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23 Personality Disorders

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Personality disorder is a common and chronic disorder. Its prevalence is estimated between 10 and 20 percent in the general population, and its duration is expressed in decades. This means that at least one in every five to ten individuals in the community has personality disorder. Also, many instances of violent and nonviolent crime and a large percentage of the prison population are associated with underlying personality disorder. These individuals have chronic impairments in their ability to work and to love; tend to be less educated, drug dependent, single, and unemployed; and tend to have marital difficulties. They consume a large portion of community services, social welfare benefits, and public health resources.

Approximately one-half of all psychiatric patients have personality disorder, which is frequently comorbid with Axis I conditions. Personality disorder is also a predisposing factor for other psychiatric disorders (e.g., substance use, suicide, affective disorders, impulse-control disorders, eating disorders, and anxiety disorders) in which it interferes with treatment outcomes of Axis I syndromes and increases personal incapacitation, morbidity, and mortality of these patients.

Persons with personality disorder are frequently labeled as *aggravating*, *demanding*, or *parasitic* and are generally considered to have poor prognosis. Alternatively, they may be seductive or dependent and may elicit inappropriate blurring of professional boundaries, such as sexual interest or the urge to rescue. These patients challenge the limits of the physician's theoretical knowledge, clinical skills, and even personal maturity. In general, practitioners with low narcissism, high energy, and high tolerance are optimal for treating patients with personality disorder.

Many patients in somatic medicine and neurology have personality disorder comorbid with their physical illnesses. Personality factors have been associated with increased risk for coronary artery disease, angina pectoris, contraction of human immunodeficiency virus (HIV), psoriasis, ulcerative colitis, and many other so-called psychosomatic diseases. On the other hand, many patients with personality problems who seek medical help frequently have negative workups and no medical explanation for their complaints.

During the last several decades there has been a dramatic increase in clinical and research interest in personality disorder. After the introduction of explicit diagnostic criteria and the multiaxial diagnostic system in the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III) in 1980, personality disorder has been diagnosed more frequently and more systematically. The DSM criteria have been revised and standardized in subsequent editions of the DSM—the revised third edition of the DSM (DSM-III-R) (1987) and the fourth edition of the DSM (DSM-IV) (1994). In addition, in 2000, the revised fourth edition of the DSM (DSM-IV-TR) was published. The multiaxial diagnostic system means that personality disorder and mental retardation are classified on Axis II, whereas all other mental disorders are classified on Axis I. The availability of these two axes facilitates the diagnosis of personality disorders, as it ensures that personality disorder is not diagnostically overlooked even when it cooccurs with a clinically more prominent Axis I syndrome.

The increased clinical recognition of personality disorder probably reflects its increased presence in the general population. At the turn of the 20th century, when Sigmund Freud was pioneering his understanding of human nature, neuroses and neurotic problems were the dominant *psychopathology of everyday life*. At the time, the central psychological task people were facing was to find socially acceptable ways to express their *asocial* impulses, predominantly aggression and sexuality. Obviously, behavior codes of present society differ substantially from the ethical conservativism at the turn of the century. Aggression and sexuality have become much easier to express in an ethically more liberal society. Instead of struggling with morality, people of the 1990s are faced with questions of identity, meaning, and choice. Nowadays, one frequently encounters patients who seek help but cannot precisely describe their problems, who are more disappointed than anxious, who struggle with questions of purpose rather than guilt, who are ambivalent rather than inhibited; who feel empty rather than sad, and who manifest a peculiar inability to learn from experience as they tend to repeat maladaptive behaviors over and over again.

Another possible explanation for the increased interest in personality disorder is its position somewhere in between minor and major psychiatric problems (e.g., adjustment disorder vs. schizophrenia), which makes it interesting to a wide variety of experts and schools, ranging from purely sociodynamic to purely biological.

As noted previously, personality disorder underlies susceptibility to many other psychiatric and medical problems. Accordingly, diagnosis and treatment of any psychiatric patient, as well as patients with psychosocial problems, and prevention planning in many medical syndromes are inadequate without a systematic approach to assessing and classifying personality.

Finally, the development of psychiatry as a whole has generated an increased interest in personality disorder. Every science in its initial stages has a tendency to define its subject as clearly as possible. Once sufficiently developed, it naturally begins to recognize various mixed and transitional forms. It is now clear that personality disorder represents a more or less severe variation of normal personality, which psychiatry, owing to its own development, has begun to recognize.

BASIC DEFINITIONS AND TERMINOLOGY

The terms *personality*, *temperament*, *motivation*, *character*, and *psyche* are often used interchangeably. This is misleading and unjustified. These concepts are reviewed to distinguish them with more clarity.

Personality Personality is complex and unique: on the one hand, people differ greatly from one another in multiple components of behav-

ior, and, on the other hand, each person expresses only one of their many potential lifestyles. The common characteristic of all existing definitions of personality is that they are functional, that is, they focus on questions related to motivation and mental adaptation of the organism. Specifically, Gordon Allport defined *personality* as the "dynamic organization within the individual of those psychophysical systems that determine his/her unique adjustment to his/her environment."

Allport elaborated on this definition by explaining that the expression "dynamic organization" emphasizes that personality is an organized system (*unitas multiplex*) that is constantly evolving and changing. The syntax "within the individual" means that personality is what lies behind the specific individual's acts. The term "psychophysical" means that personality is neither exclusively mental nor exclusively neural, but a combination of the two. The verb "determine" indicates that personality traits are determining tendencies that guide expressive and adaptive behaviors. The expression "unique adjustment to the environment" has functional and evolutionary significance pointing to personality as a mode of survival and, more generally, adaptation, which is unique to each individual.

It has been widely accepted that personality develops through the interaction of hereditary dispositions and environmental influences. Waddington's notion of genetic canalization (or *epigenetic landscape*) has been revised to include the reciprocal necessity of genetic endowment and environmental stimulation in the development of behaviors. Genetic differences account for approximately one-half of the variance in most normally distributed temperament traits. Of the remaining 50 percent of the variance, 30 to 35 percent is explained by nonshared environmental effects (i.e., experiences that are unique to the individual), and 10 to 15 percent is explained by measurement error and nontrait score fluctuations. Contrary to the common belief, environmental influences that are shared by siblings (such as having the same parents, living in the same neighborhood, and going to the same schools) have little or no influence on individual differences in personality. Of note, adoption studies suggest somewhat lower heritability of approximately 30 percent for personality traits. This reflects nonadditive genetic variance (e.g., higher-order interaction among alleles at each locus or among loci), which is the same for monozygotic twins but contributes little to the resemblance of first-degree relatives.

From the structural standpoint, personality can be decomposed into temperament, character, and psyche. Roughly speaking, temperament involves basic emotions, character involves rational concepts about self and interpersonal relations, and the psyche involves intuitive self-awareness and intelligence. Self-awareness and intelligence influence personality development substantially, so measures of temperament and character provide an incomplete understanding of personality development. Basic functions of personality are to feel, to think, and to perceive, and to incorporate these into purposeful behaviors.

Temperament *Temperament* refers to the body's biases in the modulation of conditioned behavioral responses to prescriptive physical stimuli. Behavioral conditioning (that is, procedural learning) involves presemantic sensations that elicit basic emotions, such as fear or anger, independent of conscious recognition, descriptive observation, reflection, or reasoning. Pioneering work by Alexander Thomas and Stella Chess conceptualized temperament as the stylistic component (*how*) of behavior, as differentiated from motivation (*why*) and content (*what*) of behavior. Modern concepts of temperament, however, emphasize its emotional, motivational, and adaptive aspects. Specifically, four major temperament traits have been identified: harm avoidance, novelty seeking, reward dependence, and persistence. It is remarkable that this four-factor model of temperament can, in retrospect, be seen as a modern interpretation of the ancient four temperaments: Individuals differ in the degree to which they are melancholic (harm avoidance), choleric (novelty seeking), sanguine (reward dependence), and phlegmatic (persistence). However, the four temperaments are now understood to be genetically independent dimensions that occur in all factorial combinations, rather than mutually exclusive categories.

Psychobiology of Temperament Temperament traits of *harm avoidance*, *novelty seeking*, *reward dependence*, and *persistence* are defined as heritable differences underlying one's automatic response to danger, novelty, and various types of reward, respectively. These four temperament traits are closely associated with the four basic emotions of fear (harm avoidance), anger (novelty seeking), attachment (reward dependence), and ambition (persistence).

Individual differences in temperament and basic emotions modify the processing of sensory information and shape early learning characteristics, especially associative conditioning of unconscious behavior responses. Temperament is conceptualized as heritable biases in emotionality and learning that underlie the acquisition of emotion-based, automatic behavioral traits and habits that are observable early in life and are relatively stable over one's life span.

Each of the four major dimensions is a normally distributed quantitative trait, which is moderately heritable, observable early in childhood, relatively stable in time, and moderately predictive of adolescent and adult behavior. The four dimensions have been shown to be genetically homogeneous and independently inherited from one another in large, independent twin studies in the United States and Australia. Temperamental differences, which are not stable initially, tend to stabilize during the second and third year of life. Accordingly, ratings of these four temperament traits at 10 to 11 years of age were predictive of personality traits at 15, 18, and 27 years of age in a large sample of Swedish children.

The four dimensions have been repeatedly shown to be universal across different cultures, ethnic groups, and political systems on every inhabited continent. In summary, these aspects of personality are called *temperament*, because they are heritable, manifest early in life, are developmentally stable, and are consistent in different cultures. Table 23–1 summarizes contrasting sets of behaviors that distinguish extreme scorers on the four dimensions of temperament. Note that each extreme of these dimensions has specific adaptive advantages and disadvantages, so neither high nor low scores inherently mean better adaptation.

The component traits (*facets*) for each of the four temperament dimension have distinct learning characteristics and correlate more strongly with one another than with other components of temperament. They share a common source of covariation that is strong and invariant regardless of changes in the environment and past experience. Each of the four temperament dimensions has unique genetic determinants according to family and twin studies, as well as studies of genetic associations with specific deoxyribonucleic acid (DNA) markers.

The four dimensions of human temperament correspond closely to those observed in other mammals. Multiple levels in the phylogeny of learning abilities in animals from invertebrates to man indicate that learning has multiple component processes that are hierarchically organized and interact extensively throughout development (Fig. 23–1).

In Figure 23–1, temperament corresponds to the processes of sensation, association, and motivation that underlie the integration of skills and habits based on emotion.

Figure 23–1 is useful to specify the hierarchical phylogenetic and ontogenetic organization of learning and its relevance to the con-

Table 23–1
Descriptors of Individuals Who Score High and Low on the Four Temperament Dimensions

	Descriptors of Extreme Variants	
Temperament Dimension	**High**	**Low**
Harm avoidance	Pessimistic	Optimistic
	Fearful	Daring
	Shy	Outgoing
	Fatigable	Energetic
Novelty seeking	Exploratory	Reserved
	Impulsive	Deliberate
	Extravagant	Thrifty
	Irritable	Stoical
Reward dependence	Sentimental	Detached
	Open	Aloof
	Warm	Cold
	Affectionate	Independent
Persistence	Industrious	Lazy
	Determined	Spoiled
	Enthusiastic	Underachiever
	Perfectionist	Pragmatist

cepts of temperament and character, not to compare learning in humans at a particular age to learning in lower animals. Specifically, temperament and character are conceptualized on the basis of two types of memory and learning, which have been described in humans and primates. These are called *procedural memory* (i.e., behavioral conditioning) and *semantic memory* (i.e., long-term propositional or declarative memory). Temperament (the *emotional core* of personality) involves procedural memory regulated by complex distributed circuits in the corticostriatolimbic system, primarily the sensory cortical areas, the amygdala, and the caudate and putamen. Procedural memory underlies associative learning and involves presemantic perceptual processing of visuospatial information and affective valence that can operate independently of abstract conceptual or volitional processes. In contrast, semantic learning involves higher cognitive functions of abstraction and symbolization. These two systems of learning and memory can be dissociated functionally from one another and also from a third memory system that is unique to human beings.

Neurobiological studies of animals have been highly informative about the functional organization of brain systems underlying procedural learning and temperament. Explicit animal models have been described based on extensive work in rodents and other nonprimates, providing hypotheses that are now being tested in humans

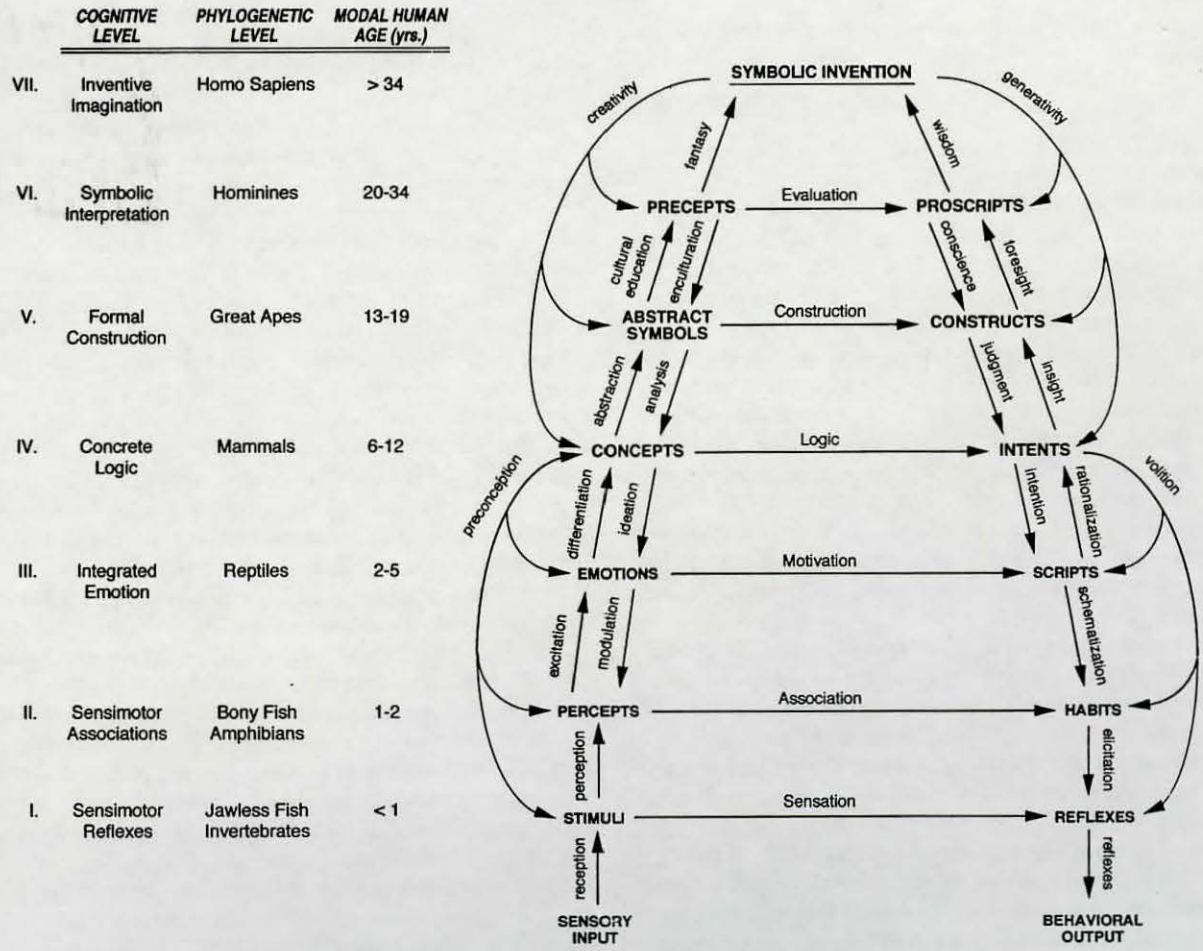

FIGURE 23–1 A hierarchical model of learning.

Table 23–2
Four Dissociable Brain Systems Influencing Stimulus-Response Patterns Underlying Temperament

Brain System (Related Personality Dimension)	Principal Neuromodulators	Relevant Stimuli	Behavioral Response
Behavioral activation (novelty seeking)	Dopamine	Novelty	Exploratory pursuit
		CS of reward	Appetitive approach
		CS or UCS of relief of monotony or punishment	Active avoidance
			Escape
Behavioral inhibition (harm avoidance)	γ-Aminobutyric acid	Aversive conditioning (pairing CS and UCS)	Formation of aversive CS
	Serotonin (dorsal raphe)	Conditioned signals for punishment, novelty, and frustrative nonreward	Passive avoidance, extinction
Social attachment (reward dependence)	Norepinephrine	Reward conditioning (pairing CS and UCS)	Formation of appetitive CS
	Serotonin (median raphe)		
Partial reinforcement (persistence)	Glutamate	Intermittent	Resistance to extinction
	Serotonin (dorsal raphe)	Reinforcement	

CS, conditioned stimulus; UCS, unconditioned stimulus.
Adapted from Cloninger CR: A systematic method for clinical description and classification of personality variables. *Arch Gen Psychiatry.* 1987;44:573–588.

using modern techniques of brain imaging, neurochemistry, and neurogenetics. The most comprehensive neurobiological model of learning in animals that has been systematically related to the structure of human temperament is summarized in Table 23–2. This model distinguishes four dissociable brain systems for behavioral activation (novelty seeking), behavioral inhibition (harm avoidance), social attachment (reward dependence), and partial reinforcement (persistence).

The psychobiology of harm avoidance, novelty seeking, reward dependence, and persistence is briefly described in the following sections.

HARM AVOIDANCE Harm avoidance involves a heritable bias in the inhibition of behavior in response to signals of punishment and frustrative nonreward. It is observed as fear of uncertainty, shyness, social inhibition, passive avoidance of problems or danger, rapid fatigability, and pessimistic worry in anticipation of problems even in situations that do not worry other people. Adaptive advantages of high harm avoidance are cautiousness and careful planning when hazard is likely. The disadvantages occur when hazard is unlikely but still is anticipated, which leads to maladaptive inhibition and anxiety. People low in harm avoidance are carefree, courageous, energetic, outgoing, and optimistic even in situations that worry most people. The advantages of low harm avoidance are confidence in the face of danger and uncertainty, leading to optimistic and energetic efforts with little or no distress. The disadvantages are related to unresponsiveness to danger or unrealistic optimism, with potentially severe consequences when hazard is likely.

The psychobiology of harm avoidance is complex. In animal studies, ascending serotoninergic projections from the dorsal raphe nuclei to the substantia nigra inhibit nigrostriatal dopaminergic neurons and are essential for conditioned inhibition of activity by signals of punishment and frustrative nonreward. Benzodiazepines disinhibit passive avoidance conditioning by γ-aminobutyric acid (GABA)–ergic inhibition of serotoninergic neurons originating in the dorsal raphe nuclei. The anterior serotoninergic cells in the dorsal raphe nucleus intermingle with the dopaminergic cells of the ventral tegmental area, and both groups innervate the same structures (e.g., basal ganglia, accumbens, and amygdala), providing opposing dopaminergic-serotoninergic influences in the modulation of approach and avoidance behavior. The anterior serotoninergic projections from the dorsal raphe to striatum, accumbens, amygdala, and frontal cortex are usually associated with serotonin type 2 ($5\text{-}HT_2$) receptors. Individuals who are high in harm avoidance and novelty seeking are expected to have frequent approach-avoidance conflicts, as seen in cycles of binging and purging in bulimia. More generally, excessive behavioral inhibition (i.e., high harm avoidance) predisposes individuals to anxiety, depression, and low self-esteem. Effective antidepressant treatment lowers scores in harm avoidance, but higher scores in harm avoidance predict poorer responses to antidepressants, including tricyclics and selective serotonin reuptake inhibitors (SSRIs).

Recent neuropsychological studies confirm that harm avoidance is associated with individual differences in classical aversive conditioning, whereas other dimensions of personality are uncorrelated (Table 23–3). Harm avoidance, not other dimensions of temperament, is also replicably associated with potentiation of startle responses. Neuropsychological tests also confirm that harm avoidance is associated with behavioral inhibition. For example, harm avoidance is associated with the Posner validity effect (the Posner task uses a detection reaction time paradigm with discrete presentation of simple visual stimuli in the periphery). Cues that correctly direct attention to the spatial location at which the target stimulus will appear are called *valid cues*, whereas those that direct attention to incorrect locations are called *invalid cues*. In three large samples of healthy college students, those higher in harm avoidance have greater slowing of their reactions after invalid cues or less benefit from valid cues than others.

Recent functional magnetic resonance imaging (fMRI) studies found that healthy human volunteers who are high in harm avoidance tend to have a greater volume of their right anterior cingulate gyrus. The correlation was 0.49 with the right, but not the left, anterior cingulate. Likewise, individual differences in harm avoidance have been observed to be significantly negatively correlated with functional differences in activity in the medial prefrontal network at rest. This includes significant negative correlations between regional blood flow and the score for harm avoidance in paralimbic regions, such as the left parahippocampal gyrus and the left orbitoinsular junction, and various neocortical regions in the frontal, parietal, and temporal cortex. Positron emission tomography (PET) at the National Institute of Mental Health (NIMH) with ^{18}F-deoxyglucose (FDG) in 31 healthy adult volunteers during a simple continuous performance task showed that harm avoidance was associated with

Table 23–3
Reported Psychobiological Correlates of Harm Avoidance

Variable	Effect
Neuroanatomy (positron emission tomography)	
Medial prefrontal (left)	Increased activity (behavioral inhibition)
Anterior paralimbic (right)	Increased activity (sensitivity to threat)
Neuropsychology	
Aversive conditioning	Greater associative pairing with punishment (r = .4)
Eye-blink startle reflex	Potentiation of response to aversive stimulus (effect size = 1.9)
Posner validity effect	Greater slowing of responses after invalid cues (r ≥.3)
Spatial delayed response	Better ability to delay responses after ingesting amphetamines (r = .5)
Neurochemistry	
Platelet serotonin type 2 receptor	Fewer receptors (r = –.6)
Plasma γ-aminobutyric acid	Lower level (r = –.5)
Neurogenetics	
Serotonin transporter promoter	Greater reuptake activity

Table 23–4
Reported Psychobiological Correlates of Novelty Seeking

Variable	Effect
Neuroanatomy (positron emission tomography)	
Medial prefrontal (left)	Decreased activity (behavioral disinhibition)
Posterior cingulate	Increased activity (behavioral activation)
Caudate (left)	Increased activity (behavioral activation)
Neuropsychology	
Reaction time	Slower to respond if not reinforced (neutral stimuli, r = –.4)
Stimulus intensity responses (N1/P2 event-related potential)	Augmentation of intensity of cortical to novel auditory stimuli (r = .5)
Sedation threshold	More easily sedated by diazepam (Valium) (lower threshold, r = –.3)
Rey word list memory	Deterioration of verbal memory when excited (after ingesting amphetamine, r = .6)
Neurochemistry	
Dopamine transporter	Higher density observed in striatum
Platelet monoamine oxidase type B	Lower activity (associated with cigarette smoking)
Neurogenetics	
Dopamine type 4 receptor	Association with exon 3 variant
Dopamine transporter	Greater reuptake activity

increased activity in the anterior paralimbic circuit, specifically the right amygdala and insula, the right orbitofrontal cortex, and the left medial prefrontal cortex. This activation pattern corresponds well to the 5-HT_2 terminal projections of the dorsal raphe. However, 5-HT_2 has been measured only in platelets (Table 23–3).

Higher plasma GABA levels have also been correlated with low harm avoidance. Plasma GABA has also been correlated with other measures of anxiety proneness and has been highly correlated with brain GABA levels. Finally, a gene on chromosome 17q12 that regulates the expression of the serotonin transporter has been found to account for 4 to 9 percent of the total variance in harm avoidance in most, but not all, of the tests of this relationship. These findings support a role for GABA and serotoninergic projections from the dorsal raphe underlying individual differences in behavioral inhibition as measured by the trait of harm avoidance.

NOVELTY SEEKING Novelty seeking reflects a heritable bias in the initiation or activation of appetitive approach in response to novelty, approach to signals of reward, active avoidance of conditioned signals of punishment, and escape from unconditioned punishment (all of which are hypothesized to covary as part of one heritable system of learning). Novelty seeking is observed as exploratory activity in response to novelty, impulsiveness, extravagance in approach to cues of reward, and active avoidance of frustration. Individuals high in novelty seeking are quick tempered, curious, easily bored, impulsive, extravagant, and disorderly. Adaptive advantages of high novelty seeking are enthusiastic exploration of new and unfamiliar stimuli, potentially leading to originality, discoveries, and reward. The disadvantages are frequent and easy boredom, impulsivity, angry outbursts, potential fickleness in relationships, and impressionism in efforts. Persons low in novelty seeking are slow tempered, uninquiring, stoical, reflective, frugal, reserved, tolerant of monotony, and orderly. Their reflectiveness, resilience, systematic effort, and meticulous approach are clearly advantageous when these features are adaptively needed. The disadvantages reflect tolerance of monotony and lack of enthusiasm, potentially leading to prosaic routinization of activities.

Mesolimbic and mesofrontal dopaminergic projections have been shown to have a crucial role in incentive activation of each aspect of novelty seeking in animals. For example, dopamine-depleting lesions in the nucleus accumbens or the ventral tegmentum lead to neglect of novel environmental stimuli and reduce spontaneous activity and investigative behavior. Behavioral activation by dopaminergic agonists is dependent on integrity of the nucleus accumbens but not the caudate nucleus. In human studies, individuals at risk for Parkinson's disease have low premorbid scores in novelty seeking but not in other dimensions of personality, supporting the importance of dopamine in incentive activation of pleasurable behavior. The initiation and frequency of hyperactivity, binge eating, sexual hedonism, drinking, smoking, and other substance abuse, especially stimulants, are each associated with high scores in novelty seeking.

The psychobiological correlates reported for novelty seeking are summarized in Table 23–4. High scores correlate with increased metabolic activity on PET in cingulate cortex and left caudate. In addition, high novelty seeking is associated with decreased activity of the left medial prefrontal cortex, which is exactly the same region associated with increased activity in individuals scoring high in harm avoidance. This suggests that medial prefrontal cortex may be an important site in the processing of approach-avoidance conflicts. In addition, a recent fMRI study found that high novelty seeking was correlated with increased volume of the left, but not the right, posterior cingulate gyrus in healthy human volunteers.

Evoked potential studies of stimulus intensity dependence confirm that novelty seeking is associated with augmentation of stimulus intensity, particularly with novel stimuli. Novelty seekers are also sensitive to sedatives and stimulants: They are easily oversedated by benzodiazepines and overstimulated by amphetamines, leading to deterioration in their information processing. Their reaction times are slow to neutral stimuli.

The association of increased striatal activity with high novelty seeking is more specifically associated with higher density of the dopamine transporter,

suggesting that novelty seeking involves increased reuptake of dopamine at presynaptic terminals, thereby requiring frequent stimulation to maintain optimal levels of postsynaptic dopaminergic stimulation. Novelty seeking leads to various pleasure-seeking behaviors, including cigarette smoking, which may explain the frequent observation of low platelet monoamine oxidase type B (MAO_B) activity, because cigarette smoking has the effect of inhibiting MAO_B activity in platelets and in brain.

Studies of candidate genes involved in dopamine neurotransmission (e.g., dopamine transporter and D4DR locus) have provided evidence of association with novelty seeking and no other dimension of temperament. The dopamine transporter, which is responsible for presynaptic reuptake of dopamine and a major site of action of drugs, including stimulants like methylphenidate (Ritalin), is encoded by a gene locus on chromosome 5p. Polymorphisms at this gene locus are associated with attention-deficit disorder and other disorders related to variation in novelty seeking. Likewise, polymorphisms at the DRD4 locus have been associated with attention-deficit disorder, opioid dependence, and other traits related to novelty seeking.

REWARD DEPENDENCE Reward dependence reflects a heritable bias in the maintenance of behavior in response to cues of social reward. Reward dependence is characterized by sentimentality, social sensitivity, attachment, and dependence on approval by others. Individuals high in reward dependence are tender hearted, sensitive, dedicated, dependent, and sociable. One of the major adaptive advantages of high reward dependence is the sensitivity to social cues that facilitates affectionate social relations and genuine care for others. The disadvantage is related to suggestibility and loss of objectivity frequently encountered with people who are excessively socially dependent. Individuals low in reward dependence are practical, tough-minded, cold, socially insensitive, irresolute, and indifferent if alone. The advantages of low reward dependence are personal independence and objectivity that is not corrupted by efforts to please others. Its adaptive disadvantage is related to social withdrawal, detachment, and coldness in social attitudes. Noradrenergic projections from the locus ceruleus and serotoninergic projections from the median raphe are proposed to influence such reward conditioning (Table 23–2). In animals, stimulation of the noradrenergic locus ceruleus or its dorsal bundle or direct application of norepinephrine decreases the firing rate of terminal neurons and increases their sensitivity to other afferents, so that targeted stimuli can stand out from nontargeted stimuli. In humans, short-term reduction of norepinephrine release by acute infusion of the α_2 presynaptic agonist clonidine (Catapres) selectively impairs paired-associate learning, particularly the acquisition of novel associations. The noradrenergic locus ceruleus is located at the same posterior level of the brainstem as the serotoninergic median raphe, and both of these posterior monoamine cells innervate structures that are important to formation of paired associations, such as the thalamus, neocortex, and hippocampus. Neurophysiological studies show that the anterior temporal lobe decodes social signals, such as facial images and social gestures. Consequently, individuals high in reward dependence are expected to be particularly sensitive in their social communication, whereas those low in reward dependence are expected to be socially aloof.

The psychobiological correlates reported about reward dependence are summarized in Table 23–5. As predicted, reward dependence is associated with individual differences in formation of conditioned signals of reward. This is also supported by its association with individual differences in paired associate learning.

High reward dependence is associated with increased activity in the thalamus, which is consistent with proposals about the importance of serotoninergic projections to the thalamus from the median raphe in modulation of social communication. This is further supported by the finding of low levels of urinary 3-methoxy-4-hydroxyphenylglycol (MHPG) with high reward dependence. High reward dependence is also associated with hypercortisolemia in patients with melancholia but not in individuals who are not depressed.

Table 23–5
Reported Psychobiological Correlates of Reward Dependence

Variable	Effect
Neuroanatomy (positron emission tomography)	
Thalamus	Increased activity (facilitates sensory processing)
Neuropsychology	
Reward conditioning	Increased associative pairing with rewards (r = .3)
Paired associates	Better learning of novel associations (r = .5)
Posner validity effect	Faster responses after valid cues (r = –.4)
Neurochemistry	
Urinary 3-methoxy-4-hydroxyphenylglycol	Less excretion of norepinephrine metabolite (r = –.4)
Plasma cortisol	Higher morning cortisol when depressed (r = .3)
Urinary Harman	Greater excretion of indoleamine product in alcoholics high in reward dependence (r = .7)
Neurogenetics	
Serotonin type 2C receptor	Allelic association (effect size = 2)

PERSISTENCE Persistence reflects a heritable bias in the maintenance of behavior despite frustration, fatigue, and intermittent reinforcement. It is observed as industriousness, determination, ambitiousness, and perfectionism. Highly persistent people are hard working, persevering, and ambitious overachievers who tend to intensify their effort in response to anticipated reward and perceive frustration and fatigue as a personal challenge. High persistence is an adaptive behavioral strategy when rewards are intermittent but contingencies remain stable. When the contingencies change rapidly, perseveration becomes maladaptive. Individuals low in persistence are indolent, inactive, unstable, and erratic; they tend to give up easily when faced with frustration, rarely strive for higher accomplishments, and manifest a low level of perseverance even in response to intermittent reward. Accordingly, low persistence is an adaptive strategy when reward contingencies change rapidly and may be maladaptive when rewards are infrequent but occur in the long run.

Persistence can be objectively measured by the partial reinforcement extinction effect in which persistent individuals are more resistant to the extinction of previously intermittently rewarded behavior than other individuals who have been continuously reinforced. Earlier work in rodents showed that the integrity of the partial reinforcement extinction effect depends on projections from the hippocampal subiculum to the nucleus accumbens. This glutaminergic projection may be considered as a short circuit from the behavioral inhibition system to the behavioral activation system, thereby converting a conditioned signal of punishment into a conditioned signal of anticipated reward. This connection is probably disrupted in humans by lesions of the orbitomedial cortex that may have a specific antipersistence effect of therapeutic benefit to some severely obsessive-compulsive patients. Bilateral cingulotomy, which reduces harm avoidance only, is less effective in reducing persistent compulsive behavior than cingulotomy combined with orbitomedial lesions.

Table 23–6
Reported Psychobiological Correlates of Persistence

Variable	Effect
Neuroanatomy	
Orbitomedial cortex	Disconnection reduces perseveration
Neuropsychology	
Gambling style	Perseveration in bet size despite continuing losses
Rey word list learning	Learning without reinforcement (r = .5)
Neurochemistry	
Glutaminergic connection	Essential for partial reinforcement extinction effect[a]
Subiculum to nucleus accumbens	
Neurogenetics	
Serotonin type 2C receptor	Allelic association (effect size = 2)

[a]Partial reinforcement extinction effect is persistence or increased resistance to extinction after intermittent reinforcement.

These findings in animals suggested that the regulation of persistence involved the ventral striatum, which includes the nucleus accumbens. This has recently been tested in humans and has been confirmed. Individual differences in persistence are strongly correlated (r = .8) with responses measured by fMRI in a circuit involving the ventral striatum, orbitofrontal cortex and rostral insula, and prefrontal and cingulate cortex (Brodmann's area [BA] 32). Subjects low in persistence exhibited relative decreases in activity within this circuit, whereas those high in persistence exhibited relative increases. Persistence scores also correlated with apparent selection bias, such that subjects with high persistence scores made relatively more pleasant judgments at the expense of neutral judgments when viewing pictures from the International Affective Picture System (Table 23–6).

Motivation Survival and reproduction, the basic drives for all animal species, are expressed in humans primarily through their experiential derivatives, that is, affects and emotions. In contrast to the limited motivational spectrum of the basic drives, emotions have an independent motivational power that makes them not only the primary motivational system for many people, but also the personality processes that give meaning, at least to rational materialists, who make up most of contemporary society.

Temperament traits of harm avoidance, novelty seeking, reward dependence, and persistence, with their respective primary emotions of fear, anger, attachment, and ambition, are observable early in development. Research in children has demonstrated that, during the first several months of life, fear and anger differentiate from the disposition to distress (a tendency to be become upset and autonomically aroused easily and intensely). During this period, which is characterized by active regressive changes in the organization of neuronal circuits and density of synapses, especially in frontal, temporal, and limbic cortical areas, many other complex and social functions in human behavior emerge. These new functions, however, are organized around an early set of enduring behavioral and emotional dispositions referred to in this work as *temperament traits*. A relatively limited spectrum of basic emotions is associated with the four temperament traits (Table 23–7). Depending on whether a particular temperament trait is high or low, certain emotions tend to dominate one's motivation, perception, and behavior.

As can be inferred from Table 23–7, the same external stimulus is likely to elicit responses via activation of multiple temperament dimensions. For example, novel or unfamiliar stimuli elicit interest

Table 23–7
Effects of Positive (+) and Negative (–) Reinforcement on Emotional State of Four Temperaments

Temperament Dimension	High Scorers		Low Scorers	
	+	–	+	–
Harm avoidance	Anxious (agitated)	Depressed (retarded)	Cheerful	Fearless
Novelty seeking	Euphoric	Angry	Placid	Stoical
Reward dependence	Sympathetic	Disgusted	Aloof	Indifferent
Persistence	Enthusiastic	Steadfast	Unstable	Discouraged

in approach in proportion to novelty seeking, as well as inhibition of approach in proportion to harm avoidance. Each temperament trait clearly involves an integration of multiple emotional drives that may be conflicting (competitive) or facilitatory (synergistic). Such shared environmental effects mean that the genetic and phenotypic structure of personality cannot be assumed to be the same.

Temperament involves a relatively small set of emotions associated with one's basic needs, for example, safety (so-called primary motives). Excessive fear and anger, associated with temperament, are motivationally monopolistic and take over the personality by altering perception, learning, and behavior in a biased way. However, under normal circumstances, after survival needs are met, the goals of normally developing personality change to include not only the integrity of the physical self, but also the integrity of the mental self (e.g., self-esteem). Normal personality development also adapts to numerous social goals (e.g., education, occupation, and family) and a rich spectrum of secondary (social) emotions (such as shame, pride, empathy, and compassion). These *secondary*, *social*, or *growth* motives are closely functionally related to character development. Specifically, basic emotions of fear, anger, and excitement are transformed into more complex secondary emotions, such as carefulness, assertiveness, and joy, through the interaction with increasingly more complex internalized concepts associated with character. Even though some basic character components develop early in life, such as trust and confidence, it is the completion of self-object differentiation ("me" vs. "not me") between 18 months and 3 years of age that sets the stage for the development of character traits and secondary emotions, such as empathy.

The secondary emotions take over as primary motivators of further character development and maturation. Of note, they are not as monopolistic as the basic emotions and thus motivate development of more flexible and adaptable personality traits. As shown in Table 23–8, each of the three character traits is associated with a typical pattern of secondary emotions.

Table 23–8
Effects of Positive (+) and Negative (–) Reinforcement on Emotional State of Three Characters

Character Dimension	High Scorers		Low Scorers	
	+	–	+	–
Self-directed	Hopeful	Resourceful	Vain	Shameful
Cooperative	Loving	Forgiving	Scornful	Revengeful
Transcendent	Joyful	Peaceful	Greedy	Miserable

In conclusion, abnormal (deviant, immature) motivation derives from two or three dominant, monopolistic elementary emotional needs associated with survival. In contrast, mature motivation develops after basic needs are met, and the person is freed to experience numerous secondary motives for growth in character and in self-awareness. This explains the motivational inflexibility and poverty of deviant personality and accounts for all the rich motivational diversity and flexibility of mature personality.

Character *Character* refers to the mind, that is, the conceptual core of personality. It involves individual differences in self-concepts and object relations that reflect personal goals and values. In other words, character is what a person makes of himself or herself intentionally. Character is rational and volitional. Whereas temperament involves basic emotions, such as fear and anger, character involves secondary emotions, such as purposeful moderation, empathy, patience, and, in even more mature individuals, hope, love, and faith. As a result, character can be described as mental self-government, which involves executive, legislative, and judicial functions. In the discussion that follows, the concept of character is outlined based on the seven-factor psychobiological model of personality. The psychodynamic concept of character, which has contributed many illuminating clinical and theoretical formulations on the subject, is discussed in some detail as well.

Psychobiology of Character Character (or the *conceptual core* of personality) involves higher cognitive functions, which include abstraction, symbolic interpretation, and reasoning. These higher cognitive functions are instantiated in complex distributed networks in the brain, which involve encoding of cognitive schemas by the hippocampus with long-term storage as semantic memories in neocortex. Such symbolic memory functions interact with temperament through cognitive processing of emotionally ridden sensory percepts regulated by temperament. This temperament–character interaction leads to the development of mature, realistic internalized concepts about the self and the external world. The executive, legislative, and judicial functions of mental self-government can be measured as three distinct character traits, which are called *self-directedness*, *cooperativeness*, and *self-transcendence*, respectively. These character traits are adaptive, but their low ends are less advantageous because of a limited spectrum of circumstances in which immaturity, especially low self-directedness and cooperativeness, means better adaptation than maturity.

Self-directedness quantifies differences in the executive competence of individuals. A highly self-directed person is self-sufficient, responsible, reliable, resourceful, goal oriented, and self-accepted. The most advantageous summary feature of self-directed individuals is that they are realistic and effective, that is, they are able to adapt their behavior in accord with individually chosen, voluntary goals. Individuals low in self-directedness are blaming, helpless, irresponsible, unreliable, reactive, and unable to define, to set, and to pursue meaningful internal goals. Such poor executive function, manifest as unrealistic behavior and lack of internal guidance, is rarely advantageous to the individual.

Cooperativeness quantifies differences in the legislative functions of individuals. Highly cooperative people conceptualize themselves as integral parts of human society. Such highly cooperative persons are described as empathetic, tolerant, compassionate, supportive, and principled. These features are advantageous in teamwork and social groups but not in individuals who must live in a solitary manner. People who are low in cooperativeness are self-absorbed, intolerant, critical, unhelpful, revengeful, and opportunistic. They primarily look out for themselves and tend to be inconsiderate of other people's rights or feelings.

Table 23–9
Descriptors of Individuals Who Score High and Low on the Three Character Dimensions

	Descriptors of Extreme Variants	
Character Dimension	**High**	**Low**
Self-directed	Responsible	Blaming
	Purposeful	Goalless
	Resourceful	Passive
	Self-accepting	Wishful
	Disciplined	Undisciplined
Cooperative	Tolerant	Intolerant
	Empathic	Insensitive
	Helpful	Selfish
	Compassionate	Revengeful
	Principled	Opportunistic
Self-transcendent	Judicious	Pragmatic
	Insightful	Objective
	Acquiescent	Skeptical
	Spiritual	Materialistic
	Idealistic	Relativistic

Self-transcendence quantifies individual differences in the judicial functions of people. Self-transcendence reflects the extent to which people conceptualize themselves as an integral part of the universe as a whole. Self-transcendent individuals are described as judicious, insightful, spiritual, unpretentious, and humble. These traits are adaptively advantageous when people are confronted with suffering, illness, or death, which is inevitable with advancing age. They may appear disadvantageous in most modern societies in which idealism, modesty, and a meditative search for meaning might interfere with the acquisition of wealth and power. People low in self-transcendence tend to be pragmatic, objective, materialistic, controlling, and pretentious. Such individuals appear to fit in well in most Western societies because of their rational objectivity and materialistic success. However, they consistently have difficulty accepting suffering, failures, personal and material losses, and death, which leads to lack of serenity and adjustment problems, particularly with advancing age. Contrasting sets of descriptors that distinguish the three dimensions of character are summarized in Table 23–9.

As shown in Table 23–9, high and low scorers in each character dimension are distinguished by behavior traits that arise from differences in concepts that are each internally consistent but not logically falsifiable. For example, people low in self-transcendence live in the material world, skeptical of whatever they cannot prove objectively and use practically. In contrast, for highly self-transcendent individuals, the meaning of life goes beyond material things and includes intuitive awareness of what is beautiful, true, and good, to which materialists may be insensitive. Each set of beliefs appears to be internally consistent to those who hold them, who also regard their approach to life as realistic. Furthermore, spiritual people cannot prove a materialist is wrong (at least not to the satisfaction of the materialist!), or vice versa, because each has different intuitions of reality on which they base their concepts.

Character matures in a stepwise manner in incremental shifts from infancy through late adulthood. The timing and rate of transitions between levels of maturity are nonlinear functions of antecedent temperament configurations, systematic cultural biases, and experiences unique to each individual, which depend on individual differences in episodic memory or intuitive

Table 23–10
Key Differences between Temperament (Associative or Procedural Learning) and Character (Conceptual or Semantic Learning)

Variable Properties	Temperament	Character
Awareness level	Automatic	Intentional
Memory form	Percepts	Concepts
	Procedures	Propositions
Learning principles	Associative	Conceptual
	Conditioning	Insight
Role of subject in mental activity	Passive	Active
	Reproductive	Constructive
Key brain system	Limbic system	Temporal cortex
	Striatum	Hippocampus
Form of mental representation	Stimulus-response sequences varying additively in strength	Interactive networks (conceptual schema) varying qualitatively in configuration

self-awareness that enables human beings to remember past experiences. The developing character traits (i.e., newly internalized concepts about one's self and the external world) optimize adaptation of temperament (i.e., early emotionality) to the environment by reducing discrepancies between one's emotional needs and norm-favoring social pressures.

In Figure 23–1, character corresponds to the processes of logic, construction, and evaluation of abstract symbols that are based on conceptual representation of information and that are well developed only in some mature humans. These processes are related to executive functions (predominantly logic), legislative functions (predominantly construction), and judicial functions (predominantly evaluation). Recent fMRI research in healthy human volunteers by Debra Gusnard and Marc Raichle has demonstrated strong correlation between self-directedness and a cortical circuit involving the medial prefrontal cortex, which is known to regulate executive function. Earlier work has shown that psychophysiological markers of neocortical processing, such as the P300 event-related potential and contingent negative variation, are correlated with measures of character but not with temperament. Namely, self-directedness, but not temperament traits, correlates moderately with the evoked potential P300 ($r = .4$; $P < .002$). Likewise, cooperativeness correlates with the contingent negative variation (this was particularly obvious for the empathy subscale, $r = .4$). Individuals with Parkinson's disease differ in temperament from others (they are lower in novelty seeking premorbidly) but not in character. These clinical and empirical observations associate character, but not temperament, to higher cortical functions in the central nervous system (CNS).

Basic differences between temperament and character are presented in Table 23–10.

Psychodynamic Concept of Character The psychodynamic concept of character derives from the concept of *defense mechanisms*. The latter are defined as automatic, unconscious psychological processes (cognitive and emotional) that protect against anxiety generated by intrapsychic conflicts and external stressors. All defense mechanisms are grouped into three levels, for example, mature (sublimation, anticipation, humor, and altruism), neurotic (centered around suppression), and immature (centered around splitting). Psychodynamic concepts (Anna Freud, Otto Fenichel) define *mature character traits* as residues of previous mature defense mechanisms that have become stable behavior patterns. In other words, normal character reflects one's capacity to postpone immediate gratification and to process internal needs through sublimation, anticipation, altruism, and humor. Behaviors reflecting these particular defense mechanisms correspond to the description of self-directedness (especially sublimation), cooperativeness (especially altruism), and self-transcendence (especially anticipation). Psychodynamic theories have also recognized that the ego not only protects from, but also shifts, organizes, and reacts to, internal impulses and external stimuli. The pattern of these integrative functions and the ways in which one combines various functions to satisfy multiple external and internal pressures also constitute character. Again, ego-strength corresponds to the description of self-directedness. Psychodynamic theories describe two forms of character disorders: neurotic character and character neurosis. Neurotic character traits are postulated to derive from neurotic defenses (e.g., suppression, reaction formation, projection, repression, and undoing), which have dissociated from their original conflict and have become inflexible, pervasive, and ego-syntonic traits of everyday behavior. Anna Freud called this inflexibility *the armor plating* of character. As extensions of previous conflicts between one's emotions and opposing social pressures, neurotic character traits protect a person from being involved in such situations again. For example, excessive scrupulousness, a frequently observed character trait of obsessive personalities, is a *reaction formation* against their usually strong aggressive impulses. By being rigidly hyperscrupulous, obsessive persons protect themselves from conscious experience of aggression and from intrapsychic conflicts that would have been triggered by such an experience.

Character neurosis is observed when an inflexible neurotic character trait interferes with healthy parts of personality. For example, character neurosis is present when excessive cleanness (an ego-syntonic character trait observed with obsessive individuals) frequently interferes with the need to interact freely with others (generated by healthy parts of obsessive personality) and, instead of being perceived as natural, is perceived as frustrating. Of note, character neurosis has been included in the tenth edition of the *International Statistical Classification of Diseases and Related Health Problems* (ICD-10) but not in the DSM-IV-TR.

Individual differences in the maturity of defense mechanisms (i.e., normal, neurotic, and immature) tend to covary with the severity of psychopathology (i.e., normality, anxiety disorders, and personality disorder, respectively). Patients with personality disorder favor certain immature defense mechanisms, which, in turn, shape their behavior style and clinical presentation. These favorite defenses are, for example, projection for paranoid personality disorder, acting out for antisocial personality disorder, and fantasy for schizoid personality disorder. Note, however, that in addition to these favorite defenses, personality disorders also use other immature defenses, contributing to their irresponsibility and tendency to blame others, for example. Reflecting these and similar observations about the importance of defense mechanisms for the overall understanding of deviant personality, the DSM-IV-TR classification now enables clinicians to classify the use of a particular, dominant defense mechanism on Axis II.

The psychodynamic and the psychobiological description of character traits is similar. Both concepts underscore the adaptive function of character in the overall adaptation of one's emotional needs to the environment. However, the two concepts differ in other etiological and classificatory aspects of character. The psychobiological model explains individual differences in character as quantitative variation on the three character traits. In contrast to this dimensional approach, the psychodynamic concept distinguishes categorically between character subtypes (e.g., neurotic character is further divided into anal, oral, and phallic) and discrete character disorders (i.e., neurotic characters and character neurosis). The psychobiological model underlines the conscious nature of character, whereas the psychodynamic concept understands character traits, with the possible exception of anticipation, as predominantly unconscious processes. Most importantly, the psychodynamic

concept does not provide guidelines for further etiopathogenetic studies of character. However, the psychodynamic concept is an important treatment tool and is used to reveal and to revise conceptual biases inherent in immature defenses and deviant character traits.

Psyche *Psychology* is literally the study of the *psyche*, but this word is frequently misunderstood. *Psyche* refers to a person's consciousness, self-awareness, or spirit. More precisely, in measurable scientific terms, individual variability in the psyche can be measured in terms of differences in a person's level of intuitive self-awareness. Self-awareness is unique to human beings, but humans do show variation in their level of self-awareness in ways that have a strong influence on susceptibility to personality disorders or the capacity for wisdom and well-being. In Figure 23–1, psyche involves the unique human process of symbolic invention, which is based on intuitive self-awareness, leading to the human invention of art, science, and spirituality. The growth of self-awareness is crucial to the development of full coherence of personality, which is manifest as creativity, well-being, and wisdom.

Psychobiology of the Psyche Detailed studies of human learning and memory have distinguished procedural, semantic, and episodic memory. As described in relation to temperament, procedural memory underlies associative learning and involves presemantic perceptual processing of information from the physical senses that can operate independently of abstract conceptual or volitional processes, or both. In contrast, intuitive learning is based on immediate recognition from a single episode of observation. One type of memory based on immediate recognition is knowledge of facts, which has been called *semantic memory* or *long-term declarative memory*, as discussed in relation to the registration of cognitive schema underlying personality traits. The second type of recognition memory is awareness of one's own intentions in a spatiotemporal context, which has been called *episodic memory*. In other words, episodic memory involves self-awareness and recall of events in a context that gives personal meaning to the *when* and *where* of life experiences. Initially, this type of recognition memory was defined in terms of materials and tasks, such as intentions (i.e., one's self in a spatiotemporal context). Subsequently, the concept of episodic memory has been refined and elaborated in terms of awareness of one's self, the sense of subjective time, and a conscious state of self-awareness of the continuity in one's past, present, and future, which is different from dreaming or imagination. E. Tulving now describes episodic memory as self-awareness or *autonoetic consciousness*, which is consistent with other descriptions of ordinary human self-awareness, as based on immediate recognition by the intuitive senses. Episodic memory is also called *recollection* to distinguish it from factual knowledge that has no personal context in space and time. Tulving notes that there is no evidence that such intuitive self-awareness is present in any animal species except human beings.

Procedural, semantic, and episodic memory can be functionally dissociated from one another. For example, individuals with Parkinson's disease characterized by striatal lesions exhibit deficits in procedural learning but not in semantic or episodic memory. Individuals with an amnestic syndrome, characterized by lesions in the medial temporal lobe, have deficits in semantic learning of new facts but not in procedural learning or episodic consciousness. Individuals with amnestic syndrome have an anterograde amnesia for new facts but may have no deficit in their immediate sense of self-awareness. Bilateral lesions in the human hippocampus lead to deficits in self-awareness (that is, episodic consciousness or the intuitive recognition of one's self in a spatiotemporal context). Episodic memory is subserved by a widely distributed network of cortical and subcortical brain regions that overlaps with, but also extends beyond, the networks subserving other memory systems. Key regions in this network include the hippocampus, regions of the prefrontal cortex, and the anterior cingulate.

Essentially, the human episodic memory system acts like a mirror that provides spontaneous self-awareness to humans, whereas other primates require provision of an external mirror even to recognize themselves. This mirroring function depends on hemispherical specialization in the encoding and retrieval of information. Left prefrontal cortex is more involved in encoding episodic memories and retrieval of semantic memories, whereas right prefrontal cortex is more involved in the retrieval of episodic memories. The episodic retrieval mode is a state of consciousness (in which a person is actively recollecting or remembering their past) and involves the strong activation of sites in the right prefrontal cortex and weaker activation of sites in the left prefrontal cortex and medial anterior cingulate.

The experimental evidence that human beings have an intuitive form of learning and memory as the basis for their unique capacity for self-awareness is now strong, but its significance has yet to be widely appreciated. Current evidence suggests that the hippocampus and other parts of the episodic memory system, such as prefrontal cortex, are necessary for encoding of episodic memories but not for the acquisition of factual knowledge. The hippocampus processes all sensory information available to a person about one's external and one's internal milieu. Moreover, this pan-sensory information is constantly updated, allowing the registration and recall of ongoing life experiences in a personal context that is unique to each individual. The hippocampus is also known to maintain its plasticity throughout life, including the ongoing generation of new neurons as it adapts to ongoing experience. In contrast, long-term declarative memories, such as factual knowledge and self-reported character traits, are stored in brain networks that show greater stability and less plasticity than the hippocampus. There is also some evidence for development of new neurons during adult life in those regions of the prefrontal cortex with which the hippocampus is closely connected as part of the episodic memory system.

Likewise, character traits are static concepts, which are abstractions from which the spatiotemporal context has been reduced to a factual statement by a fixed choice that eliminates the intentional flexibility inherent in self-aware consciousness. Essentially, self-aware consciousness is living with many possible outcomes that can be voluntarily influenced, whereas factual knowledge is dead or frozen, like a collapsed quantum wave function. These findings about self-aware consciousness suggest a possible explanation of the importance of factors that are unique to the individual in personality development and of the substantial resistance to change of character and related cognitive schema when cognitive-behavioral or psychodynamic strategies are used. The plasticity of the episodic memory system and its role in self-awareness also suggest a crucial role for growth in self-awareness as a means of experiential transformation of personality.

Development and Assessment of the Psyche Episodic memory is a recently evolved memory system that appears to be unique to human beings, just as components of the episodic network, such as prefrontal cortex, are recent evolutionary developments. As expected for a recently evolved function, episodic memory develops later than procedural or semantic learning. Children younger than 4 years of age do not yet have a mature episodic memory system, so people generally have no direct recollection of their past before 4 years of age. In contrast, basic emotions are present at birth, and self-object differentiation occurs between 18 months and 3 years of age.

C. Robert Cloninger has observed five distinct levels of intuitive awareness in human beings. There is a hierarchy of levels of aware-

ness that can be measured in terms of what are sometimes called the *innate human ideas or intuitions about being and human nature.* Assessment requires an empathic understanding of the way in which another person is conscious of being, freedom of will, beauty, truth, and goodness, which provide markers of a hierarchy of levels of awareness. These five aspects of consciousness depend on intuitive awareness of the world. The awareness of facts and intentions are only two of the empirically observable levels of awareness.

For example, some patients with severe personality disorders complain of *emptiness*, which is a fearful feeling of isolation, separateness, annihilation, or lack of being. Such patients lack a stable awareness of their being, so they are sometimes described as having a borderline level of personality organization. This is characterized by difficulty in sublimation, intolerance of distress, distortions of reality testing, and poor self-acceptance. Their unstable sense of being (i.e., lack of spiritual fullness, identity, and vitality) makes them so emotionally unstable and hopeless that they often mutilate themselves or attempt suicide. Approximately 1 percent of people are deficient in their intuitive sense of being and experience life with a borderline organization chronically. Another 1 percent of people experience such disorganization and emptiness intermittently under stress. In contrast, the vast majority of people have a well-developed awareness of being all the time. This level of awareness involves memory of existence with a stable sense of being, that is, without fear of annihilation. This level of awareness is based on the recognition and memory of *facts*, or what has traditionally been called *semantic memory.*

Second, other people usually have a hopeful confidence in their being but feel that they are slaves to extrinsic influences and trapped in time like a hell or prison from which they have no means of escape. In other words, such people have a lack of flexibility in their actions or little freedom of will. The lack of awareness of freedom of intention (i.e., will) also distorts the sense of a free flow in time. The lack of consciousness of free will in time has been described as *chronesthesia* in patients who have brain lesions in their episodic memory system. Even in people with no brain lesions, the lack of awareness of free will can be pervasive. For example, some people are fatalistic materialists and claim that freedom of will is an illusion or something in which they are lacking. Their own intuition contradicts that of humanists and dualists who feel that rational responsibility and freedom of will are what give human beings their dignity. Approximately 10 percent of people experience lack of freedom and the urgency of time commitments to external influences chronically throughout their lives. This corresponds closely to traditional definitions of personality disorder, which involve lack of freedom or flexibility in adaptive behavior. In contrast, most people have a stable intuitive sense of their freedom and responsibility for their intentions. More generally, this level of awareness involves a person's awareness of his or her intentions in a personal spatiotemporal context. This is the second of Tulving's intuition-based types of memories, but it does not exhaust the levels of human awareness.

Third, some people have no aesthetic sensibility. That is, some human beings have no intuitive sense of what is lovely or beautiful. It has been observed that those who had attained each level always had awareness of the lower levels but not the higher levels of consciousness. For example, those with an awareness of beauty also had awareness of being and freedom but not necessarily an awareness of truth or goodness. In other words, these indicators of consciousness define a hierarchy of levels of awareness. It is shocking to recognize that some patients with personality disorders have no recollection at any time in their lives of feeling a sense of wonder and admiration for the beauty of any poem, painting, or nature scenes! Try to understand what that means for the quality of their lives. When such unaware individuals see a rainbow, they do not feel that it is beautiful or wonderful! They just see physical colors and shapes with no conscious recognition of beauty. The complete absence of any sense of love and beauty is rarely acknowledged, occurring in only approximately 3 percent of individuals, but many more show little intensity in their appreciation of beauty. Even though they know what opinions are fashionable, it has little or no impact on their ordinary awareness. Individuals with an unstable sense of beauty are consequently unstable in their capacity for love and emotional intimacy in relationships. Approximately one-half of marriages in the United States end in divorce, which is an objective indicator of instability in the sense of what is beautiful and loved. In contrast, the stable intuitive sense of what is beautiful and loved is characteristic of the other half of the general population, who have sometimes been designated as *romantics*. In particular, aesthetic sensitivity is a highly developed intuitive sense in romantic poets and novelists, such as Ralph Waldo Emerson and Henry Thoreau, and in romantic musicians, such as Franz Schubert.

Fourth, still other individuals have a sense of being, freedom, and beauty at least some times in their lives but never have any intuition of absolute truth. This is typical of individuals who describe themselves as pragmatists or objectivists. Such individuals also are usually agnostic or atheists, because they have no intuition of their participation in a unity of consciousness, which gives rise to what Freud called *oceanic feelings* and, hence, to faith. Approximately 10 percent of individuals in the United States are atheists or agnostics, which is consistent with recent nationwide Gallup polls. According to Gallup polls (2000), approximately nine out of ten (86 percent) Americans believe in God, but the majority do not feel that institutional religions are adequately inspiring and satisfying their spiritual needs. Eight percent of Americans do not believe in God but believe in a universal spirit or higher power. Only 5 percent of people are atheists who also deny belief in a universal spirit or higher power.

Individuals who have attained each level always have had awareness of the lower levels, but not the higher levels, of consciousness. For example, individuals with a sense of emptiness were also lacking in awareness of freedom, beauty, truth, and goodness. Those with an awareness of truth also had awareness of being, freedom, and beauty, but not necessarily an awareness of goodness. Hence, awareness of truth is an intuitive sense that is well-developed in elevated levels of consciousness. The intuitive sense of truth is prominent in many scientists, such as Pierre Teilhard de Chardin and Carl Rogers. It is even more fully developed in highly self-aware sages, such as Georg Wilhelm Friedrich Hegel, Leonardo da Vinci, and Mahatma Gandhi, who viewed their lives as experiments in truth.

Fifth, still other individuals may have had a sense of being, freedom, beauty, and truth at times in their lives but have never had any intuition (i.e., direct awareness) of the intrinsic goodness of all things despite the perversions and corruption that exist in the world. Unfortunately, this group includes nearly all people at times when they wonder about the existence and nature of evil or seek retribution and revenge against other human beings who threaten or attack them or perhaps only frustrate them. Deep awareness of the universal unity of being and consciousness is required to love one's enemies. The intuitive sense of goodness is well-developed only rarely. There is a partial awareness of it in individuals who are highly developed in all three character traits, including self-transcendence, such as the American transcendentalists, such as Emerson and Thoreau. However, a well-developed awareness of goodness occurs only rarely, in wise people such as Plato and Gandhi.

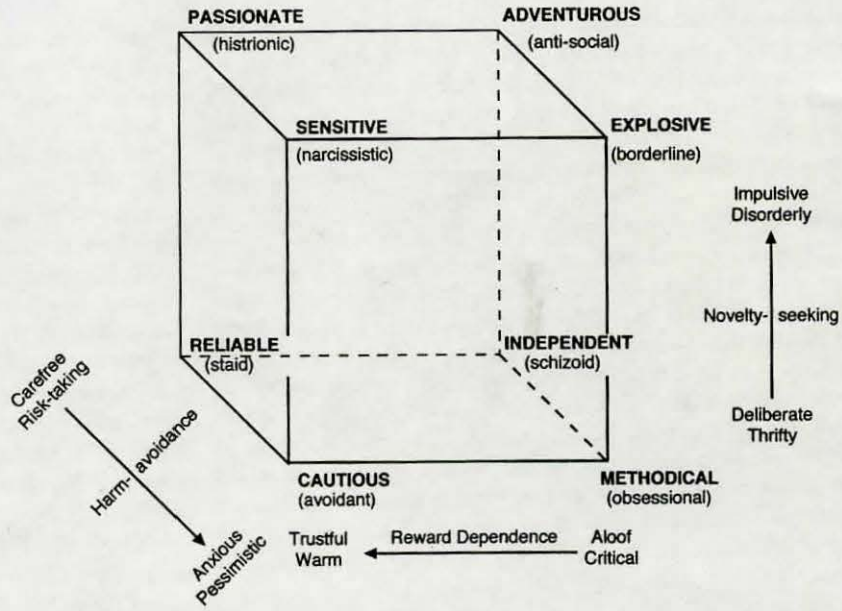

FIGURE 23–2 Temperament configurations.

Personality: An Integrated View Recent reports about complex and fundamental processes underlying neurophysiology, development, and phenomenology of personality provide powerful guidelines for the formulation of a comprehensive psychobiological model of personality as the coherent organization of the human body, mind, and spirit. The model integrates earlier phenotypic observations about behavior with contemporary concepts based on neuroimaging, biology of behavior, genetics, psychometric advances, and nonlinear modeling of normal and deviant personality development. Personality is conceptualized as a complex adaptive system involving a multidimensional interaction among temperament, character, and psyche. The coherent maturation of personality requires awareness of humans' natural unity of being, which, in turn, depends on the interplay of the procedural, semantic, and episodic systems of learning and memory (Fig. 23–2).

Through the interaction of temperament and character, different aspects of internalized concepts of the self and the external world modify the significance and the salience of sensory percepts and affects regulated by temperament and vice versa. In other words, temperament regulates what a person notices, and, in turn, character modifies its meaning, so that the salience and significance of all experience depend on a person's temperament and character. In turn, the development of character is derivative of individual differences in intuitive self-awareness. Essentially, personality development depends on the joint interactions among three systems of learning and memory. These are called *procedural*, *semantic*, and *episodic memory* and are related to temperament, character, and psyche, respectively. The least plasticity is in temperament (procedural memory), and the most plasticity is in the psyche (episodic memory), with character (long-term declarative or semantic memory) intermediate to the other two in its malleability.

Consequently, treatment efficacy depends substantially on whether treatment is focused on temperament, character, or psyche. Medications and behavioral conditioning target temperament, which usually changes little beyond specifically conditioned situations. Cognitive and psychodynamic approaches seldom eliminate or transform maladaptive cognitive schemas (i.e., transform character) but may improve the management of conflicts by means of prolonged treatment of more than 1 year. Only treatment focused on intuitive awareness is likely to lead to actual cure of personality disorder by transformation of the level of intuitive awareness, and the evidence in support of this suggestion in this chapter remains anecdotal. Throughout this chapter, specific aspects of this model are discussed in more detail.

CONCEPTUAL AND PSYCHOMETRIC ISSUES

Personality Traits: Person versus Situation Debate

Personality traits are neuropsychic structures with the capacity to render many stimuli functionally equivalent and to initiate and to guide equivalent (consistent) forms of adaptive and expressive behavior (Allport). Accordingly, the DSM-IV-TR defines *personality traits* as "enduring patterns of perceiving, relating to, and thinking about oneself and the environment," that is, other people and the world as a whole. The major value of personality traits, therefore, lies in their usefulness in identifying predictable regularities in an individual's behavior.

The stability of personality traits in time and across situations has been the central issue in personality theory for decades, as it bears direct relevance to the question of whether internal dispositions or external situations determine behavior. The *person-versus-situation* debate was initiated in the early 1900s by two groups of scientists (*situationists* vs. *personologists*); the former viewed behavior as highly situationally specific, the latter viewed behavior as centrally organized and purposive. As noted by Epstein and O'Brien, the dilemma remained unresolved for decades, because it was not realized that behavior can be situationally specific at the item level and cross-situationally general at the aggregate level. Single items of behavior have limited reliability and generality. They must be aggregated over situations and occasions to reveal broad and stable traits, which allow accurate predictions of behavior tendencies (without having to specify the eliciting situations) but less accurate predictions of single behavioral acts.

On the other hand, global personality traits also do not explain behavior completely, because people do not exhibit unmodulated consistencies in behavior across time and situations (complete invariance in behavior is associated more with psychopathology than with normality). Biogenetic factors influence how an individual adapts to experience, and the latter modifies adaptive tendencies. Hence, personality traits are not expected to be fixed. This current

understanding of traits differs from the conservative one of the 1980s. The emerging consensus is an interactionist position allowing room for situational (external) and dispositional (internal) determinants of behavior in a variety of complex combinations.

Phenotypic and Developmental Trait Personality Models The major difficulty in relating observed variation in personality to its underlying biological processes is that the observed phenotypic structure differs from the underlying biogenetic structure, because learning and environmental factors also influence phenotypic variation. Observed phenotypic traits do not explain behavior but themselves require etiological explanation. Factor analysis can determine only the minimal number of distinguishing behavior traits not their underlying causative factors. Hence, the *phenotypic trait personality models*, which are usually factor analytically derived (e.g., Heinz J. Eysenck's tridimensional model and Paul T. Costa's and Robert R. McCrae's five-factor model), account for much of the observed phenotypic variance but may not correspond to the underlying biogenetic processes. In particular, neuroticism is a composite of high harm avoidance and low self-directedness. However, harm avoidance and self-directedness have unique genetic determinants and are regulated by different brain circuits. For example, self-directedness, but not harm avoidance, is strongly correlated with activity in the medial prefrontal cortex in fMRI studies during executive tasks and with the P300 evoked potential.

In contrast, *developmental trait personality models* take into account the underlying biological dispositions to observable behaviors and individual differences in responses to experience during personality development. The most recognized dimensional models are those of Henrik Sjobring, Marvin Zuckerman, and Cloninger. Despite some limitations, Sjobring's developmental model in the late 1940s is a heuristic attempt to take personality research beyond the level of phenotypic observations and factor analysis. The model defines three dimensions of latent variation predisposing to personality: *validity* (i.e., the degree of energy available in adaptation to experience), *solidity* (the consistency of adaptation), and *stability* (referring to the maximum potential of a person to develop skillful habits in adapting to routine). These three genetic dispositions were postulated to be independent from one another and from the factor of general intelligence (referred to as *capacity*) and also to define one's susceptibility to behavior disorders.

Personality has often been described in terms of a linear sequence of qualitatively discrete developmental stages and structural types. However, the frequent occurrence of heterotypic individuals with intermediate or mixed features calls into question the basic assumption that personality structures are limited to a finite number of types that are qualitatively discrete and homogeneous. Likewise, it is becoming increasingly clear that there is not only variation in the rate and direction of personality development as a whole, but also asynchrony and inconsistency among its major components that are reorganized through time. The following section outlines a more general nonlinear quantitative theory of personality development that does not make the restrictive assumptions about a finite number of qualitatively discrete structural types.

PERSONALITY DEVELOPMENT: FUNDAMENTALS OF A SELF-ORGANIZING PSYCHOBIOLOGICAL COMPLEX

Dragan M. Svrakic and colleagues formulated a quantitative model of normal and deviant personality development as a complex dynamic system that is self-organizing and partly molded by familial and sociocultural influences. The model allows for nonlinear interactions among etiologically distinct components of personality. It also accounts for the frequent, but not invariant, development of stage-like periods of moderately stable personality configurations (similar to personality types) punctuated by abrupt transitions in which there are structural reorganization and emergence of qualitatively new features. The model is based on a sophisticated mathematical framework that can be implemented and tested with readily accessible data. More recently, the developmental interactions among temperament, character, and psyche have been able to be interpreted in terms of interactions among procedural, semantic, and episodic systems of learning and memory.

The central ideas behind this model are the following:

- Personality is as a dynamic multidimensional system comprised of more elementary operating components (traits) that are organized in an interdependent way that is critical to carrying out a particular function. Such a system is characterized by particular rules of operation, for example, the principles of associative learning within the temperament function, long-term semantic learning within the character function, and episodic intuitive awareness within the psyche function. The satisfaction of such multiple constraints results in nonlinear dynamics, which are characteristic of all systems involving growth and development in biology, neuroscience, psychology, and sociology. Such multidimensional dynamic systems are usually called *complex adaptive systems*.
- The correlations observed among multiple personality traits can be used to explain the spontaneous organization of stable multidimensional configurations (i.e., personality types); these types develop in a stage-like fashion with successive periods of prolonged stability punctuated by rapid transitions. However, the progression of each individual is unique, because differences in intuitive awareness result in substantial variability that is unique to each individual.
- The model accounts for functional interactions among multiple types of influence, including genetic factors, family environment, sociocultural norms, and experiences that are unique to each individual.
- Based on the specified basic differences between temperament and character (Table 23–10), plus variation in level of intuitive awareness, this model takes into account all aspects of information processing from associative conditioning of habits and skills to enculturation about goals and values within a unique psychological context.

Personality development is presented as a walk on an adaptive (or fitness) landscape with two or more hills (representing high adaptive values) separated by valleys (representing low adaptive values). *Fitness* is defined as the ability to produce change in personality. In general, a complex system subjected to constraints responds to these constraints by optimizing fitness, that is, by adaptive changes in personality. As change in personality is motivated by optimization of fitness, people most likely and most rapidly move in the direction of the greatest increase in adaptive value (i.e., the nearest hill). Once they have reached the peak of the hill, they stay there for a relatively long time, because they would first have to decrease fitness (i.e., descend into the valley) to find a hill with a higher peak (i.e., better adaptation). Such adaptive development is called *U shaped*.

As noted, temperament and character traits are etiologically distinct but functionally related. Such an interactive system has the property of being self-organizing as a result of the collective dynamics among its multiple components. In other words, the organism is spontaneously driven to find patterns of behavior that result in coherence of all information about the external and the internal milieu. For example, harm avoidance interacts with novelty seeking and

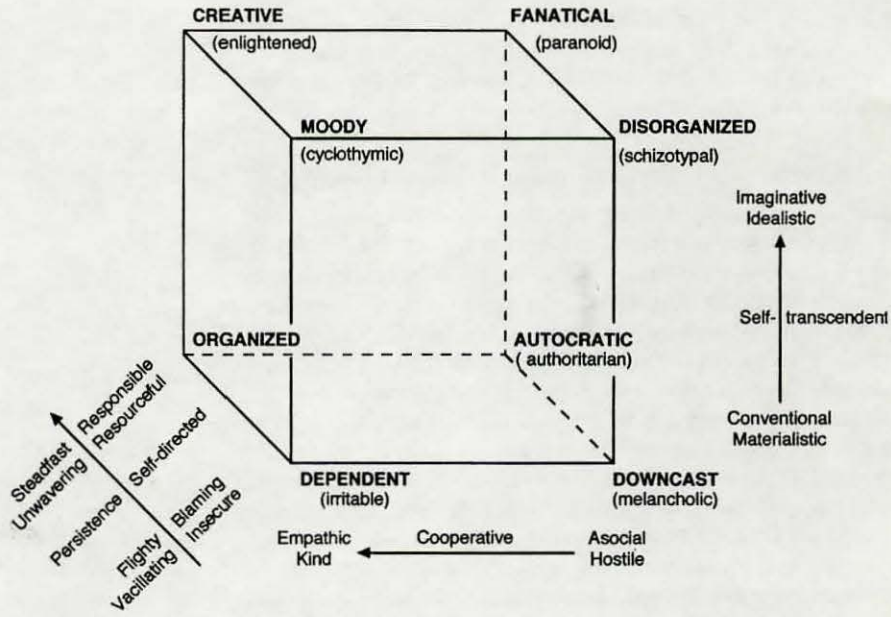

FIGURE 23–3 Character configurations.

reward dependence, inhibiting approach to novel stimuli and inhibiting social attachments by increasing fear of the unfamiliar and sensitivity to social criticism. Accordingly, consistent negative correlations of harm avoidance with novelty seeking and reward dependence have been found. In contrast, novelty seeking and reward dependence are positively synergistic, facilitating sociability and seeking of social approval. Such interactions influence the stability of each of the eight possible multidimensional configurations or *profiles* of temperament traits (Fig. 23–3), making some more stable than others.

In the fitness landscape, the valleys (or the adaptive minima) are unstable, because even small perturbations, such as random events, drive the system away from these points of the lowest fitness. In contrast, hills (i.e., adaptive maxima) are stable, because they act as *attractors* for all lower points in the neighborhood. Consequently, personality interactions tend to self-organize into such an attractor state and to remain in that configuration in the absence of external pressure or maturational processes. For the understanding of the chronicity and treatment resistance of personality disorders, it is of critical importance to realize that a particular personality configuration may be highly stable, even though it may not be the most adaptive behavior possible for that individual.

This chapter is mainly concerned with patterns of change of character traits as a function of relatively stable temperament traits and variation in the level of self-awareness, as discussed in the following sections. The three character traits interact to produce eight possible character configurations or profiles (Fig. 23–4).

Any change in these character configurations can be predicted from the initial temperament configuration, taking into account temperament–character interactions and the effects of sociocultural norms, random events unique to the individual, social learning within the family, and genetic factors. However, whether there is change depends on self-awareness, which is unique to each individual and unpredictable, that is, underdetermined or free. All these sources of individual differences influence the likelihood for different stable character configurations in the outcome. The sociocultural

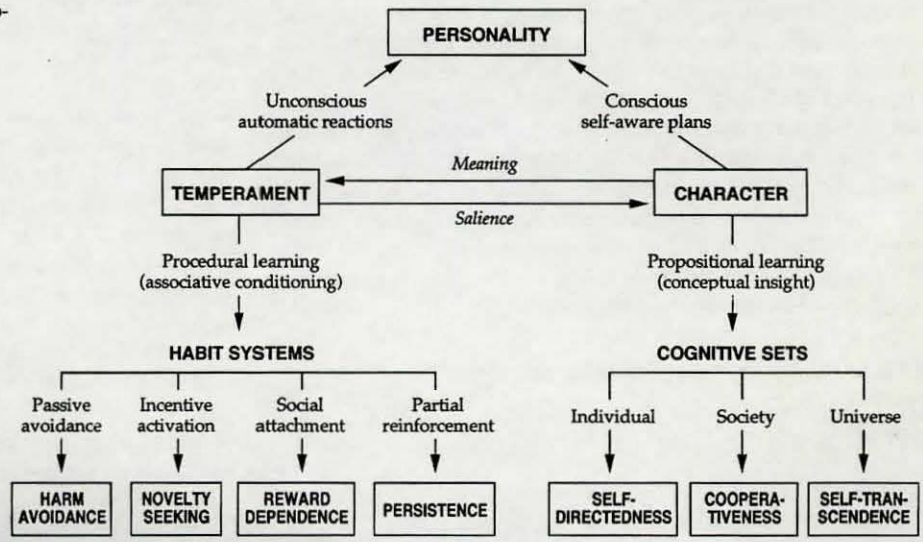

FIGURE 23–4 Personality: an integrated psychobiological schema.

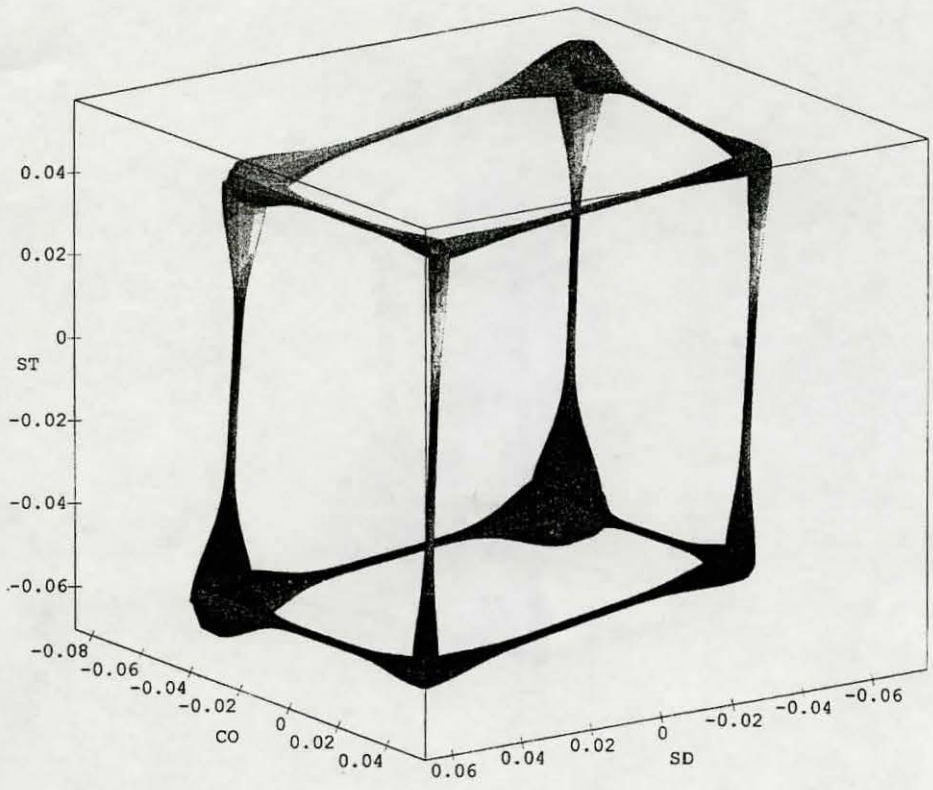

FIGURE 23–5 Most probable character outcomes for the adventurous antecedent temperament traits. CO, cooperativeness; SD, self-directedness; ST, self-transcendence.

norms can be additionally accounted for as the systematic bias in development associated with demographic variables, such as subculture, gender, race, age, and occupation. These norms and social education in the family create environments that are supportive or oppressive of specific character development. With all this taken into account, it turns out that a single initial temperament configuration may lead to several different stable character configurations; this aspect of development is referred to as *multifinality*. These results are graphically represented in Figures 23–5, 23–6, and 23–7, with four different initial temperament configurations and their possible character outcomes.

Three dimensions of character (self-directedness, cooperativeness, and self-transcendence) are drawn along three orthogonal axes, and each character configuration is represented by a point in this abstract space. Eight possible high–low combinations of three character dimensions are represented by the corners of the cube. Observe that certain temperament types may and do give rise to several possible stable character outcomes, each with a certain probability, a feature characteristic of nonlinear systems. The size of the bulging at a particular character configuration is proportional to the probability of that outcome. Figures 23–5 through 23–7 illustrate this for adventurous (high novelty seeking, low harm avoidance, low reward dependence), explosive (high novelty seeking, high harm avoidance, low reward dependence), and sensitive (high novelty seeking, high harm avoidance, high reward dependence) temperament types. Similar results can be obtained for the remaining five temperament configurations. Individuals are born with one temperament profile with several possible character outcomes. This multifinality reflects the fact that the fitness landscape in personality development has objective and subjective components. Feelings and internalized concepts that are unique to the individual do influence the evaluation of the objectively worthwhile goals and values. The observed discrepancies between the natural directions influenced by antecedent temperament traits and actually achieved character configurations point to the importance of external events, such as social learning and random fluctuations in the final character outcome.

As a result of the presence of points of high and low adaptive values in the fitness landscape, personality development is characterized by periods of relative stability alternating with more rapid transitions to new adaptive levels. The subscale structure of the Temperament and Character Inventory (TCI) was formulated to specify character in terms of 15 component steps of its development, as shown in Table 23–11.

The 15 steps in character development are a theoretical ideal, corresponding to the modal pathway that leads to full character development with high scores on all three character dimensions, which is not optimal for everybody. Observe that successive steps in character developmental form a spiral pattern, where each revolution around the spiral (presented as each of the five TCI tiers in Table 23–11) introduces a new set of developmental issues associated with the new set of component facets of the three major character traits. Furthermore, each revolution of the spiral depends on different levels in a hierarchy of intuitive awareness. For example, in early character development, during the first revolution around the spiral, a person encounters problems of trust versus mistrust, self-respect versus shame, and moderation versus indulgence; these are associated with *social acceptance* (first facet for cooperativeness), *responsibility* (first facet for self-directedness), and *self-forgetfulness* (first facet for self-transcendence). This depends substantially on a person's intuitive sense of being, whereas later developmental tasks depend on the intuitive senses of freedom, and still later developmental tasks depend on beauty, truth, and goodness. As can be inferred from Table 23–11, as they move along the spiral, people successively face new developmental tasks associated with new component facets in self-directedness, cooperativeness, and self-transcendence. This spiral pattern of character development pro-

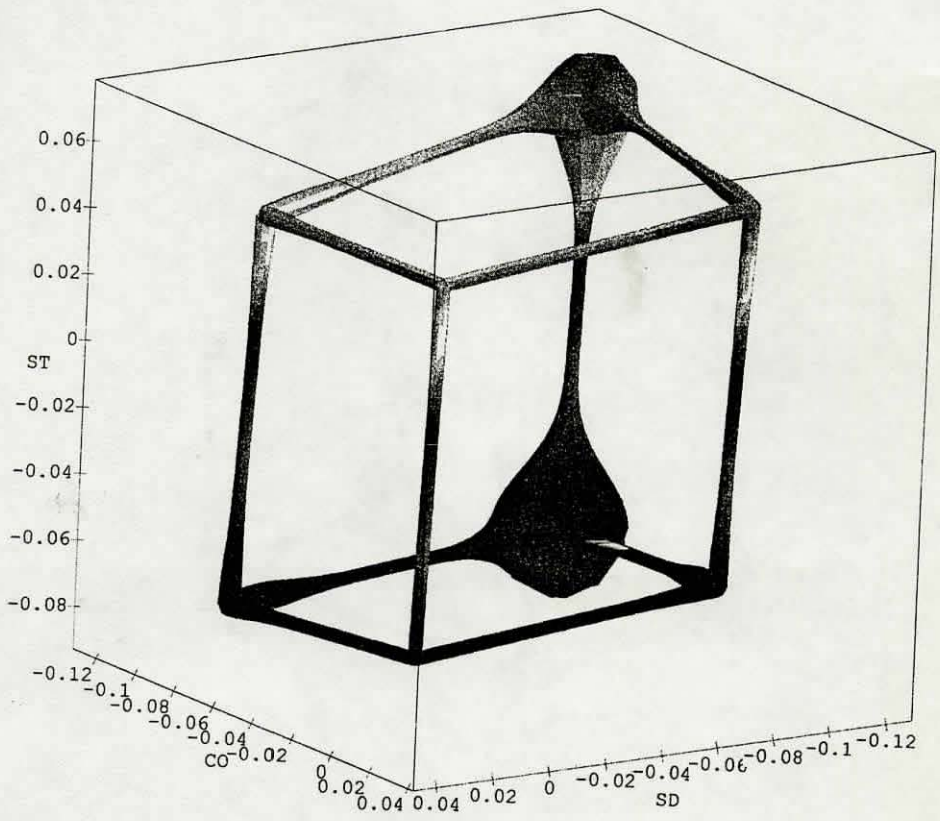

FIGURE 23–6 Most probable character outcomes for the explosive (borderline) antecedent temperament traits. CO, cooperativeness; SD, self-directedness; ST, self-transcendence.

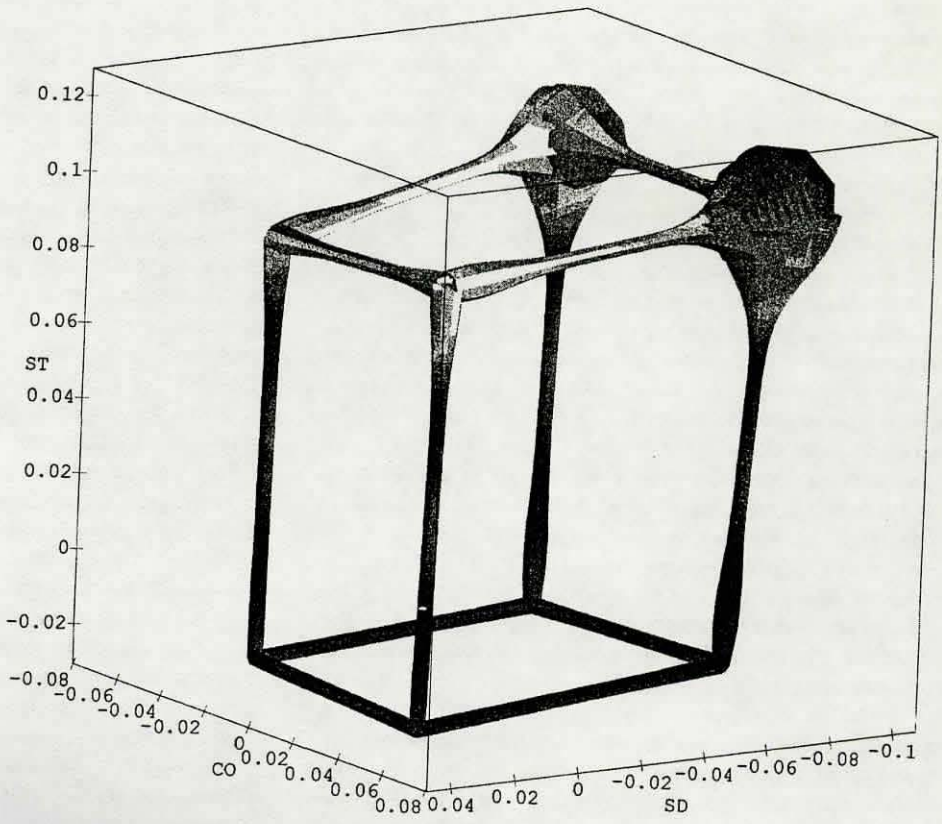

FIGURE 23–7 Most probable character outcomes for the sensitive antecedent temperament traits. CO, cooperativeness; SD, self-directedness; ST, self-transcendence.

Table 23–11
Spiral Movement of 15 Steps in Personality Development

Steps	SD	CO	ST
TCI Tier 1			
[1] CO1	—	Tolerant vs. suspicious (trustful vs. mistrustful)	—
[2] SD1	Responsible vs. blaming (respectful vs. shameful)	—	—
[3] ST1	—	—	Hopeful vs. demanding (moderate vs. indulgent)
TCI Tier 2			
[4] SD2	Purposeful vs. aimless (nonviolent vs. aggressive)	—	—
[5] CO2	—	Empathic vs. cruel (prudent vs. scornful)	—
[6] ST2	—	—	Conscientious vs. unjust (fairness vs. defiant)
TCI Tier 3			
[7] SD3	Resourceful vs. inept (benevolent vs. helpless)	—	—
[8] CO3	—	Generous vs. disagreeable (kind vs. hostile)	—
[9] ST3	—	—	Spiritual vs. materialistic (contemplative vs. greedy)
TCI Tier 4			
[10] SD4	Self-accepting vs. vain (humble vs. proud)	—	—
[11] CO4	—	Forgiving vs. revengeful (compassionate vs. callous)	—
[12] ST4	—	—	Enlightened vs. objective (patient vs. controlling)
TCI Tier 5			
[13] SD5	Creative vs. struggling (authentic vs. effortful)	—	—
[14] CO5	—	Integrity vs. unprincipled (well-being vs. unfulfilled)	—
[15] ST5	—	—	Coherent vs. dualistic (virtuous vs. practical)

CO, cooperativeness; SD, self-directedness; ST, self-transcendence; TCI, Temperament and Character Inventory.

vides an opportunity to correct *developmental flaws* that were made at any of the previous steps within the same trait. For example, as character develops around the spiral to reach a new step of cooperativeness (e.g., resourcefulness), one gets in line historically with issues of purposefulness and responsibility (also steps of cooperativeness, but encountered during earlier revolutions) (Table 23–11). This alignment facilitates retrospective revisions of errors at these earlier developmental levels. The possibility of *retrospective healing* of old character errors is important in planning the psychotherapy of patients with personality disorders. Namely, when addressing problems related to a certain developmental step, these patients are more susceptible to changes related to previous steps within the same character traits.

This 15-step developmental sequence is consistent with prior qualitative descriptions of developmental stages by Jean Piaget, Freud, and Erik Erikson (Table 23–12) but allows for the actual nonlinearity in development that depends uniquely in each individual on intuitive awareness.

Computer simulations of the self-organized development of character have been carried out beginning with average initial temperament traits and taking into account all of the previously mentioned contributing factors. These simulations found that children first increase in self-transcendence (i.e., become imaginative and enjoy fantasy), then increase in cooperativeness (i.e., become conforming and rule based), and only later increase in self-directedness (i.e., behavior becomes increasingly self-reliant and autonomous). This prediction is consistent with the description of the stages of ego-development by Jane Loevinger and her colleagues. This early sequence does not exclude the subsequent further development of other character dimensions in response to demands of changing social roles with age or changes in self-awareness, or both. It is this subsequent development in response to external social pressures that may explain adult self-actualization and moral development, as described by Erikson, Lawrence Kohlberg, and others.

PERSONALITY DISORDER

Normal versus Deviant Personality

Normal personality is usually defined (1) directly, using criteria of health ideals; (2) indirectly, as the opposite to deviant personality; or, most frequently, (3) statistically, by behaviors that are most common in the given environment. The distinction between *normal* and *abnormal* personality is inherently relative, as it relies on arbitrary cut-off points on the continuum between two extremes (low and high) of any behavior. This distinction is also context dependent, as the same behavior, manifested in different situations, could be viewed as normal or maladaptive (e.g., invariant cautiousness, when danger is unlikely, and the same trait, when danger is likely). However, relying solely on the social or situational context to establish the diagnosis is problematic, because personality disorder involves many noninterpersonal traits as well (e.g., narcissistic persons satisfy many aspects of their grandiosity in fantasy). Here, personal deviance alone also does not reliably distinguish between normal behavior and personality disorder (e.g., some individuals are socially withdrawn without impairment in professional functioning or signs of personal suffering and distress). In other words, per-

Table 23–12
Comparison of Different Descriptions of Personality Development

Temperament and Character Inventory Developmental Step	Jean Piaget	Sigmund Freud	Erik Erikson
[1] CO1—trust in reality	Sensorimotor (reflexive)	Oral (passive)	Trust
[2] SD1—self-respect	Sensorimotor (enactive)	Anal (negativistic)	Autonomy
[3] ST1—hope	Self–object differentiation	Early phallic	—
[4] SD2—purposefulness	Intuitive	Late phallic (exploratory)	Initiative
[5] CO2—empathy	Operational (concrete)	Latency (conforming)	—
[6] ST2—conscientiousness	Operational (abstract)	Early genital (conscientious work)	Identity
[7] SD3—resourcefulness	—	—	—
[8] CO3—mutual helpfulness	—	Later genital (social maturity)	Intimacy
[9] ST3—spirituality	—	—	—
[10] SD4—self-acceptance	—	—	—
[11] CO4—compassion	—	—	Generativity
[12] ST4—patience	—	—	—
[13] SD5—authenticity	—	—	—
[14] CO5—integrity	—	—	Integrity
[15] ST5—coherence	—	—	—

CO, cooperativeness; SD, self-directedness; ST, self-transcendence.

sonal and social aspects are needed to fully account for the symptoms of personality disorder.

Classification of Personality Disorder The leading classifications of personality disorder are the *International Classification of Diseases* (ICD) of the World Health Organization and the DSM of the American Psychiatric Association. The classification of personality disorder in the ninth edition of the ICD relied on Schneider's book *Psychopathic Personalities* and his description of ten discrete socially deviant personality types. The latest edition of the ICD, ICD-10, published in 1987, corresponds more closely to the DSM system, however. Anglo-American concepts of personality disorder originate in James Pritchard's description of moral insanity, which was later termed *sociopathy* and which finally became *antisocial personality disorder* in the second edition of the DSM (DSM-II) in 1968. However, other classified personality disorders in the DSM system can be traced to the work of Schneider. This chapter describes the DSM-IV-TR classification of personality disorder. It is, however, descriptively similar to ICD-10, and, for practical purposes, much of the following section on DSM-IV-TR holds for ICD-10 as well. A noteworthy exception is that ICD-10 classifies schizotypal personality disorder on Axis I, among schizophrenic disorders, whereas DSM-IV-TR keeps this disorder on Axis II, among personality disorders.

DSM-IV-TR Classification According to DSM-IV-TR, the critical criterion for distinguishing deviant personality traits is the presence (evidence) of long-term maladaptation and inflexibility that are manifested as subjective distress or socioоccupational functional impairment, or both. DSM-IV-TR defines *personality disorders* as

> An enduring pattern of inner experience and behavior that deviates markedly from the expectations of the individual's culture. The pattern is manifested in two (or more) of the following areas:
>
> *cognition* (i.e., ways of perceiving and interpreting self, other people, and events)
> *affectivity* (i.e., the range, intensity, lability and appropriateness of emotional response)
> interpersonal functioning
> impulse control
>
> The pattern is stable and of long duration and its onset can be traced back at least to adolescence or early adulthood. It is inflexible and pervasive across a broad range of personal and social situations and leads to clinically significant distress or impairment in social, occupational, or other important areas of functioning.

Personality disorder subtypes classified in DSM-IV-TR are: *schizotypal*, *schizoid*, and *paranoid* (Cluster A); *narcissistic*, *borderline*, *antisocial*, and *histrionic* (Cluster B); and *obsessive-compulsive*, *dependent*, and *avoidant* (Cluster C). In addition to these ten standard disorders, the DSM-IV-TR classifies two disorders, *passive-aggressive* and *depressive*, among *criteria sets and axes provided for further study* in Appendix B. The DSM-IV-TR arranges categorical personality disorders into three clusters, each sharing some clinical features: Cluster A includes three disorders with odd, aloof features, such as paranoid, schizoid, and schizotypal. Cluster B includes four disorders with dramatic, impulsive, and erratic features, such as borderline, antisocial, narcissistic, and histrionic. Cluster C includes three disorders sharing anxious and fearful features, such as avoidant, dependent, and obsessive-compulsive. Several studies have supported the construct validity of these clusters, except that the symptoms for compulsive disorder tend to form a separate, fourth cluster. Note that the three dimensions underlying Clusters A, B, and C (i.e., detachment, impulsivity, and fearfulness) correspond closely to normal temperament traits (i.e., low reward dependence, high novelty seeking, and high harm avoidance, respectively), suggesting that variation in these temperament traits might be significant in distinguishing among the three clusters of disorders.

INDIVIDUAL PERSONALITY DISORDERS

General Diagnostic Guidelines DSM-IV-TR introduces the following general guidelines for the diagnosis of personality disorder.

Many of the features of various personality disorders also may be seen during an episode of another mental disorder. The diagnosis of personality disorder is made only made only when the features are typical of long-term functioning and are not limited to a discrete episode of another mental disorder. Likewise, when maladaptive behavior features are due to the direct psychological effects of a substance (e.g., various psychoactive substances, including medication) or a general medical condition, diagnosis of personality disorder is not warranted.

Judgments about personality functioning must take into account one's ethnical, social, and cultural background. Personality disorder should not be confused with acculturation after immigration or with the expression of customs and religious and political values that are characteristic of one's culture of origin.

Diagnosis of specific personality disorder may be made in children or adolescents when observed maladaptive personality traits are pervasive, persistent, and unlikely to be limited to a particular developmental stage or an episode of an Axis I disorder. To diagnose a personality disorder in an individual who is younger than 18 years of age, the features must be present for more than 1 year. The only exception to this is antisocial personality disorder, which cannot be diagnosed in individuals who are younger than 18 years of age.

Clinical experience points to a potential sex-bias in diagnosing personality disorders. Certain personality disorders are diagnosed more frequently in men (e.g., antisocial and schizoid), whereas some disorders are more frequently diagnosed in women (e.g., borderline, histrionic, and dependent). Even though it is likely that there exist real gender differences in the prevalence of these disorders, clinicians are cautioned not to diagnose certain personality disorders in men and women because of social stereotypes about typical gender roles and behaviors.

Observed maladaptive behavior traits must be pervasive, that is, manifest in a wide range of personal and social contexts (i.e., at home, at work, and with family and friends), not isolated aspects of the person's life. The collection of data from collateral informants is thus considered critical to ensuring the high-quality personality assessment, diagnostic reliability, and validity.

In addition to official diagnostic criteria, DSM-IV-TR specifies a group of *associated features*. These features are not given in the form of explicit criteria (as their official counterparts) but rather as loose descriptions of optional, but fairly frequent, behaviors intended to help clinicians in cases in which the diagnosis is not certain.

Cluster A Personality Disorders

Paranoid Personality Disorder

CLINICAL CRITERIA The hallmarks of paranoid personality disorder are excessive suspiciousness and distrust of others expressed as a pervasive tendency to interpret actions of others as deliberately demeaning, malevolent, threatening, exploiting, or deceiving. Diagnostic features also include at least four of the following:

- Hypersensitivity to and unforgiveness of insults, slights, and rebuffs
- Unwarranted tendency to question the loyalty of friends or the fidelity of spouse or sexual partners
- Reluctance to confide in others because of unwarranted fear that the information will be used against them
- Preoccupation with conspirational explanations of and hidden demeaning or threatening meanings into benign events or remarks
- Unwarranted tendency to perceive attacks on their character or reputation with angry reactions or counterattacks

Some of the associated features include

- Excessive need to be self-sufficient and strong sense of autonomy
- Pervasive inability to relax and to compromise
- Frequent involvement in legal disputes
- Frequently impress others as fanatics
- Tendency to form closed groups or cults consisting of people with similar beliefs
- Peculiar ability to generate fear in others

COMPLICATIONS Complications include brief reactive psychosis, particularly in response to stress.

COMORBIDITY These patients are at increased risk for major depression, obsessive-compulsive disorder (OCD), agoraphobia, and substance abuse or dependence. The most common cooccurring personality disorders are schizotypal, schizoid, narcissistic, avoidant, and borderline.

Paranoid personality disorder has been postulated to be a premorbid antecedent of delusional disorder, paranoid type.

IMPAIRMENT Impairment is frequently only mild and typically includes occupational and social difficulties.

SEX RATIO According to DSM-IV-TR, this disorder is more commonly diagnosed in men.

EPIDEMIOLOGY Prevalence rates of 0.5 to 2.5 percent in the general population, 10 to 30 percent for psychiatric inpatients, and 2 to 10 percent for psychiatric outpatients are reported in DSM-IV-TR.

FAMILIAL PATTERN AND GENETICS Some studies have demonstrated increased prevalence of this personality disorder among relatives of probands with chronic schizophrenia and delusional disorder, paranoid type.

DIFFERENTIAL DIAGNOSIS Paranoid personality disorder is distinguished from schizophrenia (especially paranoid type); delusional disorder, paranoid type; and affective disorder with psychotic features based on periods with positive psychotic symptoms, such as delusions and hallucinations. When a brief reactive psychosis with delusions complicates the clinical picture of paranoid personality disorder, this distinction is far more difficult. The duration of the latter and its frequent association with stress are usually sufficient for differential diagnosis.

Paranoid personality disorder is sometimes difficult to distinguish from the following personality disorders:

- Schizotypal (which includes magical thinking, unusual perceptual experiences, oddities in speech, appearance, and thought processes)
- Obsessive-compulsive, schizoid, borderline, and histrionic (all with no prominent paranoid ideation)
- Avoidant (which includes fear of embarrassment)
- Antisocial (which includes personal gains in antisocial behavior)
- Narcissistic (which includes fear of having hidden imperfections and flaws revealed)

Schizoid Personality Disorder

CLINICAL CRITERIA The hallmarks of schizoid personality disorder are a pervasive pattern of social detachment and a restricted range of expressed emotions in interpersonal settings beginning by early adulthood and present in a variety of contexts, as indicated by four or more of the following:

- Indifference to praise and criticism
- Preference for solitary activities and fantasy (so-called loners)
- Lack of interest in sexual interactions

- Lack of desire or pleasure in close relationships
- Emotional coldness, detachment, or flattened affectivity
- No close friends or confidants other than family members
- Pleasure experienced in few, if any, activities

Some of the associated features include

- Difficulty in expressing anger, even in response to direct provocation, which contributes to the following features
- Impression of flattened affect
- Passivity in adverse circumstances
- Severe lack of social skills

COMPLICATIONS Complications include very brief reactive psychosis, particularly in response to stress.

COMORBIDITY This personality disorder sometimes appears as the premorbid antecedent of delusional disorder, schizophrenia, or, rarely, major depression. The most common cooccurring personality disorders are paranoid, schizotypal, and avoidant.

IMPAIRMENT Impairment includes frequently severe problems in social relations. Occupational problems develop when interpersonal involvement is required; solitary work sometimes favorably affects overall performance.

SEX RATIO According to DSM-IV-TR, this disorder is more commonly diagnosed in men and may cause more impairment in them.

EPIDEMIOLOGY Prevalence rates varying from uncommon (DSM-IV-TR) to 7.5 percent in the general population.

FAMILIAL PATTERN AND GENETICS An increased prevalence among the relatives of probands with schizophrenia or schizotypal personality disorder has been reported.

DIFFERENTIAL DIAGNOSIS Schizoid personality disorder is distinguished from schizophrenia, delusional disorder, and affective disorder with psychotic features based on periods with positive psychotic symptoms, such as delusions and hallucinations in the latter. When a brief reactive psychosis complicates the clinical picture of schizoid personality disorder, this distinction is far more difficult. The duration of the latter and its frequent association with stress are usually sufficient for differential diagnosis.

Schizoid personality disorder is distinguished from autistic disorder and Asperger's syndrome by more severely impaired social interactions and stereotypical behaviors and interests in the latter two disorders. Schizoid disorder is distinguished from the following personality disorders:

- Schizotypal (which includes magical thinking, unusual perceptual experiences, oddities in speech, appearance, and thought processes)
- Avoidant (adequate emotionality in the latter, also social isolation due to the fear of embarrassment, not indifference)
- Obsessive-compulsive (adequate capacity for intimacy, despite sometimes excessive isolation due to perfectionism and workaholic attitudes)
- Paranoid (which includes suspiciousness, ideas of reference, and guarded facade)

Schizotypal Personality Disorder

CLINICAL CRITERIA Schizotypal personality disorder is characterized by social and interpersonal deficits as indicated by pervasive discomfort with reduced capacity for close relationships, as well as cognitive and perceptual distortions and eccentric behavior (not severe enough to meet criteria for schizophrenia). Diagnostic features also include at least five of the following:

- Ideas of reference (not delusions)
- Odd beliefs and magical thinking (superstitiousness; beliefs in clairvoyance; telepathy, also known as *sixth sense*; and, in children and adolescents, bizarre fantasies or preoccupation)
- Unusual perceptual disturbances (illusions, including bodily illusions and sensing a presence of a person nearby)
- Paranoid ideation and suspiciousness
- Odd, eccentric, peculiar behavior
- Lack of close friends, except family members
- Odd thinking and speech without incoherence (e.g., vague, metaphorical, overelaborated, and stereotypical)
- Inappropriate or constricted affect
- Social anxiety that does not diminish with familiarity and that is associated with paranoid fears

PREDISPOSING FACTORS Empirical findings about this disorder are difficult to interpret, as there appear to be several clinical subtypes of this disorder, with potentially differential relationships to the schizophrenic spectrum. Adoption, family, and twin studies demonstrate an increased prevalence of schizotypal features in the families of schizophrenic patients, especially when schizotypal features were not associated with comorbid affective symptoms. Small, anticipatory saccades that disrupt smooth pursuit eye movement, hypothesized to be a marker of genetic vulnerability to schizophrenia, have been also detected in schizotypal and introverted personalities. The nature of the relationship of this personality disorder and schizophrenia is still controversial, with some genetic studies not finding the relationship, and with some studies finding a pattern of gradation in multifactorial liability from schizotypal personality (mild), to broad schizophrenia (moderate), to narrow schizophrenia (severe).

COMPLICATIONS Complications include transient psychotic episodes, particularly in response to stress. Symptoms sometimes become so significant that they meet criteria for schizophreniform disorder, delusional disorder, and brief psychotic disorder.

COMORBIDITY More than one-half of these patients have had at least one episode of major depression, and 30 to 50 percent have major depression concurrent with this personality disorder. The most common cooccurring personality disorders are schizoid, paranoid, avoidant, and borderline.

IMPAIRMENT Impairment typically includes occupational and social difficulties.

SEX RATIO The sex ratio is unknown; this disorder is frequently diagnosed in women with fragile X syndrome.

EPIDEMIOLOGY A prevalence rate of 3 percent in the general population is reported in DSM-IV-TR. Earlier reports suggested a range between 2 and 6 percent.

FAMILIAL PATTERN AND GENETICS There is an increased prevalence of this personality disorder among the first-degree relatives of probands with schizophrenia. Also, there is an increased prevalence of schizophrenia and other psychoses in the relatives of probands with schizotypal personality disorder. The disorder itself tends to aggregate in families (DSM-IV-TR).

DIFFERENTIAL DIAGNOSIS Schizotypal personality disorder is distinguished from schizophrenia, delusional disorder, and affective disorder with psychotic features based on periods with positive psychotic symptoms, such as delusions and hallucinations in the latter. When a brief reactive psychosis with delusions complicates the clinical picture of schizotypal personality, this distinction is far more difficult.

Schizotypal personality disorder is difficult to distinguish from the heterogeneous group of solitary, odd children whose behavior is characterized by social isolation, eccentricity, and peculiarities in language seen in autistic disorder, Asperger's syndrome, and expressive and mixed receptive-expressive language disorder. Communication disorders might be distinguished by the primacy and the severity of the disorder in language accompanied by compensatory efforts of the child to communicate by other means and also by specialized language assessment. Autistic disorder and Asperger's syndrome are distinguished based on more severely impaired social interactions and stereotypical behaviors and interests in the latter two disorders. Schizotypal disorder is distinguished from the following personality disorders:

- Schizoid and paranoid (which rarely have magical thinking, unusual perceptual experiences, or oddities in speech, appearance, and thought processes)
- Narcissistic (with predominant sense of grandiosity, fragile self-esteem, and fear of having hidden imperfections or flaws revealed)
- Avoidant (which rarely has oddities in appearance and behavior; here, fear of embarrassment, not disinterest and detachment, causes social avoidance and isolation)
- Borderline (characterized by affective instability and stormy relationships, as well as impulsive and manipulative behavior)

Cluster B Personality Disorders

Antisocial Personality Disorder

CLINICAL CRITERIA The hallmarks of antisocial personality disorder are pervasive disregard for and violation of rights of others occurring since 15 years of age and continuing into adulthood. A person has to be 18 years of age or older, and there has to be evidence of conduct disorder before 15 years of age (conduct disorder involves a repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate social rules are violated; the examples include aggression to people or animals, or both; destruction of property; deceitfulness or theft; and serious violation of rules). Diagnostic features also include at least three of the following:

- Failure to conform to social norms (resulting in frequent arrests)
- Deceitfulness, including lying and conning others for personal profit or pleasure
- Impulsivity or failure to plan ahead
- Irritability and aggressiveness, including repeated physical fights or assaults
- Recklessness, with disregard for safety of self and others
- Irresponsibility, indicated by the failure to honor financial obligations or to sustain consistent work behavior
- Lack of remorse, indicated by indifference or rationalization of having hurt, mistreated, or stolen from others

Some of the associated features include

- Promiscuity and inability to sustain a monogamous relationship
- Lack of empathy, cynicism, and contempt for feelings, rights, or suffering of others
- Inflated and arrogant self-appraisal
- Abusiveness and irresponsibility toward children

COMPLICATIONS Complications include dysphoria, tension, low tolerance for boredom, depressed mood, and premature, violent death.

COMORBIDITY These patients are at increased risk for impulse control disorders, major depression, substance abuse or dependence, pathological gambling, anxiety disorders, and somatization disorder. The most common cooccurring personality disorders are narcissistic, borderline, and histrionic.

IMPAIRMENT Impairment is extremely variable and typically includes social difficulties.

SEX RATIO According to DSM-IV-TR, this disorder is more commonly (by a ratio of 3 to 1) diagnosed in men.

EPIDEMIOLOGY Prevalence rates of 3 percent for men and 1 percent for women in the general population and 3 to 30 percent in clinical settings, with even higher rates for forensic samples and substance abusers, have been reported. As noted in DSM-IV-TR, there has been some concern that this disorder may be underdiagnosed in women, given the emphasis on aggressive items in diagnosing conduct disorder.

A high frequency of antisocial personality disorder is associated with low socioeconomic status and urban settings.

COURSE After 30 years of age, the most flagrant antisocial behaviors (promiscuity and crime) and the less severe behaviors and substance use tend to decrease.

FAMILIAL PATTERN AND GENETICS Antisocial personality disorder is more frequent among the first-degree biological relatives of probands with this disorder. Biological relatives of women with antisocial personality disorder are at increased risk for the same disorder compared to biological relatives of men with antisocial personality disorder. Genetic studies have suggested familial transmission of antisocial personality disorder, substance use, and somatization disorder, the former two being characteristic of men, and the latter being characteristic of women in the same family.

Adoption studies have shown that genetic and environmental factors contribute to the risk for this disorder.

Adopted and biological children of parents with antisocial personality disorder are at increased risk for this disorder. Conduct disorder (before 10 years of age) and accompanying attention-deficit/hyperactivity disorder (ADHD) increase the likelihood of developing antisocial personality in adult life. Conduct disorder is more likely to develop into antisocial disorder with erratic parenting, neglect, or inconsistent parental discipline.

DIFFERENTIAL DIAGNOSIS Antisocial personality disorder is distinguished from bipolar disorder, manic, on the basis of episodic course and euphoric mood of the latter. Antisocial disorder is distinguished from the following personality disorders:

- Narcissistic (which rarely manifests serious criminality, aggression, and deceit and is characterized by excessive need for admiration and envy of others).
- Histrionic (which includes seductiveness, attention seeking, superficiality, and rarely serious criminality and aggressiveness).
- Borderline (which includes manipulativeness to gain nurturance and affective instability). Contrary to the common belief that borderline personalities rarely commit crime, individuals with explosive or borderline temperaments (high harm avoidance, high novelty seeking, and low reward dependence) frequently manifest antisocial behaviors (*secondary psychopathy*). Secondary psychopathy is distinguished from antisocial personality proper (or *primary psychopathy*), as the latter has a different temperament profile: high novelty seeking with low harm avoidance and low reward dependence, corresponding to the adventurous temperament profile.
- Paranoid (which includes suspiciousness, guarded attitude, and, rarely, serious antisocial behaviors).
- Adult antisocial behavior (with no personality pathology in the background).

Narcissistic Personality Disorder

CLINICAL CRITERIA The hallmarks of narcissistic personality disorder are a pervasive sense of grandiosity (in fantasy or in behavior), a need for admiration, a lack of empathy, and chronic, intense envy. Diagnostic features also include at least five of the following:

- Grandiose sense of self-importance and specialness
- Preoccupation with fantasies of unlimited success, power, brilliance, beauty, or ideal love
- Sense of entitlement
- Interpersonal exploitation, such as taking advantage of others to achieve own needs
- Lack of empathy
- Excessive need for admiration and acclaim
- Intensive and chronic envy
- Arrogant and haughty attitude

Some of the associated features include

- Fragile self-esteem (which exclusively depends on external admiration) with hypersensitivity to criticism
- High achievements more frequent than in any other personality disorder
- Strong feelings of shame and humiliation
- Exhibitionism (behavior motivated by the pleasure of being looked at)
- Fear of having hidden imperfections and flaws revealed

COMPLICATIONS Complications include social withdrawal, depressed mood, dysthymic or major depressive disorder in reaction to criticism or failure.

COMORBIDITY These patients are at increased risk for major depression and substance abuse or dependence (especially cocaine use). The most common cooccurring personality disorders are borderline, antisocial, histrionic, and paranoid.

IMPAIRMENT Impairment is frequently severe and typically includes marital problems and interpersonal relationships in general.

SEX RATIO According to DSM-IV-TR, this disorder is more commonly diagnosed in men (50 to 75 percent of diagnosed cases are men).

COURSE The course is chronic. However, narcissistic symptoms tend to diminish after 40 years of age, when pessimism usually develops.

EPIDEMIOLOGY Prevalence rates of 2 to 16 percent in the clinical population and less than 1 percent in the general population are reported in DSM-IV-TR.

PREDISPOSING FEATURES There may be a higher risk for this personality disorder in the offspring of narcissistic parents who impart on their children an unrealistic sense of grandiosity. In addition, most narcissistic persons are realistically talented, beautiful, or highly intelligent, as these features serve as the nucleus around which the sense of specialness is further organized.

DIFFERENTIAL DIAGNOSIS Narcissistic personality disorder is distinguished from manic or hypomanic episode by the episodic course, euphoria, and functional impairments in the latter two. Narcissistic personality is distinguished from the following personality disorders:

- Antisocial (narcissistic exploitation is more driven by the wish to establish one's dominance than by material gains, history of conduct disorder, and no excessive need for admiration)
- Borderline (which includes unstable self-concept, chaotic behaviors, self-destructive gestures, chronic anxiety, and rarely high achievements)
- Histrionic (which includes capacity for empathy, emotional display, and, rarely, unscrupulousness and exploitation of others)
- Obsessive-compulsive (which includes inflexibility, detail-oriented behavior, and social isolation, in addition to perfectionism and the belief that others cannot do things as well)
- Paranoid and schizotypal (which include suspiciousness and social withdrawal)

Histrionic Personality Disorder

CLINICAL CRITERIA The hallmarks of histrionic personality disorder are pervasive and excessive self-dramatization, excessive emotionality, and attention seeking. Diagnostic features also include at least five of the following:

- Inappropriate sexual seductiveness or provocativeness
- Excessive need to be in the center of attention
- Rapidly shifting and shallow expression of emotions
- Suggestibility
- Physical appearance used for attention seeking purposes
- Impressionistic speech lacking detail
- Self-dramatization, theatricality, and exaggerated expression of emotions
- Relationships considered to be more intimate than they really are

Some of the associated features include

- Difficulties in achieving emotional intimacy in romantic or sexual relationships
- Craving for excitement and stimulation
- Promiscuity or complete sexual naiveté
- Low tolerance for delayed gratification

COMPLICATIONS Complications include frequent suicidal gestures and threats to coerce better caregiving. Interpersonal relations are unstable, shallow, and generally ungratifying. There are frequent marital problems secondary to the tendency to neglect long-term relationships for the excitement of new relationships.

COMORBIDITY These patients are at increased risk for major depression, somatization disorder, and conversion disorder. The most common cooccurring disorders are narcissistic, borderline, antisocial, and dependent.

IMPAIRMENT Impairment is frequently only mild and typically includes personal romantic relationships.

SEX RATIO There seems to be a general agreement that this disorder occurs far more frequently among women. According to DSM-IV-TR, the disorder might be equally frequent among men and women.

EPIDEMIOLOGY Prevalence rates of 2 to 3 percent in the general population and 10 to 15 percent for psychiatric inpatients and outpatients are reported in DSM-IV-TR.

FAMILIAL PATTERN AND GENETICS This disorder tends to run in families. A genetic link between histrionic and antisocial personality disorder and alcoholism has been suggested.

DIFFERENTIAL DIAGNOSIS Histrionic personality disorder is distinguished from the following personality disorders:

- Antisocial (which includes antisocial behaviors and crime to gain profit, power, or some other material gratification; history of conduct disorder; no excessive self-dramatization; and no exaggerated emotional expression)
- Borderline (which includes unstable self-concept, chaotic behaviors, self-destructive gestures, chronic anxiety, and identity disturbance)
- Narcissistic (which includes fear of having hidden imperfections and flaws revealed and a sense of grandiosity and specialness)

Antisocial, Narcissistic, and Histrionic Spectrum

Narcissistic, antisocial, and histrionic personality disorders qualify for the so-called spectrum disorders. The three disorders have been shown to aggregate in the same family and to cooccur in the same person. Phenotypically distinguishable disorders may be referred to as *spectrum disorders*, if they meet the two conditions previously mentioned. Spectrum disorders sometimes reflect differential expression of the same liability. Antisocial, narcissistic, and histrionic personality disorders exemplify the spectrum in which proneness to impulsivity and aggression (associated with high novelty seeking) interferes with character development and maturity. Empirical data show that symptoms of the three disorders tend to group around impulsivity, aggression, and dramatic affects. A spectrum disorder may also reflect a less deviant form of the other on an underlying liability scale. In that regard, the underlying antisocial behaviors increase in severity as one proceeds from histrionic personality (manipulation via narcissistic personality exploitation), and antisocial personality (violent and property crime).

Borderline Personality Disorder

CLINICAL CRITERIA The hallmarks of borderline personality disorder are pervasive and excessive instability of affects, self-image, and interpersonal relationships, as well as marked impulsivity. Diagnostic features also include at least five of the following:

1. Frantic efforts to avoid real or imagined abandonment (Note: Do not include suicidal or self-mutilating behavior covered in Criterion 5)
2. Unstable and intense interpersonal relationships with alternating between idealization and devaluation
3. Markedly and persistently unstable self-image or sense of self
4. Impulsivity in at least two potentially self-damaging areas (spending, sex, substance abuse, binge eating, and reckless driving) (Note: Do not include suicidal or self-mutilating behavior covered in Criterion 5)
5. Recurrent suicidal behavior, gestures, threats, or self-mutilating behaviors
6. Instability of affect due to marked reactivity of mood
7. Chronic feelings of emptiness
8. Inappropriately intense anger or difficulty controlling anger
9. Stress-related, transient paranoid ideation or dissociative symptoms

Some of the associated features include

- Tendency to undermine self when close to realizing a goal
- Feeling more secure with nonhuman objects (pets and inanimate objects) than in interpersonal relationships

PREDISPOSING FACTORS Numerous studies have pointed to early traumatic experiences in the etiology of this personality disorder. Recently, a tripartite etiopathogenetic model, including childhood trauma, vulnerable temperament, and a series of triggering events, has been formulated. Dynamic and biological psychiatry agree that a combination of early traumatic events and certain biological vulnerabilities (mostly in the emotional domain) represent primary etiological factors for this disorder. Familial aggregation of borderline personality disorder has been repeatedly demonstrated.

COMPLICATIONS Complications include psychotic-like symptoms (hallucinations, body image distortions, hypnagogic phenomena, and ideas of reference) in response to stress, premature death or physical handicaps from suicide and suicidal gestures, failed suicide, and self-injurious behavior.

COMORBIDITY These patients are at increased risk for major depression, substance abuse or dependence, eating disorder (notably bulimia), posttraumatic stress disorder (PTSD), and ADHD. Borderline personality disorder cooccurs with most other personality disorders.

IMPAIRMENT Impairment is frequent and severe and includes frequent job losses, interrupted education, and broken marriages.

SEX RATIO According to DSM-IV-TR, this disorder is more commonly diagnosed in women (75 percent of diagnosed cases are women).

COURSE Course is variable. It most commonly follows a pattern of chronic instability in early adulthood, with episodes of serious affective and impulsive dyscontrol. The impairment and the risk of suicide are the greatest at the young adult years and gradually wane with advancing age. In the fourth and fifth decades of life, these individuals tend to attain greater stability in their relationships and functioning.

EPIDEMIOLOGY Prevalence rates of 2 percent in the general population, 10 percent for psychiatric outpatients, 20 percent for psychiatric inpatients, and 30 to 60 percent among patients with personality disorders are reported in DSM-IV-TR.

FAMILIAL PATTERN AND GENETICS Physical and sexual abuse, neglect, hostile conflict, and early parental loss or separation are more common in childhood histories of patients with this disorder. Borderline personality disorder is five times more common among relatives of probands with this disorder than in the general population. It also increases familial risk for antisocial personality disorder, substance abuse, and mood disorders.

DIFFERENTIAL DIAGNOSIS Borderline personality disorder is distinguished from mood disorder, dysthymic disorder, and cyclothymia (with depression and mood swings mimicking borderline affective problems) based on efforts to avoid abandonment, unstable relationships with alternating between idealization and devaluation, identity disturbance, impulsivity in potentially self-damaging areas, chronic feelings of emptiness, and inappropriately intensive anger or difficulty controlling anger (these symptoms are rarely observed in mood disorder, dysthymia, or cyclothymia). Borderline disorder shares many features and is difficult to distinguish from all other personality disorders, frequently as an exclusion diagnosis based on typical clinical symptoms for other personality disorders. Borderline disorder is distinguished from identity problems (the latter is limited to a developmental stage).

Cluster C Personality Disorders

Avoidant Personality Disorder

CLINICAL CRITERIA The hallmarks of avoidant personality disorder are pervasive and excessive hypersensitivity to negative evaluation, social inhibition, and feelings of inadequacy. Diagnostic features also include at least four of the following:

- Avoidance of occupational activities that involve significant interpersonal contact because of fears of criticism, rejection, or disapproval
- Unwillingness to be involved with others unless certain of being liked
- Restraint in intimate relationships because of the fear of being shamed or ridiculed
- Preoccupation of being criticized or rejected in social situations
- Inhibition in new social situations because of feelings of inadequacy
- Reluctance to take personal risks or to engage in any new activities, because they may prove embarrassing

- Views self as socially inept, personally unappealing, or inferior to others

Some of the associated features include

- Fearful and tense demeanor
- Fear of blushing or crying in front of others in response to criticism
- Social isolation accompanied by craving social relations and fantasizing about ideal relationships with others

COMPLICATIONS Complications include social phobia.

COMORBIDITY These patients are at increased risk for mood and anxiety disorders (especially social phobia, generalized type). The most common cooccurring disorders are schizotypal, schizoid, paranoid, dependent, and borderline.

IMPAIRMENT Impairment can be severe and typically includes occupational and social difficulties.

SEX RATIO According to DSM-IV-TR, this disorder is equally frequent in men and women.

EPIDEMIOLOGY Prevalence rates of 0.5 to 1.0 percent in the general population and 10 percent for psychiatric outpatients are reported in DSM-IV-TR.

COURSE Frequently begins in childhood with shyness and fear of strangers and new situations. Disfiguring illness and shyness in childhood predispose children for this personality disorder.

DIFFERENTIAL DIAGNOSIS Avoidant personality disorder is difficult to distinguish from social phobia (many authors believe that these are alternative labels for the same or similar condition). In social phobia, specific situations, rather than interpersonal contact, are avoided. Panic disorder with agoraphobia also manifests avoidance but usually after the onset of panic attacks. Avoidant disorder is distinguished from the following personality disorders:

- Schizotypal and schizoid (social isolation of avoidant personalities is accompanied by the desire for social relations, which is not observed in schizoid and schizotypal personality disorder)
- Paranoid (which includes guarded attitude, preoccupation with hidden meanings, and conspirational explanations of events)
- Dependent (which is focused on being taken care of rather than on the fear of negative evaluation)

Dependent Personality Disorder

CLINICAL CRITERIA The hallmarks of dependent personality disorder are pervasive and excessive need to be taken care of that leads to clinging behavior, submissiveness, fear of separation, and interpersonal dependency.

Diagnostic features also include at least five of the following:

- Difficulty in making everyday decisions without excessive reassurance and advice from others
- Need for others to assume responsibility for major areas of his or her life
- Difficulties expressing disagreement with others because of fear of loss of support or approval. (Note: Do not include realistic fears of retribution)
- Lack of initiative
- Unrealistic preoccupation with fears of being left to take care of self
- Urgent search for another relationship as a source of care and support when a close relationship ends
- Extensive efforts to obtain nurturance and support from others (to the point of volunteering to do unpleasant things)
- Uncomfortable and helpless feelings when alone because of exaggerated fears of being unable to take care of self

An associated feature includes

- Low self-esteem with self-doubt and self-defeating demeanor

COMPLICATIONS Complications include mood disorders, anxiety disorders, adjustment disorder, and social phobia, as well as low socioeconomic status, poor family, and marital functioning.

COMORBIDITY These patients are at increased risk for major depression, anxiety disorders, and adjustment disorder. The most common cooccurring disorders are histrionic, avoidant, and borderline.

IMPAIRMENT Impairment is frequently only mild and typically includes interpersonal relationships and occupational functioning, if independence is required.

SEX RATIO This disorder is equally frequent in men and women (DSM-IV-TR).

EPIDEMIOLOGY This disorder is reported in DSM-IV-TR to be the most frequent of personality disorders.

FAMILIAL PATTERN AND GENETICS There is no known familial pattern for this disorder. Chronic physical illness or separation anxiety disorder may predispose for dependent personality disorder.

DIFFERENTIAL DIAGNOSIS Dependent disorder is distinguished from dependency seen in mood disorders, panic disorder, and agoraphobia and as a result of a general medical condition. Dependent disorder is distinguished from the following personality disorders:

- Borderline (which includes unstable, stormy relationships and the reaction to abandonment with rage, emptiness, and demands, as opposed to increasing appeasement and submissiveness seen with dependent personalities)
- Histrionic (which includes gregarious flamboyance with active demands for attention)
- Avoidant (which includes social isolation because of the fear of negative evaluation as opposed to clinging and submissive behavior of dependent personalities)

Obsessive-Compulsive Personality Disorder

CLINICAL CRITERIA The hallmarks of obsessive-compulsive personality disorder are pervasive and include preoccupation with orderliness, perfectionism, and mental and interpersonal control, at the expense of flexibility, openness, and efficiency. Diagnostic features also include at least four of the following:

- Preoccupation with details, rules, lists, order, procedures, organization, or schedules to the extent that the major point of activity is lost
- Perfectionism that interferes with task completion
- Excessive devotion to work and productivity to the exclusion of leisure activities and friendships (not accounted for by obvious economic necessity)
- Overconsciousness, scrupulousness, and inflexibility about matters of morality, ethics, or values (not accounted for by religion or culture)
- Inability to discard worn-out or worthless objects with no sentimental value
- Reluctance to delegate tasks or work with others unless they submit exactly to his or her way of doing things
- Stinginess (money viewed as something to be hoarded for future catastrophes)
- Rigidity and stubbornness

Some of the associated features include

- Decision-making difficulties when no strict rules or established procedures dictate correct action

- Anger and frustration when not able to maintain control of physical or interpersonal environment (anger is typically not expressed directly)
- Excessive attentiveness to their relative status in dominance–submission relationships
- Controlled and restricted emotional expression and reserved personal style
- Formal and serious quality of everyday relationships

PREDISPOSING FACTORS It has been repeatedly demonstrated that obsessive-compulsive personality disorder and OCD frequently coexist. Obsessions and compulsions have been repeatedly linked to high central serotoninergic function, which is associated with anxiety in general, supporting the hypothesis that obsessions and compulsions represent psychological and behavioral mechanisms reflecting underlying anxiety.

COMPLICATIONS Complications include distress and difficulties when confronted with new situations that require flexibility and compromise and myocardial infarction (secondary to features typical of type A personalities, such as time urgency, hostility, and competitiveness).

COMORBIDITY These patients are at increased risk for major depression and anxiety disorder. There is equivocal evidence for increased risk of OCD.

IMPAIRMENT Impairment is frequently severe and typically includes occupational and social difficulties.

SEX RATIO According to DSM-IV-TR, this disorder is twice as common in men as in women.

EPIDEMIOLOGY Prevalence rates of 1 percent in the general population and 3 to 10 percent for psychiatric outpatients are reported in DSM-IV-TR.

FAMILIAL PATTERN AND GENETICS Some studies have demonstrated familial aggregation of this disorder.

DIFFERENTIAL DIAGNOSIS Obsessive-compulsive personality disorder is distinguished from OCD based on true obsessions and compulsions in the latter. This personality disorder is distinguished from the following personality disorders:

- Schizoid (which includes lack of capacity for intimacy and social isolation secondary to emotional detachment, as opposed to devotion to work and discomfort with emotions)
- Antisocial (which includes material goals in antisocial behavior and criminality as opposed to hypermorality of obsessive personalities)
- Narcissistic (which includes sense of grandiosity, self-aggrandizement, exhibitionism, and fear of having hidden imperfections and flaws revealed)

Personality Disorder Not Otherwise Specified (NOS)

This disorder is diagnosed when the DSM-IV-TR criteria for dysfunctional personality (i.e., general criteria for a personality disorder) are met, but no specific criteria for any of the subtypes are observed. For example, a patient may not meet criteria for any of the classified disorders but may still manifest features from more than one personality disorder (*mixed personality disorder*) which, together, cause distress or impairments in social or professional functioning. This category is also used when the clinician judges that a specific personality disorder that is not included in DSM-IV-TR is appropriate (e.g., depressive personality or passive-aggressive personality).

Table 23–13
Qualitative Clusters and Subtypes of Personality Disorders According to the American Psychiatric Association

Cluster	Subtype	Discriminating Features
Odd/eccentric	Schizoid	Socially indifferent
	Paranoid	Suspicious
	Schizotypal	Eccentric
Erratic/impulsive	Antisocial	Disagreeable
	Borderline	Unstable
	Histrionic	Attention seeking
	Narcissistic	Self-centered
Anxious/fearful	Avoidant	Inhibited
	Dependent	Submissive
	Obsessive	Perfectionistic
Not otherwise specified	Passive-aggressive	Negativistic
	Depressive	Pessimistic

Adapted from American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*. 4th ed. Text rev. Washington, DC: American Psychiatric Association; 2000.

Summary Description of the DSM-IV-TR Personality Disorders

Qualitative features that are diagnostic of a personality disorder as classified in DSM-IV-TR are summarized in Table 23–13. Cloninger has also provided practical criteria to detail these general features, so that a clinician may first decide whether a person has any personality disorder before proceeding to diagnose a specific cluster or category of illness. The general features of all personality disorders are the character traits, whereas the clusters and categories are determined by additional temperament features.

Disadvantages of DSM-IV-TR Classification

In addition to problems shared by all categorical models of personality, the DSM classification has its specific limitations.

First, DSM-IV-TR is an etiologically *atheoretical* classification of personality disorder based solely on descriptive criteria derived from observations of prototypical cases. This atheoretical approach was expected to stimulate work on the etiopathogenetic understanding of deviant behaviors classified as personality disorders. However, this has not been the case. The introduction of descriptive criteria in DSM-III has inspired extensive research of some basic psychometric aspects of the personality disorder diagnosis but rarely has inspired studies of etiology, underlying dynamics, or pathogenesis. Although this emphasis on psychometrics obviously reflects an attempt of this new field to delineate its subject, it is also reflective of the purely descriptive approach, which provided no etiopathogenetic models or hypotheses for testing. For example, the DSM criteria have been of little or no help in developing the psychobiological model described here.

Second, the DSM-IV-TR describes as pathognomic for personality disorder maladaptive response patterns that are *enduring*, that is, appearing before adulthood with long-term duration. In practice, however, it can be difficult to distinguish long-term maladaptation that is indicative of personality disorder from chronic personality changes caused by other factors, such as other mental disorders (e.g., chronic depression) and long-term situational factors (e.g., job-related timidity), and by other medical disorders (e.g., irritability associated with hyperthyroidism).

Third, the DSM-IV-TR definition of *personality disorders* is inherently imprecise, as it requires that maladaptive behaviors cause clinically significant subjective distress or clinically significant impairment in social and occupational function, or both. *Subjective distress* usually presents as low self-esteem, anxiety, guilt, depression, and hypochondriasis. These symptoms are frequently diagnosed as Axis I disorders while the background personality disorder is overlooked. The quantifier *significant* is an arbitrary diagnostic element that can hardly be made objective.

CLINICAL AND PSYCHOMETRIC ISSUES

Ego-Syntonic and Alloplastic Nature of Personality Disorder

Patients with personality disorder typically blame other people or unfavorable circumstances for their own problems. This externalizing of responsibility is a result of the following two characteristics. First, most of these patients perceive their own deviant behaviors as appropriate and adequate; in other words, their symptoms are ego-syntonic. The exceptions to this are patients with dependent and avoidant personality disorder. Both disorders are characterized by prominent anxiety associated with maladaptive behaviors, and this frequently causes the patients to perceive their symptoms as disturbing, that is, ego-dystonic.

Second, patients with personality disorder try to change others, not themselves; in other words, their attitude is alloplastic. The exceptions to this rule are patients with avoidant and schizoid personality disorder. Avoidant persons usually try to improve their own performance to avoid negative evaluation by others. Schizoid personalities are socially detached to the extent that they are usually indifferent to what others might do, think, or feel.

Personality Disorder: Social or Clinical Diagnosis?

One of the general DSM-IV-TR requirements for personality disorder is that maladaptive behavior "deviates markedly from the expectations of the individual's culture." This requirement introduces a significant social connotation to what was meant to be a clinical classification. Indeed, clinicians frequently diagnose personality disorder based solely on the extent to which certain behavior is adjusted to the local society.

Sociocultural pressures are always norm favoring, promoting phenotypes that fall within the range of accepted behavior norms. As shown later in the text, most temperament profiles with high reward dependence have a low incidence of diagnosed personality disorder, whereas those with high harm avoidance or high novelty seeking, or both, increase this risk. In most Western societies, the normative phenotype is not the one with average personality traits (as one would expect, given the adaptive flexibility of such configuration) but the one with high reward dependence (high reward dependence also means much easier conditioning of socially accepted behaviors than is the case with other two temperament traits).

In a similar way, child psychiatry classifies three broad groups of mental disorders: One group is characterized by high novelty seeking (e.g., ADHD and conduct disorder), one group is characterized by high harm avoidance (e.g., depressive and anxiety disorders), and one group is characterized by low reward dependence (e.g., autism). Children with these extreme temperaments are diagnosed and treated to change their behavior, whereas children with high reward dependence (sociable, attached, and dependent) are selectively permitted to develop with no corrective intervention. This raises a question, which is beyond the scope of this chapter, about the role of modern human society in engineering psychological profiles of its members. Suffice it here to say, biological adaptation appears to have become less critical for human survival than behavioral and spiritual adaptation. Natural selection is not targeting humans' morphological features anymore, but, rather, their personality features and level of awareness. Through its suppression of certain temperament traits and its modeling effects on character development, modern human society appears to have an important role in this process.

Categorical versus Dimensional Approach to Personality Disorder

Medical diagnosis has historically been categorical, and most clinicians tend to think categorically for two reasons. First, one of the most important functions of diagnosis is to prescribe appropriate corrective action, that is, treatment. The decision whether a person is *affected* or *unaffected* (*sick* or *not sick*) is functionally equivalent to the decision of whether that person needs treatment (hence, categorical diagnosis facilitates treatment decisions in practical work). Second, categorical systems simplify professional communication, as they describe prototypical cases that meet all or most of the diagnostic criteria. Just one category, for example, antisocial personality, can communicate a great deal of vivid clinical information about the patient. However, categorical descriptions convey useful information only about prototypical and severe cases but little or no information about atypical, mixed, or mild cases.

Categorical Approach

The categorical approach adopts the medical diagnostic model that a personality disorder is *present* or *absent* and that individuals are *affected* or *unaffected*. Categorical models are optimal for discontinuous variables (e.g., marital status and skin cancer). However, when distinguishing characteristics of a disorder are variants of normality, such as personality traits, any categorical decision about the presence or absence of a disorder is arbitrary. In other words, one of the major disadvantages of categorical models of personality disorder is that they establish arbitrary cutoff points or thresholds for continuous behavior traits. This becomes clear especially in mild cases that are close to the cut-off point, which cannot be well classified as *affected* or *unaffected*. In an attempt to minimize this problem, DSM-IV-TR now allows clinicians to classify *maladaptive personality traits* that do not meet the threshold for a personality disorder on Axis II. Nevertheless, the categorical approach is not optimal for patients who do not perfectly fit their pigeonhole in the classification, so an additional wastebasket category for *atypical* or *mixed* cases has to be established, and this often is used to describe most cases of personality disorder. Finally, the categorical approach does not establish a prescriptive relationship between diagnosis and treatment. Reflecting a significant overlap of diagnostic criteria for personality disorder subtypes, categorical systems usually yield multiple personality diagnoses for individual patients. In such cases, treatment priorities are easily and frequently confused.

Dimensional Approach

Dimensional models define a number of graded and continuous behavior dimensions and specify individual differences as quantitative variations along these dimensions. These models are optimal for features that vary quantitatively and that have different adaptive significance in different situations (such as personality traits). These models account for the fact that everyone has multiple personality traits, more or less prominent and adaptive, rather than being simply present or absent. This eliminates the need for multiple and overlapping categorical diagnoses. By quantifying one's position on a continuous personality trait, dimensional models conserve information about individual patients more than categorical models. Personality dimensions are as easily applied to the common atypical and mild cases as they are to the rare prototypical and severe cases. Lastly, by using a dimensional system, one can easily manipulate mathematically complex data and can include many variables.

Research has shown that normal personality traits tend to generalize to personality disorders, indicating that deviant traits may be conceptualized as extreme variants of normal, adaptive behaviors. Note, however, that dimensional models do not answer the question of what is it about some traits that makes them disorders. Natural breaks or points of rarity on the continuum of normal and maladaptive personality traits have not been detected. The extreme standing alone is not sufficient to be dysfunctional (e.g., people with low reward dependence can be well adapted in their environment). To make them more prescriptive of treatment and more compatible with categorical diagnoses, dimensional models have to introduce cut off points for continuous traits (which are always arbitrary) or, as proposed here, have to use probability estimates for categorical personality disorders based on the severity of measured personality traits.

Measurement of Personality Disorders

Self-Report or Interview? Interviews are considered more reliable and valid diagnostic tools than self-reports for measuring personality disorder, although no data for a definite advantage of one of these formats have been established. As many of these patients tend to be biased regarding their ego-syntonic deviant behaviors, interviewing the patient reduces this problem, because unclear, inconsistent, or defensive responses can be clarified, and the patient's demeanor and appearance can be observed. On the negative side, interviews tend to be affected by systematic biases, ideological orientation, experience, and rating idiosyncrasies of interviewers. In self-reports, various response sets (e.g., careless inconsistency, defensiveness, and exaggeration) and validity items can be measured to help in interpretation. Recently, a set of performance scales, independent of the item content, based on the observed regularities in the technical pattern of responding to questions has been defined. These performance scales are used to test the validity of self-reported personality traits. Specifically, self-report to questions, regardless of the content of the questions, tends to follow specific patterns that correlate with personality traits. For example, the number of endorsed items that are otherwise rarely found in the general population correlates with low reward dependence. These performance scales are used to predict scores on each of the temperament and character dimensions, which are then compared with self-reported, content-dependent scores on these same traits. Substantial score differences between *subjective* and *performance-based* scores on personality traits indicate significant bias or intentional misrepresentation. Further improvement of this basic idea might be accomplished by using neural networks trained to detect content-independent response patterns that are typical of each personality trait.

Self-reports and interviews depend on the patient's accuracy, honesty, and level of insightfulness. Hence, the collection of data from collateral informants and expert ratings is usually considered critical to ensuring high-quality personality diagnosis.

State–Trait Effect Most Axis I disorders have their less severe variants or representatives on Axis II (Table 23–14). The *state–trait* distinction between symptoms reflecting long-term personality traits and those reflective of transient Axis I states can be difficult. Indeed, transient variation in one's emotional state can influence self-report and clinical evaluation of long-term personality characteristics. The susceptibility to such state effects has been demonstrated for some categorical measures of personality disorders. The state effect can be reduced, although not eliminated, when subjects are repeatedly reminded to describe their usual, not their current, behavior, feelings, and attitudes. In contrast to categorical diagnosis, only those dimensions of personality that underlie susceptibility to depression and anxiety, such as neuroticism and harm avoidance, tend to covary with mood and anxiety states. Also, increases in anxiety or depression lead to mild and transient decrease in self-directedness and cooperativeness. Consequently, a person with no enduring personality disorder may act immaturely when depressed or under stress. Self-reports of other dimensional traits—novelty seeking, reward dependence, and persistence, in particular—are largely independent from and unaffected by comorbid mood and anxiety states.

Table 23–14
Phenotypic Similarity between Axis I and Axis II Disorders

Axis I Disorders: Major Variant	Axis II Disorders: Minor Variants	Shared Symptoms
Schizophrenia spectrum	Schizoid PD Schizotypal PD	Negative and positive
Delusional disorder	Paranoid PD	Suspiciousness
Major depression	Depressive PD Borderline PD	Proneness to depressed mood; self-destruction
Cyclothymia, bipolar disorder, mania	Narcissistic PD Histrionic PD Antisocial PD	Mood swings; impulsiveness
Obsessive-compulsive disorder	Obsessive-compulsive PD	Hypochondriasis; inflexibility
Social phobia	Avoidant PD	Shyness; avoidant behavior
Panic disorder with agoraphobia	Dependent PD	Dependency

PD, personality disorder.

Categorical Tests for Personality Disorder The majority of categorical tests for personality disorders are based on the DSM criteria and share all the advantages and disadvantages of that polythetical categorical approach. In the DSM-III field trials, the interrater reliability was 0.61 and the test-retest reliability was 0.54 for any personality disorder. The reliability is usually lower for individual subtypes than for the presence versus absence of any personality disorder because of the difficulty in distinguishing among the subtypes.

Among the categorical self-reports, the two most frequently used are the Personality Diagnostic Questionnaire (PDQ) and the Minnesota Multiphasic Personality Inventory (MMPI) scales for personality disorders (MMPI-PD). The PDQ is a self-report version of the DSM-III-R criteria for personality disorders, along with the *impairment-distress* scale to quantify the significance of impairment or subjective distress required by DSM criteria. In practice, this instrument has been shown to overdiagnose personality disorders when compared to expert clinical diagnosis.

The MMPI-PD scales were derived from the MMPI item pool to evaluate symptoms for DSM-III personality disorders. The MMPI-PD scales are incorporated into MMPI so that, in addition to evaluating personality disorder and other clinical syndromes, clinicians and researchers can also use other MMPI scales (e.g., for lies, validity, and defensiveness) for validity and response set analyses.

Among the interviews that categorically diagnose personality disorders, the most commonly used is the Structured Interview for DSM-IV Personality Disorders (SIDP-IV). The original Structured Interview for Personality Disorders (SIDP) was developed for personality disorders described in DSM-III, and it has been regularly updated with each new DSM revision and edition (SIDP-R for DSM-III-R and SIDP-IV for DSM-IV). To increase its diagnostic

validity, the SIDP-IV requires that answers for selected questions be obtained from a collateral informant. This test can be combined with a 10-minute SIDP-IV screen for personality disorder, which can considerably reduce testing time in populations with many individuals who do not have personality disorder.

Other popular interviews for categorical classification of personality disorders include the Structured Clinical Interview for DSM-III-R Personality Disorders Revised (SCID-II), the Diagnostic Interview for Personality Disorders (DIPD), and the Personality Disorder Examination (PDE). The PDE is available in an international version from the World Health Organization in several languages and makes diagnoses according to the ICD in addition to DSM-III-R.

Dimensional Assessment of Personality Disorders

Historically, personality has been studied and evaluated using dimensions or traits, and personality disorder has been studied categorically, as discrete entities of psychopathology. Hence, conceptual advances in the field of normal behavior and personality have had little or no effect on research in the field of personality disorder and vice versa. For example, if the features associated with Eysenck's model of personality, that is, neuroticism, extroversion, and toughmindedness, are combined, the resulting combinations do not correspond closely to traditional categories of personality disorder.

The popular five-factor model of normal personality has been recently advocated to account for underlying dimensions of personality disorder as well. However, the ability of the five-factor model to account for the underlying structure of personality disorder has been tested primarily in nonclinical samples and normal individuals. The few studies that tested the five-factor model in clinical samples showed that neuroticism, extroversion, and low agreeableness predict personality disorder symptoms. After controlling for age and depression (considered standard for high-quality personality diagnosis), only high neuroticism and low agreeableness remained as significant predictors of personality disorder symptoms. These two dimensions define *personality disorder* in a nonspecific way, as a general predisposition to psychopathology (i.e., high neuroticism) accompanied by an antagonistic behavior facade (i.e., low agreeableness). In addition, neuroticism tends to be confounded with nonspecific factors (such as depression or anxiety), which reduce its ability to distinguish personality disorder, other psychopathology (e.g., mood and anxiety disorders), and well-adjusted individuals with high neuroticism.

Several lines of evidence suggest that some common core features, distinct from other forms of psychopathology that cause personal dysfunction, characterize personality disorder subtypes classified in DSM-IV-TR as discrete categories. For example, DSM-IV-TR arranges all personality disorders into three clusters (A, B, and C), each comprised of a number of personality disorder subtypes with similar clinical features. Cluster A includes subtypes with predominantly odd and eccentric symptoms (e.g., paranoid and schizoid personality disorder), Cluster B includes subtypes with dramatic, erratic, and impulsive symptoms (e.g., histrionic, antisocial, and borderline personality disorders), and Cluster C includes subtypes with fearful and anxious symptoms (dependent, avoidant, and obsessive personality disorders). These clusters represent three independent dimensions underlying personality disorder subtypes within each of the clusters. However, the ability of these three dimensions to discriminate subjects with and without personality disorder or to distinguish between personality disorder subtypes has not been tested.

Dimensional tests of personality disorders are formatted as self-reports (except for Tyrer's Personality Assessment Schedule). The most frequently used are the Millon Clinical Multiaxial Inventory (MCMI); the previously mentioned Neuroticism Extroversion Openness Personality Inventory (NEO-PI), which evaluates the five-factor personality model; and the TCI, which evaluates the seven-factor psychobiological personality model. These tests have been originally designed to evaluate normal personality (the NEO-PI), psychiatric patients (the MCMI), and normal and deviant personality (the TCI). The NEO-PI was discussed previously vis à vis the homogeneity of its component traits and its usefulness in clinical work with personality disorder. The other two tests are briefly discussed here.

The MCMI-II (designed to match DSM-III-R personality disorder categories) evaluates long-term behavior traits systematized as ten *basic personality patterns* (dependent, avoidant, schizoid, passive-aggressive, narcissistic, antisocial, hysterical, compulsive, aggressive, and self-defeating) and three *pathological personality disorders* (borderline, schizotypal, and paranoid). The latter indicate the severity of the ten basic personality patterns. The test also evaluates nine Axis I clinical syndromes. Some reports suggest that MCMI-II tends to overdiagnose personality disorder in comparison to expert clinicians. A study comparing the MCMI-II to the TCI pointed to a considerable overlap of MCMI-II measures of Axis I syndromes and Axis II personality disorders.

The number of proposed dimensions that underlie deviant personality ranges from 2 to 24 in the literature, although, in most models, it can be reduced to four dimensions (aloof, anxious, anankastic, and adventurous). The optimal number of underlying dimensions and the content of dimensions that purport to describe personality and its disorders most efficiently are still vigorously debated. This ambiguity arises because factor analyses of behavior of unrelated individuals are always compatible with an infinite number of rotations of the inferred phenotypic factors. Fortunately, structural equation analysis of the causes of individual differences in the resemblance in twin pairs varying in the degree of genetic relationship can specify a unique model of the genetic structure of personality. In what follows, the distinction between temperament and character is used to improve the etiopathogenetic understanding and the diagnosis of personality disorder. In the treatment section of the chapter, the concepts of temperament and character are used to outline treatment guidelines for patients with personality disorder.

Temperament and Character Inventory (TCI) The TCI evaluates four major temperament dimensions (harm avoidance, novelty seeking, reward dependence, and persistence) and three major character dimensions (self-directedness, cooperativeness, and self-transcendence). Each of these main temperament and character dimensions is composed of component facets (or subscales) to evaluate response patterns elicited by specific stimuli (e.g., harm avoidance is observed in different settings as worry and pessimism or fear of uncertainty, shyness, or excessive fatigability, or a combination of these). The seven major dimensions and their component traits are presented Table 23–15.

The TCI is a family of tests with several specialized versions designed for varying types of informants (self-report, peer ratings, and interviewers), varying age groups (7 to 14 years of age for the junior TCI and 15 years or age or older for the adult TCI), scope of information (temperament or character, or both), level of clinical detail (140 items for major dimensions only or 240 items for multiple facets of each dimension). The test measuring the temperament dimensions only was originally called the *Tridimensional Personality Questionnaire* (TPQ). In the TPQ, novelty seeking, harm avoidance, reward dependence, and persistence were all measured, but persistence was originally scored as a component of reward dependence. The name of the test was changed to TCI when the character scales were added and when persistence was recognized as a fourth, separately inherited temperament dimension in twin studies in Aus-

Table 23–15
Temperament and Character Inventory Scales and Subscales

- Temperament
  - Harm avoidance (HA)
    - HA1: worry and pessimism vs. uninhibited optimism
    - HA2: fear of uncertainty
    - HA3: shyness with strangers
    - HA4: fatigability and asthenia
  - Novelty seeking (NS)
    - NS1: exploratory excitability vs. stoic rigidity
    - NS2: impulsiveness vs. reflection
    - NS3: extravagance vs. reserve
    - NS4: disorderliness vs. orderliness
  - Reward dependence (RD)
    - RD1: sentimentality
    - RD2: sociability vs. aloofness
    - RD3: attachment vs. detachment
    - RD4: dependence vs. independence
  - Persistence (PS)
    - PS1: eagerness of effort vs. laziness
    - PS2: work hardened vs. spoiled
    - PS3: ambitiousness vs. underachieving
    - PS4: perfectionism vs. pragmatism
- Character
  - Self-directedness (SD)
    - SD1: responsibility vs. blaming
    - SD2: purposefulness vs. lack of goal direction
    - SD3: resourcefulness vs. helplessness
    - SD4: self-acceptance vs. self-striving
    - SD5: congruent second nature
  - Cooperativeness (CO)
    - CO1: social acceptance vs. social intolerance
    - CO2: empathy vs. social disinterest
    - CO3: helpfulness vs. unhelpfulness
    - CO4: compassion vs. revengefulness
    - CO5: pure hearted vs. self-serving
  - Self-transcendence (ST)
    - ST1: self-forgetful vs. self-conscious
    - ST2: transpersonal identification vs. self-differentiation
    - ST3: spiritual acceptance vs. rational materialism
    - ST4: enlightened vs. objective
    - ST5: idealistic vs. practical

tralia and the United States. The self-report version of the TCI is a 240-item test available in true–false and five-point Likert formats. Its psychometric properties are presented in the *TCI Manual*.

The ability of the TCI to predict categorical diagnoses of personality disorders was clinically tested in samples of psychiatric inpatients and outpatients with and without personality disorders and varying mood and anxiety states. Correlation and regression analyses consistently demonstrate that low scores on character dimensions, especially self-directedness and cooperativeness, are associated with high symptom counts for any personality disorder, for each of the DSM clusters of personality disorder (Tables 23–16 and 23–17) and for each clinical subtype of personality disorder, with or without comorbid Axis I syndromes and independent of age. As shown in Table 23–17, the TCI character scales of self-directedness, cooperativeness, and self-transcendence predict the number of personality disorder symptoms, after controlling for age, anxiety, and depression. Clearly, low scores on

Table 23–16
Correlations between Temperament and Character Inventory Scales and the Total Number of Symptoms for Personality Disorders and Cluster A, Cluster B, and Cluster C Personality Disorder Subtypes

	Inpatients (N = 136)			
	Total Number Personality Disorder Sx	Cluster A Sx	Cluster B Sx	Cluster C Sx
Novelty seeking	.22[c]	.02	.44[a]	−.06
Harm avoidance	.31[b]	.23[b]	.08	.43[a]
Reward dependence	−.14	−.37[a]	−.08	−.04
Persistence	0	−.07	.04	−.01
Self-directedness	−.56[a]	−.35[a]	−.43[a]	−.50[a]
Cooperativeness	−.44[a]	−.44[a]	−.40[a]	−.28[b]
Self-transcendence	.02	−.08	.03	.04

Sx, symptoms.
[a]$P < .0001$.
[b]$P < .001$.
[c]$P < .01$.

Table 23–17
Stepwise Multiple Regression

Inpatients (N = 136)

Total Number of Interview PD Symptoms Predicted by TCI (Controlling for Age and Depression)

	Number of PD Symptoms	
	Partial R^2	*P*
Age and depression	.35	.0001
Novelty seeking	—	Ns
Harm avoidance	—	Ns
Reward dependence	—	Ns
Persistence	—	Ns
Self-directedness	.13	.0001
Cooperativeness	.03	.0076
Self-transcendence	.02	.0376
Cumulative R^2	.18	.0001
Model R^2	.53	.0001

Outpatients (N = 109)

Total Number of Self-Report PD Symptoms Predicted by TCI (Controlling for Age, Depression, and Anxiety)

	Total Number of PD Symptoms	
	Partial R^2	*P*
Age, anxiety, and depression	.45	.0001
Novelty seeking	—	Ns
Harm avoidance	—	Ns
Reward dependence	—	Ns
Persistence	—	Ns
Self-directedness	.20	.0001
Cooperativeness	.05	.0001
Self-transcendence	.05	.0001
Cumulative R^2	.30	.0001
Model R^2	.75	.0001

Ns, not significant; PD, personality disorder; TCI, Temperament and Character Inventory.

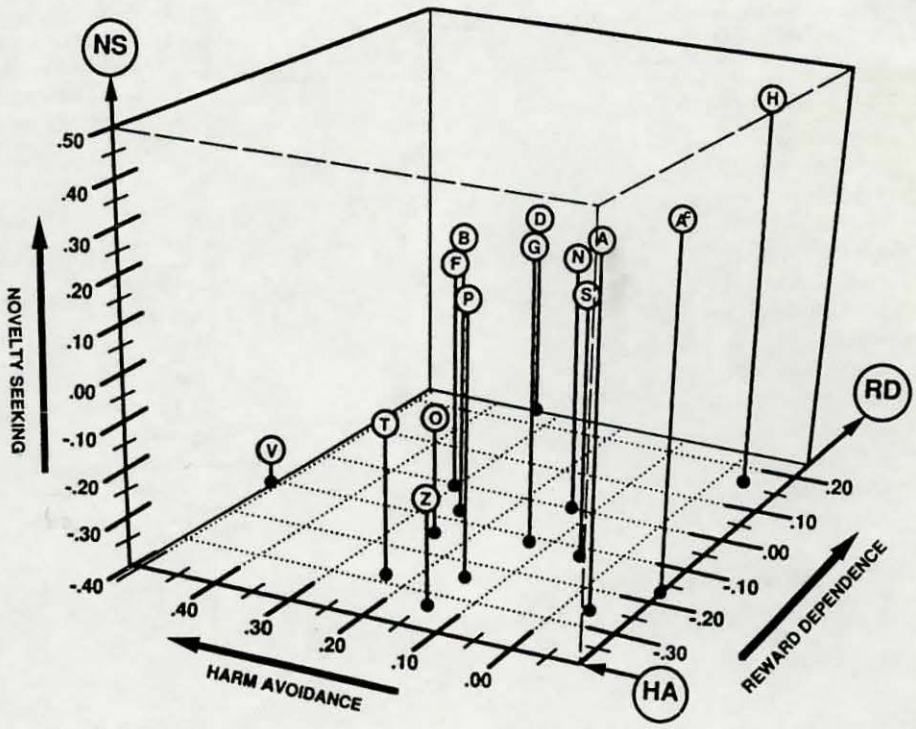

FIGURE 23–8 Correlations between individual personality disorder subtypes and temperament traits of harm avoidance (HA), novelty seeking (NS), and reward dependence (RD). A, antisocial; A^c, antisocial (children); B, borderline; D, dependent; F, self-defeating; G, passive-aggressive; H, histrionic; N, narcissistic; O, obsessive; P, paranoid; S, sadistic; T, schizotypal; V, avoidant; Z, schizoid.

character traits represent a core feature (common denominator) of all personality disorder clusters and subtypes.

In differential diagnosis, personality disorder subtypes are distinguished based on temperament scores without any overlap, because each subtype correlates with the TCI temperament dimensions in a unique way (Fig. 23–8).

The previously mentioned results have important diagnostic and treatment ramifications for personality disorder, as discussed in the following sections.

DIAGNOSIS OF PERSONALITY DISORDER Character and temperament traits delineate the core features and the distinguishing features of personality disorders (Tables 23–16 and 23–17; Fig. 23–8). Poorly developed character traits, especially self-directedness and cooperativeness, are a common denominator extending across all subtypes of personality disorder and are used in diagnosis to predict categorical personality disorder symptoms (Tables 23–16 and 23–17). Clinically, low character scores explain chronic difficulties in acceptance of responsibility, the setting of long-term goals, fragile self esteem, and other features associated with low self-directedness that are so characteristic of individuals with personality disorder. Usually, but not always, these patients are also uncooperative as well (i.e., revengeful, opportunistic, self-centered, socially intolerant, unhelpful to others, and lacking in empathy, compassion, or principles). High self-transcendence correlates with schizotypal and paranoid symptoms (depicting primary process thinking and fanaticism, respectively) and with borderline, histrionic, and narcissistic symptoms (depicting proneness to dissociation), much as predicted in Figure 23–4. In addition, recent data indicate that high self-transcendence might be an important component in one's susceptibility to psychosis (when other two character traits are low), or, on the other hand, it may predispose to high creativity (when other two character traits are high).

High self-directedness is not always protective against personality disorder. Some narcissistic and antisocial persons can be self-sufficient, resourceful, and successful but can still be maladapted because of low cooperativeness (e.g., intolerance of others, revengefulness, and low empathy).

Once the probability for the presence of personality disorder is established based on character, temperament traits are used for differential diagnosis. Membership in Cluster A (aloof, eccentric personalities) is most clearly determined by low reward dependence (described as social detachment). Membership in Cluster B (dramatic, erratic personalities) is most clearly determined by high novelty seeking (described as impulsivity). Membership in Cluster C (anxious, fearful personalities) is determined by high harm avoidance (described as fearfulness) (Table 23–16). Recent data indicate that persistence predicts obsessive-compulsive traits.

Individual subtypes of personality disorder are distinguished based on their unique pattern of correlations with temperament traits without any overlap (Fig. 23–8). In other words, clinical presentation of personality disorder varies along four underlying dimensions, corresponding to the four temperament traits of harm avoidance, novelty seeking, reward dependence, and persistence (Table 23–18).

This model does not require arbitrary cut-offs for the presence or absence of personality disorder. Personality disorder can be quantified in terms of degree of severity, or probability of diagnosis can be estimated. As shown in Table 23–19, the probability for the presence or absence of personality disorder based on the self-directedness scores alone ranges from low (approximately 10 percent) to high (approximately 95 percent) in clinical samples.

This model reconciles some aspects of categorical and dimensional approach to personality disorder. It specifies seven temperament and character dimensions to account for individual differences in behavior. These dimensions interact to create temperament and character composites (types, profiles, or configurations), which correspond to categorical DSM subtypes of personality disorder (Figs. 23–3 and 23–4). In other words, this model is dimensional but still can be used for categorical clinical diagnosis, because each temperament and character composite profile corresponds to one clinical cat-

Table 23–18
Quantifiable (Dimensional) Features of Personality Disorder

Consistent features
Low self-directedness
Irresponsible, blaming
No mature goals
Resourceless, helpless
Poor self-esteem
Undisciplined
Low cooperativeness
Intolerant of others
Lack of empathy
Unhelpful
Revengeful
Unprincipled
Variable features
High persistence (obsessive-compulsive symptoms only)
Low reward dependence (odd cluster only)
High novelty seeking (erratic cluster only)
High harm avoidance (anxious cluster only)

egory of personality disorder (in practice, this is useful for purposes of description and prediction of course).

ETIOPATHOGENESIS OF PERSONALITY DISORDER

Only a few etiopathogenetic models of personality disorder are available. Of those, the psychodynamic model focuses on the effects of early traumatic experiences and a constitutionally high disposition to anxiety and anger, whereas the spectrum disorder hypothesis postulates a common etiology of personality syndromes with Axis I disorders. A growing body of evidence points to a nonlinear etiopathogenesis with multiple factors, such as genetic, neurophysiological, learning, maturational, and cultural, which are fully incorporated into the psychobiological model of personality disorder.

Spectrum Disorder Hypothesis

Echoing Ernest Kretchmer's work from many decades ago, some experts still consider subtypes of personality disorders as *minor* variants of *major* Axis I syndromes. Indeed, most Axis I disorders have their less severe variants or *representatives* on Axis II. For example, schizophrenia is represented by schizoid personality disorder, delusional disorder is represented by paranoid personality disorder, social phobia is represented by avoidant personality disorder, cyclothymia is represented by the group of emotionally unstable Cluster B personality disorders, and so forth (Table 23–14).

These Axis I and Axis II disorders are symptomatologically similar and are frequently differentiated based only on the severity of their clinical presentation. The etiopathogenetic nature of this Axis I–Axis II relationship has not been established, aside from the obvious symptomatic similarity. Axis II disorders might be predisposing factors, premorbid features, or subclinical expression of Axis I disorders. Their common etiopathogenesis, however, is still an open question. So far, a close etiological relationship has been supported only for schizotypal personality and the spectrum of schizophrenia.

Table 23–19
Predictions of Personality Disorders from Self-Directedness Scores

Self-Directedness Scores	Predicted Percent with PD	Observed with PD	
		f/N	%
44–39	13	4/18	22 ± 0.10
38–34	23	5/17	29 ± 0.11
33–30	33	4/16	25 ± 0.11
29–27	44	8/20	40 ± 0.11
26–23	55	8/19	42 ± 0.11
22–20	66	6/12	50 ± 0.14
19–16	70	14/16	88 ± 0.08
<16	85	17/18	94 ± 0.05

Note: Predicted percent = $100\ e^y/(1 + e^y)$ where $y = -3.37 + 0.13$ (self-directedness score).
f/N, frequency/number; PD, personality disorder.

Psychodynamic Model of Personality Disorder

The central idea behind this model is that personality disorder subtypes, classified as separate nosological units, reflect different behavioral expressions of the same core deficit in personality. The so-called borderline level of personality organization has been postulated to represent the nucleus shared by most subtypes of personality disorder.

As defined by Otto Kernberg, the *borderline level of personality organization* is characterized by *nonspecific manifestations of ego weakness* (such as lack of impulse control, lack of anxiety tolerance, and lack of sublimated potentials), *specific ego defects* (manifested as partially blurred self-object boundaries, mild to moderate primary process thinking, and periodically distorted reality testing), *partial object relations* (manifested as alternations between all good and all bad perceptions of the self and external objects), *primitive defense mechanisms* (centered around splitting), and *identity disturbance.* In addition, an inadequately developed superego is sadistic (e.g., obsessive personalities) or rigid in some but is completely absent in other areas, permitting conflict-free expression of impulses and behaviors.

Immature defenses and a fragmentary self-concept (which are similar to the previously described borderline personality organization) are a normal early phase in mental development. In the case of personality disorder, however, this early developmental phase pathologically persists in later periods. Etiologically, this pathological persistence is postulated to reflect constitutional factors (e.g., poor anxiety tolerance, high aggressivity, and genetic vulnerability to certain affects) or environmental traumatic factors (e.g., early separation, loss of a parent, physical or mental abuse, and neglect).

According to the theory, such traumatic etiological factors generate aggressively charged, negative representations of the self and external objects, which are predominately incorporated into the internal world. This, in turn, interferes with the crystallization of the early ego, which normally occurs around positive, libidinally cathected representations of the self and external objects. In other words, normal early motivation and growth are centered around positive primary emotions, particularly interest and joy. It is the relative predominance of strong negative emotions, particularly anger and fear, that interferes with normal development. As a consequence, primitive defenses (splitting and the related defenses), which are normally predominant in this early phase of life, pathologically persist in the inner world and interfere with normal development. More mature defenses, such as repression, require more energy for their operation than splitting (e.g., repression requires at least as much energy for its

operation as is contained in unacceptable impulses). In contrast, splitting simply keeps opposite good and bad self-representations and object representations apart from each other. As Kernberg pointed out, splitting and early ego weakness mutually perpetuate each other. By protecting positive self-representations and object representations, that is, keeping them apart from their negative analogs, primitive defenses ensure at least some development around positive experiences but interfere with neutralization of aggression and fear. These *pregenital* emotions and their related impulses (or a chaotic combination of pregenital and genital ones) persist as dominant motivators of behavior and significantly interfere with normal personality development.

Core of All Personality Disorder Clinically, the borderline personality organization is observed as

- Chronic free-floating anxiety
- Polysymptomatic neurosis (e.g., multiple phobias related to one's body or appearance, bizarre conversion symptoms, dissociative reactions, and hypochondriasis)
- Polymorphous perverse sexual trends (e.g., coexistence of genital and pregenital elements and bizarre forms of perversions involving aggression)
- Poor impulse control and addictions
- Shift toward primary process thinking (magical thinking and primitive fantasies)
- Partially impaired reality testing

Note, however, that the previously mentioned symptoms are not unique to individuals with borderline personality but are shared by other subtypes of personality disorder. James Reich and Allen Frances have shown that "the diagnosis of borderline personality organization is essentially equivalent to the diagnosis of personality disorder (any subtype)." Likewise, a hierarchical cluster analysis of identical and fraternal twins, their siblings, and their parents showed that 12 DSM-IV-TR personality disorder subtypes can be grouped into eight heritable syndromes, which can be further aggregated into one group closely corresponding to the previously described borderline personality organization.

Christopher Perry and George Vaillant wrote: "Just as fever, pus, and callus formation are the body's physiological reactions to insults of disease, personality disorders reflects persons' efforts to heal themselves." Indeed, a personality disorder reflects a person's attempt to overcome its underlying fragility through maladaptive, but purposeful, behaviors. These maladaptive behaviors are referred to as *purposeful*, because they compensate for the fragility and proneness to decompensation associated with the borderline nucleus. Persons with personality disorder become less fragile, because the personality deviation (e.g., narcissism) takes over as the principal motivator of behaviors, but more abnormal, because an already immature personality is further impaired by additional distortions of self-representations and object representations.

These compensatory behaviors can have different types of symptomatic set-up (e.g., avoidant, paranoid, antisocial, schizoid, and dependent). Note that compensatory behavior styles help classify a syndrome regarding its descriptive label (e.g., avoidant and antisocial) but tell little about the real character of the disorder underlying the descriptive label. Compensatory behavior styles reflect internal factors (e.g., fearfulness causes avoidant symptoms) and external factors (e.g., social class shapes antisocial behaviors). In other words, depending on certain constitutional and environmental factors, persons with borderline level of personality organization create the clinical picture of their personality disorder.

A subgroup of borderline patients manifest the core symptoms, for example, stormy affects, vague identity, and unstable relationships, in a rather stable way (*stable instability*). These patients are fragile and prone to fragmentation but do not develop any compensatory behavior facade to protect their fragility. Some of them can periodically mimic behaviors of any personality disorder subtype (avoidant, antisocial, and obsessive) as a temporary, chameleon-like solution to their chronic internal problems.

The described compensatory process generates a two-level personality structure with the dominant compensatory self-concept and the split-off real self-concept. Consequently, clinical expression of personality disorder is dominated by overt, prototypical behaviors, but a set of subtle and covert symptoms and signs associated with the underlying borderline nucleus is regularly observed in the clinical picture. These difficult-to-detect symptoms are overlooked in the DSM system as diagnostic criteria of personality disorder. For example, clinical presentation of narcissistic personality is dominated by the grandiose self, a deviant self-concept that generates an unrealistic sense of one's specialness, entitlement, arrogance, and other prototypical narcissistic behaviors (included in the DSM-IV-TR description of this disorder). The hidden real self of a narcissistic person is recognizable through chronic feelings of inferiority, hypochondriasis, envy, and pessimism that are not included in the DSM-IV-TR description of this disorder, even though they regularly accompany and sometimes even dominate clinical presentation of pathological narcissism. Similar *overt* and *covert* clinical features have been established for other personality disorders as well.

Some Conceptual and Methodological Issues From the standpoint of its diagnostic validity, the borderline level of personality organization can be reliably distinguished from the schizophrenic spectrum disorders but less reliably from affective syndromes. Clearly, the same immature personality processes that increase the susceptibility to deviant behaviors may also increase the susceptibility to mood disorders. In many cases, mood disorders and personality disorder are comorbid and can be interwoven to the extent that no meaningful distinction between them can be made (as implied in concepts of depressive personality, hysteroid dysphoria, or characterological depression).

An increasing number of psychometric tests to improve the reliable measurement of psychodynamic constructs is available (e.g., the Defense Style Questionnaire and the previously mentioned Kernberg's Structural Interview). A satisfactory diagnostic stability and discriminatory validity in patients diagnosed as borderline personality organization have been demonstrated.

The psychodynamic and the psychobiological models define a common denominator (*the core feature*), which extends across discrete subtypes of personality syndromes. This core feature is the borderline personality organization in the psychodynamic model and the poorly developed character traits, mostly self-directedness, in the psychobiological model. Symptomatically, low self-directedness and borderline personality organization are, for all practical purposes, identical. For example, individuals with low self-directedness are described as blaming, helpless, irresponsible, and unreliable and as having no internal direction and having difficulties in defining and pursuing stable goals (rather, they tend to experience numerous short-term, frequently mutually exclusive, motives, none of which can develop to the point of real personal significance). It has been shown that low self-directedness correlates highly with the use of immature defense mechanisms, which are central in the psychodynamic concept of borderline personality. Etiologically, both concepts postulate that excessive negative emotionality, such as fear and anger (or high harm avoidance and high novelty seeking), interferes with developmental processes and increases the

risk of personality disorder. Clearly, the psychodynamic concepts can be incorporated into a comprehensive, psychobiological understanding of personality disorder.

Psychobiological Summary of Personality Disorder

Psychodynamic understanding of personality disorder, as shown previously, was a useful first step in the understanding of human behaviors. However, the psychodynamic model neither accounts for nor provides directions for expanding understanding of the full etiological complexity of personality disorder. In other words, as an etiological theory, the psychodynamic model addresses only a portion of the iceberg representing deviant behaviors. However, as a treatment tool, its unique understanding of emotional and cognitive processes behind deviant behaviors is effectively used in the therapy of personality disorder, especially in reorganizing internalized concepts about the self and the external world. Psychodynamic strategies are an integral part of a comprehensive psychobiological approach to the treatment of personality disorder.

In contrast, modern psychobiology of behaviors provides an integrative, multifactorial, and developmental etiological model of personality and its disorders. The psychobiological approach is based on four fundamental etiopathogenetic perspectives—genetic, neurophysiological, learning, and phenomenological—which interact in a nonlinear way to produce phenotypic differences in cognitive styles and behavior traits. Psychobiology of temperament and character traits is discussed throughout this chapter (see Tables 23–2 through 23–6 for a review). Nonlinear self-organization of character is discussed in the section on development. Diagnostic and treatment implications are discussed in the corresponding sections.

Genetic and environmental factors interact in complex ways to influence the risk of personality disorder. Available genetic observations about twins, adoptees, and families are explained by the hypothesis that there is quantitative inheritance of underlying personality dimensions that influence the risk of personality disorder, rather than separate inheritance of individual personality disorder subtypes. As a reminder, more than one-half of the variance in the four major temperament traits is inherited. These temperament traits determine one's susceptibility to specific neurochemical processes, which, in turn, underlie individual differences in basic emotions and influence early learning characteristics. These temperament traits have their dissociable genetic, neurobiological, and phenomenological correlates (Tables 23–2 through 23–6).

The antecedent temperament factors, along with systematic cultural biases and random life events, critically influence character development, represented as internalized concepts about the self and the external world. As shown in Table 23–20, various temperament types affect differentially one's risk of immature character and personality disorder. Some configurations, mostly those with high reward dependence, are protective against personality disorder, whereas some increase this risk (e.g., the explosive or borderline profile with low reward dependence and high novelty seeking and harm avoidance). Contrary to the common belief, average scores on the temperament dimensions do not protect against maladaptation and immaturity. People with average temperament traits have an average (not a decreased) risk of personality disorder (Table 23–20).

Extreme temperament variants are not necessarily indicative of personality disorder. They are expected to be associated with long-term personal, social, or occupational impairments, or a combination of these, that warrant the personality disorder diagnosis only when

Table 23–20
Relative Risk of Personality Disorder as a Function of Temperament Type in a Sample from the General Community

Temperament Type	Configuration	N	Immature (%)
High risk			
Borderline	NHr	39	72
Obsessional	nHr	44	59
Antisocial	Nhr	25	48
Passive-aggressive	NHR	30	40
Average risk			
Average profile	—	15	33
Low risk			
Avoidant	nHR	30	17
Schizoid	nhr	31	16
Histrionic	NhR	50	12
Reliable	nhR	36	6
Total	—	300	33

Note: Lower case letters (h, n, r) and capital letters (H, N, R) indicate low and high values for temperament traits.
H, harm avoidance; N, novelty seeking; R, reward dependence.

accompanied by low character traits. In other words, poorly developed character is what makes some behavior traits maladaptive and increases the risk of personality disorder. An individual high in novelty seeking and low in harm avoidance may have an impulsive personality disorder if he or she is low in self-directedness and cooperativeness, or may be an inquisitive scientist without personality disorder if he or she is self-directed and cooperative. Mature character traits (i.e., mature concepts about one's self and the external world) optimize adaptation of temperament (i.e., basic emotionality) to the environment by reducing discrepancies between one's emotional needs and norm-favoring social pressures. In personality disorder, immature character traits and extreme temperament configurations mutually perpetuate each other.

The concepts of temperament and character are essential to decompose the symptoms of personality disorder into the common features, shared by all personality disorders, and distinguishing features that permit the discrimination among personality disorder clusters and individual subtypes. This is not possible for models that confound temperament and character. This also indicates that personality disorder reflects deviations in temperament and character, that is, in emotional and conceptual personality processes.

Extreme temperament traits and their associated primary emotions of fear, anger, and detachment are motivationally monopolistic, that is, they persist as dominant motivators of behavior and interfere with character development and maturation. In some cases, personality stabilizes at this level of personality disorder (this is observed as *maladaptation*). Personality disorder represents a point of developmental stability for many individuals, as it involves maladaptation, that is, deviant or poor adaptation (but still some adaptation) to the local environment. In other words, personality disorder represents a suboptimal developmental outcome, with established, although maladaptive, personal and social roles, support network, etc. These suboptimal outcomes, which are clearly maladaptive relative to the possible maximum for that individual, tend to be stable (to resist change). The stability of outcomes that are not optimal (i.e., they are maladaptive relative to the global adaptive optimum possible for that individual) occurs because each step in personality development must increase the

adaptive fitness of the organism, so that it is more successful in balancing multiple internal and external constraints. In other words, the search for higher adaptive maxima is discouraged by the necessity of initially decreasing in overall fitness (the earlier mentioned U-shaped developmental pattern).

Behavior geneticists have demonstrated that the effect of sociocultural factors on personality appears less specific than that of genetic factors, influencing success in adaptation rather than its form or personality style. This is consistent with recent findings about the importance of family and local culture in character development. Family environment does not influence temperament but explains approximately 35 percent of variability of character traits. Hence, psychosocial disorganization in the rearing environment of a child has a substantial influence on the risk of personality disorders. This is essential for preventive strategies, as even temperament configurations with high risk of personality disorder might be overcome in homes and communities that provide security and limits on behavior in a warm, compassionate manner, as well as encouraging self-directed choice and the value of respect for other people.

Personality disorder is associated with younger age. This indicates maturation (i.e., remission of deviant behaviors) with increasing age. In general, three dimensions of personality change substantially with age. Novelty seeking decreases with age by approximately 18 percent, so that older individuals become less impulsive (more reflective), less rule breaking (more orderly), and less quick tempered (more stoical). Cooperativeness increases markedly in most children during school age and then increases by 12 percent on average after 18 years of age. Self-directedness increases markedly in most people during adolescence and young adulthood, increasing on average by 9 percent after 18 years of age.

The decreasing prevalence of personality disorder with age is attributable to the increased development of self-directedness and cooperativeness with age. The additional tendency for novelty seeking to decrease with age explains the finding that patients with impulsive personality disorders show more improvement than those with anxious or eccentric personality disorders. The best-documented finding about change in deviant behaviors is the remission of criminal behavior in individuals with antisocial personality disorder. These individuals nearly always remained impulsive (high novelty seeking), risk taking (low harm avoidance), and aloof (low reward dependence) but became mature enough to maintain work and family life in a stable manner.

TREATMENT

Most individuals with personality disorder perceive their lifestyles as normal and seldom seek or accept treatment. Typically, they seek help when their maladaptive behaviors culminate in severe marital, family, and career problems or for comorbid anxiety, depression, substance abuse, or eating disorders.

Temperament traits are primarily treated by pharmacological intervention. Given the importance of associative learning in the development of temperament, some psychotherapeutic correction is possible, especially using behavioral techniques. Alternatively, psychotropic drugs rarely induce changes in character, which is more amenable to psychotherapeutic intervention. Character optimizes adaptation of temperament to the environment, because it modulates the salience of percepts and primary emotions, thereby reducing the maladaptive impact of extreme temperament traits. Extreme temperament and immature character traits are optimally treated simultaneously with combined psychotherapy and pharmacotherapy.

Psychotherapy It is hard to find a psychotherapeutic method that has not been tried to treat personality disorder. Each school of psychotherapy provides a specific understanding of behavior and a particular method of intervention. In practice, different schools are not mutually exclusive but overlap and complement one another. Dynamic psychotherapy addresses the internal world of the patient's emotions and needs and treats symptoms as external manifestations of internal motivations. Behavior therapy focuses on external manifestations (or symptoms) and enables patients to change behavior or to achieve better control of their behaviors. Cognitive therapy helps patients correct their distorted cognitive appraisal of the significance of environmental cues and their underlying core beliefs that lead to maladaptive behaviors. Humanistic approaches, by increasing self-directedness and cooperativeness, assist patients in achieving personal and social maturity in a form of *altruistic individualism*. No one of the previously mentioned goals is invariably more correct, and each orientation is expected to make a specific contribution to the overall efficacy of treatment. This seems to be especially relevant to personality disorder, where both the reduction of internal discomfort and the improvement of social functioning are equally important. For example, a combination of dynamic therapy (which is insight oriented) and cognitive-behavioral therapy (which is action oriented) efficiently helps patients transform their insights into an actual behavior change. Recently, dialectical behavior therapy, based on a biosocial theory that borderline symptoms reflect primarily a dysfunction of the emotion regulation system, has shown effectiveness in reducing the core symptoms and improving the social adjustment of borderline patients. A growing number of therapists are beginning to ignore ideological barriers dividing different schools of psychotherapy and are attempting technical synthesis (eclecticism) and theoretical synthesis (integration) of various orientations (this is called *integrative-eclectic psychotherapy*).

Combinations of various orientations and formats and emphasis on team work are optimal in the psychotherapy of personality disorder. Some basic rules and values are strictly observed, however. Probably the most crucial one is a stable therapeutic relationship with consistency and reliability of care. Behavior and feelings are the primary focus of psychotherapy and are the principal language of communication. The therapist is active and uses high-energy confrontation and care (*therapeutic pressing*). The central message is always doing something with the patient, not something to the patient. This way, the patient feels somewhat in control, which might keep him or her in treatment. Reflecting their splitting mechanism, these patients alternatively feel inferior and omnipotent, angry at others and self-destructive, sensitive to rejection but usually provoking it. Flexibility in approach, but firmness in basic values, with creativity and readiness to step away from the rules to get out of these frustrating no-way-out situations is essential. Many of these patients can not tolerate feeling better, as this means that the therapist is successful. These and similar frustrative situations cause countertransference problems with a potential loss of professional objectivity; constant supervision and a support network are therefore necessary. One should keep in mind, however, that these patients are almost never as good as they look when they are doing well and are almost never as bad as they look when they are not doing well.

Of note, pure supportive psychotherapy is rarely used for personality disorder, because it encourages existing coping styles (which are, by definition, maladaptive in personality disorder), and this often reinforces the problems of these patients. Modified supportive therapy (supporting the motivation to change, not the coping mechanisms) can be used as the initial phase of treatment, during the contract and trust building phase.

The psychobiological approach is eclectic and incorporates these strategies into a comprehensive treatment plan aimed at stimulating character development, primarily self-directedness and cooperative-

ness. The primary focus is changes in internalized perceptions of the self and the external objects, that is, concepts about self, society, and the world as a whole. This is attempted with cognitive methods (aimed at identifying and revising these concepts and their underlying emotions) or with dynamic methods (aimed at stimulating maturation of internalized object relations), or, frequently, with a combination of the two. Dynamic and cognitive methods are complemented by behavior modification and experiential techniques, which are efficient in transforming insights into actual behavioral changes.

In the course of therapy, as character matures and new concepts and their associated secondary emotions develop, they neutralize extreme temperament traits and their related basic emotions of fear and anger. Behaviors change accordingly, from being primarily reactive, that is, steered by basic emotions and automatic responses regulated by temperament, to being primarily proactive, that is, steered predominantly by secondary emotions and active symbolic constructs regulated by character traits.

Practical Issues Psychotherapy of personality disorder is a specific strategy, rather than a strictly defined method, because the therapy takes place constantly (during any and every kind of contact with the patient), not only during the psychotherapy sessions proper. In fact, what is happening between the sessions may be critical for the outcome of the treatment. With these patients, psychotherapy essentially means reparenting, which, although sometimes demanding, leaves space for various types of interventions, such as education, help with real life problems, and encouragement. Frequent sessions (once a week) are needed to develop trust and interactions complex enough to be useful for diagnostic and treatment purposes.

Patients with personality disorder are required to clarify their goals in treatment. These may vary from simple and concrete (e.g., to reduce alcohol use) to more complex (e.g., to become independent) and ambitious (e.g., to be able to love) but never general (e.g., to be happy). The therapist evaluates each treatment goal and determines the likelihood of successful outcome. There has to be at least one area in which the therapist and the patient are in agreement regarding these goals. It is of critical importance to understand that not every patient with personality disorder can be helped to achieve his or her goals. In general, most patients who have never had a meaningful relationship with at least one person are less likely to benefit from psychotherapy. Additional prognostic factors are the patient's intelligence quotient (IQ), his or her psychological mindedness (i.e., capacity for self-awareness), the training and competency of the therapist, and the compatibility of desired treatment goals with baseline personality characteristics. As shown in Figures 23–5 through 23–7, one temperament configuration may lead to several, but not all, of the eight possible character outcomes. Obviously, some treatment goals, if chosen by individuals with incompatible temperament traits, simply might not be achievable. In general, treatment outcomes are classified as ideal, optimal, or compromises. Ideal outcomes correspond to concepts of an ideally mature personality with a full development of all three character traits. These outcomes are not always possible, especially for patients with personality disorder who usually have temperament configurations that are incompatible with high scores on all character dimensions. However, whenever possible, ideal outcomes are pursued as the ultimate standard of maturity. More frequently, treatment is planned to enable the patient to achieve the best possible adaptation for his or her given temperament traits. This is called an *optimal character outcome*. If, for any reason, optimal outcome cannot be achieved, the alternative is the so-called compromise outcome that improves the patient's adaptation compared to the one at baseline but does not achieve the optimal adaptation possible for that patient.

For patients who are unlikely to benefit from psychotherapy, symptom control might be achieved through pharmacological intervention only. In addition, many areas of everyday life, such as friendships, romantic relationships, media, education, and valued life opportunities (e.g., stable marriage, work-related progress, and religious conversion), increase their chances for maturation. The emergent changes are often sudden and are associated with a new perspective on life and new goals and values, which cannot be achieved by logic, medication, or advice alone.

At least initially, the therapy is supplemented by as much structuring of the patient's life as needed. This may range from directed behaviors, to day-hospital programs, to hospitalization. If complications occur, additional structuring is often needed, such as phone calls or extra sessions. Structuring, advice, and logic are not expected to generate personality change but only to temporarily improve behavior control. As Kernberg noted, psychotherapy begins where common sense ends. Prolonged structuring robs the patient of the opportunity to become more self-reliant or to learn from his or her failure to do so.

These patients usually want psychotherapy "their way," with many conditions and ultimatums. They rarely manifest a strong personal motivation to change. In fact, they frequently minimize or deny the existence of even serious problems, such as a suicide attempt. These blind spots for the patient's own problems reflect the fact that these patients, since early age, have developed efficient mechanisms to avoid disturbing feelings and insights. Hence, they generally feel a much lower level of distress with their symptoms than would be experienced by a mature person in a similar situation. Confrontations (not interpretations!) are used to increase the level of the patient's discomfort with his or her own symptoms, which then improves their recognition of these symptoms and their motivation to change them. Of note, most of these patients tolerate confrontations well, provided that they trust their therapist. They need an extraordinarily high level of stimulation (sometimes achieved through confrontations) in any relationship, including their therapy. This hunger for stimuli usually can be recognized in early childhood and may be related to lack of stimulation (neglect) or extreme stimulation (abuse) by their caretakers.

Resistance to change is strong in patients with personality disorder, whose symptoms reflect their attempt to overcome internal fragility through compensatory deviant behaviors. The achieved compensatory facade (avoidant, schizoid, antisocial, etc.) is maladaptive but stable. In psychotherapy, these patients are expected to give up their purposeful, if maladaptive, behavior traits. In the process, they temporarily become similar to the *core borderline* patients without any behavioral compensation for their fragility. In other words, most patients with personality disorder first have to regress to a more primitive (but less deviant) level of personality organization and then develop more mature object relations and better-adapted personality traits. This *progressive regression* or *back-to-the-future* strategy derives directly from the already mentioned U-shaped developmental pattern, in which better adaptation can be achieved only after an initial decrease in current adaptation. Each personality disorder subtype requires specific modifications and careful timing of this strategy to address their distinguishing symptomatic facade and specific social deviations.

Group therapy is generally considered useful for personality disorders, as it exposes and treats their social deviance. It is usually done in conjunction with individual therapy, and, often, individual therapy elaborates experiences from group sessions.

Pharmacotherapy A growing body of evidence demonstrates that pharmacotherapy is at least equally important to psycho-

therapy in the overall treatment of personality disorder. Pharmacotherapy is (1) causal, aimed at correcting neurobiological dispositions to underlying deviant traits, or (2) symptomatic, aimed at correcting target symptoms of personality disorder.

Causal Pharmacotherapy of Personality Disorder

The central idea behind causal pharmacotherapy is that enduring personality changes may result from pharmacological manipulation of the underlying biological dispositions to deviant traits (also called *trait vulnerability*). In other words, pharmacotherapy is expected to modify neurophysiological systems that regulate affects and learning styles. This, in turn, is expected to reduce biases in affective and learning processes and, ultimately, changes in cognitive and behavioral symptoms of personality disorder.

In contrast to factor-analytically derived models, psychobiological models provide testable guidelines for the pharmacological manipulation of the underlying neurochemical trait vulnerability. As noted previously, harm avoidance, novelty seeking, and reward dependence are postulated to reflect differences in the CNS serotoninergic, dopaminergic, and noradrenergic systems, with implications for pharmacological management of these traits. Pharmacological trials, based on these and similar postulates, might lead to what Sollof calls pharmacological *dissection* of the underlying biological vulnerabilities. For illustration, the following few examples of causal pharmacotherapy are provided:

- Responses to antidepressants of different patients with major depression can be predicted by their temperament to a substantial degree, not by the number, type, severity, or course of their depressive symptoms. Patients who are highly sensitive to social approval (i.e., who are high in reward dependence) are most likely to improve on SSRIs. In contrast, those who are highly fearful but not socially dependent are most likely to improve on noradrenergic uptake inhibitors, such as desipramine (Norpramin).
- Children with ADHD (who are high in novelty seeking and low in dopaminergic activity) are efficiently treated with drugs that increase dopamine release, such as methylphenidate.
- Central serotoninergic mediation is important in obsessive-compulsive behaviors, characterized by high harm avoidance (postulated to reflect high serotonergic activity). These behaviors are modified by drugs that change serotoninergic system activity, such as SSRIs. As noted by Liebowitz, cerebrospinal fluid (CSF) findings show high basal serotoninergic activity in obsessive patients who respond to serotonin reuptake blockers, and normalization of serotonin activity after chronic treatment (the treatment suppresses serotonin activity presumably by reducing postsynaptic serotonin sensitivity).

Most of the presented treatment strategies are still tentative and experimental and need further testing. However, they are based on modern biology of behavior and provide guidelines that may potentially lead to a better understanding of biological vulnerabilities underlying deviant personality traits and to a more prescriptive relationship between diagnosis and treatment of personality disorder.

Symptomatic Pharmacotherapy of Personality Disorder

Pharmacotherapy cannot be usefully organized around individual subtypes of personality disorder for several reasons. First, the efficiency of drug treatments is best evaluated at a symptom level, not at the syndrome level. Second, the target symptoms likely to respond to particular drugs are not unique to any subtype but are shared by various subtypes of personality disorder. Third, the state-trait effect tends to interfere with efficient evaluation of pharmacotherapy of personality disorders, which are frequently comorbid with mood and anxiety states. Fourth, some of the classified personality disorder subtypes are heterogenous composites that can be further subtyped into one or more subcategories, each potentially requiring specific pharmacotherapy.

Phenotypic similarity between some Axis II and Axis I syndromes (Table 23–14) explains the attempts to treat patients with personality disorder with drugs proven efficient for the corresponding Axis I disorders. However, common pathogenesis for the Axis I syndromes and their corresponding Axis II counterparts has not been established, leaving open to question the validity of these treatments by analogy. Such treatments are neither theory driven nor hypothesis testing, and none has proven efficient and long lasting for personality disorder.

Symptomatic treatments are still the standard of care for these patients. Pharmacological intervention is usually focused on acute symptoms (e.g., suicidal tendency and agitation), but an increasing number of authors advocate treatment of chronic pathology (e.g., impulsiveness and affective dysregulation) in addition to the acute treatments. In that regard, most authors agree that there are three symptom domains that underlie chronic pathology of personality disorder. These include (1) aggression and behavioral dyscontrol; (2) affective symptoms, anxiety, and mood dyscontrol; and (3) cognitive-perceptual distortions, including psychotic symptoms.

These three chronic symptom domains clinically correspond to the underlying temperament dimensions and to DSM-IV-TR clusters of personality disorder: High novelty seeking and Cluster B disorders correspond to the aggression and behavior dyscontrol domain, high harm avoidance and Cluster C disorders correspond to the anxiety and depression domain, and low reward dependence and Cluster A disorders correspond to the domain of detachment, and cognitive disturbances. In other words, the identification of these chronic target symptom domains has narrowed the gap between causal and symptomatic pharmacotherapy of personality disorder. Of note, *cognitive disturbances*, as defined by most authors, refer to magical thinking, odd beliefs, illusions, and chronic, low-grade psychotic symptoms observable primarily in the schizotypal personality disorder. Note that every personality disorder subtype manifests cognitive disturbances and a distorted perception of reality because of the underlying learning and emotional biases. These disturbances are alternatively called *nonpsychotic thought disorder* or *partial loss of reality testing*.

The interaction between biological and psychological factors in deviant behaviors is complex. For example, high disposition to aggression may cause splitting, which, in turn, prevents neutralization of aggression. One way to interrupt the feedback mechanisms by which unfavorable biology and psychology perpetuate each other is to combine drug treatment of the underlying biological vulnerability with psychotherapy of the associated psychological mechanisms. Hence, personality disorder is optimally treated with combined pharmacotherapy and psychotherapy.

Pharmacological treatment of the four target symptom domains is nonspecific, as medications regularly affect the target symptom domain and other symptom domains. This nonspecificity may reflect many factors, such as the equifinality phenomenon, in which similar behaviors derive from different underlying antecedents, or the nonspecific action profile of the drug, affecting several neurophysiological systems at the same time. More sophisticated, receptor-specific drugs might help answer some of the questions in this regard. In what follows, symptomatic pharmacological management of aggression and impulsivity, mood dysregulation, and cognitive disturbances is described in more detail.

AGGRESSION It is useful, although sometimes difficult, to distinguish different types of aggression. The most common form of aggression occurs when a quick-tempered person is provoked by frustration or threats. This is called *affective aggression* and is frequent in impulsive-aggressive individuals. Biological correlates of impulsive aggression and poor behavior inhibition include low CSF 5-hydroxyindoleacetic acid (5-HIAA) and altered serotonin neurotransmission. Unprovoked aggression can occur in patients with cerebral instability documented by an abnormal electroencephalogram (EEG) (so-called ictal aggression), regardless of any associated personality traits. Predatory aggression or cruelty involves hostile revengefulness and taking pleasure in victimizing others, often with intact impulse control; such predatory aggression is most frequent in individuals who are low in cooperativeness, which is most likely in antisocial and borderline personalities. Lastly, organic-like impulsivity and aggression are often accompanied by poor social judgment. It is distinguished from other impulsive-aggressive syndromes by prominent distractibility, inattention, emotional lability, and high somatic anxiety with panic and cardiorespiratory symptoms, often seen in patients with frontal lobe lesions.

Multiple double-blind trials have shown that lithium (Eskalith) reduces affective display and aggression in normal subjects and impulsive-aggressive individuals. Anticonvulsant mood stabilizers, such as carbamazepine (Tegretol), valproates, lamotrigine (Lamictal), gabapentin (Neurontin), tiagabine (Gabitril), or topiramate (Topamax), reduce the intensity and the frequency of unprovoked angry outbursts, improve behavior dyscontrol, and reduce anxiety and suicidal tendency in some patients, regardless of normality of their EEG. Note the nonspecific effect of anticonvulsant mood stabilizers, which, in addition to their target symptom domain of impulsivity, also affect other chronic symptom domains and acute manifestations. Anticonvulsants are recommended for ictal aggression because of frequent tolerance to anticonvulsive effects of benzodiazepines.

Double-blind trials have shown that dopaminergic psychostimulants, such as methylphenidate, are beneficial in the treatment of inattentive and hyperactive adults who are aggressive, especially when the symptoms have begun in early childhood.

Consistent with the postulated serotoninergic mechanisms in impulsive aggression, antidepressants (mostly SSRIs) are beneficial for some chronically impulsive subtypes of personality disorder (e.g., borderline). In many cases, SSRIs, in addition to expected improvements in depressed mood and impulsivity, also nonspecifically improve affective lability, rejection sensitivity, impulsiveness, self-mutilation, and psychosis. Monoamine oxidase inhibitors (MAOIs), such as tranylcypromine (Parnate), are effective in some cases of hysteroid dysphoria with somatic anxiety, hostility, and destructive impulsivity.

The organic aggression may respond to imipramine (Norfranil), psychostimulants (e.g., methylphenidate), and some of the novel cholinergic agonists (donepezil [Aricept] or galantamine [Reminyl]). β-Blockers have also been shown to reduce aggression and violence in patients with dementia, brain injury, schizophrenia, mental retardation, and organic brain syndrome.

Low-dose new neuroleptics may be useful in modifying affective or predatory aggression in some cases. A variety of neuroleptics, from thioridazine (Mellaril) to haloperidol (Haldol), have been used in doses that are much lower than those for psychoses (full antipsychotic dosages have generally not proven useful). The usefulness of new atypical neuroleptics for aggressive behaviors has yet to be established. In general, neuroleptics are used with caution and for a short term to avoid potentially irreversible movement side effects. Also, dose adjustment is crucial to maintain compliance, because patients with personality disorder poorly tolerate side effects.

There are some relative contraindications in pharmacological treatment of impulsivity and aggression. For example, lithium (Eskalith) should not be given to antisocial persons without aggression and impulsivity; it does not diminish nonaggressive antisocial behaviors (such as lying or stealing). It is also poorly tolerated by anxious schizoid individuals. Likewise, benzodiazepines and alcohol have disinhibiting effects on violence, reduce conditioned avoidance behavior (loosen inhibitions), and further impair passive avoidance learning in impulsive antisocial persons. The use of benzodiazepines seems appropriate only in nonaggressive, dyssocial behaviors—for example, schizoid personalities. In some borderline patients, carbamazepine has been considered to be behaviorally toxic, because it seemed to precipitate melancholic depression.

MOOD DYSREGULATION Target symptoms in the domain of mood dysregulation include emotional instability, emotional detachment, depression, and dysphoria.

Emotional instability and mood swings are responsive to lithium and a spectrum of anticonvulsants, for example lamotrigine, carbamazepine, gabapentin, tiagabine, or valproates. Low-dose neuroleptics, such as haloperidol, also have a mood stabilizing effect. Recently, a number of novel antipsychotics have been approved for mood stabilization (olanzapine [Zyprexa] and quetiapine [Seroquel]). Calcium channel blockers (Verapamil) are also sometimes useful. Tricyclic antidepressants (TCAs), such as amitriptyline (Elavil), increase impulsivity, suicidal tendency, and assault in emotionally unstable patients with borderline features and depression. These paradoxical effects are unrelated to anticholinergic or sedating effects of TCAs and are postulated to reflect cognitive and behavioral disorganization under *catecholamine stress* (i.e., increased catecholamine levels with TCA treatment).

Emotional detachment, cold and aloof emotions, and disinterest in social relations (*chronic asociality*) are typical of schizoid, schizotypal, and some antisocial and paranoid personalities. In cases in which social withdrawal reflects an underlying depression, antidepressants (SSRIs or MAOIs) may help. One should be cautious with TCAs in schizotypal personality disorder, for they may worsen psychosis. In many cases, emotional detachment responds to atypical neuroleptics, such as risperidone (Risperdal), quetiapine (Seroquel), olanzapine (Zyprexa), ziprasidone (Geodon), and, especially, aripiprazole (Abilify), which may reduce social withdrawal and other features of eccentric Cluster A personality disorders with less risk of extrapyramidal symptoms than with typical neuroleptics.

Atypical depression and dysphoria, frequently observed in personality disorder, are rarely responsive to TCAs, but rather to SSRIs or MAOIs. A lack of specificity of effect is also seen with MAOIs and SSRIs in borderline patients, with several target symptom domains (impulsivity, anger, hostility, mood reactivity, hypersomnia, and hyperphagia) responding to these drugs. In fact, at least one-half of the subjects with personality disorder and atypical depression worsen on TCAs. In contrast, typical depressive episodes, which may complicate any personality disorder, are treated with antidepressants, including heterocyclics, in doses suggested for Axis I major depression. Paradoxically, neuroleptics are often efficient in treating the affective symptom domain. Low-dose trifluoperazine (Stelazine) significantly reduces anxiety, suicidal tendency, depression, and rejection sensitivity. Likewise, flupenthixol (Fluanxol Depot) improves recurrent parasuicidal behavior in Cluster B patients (the same could not be demonstrated for antidepressants). This nonspecific effect has been attributed to reduced depersonalization, improved obsessive rumination, decreased sense of helpless-

ness, and decreased paranoid ideation—not improvement in the core symptoms of depression.

ANXIETY Patients with personality disorder usually manifest chronic anxiety. This makes the state–trait distinction difficult—that is, it is not always clear whether a chronic state symptom (anxiety) becomes a stable personality characteristic or vice versa. These patients often present with cognitive anxiety (i.e., anticipatory worrying) and somatic anxiety (i.e., concerns about bodily pains and psychophysiological reactions). Cognitive anxiety is most responsive to benzodiazepines, whereas somatic anxiety is more responsive to MAOIs and SSRIs. Again, benzodiazepines have a nonspecific effect, as they also tend to improve hostility, suspiciousness, cognitive disturbance, and sleep in borderline patients. They can cause severe behavior toxicity as well. Buspirone (BuSpar) and GABA analogs have a potentially important role in the treatment of anxiety associated with personality disorder. Some components of somatic anxiety, such as sweating, palpitations, diarrhea, and tremor, can be treated with β-blockers. Severe, psychotic-like anxiety responds to low-dose neuroleptics, especially atypicals.

COGNITIVE-PERCEPTUAL DISTURBANCES Acute, brief reactive psychoses may complicate most subtypes of personality disorder. These are treated symptomatically, according to accepted pharmacological practices. In general, psychotic patients with personality disorder are likely to respond to and comply with low doses of neuroleptics. Acute psychotic symptoms requiring medication may subside when environmental stressors are brought under control, thus one should be ready to lower the dose or to discontinue the medication.

Some personality disorder subtypes, for example, borderline and schizotypal, manifest chronic, low-grade cognitive symptoms, such as nonpsychotic thought disorder (ideas of reference, magical thinking, odd fantasies, and suspiciousness), unusual perceptual experiences (illusions), depersonalization, derealization, and eccentric behaviors. These chronic, low-level, psychotic-like symptoms respond to low-dose neuroleptics, typical and atypical. Sometimes, chronic cognitive disturbances, such as mild ideas of reference or suspiciousness, may subside when the background emotional tension is reduced by anxiolytics.

Neuroleptics also manifest a nonspecific effect, as they improve several target symptom domains in borderline and schizotypal personalities. Specifically, symptoms responding most clearly to low-dose neuroleptics are anger, hostility, suspiciousness, illusions, ideas of reference, anxiety, and obsessive-compulsive symptoms. The effect is most impressive when symptoms are severe, which lead some authors to speculate that these drugs might be a nonspecific treatment for symptom severity. Table 23–21 summarizes drug choice for various target symptoms of personality disorders.

Psychobiological Integration of Treatment

The presented psychobiological model distinguishes components of personality that differ in terms of their etiology, pattern of development, and responses to psychotherapy and pharmacotherapy. This provides a foundation for approaching diagnosis and treatment in a way that can be generalized to all subtypes of personality disorder but that is sensitive to differences among individual patients. Based on the established structural and clinical characteristics of temperament and character, as well as postulated neurochemical characteristics of temperament and character, pharmacotherapy and psychotherapy can be systematically matched to the personality structure and stage of character development of each individual. This is clearly a unique advantage over other available models. As shown previously, personality development can be described in terms of a sequence of 15 character steps, in which transformations of attitudes, values, and emotions occur as a result of complex interactions among heritable predispositions, social learning, and individual experiences (Table 23–11). Each step in development emerges as a consequence of a complex set of nonlinear facilitating and inhibitory influences.

A hierarchical model of the different types of underlying problems occurring at each step in personality development is shown in Table 23–22. This is organized into five levels, which correspond to deficiencies in the hierarchy of intuitive senses (being, freedom, beauty, truth, and goodness), as described previously.

Problems at the first level are related to deficiency in the intuitive awareness of being and the sense of personal permanence. This is manifest as difficulties in basic trust (step 1) and self-respect (step 2), which are characteristic of individuals who have a history of sexual or physical abuse beginning in early infancy. Problems at this first level of awareness lead to highly disorganized disorders. According to T. Byram Karasu, such patients have been characterized as having severe borderline and narcissistic disorders with *dyadic deficits*, if they are arrested at step 1 (which leads to impairments in the sense of self along with impaired mother–child relations), or *dyadic conflicts*, if they are arrested at step 2 (which leads to severely impaired object relations, such as difficulty of the child separating from the mother). Such fundamental impairments predispose to vulnerability to psychosis. Slightly less impaired are patients with *triadic deficits*, who are arrested at step 3. An arrest at step 3 of level 1 leads to poor impulse control in addition to severe oedipal problems, such as a lack of capacity for intimacy and social commitment.

Problems at the second level are related to a deficient sense of intuitive awareness of freedom and responsibility. Without self-awareness of their own freedom of will, such patients have little sense of their own dignity as responsible and rational beings. Consequently, they also lack awareness of the dignity of others as rational beings. This leads to severe personality disorders with lack of purposefulness and empathy. These individuals are described as having mild borderline and narcissistic disorders characterized by problematic three-person (i.e., mother–child–father) relationships. According to Karasu, patients who are arrested at steps 4 or 5 have *triadic conflicts*, which lead to mild oedipal conflicts, such as inhibited sexuality or impaired internalization of group values. Similarly, patients at step 6 also are lacking in conscientiousness and a sense of fairness and justice in their relationships. Individuals with deficiencies of self-awareness at level 2 have severe problems in working, socialization, and impulse control.

Problems at the third level are related to a deficient intuitive sense of love and beauty. Consequently, these patients have substantial problems in their sense of emotional security and capacity for intimacy. Such emotional insecurity is often manifest by jealousy, resentment, insecure attachments, and failure to maintain stable friendships and marriages. This is typically associated with diagnoses of mood and anxiety disorders. Often, it is possible to recognize progress through level 3 in terms of the sum of self-directedness and cooperativeness, which corresponds to the DSM-IV-TR's and Freud's notions of maturity of personality.

The fourth and higher levels involve progressive steps in cognitive and spiritual development among socially mature individuals seeking fulfillment of their sense of health and well-being. Such overall personality integration can be measured by the sum of scores on all three character dimensions, consistent with Carl Jung's notion of the self-transcendent leader. These higher levels of personality integration may be associated with psychopathology at times of existential crisis.

Practical Strategies As noted previously, character development depends on the temperament configuration and prior development. To take such information into account, reliable and systematic assessments are needed. Once the information is in hand,

Table 23–21
Pharmacotherapy of Target Symptom Domains of Personality Disorders

Target Symptom	Drug of Choice	Contraindication
Behavior dyscontrol		
Aggression/impulsivity		
Affective aggression (hot temper with normal EEG)	*Lithium (Eskalith)*	? Benzodiazepines
	Serotonergic antidepressants	
	Anticonvulsants	
	Atypical neuroleptics	
Predatory aggression (hostility and cruelty)	*Atypical neuroleptics*	Benzodiazepines
	Lithium	
	β-Blockers	
Organic-like aggression	*Imipramine (Tofranil)*	
	Cholinergic agonists (donepezil [Aricept], galantamine [Reminyl])	
	Anticonvulsants	
Ictal aggression (abnormal EEG)	*Carbamazepine (Tegretol)*	Neuroleptics
	Phenytoin (Dilantin)	
	Valproates	
	Benzodiazepines	
Mood dysregulation		
Emotional lability	*Lithium*, lamotrigine (Lamictal)	? TCAs
	Atypicals (olanzapine [Zyprexa] and quetiapine [Seroquel])	
Depression		
Atypical depression and dysphoria	*MAOIs*	
	Serotonergic antidepressants	
	Neuroleptics (ziprasidone [Geodon])	
	Lamotrigine	
Emotional detachment	*Atypical neuroleptics (quetiapine [Seroquel], risperidone [Risperdal], olanzapine [Zyprexa], aripiprazole [Abilify])*	? TCAs
	Ziprasidone	
Anxiety		
Chronic cognitive	*Serotonergic antidepressants*	
	MAOIs	
	Benzodiazepines	
	GABA analogs: gabapentin (Neurontin), tiagabine (Gabitril)	
Chronic somatic	*MAOIs*	
	β-Blockers	
	GABA analogs: gabapentin (Neurontin), tiagabine (Gabitril)	
Severe anxiety	Low-dose neuroleptics (atypicals)	
	MAOIs	
Psychotic symptoms		
Acute and brief psychosis	*Atypical neuroleptics*	
Chronic and low-level psychotic-like symptoms	*Atypical neuroleptics*	

Note: Italics indicate drug of choice or major contraindication.
EEG, electroencephalogram; GABA, γ-aminobutyric acid; MAOI, monoamine oxidase inhibitor; TCA, tricyclic antidepressant.

it provides efficient guidelines for comprehensive treatment planning specifically tailored for each patient. Various possible character outcomes can be evaluated early in treatment by using nonlinear modeling to predict alternative outcomes depending on the baseline conditions and applied interventions. As a general rule, pharmacotherapy is useful in regulating temperament, whereas different psychotherapy techniques are indicated to facilitate particular steps in development (Table 23–21). A multistep approach is needed, rather than trying to accomplish all tasks with the same technique.

These developmental observations indicate that the choice of techniques likely to benefit the patient depends on the stage of personality integration that is manifest at the time of treatment. A brief outline of this integrative psychobiological approach is given in Table 23–23.

Treatment is organized into five levels corresponding to the five levels of self-awareness that were described previously. With respect to personality disorder, of particular interest are levels 1 and 2 and, sometimes, level 3.

1. The first treatment level involves supportive and reality-based techniques that facilitate the awakening of the intuitive sense of being and permanence. Work at this primitive level includes basic trust building, validation, and teaching of basic living skills. The goal here is to ensure the safety of patients with severe disorganization and destructive impulses. Trust building and validation within safe limits are basic components of all therapy and are essential at this level, because patients are filled with all of the negative emotions, such as most patients whose temperaments are explosive (borderline) or whose characters are severely immature

Table 23–22
Hierarchical Model of Mental Order and Disorder Based on Level of Personality Development

Character Deficits	Associated Mental Health Features
Level 1 (deficient sense of being and permanence)	
[1] CO1—mistrust	Self-injurious behavior
[2] SD1—doubt and shame	Hypochondriasis, fibromyalgia
[3] ST1—poor impulse control	Emotionally unstable, hopeless
Level 2 (deficient sense of freedom and responsibility)	
[4] SD2—aimlessness	Unemployment, criminality
[5] CO2—lack of empathy	Polysubstance abuse, irritable bowels
[6] ST2—no conscience	Lack of charity and kindness
Level 3 (deficient sense of love and beauty)	
[7] SD3—helpless and inept	Social insecurity, jealousy
[8] CO3—selfishness	Resentment, lack of intimacy
[9] ST3—security seeking	Ungiving in attachments and loves
Level 4 (deficient sense of truth and faith)	
[10] SD4—poor self-acceptance	Controlling, struggling, depressive
[11] CO4—revengefulness	Hostility and tension
[12] ST4—pride	Lack of faith
Level 5 (deficient sense of goodness and unity of being)	
[13] SD5—struggling	Mastery seeking and perfectionism
[14] CO5—unprincipled	Lack of wisdom and well-being
[15] ST5—dualistic	Lack of coherence and virtue

Subscales are designated by SD (self-directedness), CO (cooperativeness), ST (self-transcendence), and the number of the subscale shown in Table 23–11 (1 through 5).

(melancholic or schizotypal). However, if the patient is psychotic or prepsychotic, therapy may be limited to supportive functions. Such supportive function may require somatic therapies, such as electroconvulsive therapy (ECT) or high doses of antipsychotic medication. The *holding* or reparenting aspects of the psychotherapeutic environment are crucial at this level, including the therapist's being dependable, nonretaliatory, and compassionate, despite frequent crises, and being able to provide a more optimistic understanding of the patient's needs and opportunities than the patient. This allows the patient to build trust in reality and self-respect.

2. The second treatment level involves cognitive-behavioral techniques that help facilitate the awakening of the intuitive sense of freedom of will and personal responsibility, which are fundamental to a sense of human dignity and the capacity to work. This level involves initial treatment of individuals with moderately severe personality and mood disorders, such as most antisocial, severe obsessional, or mild borderline patients. Pharmacotherapy for labile affect and impulsivity, such as mood stabilizers, and for hostility, such as low-dose neuroleptics, may be beneficial. Discussion of personality structure and emotional needs in such patients is focused on their understanding of their temperament structure and basic emotional needs, along with education about mature ways of satisfying those needs. This includes work on encouragement of responsibility for anger management and impulse control. Also, encouragement of work to be more flexible and helpful to others is prominent at this level. Hatha yoga or some other forms of nonviolent physical skills training can be appealing methods for teaching self-control at this level, leading to enhancement of the sense of responsibility and freedom from past conditioning. There must be much patient repetition of practical problem-solving skills and encouragement by discussion of attractive role models. This makes constructive use of such a patient's craving for pleasure and power.
3. The third treatment level is related to the awakening of the intuitive sense of love and beauty. Work at this level involves nondirective dynamic, humanistic, and interpersonal techniques to foster increases in benevolence, resourcefulness, generosity, and intimacy in interpersonal relationships. At this stage, direction is counterproductive, because the patient needs to internalize group values and to develop confidence in his or her self-willed action. Depression and anxiety are common at this level and may be treated with antidepressants, as needed, in combination with the nondirective therapy. The standard six exercises of autogenic training are useful at this level, providing relaxation and preparation for meditative exercises at more advanced levels.
4. The fourth treatment level is related to the awakening of the intuitive sense of what is moral and true, as well as the capacity for spiritual faith. This level requires experiential and existential therapy techniques, such as meditation on one's union in nature. Furthermore, the awakening of spiritual awareness (i.e., the mind's becoming aware of itself) can be facilitated by encouraging the person to listen to his or her own psyche in a state of calmness and effortless, choiceless awareness. This involves a conscious expansion of the self-concept to include a transpersonal (i.e., spiritual) component in addition to the mind and body. Antidepressant or antianxiety medication may be useful at times of existential crisis but are used sparingly and transiently, because strong motivation is needed to promote the leaps of faith needed to transform consciousness and self-concepts. All this work is carried out in the context of a personal decision to let go of all struggles, to work at the service of others, and to let the mind become aware of itself. Reading of inspiring literature, such as the works of Plato, Augustine, or more recently, Alphonse de Lamartine, Gandhi, and Jiddu Krishnamurti, may be useful, but there should be no pressure to push the patient, because the path to coherence of consciousness must be freely and spontaneously sought.
5. The fifth level is related to the continuing awakening of the intuitive sense of goodness and unity of being. This does not really involve direction or even guidance, but more a relationship of facilitative friendship with mutual respect and sharing to minimize self-deception and perfectionism, which are frequent stumbling blocks at this level. Many individuals with such mature personality development are seldom impaired by ordinary standards but seek assistance to achieve superior character integration, emotional fulfillment, and healthy longevity.

Finally, it is important to recognize that character traits only represent abstract summaries of the way that a person usually thinks, feels, and acts. The levels of development described in Tables 23–22 and 23–23 only represent the maximum levels of thought that a person has reached during his or her life; the levels represent the point in the flow of thought at which a person is blocked or arrested in development. In contrast, when psychotherapy is done, a dialogue is entered into with the stream of consciousness of the person. The psychotherapeutic dialogue is the meeting of the psyche of the patient and the psyche of the therapist in a human relationship. The flow of thought may be observed in free association or by examining the specific thoughts that are elicited by the patient's particular fears or desires at the moment. In any case, there must be flexibility in following along with the thoughts that are important for the patient at the moment, rather than trying to reduce them to something frozen in a step in development that abstracts thought from its freedom of flow in time. Descriptions of temperament and character are useful for diagnostic assessment and to help the patient begin to become more self-aware. However, ultimately, progress in treatment requires a shift to attend directly to the movement of thought, which is free and alive in consciousness.

SUGGESTED CROSS-REFERENCES

Adult antisocial behavior is discussed in Section 26.2, personality disorder in elderly adults is discussed in Section 51.3h, theories of

Table 23–23
Multilevel Program for Integrative Psychobiological Treatment to Develop Coherence of Personality

Level	Developmental Steps	Methods of Treatment
Supportive-realistic therapy (to awaken intuitive sense of being as source of hope)		
	[1] Trust in reality	Acceptance, trust building
		Establish supportive environment; antipsychotic medication, if needed
		Detoxification, if needed
	[2] Self-respect	Validation
		Maintain safety and support
		Teach basic living skills and social interdependence
	[3] Moderation	Instruction about temperament
	Hope	Communicate hope by trust and optimism
		Teach brief relaxation exercises
		Set limits and respect for boundaries
Cognitive-behavioral therapy (to awaken intuitive sense of freedom and subjective time, as a source of responsibility and kindness)		
	[4] Nonviolence	Anger management; no blaming
		Encourage accepting responsibility
		Explore goals and role models and make a searching personal inventory
		Model problem-solving skills for analysis and imitation
	[5] Flexibility	Seek freedom from past conditioning
	Forbearance	Encourage helpfulness to others
	[6] Fairness	Communicate fairness and kindness by being fair and kind
	Kindness	Identification with role models
		+ Objectively monitor treatment compliance
		+ Pharmacotherapy of impulsivity, violence, and craving (e.g., lithium [Eskalith], carbamazepine [Tegretol], valproates)
		+ Treatment of comorbid depression
		+ Deconditioning of poor impulse control by repetitive drills and homework
Nondirective dynamic-humanistic-interpersonal therapy		
	[7] Benevolence	Nondirective discussion of options for coping with problems, then encourage resourceful self-willed action
	Resourcefulness	Letting go of resentments and jealousy
	[8] Mutuality	Making amends, helping others
	Social security	Sharing, accepting help from others
	[9] Empathy	Encourage listening and being a friend
	Friendship	Mindfulness meditation training
		+ Education about character development
		+ Cognitive analysis of fears and desires and their elicited thoughts
		+ Antidepressant medication, if needed
Transcendence therapy (to awaken intuitive sense of truth as source of faith)		
	[10] Self-acceptance	Letting go of ambition to control self and others
	[11] Compassion	Working at service of others
	[12] Patience	Listening to psyche (to grow in self-awareness)
	Faith	Meditation on union in nature
		+ Optional reading of highly enlightened authors
Advanced coherence therapy (to awaken intuitive sense of goodness and unity of being as source of coherence)		
	[13] Creativity	Continuous letting go of all struggles
	[14] Well-being	Continuous kindness and work at the service of others
	Serenity	
	[15] Coherence	Continuous awareness in all daily activities

personality and psychopathology are discussed in Chapter 6, and impulse-control disorders are discussed in Chapter 21. Psychotherapy is discussed in Chapter 30, and pharmacotherapy is discussed in Chapter 31.

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