Among the various disorders of personality, antisocial personality disorder (APD) and the related syndrome of psychopathy stand as unique in terms of the toll they exact on society. As a function of this impact, these syndromes have long held the fascination of the public at large as well as that of investigators in the scientific community. The goal of this chapter is to review, in a relatively brief but at the same time broad and integrative fashion, what is currently known about these disorders. In doing so, I will highlight overlapping elements of these clinical phenomena as well as important elements that differentiate them. In addition, I will endeavor to link these phenomena to broader constructs in the domains of personality and psychopathology, and in turn to underlying psychological processes that may provide the basis for a clearer, mechanistic understanding of the unique and distinctive features of these clinical syndromes.

The chapter begins with a historical overview of the constructs of psychopathy and antisocial personality. Highlighted in this section is the fact that although the APD construct has achieved prominence in the psychiatric literature during the past 25 years, the construct of psychopathy actually preceded it historically and—from the perspective to be advanced here—can be considered an overarching construct that incorporates APD. Following the historical overview, I provide a summary of concepts and recent empirical findings regarding the APD construct. The emphasis is on placing APD into

Author’s note: Preparation of this chapter was supported by grants MH52384, MH65137, and MH1072830 from the National Institute of Mental Health, grant R01 AA12164 from the National Institute on Alcohol Abuse and Alcoholism, and funds from the Hathaway endowment at the University of Minnesota.
a broader conceptual framework that encompasses other impulse control disorders (e.g., conduct disorder, alcohol dependence, and drug dependence) with which APD is closely associated. Specifically, drawing on recent research findings, I will argue that the adult antisocial deviance embodied in the APD construct represents one manifestation of a broader disposition toward disinhibitory (externalizing) problems that can be viewed as more basic from an etiologic standpoint. The next section of the chapter is devoted to contemporary conceptualizations of psychopathy and relevant empirical findings. Special emphasis is devoted to the idea of psychopathy as a fundamentally variegated construct, encompassing somewhat paradoxical elements of behavioral pathology on one hand and positive psychological adjustment on the other. The last major section of the chapter considers relations between the constructs of psychopathy and APD from the standpoint of a dual-process model of the etiologic mechanisms underlying these disorders. Following this, I include a brief section on the treatment of these disorders.

**Historical Overview of the Psychopathy and APD Constructs**

**Early Conceptualizations of Psychopathy**

The earliest accounts of the syndrome that came to be known as psychopathy emphasized extreme behavioral deviance in the context of intact reasoning and communicative abilities. Over 200 years ago, Philippe Pinel (1801/1962) documented examples of patients “who at no period gave evidence of any lesion of understanding, but who were under the dominion of instinctive and abstract fury, as if the faculties of affect alone had sustained injury” (p. 9). Patients of this kind engaged repeatedly in impulsive acts injurious to themselves and others despite recognizing at a verbal/conceptual level the irrationality of such acts. The label Pinel applied to this syndrome was *manie sans delire* (“insanity without delirium”). As indicated in the foregoing quotation, Pinel hypothesized that the underlying impairment in such cases was an inability to control emotion (affect) as opposed to some deficit in reason or understanding.

Around the same time, the American physician Benjamin Rush (1812) made note of similar cases, but postulated moral weakness (i.e., an impairment in the capacity to experience shame or guilt in relation to contemplated actions and their potential consequences) as the root cause. In contrast with Pinel’s notion of a defect in affective control, Rush’s etiologic perspective carried with it a social-evaluative component (i.e., individuals of this sort do bad things because they are morally deranged). In his account of the syndrome, Rush also highlighted the manipulative, deceitful nature of such individuals. A perspective similar to Rush’s was advanced by the British psychiatric expert J. C. Pritchard (1835), who coined the term “moral insanity” in reference to
such cases—connoting the idea that the behavioral deviance in such cases stems from a deficit in the intrinsic sense of decency, fairness, and responsibility that normal individuals possess. However, Pritchard departed from Rush (as well as Pinel) by applying the label “moral insanity” so broadly as to encompass most conditions considered mental disorders at this time (e.g., drug or alcohol addiction; sexual deviations of various kinds, including homosexuality; mood disorders) except those classifiable today as mental retardation or schizophrenia. The result was a broadening of the construct that persisted in large part until Cleckley (1941; see below).

The term “psychopathic” was introduced by German psychiatrist J. L. Koch (1891) as an alternative to Pritchard’s term “morally insane.” Specifically, Koch proposed the label “psychopathic inferiority” to denote conditions of a chronic nature that in his view reflected an underlying organic (physical, brain-based) cause. Like Pritchard, Koch applied this term to a much broader array of clinical conditions than would be encompassed by current conceptualizations of psychopathy and antisocial personality disorder—including neurotic conditions and some forms of mental retardation as well as “character disorders” of various sorts (i.e., conditions that would now be regarded as “personality disorders”). In the seventh edition of his classic volume Psychiatrie: Ein Lehrbuch (“Psychiatry: A Textbook”), Koch’s contemporary Emil Kraepelin (1904) used the term “psychopathic personalities” for a narrower range of conditions that he characterized as chronic and constitutional in origin. These included impulse control problems, sexual perversions, obsessional syndromes, and other “degenerative” personalities. Included among the last of these conditions were four groups of individuals who would be regarded as antisocial and/or psychopathic according to current definitions: (1) “morbid liars and swindlers” (charming, deceitful, fraudulent, and lacking in loyalty to others); (2) “criminals by impulse” (driven by impulsive urges to commit crimes such as theft, fire setting, and sexual assault); (3) “professional criminals” (deliberately calculating and self-serving); and (4) “morbid vagabonds” (inadequate, aimless, and irresponsible). In the next (eighth) edition of his text, Kraepelin (1915) revised his typology of pathological personalities, dropping the “professional criminal” subgroup and adding four other types: excitable, eccentric, antisocial, and quarrelsome. The latter two of these (marked by callousness, destructiveness and alienation-hostility, respectively) intersect most clearly with modern conceptualizations of antisocial personality.

Adolf Meyer (1904) introduced these German conceptualizations to the American psychiatric community. Following Koch, Meyer used the term “constitutional inferiority” to describe what he regarded as chronic characterological disorders. However, in contrast with Koch (but like Kraepelin), he explicitly excluded neurotic conditions from this class of disorder. The distinction Meyer drew between these chronic syndromes and neurotic conditions persisted in American psychiatric circles, but his descriptive label for the former (“constitutional inferiority”) was superseded in time by Kraepelin’s more evocatively neutral term, “psychopathic
personality.” The term “sociopathic” was introduced by the German psychiatrist Karl Birnbaum (1909) as a challenge to Kraepelin’s characterization of these chronic conditions as constitutional in origin. Birnbaum was part of a revisionist movement, persisting through the 1930s, that viewed most forms of mental disorder (including so-called “psychopathic personalities”) as arising primarily from social-environmental factors. However, despite reflecting fundamentally different perspectives on etiology, the terms psychopathic and sociopathic came to be used interchangeably over time (e.g., whereas Cleckley [1941, 1976] preferred the term “psychopathic personality,” the first edition of the Diagnostic and Statistical Manual of Mental Disorders [DSM], published by the American Psychiatric Association [APA] in 1952, employed the term “sociopathic personality disturbance”.)

Influential figures in this area during the 1920s and 1930s included Kurt Schneider (in Germany) and Eugen Kahn (in America). Both espoused a decidedly broad perspective on the construct of psychopathy. In the third edition of his volume Die Psychopathischen Persönlichkeiten (“The Psychopathic Personalities”; 1934), Schneider identified 10 distinctive subtypes of psychopaths, several of which (e.g., “hyperthymic,” “depressive,” “insecure,” and “asthenic”) fall clearly outside modern conceptualizations of psychopathy and antisocial personality. Likewise, Kahn’s (1931) list of psychopathic subgroups (16 in all) included several patently neurotic conditions (e.g., “nervous,” “anxious,” “sensitive,” “depressive”), as well as other assorted types that bear minimal resemblance to contemporary notions of psychopathy or APD (e.g., “compulsive,” “moody,” “sexually perverse,” “eccentric”).

Cleckley’s “Mask of Sanity”

American psychiatrist Hervey Cleckley countered this historical inclination toward diagnostic overinclusiveness with the publication of his seminal volume The Mask of Sanity, which appeared in its initial edition in 1941. Drawing on his own clinical experiences with patients at the Veteran’s Administration Hospital in Augusta, Georgia—one of the largest psychiatric hospitals in the United States at the time his book was written—Cleckley presented a variety of vivid case examples to illustrate the personality and behavioral characteristics of individuals he viewed as psychopathic. In contrast with prior writers who defined “psychopathic personality” as a term encompassing various forms of delinquency, impulse control problems, addictions, and sexual deviations (as well as, in some cases, neurotic conditions and organic brain syndromes), Cleckley explicitly rejected this broad conceptualization. Instead, he characterized psychopathy as a highly distinctive clinical syndrome with a unique underlying etiology, which he regarded as affective in nature (i.e., a core deficit in emotional reactivity). Based on the material provided in his case descriptions, Cleckley proposed a list of 16 specific criteria he believed could be used to identify psychopathic individuals.
Antisocial Personality Disorder and Psychopathy

Perhaps the most essential element in Cleckley’s conceptualization, embodied in the title of his book, is the idea that psychopathy entails the juxtaposition of severe underlying pathology against the overt appearance of robust mental health. In contrast with other psychiatric patients who present as confused, agitated, dysphoric, withdrawn, or otherwise disturbed, psychopaths appear poised, sociable, and generally well adjusted upon initial contact. It is only through ongoing observation across a range of situations that the psychopath’s characteristic deviancy becomes evident. Table 6.1 illustrates this by organizing Cleckley’s (1976) 16 diagnostic criteria for psychopathy into three distinctive categories. The first category consists of indicators of positive psychological adjustment (i.e., good intelligence and social charm, absence of delusions/irrationality, absence of nervousness, and suicide rarely carried out). With these indicators, Cleckley was referring not merely to the absence of salient mental disturbance but also to the presence of resiliency and good adjustment:

The surface of the psychopath . . . shows up as equal to or better than normal and gives no hint at all of a disorder within. Nothing about him suggests oddness, inadequacy, or moral frailty. His mask is that of robust mental health. (p. 383)

Table 6.1 Cleckley’s (1976) 16 diagnostic criteria for psychopathy, grouped by conceptual category

<table>
<thead>
<tr>
<th>Conceptual Category</th>
<th>Criterion Number and Label</th>
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<tbody>
<tr>
<td>Positive adjustment</td>
<td>1. Superficial charm and good “intelligence”</td>
</tr>
<tr>
<td></td>
<td>2. Absence of delusions and other signs of irrational thinking</td>
</tr>
<tr>
<td></td>
<td>3. Absence of “nervousness” or psychoneurotic manifestations</td>
</tr>
<tr>
<td></td>
<td>14. Suicide rarely carried out</td>
</tr>
<tr>
<td>Chronic behavioral deviance</td>
<td>7. Inadequately motivated antisocial behavior</td>
</tr>
<tr>
<td></td>
<td>8. Poor judgment and failure to learn by experience</td>
</tr>
<tr>
<td></td>
<td>4. Unreliability</td>
</tr>
<tr>
<td></td>
<td>13. Fantastic and uninviting behavior with drink and sometimes</td>
</tr>
<tr>
<td></td>
<td>15. Sex life impersonal, trivial, and poorly integrated</td>
</tr>
<tr>
<td></td>
<td>16. Failure to follow any life plan</td>
</tr>
<tr>
<td>Emotional-interpersonal deficits</td>
<td>5. Untruthfulness and insincerity</td>
</tr>
<tr>
<td></td>
<td>6. Lack of remorse or shame</td>
</tr>
<tr>
<td></td>
<td>10. General poverty in major affective reactions</td>
</tr>
<tr>
<td></td>
<td>9. Pathologic egocentricity and incapacity for love</td>
</tr>
<tr>
<td></td>
<td>11. Specific loss of insight</td>
</tr>
<tr>
<td></td>
<td>12. Unresponsiveness in general interpersonal relations</td>
</tr>
</tbody>
</table>
However, at odds with this outward appearance of good mental health is the presence of severe behavioral maladjustment: “Yet he has a disorder that often manifests itself in conduct far more seriously abnormal than that of the schizophrenic” (Cleckley, 1976, p. 383).

The psychopath, however perfectly he mimics man theoretically, that is to say, when he speaks for himself in words, fails altogether when he is put into the practice of actual living. His failure is so complete and so dramatic that it is difficult to see how such a failure could be achieved by anyone less defective than a downright madman. (p. 370)

In Cleckley’s diagnostic scheme, this component of the syndrome is captured by indicators of manifest behavioral deviance (see Table 6.1, second section), including impulsive antisocial acts, irresponsibility (unreliability), promiscuity, and an absence of any clear life plan. In addition to items reflecting positive psychological adjustment and overt behavioral deviance, Cleckley’s criteria for psychopathy included a third category reflecting the emotional underresponsiveness and absence of genuine social relationships that he viewed as central to the disorder.

Cleckley’s conceptualization of psychopathy was influential because he provided a precise definition of the syndrome that had been lacking to that point in history. His vivid case illustrations persuaded even the casual reader that the clinical entity he was describing truly existed; practitioners in psychiatric and forensic settings who routinely encountered individuals of this type could readily identify with his account of the disorder. His conceptualization placed core emphasis on the emotional-interpersonal features that distinguished psychopathic individuals from other criminal and antisocial types. Thus along with descriptions of psychopaths who engaged regularly in antisocial acts and experienced frequent encounters with the law, Cleckley presented examples of “successful psychopaths” who maintained careers as scholars, physicians, and businessmen. Cleckley’s view was that the presence of the core underlying emotional-interpersonal deviation was more important in defining the presence of the disorder than marked antisocial deviance.²

Moreover, Cleckley’s 16 diagnostic criteria for psychopathy (derived directly from his case descriptions) provided an objective means of identifying the disorder that made it amenable to systematic empirical study. David Lykken’s (1957) pioneering study of anxiety responses in psychopaths employed Cleckley’s criteria as the basis for diagnoses, as did Robert Hare’s seminal investigations beginning in the early 1960s. Cleckley’s conceptualization remains highly influential to the present day because it served as the foundation for Hare’s Psychopathy Checklist—Revised (PCL-R; Hare, 1991, 2003), which has become the dominant assessment instrument for the diagnosis of psychopathy in research studies as well as for clinical assessment. However, it be should be noted that the PCL-R appears to depart importantly from Cleckley’s conceptualization, particularly because it omits
Antisocial Personality Disorder and Psychopathy

direct indicators of good mental health. This point is discussed in further detail later.

Emergence of the Concept of Antisocial Personality Disorder

The roots of the modern psychiatric concept of APD can be traced to the first edition of the DSM (DSM-I; APA, 1952). The formal classification system for psychiatric disorders embodied in the DSM grew out of efforts by the federal government to develop statistics for illness and death among residents of mental hospitals in the United States. DSM-I was modeled loosely after the sixth revision of the International Classification of Diseases (ICD; World Health Organization, 1948), which for the first time included a section devoted to the classification of mental disorders. This initial edition of the DSM contained a category of mental disorders termed “sociopathic personality disturbance”; following earlier conceptualizations of psychopathy, this designation included a broad range of syndromes encompassing sexual deviations of various kinds, addictions, and delinquency. Included among the disorders in this category was a syndrome referred to as “sociopathic personality disturbance: antisocial reaction,” intended to capture the aggressive, criminally deviant individual who repeatedly violates the norms and laws of society. (The use of the term “reaction” throughout DSM-I is attributable to the lingering influence of Adolph Meyer, who viewed mental disorders as reactions of the personality to biological, social, and psychological factors.)

The second edition of the DSM (APA, 1968) was developed to align more closely with the version of the ICD in place at that time, ICD-8. In DSM-II, the term “reaction” was eliminated as a descriptor for disorders. Sexual deviations, addictions, and delinquent personality types were grouped under a category entitled “Personality Disorders and Certain Other Non-Psychotic Mental Disorders.” Within this category, the term “antisocial personality” was used for a syndrome corresponding to psychopathy. The diagnostic features of the syndrome closely resembled those proposed by Cleckley and included weak socialization, incapacity for loyalty, selfishness, callousness, irresponsibility, and absence of guilt. A serious limitation of DSM-II (as of DSM-I) was that the basis for diagnostic classifications consisted of prototypical descriptions of each disorder rather than specific, behavior-oriented diagnostic criteria. As a result, the reliability of clinical and research diagnostic classifications using DSM-II was generally poor.

The problem of diagnostic reliability was confronted in the next edition of the DSM, DSM-III (APA, 1980), by the development of more explicit, behavior-oriented criterion sets for disorders patterned after those developed for use in research studies by Feighner et al. (1972) and Spitzer, Endicott, and Robins (1978). The criteria for antisocial personality disorder in the DSM-III were strongly influenced by the work of Lee Robins (1966), who conducted
groundbreaking research on the development of "sociopathy" by following up a large sample of individuals (N = 524) seen as children in a treatment clinic for juvenile delinquents. Following Cleckley, Robins's initial criteria for sociopathy included items relating to lack of guilt, remorse, and shame, but (due in part to problems in assessing them reliably) these criteria failed to differentiate significantly between sociopaths and nonsociopaths in her study, and thus were discarded as indicators in the criterion sets developed subsequently by Feighner et al. and Spitzer et al. Consequently, the criteria for APD adopted within DSM-III focused exclusively on behavioral indicants of deviance in childhood and adulthood, including such things as truancy, delinquency, stealing, vandalism, irresponsibility, aggressiveness, impulsivity, recklessness, and lying. As a function of this change, the DSM-III diagnosis of antisocial personality proved to be highly reliable. Nevertheless, influential investigators in the area (e.g., Frances, 1980; Hare, 1983; Millon, 1981) were quick to challenge the diagnostic validity of the DSM-III criteria for APD on the grounds that they excluded many of the features Cleckley deemed central to psychopathy, including superficial charm, absence of anxiety, lack of remorse or empathy, and general poverty of affect. Some effort was made to respond to these criticisms in the revised third edition of the DSM (DSM-III-R; APA, 1987) by the addition of lack of remorse (i.e., "feels justified in having hurt, mistreated, or stolen from another," p. 346) as an adult criterion for APD. Some changes were also made in the child criteria for APD (i.e., conduct disorder component) in DSM-III-R, but these changes did not affect the representation of "core features" of psychopathy in the APD criterion set (i.e., in DSM-III-R, as in DSM-III, all of the child criteria remained focused on overt behavioral deviance).

As part of the groundwork for DSM-IV (APA, 1994), specialized field trials were conducted to evaluate proposed revisions to the criterion sets for various disorders. One of these (Widiger et al., 1996) focused on APD. Two proposals were evaluated in the field trial for APD, one entailing increased representation of core affective-interpersonal features of psychopathy (e.g., lack of empathy, inflated self-appraisal, glib/superficial interactive style) in the criteria for APD, and the other involving simplification of the existing criterion set without substantial changes to the diagnosis. Diagnostic data from four major clinical samples (inpatients at a general psychiatric institution; drug treatment and homeless shelter residents; methadone maintenance program outpatients; and incarcerated offenders) were examined, consisting of scores on the existing DSM-III-R criteria along with scores on two alternative criterion sets that provided greater coverage of affective-interpersonal features: a shortened (10-item) version of Hare's (1991) PCL-R, and the research criteria for "dysocial personality disorder" developed for ICD-10. The field trial data revealed high correspondence among diagnoses based on the three criterion sets for all samples except the prison sample, where the PCL-R criterion set showed some evidence of incremental validity over the other two criterion sets in predicting psychopathy-related variables. However, it was concluded that enhanced validity within this one specific
sociopathy" by following up a group of patients in a treatment clinic for initial criteria for sociopathy, but due to the small sample size, this was not sufficient to warrant a major shift in the criteria for APD, and consequently, changes based on this field trial were limited to simplification of the adult indicators. Specifically, two indicators ("parental irresponsibility" and "failure to sustain a monogamous relationship") were dropped, and two others ("employment-related irresponsibility" and "financial irresponsibility") were combined into a single "irresponsibility" item, resulting in a reduction of the number of adult indicators from 10 in DSM-III-R to seven in DSM-IV. In addition, some minor changes in the child criteria for APD were instituted based on the results of a separate field trial for conduct disorder (e.g., two items, "staying out at night" and "intimidating others" were added, resulting in 15 indicators in DSM-IV versus 13 in DSM-III-R).

Thus, due to the field trial results, no effort was made to increase the representation of core affective-interpersonal features of psychopathy in the criteria for APD in DSM-IV. As a result of this decision, criticisms of the construct validity of the APD criteria by investigators in the psychopathy area have persisted (e.g., Hare & Hart, 1995). The issue of the correspondence between the construct of APD within DSM-IV and the construct of psychopathy embodied in Hare's (1991, 2003) PCL-R is discussed more in subsequent sections.

The DSM Construct of Antisocial Personality Disorder

Clinical Features

Table 6.2 summarizes the diagnostic criteria for APD listed in the text revision of DSM-IV (DSM-IV-TR; APA, 2000), the most recent version of the DSM. Like the criteria for the other disorders in the DSM, the criteria for APD are polythetic—meaning that individuals can achieve a diagnosis of APD in different ways, as long as they meet the criteria for inclusion (i.e., current age at least 18, occurrence of antisocial behavior not limited to episodes of mania or schizophrenic psychosis) and fulfill a sufficient number of the designated child and adult criteria for the disorder (i.e., three or more of 15 possible symptoms of child conduct disorder before age 15, leading to significant social, academic, or occupational impairment, and three or more of seven possible adult features since age 15).

As indicated in Table 6.2, the child criteria for APD include aggressive and destructive behaviors on one hand, and deceitfulness/theft and nonaggressive rule breaking on the other. Formal factor-analytic investigations of the structure of the child APD criteria (e.g., Frick et al., 1991; Tackett, Krueger, Sawyer, & Gratz, 2003) have confirmed that the aggressive and nonaggressive indicators define separate, albeit correlated, factors. Tackett et al. (2003) reported that these two conduct disorder factors showed discriminative associations with...
Table 6.2 Diagnostic criteria for DSM-IV-TR antisocial personality disorder

<table>
<thead>
<tr>
<th>Criterion Category</th>
<th>Summary Description of Criterion</th>
</tr>
</thead>
</table>
| A. Adult antisocial behavior (3 or more of the following since age 15): | 1. Repeated participation in illegal acts  
2. Deceitfulness  
3. Impulsiveness or failure to make plans in advance  
4. Hostile-aggressive behavior  
5. Engagement in actions that endanger self or others  
6. Frequent irresponsible behavior  
7. Absence of remorse |
| B. Age criterion | Current age at least 18 |
| C. Child conduct disorder (3 or more of the following before age 15, resulting in impaired social, academic, or occupational function): | Aggression toward people or animals:  
1. Frequent bullying, threatening, or intimidation of others  
2. Frequent initiation of physical fights  
3. Use of dangerous weapons  
4. Physical cruelty toward people  
5. Physical cruelty toward animals  
6. Theft involving victim confrontation  
7. Forced sexual contact  
Destruction of property:  
8. Deliberate fire setting with intent to cause damage  
9. Deliberate destruction of property  
Deceptiveness or stealing:  
10. Breaking/entering (house, building, or vehicle)  
11. Frequent lying to acquire things or to avoid duties  
12. Nontrivial theft without victim confrontation  
Serious rule violations:  
13. Frequent violations of parental curfew, starting before age 13  
14. Running away from home  
15. Frequent truancy, starting before age 13 |
| D. Comorbidity criterion | Antisocial behavior does not occur exclusively during episodes of schizophrenia or mania |

SOURCE: Based on information from the American Psychiatric Association, 2000.

aggressive behavior syndrome and delinquent behavior syndrome, respectively, as defined by scores on the Child Behavior Checklist (Achenbach, 1991).

An implication of this work is that there may be distinct variants of child antisocial deviance with different etiologic underpinnings. Along these lines, Moffitt (1993) proposed a distinction between adolescence-limited and life course-persistent subgroups of delinquent individuals. The former was distinguished by a later onset and predominantly nonaggressive forms of deviancy and rule breaking, the latter by early age of onset, aggressive-destructive as well as nonaggressive delinquent behaviors, and continuation of child and adolescent deviancy into adulthood. Moffitt postulated that the early-onset, aggressive
subtype of delinquency may have a stronger underlying neurobiological basis (see also Lynam, 1997). Recently, Tackett, Krueger, Iacono, and McGue (2005) reexamined the structure of conduct disorder symptoms in a large sample of male twins recruited from the community, permitting an analysis of differential etiologic contributions to aggressive versus nonaggressive subfactors. The results of this analysis indicated that these two components of conduct disorder have common as well as distinctive etiologic underpinnings. Additive genetic influences and nonshared environment (i.e., experiences unique to the individual) contributed significantly to both components, the proportion of symptom variance attributable to genes being somewhat higher for the aggressive component (35%) than for the nonaggressive component (28%). In addition, a significant contribution of shared environment (i.e., environmental influences common to two siblings growing up in the same household) was found for the nonaggressive component only.

The adult criteria for APD include one specific indicator of aggression (irritability and aggressiveness), three clearly nonaggressive indicators (deceitfulness, impulsivity, and irresponsibility), and three nonspecific indicators (failure to conform to norms with respect to lawful behaviors, reckless disregard for safety of self or others, and lack of remorse). Perhaps because the adult APD criteria do not divide as readily into aggressive and nonaggressive indicators, no parallel factor-analytic work has been done to examine the extent to which distinctive components of this sort underlie adult indicators of APD. Nonetheless, there is evidence in the literature that aggressive forms of adult antisocial behavior have unique neurobiological correlates. For example, a number of published studies have reported evidence of reduced levels of the neurotransmitter serotonin (indexed by concentrations of the serotonin metabolite 5-hydroxyindoleacetic acid [5-HIAA] in cerebrospinal fluid) in antisocial individuals who exhibit severe episodes of impulsive aggressive behavior (e.g., Linnoila et al., 1983; Virkkunen et al., 1994; for a review, see Minzenberg & Siever, 2006). Evidence of reduced brain serotonin has also been reported in antisocial individuals who engage in impulsive suicidal acts (Linnoila & Virkkunen, 1992), which have been conceptualized as an alternative, self-directed expression of impulsive aggressive tendencies (Verona & Patrick, 2000).

The evidence for distinctive correlates of aggressive deviancy suggests that it may be fruitful to examine the structure of adult indicators of antisocial personality, as has been done with indicators of child conduct disorder. To achieve this goal, it would be necessary to partition symptoms of adult antisocial deviance more clearly into aggressive and nonaggressive types and to have multiple indicators of each, which would necessitate some departure from the current DSM-IV-TR criterion set (e.g., failure to abide by laws could be parsed into offenses of a violent versus nonviolent nature; different expressions of irritability/aggressiveness could be scored as separate indicators). If adult antisocial deviance were found to comprise distinctive aggressive and nonaggressive facets, as appears to be the case for child conduct disorder, it would be interesting to explore (particularly in a
longitudinal sample) the stability of each of these facets from childhood to adulthood. For example, it might be hypothesized that the aggressive facet would evidence greater stability across time (cf. Moffit, 1993).

Prevalence

The prevalence of APD in the general community is estimated to be about 2%, with rates for men (3%) substantially exceeding those for women (1%; APA, 2000). The gender difference in the prevalence of APD is an intriguing but unresolved issue. One perspective is that gender role stereotypes and socialization pressures account for the difference (i.e., men, by sociohistoric tradition, are expected and encouraged by society to be more aggressive and adventurous, leading to a higher rate of deviance in the form of APD). Another is that the difference in APD prevalence reflects basic biologically rooted differences between women and men in trait dispositions that promote the occurrence of antisocial deviance in people. The ecumenical stance, of course, would be that both factors play a role. Further research, including genetics studies of gender-related differences in traits and affiliated behaviors, may allow us to determine which of these positions, if either, is more substantially correct. Interestingly, despite well-documented differences in arrest rates for individuals from different ethnic groups, robust differences in rates of APD have not been found across ethnic groups in epidemiological studies. For example, the Epidemiological Catchment Area (ECA) study (Robins & Regier, 1991) found no significant differences in the prevalence of APD (diagnosed according to DSM-III criteria) across White, African-American, and Hispanic groups.

The prevalence of APD in clinical settings tends to be substantially higher than in the community at large, particularly within correctional and forensic settings, where estimated base rates run as high as 50% to 80% (Hare, 2003). The very high rate base rate in forensic settings highlights one of the major criticisms that has been leveled against the APD diagnostic criteria, namely, that they are biased so heavily toward criminally deviant behaviors that most individuals who run into serious trouble with the law will be diagnosed with APD, even though such individuals vary widely in the expression of their deviance and in the underlying bases for it. From this perspective, APD is a "wastebasket" category into which various sorts of deviant individuals are placed. However, recent evidence suggests that this position is too extreme. An alternative perspective is that APD reflects in part the influence of a broad trait factor that determines general risk for a variety of impulse control problems, along with other specific etiologic influences that determine the precise expression of risk in particular individuals (Krueger et al., 2002; Krueger, Markon, Patrick, & Iacono, 2005). From this perspective, some individuals will develop APD largely because they have a high general vulnerability to impulse control problems, whereas others will
develop APD primarily as a function of unique environmental experiences (e.g., early abuse, deviant peers) that promote the occurrence of antisocial behavior. Individuals of the former sort will tend to show an earlier age of onset of behavioral deviance, greater impulsive aggressive tendencies, and a higher prevalence of comorbid impulse control problems of other types (e.g., alcohol and drug problems).

Comorbidity With Other DSM Disorders

APD shows well-documented patterns of comorbidity with other disorders in the DSM, most notably substance use disorders. In the ECA study (Robins & Regier, 1991), the base rate of substance use disorders (of any type) among individuals diagnosed with APD exceeded 80%. Earlier studies employing DSM-III criteria reported similar high rates of alcohol and drug problems among individuals diagnosed with APD (e.g., Koenigsberg, Kaplan, Gilmore, & Cooper, 1985; Lewis, Rice, & Helzer, 1983). APD has also been shown to be associated with greatly enhanced risk for alcohol and drug use disorders in a number of more recent comorbidity studies (Grant et al., 2004; Kessler & Walters, 2002; Skodol, Oldham, & Gallaheer, 1999).

The fact that substance use disorders co-occur with APD to a much greater extent than might be expected if each occurred by chance, given their respective population prevalence rates, implies that something systematic underlies the association between the two. This hypothesis has been confirmed by recent factor-analytic investigations of the diagnostic overlap among common disorders within the DSM. For example, employing diagnostic data from the National Comorbidity Survey (Kessler et al., 1994), Krueger (1999a) reported evidence for two broad factors underlying the most common Axis I disorders: an “externalizing” factor encompassing APD, alcohol dependence, and drug dependence, and an “internalizing” dimension encapsulating the mood and anxiety disorders (see also Krueger, Caspi, Moffitt, & Silva, 1998; Vollebergh, Iedema, Bijl, de Graaf, Smit, & Ormel, 2001). One possible explanation for the systematic association between APD and substance use disorders is that it reflects overlap between the criteria for the two types of disorders. For example, it could be argued that some of the behaviors that define APD (e.g., irresponsibility, recklessness, aggressiveness) are common sequelae of alcohol or drug abuse, so that increased rates of such behaviors would be expected among individuals with substance use problems. However, this seems unlikely to explain the systematic association between APD and substance use disorders. For one thing, the onset of APD typically precedes that of substance use problems in cases where the two are comorbid. In addition, the relationship between APD and substance abuse problems is asymmetric, due to the higher population prevalence of the latter—that is, whereas most individuals diagnosed
with APD also show evidence of substance use disorders, the majority of individuals from the general community diagnosed with substance abuse or dependence do not meet criteria for APD.

Another possibility is that APD and substance use problems arise from a common diathesis—i.e., a common underlying trait factor that predisposes individuals toward the development of both types of disorders. Consistent with this possibility, behavior genetics (twin) studies have revealed evidence of shared genetic factors underlying APD and substance use disorders (e.g., Grove et al., 1990; Pickens, Sikis, McGue, & LaBuda, 1995; Slutske et al., 1998). More recent quantitative analyses of etiologic factors contributing to the broad externalizing factor representing the systematic covariance among these disorders have revealed that this factor is substantially heritable (Kendler, Prescott, Myers, & Neale, 2003; Krueger et al., 2002; Young, Stallings, Corley, Krauter, & Hewitt, 2000). This work is described in more detail below.

**Personality Correlates**

Two personality trait variables in particular, represented in various models of personality, have been shown to be related to APD. One is impulsiveness, represented in the five-factor model (FFM; Digman, 1990) by the conscientiousness factor (reversed) and in Tellegen’s (in press) Multidimensional Personality Questionnaire (MPQ) model by the higher-order factor of constraint (reversed). The other is aggressiveness, represented in the FFM by the agreeableness factor (reversed) and in the MPQ by the lower-order trait of aggression. For example, within a sample of adult psychiatric patients (N = 54), Trull (1992) reported significant correlations of −.32 and −.36, respectively, between symptoms of APD assessed by means of clinical interview and scores on the conscientiousness and agreeableness factors of the FFM assessed concurrently by the NEO Personality Inventory (NEO-PI; Costa & McCrae, 1985). Krueger (1999b) reported that, in a community epidemiological sample consisting of young adults (N = 961), scores on the MPQ higher-order factors of constraint and negative emotionality (the aggression facet of the latter, in particular) assessed at age 18 predicted diagnoses and symptoms of APD assessed via interview at age 21, even after controlling for the presence of APD at age 18. Notably, these same personality variables (impulsivity and aggression) show reliable associations with substance use disorders (Acton, 2003; Casillas & Clark, 2002; Krueger, 1999b; Lynam, Leukefeld, & Clayton, 2003; Sher, Bartholow, & Wood, 2000; Slutske et al., 2002; Trull & Sher, 1994).

These relations between personality trait variables and psychopathological syndromes have been interpreted in various ways. One perspective is that traits indexed by personality scales reflect basic individual-difference processes from which mental disorder symptoms arise; another is that deviations in personality emerge as a consequence of psychopathology (for a discussion of these perspectives, see Widiger, Verheul, & van den Brink, 1999). A third perspective is that psychopathological symptoms and personality trait variables
disorders, the majority of those problems arise from a single factor that predisposes disorders. Consistent with previous research, there is evidence of comorbidity among these disorders (Kendler, Prescott, tallings, Corley, Krauter, et al., 2001).

One is impulsiveness, (1990) by the conscientiousness Multidimensional lower-order factor of con- trolled in the FFM by the the lower-order trait in psychiatric patients PTSD scores of -.32 and -.36, means of clinical inter- bleness factors of the PI (NEO-PI; that, in a community = 961), scores on the extraverted emotionality (the age 18 predicted diag- 21, even after controlling for same personality associations with sub- 02; Krueger, 1999b; w, & Wood, 2000; d psychopathological perspective is that traits arise from processes from deviations in personal- discussion of these 1999). A third per- nality trait variables correlate with one another because they are indicators of a shared underlying (latent) individual differences factor. With regard to APD and substance dependence, this perspective would suggest that these disorders are related to one another and in turn to personality traits of impulsivity and aggression because all of these variables are manifest indicators of a shared underlying externalizing factor. Krueger et al. (2002) evaluated this hypothesis for the broad MPQ factor of constraint by including this personality variable along with child and adult symptoms of APD and alcohol and drug dependence symptoms in a joint-factor analysis. Consistent with the aforementioned hypothesis, the analysis revealed the presence of a single latent factor on which constraint loaded significantly together with all four symptom variables.

Krueger, Markon, Patrick, Benning, and Kramer (in press) extended this work by undertaking a fine-grained analysis of traits and problem behaviors within the domain of externalizing psychopathology to elucidate the scope and structure of this spectrum more fully. They began by identifying various constructs embodied in the DSM definitions of the disorders included in the Krueger et al. (2002) analysis, then developed self-report items to tap these constructs. They also surveyed the literature to identify other behavioral and trait constructs related empirically or conceptually to externalizing psychopathology and developed additional items to index these constructs. Across multiple rounds of data collection and analysis, item response modeling and factor analysis were used to refine the overall item set and thereby clarify the nature of constructs associated with the broad externalizing factor.

Employing this strategy, Krueger et al. (in press) arrived at a final set of 23 constructs, each operationalized by a unique subscale. These constructs included alcohol, drug, and marijuana use and problems; aggression of various sorts; impulsiveness; irresponsibility; rebelliousness; excitement seeking; and blame externalization. Structural analyses of these 23 subscales yielded evidence of one broad superordinate factor ("externalizing") on which all subscales loaded (the strongest indicators being "irresponsibility" and "problematic impulsivity") and two subordinate factors accounting for residual variance in specific subscales—one factor marked by subscales indexing aggression (all forms), callousness, and excitement seeking, and the other marked by subscales indexing substance-related problems. These findings provide support for the idea that problem behaviors and affiliated personality traits within this domain are indicators of a shared underlying factor (externalizing). In addition, consistent with results emerging from structural analyses of the child (conduct disorder) criteria for APD, this more comprehensive analysis of constructs within the externalizing domain revealed evidence of distinctive aggressive and nonaggressive expressions of this general factor.

Neurobiological Correlates

A variety of neurobiological correlates of APD have been identified. For example, as noted earlier, antisocial individuals—in particular, those displaying
impulsive aggressive behavior—show evidence of reduced levels of the neurotransmitter serotonin in the brain. Other research has consistently demonstrated that low resting heart rate is a correlate of antisocial deviance (Ortiz & Raine, 2004; Raine, 1993, 2002). Indeed, prospective studies have reliably found that low resting heart rate in childhood and adolescence predicts antisocial behavior in adulthood (e.g., Malphant, Hume & Furnham, 1990; Raine & Venables, 1984; Wadsworth, 1976; for a review, see Ortiz & Raine, 2004). This robust association with low resting heart rate has been interpreted as indicating that general physiological hyperarousal represents an underlying risk factor for antisocial behavior (Raine, 1993, 2002)—because it promotes sensation seeking behavior as a means to enhancing arousal (Eysenck, 1967; Zuckerman, 1979).


There is also evidence that reduced amplitude of the P300 brain potential response, long known to be an indicator of risk for alcohol problems (Polich, Pollock, & Bloom, 1994), may be a marker of externalizing problems more generally, including APD. A number of studies have reported evidence of reduced P300 brain response amplitude in individuals with APD (Bauer, Hesselbrock, O'Conor, & Roberts, 1994; Bauer, O'Connor, & Hesselbrock, 1994; Costa et al., 2000; Iacono, Carlson, Malone, & McGue, 2002). Reduced P300 response amplitude has also been found in individuals with other impulse control problems, including nicotine dependence (Anokhin et al., 2000; Iacono et al., 2002), child conduct disorder (Bauer & Hesselbrock, 1999a, 1999b, 2002; Kim, Kim, & Kwon, 2001), and attention deficit hyperactivity disorder (Johnstone & Barry, 1996; Klorman, 1991). The implication is that reduced P300 amplitude could be an indicator of the general externalizing factor that these disorders share.

Patrick, Bernat, Malone, and their colleagues (2006) evaluated this possibility in a sample of 969 males recruited from the community by examining the association between reduced P300 amplitude and scores on the externalizing factor, defined as the primary component derived from a principal-components analysis of symptoms of various DSM-III-R impulse control disorders (i.e., conduct disorder, adult antisocial behavior, and alcohol, drug, and nicotine dependence). These investigators found a highly significant negative association between scores on the externalizing factor and P300 brain response amplitude (i.e., higher externalizing scores, reflecting more severe symptoms of a greater number of impulse problems, were associated with smaller P300
Antisocial Personality Disorder and Psychopathy

Amplitude. Moreover, significant associations between each individual diagnostic variable and P300 amplitude were accounted for entirely by the externalizing factor—that is, after controlling for scores on this common factor, all associations for individual disorders dropped to nonsignificance. These results suggest that the relationship that has been demonstrated between APD and P300 response may reflect the influence of this broad externalizing factor, which accounts for a sizable portion of the variance in APD.

Etiologic Perspectives on Antisocial Personality Disorder

A variety of etiologic models of APD have been proposed, some of them based on the aforementioned neurobiological findings (for reviews, see Raine, 1993; Zuckerman, 1999). Most of these models focus on the underpinnings of APD as a distinctive syndrome, without considering its relations to other forms of psychopathology (e.g., substance use disorders). However, recent efforts have been made to develop integrative etiologic models that accommodate APD’s associations with other disorders and distinctive personality traits by conceptualizing APD as one facet of a broader spectrum of traits and problem behaviors. An example of this is the hierarchical spectrum model proposed by Krueger and his colleagues (2002).

The essence of the hierarchical spectrum model is that there is a broad dispositional factor that disorders within a spectrum share, along with unique etiologic influences that determine the unique symptomatic expression of each disorder. The database on which the model was based consisted of symptom scores on four diagnostic variables (child conduct disorder, adult antisocial behavior, alcohol dependence, and drug dependence), along with a trait measure of impulsiveness (the constraint factor of the MPQ) for a sample of male and female twins recruited from the community (N = 1,048). A biometric structural analysis revealed a large common factor (“externalizing”) on which all of these diagnostic variables loaded substantially (.58-.78); more than 80% of the variance in this common factor was attributable to additive genetic influence (see also Kendler et al., 2003; Young et al., 2000). The remaining variance in each disorder not accounted for by the broad externalizing factor was attributable primarily to nonshared environmental influence—although for conduct disorder there was also a significant contribution of shared environment.

Based on these findings, Krueger et al. (2002) proposed that a general constitutional factor contributes to the development of various disorders in this spectrum, but that the precise expression of this underlying vulnerability (i.e., as antisocial deviance of different kinds, or as alcohol or drug problems) is determined by disorder-specific etiologic influences. Although the analysis pointed to unique environmental experience as the main determinant of diagnostic specificity (with some contribution of family environment for conduct disorder), owing to the somewhat modest sample size and large
confidence intervals around parameters in the model reflecting unique etiologic contributions to specific syndromes, the authors allowed for the possibility that specific genetic factors also contribute to the uniqueness of these disorders. Indeed, Kendler et al. (2003) presented evidence for this possibility in a subsequent study. As noted above, Krueger et al. (in press) extended the work of Krueger et al. (2002) by providing a more comprehensive analysis of traits and problem behaviors within the externalizing spectrum. However, an etiologic analysis of this newer, more comprehensive model remains to be undertaken. In particular, it will be important to evaluate differences in etiologic contributions to the two subordinate factors identified by Krueger et al. (in press) in comparison with those for the broad externalizing factor. (For a discussion of possible neurobiological mechanisms, see Patrick & Bernat, 2006.)

Psychopathy: Current Conceptualizations and Empirical Findings

Hare's Psychopathy Checklist—Revised (PCL-R)

Description. The conceptualization that has dominated contemporary experimental research on psychopathy is the construct embodied in Hare's (1991, 2003) Psychopathy Checklist—Revised (PCL-R). The PCL-R was devised to identify incarcerated offenders who exemplify Cleckley's (1976) description of the psychopathic personality. It consists of 20 items (see Table 6.3), each rated on a 0–2 scale (absent, equivocal, or present) on the basis of information obtained from a semistructured interview and prison files. The standard PCL-R interview covers a range of topics, including education/schooling, employment, family background, relationships and children, criminal history, and drug and alcohol use. A number of questions are included to tap features such as grandiosity, lack of remorse, lack of empathy, shallow affectivity, and failure to accept responsibility for actions. The file review is performed to gather additional information as well as to corroborate information collected in the interview. The PCL-R manual (Hare, 2003) provides a narrative description of the sources and types of information to be used in the scoring of each item. Scores on the 20 individual items are summed to yield an overall psychopathy score, and total score cutoffs (Hare, 2003) are applied to designate individuals as psychopathic (total PCL-R score of 30 or higher), nonpsychopathic (total score of 20 or lower), or intermediate (total PCL-R score between 20 and 30). Overall scores on the PCL-R are highly reliable: for example, Hare (2003) reported pooled intraclass correlation coefficients (single rater) of .83 and .86 across seven male prisoner samples and across four male forensic psychiatric samples, respectively.

The original version of this instrument, the PCL (Hare, 1980), evolved out of a global rating system that drew directly on Cleckley's diagnostic criteria.
Personality Disorders

del reflecting unique etiological factors allowed for the possibility of the uniqueness of these evidence for this possibility. 

et al. (in press) extended a comprehensive analytical-externalizing spectrum. 

re comprehensive model important to evaluate discriminant factors identified et for the broad externalizing and internalizing models, see

Table 6.3 Items of the Psychopathy Checklist—Revised (PCL-R; Hare, 2003)

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Item Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Glibness/superficial charm¹,a</td>
</tr>
<tr>
<td>2</td>
<td>Grandiose sense of self-worth¹,a</td>
</tr>
<tr>
<td>3</td>
<td>Need for stimulation/proneness to boredom²,c</td>
</tr>
<tr>
<td>4</td>
<td>Pathological lying¹,a</td>
</tr>
<tr>
<td>5</td>
<td>Conning/ manipulative¹,a</td>
</tr>
<tr>
<td>6</td>
<td>Lack of remorse or guilt¹,b</td>
</tr>
<tr>
<td>7</td>
<td>Shallow affect¹,b</td>
</tr>
<tr>
<td>8</td>
<td>Callous/lack of empathy¹,b</td>
</tr>
<tr>
<td>9</td>
<td>Parasitic lifestyle²,e</td>
</tr>
<tr>
<td>10</td>
<td>Poor behavioral controls³,d</td>
</tr>
<tr>
<td>11</td>
<td>Promiscuous sexual behavior</td>
</tr>
<tr>
<td>12</td>
<td>Early behavior problems²,d</td>
</tr>
<tr>
<td>13</td>
<td>Lack of realistic, long-term goals³,e</td>
</tr>
<tr>
<td>14</td>
<td>Impulsivity²,e</td>
</tr>
<tr>
<td>15</td>
<td>Irresponsible behavior²,e</td>
</tr>
<tr>
<td>16</td>
<td>Failure to accept responsibility for own actions¹,b</td>
</tr>
<tr>
<td>17</td>
<td>Many short-term marital relationships</td>
</tr>
<tr>
<td>18</td>
<td>Juvenile delinquency³,d</td>
</tr>
<tr>
<td>19</td>
<td>Revocation of conditional release³,d</td>
</tr>
<tr>
<td>20</td>
<td>Criminal versatility³</td>
</tr>
</tbody>
</table>

¹Items comprising Factor 1 in the original two-factor PCL-R model (Harpur, Hakstian, & Hare, 1988). 
²Items comprising Factor 2 in the original two-factor PCL-R model (Harpur, Hakstian, & Hare, 1988). 
³Items comprising the interpersonal facet in the revised four-factor model (Hare, 2003); these same items comprise the arrogant and deceitful interpersonal style factor in the revised three-factor model (Cooke & Michie, 2001). 
⁴Items comprising the affective facet in the revised four-factor model (Hare, 2003); these same items comprise the deficient affective experience factor in the three-factor model (Cooke & Michie, 2001). 
⁵Items comprising the lifestyle facet in the revised four-factor model (Hare, 2003); these same items comprise the impulsive and irresponsible behavioral style factor in the revised three-factor model (Cooke & Michie, 2001). 
⁶Items comprising the antisocial facet in the revised four-factor model.

This global rating approach, a variant of one employed initially by Lykken (1957), was used for several years in experimental studies of incarcerated male offenders by Hare and his colleagues, beginning in the mid 1960s. Ratings from 1 to 7 were assigned by diagnosticians familiar with the history and behavior of the subject—with 1 signifying that the individual was definitely not a psychopath and 7 signifying that the individual clearly matched the Cleckley prototype description. Scores of 1–2 and 6–7, respectively, were used to assign individuals to nonpsychopathic and psychopathic groups for testing purposes. This global rating system proved to be quite reliable, but the aura of "subjectivity" surrounding it led to calls for a more systematic assessment procedure based on objective behavioral criteria. The strategy Hare took in developing the
PCL was to select items from a large list of candidate indicators that differentiated empirically between individuals assigned low and high scores on the initial global rating system. The original PCL item set comprised 22 items. In the subsequent revised version (Hare, 1991), two of those items ("previous diagnosis as a psychopath or similar" and "antisocial behavior not due to alcohol intoxication") were dropped, and the descriptions of the scoring criteria for the remaining 20 items were revised somewhat. The items and scoring criteria in the most recent (second) edition of the PCL-R (Hare, 2003) remain the same as they were in the first (1991) edition.

It is notable that the behavioral deviance features and emotional-interpersonal features described by Cleckley (Table 6.1, second and third sections) are well represented in the PCL-R. In contrast, the positive adjustment features (Table 6.1, first section) are not. Although it could be argued that the first part of Cleckley’s “superficial charm and good ‘intelligence’” criterion is captured by item 1 of the PCL-R ("glaciousness and superficial charm"), a comparison of the wording of Cleckley's criterion with that of PCL-R item 1 reveals a key difference. PCL-R item 1 includes reference to excessive talkativeness, insincerity, slickness, and a lack of believability in the target individual’s social presentation. Related to this, the instructions for scoring call for an intermediate rating of 1 in cases where the individual presents with a "macho" or "tough guy" image, whereas a rating of 0 is called for if the individual presents as sincere and straightforward. Thus, the emphasis is on a somewhat deviant ("too good to be true") or hypermasculine self-presentation. The wording of Cleckley’s (1976) criterion has a notably different flavor:

There is nothing at all odd or queer about him, and in every respect he tends to embody the concept of a well-adjusted, happy person. Nor does he, on the other hand, seem to be artificially exerting himself like one who is covering up or who wants to sell you a bill of goods . . . Signs of affectation or excessive affability are not characteristic. He looks like the real thing. (p. 339)

The inclusion of "good ‘intelligence’" (reflecting good sense, intact reasoning, and above average or superior intellect) as part of this diagnostic criterion reinforces the impression that Cleckley intended this to be an indicator of positive psychological adjustment.

What might account for the absence of pure indicators of adjustment among the items of the PCL-R? Although information in the PCL-R manual (Hare, 1991, 2003) and in the initial report on the development of the PCL (e.g., Hare, 1980) is somewhat unclear as to what criteria were used to select items, these sources do indicate that indicators were retained if they discriminated low- and high-psychopathy groups defined on the basis of "global ratings" (i.e., degree of match with Cleckley’s case examples) and if they showed "good psychometric properties." The latter implies that indicators were chosen that contributed to the reliability (internal consistency) of the overall scale.
as well as helped to discriminate extreme groups. This item selection strategy, which fits with the aim of indexing a unitary construct, would operate to homogenize the item set: indicators similar to most other indicators in the candidate pool would be retained, while those differing most from the others would be dropped. Because the greater majority of Cleckley’s diagnostic criteria (12 of 16) reflect tendencies toward deviance as opposed to adjustment, the initial candidate pool would almost certainly have included more indicators of deviance. Indicators of positive adjustment presumably dropped out because they failed to coalesce with the larger proportion of (pathologic) indicators. This would yield a final item set more uniformly indicative of deviance and maladjustment than Cleckley’s original criterion set.

Some of the data contained in the initial report on the development of the PCL (Hare, 1980) appear consistent with this account. Of particular interest are data for a sample of 143 prison inmates who were rated on Cleckley’s 16 criteria for psychopathy as well on the 22 items of the original PCL. A principal-components analysis of the Cleckley items in this sample yielded five components, accounting for 64% of the total variance. The largest of these was an emotional-interpersonal component (marked by pathological egocentricity, poverty of affect, unresponsiveness in interpersonal relations, untruthfulness, and lack of remorse), accounting for 29.3% of the variance, and a behavioral deviance component (marked by absence of life plans, unreliability, and failure to learn by experience), accounting for 12.0% of the variance. In addition, a psychological adjustment component clearly emerged (marked by charm and good intelligence, absence of delusions/irrationality, and absence of nervousness), but this accounted for a smaller proportion of the variance (7.1%). A principal-components analysis of the PCL items also yielded five components, accounting for approximately 61% of the overall variance. However, in this case the dominant component, accounting for 27.3% of the total variance, was one reflecting behavioral deviance (proneness to boredom, lack of realistic plans, parasitic lifestyle, and impulsivity). The second component, reflecting the emotional-interpersonal features of psychopathy (lack of remorse, failure to accept responsibility, cunning, grandiosity, glibness, and callousness), accounted for only 13% of the variance. These findings are consistent with the idea that the effort to operationalize Cleckley’s criteria as a unitary construct in the PCL resulted in an item set generally more reflective of deviance and maladjustment.

The relations that overall scores on the PCL-R show with criterion measures further reinforce the notion that, compared with Cleckley’s original conceptualization, the construct underlying the PCL-R as a whole is more purely pathological in nature. For example, overall scores on the PCL-R are highly correlated with overall symptoms of APD (which, as noted earlier, primarily reflect behavioral deviance): the mean correlation across 10 studies reported by Hare (2003) was .67. The personality traits that are correlated most strongly with overall scores on the PCL-R are traits reflecting aggression and impulsivity—that is, agreeableness and conscientiousness.
from the FFM (significant negative correlations in each case; Lynam & Derefenko, 2006), and lower-order aggression and higher-order constraint from the MPQ (significant positive and negative correlations, respectively; Verona, Patrick, & Joiner, 2001). In addition, overall scores on the PCL-R show robust positive associations with various behavioral indices of aggression (Hare, 2003) as well as with alcohol and drug problems (Reardon, Lang, & Patrick, 2002), and weak positive associations with suicidal behavior (Verona et al., 2001). Also, in contrast with Cleckley’s portrayal of psychopaths as low in anxiousness, overall scores on the PCL-R show negligible associations with measures of trait anxiety (Hare, 2003) and weak positive associations with FFM neuroticism (Lynam & Derefenko, 2006). Thus the focus on psychopathy as a unitary construct leads to a picture of the psychopath as more aggressive and psychologically maladjusted than the majority of Cleckley’s case examples.

**Distinctive Factors of the PCL-R.** It is important to note that the PCL/PCL-R, while developed to assess a putatively unitary construct, does include distinctive factors that exhibit discriminant validity in their relations with external criterion variables. Until fairly recently, on the strength of initial factor-analytic work (Hare et al., 1990; Harpur, Hakstian, & Hare, 1988), the PCL-R has been viewed as comprising two correlated dimensions. Within this two-factor model, Factor 1 is marked by items reflecting the emotional and interpersonal features of psychopathy (charm, grandiosity, and deceitfulness/conning; absence of remorse, empathy, and emotional depth; and blame externalization). In contrast, Factor 2 is marked by items describing a chronic antisocial lifestyle, including child behavior problems, impulsiveness, irresponsibility, and absence of long-term goals. Scores on the two PCL-R factors are typically correlated at about .5 (Hare, 1991, 2003).

Recently, Cooke and Michie (2001) proposed an alternative three-factor model. In this model, the items of Factor 1 are parsed into two separate (albeit correlated) factors: “arrogant and deceitful personality style,” marked by charm, grandiosity, deceitfulness, and manipulation; and “deficient affective experience,” encompassing absence of remorse or empathy, shallow affect, and failure to accept responsibility. The third factor in this model (“impulsive-irresponsible behavioral style”) consists of a pared-down version of Factor 2, comprising the five indicators deemed to be most traitlike. Even more recently, Hare (2003; see also Hare & Neumann, 2006) proposed a nested four-factor model in which Factor 1 of the original two-factor model was partitioned into “interpersonal” and “affective” facets (mirroring Cooke and Michie’s first two factors) and Factor 2 was divided into a “lifestyle” facet (mirroring Cooke and Michie’s third factor) and an “antisocial” facet (comprising the remaining antisocial behavior indicators from Factor 2).

Most of the data regarding the distinctive correlates of PCL-R item subsets pertain to the two factors of the original model. These two factors show divergent relations with independent criterion measures of personality and behavior, particularly when their overlap (covariance) is controlled for using
Partial correlation or hierarchical regression techniques. For example, findings have generally indicated that the unique variance in the emotional-interpersonal component of the PCL-R (Factor 1) is negatively correlated with measures of trait anxiety, whereas the behavioral deviance component (Factor 2) is positively related to trait anxiety (Hicks & Patrick, 2006; Patrick, 1994; Verona et al., 2001). The unique variance in Factor 1 also appears to be positively associated with measures of social dominance (Verona et al., 2001; see also Hare, 1991; Harpur, Hare, & Hakstian, 1989), and in some work, with measures of trait-positive affectivity (Patrick, 1994) and achievement (Verona et al., 2001). These findings indicate that the positive adjustment component of psychopathy contained in Cleckley’s conceptualization may be tapped to some extent by the unique variance in Factor 1 (i.e., the part that is unrelated to behavioral deviance). Moreover, recent work by Hall, Benning, and Patrick (2004) examining associations separately for the interpersonal and affective components of Factor 1 (Cooke & Michie, 2001; Hare, 2003) indicates that the interpersonal component in particular accounts for these relations with measures of adjustment/resiliency. In addition, scores on PCL-R Factor 1 show negative associations with measures of empathy (Hare, 2003) and positive associations with constructs reflecting a self-centered interpersonal style, including narcissistic personality and Machiavellianism (Hare, 1991; Harpur et al., 1989; Verona et al., 2001). Factor 1 also shows selective positive associations with indices of instrumental aggression (Patrick, Zempolich, & Levenston, 1997; Woodworth & Porter, 2002).

In contrast, Factor 2 of the PCL-R shows selective positive associations with child symptoms of DSM APD as well as markedly stronger associations than Factor 1 with adult APD symptoms (Hare, 2003; Verona et al., 2001). Factor 2 is associated much more strongly than PCL-R Factor 1 with criminal history variables, such as overall frequency of offending (Hare, 2003). In addition, Smith and Newman (1990) reported that this component of PCL-R psychopathy was positively associated with alcohol and drug dependence, whereas Factor 1 of the PCL-R was unrelated to substance abuse (see also Readon et al., 2002). Research has demonstrated selective positive associations between PCL-R Factor 2 and various indices of reactive aggression (including child and adult fights, assault charges, and partner abuse; Patrick & Zempolich, 1998; Patrick et al., 1997; see also Woodworth & Porter, 2002). PCL-R Factor 2 is also related positively to suicidal behavior, whereas the unique variance in PCL-R Factor 1 tends to be negatively associated with suicidality (Verona, Hicks, & Patrick, 2005; Verona et al., 2001). In the domain of personality traits, ratings on PCL-R Factor 2 show robust positive correlations with aggression, impulsivity, and overall sensation seeking (Hare, 1991; Harpur et al., 1989).

These divergent associations for PCL-R Factors 1 and 2 are notable for two variables considered to be facets of a single higher-order construct (e.g., Hare, 1991, 2003). Particularly striking are instances in which opposing
associations of the two PCL-R factors with criterion measures become stronger once their covariance (overlap) is removed. This phenomenon is known as cooperative suppression (Cohen & Cohen, 1975; Frick, Lilienfeld, Ellis, Loney, & Silverthorn, 1999; Paulhus, Robins, Trzesniewski, & Tracy, 2004). In such cases, true associations between the unique part of each predictor variable and external criterion measures are muted or concealed by the variance that the two predictors share. The occurrence of suppressor effects, particularly cooperative suppressor effects, is conceptually important because it signifies the presence of distinctive underlying constructs embedded within a common measurement instrument (Paulhus et al., 2004).

Recently, Hicks and Patrick (2006) applied this formulation to an analysis of relations between the two PCL-R factors and facets of negative emotionality—including distress (or general anxiousness), fearfulness, and anger—as well as depression. For three of these four criterion variables (emotional distress, fear, depression), cooperative suppressor effects were found (i.e., associations for both PCL-R factors increased, in opposing directions, when the two were included concurrently in a prediction model). For the anger variable, a crossover suppression effect was evident (i.e., simultaneous inclusion of the two PCL-R factors in a prediction model resulted in a change in the direction of association for Factor 1—that is, from significantly positive to nonsignificantly negative) and a nonsignificant increase in the positive association for Factor 2). Moreover, for all four criterion variables, prediction using the two PCL-R factors together was superior to that based on PCL-R total scores alone. In particular, for the distress, fear, and depression variables, PCL-R total scores provided negligible predictive power, whereas concurrent use of the two PCL-R factors yielded significant prediction. Hicks and Patrick noted that suppression effects for the two PCL-R factors have previously been reported for other criterion variables, including suicidal behavior (cooperative suppression; Verona et al., 2005) and alcohol/drug problems (crossover suppression; Smith & Newman, 1990).

As noted, the presence of suppressor effects, particularly instances of cooperative suppression, implies that the items of a measurement instrument presumed to index a single broad construct are actually tapping separate, distinctive underlying constructs. In the case of the PCL-R, the occurrence of suppressor effects for its two factors is actually consistent with Cleckley's original idea that the syndrome of psychopathy entails the convergence of paradoxical dispositions toward psychological resiliency and behavioral maladjustment. Although the strategy used to select items for the PCL-R favored the emergence of a unidimensional criterion set, distinctive underlying constructs are nevertheless evident in terms of both internal structure and relations with external criterion measures. As discussed in the final section of this chapter, there is also evidence that these separable components of psychopathy may have distinctive etiologic underpinnings.

**Prevalence of PCL-R-Defined Psychopathy.** Because the PCL-R was developed for use in male correctional and forensic settings, firm prevalence
ion measures become... This phenomenon is 1975; Frick, Lilienfeld, Trzesniewski, & Tracy, unique part of each pre-nuted or concealed by... importance... (embedding et al., 2004).

ulation to an analysis of... negative emotionality—... and anger—as well as... es (emotional distress... found (i.e., associations... when the two were... the anger variable, a... to nonsignificant positive association for... eduction using the two... on PCL-R total scores... sion variables, PCL-R... concurrent use of... hicks and Patrick noted... have previously been... il behavior (cooperative... problems (crossover super-

ticularly instances of... measurement instrument... ally tapping separate... C.L-R, the occurrence of... isent with Cleckley’s... ails the convergence of... ilency and behavioral... x items for the PCL-R... set, distinctive underlying... internal structure and... sed in the final section... ble components of psy-

cause the PCL-R was... settings, firm prevalence... estimates are available primarily for samples of this kind. Using a total score... cutoff of 30, the estimated base rate of PCL-R-defined psychopathy in male correctional and forensic populations is 15% to 25%, versus a base rate of... 0% to 80% for DSM-defined APD (Hare, 2003, p. 92). For example, for a sample of 100 male prisoners from a medium-security institution in Canada, the DSM-IV APD field trial report listed base rates of 28% and 70%, respectively, for psychopathy as defined by an abbreviated version of the PCL-R and APD as defined by DSM-III-R criteria. Figure 6.1 depicts this asymmetry in prevalence rates for the two disorders. This difference in prevalence has been attributed to the fact that a PCL-R diagnosis of psychopathy requires the presence of prominent emotional-interpersonal features as well as prominent antisocial deviance (Hare, 2003; Widiger et al., 1996).

As noted earlier, the prevalence of APD among men in the general community is estimated to be about 3% (APA, 2000). Because the PCL-R criteria are tailored to offender samples and limited efforts have been made to assess PCL-R psychopathy in community samples (for a notable exception, see Ishikawa, Raine, Lencz, Bihrl, & Lacasse, 2001), the prevalence of PCL-R-defined psychopathy in the community at large is essentially unknown. Using the median prevalence figures for prison settings (65% for APD and 20% for psychopathy, respectively), and assuming a comparable base rate of criminal psychopathy among APD individuals in the community, the estimated base rate for criminal psychopathy among community males would be approximately 1%. Using an abbreviated, screening version of the PCL-R (the PCL:SV; Hart et al., 1995), Farrington (2006) reported a base rate for psychopathy of approximately 2% (i.e., 8 cases out of 411) in a large sample of community boys followed up to age 48.

However, such estimates do not include individuals who manifest core affective-interpersonal symptoms of psychopathy without meeting criteria for APD. Because the field lacks an agreed-upon set of criteria for diagnosing psychopathy in nonprisoners, population prevalence estimates for noncriminal psychopathy are unknown. Cleckley referred to such cases as “incomplete manifestations” of the syndrome, but he did not speculate about the rest of the iceberg. Hare (1993) suggested, with dramatic emphasis, that...
total score cutoff of 30, tend to be lower than for males. Although some studies of incarcerated women have reported base rates within the range that is typical for incarcerated men, others have reported lower base rates (for a review, see Verona & Vitale, 2006). Studies of psychopathy and related constructs in nonincarcerated samples have also yielded reliably lower prevalence figures for women compared to men (Verona & Vitale, 2006). With regard to race/ethnicity, an initial study by Kosson, Smith, and Newman (1990) yielded evidence that overall PCL-R scores were higher among African-American offenders than they were among European-American offenders. A recent meta-analysis of studies of this kind (Skeem, Edens, Camp, & Colwell, 2004) revealed a small but significant effect size for this comparison. With regard to culture, there is evidence that American inmate samples generally score higher on the PCL-R than European inmate samples (Sullivan & Kosson, 2006).

Comorbidity With DSM Disorders. The DSM disorder most frequently associated with PCL-R–defined psychopathy is APD. As noted in the preceding section, the relationship between PCL-R psychopathy and APD is asymmetric. Within offender samples, most individuals who meet criteria for a diagnosis of psychopathy (i.e., PCL-R total score > 30) also meet criteria for a DSM diagnosis of APD; in contrast, the majority of individuals who meet criteria for a diagnosis of APD do not meet PCL-R criteria for psychopathy (see Figure 6.1). Also, as noted earlier, the two PCL-R factors show an asymmetric association with APD: the social deviance (Factor 2) component of the PCL-R is related selectively to the child component of APD, and is also related more substantially to the adult component. This is because the behavioral features embodied in the child and adult criteria for APD overlap substantially with the behavioral features of psychopathy embodied in PCL-R Factor 2. By contrast, only one of the 15 child criteria for APD (lying) and only two of the seven adult criteria (deceitfulness and lack of remorse) intersect with the emotional-interpersonal features of psychopathy embodied in PCL-R Factor 1.

Factor 2 of the PCL-R is also associated selectively with substance use problems (Reardon et al., 2002; Smith & Newman, 1990) and with features of borderline personality disorder (Shine & Hobson, 1997; Warren et al., 2003). In contrast, scores on PCL-R Factor 1 tend to be associated more strongly with diagnostic ratings of narcissistic personality disorder (Harpur et al., 1989; Hart & Hare, 1989, 1998) and histrionic personality disorder (Hart & Hare, 1989; Hildebrand & de Ruiter, 2004). In contrast with Cleckley’s description of psychopaths as individuals lacking in anxiousness and “psychoneurotic” features, overall scores on the PCL-R appear to be generally unrelated to depression and symptoms of anxiety disorders (Hare, 2003). However, as noted earlier, the two factors of the PCL-R show opposing, mutually suppressive relations with measures of anxiety and depression—that is, after controlling for the overlapping variance between the two factors, Factor 1 shows negative associations with such measures, whereas Factor 2 shows positive
or males. Although some rates within the range that ed lower base rates (for a chopathy and related coned reliably lower prevan & Vitale, 2006). With on, Smith, and Newman xes were higher among among European-American his kind (Skeem, Edens, ificant effect size for this ice that American inmate European inmate samples disorder most frequently PD. As noted in the prepsychopathy and APD is uals who meet criteria for r > 30) also meet criteria ority of individuals who : PCL-R criteria for psythe two PCL-R factors xial deviance (Factor 2) the child component of adult component. This is ill and adult criteria for features of psychopathy e of the 15 child criteria criteria (deceitfulness and personal features of psy- with substance use proband with features of bor ; Warren et al., 2003). In iated more strongly with x (Harpur et al., 1989; r, th Cleckley’s description is and “psychoneurotic” e generally unrelated to re, 2003). However, as osing, mutually suppressn—that is, after control- factors, Factor 1 shows Factor 2 shows positive associations (Hicks & Patrick, 2006). The fact that the unique variance in Factor 1 is negatively associated with anxiety and depression suggests that this component of the PCL-R (particularly its interpersonal facet [Hall et al., 2004]) captures something of the positive adjustment and resiliency Cleckley described as characteristic of psychopaths. The positive associations for Factor 2, in contrast, are consistent with data indicating that the DSM diagnosis of APD is associated with an increased prevalence of anxiety and mood disorders (APA, 2000, p. 702; see also Krueger, 1999a).

Neurobiological Correlates. Neurobiological correlates of psychopathy have been studied mainly in relation to overall scores on the PCL-R, and in relation to the Cleckley global ratings of psychopathy that served as the referent for the PCL-R. Historically, one of the most consistent findings—beginning with Lykken’s (1957) seminal study and continuing with Hare’s classic investigations of autonomic reactivity in psychopaths through the 1960s and 1970s—has been that individuals high in overall psychopathy show reduced electrodermal (skin conductance) reactivity to stressors of various kinds, particularly cues signaling an impending noxious event (for reviews, see Arnett, 1997; Hare, 1978; Lorber, 2004; Siddle & Trasler,
1981). This finding has been interpreted as a reflection of a basic deficiency in anxiety or fear (Fowles, 1980; Hare, 1978; Lykken, 1957).

Another reliable finding in the literature, also consistent with the idea of a negative emotional reactivity deficit, is that high PCL-R psychopaths fail to show normal augmentation of the startle blink reflex during viewing of aversive visual stimuli (Herpertz et al., 2001; Levenston, Patrick, Bradley, & Lang, 2000; Patrick, 1994; Patrick, Bradley, & Lang, 1993; Sutton, Vitale, & Newman, 2002; Vanman, Mejia, Dawson, Schell, & Raine, 2003). In this case, reactivity differences have been tied specifically to elevations on the emotional-interpersonal factor of psychopathy. A lack of fear-potentiated startle is evident not just among individuals with high scores on both factors of the PCL-R but also among individuals who score high on Factor 1 only, whereas individuals who score high on Factor 2 alone show normal augmentation of the startle reflex during aversive cuing (Patrick, 1994; Patrick et al., 1993; Vanman et al., 2003). In contrast with electrophysiological reactivity, which is a general index of sympathetic arousal, the startle blink reflex is a protective reaction that has been shown to increase with activation of the amygdala, a key component of the brain’s defensive (fear) system (see Lang, Bradley, & Cuthbert, 1990). Thus an absence of fear-potentiated startle implies a weakness in reactivity at this basic subcortical level. Consistent with this hypothesis, Blair and his colleagues have reported deficits among psychopathic individuals on behavioral tasks believed to be sensitive to amygdala function (for a review, see Blair, 2006), and recent neuroimaging research has demonstrated reduced amygdala activity during aversive conditioning in high PCL-R scorers (Veit et al., 2002).

A variety of studies employing other methodologies have yielded evidence of differences in brain reactivity or function among individuals high in overall PCL-R psychopathy, including investigations of cerebral asymmetry (for a review, see Hare, 2003, pp. 124–126), brain event-related potential (ERP) studies (e.g., Kiehl, Hare, MacDonald, & Brink, 1999; Williamson, Harpur, & Hare, 1991), and structural and functional neuroimaging studies (for a review, see Raine & Yang, 2006). Nevertheless, studies examining the performance of high-psychopathy individuals on neuropsychological tests of frontal lobe function have not yielded reliable evidence of impairment (e.g., Hare, 1984; Hart, Forth, & Hare, 1990; for a review, see Rogers, 2006), nor have studies examining the P300 component of the event-related potential (for a review of conflicting findings, see Raine, 1993, but see also more recent work by Kiehl, Hare, Liddle, & MacDonald, 1999). This stands in contrast to evidence, cited earlier, that APD is reliably associated with deficits on tests of frontal lobe dysfunction and with reduced amplitude of the P300 brain potential response. Given that Factor 2 of the PCL-R is associated more strongly with APD and that the unique variance in PCL-R Factor 1 (i.e., that unrelated to Factor 2) shows positive associations with some measures of psychological adjustment, it is possible that the two factors of the PCL-R are differentially related to performance on tests of frontal lobe function.
Antisocial Personality Disorder and Psychopathy

lobe function and to P300 amplitude (i.e., deficits may be evident for Factor 2 only). However, this possibility remains to be examined (Rogers, 2006).

One type of impairment that has been related selectively to PCL-R Factor 2 is reduced autonomic reactivity during mental imagery of emotional situations. Specifically, Patrick, Cuthbert, and Lang (1994) found reduced skin conductance and heart rate reactivity during imagery of fearful text scripts relative to neutral scripts in prisoners who were high on Factor 2 of the PCL-R, regardless of whether they were low or high on Factor 1, compared with prisoners low on Factor 2. The authors’ interpretation was that the antisocial deviance component of psychopathy is associated with reduced automatic-elaborative processing of symbolic (in this case, linguistic) affective information (see also Patrick & Lang, 1999). Another neurobiological indicator that appears to be associated preferentially with PCL-R Factor 2 is reduced functioning of the serotonergic neurotransmitter system, which as noted previously is also associated with impulsive aggressive behavior in antisocial individuals (Dolan & Anderson, 2003; Minzenberg & Siever, 2006).

Alternative Self-Report-Based Conceptualizations of Psychopathy

Aside from issues regarding its coverage of the positive adjustment features of psychopathy emphasized by Cleckley, other limitations of the PCL-R include the fact that it is time consuming to administer and that several of its items (those scored on the basis of criminal offense behaviors) are not applicable to individuals outside of forensic and correctional settings. For these reasons, other approaches to the assessment of psychopathy have been sought, many of them self-report based. Because they consist of more general queries about attitudes and behavioral tendencies, standard questionnaire inventories can be used across a range of different participant samples. Self-report questionnaires are also efficient to administer and score and thus are amenable to large-scale screening studies.

Lilienfeld and Fowler (2006) provided an authoritative review of self-report instruments developed to assess psychopathy. As these authors point out, most existing inventories for the assessment of psychopathy correlate much more strongly with the antisocial deviance component of psychopathy embodied in PCL-R Factor 2 than they do with the emotional-interpersonal (Factor 1) component (see also Hare, 1991, 2003). These inventories include the Psychopathic Deviate (Pd) scale of the Minnesota Multiphasic Personality Inventory (MMPI; Hathaway & McKinley, 1943), the Socialization (So) scale of the California Psychological Inventory (Gough, 1960), the Self-Report Psychopathy (SRP) scale (Hare, 1985), and the Primary and Secondary Psychopathy scales developed by Levenson, Kiehl, and Fitzpatrick (1995). However, one self-report inventory that appears to tap the two components of psychopathy more equally is the Psychopathic Personality
Inventory (PPI; Lilienfeld, 1990; Lilienfeld & Andrews, 1996). For example, Poythress, Edens, and Lilienfeld (1998) reported significant correlations of .56 and .44, respectively, between overall scores on the PPI and scores on Factors 1 and 2 of the PCL-R for a sample of 30 youthful offenders. Also, recent factor analyses of the subscales of the PPI (Benning, Patrick, Hicks, Blonigen, & Krueger, 2003; Benning, Patrick, Salekin, & Leistico, 2005) have revealed evidence of two underlying factors with distinctive external correlates. Other research examining the validity of these two PPI factors has yielded findings with interesting conceptual and etiologic implications. For these reasons, we focus the remainder of this section on recent studies that have explored the constructs underlying the two distinctive factors of the PPI.

The Psychopathic Personality Inventory and Its Factors. The PPI was developed using a personality-oriented approach in which the goal was to capture dispositional tendencies or traits considered central to psychopathy (Lilienfeld & Andrews, 1996). This contrasts with inventories such as the So and MMPI-Pd scales, which were developed using an empirical, contrasted-groups strategy. In the development of the PPI, a comprehensive survey of the literature was performed to identify all relevant constructs related to psychopathy, and items were developed to index these constructs. Iterative rounds of data collection and analysis were undertaken to refine the initial item set as well as to clarify the target constructs. The PPI comprises 187 questions, each answered using a four-point scale (false, mostly false, mostly true, true). The inventory yields a total score index of psychopathy, as well as scores on eight subscales reflecting specific elements of the psychopathy construct (see Table 6.4). The eight subscales of the PPI demonstrate good internal consistencies (.70 to .91; Blonigen, Carlson, Krueger, & Patrick, 2003; Lilienfeld & Andrews, 1996), as well as high test-retest reliabilities (.82 to .94 across a mean retest interval of 26 days; Lilienfeld & Andrews, 1996).

As noted, the PPI was developed to comprehensively index personality trait constructs relevant to the domain of psychopathy (Lilienfeld, 1990). Distinctive subscales were developed to index these trait constructs without a priori assumptions about their underlying structure. Recently, Benning et al. (2003) examined the structure of the PPI subscales in a male community sample (N = 353) using principal axis factor analysis and found evidence of two dominant factors accounting for a substantial proportion of the covariance (50.9%) among seven of the eight scales. The Social Potency, Stress Immunity, and Fearlessness subscales loaded more predominantly on one factor (PPI-I), and the Impulsive Nonconformity, Blame Externalization, Machiavellian Egocentricity, and Carefree Nonplanfulness subscales loaded more predominantly on the other (PPI-II). In contrast with the two factors of the PCL-R, which are moderately correlated, these two PPI factors were uncorrelated (r = -.07). The eighth subscale of the PPI, Coldheartedness, did not load appreciably on either of these factors. This factor structure was replicated by Benning, Patrick, Salekin, et al. (2005) in a sample of male and female college
As mentioned earlier, significant correlations of the PPI and scores on antisocial personality traits such as deceitfulness, callousness, and lack of empathy are evident. These correlations suggest that the PPI may be a useful tool for identifying individuals with these traits.

Factors. The PPI was designed to reflect the core dimensions of psychopathy and to be consistent with empirical findings in the field. The instrument includes 187 items, which are organized into ten subscales: Social Potency, Stress Immunity, Fearlessness, Impulsive Nonconformity, Blame Externalization, Machiavellian Egocentricity, Carefree Nonplanfulness, Coldheartedness, Manipulative Grandiose, and Early Indifferent. Each subscale is scored on a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

Table 6.4: Subscales of the Psychopathic Personality Inventory (PPI; Lilienfeld, 1990)

<table>
<thead>
<tr>
<th>Subscale Label</th>
<th># of Items</th>
<th>Description of a High Scorer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Potency</td>
<td>24</td>
<td>Able to influence and dominate others</td>
</tr>
<tr>
<td>Stress Immunity</td>
<td>11</td>
<td>Minimal experience of anxiety</td>
</tr>
<tr>
<td>Fearlessness</td>
<td>19</td>
<td>Takes risks; seeks thrills in danger</td>
</tr>
<tr>
<td>Impulsive Nonconformity</td>
<td>17</td>
<td>Reckless; rebellious; unconventional</td>
</tr>
<tr>
<td>Blame Externalization</td>
<td>18</td>
<td>Blames others; sees self as victim</td>
</tr>
<tr>
<td>Machiavellian Egocentricity</td>
<td>30</td>
<td>Aggressive; selfish; exploitative</td>
</tr>
<tr>
<td>Carefree Nonplanfulness</td>
<td>20</td>
<td>Present oriented; lacks forethought and planning</td>
</tr>
<tr>
<td>Coldheartedness</td>
<td>21</td>
<td>Unsentimental; insensitive; lacks imaginative capacity</td>
</tr>
</tbody>
</table>

Subscales comprising first factor of the PPI (PPI-I; Benning, Patrick, Hicks, Blonigen, & Krueger, 2003).

Subscales comprising the second factor of the PPI (PPI-II; Benning, Patrick, Hicks, Blonigen, & Krueger, 2003).

Note. The Coldheartedness subscale does not load appreciably on either of the two PPI factors.

In a sample of 187 male college students, a factor analysis revealed five factors: Social Influence, Sycophancy, Manipulative Grandiosity, Callousness, and Blame Externalization. The factor structure was similar to that found in previous studies. However, the factor loadings were lower in this sample, indicating that the PPI may be less sensitive to individual differences in psychopathy.

Personality and Behavioral Correlates of the PPI Factors. The two distinctive factors of the PPI show conceptually meaningful, and in many cases diverging, patterns of relations with a wide range of criterion measures. Benning et al. (2003) reported that PPI-I and PPI-II showed opposing associations with indices of adjustment, including verbal intelligence, educational attainment, and occupational status and income. Whereas the direction of association in each case was negative for PPI-II, it was positive for PPI-I (i.e., higher PPI-I was associated with better adjustment). In support of the idea that the two PPI factors reflect different facets of an overarching psychopathy construct, PPI-I and PPI-II both showed significant positive correlations with adult symptoms of antisocial personality disorder (r = .15 and .27, respectively; p < .01). However, child symptoms of APD were significantly associated only with PPI-I. PPI-II was uniquely associated with indices of alcohol and drug problems. Likewise, Patrick, Edens, Poythress, Lilienfeld, and Benning (2006) reported positive associations with the Alcohol Problems and Drug Problems scales of the Personality Assessment Inventory (PAI; Morey, 1991) only for PPI-II. PPI-II (but not PPI-I) showed robust correlations (in all cases positive) with the PAI Antisocial Features, Aggression, Borderline Features, and Suicidal Ideation scales. Furthermore, PPI-II showed significant positive correlations with the Anxiety Disorders and Somatization scales of the PAI, whereas correlations for PPI-I with these scales were significantly lower.
negative. In contrast, PPI-I was associated uniquely (positively) with the PAI Dominance scale. Taken together, these findings indicate that PPI-I taps aspects of social efficacy and adjustment as well as deviancy, whereas PPI-II is associated more uniformly with deviancy and maladjustment (i.e., child and adult antisociality, substance abuse problems, heightened anxiety and somatization, and suicidal ideation).

Ross et al. (2005) examined relations between the two PPI factors and self-report measures of executive functioning along with alternative self-report indices of psychopathy. The measure of executive functioning was the Frontal Systems Behavior Scale (FrSBe; Grace & Malloy, 2001), a 46-item inventory that assesses personality and behavioral characteristics associated with frontal lobe damage. PPI-I showed a modest positive correlation with the Disinhibition subscale of the FrSBe, a negative association of comparable magnitude with the Executive Function subscale (reflecting better function), and no correlation with the Apathy subscale. In contrast, PPI-II showed robust positive associations with all three subscales of the FrSBe. Ross et al. also examined relations between the two PPI factors and FFM psychopathy prototype scores derived from a revised version of the NEO-PI inventory (NEO-PI-R; Costa & McCrae, 1992). The computation of psychopathy prototype scores was based on the work of Miller, Lynam, Widiger, and Leukefeld (2001), who composed the prototypical personality profile of the psychopath in FFM terms on the basis of input from experts in the field, then devised a methodology for quantifying the resemblance of individual profiles to this expert-generated prototype. Ross et al. found that PPI-I and PPI-II, though uncorrelated, each showed a robust positive association with FFM prototype scores (r = .61 and .47, respectively); taken together, the two PPI factors predicted psychopathy prototype scores at a reliability of .76. This pattern of results provides further support for the idea that the two factors of the PPI tap distinctive components of an overarching psychopathy construct.

Some other recent work has examined the correlates of PPI factor scores estimated from scores on a general inventory of personality, the MPQ (Tellegen, in press). Data for both measures were available in the study carried out by Benning et al. (2003), and these authors noted that scores on PPI-I and PPI-II could be predicted with a high degree of accuracy (r = .70 and .67, respectively) from the lower-order trait scales of the MPQ. The MPQ trait scales that contributed to the prediction of PPI-I scores were Social Potency (positive), Stress Reaction (negative), and Harm Avoidance (negative); the MPQ trait scales that contributed to the prediction of PPI-II scores were Alienation (positive), Aggression (positive), Control (Negative), Traditionalism (negative), Social Closeness (negative), and Absorption (positive). Benning, Patrick, Blonigen, Hicks, and Iacono (2005) used the regression models from Benning et al. (2003) to estimate PPI factor scores in three study samples for which MPQ data were available as well as scores on a variety of psychopathy-relevant criterion measures. The study samples included a sample of male and female undergraduates recruited from psychology classes (N = 346).
a large sample of male and female twins recruited from the community (N = 1,122), and a sample of male prisoners recruited from a federal correctional facility (N = 218).

A variety of interesting findings emerged from analyses of relations between MPQ-estimated PPI scores and available criterion measures in these samples. Within both the undergraduate and prisoner samples, higher scores on PPI-I (estimated by means of the MPQ) were selectively associated with lower temperamental fearfulness and distress and higher activity and sociability; higher scores on the thrill-adventure seeking component of sensation seeking (Zuckerman, 1979); and high narcissism. In contrast, within these samples, higher PPI-II scores were selectively associated with higher temperamental anger and impulsivity; higher scores on the boredom susceptibility component of sensation seeking; and lower socialization as indexed by scores on the So scale. Within both the community and prisoner samples, higher PPI-I scores were associated with lesser symptoms of phobia (particularly social phobia) and lesser symptoms of depression, whereas higher PPI-II scores were associated with greater symptoms of depression and also greater symptoms of alcohol and drug dependence. Interestingly, within the prisoner sample, scores on both PPI factors showed significant negative correlations with a measure of emotional empathy.

Scores on the PCL-R were also available for the prisoner sample in this study, permitting an evaluation of the association between the two factors of the PPI (estimated by means of the MPQ) and those of the PCL-R. Simple correlations revealed a significant correlation between PPI-I and PCL-R Factor 1 only, whereas PPI-II showed significant zero-order associations with both PCL-R factors. When the overlap between the two PCL-R factors was controlled for (using partial correlations), PPI-I showed a significant positive association with PCL-R Factor 1 only (r = .28), and PPI-II showed a significant positive association with PCL-R Factor 2 only (r = .31). Supplementary analyses of PCL-R scores based on Cooke and Michie's (2001) three-factor model revealed that PPI-I was related most strongly to the interpersonal component of Factor 1 (i.e., compared with the affective component). This finding is interesting because, as noted earlier, the interpersonal component of the PCL-R appears to account largely for associations between Factor 1 and indices of psychological adjustment and resiliency.

The findings from these studies provide strong support for the validity of the two PPI factors as indices of distinctive components of the psychopathy construct. Although parallels are evident between the PPI factors and the PCL-R factors in terms of their relations with external criterion measures (e.g., the first factor of both instruments is selectively related to dominance, narcissism, and low anxiety; the second factor of both is selectively related to impulsivity, aggression, low socialization, and alcohol and drug problems), the parallels become evident for some measures (e.g., anxiety) only when the overlap between the PCL-R factors is removed using partial correlations. Moreover, correlations between corresponding factors for the two
instruments are only modest in magnitude (~.3, based on the findings of Benning, Patrick, Blonigen, et al., 2005), even after controlling for overlap between the PCL-R factors. One variable contributing to this modest correspondence may be the fact that scores on the PCL-R and PPI are derived using different assessment methods (i.e., interview and examination of file records versus self-report). This “method variance” (Campbell & Fiske, 1959) would operate to attenuate relations between the two even if they were indexing the same construct. However, a key divergence between the two that is not easily explained by method variance is the correlated versus uncorrelated nature of their factor structures. What might account for this difference?

One possible explanation concerns the item selection strategies that were used in developing the two instruments. As discussed earlier, candidate items for the PCL-R were retained if they contributed to prediction of global ratings of psychopathy based on Cleckley’s criteria and if they showed good psychometric properties (meaning, presumably, positive correlations with other candidate items such that they contributed to internal consistency of the overall inventory). One apparent consequence of this selection strategy is that indicators of positive psychological adjustment included among Cleckley’s criteria were omitted from the PCL-R. In contrast, candidate items for the PPI were selected to serve as indicators of target constructs within the broad domain of psychopathy-related personality traits. Although the trait constructs themselves were refined across separate rounds of data collection and items were selected to form internally consistent subscales, there was no a priori requirement that the items as a whole or the subscales be indicators of a single, unitary construct. Thus, the items of the PPI were not constrained to tap one broad, unitary construct. As a result, the two factors of the PPI appear to be indexing components of the psychopathy construct in a more clearly differentiated way. One component (PPI-II) taps impulsive, aggressive (externalizing) tendencies. The other (PPI-I) taps a construct that encompasses aspects of positive adjustment (higher agency, lower anxiety and depression, higher educational and occupational attainment) as well as aspects of deviancy (narcissism, thrill-adventure seeking, low empathy).

Neurobiological Correlates. Although the two distinctive factors of the PPI have become a topic of investigation only recently, findings regarding the neurobiological correlates of these factors have begun to emerge. Benning, Patrick, and Iacono (2005) examined physiological reactivity of groups selected due to their low or high scores on one or the other factor of the PPI as estimated by scores on the MPQ (cf. Benning, Patrick, Blonigen, et al., 2005) in an affective picture viewing paradigm. Participants who scored very high on PPI-I showed a deviant pattern of startle reactivity resembling that of offenders with high scores on PCL-R Factor 1 (i.e., an absence of fear-potentiated startle), whereas participants who scored very high on PPI-II showed no such deviation. This finding suggests that the PPI-I construct taps the diminished emotional reactivity (in particular, reduced defensive reactivity to aversive cues) associated with PCL-R Factor 1. In contrast, participants
based on the findings of
controlling for overlap-
ting to this modest corre-
and PPI are derived using
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ve correlations with other
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cluded among Cleckley’s
candidate items for the PPI
structs within the broad
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nds of data collection and
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In contrast, participants
who scored very high on PPI-II showed generally smaller electrodermal responses to picture stimuli (i.e., whether affective or neutral) compared with participants who scored low on PPI-II, suggesting reduced overall arousability for individuals high in the impulsive-antisocial tendencies associated with this PPI factor (cf. Raine, 1997). This finding of reduced electrodermal reactivity in individuals who scored high on PPI-II was also reported in a recent study by Verschuere, Crombez, de Clercq, and Koster (2005).

In another recent investigation, Gordon, Baird, and End (2004) used functional magnetic resonance imaging (fMRI) to examine the brain responses of high and low PPI scorers during performance of a recognition task in which the focus of attention was directed on some trials to the identity of a target face and on other trials to the type of affective expression appearing on the target face. Individuals scoring high on PPI-I showed lesser activation in the right amygdala and affiliated regions of the frontal cortex (i.e., right inferior frontal cortex, medial prefrontal cortex) during emotion processing trials, as well as greater activation in the visual cortex and right dorsolateral prefrontal cortex, compared with individuals scoring low on PPI-I. These groups did not differ in brain activation during identity processing trials. The authors’ interpretation was that high PPI-I scorers relied on brain regions associated with cognition and perception to perform the emotion recognition task, whereas low PPI-I scorers relied more on regions known to be involved in affective evaluation and reactivity. Analyses of activation patterns for individuals grouped in terms of PPI-II scores revealed, if anything, evidence of enhanced amygdala activation in high PPI-II scorers compared with low scorers. This finding is consistent with the idea that antisocial individuals lacking the core affective-interpersonal features of psychopathy show normal or enhanced negative emotional reactivity (Patrick, 2007; Patrick & Lang, 1999).

Etiologic Perspectives on Psychopathy

A variety of etiologic models have been advanced to account for the syndrome of psychopathy (for recent reviews, see Blackburn, 2006; Fowles & Dindo, 2006; Hare, 2003; Hiatt & Newman, 2006). These can be grouped into two broad categories. One category consists of theories that propose some underlying emotional deficit or deviation. For example, Cleckley (1976) postulated that psychopaths are generally deficient in their capacity for affective experience:

Behind the exquisitely deceptive mask of the psychopath the emotional alteration we feel appears to be primarily one of degree, a consistent leveling of response to petty ranges and an incapacity to react with sufficient seriousness to achieve much more than pseudoexperience or quasi-experience. (p. 383)
According to Cleckley, this underlying deficiency (referenced directly in his “poverty in major affective reactions” criterion) accounts for the superficial, manipulative quality of the psychopath’s interactions with others as well as the whimsical nature of his or her behavior in other domains. According to this view, the psychopath’s “mask of sanity” arises from an adaptive inclination to mimic the affective displays of others so as to “blend in” and achieve basic goals, with no true recognition that these reactions are actually simulated:

Let us say that, despite his otherwise perfect functioning, the major emotional accompaniments are absent or so attenuated as to count for little. Of course, he is unaware of this, just as everyone is bound, except theoretically, to be unaware of that which is out of his scale or order or mode of experience. (p. 371)

Most other affective models of psychopathy have postulated a more specific impairment in negative emotional reactivity. For example, Lykken (1957) presented experimental evidence that individuals diagnosed as psychopathic according to Cleckley’s criteria were deficient in anxiety responses. In his earlier work, Hare (1965, 1978) proposed that psychopathy is marked by an abnormally steep gradient of fear arousal (i.e., punishment cues that are remote in time fail to inhibit the behavior of psychopaths because such cues do not elicit normal anticipatory fear). Fowles (1980), referencing Gray’s (1971) neurobiological theory of motivation, postulated that true (“primary”) psychopaths have a weak behavioral inhibition (anxiety) system but a normal behavioral activation (appetitive) system. Patrick and his colleagues (Patrick, 1994; Levenston et al., 2000) proposed that psychopathy entails a heightened threshold for activation of the defensive motivational system. Blair (2006) proposed that the core features of psychopathy arise from dysfunction in the subcortical amygdala. In his model, Blair acknowledged the possibility that psychopathy might entail some impairment in positive as well as negative emotional reactivity (cf. Cleckley, 1976). Indeed, some studies have reported evidence of reduced autonomic and electrocortical reactivity to pleasurable stimuli in PCL-R–defined psychopaths (e.g., Verona, Patrick, Curtin, Bradley, & Lang, 2004; Williamson, Harpur, et al., 1991).

The other category of theories consists of those that have postulated some sort of higher cognitive processing deficit or deviation in psychopathy. For example, Newman and his colleagues (Newman, 1998; Patterson & Newman, 1993) have proposed that psychopathy is characterized by a core deficit in response modulation, defined as the ability to switch from an ongoing (dominant) action set to an alternative mode of responding when environmental cues signal the need for a shift. An alternative perspective is that psychopaths are deficient in the ability to process peripheral cues when their attention is prioritized toward specific task-relevant cues in the environment (Jutai & Hare, 1993; Kosson & Newman, 1986). Kosson (1996, 1998), in
a refinement of this hypothesis, suggested that psychopaths show impaired processing of secondary stimulus features primarily under task conditions that promote activation of the left hemisphere. Other work has focused on the idea that the dissociation between what psychopaths say and what they actually do reflects some underlying abnormality in language processing. Studies of this kind have focused on deviations in lateralized verbal processing tasks (e.g., Day & Wong, 1996; Hare & McPherson, 1984) and abnormalities in the use of contextual or associative elements of language such as abstraction, connotation, and metaphor (e.g., Brinkley, Bernstein, and Newman, 1999; Brinkley, Newman, Harpur, & Johnson, 1999; Williamson, 1991). It should be noted that work in this area intersects with affective models of psychopathy in that a number of language processing studies have yielded evidence of deviations in the processing of emotional words in psychopaths (e.g., Lorenz & Newman, 2002; Williamson, Harpur, et al., 1991).

In addition to these affective and cognitive processing models, one other theoretical perspective warrants mention. In contrast with many of the aforementioned models, which emphasize underlying deficits, this perspective views psychopathy as an evolutionary adaptive life strategy that enhances reproductive success (Harris, Skilling, & Rice, 2001; Mealey, 1995). From this perspective, the behavior of psychopaths reflects a cheating strategy that, although socially disruptive, is advantageous from an evolutionary standpoint because it promotes sexual contacts with multiple partners and yields large numbers of offspring. It should be noted that this theoretical position is not necessarily at odds with models that view the affective deviation in psychopathy as a genotypic extreme of normal temperament that favors a goal-oriented approach over avoidance of risk (e.g., Lykken, 1995; Patrick, 2001, 2007).

Integration: A Dual-Process Perspective on the Relation Between Antisocial Personality Disorder and Psychopathy

A theoretical model that provides an integrative perspective on differing facets of the psychopathy construct and on relations between psychopathy and impulse control disorders, including APD and substance abuse and dependence, is the dual-process model of psychopathy. This model was first proposed by Patrick and Lang (1999) to account for diverging relations between components of PCL-R psychopathy and indices of physiological reactivity within different task paradigms. Subsequent elaborations of the model have appeared in publications by Patrick and his colleagues (Patrick, 2001, 2007; Patrick, Hicks, Krueger, & Lang, 2005). A related model that draws on this research base as well as on findings from the developmental literature was proposed recently by Fowles and Dindo (2006).
The dual-process model posits that different etiologic mechanisms underlie distinctive facets of psychopathy. Cleckley characterized psychopathy as a severe behavioral pathology masked by a veneer of normalcy. The “mask” component of the disorder includes aspects of positive psychological functioning and a superficial but engaging affective-interpersonal style. From the dual-process perspective, the mask that Cleckley described reflects an extreme temperament disposition that entails an underlying weakness in emotional reactivity, particularly defensive (fear) reactivity. Neurobiologically, this temperament style is presumed to reflect differences in the functioning of core affect systems (e.g., the amygdala). In terms of personality constructs, this temperament disposition is marked by a blend of traits, including social dominance, low trait anxiousness, and affective fearlessness (i.e., diminished reactivity to threat or danger as opposed to general sensation seeking). In contrast, the behavioral deviance component of psychopathy reflects externalizing vulnerability—that is, the broad factor that accounts for the covariance among various impulse control problems, including child and adolescent antisocial behavior and substance use disorders. From a neurobiological standpoint, this vulnerability reflects deviations in the functioning of higher brain systems that operate to regulate emotion and guide decision making and action in situations involving competing cues. In terms of personality traits, high externalizing is marked by traits of impulsiveness (low constraint) and high negative emotionality (particularly aggression and alienation).

Relations between the two factors of the PCL-R and the latent externalizing factor of general psychopathology were examined in a study conducted by Patrick, Hicks, et al. (2005). Scores on the externalizing factor were estimated from child and adult symptoms of APD, measures of alcohol and drug abuse and dependence, and scores on the constraint factor of the MPQ (cf. Krueger et al., 2002). Zero-order correlations between the latent externalizing factor and the two psychopathy factors modeled as latent variables (i.e., using item parcels; cf. Hare & Neumann, 2006) were .44 for Factor 1 and .84 for Factor 2. In addition, a regression-based structural model was used to examine associations between the unique variance in each psychopathy factor and the externalizing factor (i.e., the association of each psychopathy factor with externalizing after controlling for the other psychopathy factor). Within this model, the partial association between Factor 2 and the externalizing factor approached unity, whereas the association of the unique variance in Factor 1 with externalizing was nonsignificant. When the model was rerun with Factor 1 parsed into its interpersonal and affective facets, neither facet showed a significant association with externalizing after controlling for Factor 2. The results of this study confirm that the antisocial deviance component of the PCL-R taps the broad externalizing factor, with which APD has also been associated.

As noted in the section on APD, behavior genetics research points to a coherent, genetic basis for the externalizing factor. In addition, neuropsychological and psychophysiological studies indicate that externalizing disorders
are associated with alterations in higher brain function, as evidenced by impaired performance on frontal lobe tasks and reduced brain potential response in cognitive processing tasks. The best-established brain response indicator of externalizing psychopathology is the P300 component of the event-related potential (Facchini et al., 2002; Patrick, Bernat, et al., 2006). The close association between PCL-R Factor 2 and externalizing suggests that it would be fruitful to test for an association between P300 response amplitude and this component of the PCL-R specifically, with some consideration of potential moderating effects of age (Hill & Steinbauer, 2001). Research along these lines could help resolve inconsistencies in the literature on psychopathy and brain response (cf. Raine, 1993).

Etiologic models that focus more broadly on cognitive processing deficits may prove to be especially relevant to the antisocial deviance (externalizing) component of psychopathy. For example, Newman’s conceptualization of response modulation is reminiscent of processes that have been posited to underlie a brain potential effect known as the error-related negativity (ERN). The ERN is a negative-polarity scalp potential that peaks within approximately 100 milliseconds following an incorrect response in a speeded reaction time task. It is theorized to reflect an error detection (Schlaffers, Coles, Bernstein, Gehring, & Douchin, 1996) or conflict monitoring (Carter et al., 1998) process that serves a self-corrective function in the context of performance of an ongoing task. Brain source localization studies have converged on the anterior cingulate cortex as its probable generator (Holroyd, Dien, & Coles, 1998; Lut, Flaisch, & Tucker, 2000; Miltner, Braun, & Coles, 1997). Recent research indicates that individuals high in externalizing tendencies show reduced ERN compared with individuals low in externalizing tendencies (Hall, Bernat, & Patrick, in press). Based on the close association between PCL-R Factor 2 and externalizing, one might predict that this component of the PCL-R would show a selective association with ERN response. Consistent with this hypothesis, Dikman and Allen (2000) reported that individuals who scored low on the So scales, which as noted earlier relate exclusively to Factor 2 of the PCL-R, showed reduced ERN response in a speeded reaction time paradigm.

Based on the external correlates of the second factor of Lilienfeld’s (1990) PPI—which include impulsivity and aggression in the domain of personality, and alcohol and drug abuse as well as child and adult antisocial deviance in the realm of problem behaviors—one would also predict a selective association between this component of self-report psychopathy and the broad externalizing factor of DSM psychopathology. Blonigen, Hicks, et al. (2005) recently examined this issue in a large sample of male and female participants recruited from the community. Participants consisted of monozygotic and dizygotic twins, permitting an analysis of both phenotypic and genetic associations between scores on the two PPI factors (estimated using the trait scales of the MPQ) and scores on the externalizing factor, indexed as a composite of symptoms of child and adult antisocial behavior and alcohol,
nicotine, and drug dependence (assessed via diagnostic interview). A robust positive phenotypic association between PPI-II and externalizing scores was found for both men and women ($r = .36$ and $.40$, respectively; $p < .001$), whereas corresponding associations between PPI-I and externalizing were low ($r = .15$ and $.04$) and significant for men only ($p < .05$). Significant genetic correlations were also found between PPI-II and externalizing in both gender groups ($r = .45$ and $.52$ for men and women, respectively), indicating significant overlap in genetic contributions to the two variables; corresponding associations for PPI-I were again smaller and significant for men only. These results indicate that PPI-II is selectively associated with externalizing psychopathology in both women and men, and that this association is mediated to a significant extent by common genetic influences.

From the standpoint of the dual-process model, individuals high in externalizing vulnerability only, while impulsive, aggressive, and antisocially deviant, would not exhibit the full psychopathic syndrome described by Cleckley. The other key ingredient in the disorder is an underlying temperamental disposition marked by agency, social dominance, emotional resiliency, and a heightened threshold for defensive (fear) activation. This temperamental style moderates the expression of externalizing to yield the clinical picture of an apparently well-adjusted, likable individual who is nevertheless untrustworthy and self-serving in his or her relations with others and generally capricious in his or her behavior. For ease of reference, and in recognition of prominent theories of psychopathy that have emphasized deficits in defensive (fear) reactivity, I will refer to this temperamental disposition as low trait fear. However, it should be borne in mind that this affective disposition might entail some weaknesses in reactivity to positive appetitive stimuli as well as aversive stimuli (cf. Blair, 2006; Verona, Patrick, Curtin, Lang, & Bradley, 2004).

The conceptualization of this underlying temperament disposition emerges from studies of the psychometric and neurobiological correlates of PCL-R Factor 1 (its unique variance, in particular) and of the corresponding factor of Lilienfeld's (1990) PPI. Although these factors are not isomorphic (i.e., PPI-I correlates mainly with the interpersonal component of Factor 1, and only modestly so; Benning, Patrick, Blonigen, et al., 2005), a variety of parallels are evident in their relations with external criterion measures. As described earlier, both are associated positively with personality measures reflecting dominance, agency more broadly (including traits of well-being and achievement in addition to dominance; cf. Patrick, Curtin, & Tellegen, 2002), and narcissism, and negatively with measures of trait anxiousness (stress reactivity) and empathy. Mirroring Cleckley's positive adjustment criteria, both are also associated negatively with anxiety disorder symptoms, depression, and indices of suicidality. Indeed, Blonigen et al. (2005) reported a negative genetic association between scores on PPI-I and symptoms of anxiety and depression. With regard to neurobiological correlates, elevations on both PCL-R Factor 1 and PPI-I have been associated with a lack of fear-potentiated startle during exposure to aversive cues and with reduced amygdala reactivity to emotional stimuli in brain imaging studies.
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Antisocial Personality Disorder and Psychopathy

One key question that arises from this dual-process perspective is how to think about individuals who achieve high overall scores on the PCL-R. One possibility is that this group comprises a mixture of individuals who typify one or the other etiologic process (i.e., externalizing, low trait fear). This possibility was evaluated in a recent study by Hicks, Markon, Patrick, Krueger, and Newman (2004), who tested for the presence of psychopathy subgroups by using a sophisticated (model-based) cluster-analytic technique to categorize MPQ personality profiles of 96 male offenders with high overall PCL-R scores. The analysis yielded evidence of two subgroups: an “aggressive” subgroup characterized by high overall negative emotionality (especially aggression) and low overall constraint, and a “stable” subgroup characterized by high agency (i.e., elevated well-being, social potency, and achievement) and low stress reactivity. The profiles of these two subgroups closely resembled those associated with the externalizing and low trait fear constructs, respectively. Notably, the proportion of aggressive psychopaths (68.8%) was over twice that in the stable group (31.2%), indicating that the PCL-R as a whole is weighted toward the detection of individuals who exhibit extreme externalizing tendencies (particularly high-aggressive externalizers; cf. Krueger et al., in press). Consistent with this finding, in the aforementioned study of relations between PCL-R scores and externalizing (Patrick, Hicks, et al., 2005), the correlation between the PCL-R as a whole and scores on the latent externalizing factor was .7. However, the findings of Hicks et al. (2004) indicate that individuals resembling Cleckley’s psychologically well-adjusted prototype are also represented among high PCL-R scorers. It seems reasonable to suppose that individuals who more purely exemplify the low trait fear diathesis (i.e., without accompanying externalizing vulnerability) would be more strongly represented among “successful” psychopathic individuals who achieve positions of stature within the community (e.g., corporate executives, political leaders; see Hall & Benning, 2006; Hare, 1993; Lykken, 1995).

Another key issue is how the affective facet of PCL-R Factor 1 (encompassing absence of remorse, lack of empathy, shallow affect, and failure to accept responsibility for actions) maps onto this dual-process model. The variance in this facet overlaps statistically both with the interpersonal facet and with the behavioral deviance embodied in Factor 2, so one possibility is that deficient affectivity is associated with externalizing vulnerability as well as with low trait fear. In the case of externalizing vulnerability, affective deficits may arise secondarily to impairments in higher brain systems (cf. Davidson, Putnam, & Larson, 2000; Patrick & Lang, 1999). However, the unique variance in the affective facet of the PCL-R must also be considered. This variance relates minimally to personality variables and also shows some association with low social closeness (Hall et al., 2004). The unique variance in the affective facet also shows some relationship to criminal offense behavior, particularly violent types of offenses—suggesting that it taps something of the detached, coldhearted nature of the criminal psychopath. Fowles and Dindo (2006) theorized that this affective component of PCL-R psychopathy arises in part from negative
relationship experiences early in life (with parental figures, in particular) that operate separately from the diatheses underlying impulsive-externalizing tendencies and fearless temperament. Further research is needed to establish whether a separate etiologic mechanism underlies this affective facet of PCL-R psychopathy, and the extent to which the unique variance in this facet (which appears to reflect aggressiveness and interpersonal detachment) is part of Cleckley's original conceptualization of the disorder.

Approaches to Treatment of Antisocial Personality Disorder and Psychopathy

Reviews of the literature on the treatment of antisocial and psychopathic individuals have generally emphasized the difficulties inherent in treating such individuals and the ineffectiveness of psychological interventions with these disorders (e.g., Barley, 1986; Blackburn, 1993, chaps. 13-14; Harris & Rice, 2006). For example, Harris and Rice (2006) concluded that standard psychological interventions for offenders, such as individual cognitive-behavioral therapy, group psychotherapy, and therapeutic community programs, are completely ineffective with psychopaths. In fact, these authors cited findings from some outcome studies indicating that psychopathic individuals who participated in psychotherapeutic treatment actually reoffended at higher rates after release than psychopathic individuals who did not receive such treatment. As an explanation for this counterintuitive finding, Harris and Rice suggested that participation in psychotherapy led to improvements in the ability of psychopaths to exploit the weaknesses of other people as a function of their increased understanding of others' motives without accompanying increases in emotional sensitivity. However, Rice and Harris did allow that some highly structured forms of behavioral therapy (e.g., behavior modification aimed at specific skills development, multisystemic therapy targeting influences in the family and local community) might prove more effective with this population—while acknowledging that the outcome studies required to evaluate this possibility remain to be done. However, other authors have identified cross-situational generalization and treatment maintenance as problems in highly structured behavioral interventions, particularly when it comes to the treatment of chronic offenders (Barley, 1986; Blackburn, 1993, chap. 13).

The kinds of cognitive and emotional processing impairments that have been posited to underlie psychopathy may pose a basic obstacle to the effectiveness of purely psychological interventions. As has been suggested with attention deficit hyperactivity disorder, induction of changes in the functioning of underlying neural systems—for example, through pharmacological means—may be required first before cognitive and behavioral interventions can have a significant impact on maladaptive behaviors associated with APD and psychopathy. In this regard, evidence has accumulated for the effectiveness of drug treatments for certain impulse control (externalizing) problems,
INTEGRITY DISORDERS

...res, in particular) that active-externalizing ten-
tends needed to establish effective facet of PCL-R
scale in this facet (which attachment) is part of

Antisocial Personality Disorder and Psychopathy

...including impulsive aggression (e.g., lithium, selective serotonin reuptake inhibitors; Minzenberg & Siever, 2006), alcoholism (e.g., acamprosate, naltrexone; O'Malley, Croop, Wroblewski, Labriola, & Volpicelli, 1995; Paille et al., 1995), sexual deviancy (e.g., androgens; Briken, Hill, & Berner, 2003), and pathological gambling (e.g., naltrexone; Kim & Grant, 2001). The fact that certain drug treatments (e.g., naltrexone) have proven to be effective with impulse control problems of different kinds fits with the idea that disorders within the externalizing spectrum have shared etiologic underpinnings (Krueger et al., 2002). From the perspective of the hierarchical model of externalizing (Krueger et al., 2002, in press), particular pharmacological treatments may be needed to target neurocognitive impairments associated with general externalizing vulnerability, whereas others may be needed to target distinctive cognitive and affective processing deviations that underlie aggressive and addictive problems within this spectrum.

From the perspective of the dual-process model of psychopathy, an effective intervention strategy would also need to separate with the interpersonal and affective elements of psychopathy that are distinguishable from general externalizing vulnerability. As noted in the last part of the preceding section, the affective features of psychopathy (which reflect aggressiveness and social detachment) may intersect with the aggressive subfactor of externalizing. In contrast, the variance in the interpersonal component of PCL-R psychopathy that is distinct from externalizing (and that is tapped by the first factor of the PPI) appears to reflect aspects of positive psychological adjustment (dominance, nonanxiousness, fearlessness) in addition to aspects of deviancy. Precisely because it is associated with resiliency and an absence of distress, this component of psychopathy may pose an important obstacle to therapy that may need to be dealt with in a fundamentally different way from that by which externalizing features of the disorder are dealt with.

In summary, to be maximally effective, therapeutic intervention strategies for APD and psychopathy will need to recognize and contend with the variegated nature of these syndromes. Specifically, multifaceted treatment programs that employ pharmacological as well as psychological-behavioral techniques to target specific processing impairments associated with distinctive symptomatic features—including general impulsiveness, callous aggression, addictive urges, and insouciant narcissism—are likely to offer the best hope for dealing with these challenging and costly disorders (cf. Seto & Quinsey, 2006).

Conclusion

APD and psychopathy are related but distinctive phenomena. APD as defined in the DSM can be seen as one behavioral expression (facet) of a broader underlying vulnerability to problems of impulse control. Among disorders within the externalizing spectrum, APD is characterized particularly by irritability and aggressiveness along with impulsiveness and irresponsibility. Psychopathy as
defined by Hare’s PCL-R intersects with APD through its social deviance (Factor 2) component, which taps the broad externalizing factor of which APD is an indicator. In addition to externalizing, however, the PCL-R includes items that tap, to some degree, the nexus of positive adjustment and interpersonal-affective deviancy that Cleckley described as the “mask” component of psychopathy. Recent research findings indicate that the first factor of Lilienfeld’s (1990) PPI, which comprises elements of dominance, stress immunity, and fearlessness, may tap this mask component in a purer fashion. Other evidence suggests that this component of psychopathy may reflect a different underlying neurobiological mechanism (i.e., individual differences in trait fear) from the externalizing component (i.e., individual differences in anterior brain function). Further systematic research on these two distinctive components of the psychopathy construct, one of which intersects fundamentally with APD, should help to elucidate the essential nature of these high-impact disorders and contribute to improved strategies for dealing with them.

Notes

1. Lykken (1995) proposed that the distinctive use of these two terms be revived. Specifically, he proposed that the term psychopath be used for individuals whose pathology is primarily constitutional in origin (i.e., the product of extreme temperament) and that the term sociopath be applied to individuals whose pathology is determined more by environmental factors (in particular, by deviant or inadequate parenting).

2. Cleckley’s idea that the essence of true psychopathy lies in deficient affectivity and impaired social relations was adopted by other influential writers in the field. Cleckley’s contemporary Karpman (1941, 1948) introduced the distinction between primary and secondary psychopathy. Karpman’s view, paralleling Cleckley’s, was that true (“primary”) psychopathy reflects a constitutional deficit in emotional responsiveness, whereas pseudo (“secondary”) psychopathy arises from negative socialization experiences that instill hostility, alienation, and rebellious behavior. Johns and Quay (1962) characterized psychopathy as involving a disconnection between affect and cognition (i.e., psychopaths know the “words” of emotion, but not the “music”). McCord and McCord (1964) described “lovelessness” and “guiltlessness” as the essence of the syndrome. This impact of Cleckley on conceptualizations by others in the field helps to explain why experts in psychopathy have been so critical of the DSM’s APD construct for its overemphasis on symptoms of behavioral deviance.

3. It should be noted that alternative versions of the PCL-R have been developed for various purposes. A shortened, screening version (PCL:SV; Hart, Cox, & Hare, 1995) was developed for more efficient clinical assessment in forensic populations as well as for use in high-risk community studies. A youth version (PCL:YV; Forth, Kosson, & Hare, 2003) has been developed for use with adolescent offenders. The Antisocial Process Screening Device (APSD; Frick & Hare, 2001), a psychopathy inventory for younger children, was modeled after the PCL-R. In addition, efforts are under way to develop a version of the PCL-R called the Business Scan (B-Scan; Babiak & Hare, 2005) for identifying individuals with psychopathic tendencies in corporate environments.
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though its social deviance factor of which APD is a part, the PCL-R includes items that parallel personalization component of psychiatric factor of Lilienfeld's "emotional immaturity," and fear of being watched. Other evidence suggests a different underlying factor (trait fear) from the social brain function. Proponents of the psychiatrists who are using APD, should act disorders and con-

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4. One report, by Schmitt and Newman (1999), failed to detect significant negative relations between PCL-R factor 1 and measures of trait anxiety. However, the level of interrater reliability for overall PCL-R scores in this study was quite low (only .70) in relation to other published studies, and reliabilities for the two PCL-R factors were not reported. Because factor scores are based on fewer items, reliabilities for these scores would likely have been even lower. The unreliability of PCL-R scores (which would operate to attenuate correlations with criterion measures, including anxiety scales) could account for the discrepancy between the findings of this study and those of other studies that have examined associations between the PCL-R factors and anxiety measures.

5. Other work has shown that the two factors of the PPI can also be effectively estimated using scores from other omnibus inventories of personality. For example, Sellbom, Ben-Porath, Graham, Lilienfeld, and Patrick (2005) reported cross-validated multiple correlations of .62 and .60 for the prediction of PPI-I and PPI-II, respectively, from scores on the restructured clinical scales of the MMPI-2 (Tellegen et al., 2003). Ross et al. (2005) reported average split-half cross-validation reliabilities of .75 and .78 for the prediction of PPI-I and PPI-II, respectively, from scores on the NEO-PI-R. These findings, together with those for the MPQ (Benning et al., 2003), open the door to a further investigation of the criterion-related and predictive validity of these distinctive psychopathy constructs in large existing data sets in which scores on one or more of these omnibus inventories of personality are available.

6. The moderate level of association between PPI-II and externalizing in this study probably reflects the fact that the two variables were assessed using different methods (i.e., self-report versus clinical interview). In more recent work (Patrick, 2005), we found a much higher phenotypic association between PPI-II and externalizing (r = .84) when both variables were assessed using the same method (i.e., self-report).


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Authors' notes: Preparatory Institute of Mental Health. Some of the information is from second and third authors: Personality Disorder: Wh 1998). Correspondence cc Bradley, Ph.D., Director, Clairmont Road, Atlanta,