similarities between Conscientiousness and Shapiro's concept of a rigid mode of cognition, these similarities seem to lie mainly with the traits in the inhibitive group.

Solutions in Reconceptualizing Shapiro's Continuum

There are two ways of conceptualizing the Openness to Experience and Conscientiousness factors so that they fit Shapiro's model. The first way is by identifying the combination of high scores paired with low scores on the factors selected. The second way is by isolating the facet scales thought to target Shapiro's idea of cognitive style. By conceptualizing the factors in these ways, the five-factor model can be used as a structure in which to describe and elaborate on Shapiro's mode of cognition dimension.

High or Low Scores on the Factors

First, high scoring on one factor, especially paired with the low scoring on the other factor can lead to a personality disorder. For example, too much Openness to Experience may be unhealthy. According to Costa and McCrae (1989), some individuals can be too open.

Excessive Openness to Experience particularly in the absence of high levels of Conscientiousness and intelligence, may contribute to a personality disorder. Such individuals may be so easily drawn to each new idea or belief that they are unable to form a coherent and integrated life structure (Costa and McCrae, 1989 p. 370).

This description closely matches Shapiro's idea of the hysterical and impulsive neurotic styles. Perhaps very high scores on Openness particularly with low scores on Conscientiousness illustrate Shapiro's concept of a diffuse cognition that defines the impulsive and hysterical neurotic styles. In addition, Shapiro's model of psychopathology hypothesizes that the reverse combination of scoring, too high on the

Conscientiousness factor and too low on the Openness to Experience, could lead to personality disorder, particularly the paranoid and obsessive-compulsive disorder.

Isolating Facet Scales

The second way to reconceptualize the problem is to hypothesize that Shapiro's mode of cognition dimension does not refer to the Openness or Conscientiousness factors themselves, but to some of the Openness and Conscientiousness facet scales. According to Costa and McCrae (1998), "although there is a growing consensus that personality can be described in terms of the dimensions of the five-factor model (FFM; McCrae and John, 1992), there remain disagreements about the interpretation of some of the factors" (p. 117). Costa and McCrae (1998) state that understanding the factor depends on understanding the facets that define them. Facet scales are specific traits at a lower level in the trait hierarchy that make up factor. Costa and McCrae (1998) specifically claim that the lower level traits that make up the broad factors should be examined separately. For example, people can score high on some facet scales that make up a factor, while scoring low on others.

Using this approach, it appears that cognitive rigidity refers to some of the facet scales of the five-factor of Conscientiousness. Facet scales such as Dutifulness, Self-discipline, and Deliberation overlap with Shapiro's notion of rigidity. These facets include individuals who are governed by conscience, avoid distractions, and have a tendency to think carefully before acting. Perhaps some combinations of scores on facet scales can be identified as indicators of psychopathology even though the whole factor is pathology-neutral.

In addition, Shapiro's construct of diffuse cognition refers to some of the facet scales of the Openness to Experience factor. The facet scales of Fantasy and Feelings particularly overlap Shapiro's construct of diffuseness. According to Costa and Widiger (1994), individuals who are open to fantasy have a vivid imagination and an active fantasy life. They daydream not simply as an escape, but as a way of creating for themselves an interesting inner world. For comparison, a person with Shapiro's hysterical style romanticizes and lives in a fantasy world (fantasy) while also having intense emotional outbursts and experiencing differentiated ideas (feelings). According to Shapiro, an impulsive style would even score higher on these traits.

None of the DSM-IV personality disorders are uniquely associated with Openness, but a careful consideration of diagnostic criteria shows that aspects of Openness are relevant to several disorders (Costa & Widiger, 1994). For example, the behavioral rigidity of compulsives are all significant clinical features that may be well related to Openness (McCrae and Costa, 1997). In other words, the overall factor of Openness is not associated with personality disorders, but perhaps some of the facets are. Costa and McCrae (1998), have found that the facets have discriminant validity and one or another may be uniquely effective for separate purposes.

Another Measure of Shapiro's Mode of Cognition

In summary, although Conscientiousness and Openness to Experience overlap with Shapiro's mode of cognition dimension, many of the facet scales and the overall conception of the factors contradict Shapiro's concept of diffuse and rigid cognition, which relates more to pathology than to healthy individual experience. It may be useful

to specifically measure what Shapiro meant by cognitive style, and compare that scale to the relevant five-factor dimensions.

Statement of the Problem

In the Diagnostic and Statistical Manual of the American Psychiatric Association (APA, 1994), personality disorders are conceptualized as discrete categories. Recently, there has been growing support for the five-factor model of personality that conceptualizes personality as varying along five main dimensions or continua. Supporters of the model assert that other models of personality can be understood within the framework of the five-factor model. An important question becomes, what happens to the old categories.

This study examines the relationship between David Shapiro's (1965) categorical model of psychopathology and the five-factor model. Shapiro's model categorizes personality disorders in terms of enduring personality styles. Shapiro defines a style as a characteristic way of thinking, perceiving and experiencing. It is the "neurotic style" that maintains the neurotic process. This theory of an enduring personality style is a forerunner of today's axis II personality disorders.

Although Shapiro's model is categorical, it is implicitly dimensional. Shapiro asserts that an individual's style is greatly influenced by one's mode of cognition. Shapiro believes that an individual's characteristic mode of cognition creates the matrix for one's personality style, influencing a person's general subjective experience and degree to which that person may distort reality. Shapiro's primary dimension, Mode of cognition, can be conceptualized as a continuum from a rigid mode of cognition to a diffuse mode of cognition.

This implicit dimensionality suggests possible room for integrating traditional categories and the five-factor model. Shapiro's primary dimension discussed in his model of psychopathology, mode of cognition, seems to encompass the big five factor of Conscientiousness (C) and the Openness to Experience factor (O).

One problem encountered in conceptualizing Shapiro's single continuum as two continua is the constructs measured by the Openness to Experience and Conscientiousness factors are different than what Shapiro meant by diffuse and rigid cognition. Although there are many similarities between Shapiro's concept of a diffuse mode of cognition and the five-factor Openness to Experience, there are also many differences. Also, despite similarities, there are many differences between Shapiro's concept of a rigid mode of cognition and the five-factor conceptualization of Conscientiousness.

There are two ways of conceptualizing the Openness to Experience and Conscientiousness factors so that they fit Shapiro's model. The first way is to identify the combination of high scores paired with low scores on the Conscientiousness and Openness to Experience factors. The second way is by isolating the facet scales thought to target Shapiro's idea of a rigid and diffuse mode of cognition. Facet scales such as Dutifulness, Self-discipline, and Deliberation overlap with Shapiro's construct of rigidity. The facet scales of Fantasy and Feelings overlap Shapiro's construct of diffuseness. By conceptualizing the factors in these ways, the five-factor model can be used as a structure in which to describe and elaborate on Shapiro's mode of cognition dimension.

Though the NEO PI facet scales of Conscientiousness and Openness to Experience overlap with Shapiro's Mode of cognition dimension, it is not a perfect

match. It may also be useful to specifically measure what Shapiro meant by cognitive style and then investigate the relationship between that measure and the five-factor model. To examine this question this study introduces the Cognitive Diffuseness Questionnaire, based on the three levels of Shapiro's model of psychopathology: mode of cognition, subjective experience, and reality distortion. The purpose of this scale is to specifically measure cognitive style as defined by Shapiro and examine how it relates to the Conscientiousness and Openness to Experience factors as well as personality disorders as defined by Millon (1997). In addition, items will be constructed to analyze each of the four neurotic styles.

The hypotheses of this study are:

(1) The Paranoid personality disorder will have a strong positive correlation with the Deliberation, Self-discipline, and Dutifulness facet scales on the five-factor of Conscientiousness (C) and will have a strong negative correlation with Fantasy and Feelings facet scales on the five-factor of Openness to Experience (O).

(2) The Obsessive personality disorder will have a positive correlation with the Deliberation, Self-discipline, and Dutifulness facet scales on the five-factor of Conscientiousness (C) and will have a negative correlation with the Fantasy and Feelings facet scales on the five-factor of Openness to Experience (O). The correlation between Millon's Obsessive-compulsive scale and the Conscientiousness (C) and Openness to Experience (O) facet scales will be lower than the correlation between Millon's Paranoid scale and the Conscientiousness (C) and Openness to Experience (O) facet scales.

(3) The Antisocial personality disorder will have a strong negative correlation with the Deliberation, Self-discipline, and Dutifulness facet scales on the five-factor of

Conscientiousness (C) and will have a strong negative correlation with the Fantasy and Feelings facet scales on the five-factor of Openness to Experience (O).

(4) The Histrionic personality disorder will have a negative correlation with the Deliberation, Self-discipline, and Dutifulness facet scales on the five-factor of Conscientiousness (C) and will have a positive correlation with the Fantasy and Feelings facet scales on the five-factor of Openness to Experience (O). The correlation between Millon's Histrionic scale and the Conscientiousness (C) and Openness to Experience(O) facet scales will be lower than the correlation between Millon's Antisocial scale and the Conscientiousness (C) and Openness to Experience(O) facet scales.

(5) The Cognitive Diffuseness scale will have a high positive correlation with the Antisocial personality disorder.

(6) The Cognitive Diffuseness scale will have a high positive correlation with the Histrionic personality disorder as defined by Millon, but will be lower than it is for the Antisocial personality disorder.

(7) The Cognitive Diffuseness scale will have a high negative correlation with the Paranoid personality disorder.

(8) The Cognitive Diffuseness scale will have a high negative correlation with the Obsessive personality disorder as defined by Millon, but it will be lower than it is for the Paranoid personality disorder as defined by Millon.

Method

Participants.

This study used 128 volunteer participants composed of undergraduate students registered for psychology classes at Auburn University Montgomery. The sample was composed of 50 men and 74 women (4 persons did not indicate gender). Ages ranged from 19 to 56. Eighty-nine (89) participants were between 19 and 23 years old, 30 participants were between 24 and 34 years old, and 9 participants were 35 years old or older.

Instruments.

The instruments used for the study are the following: (a) the NEO PI-R Form S (Costa and McCrae, 1992), (b) the Millon Clinical Multiaxial Inventory III (Millon, 1997), (c) the Cognitive Diffuseness Scale.

The NEO PI-R (Form S) (Costa & McCrae, 1992) is a 240-item questionnaire developed through rational and factor analytic methods to measure the dimensions of the five-factor model. The five factors are Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness. These factors are orthogonal. Each factor (or domain) is composed of six facet scales, which offer more detailed analyses of specific traits within those factors. The facet scales are not orthogonal.

Items are answered on a 5-point Likert scale from “strongly disagree” to “strongly agree”. Form S is self-administered and considered appropriate for men and women 17 years of age and older and requires a sixth grade reading ability.

In the current sample, the internal consistency reliabilities for the relevant Form S facet scores in the domain of Conscientiousness are .43 for Dutifulness, .71 for Self-Discipline, and .71 for Deliberation. The reliabilities for the relevant facet scores in the domain of Openness to Experience are .78 for Fantasy and .67 for Feelings. By domain scale, the reliabilities of the Form S scales are .89 for Neuroticism, .84 for Extraversion, .87 for Openness, .83 for Agreeableness, and .88 for Conscientiousness.

Costa and McCrae (1992) report Form S stability coefficients for the Neuroticism, Extraversion, and Openness domain scales from 6-year and 3-year longitudinal studies. These stability coefficients ranged from .63 to .83 across studies. Concurrent validity has also been established between the NEO PI-R and other self-report measures based on the five-factor model. Additional investigations of the convergent validity of the NEO PI-R have examined the relation of NEO PI scores to scores on other personality scales such as the Minnesota Multiphasic Personality Inventory and the Myers-Briggs Type Indicator.

Costa and McCrae (1992) provide results from two investigations that provide evidence for the validity of the 12 facet scales. One study correlated these facets with 116 scales from 12 personality inventories. Five correlations are reported for each facet. All of the 60 correlations reported appear to be consistent with theoretical expectations. Many (27%) of these correlations are .50 or greater, and most (75%) are .40 or greater (Tinsley, 1994).

The Millon Clinical Multiaxial Inventory (MCMI) was developed to measure DSM-III personality disorders. Because Millon was influential in the definition of personality disorders adopted in DSM-III, these scales generally parallel the disorders officially recognized by the American Psychiatric Association. The MCMI scales have

been widely used by clinicians and researchers, and a considerable body of research has supported their validity (Millon, 1983).

This research used the latest version of the test, titled the MCMI-III, which was constructed to correspond to DSM-IV personality disorders. For the current sample, the internal consistency reliabilities for the MCMI-III scales are .79 for Histrionic, .75 for Antisocial, .73 for Compulsive, and .80 for Paranoid. To assess test-retest reliability, Millon administered the MCMI-II-R to eighty-seven subjects 5 to 14 days after the initial administration. The test-retest reliabilities for the relevant clinical scales are .91 for Histrionic, .93 for Antisocial, .92 for Compulsive, and .85 for Paranoid (Millon, 1997). Although exact correlations between the MCMI-II-R and MCMI-III scales are not reported in the manual, correlations between MCMI-II-R base rate scores and MCMI-III base rate scores indicate significant overlap.

According to Millon (1997), the MCMI scales have consistently shown theoretically expected correlations with other personality tests, such as the Minnesota Multiphasic Personality Inventory. In addition, they have demonstrated theoretically expected correlations for patterns in specific diagnostic groups.

The Cognitive Diffuseness Questionnaire is made up of thirty questions based on Shapiro's model of psychopathology. The questions are derived from the three levels of Shapiro's model: mode of cognition, subjective experience, and reality distortion for each of his cognitive styles: Paranoid (very rigid), Obsessive-compulsive (rigid), Hysterical (diffuse) and Impulsive (very diffuse). See Figure V.

By examining the three levels of Shapiro's model, the overall cognitive style is examined. For example, the obsessive-compulsive individual's rigid mode of cognition

is measured by the question “I’m very set in my ways ” Other questions target different aspects of the obsessive-compulsive individual’s rigid mode of cognition detailed in the “Neurotic Styles” section of the paper The obsessive-compulsive individual’s subjective experience of deliberate and purposeful action, influenced by their mode of cognition, is targeted by the question “I always feel like I have to do something”. Other questions target different aspects of the obsessive-compulsive individual’s subjective experience detailed in the “Neurotic Styles” section of the paper. The obsessive-compulsive individual’s tendency to distort reality through logical absurdities, also influenced by their mode of cognition, is measured by the question “People don’t understand why I believe some of the things I do”. In the current sample the internal consistency reliabilities are .49 for Paranoid, .54 for Obsessive-Compulsive, .59 for Hysterical and .48 for Impulsive.

Although the Cognitive Diffuseness scale examines specific neurotic styles, it also measures a general style. This variable, called Mode of cognition, is designed to test Shapiro’s bipolar dimension of cognitive style from rigid to diffuse. Mode of cognition was analyzed by summing the score of the diffuse items (Antisocial and Impulsive) and the inverse of the score for the rigid items (Paranoid and Compulsive). A high score reflects a diffuse style of cognition while a low score reflects a rigid style of cognition. For the current sample, the internal consistency reliability for the Mode of cognition scale is .34.

To test the validity of the bipolar dimension, two variables; rigidity and diffuseness, were constructed. The rigidity scale includes the sum of the Compulsive items and Paranoid items. A high score is more rigid. The diffuseness scale was

constructed by summing the Hysterical items and Impulsive items. A high score is more diffuse. The internal consistency reliabilities for the current sample are .69 for Diffuse and .68 for Rigid.

Participants were also given a forced choice questionnaire describing the paranoid, obsessive-compulsive, hysterical, and impulsive neurotic styles as defined by Shapiro. For example, the description for the obsessive-compulsive style read, “Very focused on details. Can be very stubborn and rigid. Not spontaneous. Always working hard. Rarely relaxed.” (See appendix A). Participants are asked to indicate which of the four styles best describes them. Those that indicate, for example, that the paranoid style best describes them, are expected to score higher on the CDQ paranoid items than other participants.

Procedures.

The participants were given an informed consent form, in which they were told that their participation is voluntary and they may withdraw at any time without penalty. (See appendix B). All the measures were distributed to the participants in one sitting. To avoid ordering effects, complete counterbalanced test forms were used (A-F). Each of the six forms presented the tests in a different order.

Results

Means and Standard deviations for Major Variables.

The means and standard deviations for the major variables of interest in the study are presented in Table 1.

Analysis of Hypotheses.

All hypotheses were tested by running Pearson product-moment correlations. Because the hypotheses are directional, one-tailed tests of significance are used.

The first hypothesis states that the Paranoid personality disorder as defined by Millon will have a positive correlation with the Deliberation, Self-discipline, and Dutifulness facet scales on the Conscientiousness (C) factor and will have a negative correlation with Fantasy and Feelings facet scales on the Openness to Experience (O) factor. The results can be found in Table 2.

According to Table 2, the Paranoid personality disorder as defined by Millon is not correlated with the Deliberation and Self-discipline facet scales, and is unexpectedly negatively correlated with the Dutifulness facet scale. The paranoid personality disorder is not correlated with the Fantasy facet, but as expected, does correlate negatively with the Feelings facet scale on the Openness to Experience (O) factor.

The second hypothesis states that the Compulsive personality disorder as defined by Millon will have a positive correlation with the Deliberation, Self-discipline, and Dutifulness facet scales on the Conscientiousness (C) factor, and will have a negative correlation with the Fantasy and Feelings facet scales on the Openness to Experience (O)

factor. It also states that the correlation between Millon's Compulsive scale and the Conscientiousness (C) and Openness to Experience (O) facet scales will be lower than the correlation between Millon's Paranoid scale and the Conscientiousness (C) and Openness to Experience (O) facet scales. The results can be found in Table 2.

According to Table 2, the Compulsive personality disorder as defined by Millon has a significant positive correlation with the Deliberation, Self-discipline, and Dutifulness facet scales on the Conscientiousness (C) factor. In addition, the Compulsive personality disorder has a significant negative correlation with the Fantasy facet but not with the Feelings facet on the Openness to Experience (O) factor.

The third hypothesis states that the Antisocial personality disorder as defined by Millon will have a negative correlation with the Deliberation, Self-discipline, and Dutifulness facet scales on the Conscientiousness (C) factor and will have a positive correlation with the Fantasy and Feelings facet scales on the Openness to Experience (O) factor. The results can be found in Table 2.

According to Table 2, the Antisocial personality disorder as defined by Millon has a significant negative correlation with the Deliberation, Self-discipline, and Dutifulness facet scales on the Conscientiousness (C) factor. The Antisocial personality disorder was positively correlated with the Fantasy facet but not with the Feelings facet on the Openness to Experience (O) factor.

The fourth hypothesis states that the Histrionic personality disorder as defined by Millon will have a negative correlation with the Deliberation, Self-discipline, and Dutifulness facet scales on the Conscientiousness (C) factor, and will have a positive correlation with the Fantasy and Feelings facet scales on the Openness to Experience (O)

factor. It also states that the correlation between Millon's Histrionic scale and the Conscientiousness (C) and Openness to Experience (O) facet scales will be lower than the correlation between Millon's Antisocial scale and the Conscientiousness (C) and Openness to Experience (O) facet scales. The results can be found in Table 2.

According to Table 2, the Histrionic personality disorder as defined by Millon is not correlated with the Deliberation and Dutifulness facet scales on the Conscientiousness (C) factor, but has a significant positive correlation with the Self-discipline facet, contrary to the hypothesis. The Histrionic personality disorder is not correlated with the Fantasy or Feelings facet scales.

The next set of hypotheses pertains to the relation between the Cognitive Diffuseness Questionnaire and personality disorders as defined by Millon. Before proceeding, it was important to evaluate Shapiro's model as measured by the CDQ. For example, according to Shapiro, the constructs of rigidity and diffuseness lie on opposite ends of a bipolar dimension called mode of cognition. If this is correct, the correlation between the rigidity scale and the diffuseness scale should be negative. However, in this sample, rigidity and diffuseness are positively correlated at $r = .46$. This suggests that Shapiro's notion of a bipolar continuum with rigid at one end and diffuse at the other may be problematic. As a result, the CDQ hypotheses which originally only examined mode of cognition will be modified by separating mode of cognition into two scales, or two continua (Rigid and Diffuse).

The fifth hypothesis states that diffuseness as measured by Mode of cognition on the CDQ will have a positive correlation with the Antisocial personality disorder as defined by Millon. By extension, the Antisocial personality disorder should have a

positive correlation with the Diffuse scale and high negative correlation with the Rigid scale. The results can be found in Table 3.

According to Table 3, the Antisocial personality disorder as defined by Millon has a significant positive correlation with the Diffuse scale measured by the CDQ. It is not correlated with the Rigid scale. In addition, diffuseness measured by Mode of cognition has a significant positive correlation with the Antisocial personality.

The sixth hypothesis states that diffuseness as measured by Mode of cognition on the CDQ will have a positive correlation with the Histrionic personality disorder as defined by Millon, but will be lower than it is for the Antisocial personality disorder. By extension, the Histrionic personality disorder should have a positive correlation with the Diffuse scale and a negative correlation with the Rigid scale, but the correlations will not be as high as for the Antisocial personality disorder. The results can be found in Table 3.

According to Table 3, the Histrionic personality disorder as defined by Millon does not correlate with the Diffuse or Rigid scales measured by the CDQ. Nor does it correlate with diffuseness as measured by Mode of cognition.

The seventh hypothesis states that diffuseness as measured by Mode of cognition on the CDQ will have a negative correlation with the Paranoid personality disorder as defined by Millon. By extension, the Paranoid personality disorder should have a negative correlation with the Diffuse scale and a high positive correlation with the Rigid scale. The results can be found in Table 3.

According to Table 3, the Paranoid personality disorder as defined by Millon has a positive correlation with both the Diffuse scale and Rigid scales. Diffuseness measured by Mode of cognition has no correlation with the paranoid personality.

The eighth hypothesis states that diffuseness as measured by Mode of cognition on the CDQ will have a negative correlation with the Compulsive personality disorder as defined by Millon, but that correlation will be lower than it is for the Paranoid personality disorder. By extension, the Compulsive personality disorder should have a negative correlation with the Diffuse scale and a positive correlation with the Rigid scale, but the correlations will not be as high as for the Paranoid personality disorder. The results can be found in Table 3.

According to Table 3, the Compulsive personality disorder as defined by Millon negatively correlates with the Diffuse scale. It is not significantly correlated with the Rigid scale. Diffuseness measured by Mode of cognition has a negative correlation.

Additional Analyses.

Other Pertinent MCMI-III scales and the NEO PI-R. In order to make sure that Shapiro's concepts of neurotic styles were operationalized correctly using the selected Millon scales, other pertinent Millon scales were analyzed. These additional Millon scales overlap with Shapiro's description of particular neurotic styles. For example, also important for examining impulsiveness are the Drug and Alcohol dependence scales. Overlapping with Shapiro's notion of the hysterical neurotic style is Millon's Somatoform scale. In addition, Shapiro's idea of the paranoid neurotic style overlaps with the Delusional disorder scale. Correlations between these additional Millon scales and the relevant facet scales on the NEO PI-R can be found in Table 4.

According to Table 4, conforming to Shapiro's model, the Alcohol dependence and Drug dependence scales have negative correlations with the Dutifulness, Self-discipline, and Deliberation factors. They were not correlated with the Openness facets.

The Somatoform scale had a negative correlation with the Dutifulness and Self-discipline facets and conforms to Shapiro's model better than the Histrionic scale does. The Delusional disorder was not correlated with any of the facet scales.

Other Pertinent MCMI-III scales and the CDQ. In addition, correlations between these additional Millon scales and the CDQ scales were conducted. Results can be found in Table 5.

According to Table 5, as expected, Alcohol dependence and Drug dependence were positively correlated with diffuseness, but also were unexpectedly uncorrelated with rigidity. The Somatoform disorder scale was positively correlated with diffuseness, but also was unexpectedly positively correlated with rigidity. In addition, like paranoia, the Delusional disorder scale was positively correlated with both diffuseness and rigidity.

Self-typed Neurotic Style. In order to test the validity of the CDQ, four analyses of variance were conducted. The paranoid, obsessive, hysterical, and impulsive styles as measured by the CDQ are the dependent variables. The grouping variables are each person's response to the forced choice questionnaire, where they were asked to pick which style best describes them. Sixteen (16) people identified themselves as paranoid, 44 people identified themselves as obsessive, 43 people identified themselves as hysterical, and 20 people identified themselves as impulsive. The test for homogeneity of variance indicated that the variances were not significantly different. The results are presented in Table 6.

According to Table 6, the paranoid, obsessive, hysterical and impulsive groups do not differ significantly with respect to their score on either the CDQ paranoid items or the CDQ obsessive items. These groups do differ with respect to both the CDQ hysterical

items [$F(3, 119) = 6.59$ $p < .000$] and impulsive items [$F(3, 119) = 7.4$ $p < .000$]. Taking the regression sum of squares and dividing it by the total sum of squares indicates that the difference between the groups account for 14% of the hysterical scale variance and 15% of the impulsive scale variance.

To check for specific differences between groups, Tukey post-hoc tests were conducted. For the significant F on the hysterical variable, the Tukey test indicates that the impulsive group (mean=3.1) is significantly greater than the paranoid (mean=2.5) and obsessive groups (mean=2.6), and not significantly different than the hysterical (mean=2.8) group. For the significant F on the impulsive variable, the impulsive group (mean=3.4) is significantly greater than the paranoid (mean=2.8) and obsessive groups (mean=2.7). Further with respect to impulsiveness, the obsessive and hysterical (mean=3.0) groups are significantly different from each other.

Also conducted was an ANOVA using the participant's self-typed neurotic style as the independent variable and the relevant MCMI-III scales as the dependent variables. The test for homogeneity of variance indicates that the group variances were not significantly different. The results are presented in Table 7.

According to Table 7, the MCMI-III paranoid and histrionic scales do not differ significantly with respect to the participant's self-typed neurotic style. However, there are significant differences on the MCMI-III compulsive scale [$F(3, 119) = 12.0$ $p < .001$] and the antisocial scale [$F(3, 119) = 6.3$ $p < .001$]. Taking the regression sum of squares and dividing it by the total sum of squares indicates that the difference between the groups account for 23% of the compulsive scale variance and 13% of the antisocial scale variance.

To check for specific differences between groups, Tukey post-hoc tests were conducted. For the significant F on the compulsive variable, the Tukey test indicates that the impulsive group (mean=9.8) is significantly lower than the paranoid (mean=15.6), obsessive (mean=16.9) and hysterical groups (mean=13.5). The obsessive group was also significantly greater than the hysterical group. For the significant F on the antisocial variable, the impulsive group (mean=11.1) was significantly greater than the paranoid (mean=6.0), obsessive (mean=5.9), and hysterical groups (mean=7.0).

MCMI-III Correlations. To further analyze Shapiro's model, the relevant MCMI scales were correlated with each other. According to Shapiro's model, there should be a positive correlation between those personality disorder scales thought to be rigid (Paranoid and Compulsive) and a positive correlation between those personality disorder scales thought to be diffuse (Antisocial and Histrionic). In addition, those personality disorder scales thought to be diffuse should be negatively correlated with those thought to be rigid. The results can be found in Table 8.

According to Table 8, the Histrionic personality disorder as defined by Millon has an unexpected positive correlation with the Compulsive scale and an expected negative correlation with the Paranoid scale. The Antisocial personality disorder as defined by Millon has an expected negative correlation with the Compulsive scale and an unexpected positive correlation with the Paranoid scale. Although it is possible that correlations between Millon scales are inflated due to shared items, when investigating only non-overlapping items [(i.e.) prototypical items], the correlations have the same pattern.

Correlations between Rigid and Diffuse and the facet scales. To further analyze Shapiro's model, the CDQ and NEO PI facet scales were correlated. According to Shapiro's model there should be a positive correlation between rigidity and the relevant Conscientiousness facet scales, and a negative correlation with the relevant Openness to Experience facet scales. In addition, there should be a positive correlation between diffuseness and the relevant Openness to Experience facet scales and a negative correlation with the relevant Conscientiousness facet scales. The results can be found in Table 9.

According to Table 9, as expected the Diffuse scale measured by the CDQ has a significant negative correlation with the Conscientiousness (C) facets and a positive correlation with the Fantasy facet. In addition, the Rigid scale as measured by the CDQ was negatively correlated with the Fantasy facet.

To better understand Shapiro's individual styles as measured by the CDQ, they were correlated with the Openness to Experience facets and Conscientiousness facets. The results can be found in Table 10.

According to Table 10, the paranoid neurotic style positively correlates with Dutifulness. The obsessive-compulsive neurotic style negatively correlates with Fantasy. The hysterical neurotic style positively correlates with Fantasy and negatively correlates with the relevant Conscientiousness facets. The impulsive neurotic style also negatively correlates with the relevant Conscientiousness facets.

To test Shapiro's model independent of the CDQ and its attempt to operationalize his constructs, the Conscientiousness (C) facet scales and Openness to Experience (O) facet scales were correlated. The results are presented in Table 11.

According to Table 11, the Fantasy facet positively correlates with the Feelings facet and negatively correlates with the Dutifulness, Self-Discipline, Deliberation facets. Unfortunately, there are no significant correlations with the Feelings facet except with that of the Fantasy facet. The facet scales on the Conscientiousness (C) factor positively correlate with each other as expected.

Shapiro's neurotic scales on the CDQ were also correlated with each other. The results can be found in Table 12.

According to Table 12, Shapiro's neurotic styles do not relate to each other as predicted. For example, the diffuse impulsive and hysterical styles both positively correlated with the rigid obsessive and paranoid styles. However, there are positive correlations between the similar neurotic styles.

To examine the expected overlap between Millon's personality scales and Shapiro's neurotic styles as measured by the CDQ, the Millon and CDQ were correlated with each other. The results can be found in Table 13.

According to Table 13, the impulsive style positively correlates with Millon's antisocial scale and negatively correlates with Millon's compulsive scale. Unfortunately, it also correlates positively with Millon's paranoid scale. The hysterical neurotic style has a similar pattern of correlations except for the fact that it also negatively correlates with Millon's histrionic scale. The obsessive-compulsive neurotic style has a negative correlation with Millon's histrionic scale and a positive correlation with Millon's paranoid scale. Finally, the paranoid neurotic style correlates positively with Millon's compulsive and paranoid scales.

Discussion

Bipolar Dimensionality.

The first issue to discuss is Shapiro's notion of mode of cognition as a bipolar dimension from rigid to diffuse. The major finding with the Cognitive Diffuseness Questionnaire, a measure thought to closely reflect Shapiro's model, is that rigid and diffuse are positively correlated. This finding suggests that there is no bipolar dimension with rigid on one end and diffuse on the other. It is more likely that rigid and diffuse are two dimensions.

However, when operationalizing Shapiro's constructs of rigid and diffuse in terms of NEO-PI facets (a more validated measure than the CDQ), there is limited support for Shapiro's model. This is seen in the expected negative correlation between the Fantasy facet on the Openness factor and the relevant Conscientiousness facets (Self-discipline, Deliberation, and Dutifulness). In addition the Fantasy facet is positively correlated with diffuseness (.15) and negatively correlated with rigidity (-.15). It is possible that part of what Shapiro is talking about in terms of mode of cognition involves a fantasy continuum from low to high. That arguably is bipolar.

Furthermore, diffuseness itself does exhibit the pattern of correlations that Shapiro suggests, i.e., it is positively correlated with the Openness Fantasy facet and negatively correlated with all the relevant Conscientiousness facets. The Conscientiousness facets are very important for understanding diffuseness. Diffuse people are non-deliberative, and lack discipline. It may be useful to reconceptualize Shapiro's model focusing on diffuseness rather than on rigidity.

Personality Disorders.

In discussing the neurotic styles and their relationships with other scales, primary emphasis will be given to the Millon operationalizations because they have demonstrated validity. The neurotic styles as measured by the CDQ will be discussed secondary to the Millon operationalizations.

Compulsive. Compulsiveness as measured by Millon, does demonstrate some of the patterns of correlation that Shapiro's model predicts. For example, it is positively correlated with the Conscientiousness facets and negatively correlated with the Fantasy facet on the Openness factor. Furthermore, it is negatively correlated with diffuseness as measured by the CDQ (-.43). This suggests that Shapiro's notion of the obsessive-compulsive style has some merit.

Other findings with the Millon scales casts some doubt on Shapiro's notion of the obsessive-compulsive style. Although the Compulsive scale is negatively correlated with the Antisocial scale (-.69), it is also negatively correlated with the Paranoid scale, contrary to Shapiro's model. This, as will be seen, may relate to problems with Shapiro's conception of paranoia.

With respect to styles as measured by the CDQ, the obsessive-compulsive and paranoid styles are positively correlated as expected, even though the obsessive-compulsive and hysterical styles are also positively correlated contrary to expectations. In addition, the obsessive-compulsive style as measured by the CDQ is negatively correlated with the Fantasy facet as expected, but it is not correlated with the Conscientiousness facets.

Overall, people who score high on Millon's Compulsive scale are dutiful, deliberative, and disciplined, and at the same time have limited spontaneous fantasy lives, as Shapiro's model suggests. The opposite of these traits taps into diffuseness as measured by the CDQ. For some reason, however, obsessive-compulsive as measured by the CDQ does not correlate with compulsivity as measured by the Millon. Our observations suggest that the MCMI-III may do a better job of capturing Shapiro's notion of the obsessive-compulsive style than does the CDQ.

For the most part, the CDQ obsessive-compulsive items were not correlated with Millon's compulsive items. Some of these correlations do not make intuitive sense. For example, the CDQ item "I always put effort into what I'm doing no matter what," was negatively correlated with compulsiveness. Even more counter-intuitive is the fact that this CDQ item about putting in effort was negatively correlated with the Millon item that states "I always make sure my work is well planned and organized." One explanation for these counter-intuitive findings is that some of the CDQ items are more abstract and philosophical, and hence open to interpretation, such as the items, "It is details that make life rich" or "It feels like I never act on my own behalf". The Millon items, being more concrete, may work better.

Paranoid. With respect to paranoia, Shapiro's model appears to be much less adequate. For both the MCMI-III and CDQ, the paranoid scales do not demonstrate the pattern of correlations that Shapiro suggests they should. For example, although there is an expected negative correlation with the Feelings facet on Openness to Experience, there are no positive correlations with the Conscientiousness facets, and even an unexpected negative correlation with the Dutifulness facet. If there is a rigid continuum, these

findings suggest that the paranoid style is not more rigid than the obsessive-compulsive style on that continuum, contrary to Shapiro's claim. In addition, Millon's Paranoid scale positively correlates with both rigidity and diffuseness as measured by the CDQ.

Furthermore, delusional disorder, which is conceptually related to paranoid personality was also positively correlated with rigidity and diffuseness, and not correlated with the Openness and Conscientiousness facets. Also contrary to Shapiro's model, the paranoid personality as measured by Millon was positively correlated with the antisocial personality and negatively correlated with the compulsive personality.

As measured by the CDQ, the paranoid style was positively correlated with all the neurotic styles as measured by Millon. This suggests that the paranoid style is not related to the other styles in the way Shapiro suggests.

As stated, using either Millon's operationalization or the CDQ operationalization, the paranoid personality does not appear to be what Shapiro claims it is. Although this is the only style that is high on rigidity as measured by the CDQ, it was also high on diffuseness. Upon reflection, this may make sense. People who are paranoid have a tendency to take cognitive leaps and act on hunches, which parallels what Shapiro means by diffuseness. It is even possible that the greater the diffuseness, the greater one is willing to distort reality, hence the greater psychopathology.

Histrionic. The correlations for the Histrionic scale as measured by Millon do not overlap with what Shapiro wrote about hysteria. For example, Millon's Histrionic scale is unrelated to both rigidity and diffuseness. With respect to the NEO facets, it is unrelated to Fantasy and Feelings, and has an unexpected positive correlation with Self-discipline. According to the findings with the Millon, the histrionic personality also

exhibits an expected negative correlation with the paranoid personality, but also unexpectedly positively correlates with the compulsive personality.

Confusing the issue, hysteria as measured by the CDQ does exhibit the patterns Shapiro suggests, i.e., it is positively correlated with Fantasy and negatively correlated with the relevant Conscientiousness facets. In fact, hysteria as measured by the CDQ has a negative correlation with Millon's histrionic scale.

It may be that the CDQ better measures Shapiro's notion of hysteria than does the MCMI-III. It is important to remember that what Shapiro means by hysteria has been split into two separate categories in the current psychiatric nosology, one the histrionic personality disorder and two, the somatoform disorder. The correlations for Millon's somatoform disorder do lend some support to Shapiro's model, in that somatoform disorder has a negative correlation with both Dutifulness and Self-discipline. In addition, it positively correlates with diffuseness as expected, but it also positively correlates with rigidity contrary to expectations.

It is likely that what Shapiro means by hysterical and what Millon means by histrionic do not match. As far as the Shapiro's conception goes, hysteria is negatively correlated with the Conscientiousness facets. In addition, the somatoform disorder, which is more of a classic conversion disorder, with bodily symptoms that result from anxiety, matches the pattern seen in Shapiro's hysterical style. Shapiro's hysterical style and Millon's somatoform scale have a moderate (.39) correlation. Consistent with the general findings about the notion of rigidity, the somatoform disorder correlates with rigidity on the CDQ.

For the most part, Millon's Histrionic scale is composed of dramatic and extraverted items, such as "I am always looking to make new friends and meet new people". As a matter of fact, Extroversion is highly correlated with Millon's Histrionic scale (.64) and uncorrelated with the CDQ Hysterical scale.

It is fair to say that Shapiro has a more cognitive notion of the hysterical personality than does Millon. Shapiro focuses on the incapacity for intellectual concentration, impressionability, susceptibility to suggestion, and intuition as the final cognitive solution. Classical hysterics are non-compulsive and are more involved in fantasy than in the world of fact and detail. In current terms, they tend to be more avoident than extroverted.

Antisocial. Similar to the positive findings for the compulsive personality, the antisocial personality exhibits the patterns predicted by Shapiro's model. As expected, there is some parallel between Shapiro's notion of the impulsive style and the antisocial personality. For example, the antisocial personality is negatively correlated with the relevant Conscientiousness facets. In addition, it is positively correlated with the Fantasy facet on Openness to Experience factor. Furthermore, the antisocial personality was positively correlated with diffuseness, although it was not correlated with rigidity. As suggested by Shapiro, Millon's antisocial personality and compulsive personality appear to be very opposed to each other (-.69 correlation).

Also lending support to Shapiro's notion of impulsiveness is the fact that two related Millon scales, drug dependence and alcohol dependence, are both negatively correlated with the Conscientiousness facets and positively correlated with diffuseness.

The antisocial personality as measured by Millon is very much what Shapiro describes as impulsive. These people do not plan, are non-deliberate, and are not concerned with duty or what one "should" do. They have a muted experience of making choices (low on Conscientiousness), unlike the compulsive person for whom every moment is deliberated.

If as suggested in the discussion of paranoia, diffuseness leads to reality distortion, than perhaps it makes sense that the two most severe neurotic styles are high on diffuseness. In the ego psychology model, degree of psychopathology is proportional to degree of reality distortion. What the antisocial personality distorts or ignores are rules, people's feelings, and consequences.

Summary of Noteworthy Findings.

In short, the obsessive-compulsive and impulsive styles may be very much as Shapiro describes them. The first is quite high on Conscientiousness and the second is low on Conscientiousness. Being low on Conscientiousness is an important part of what Shapiro means by diffuse. Diffuse people however, can not be defined as being high on Openness to Experience. They are more likely to have active fantasy lives, but fantasy does not define diffuseness as strongly as the Conscientiousness facets do. As a matter of fact, the Neurotic facets such as hostility, depression, and impulsiveness define diffuseness more accurately than the Openness facets.

The hysterical style may be what Shapiro suggests, but it is also clear that Millon's histrionic scale is not what Shapiro means by hysteria. Millon defines the histrionic personality as an emotional extravert.

Paranoia, under any operationalization, does not seem to be what Shapiro describes it as. It is not more extreme than the obsessive-compulsive style on a rigidity or conscientiousness continuum. It is more accurately defined by high diffuseness than by anything else, and it is not high on conscientiousness.

These conclusions are also supported by the results of the ANOVA tables. The idea that the MCMI accurately measures Shapiro's notion of obsessive-compulsive and impulsive matches the fact that those variables predict differences between self-typed neurotic style. Also, the idea that the CDQ matches what Shapiro means by impulsiveness and hysteria is confirmed by the fact that those variables predict differences between self-typed neurotic style.

Dimensions versus Categories.

Part of the reason for running this study was to investigate a possible relationship between classical psychodynamic categories and modern scientifically-based dimensional models. A major point in the literature review was that ego psychology models have a strong dimensional component. These models may not talk about a continuum of hysteria from high to low, but they do discuss diagnostic categories in terms of continua such as rigidity, diffuseness, spontaneity, and impulsiveness. Shapiro's description of rigid and diffuse, in particular, seem to overlap with the five-factor model notion of conscientiousness and openness to experience. Making such overlap explicit was a goal of this study.

There is good reason to believe that standard psychodynamic continua do overlap with five-factor model continua, but the overlap is not neat. The lack of correlation between the two may be a result of problems with the psychodynamic model, problems

with the five-factor model, or both. For example Shapiro's notion of "mode of cognition" from rigid to diffuse may be an invalid concept. At least as they were operationalized in this study, rigidity and diffuseness seem to be two different continua. Rigidity is unrelated to conscientiousness. Diffuseness is related to conscientiousness as expected, but it is not related to openness as expected. These problems with rigidity and diffuseness suggest that Shapiro's description of the neurotic styles may also contain inaccuracies.

With respect to the five-factor model, the NEO-PI may not be as clear a path to the Shangri-La of personality assessment as some thinkers assume. Tellegen (1993) and Zachar (in press) claim that it lacks content validity with respect to personality as a whole. For example, Costa and McCrae's exclusion criteria led to an item pool that failed to adequately sample the personality descriptions used in natural languages. Almagor, Tellegen, and Waller (1995) claim that the initial narrowness of the Costa and McCrae item pool explains why John (1989) could not classify traits such as independent, peculiar, and conservative on the Big Five dimensions. Presumably we cannot say that peculiar and independent are not valid traits because they do not fit into the five-factor model. It may be that diffuseness and rigidity also have a kind of clinical validity that is not captured by the NEO-PI.

Tellegen persuasively argues that the *a priori* elimination of evaluative and mood terms from what is supposed to be a comprehensive index of folk personality descriptions weakens the NEO's application to be the framework for the DSM's assessment of maladaptive personality styles. This should be of particular concern to psychodynamic thinkers, who view emotion and motivation as integral to the foundation of personality.

Ben-Porath and Waller (1992) astutely claim that NEO-PI still needs to demonstrate incremental validity above and beyond standard clinical measures such as the Minnesota Multiphasic Personality Inventory to even be included in the assessment of psychopathology, let alone to define it. Similar concerns could be offered with respect to the Big-Five evaluation of Shapiro's models.

Limitations.

One possible limitation in this study investigates hysterical, obsessive-compulsive, paranoid, and impulsive traits in a non-clinical sample. Using Millon's diagnostic cut-off, the average scores for personality disorders in this sample are not even close to being labeled "disordered." It is possible that someone who is clinically hysterical or clinically paranoid would demonstrate the kinds of patterns that Shapiro suggests.

Another possible limitation is that rigidity, diffuseness, and the neurotic styles as measured by the CDQ do not adequately operationalize Shapiro's constructs. Perhaps Conscientiousness as measured by the NEO-PI is a better operationalization of rigidity. As a matter of fact, while diffuseness is negatively correlated with the relevant Conscientiousness facets as expected, rigidity is not correlated with them. To better test Shapiro's model, a more explicit test construction strategy using a high number of initial items would be required.

A third limitation involves questions about how motivated the participants were to take the test seriously. It required 1.5 to 2 hours to complete the test battery, and many participants complained of fatigue. However, the tests were completely counterbalanced, so fatigue should be evenly distributed between the sections. Like all self-report tests,

there are questions about how accurate participants can self-rate themselves. In addition, there are conditions for eliminating invalid protocols for the NEO-PI and Millon, and these conditions were followed.

A fourth limitation is the sample size. It is likely that some of the obtained correlations are unstable, particularly those that barely made the .01 and .05 cutoffs. A high number of correlations were also computed. It may have been better to use multiple regression models, but problems with multicollinearity raise concerns about that strategy.

Perhaps the biggest limitation of this study is the low reliabilities for the scales. The CDQ scales had very low reliabilities, casting some doubt on their usefulness in general – especially the scales measuring the styles. It is possible that Shapiro's constructs are complex and therefore the scales measuring them would be heterogeneous, but it could also be the case that Shapiro's constructs are too vague. However, for this sample, the reliabilites were also low for the NEO, compared to what is reported in the manual (Costa and McCrae, 1992).

Future Directions.

For future research on neurotic styles, it would be helpful to use a truly clinical sample where persons with actual personality disorders would be studied. Also, modifications could be made to the Cognitive Diffuseness Questionnaire, particularly the obsessive-compulsive scale. For example, adding items to the scales that requires less interpretation would be better. In this context, there needs to be further investigation of the notion of the hysterical versus the histrionic personality. Furthermore, there are still questions about what diffuseness measures. Other personality tests and validation criteria may help aid in understanding diffuseness, as well as helping us to better study the notion

of rigidity. It may be that neither the CDQ nor the NEO-PI captures what Shapiro meant by rigidity.

Mode of Cognition Dimension

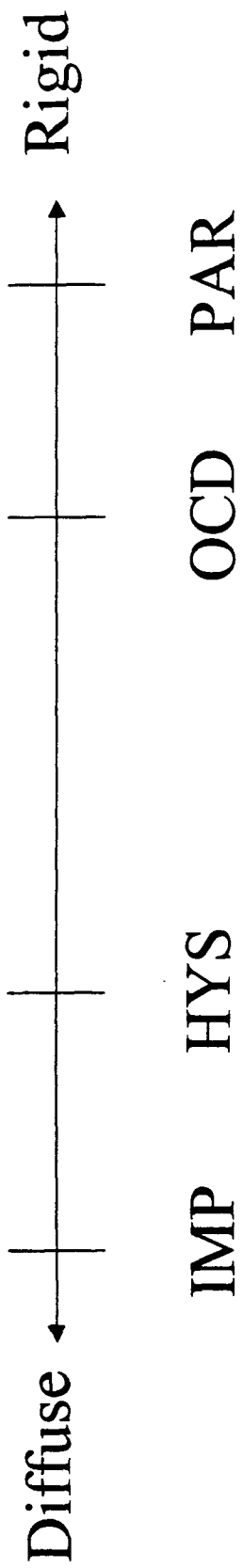


Figure I. Shapiro's primary dimension of mode of cognition.

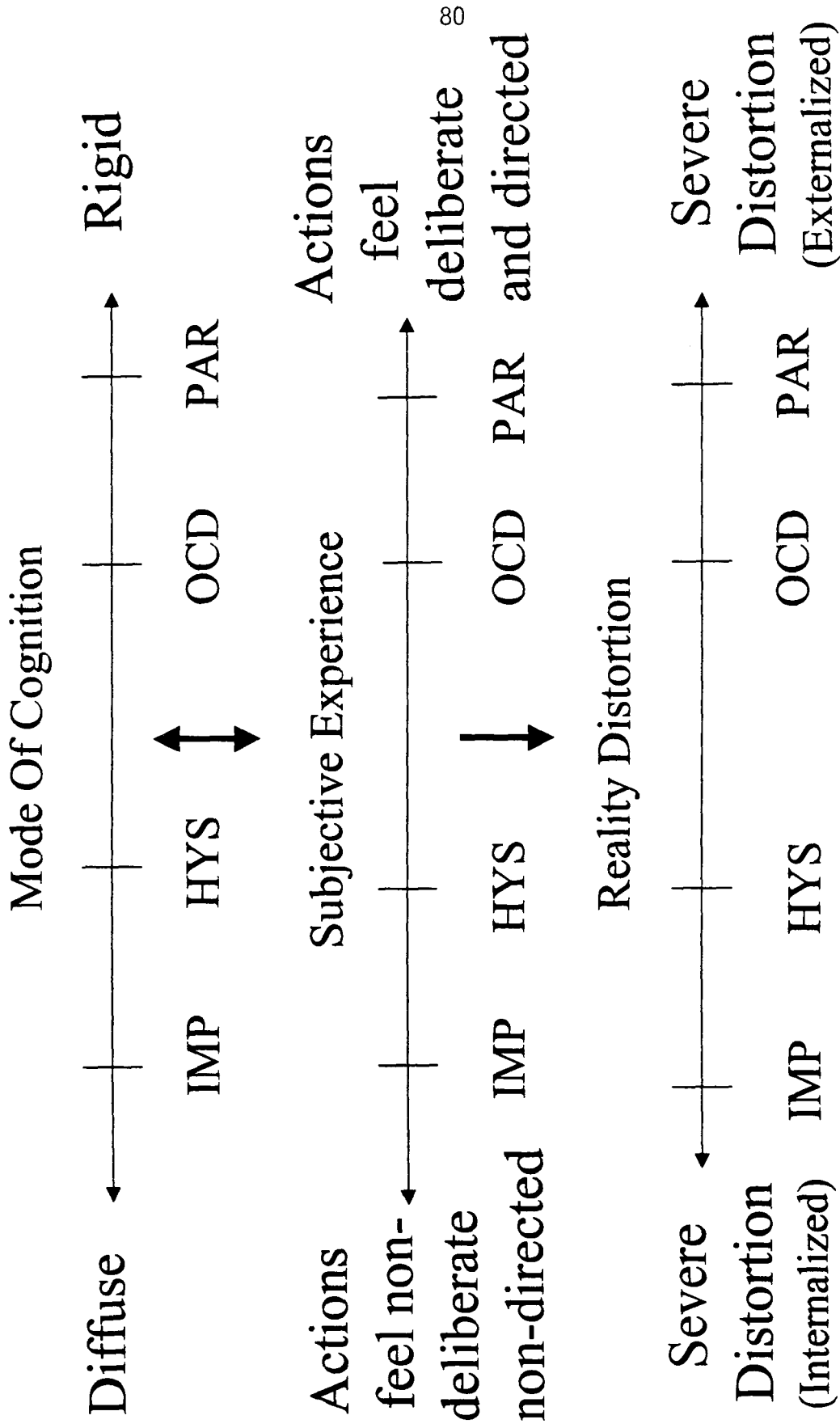


Figure II. Shapiro's model of psychopathology: Cognitive Style.

Cognitive style based on an individual's characteristic way of thinking,

Five-Factor Axes of Proposed Model

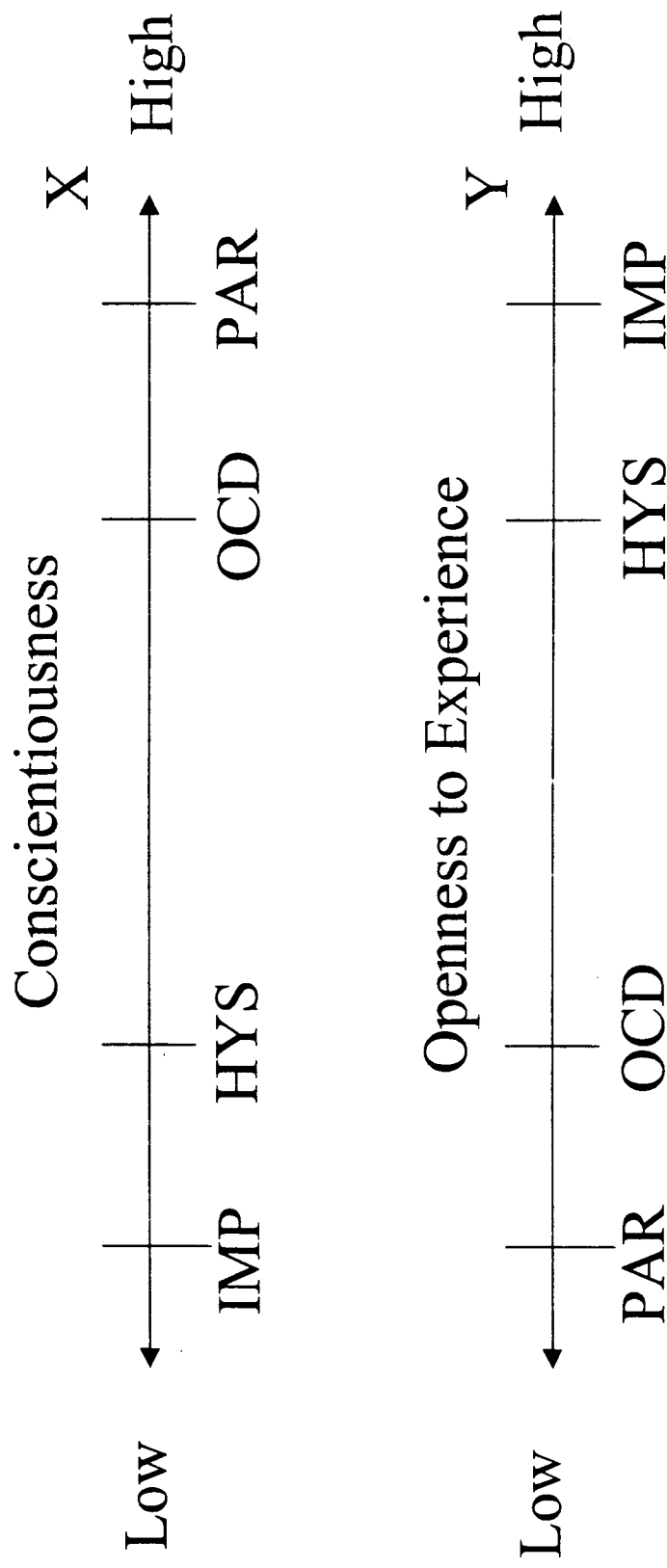


Figure III. Shapiro's mode of cognition as NEO-PI dimensions.

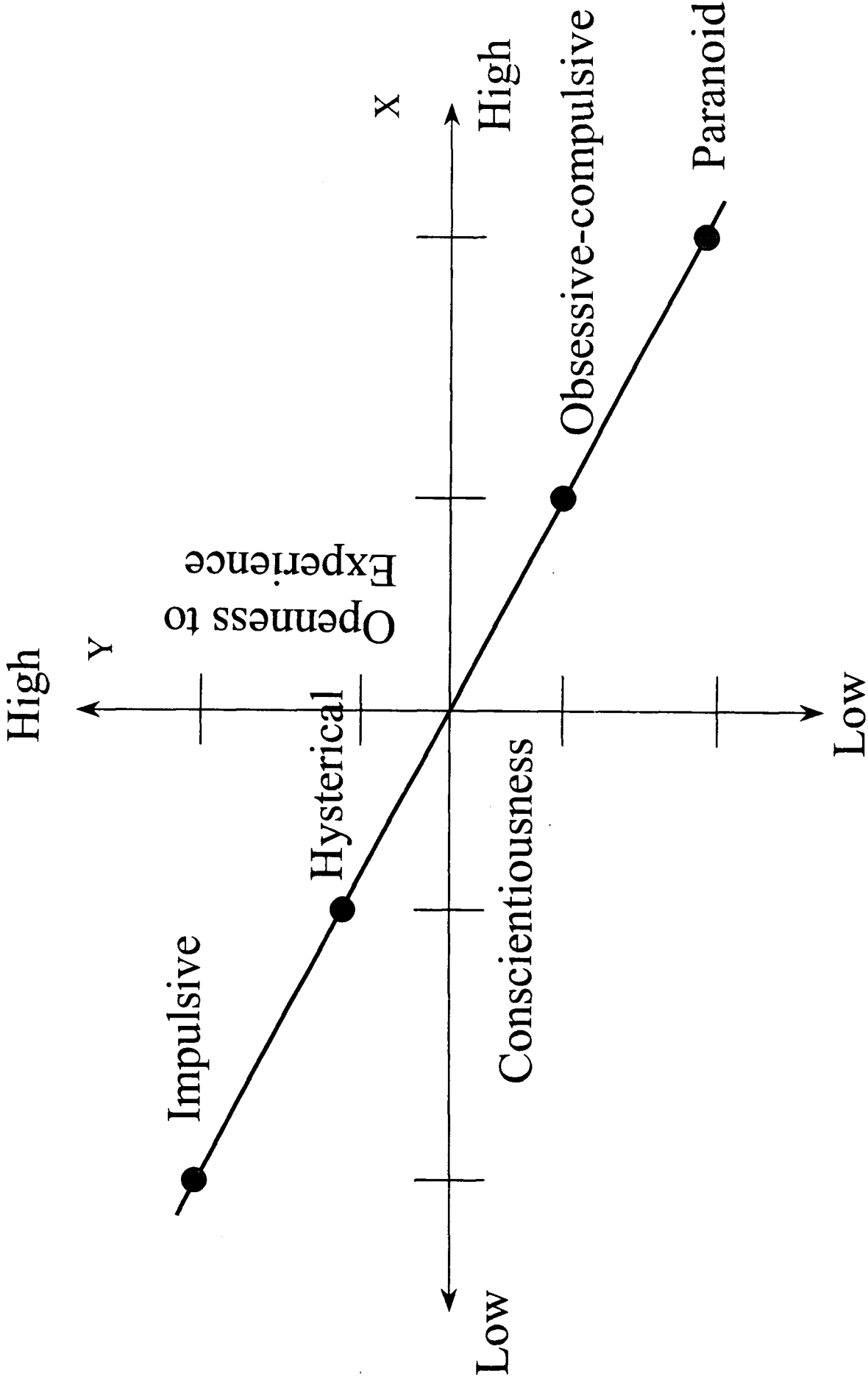


Figure IV. Neurotic styles as NEO-PI dimensions

Origin of Items for the Cognitive Diffuseness Questionnaire

| | <u>(OCD) RIGID</u> | <u>(PARANOID) VERY RIGID</u> | <u>(HYSTERICAL) DIFFUSE</u> | <u>(IMPULSIVE) VERY DIFFUSE</u> |
|-----------------------------------------|----------------------------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------|---------------------------------------------------------------|
| <u>COGNITION</u> | | | | |
| | It's hard for me to stop one thing and start another. | I'm always prepared for trouble. | I'm a person who lives by inspiration. | I can be very impulsive. |
| | I prefer to focus on details. | Many times I'm right about things, I just need the evidence to prove it. | I always go on my intuition. | Sometimes I do things that are not in my long term interests. |
| | I can easily avoid most distractions. | People often try to cover up the truth. | I'm easily distracted. | I tend to act before I think. |
| | I'm very set in my ways. | | I'm easily convinced. | |
| <u>SUBJECTIVE EXPERIENCE</u> | | | | |
| | I always put effort in what I'm doing. | I never do things on a whim. | It's hard for me to recall facts. | I don't do many things purposefully |
| | I always feel like I have to do something. | I always do things for a reason. | Sometimes I can't contain my emotions. | |
| | It feels like I never do anything for myself. | I'm always alert. | I tend not to think about why I react the way I do. | Things just happen to me. |
| | I'm always working under pressure. | | | |
| <u>REALITY DISTORTION</u> | | | | |
| | People don't understand why I believe some of the things I do. | Often times people are wrong because they don't know all the hidden facts I do. | I'm not concerned about current events. | Things happen and I don't always worry about it. |

Figure V. Cognitive Diffuseness Questionnaire based on Shapiro's model of psychopathology: Cognitive style.

Table 1

Means and Standard Deviations for the Major Variables in the Study.

| <u>Variables</u> | <u>Mean</u> | <u>SD</u> | <u>Min</u> | <u>Max</u> | <u>Range</u> |
|--------------------------|-------------|-----------|------------|------------|--------------|
| MCMII-III Scales: | | | | | |
| <u>Compulsive</u> | 6.6 | 5.4 | 1.0 | 24.0 | 23.0 |
| <u>Paranoid</u> | 14.1 | 5.2 | 0.0 | 24.0 | 24.0 |
| <u>Histrionic</u> | 15.6 | 5.3 | 0.0 | 24.0 | 24.0 |
| <u>Antisocial</u> | 7.3 | 4.9 | 0.0 | 22.0 | 22.0 |
| CDQ Scales: | | | | | |
| <u>Paranoid</u> | 2.9 | .50 | 1.5 | 4.5 | 3.0 |
| <u>Obsessive</u> | 3.0 | .48 | 1.5 | 4.2 | 2.6 |
| <u>Hysterical</u> | 2.8 | .53 | 1.3 | 4.1 | 2.7 |
| <u>Impulsive</u> | 3.0 | .58 | 1.3 | 4.3 | 3.0 |
| <u>Rigid</u> | 3.0 | .42 | 1.5 | 4.0 | 2.5 |
| <u>Diffuse</u> | 2.9 | .47 | 1.4 | 3.9 | 2.5 |
| <u>Mode of cognition</u> | 2.9 | .23 | 2.3 | 3.6 | 1.3 |
| NEO PI-R Scales: | | | | | |
| <u>Fantasy</u> | 18.4 | 5.5 | 6.0 | 31.0 | 25.0 |
| <u>Feelings</u> | 20.8 | 4.3 | 8.0 | 32.0 | 24.0 |
| <u>Dutifulness</u> | 20.4 | 3.7 | 12.0 | 30.0 | 18.0 |
| <u>Self-discipline</u> | 19.1 | 4.9 | 6.0 | 30.0 | 24.0 |
| <u>Deliberation</u> | 16.1 | 4.8 | 5.0 | 28.0 | 23.0 |

Table 2

Correlation Matrix of the Relevant MCMI-III Scales with the Deliberation, Self-discipline, Dutifulness, Fantasy and Feelings Facet Scales on NEO PI-R (Form S).

| MCMI Scales | NEO PI-R Facets | | | | |
|-------------------|---------------------|------------------------|--------------------|----------------|-----------------|
| | <u>Deliberation</u> | <u>Self-discipline</u> | <u>Dutifulness</u> | <u>Fantasy</u> | <u>Feelings</u> |
| <u>Paranoid</u> | -.07 | -.07 | -.14* | -.09 | -.14* |
| <u>Compulsive</u> | .54** | .49** | .43** | -.27** | -.00 |
| <u>Antisocial</u> | -.37** | -.31** | -.31** | .16* | -.08 |
| <u>Histrionic</u> | .13 | .22** | -.01 | -.05 | .13 |

** $p < .01$. (1-tailed).

* $p < .05$. (1-tailed).

Table 3

Correlation Matrix of the MCMI-III Scales with the Diffuseness, Rigidity and Mode of Cognition Scales Measured by the Cognitive Diffuseness Questionnaire.

| | Cognitive Diffuseness Questionnaire | | |
|-------------------|-------------------------------------|--------------|--------------------------|
| | <u>Diffuse</u> | <u>Rigid</u> | <u>Mode of Cognition</u> |
| MCMI Scales | | | |
| <u>Antisocial</u> | .50* | .09 | .39** |
| <u>Histrionic</u> | -.10 | -.13 | .03 |
| <u>Paranoid</u> | .30** | .30* | -.00 |
| <u>Compulsive</u> | -.43** | .13 | -.54** |

** $p < .01$. (1-tailed).

* $p < .05$. (1-tailed).

Table 4

Correlation Matrix of the Additional MCMI-III Scales with the Deliberation, Self-discipline, Dutifulness, Fantasy and Feelings Facet Scales on NEO PI-R (Form S).

| | <u>Openness to Experience Facets</u> | | <u>Conscientiousness Facets</u> | | |
|------------------------|--------------------------------------|-----------------|---------------------------------|------------------------|---------------------|
| | <u>Fantasy</u> | <u>Feelings</u> | <u>Dutifulness</u> | <u>Self-Discipline</u> | <u>Deliberation</u> |
| <u>Alcohol Depend.</u> | .08 | -.08 | -.30** | -.30** | -.30** |
| <u>Drug Dependence</u> | .11 | -.02 | -.24** | -.18* | -.21** |
| <u>Somatoform</u> | .10 | .13 | -.14* | -.30** | -.06 |
| <u>Delusional</u> | -.08 | -.10 | -.06 | .04 | -.01 |

** $p < .01$. (1-tailed).

* $p < .05$. (1-tailed).

Table 5

Correlation Matrix of the Additional MCMI-III Scales with the Mode of Cognition,

Diffuseness and Rigidity Scales measured by the Cognitive Diffuseness Questionnaire.

| | Cognitive Diffuseness Questionnaire | | |
|---------------------------|-------------------------------------|--------------|--------------------------|
| | <u>Diffuse</u> | <u>Rigid</u> | <u>Mode of Cognition</u> |
| MCMI Scales | | | |
| <u>Alcohol Dependence</u> | .44** | .07 | .36** |
| <u>Drug Dependence</u> | .37** | .04 | .31** |
| <u>Somatoform</u> | .31** | .20* | .08 |
| <u>Delusional</u> | .30** | .30** | -.02 |

** $p < .01$. (1-tailed).

* $p < .05$. (1-tailed).

Table 6

Analysis of Variance of Shapiro's Neurotic Styles (Forced Choice Questionnaire) as the Independent Variables and the Neurotic Style Scales as Measured by the CDQ as the Dependent Variables.

| <u>Forced Choice Neurotic Style Responses</u> | | | | | | | |
|-----------------------------------------------|-------------------------|--------------------------|---------------------------|--------------------------|------------------|--------------------|-----------------|
| | <u>Paranoid</u> n=16 | <u>Obsessive</u> n=44 | <u>Hysterical</u> n=43 | <u>Impulsive</u> n=20 | SS <u>reg</u> | SS <u>error</u> | F <u>obs</u> |
| <u>CDQ Scales</u> | M (SD) | M (SD) | M (SD) | M (SD) | | | |
| <u>Paranoid</u> | 3.0 (.63) | 3.2 (.46) | 2.9 (.50) | 2.9 (.50) | 1.29 | 30.9 | 1.65 |
| <u>Obsessive</u> | 2.8 (.55) | 3.0 (.53) | 2.9 (.47) | 2.9 (.39) | .69 | 29.1 | .94 |
| <u>Hysterical</u> | 2.5 (.50) | 2.6 (.52) | 2.8 (.52) | 3.1 (.40) | 4.8 | 30.0 | 6.4* |
| <u>Impulsive</u> | 2.8 (.62) | 2.7 (.57) | 3.0 (.51) | 3.4 (.35) | 6.2 | 33.6 | 7.3* |

* $p < .000$

Table 7

Analysis of Variance of Shapiro's Neurotic Styles (Forced Choice Questionnaire) as the Independent Variables and the Relevant MCMI-III Scales as the Dependent Variables.

| <u>MCMI-III</u> | <u>Forced Choice Neurotic Style Responses</u> | | | | SS <u>reg</u> | SS <u>error</u> | F <u>obs</u> |
|-------------------|-----------------------------------------------|------------------------------------|-------------------------------------|------------------------------------|------------------|--------------------|-----------------|
| | <u>Paranoid</u> n=16 M (SD) | <u>Obsessive</u> n=44 M (SD) | <u>Hysterical</u> n=43 M (SD) | <u>Impulsive</u> n=20 M (SD) | | | |
| <u>Paranoid</u> | 7.6 (6.3) | 6.4 (4.9) | 5.4 (4.9) | 8.5 (7.0) | 151.7 | 3651.8 | 1.64 |
| <u>Compulsive</u> | 15.6 (5.2) | 16.9 (4.0) | 13.5 (4.6) | 9.8 (5.0) | 760.6 | 2539.0 | 11.8* |
| <u>Histrionic</u> | 14.5 (4.9) | 16.0 (5.1) | 15.8 (5.7) | 15.7 (5.8) | 26.0 | 3534.1 | .29 |
| <u>Antisocial</u> | 6.06 (4.6) | 5.9 (4.0) | 7.0 (4.6) | 11.1 (5.6) | 402.0 | 2531.3 | 6.3* |

* $p < .001$

Table 8

Total Correlation Matrix Between MCMI-III Personality Disorder Scales.

| | <u>Histrionic</u> | <u>Antisocial</u> | <u>Compulsive</u> | <u>Paranoid</u> |
|-------------------|-------------------|-------------------|-------------------|-----------------|
| <u>Histrionic</u> | 1.0 | -.10 | .18* | -.36** |
| <u>Antisocial</u> | | 1.0 | -.69** | .35** |
| <u>Compulsive</u> | | | 1.0 | -.18* |
| <u>Paranoid</u> | | | | 1.0 |

** $p < .01$. (1-tailed).

* $p < .05$. (1-tailed).

Table 9

Correlation Matrix of the Rigid and Diffuse Scales Measured by the CDQ and the Relevant Conscientiousness (C) Facet Scales and Openness to Experience (O) Facet Scales on NEO PI-R (Form S).

| | <u>Openness to Experience Facets</u> | | <u>Conscientiousness Facets</u> | | |
|-------------------|--------------------------------------|-----------------|---------------------------------|------------------------|---------------------|
| | <u>Fantasy</u> | <u>Feelings</u> | <u>Dutifulness</u> | <u>Self-Discipline</u> | <u>Deliberation</u> |
| <u>CDQ Scales</u> | | | | | |
| <u>Rigid</u> | -.15* | -.03 | .13 | -.01 | .01 |
| <u>Diffuse</u> | .15* | .00 | -.39** | -.43** | -.56** |

** $p < .01$. (1-tailed).

* $p < .05$. (1-tailed).

Table 10

Correlation Matrix of Shapiro's Neurotic Styles as Measured by the CDQ and the Relevant Conscientiousness (C) Facet Scales and Openness to Experience (O) Facet Scales on NEO PI-R (Form S).

| | <u>Openness to Experience Facets</u> | | <u>Conscientiousness Facets</u> | | |
|-------------------|--------------------------------------|-----------------|---------------------------------|------------------------|---------------------|
| | <u>Fantasy</u> | <u>Feelings</u> | <u>Dutifulness</u> | <u>Self-discipline</u> | <u>Deliberation</u> |
| <u>CDQ Scales</u> | | | | | |
| <u>Paranoid</u> | -.07 | .02 | .20** | .06 | .08 |
| <u>Obsessive</u> | -.18* | -.06 | .05 | -.06 | -.05 |
| <u>Hysterical</u> | .19* | .04 | -.40** | -.49** | -.47** |
| <u>Impulsive</u> | .05 | -.05 | -.25** | -.22** | -.49** |

** $p < .01$. (1-tailed).

* $p < .05$. (1-tailed).

Table 11

Total Correlation Matrix Between Relevant Conscientiousness (C) Facet Scales and Relevant Openness to Experience (O) Facet Scales on NEO PI-R (Form S).

| | <u>Openness to Experience Facets</u> | | <u>Conscientiousness Facets</u> | | |
|------------------------|--------------------------------------|-----------------|---------------------------------|------------------------|---------------------|
| | <u>Fantasy</u> | <u>Feelings</u> | <u>Dutifulness</u> | <u>Self-discipline</u> | <u>Deliberation</u> |
| <u>Fantasy</u> | 1.0 | .50** | -.17* | -.29** | -.31** |
| <u>Feelings</u> | | 1.0 | .05 | -.12 | .01 |
| <u>Dutifulness</u> | | | 1.0 | .51** | .47** |
| <u>Self-discipline</u> | | | | 1.0 | .56** |
| <u>Deliberation</u> | | | | | 1.0 |

** $p < .01$. (1-tailed).

* $p < .05$. (1-tailed).

Table 12

Total Correlation Matrix Between Shapiro's Neurotic Styles as Measured by the Cognitive Diffuseness Questionnaire.

| | <u>Impulsive</u> | <u>Hysterical</u> | <u>Obsessive</u> | <u>Paranoid</u> |
|-------------------|------------------|-------------------|------------------|-----------------|
| <u>Impulsive</u> | 1.0 | .46** | .33** | .22** |
| <u>Hysterical</u> | | 1.0 | .47** | .29** |
| <u>Obsessive</u> | | | 1.0 | .51** |
| <u>Paranoid</u> | | | | 1.0 |

** $p < .01$. (1-tailed).

* $p < .05$. (1-tailed).

Table 13

Total Correlation Matrix of Shapiro's Neurotic Styles as Measured by the CDQ with the MCMII-III Personality Disorder Scales.

| | MCMII-III Scales | | | |
|-------------------|-------------------|-------------------|-------------------|-----------------|
| | <u>Antisocial</u> | <u>Histrionic</u> | <u>Compulsive</u> | <u>Paranoid</u> |
| CDQ Scales | | | | |
| <u>Impulsive</u> | .37** | -.01 | -.34** | .20** |
| <u>Hysterical</u> | .47** | -.14* | -.38** | .33** |
| <u>Obsessive</u> | .12 | -.17* | .07 | .25** |
| <u>Paranoid</u> | .01 | -.04 | .17* | .28** |

** $p < .01$. (1-tailed).

* $p < .05$. (1-tailed).

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Appendix A

Your date of birth _____

Last 4 digits of your social security number _____

Gender (male or female) _____

Listed below, four personality styles are described. Although none of these styles may describe you with complete accuracy, please decide which one of these descriptions is *most* like you.

Please circle the description (A, B, C, or D) that is closest to what you are generally like.

A. Always watching out for signs of trouble. Not easily influenced or open to suggestion. Can be very uncomfortable with surprises. Tense and cautious.

B. Very focused on details. Can be very stubborn and rigid. Not spontaneous. Always working hard. Rarely relaxed.

C. Intuitive and impressionable. Not concerned with facts. Can be very emotionally dramatic. Avoids sad and unhappy thoughts. Does not care about being seen as a deep person.

D. Overly spontaneous. Acts rather than stopping and thinking. Not too concerned with being responsible. Can be very impulsive. Does not worry about planning things out.

Appendix B

Informed Consent Form

I am inviting you to participate in a study, investigating how traditional clinical models of personality compare to more modern statistical models of personality. As a participant you will complete three personality tests: the NEO-PI, MCMI, and Cognitive Diffuseness scale. The total time for the administration of these personality inventories is about one hour. By participating in this study you will learn more about the kinds of questions clinical psychologists ask to assess people's personality styles.

Your participation is voluntary and you may withdraw from this study at any time. There are no risks from participating in this study. Your responses to the questionnaire items will remain confidential. Your confidentiality will be maintained at all times.

If you grant me permission by signing this document, the anonymous data you and others provide will be part of my final thesis report. The results may be submitted for publication in a psychological journal.

Your decision whether or not to participate in this study will not prejudice your relations with Chemical Addictions Program, Inc. or with Auburn University Montgomery.

For any questions you have that I do not answer at this time, or concerns about your participation in this study, please contact Dr. Cyral Sadowski or Dr. Peter Zachar, at Auburn University Montgomery, (334) 244-3306.

Thank you very much for your time and willingness to participate in this study.

Brian D. Norensberg
Psychology Graduate Student
Auburn University Montgomery

**YOU ARE MAKING A DECISION WHETHER OR NOT TO PARTICIPATE.
YOUR SIGNATURE INDICATES THAT YOU HAVE DECIDED TO PARTICIPATE,
HAVING READ THE INFORMATION ABOVE.**

Signature of Participant

Date

Witness

Date

This study has been approved by the AUM Human Subjects Committee. It poses no risks, and protects participant confidentiality.