Personality Constellations in Incarcerated Psychopathic Men

11 authors, including:

Pavel S Blagov
Whitman College
23 PUBLICATIONS   1,214 CITATIONS

SEE PROFILE

Christopher J Patrick
Florida State University
61 PUBLICATIONS   5,096 CITATIONS

SEE PROFILE

Abigail Powers Lott
Emory University
70 PUBLICATIONS   1,220 CITATIONS

SEE PROFILE

Kate Lieb
Brigham and Women's Hospital
1 PUBLICATION   21 CITATIONS

SEE PROFILE

Personality Constellations in Incarcerated Psychopathic Men

Pavel S. Blagov
Whitman College

Christopher J. Patrick
Florida State University

Scott O. Lilienfeld
Emory University

Abigail D. Powers
Washington University in St. Louis

Justine E. Phifer
Emory University School of Medicine

Noah Venables
Florida State University

Marissa Hudak
University of Colorado at Denver School of
Medicine

Daniel J. Herres
University of Connecticut

Kate Lieb
Emory University

Sophia C. Garvin Leigh
Clark Atlanta University

Gabrielle Cooper
Emory University

Advances in the operationalization of psychopathy have led to an increased understanding of the boundaries, structure, and nomological network of this construct, although significant questions remain. The empirical identification of replicable and theoretically meaningful psychopathy subtypes may help to improve the classification and diagnosis of this condition. We conducted a classification study of 91 incarcerated men who met conventional criteria for high levels of psychopathy using the Psychopathy Checklist-Revised. We expanded on the methodology of previous research on psychopathy subtypes by utilizing a comprehensive personality assessment instrument and a prototype matching approach to classification. The analyses revealed a primary (narcissistic) subtype and a secondary (hostile and dysregulated) subtype that were broadly consistent with the previous literature. External validation analyses, statistical controls, and incremental validity analyses provided substantial support for the primary and secondary subtypes.

Keywords: personality pathology, personality disorders, psychopathy, psychopathy subtypes, Shedler-Westen Assessment Procedure, Q-factor analysis

Psychopathy is a malignant personality disorder (PD) with serious, sometimes grave, psychosocial outcomes (Hare, 1970, 1996). In his classic monograph on psychopathic individuals, Cleckley (1941/1988) described seemingly intelligent and nonpsychotic persons who were non-neurotic and superficially charming, but insincere, unreliable, unloving, and egocentric.

Furthermore, he noted that they often drifted through life behaving antisocially, failing to learn from consequences, and feeling little or no guilt. Contemporary researchers interested in criminal psychopathy have relied on the Psychopathy Checklist (PCL; Hare, 1980), currently in revised form (PCL-R; Hare, 2003). With a prevalence of 1% in the general and up to 25% in prison populations, PCL-R psychopathy is a strong predictor of recurrent criminality, violence, and other serious forms of maladjustment (Brinkley, Newman, Widiger, & Lynam, 2004; Hart & Hare, 1996; Levenson, Kiehl, & Fitzpatrick, 1995; Porter et al., 2000; Porter & Woodworth, 2006).

Although contemporary researchers have tended to view psychopathy as a unitary construct, mid-20th-century clinicians described provisional subtypes of this condition (e.g., Alexander, 1930; Karpman, 1946). Recently, the delineation of psychopathy subtypes has received attention through systematic empirical analysis (Cooke, Michie, & Hart, 2006; Hervé, 2007; Skeem, Poythress, Edens, Lilienfeld, & Cale, 2003). In this study, we extend what is known about variation in psychopathy by applying a prototype-based classification approach using a comprehensive personality pathology item set. We use this approach to test hypotheses regarding empirically occurring personality subtypes and their correlates in highly psychopathic male prisoners.

Heterogeneity in Psychopathy

The PCL-R comprises multiple content domains. Exploratory factor analyses of the original PCL items (Harpur, Hare, & Hakstian, 1989) revealed two oblique factors, the first capturing aspects of emotional and interpersonal functioning (e.g., social poise, manipulativeness, callousness, detachment), and the second reflecting an impulsive, antisocial lifestyle (e.g., impulsivity, irresponsibility, aggression, and early behavioral problems). Factor 1 is negatively correlated with negative emotionality, whereas Factor 2 is positively correlated with negative emotionality, substance abuse, and suicidality (e.g., Frick, Lilienfeld, Ellis, Loney, & Silverthorn, 1999; Hicks & Patrick, 2006). Factor 2 is more closely linked to Antisocial PD (ASPD) and Conduct Disorder (CD)

(Frick, O'Brien, Wootton, & McBurnett, 1994), whereas Factor 1 bears greater discriminant validity with regard to ASPD (Cooke & Michie, 1997).

More recent factor analytic studies of the PCL-R complicate the picture. Cooke and Michie (1997, 2001; Cooke et al., 2006) reported a three-factor structure with distinctive interpersonal and affective facets within Factor 1. Hare (2003) subsumed the three-factor structure under a new four-factor model (interpersonal, affective, antisocial, and lifestyle). Self-report measures of psychopathy (Benning, Patrick, Hicks, Blonigen, & Krueger, 2003; Dolan & Rennie, 2006; Levenson et al., 1995; Lilienfeld, 1996) show evidence of two or three distinctive factors. It seems that solutions with more than two factors describe domains of personality functioning rather than coherent syndrome subtypes. An intriguing question is whether the factors evident in the two- and three-factor solutions of these measures are dimensional proxies for differing subtypes of psychopathic individuals. For example, the long-standing distinction (dating back to Karpman, 1946) between "primary psychopathy" (PP; characterized by goal-directed, callous, manipulative, and selfish tendencies) and "secondary psychopathy" (SP; characterized by high negative affectivity and reactive aggression) may map roughly onto PCL-R Factors 1 and 2.

Three groups of studies focus on the issue of psychopathy subtypes. One group consists of studies that sampled for subgroups of "psychopaths" based on a priori assumptions. For example, Lykken (1957) sampled for "neurotic" (corresponding to Karpman's secondary) and "primary" psychopaths among prisoners and found that neurotic psychopaths scored higher than nonpsychopathic prisoners and primary psychopaths on measures of anxiety, but intermediate on a measure of the preference for frightening versus boring or onerous activities. Primary psychopaths scored the highest, suggesting that they lacked fear. The primary and, to a lesser degree, the neurotic type showed poor anticipatory aversive conditioning in both classical and operant paradigms. A recent study of this kind (Newman, MacCoon, Vaughn, & Sadeh, 2006) sorted psychopathic inmates more formally into primary and secondary groups on the basis of PCL-R Factor 1 and 2 scores and a

trait anxiety scale. PP was associated with low sensitivity to punishment cues and low behavioral inhibition, whereas SP was associated with high reward sensitivity, high sensitivity to punishment cues, and behavior activation on self-report measures. One limitation of such studies is that, because they defined subtypes a priori, no provision was made for unanticipated subtypes to emerge. Furthermore, these studies used suboptimal approaches to the grouping of individuals: Lykken (1957) relied on global clinical judgments by experts, whereas Newman's group (2006) used aggregate scores as the basis of the categorization (which assumes an a priori pattern of associations among the items).

A second category of studies cluster-analyzed personality profiles of unselected male offenders, reporting varying numbers of subtypes, among them typically one or more psychopathic ones (Alterman et al., 1998; Blackburn, 1975; Blackburn & Coid, 1999; Haapasalo & Pulkkinen, 1992). A limitation of many of these studies is their use of conventional cluster analysis (CA) techniques that are highly sensitive to sample characteristics and measurement method. Furthermore, typically only the total scores of scales entered into the analyses, meaning that the analyses did not model the variance of individual items. Thus, assumptions about the data structure made when the scales were created were treated by CA, and the extent to which individual items may associate differentially with participant clusters is ignored. Such techniques also generally lack established conventions for selecting a cluster solution.

A third group of studies focused on subtyping individuals selected specifically to be high in overall psychopathy. Morana, Camara, and Arboleda-Florez (2006) used varying traditional methods of CA to classify forensic inpatients with overall PCL-R scores of 23 (well below the standard PCL-R cutoff of 30) or higher into subgroups on the basis of PCL-R facet scores; across analyses, two clusters tended to emerge that mapped roughly onto Factors 1 and 2. Two other studies that focused exclusively on high PCL-R scorers used the technique of model-based CA, which arbitrates among competing cluster solutions using goodness-of-fit crite-ria. Hicks, Markon, Patrick, Krueger, and Newman (2004) studied a sample of prisoners who met the formal PCL-R cutoff for a classification of psychopathy (total score ≥30). Normal personality trait scores served as cluster variates in a model-based CA. The best-fitting model featured two clusters: an "emotionally stable" cluster (akin to PP), distinguished by low anxiousness and high agency, and an "aggressive" cluster (akin to SP), marked by high anxiousness, alienation, and aggression and low overall constraint. Participants in the emotionally stable cluster exhibited higher estimated verbal intelligence and scores on a self-report measure of socialization. Participants in the aggressive subgroup endorsed more fights in childhood, earlier ages of first criminal charges in adulthood, and more alcohol problems. A more recent study of high psychopathy offenders (Skeem, Johansson, Andershed, Kerr, & Louden, 2007) undertook a model-based CA using scores on Cooke and Michie's (2001) three PCL-R factors, together with scores on a trait anxiety measure as cluster variates. Using specifications similar to Hicks et al.'s (2004), this group reported evidence of distinct "primary" and "secondary" clusters.

In summary, PS and SP have tended to emerge in the subtyping literature, but the extant research has certain limitations. Few studies subtyped individuals who had been diagnosed using bona fide PCL-R assessment and conventional score cutoffs (see Hicks et al., 2004, for an exception). Most studies (except for Hicks et al., 2004, and Skeem et al., 2007) used traditional CA methods with documented psychometric limitations (a tendency to find clusters regardless of the underlying structure of the data; subjectivity and lack of conventions in deciding how many clusters are present; poor replicability; Aldenderfer & Blashfield, 1984). Furthermore, prior research has tended to rely on a limited number of selected composite scores, PCL-R items, or self-report measures. An empirical classification of PCL-R psychopaths using a comprehensive personality pathology assessment would contribute to a "risky" test (Popper, 1960) of the hypotheses derived from a theory of psychopathy (see below), because it would allow for a greater range of

possible unexpected outcomes that could disconfirm a priori predictions.

Theoretical Bases for A Priori Predictions

Before presenting our hypotheses and their rationale, we review the dual-process model (Fowles, 1987; Fowles & Dindo, 2009; Patrick, 2007), which may account for the heterogeneity within psychopathy in terms of individual differences in temperament. Fowles adapted Gray's (1987) theory of motivation to explain temperament in terms of variation in the functioning of three brain systems: a fight-or-flight system, a behavioral inhibition system (BIS), and a behavioral activation system (BAS). BIS underactivity would lead to low fear, poor socialization, and antisocial behavior, consistent with PP. Apropos SP, BAS overactivity may lead to impulsive and often antisocial behavior.

Lykken (1995) integrated this model with his fear deficit hypothesis, predicting two "kinds" of psychopathy. PP's core features are low fear and ostensibly derivative traits that map onto the PCL-R Factor 1 symptoms of glibness and superficial charm, grandiosity, deceitfulness, guiltlessness, shallow affect, and lack of empathy. Arguably, low fear also predisposes to unreliability, inadequately motivated antisocial behavior, lovelessness, and an impersonal sex life, which do not typically load on Factor 1. In contrast, SP is ostensibly characterized by high behavioral activation and, as a result, the PCL-R Factor 2 items of impulsivity, need for stimulation/ boredom proneness, poor behavioral controls, early behavioral problems, revocation of parole, and irresponsibility.

Along similar lines, Patrick (2007) discussed the behavior of psychopathic individuals in terms of the interplay of defensive and appetitive motivational systems. At low intensities of ambiguous threat, defensive and appetitive systems activate in parallel. At higher aversive stimulus intensities, the two systems act in opposition, with defense preempting approach in favor of withdrawal (avoidance). The fear threshold is the point at which coactivation of the two systems shifts to defensive mobilization. Individuals with a weak defensive system (BIS deficit) would have a high threshold for fear reactivity and their appetitive behavior would persist under contingencies of punishment and frustrative nonreward. This disposi-

tion is theorized to underlie PP with Factor 1 features, marked by deficits in negative emotions, in particular fear, despite normal appetitive motivation. Patrick's account of SP takes into account findings that implicate attentional and executive functioning in psychopathy (e.g., Newman, 1998). Because of attentional deficits, individuals with SP neglect aversive cues once appetitive cues trigger approach behavior. In such cases, punished behavior persists despite a normal BIS, resulting in maladaptive behavior and negative emotions. The idea of differing etiologies underlying the affective-interpersonal (Factor 1) and antisocial deviance (Factor 2) components of psychopathy, analogous to the idea of differing etiologies underlying PS and SP, is the *dual-deficit* (Fowles & Dindo, 2006) or *dual-process model* of psychopathy (Patrick, 2007).

On the basis of the model outlined above, and taking into consideration prior factor analytic and cluster-analytic findings, we hypothesized the emergence of a PP subtype marked by low negative emotionality and high agentic positive emotionality, along with an SP subtype marked by externalizing, neurotic, and impulsive tendencies.

The Present Study

We examined mutually nonexclusive personality constellations in psychopathic incarcerated men to expand on prior research and address its limitations. Few prior subtyping studies used participants who met conventional criteria for psychopathy based on a bona fide PCL-R assessment. To address this limitation, we focused on a sample of male offenders with PCL-R scores ≥ 30, the conventional cutoff for psychopathy. In fact, for selection purposes, we used PCL-R scores based on averaged ratings by two examiners who used data from a standard interview as well as prison file data (as recommended by Hare, Hart, & Harpur, 1991).

Basing participant selection on the PCL-R may have some disadvantages. It may not capture psychopathy as fully (it has no items for low anxiety or fearlessness) or as narrowly (it emphasizes impulsivity and criminality) as some theorists conceptualize it. In addition, it may underdiagnose psychopathy in noncriminal individuals (Lilienfeld, 1994). Nevertheless, the

PCL-R is the best selection measure available for research with prison samples, as it has demonstrated concurrent and predictive validity for forensic purposes, and it has received support from laboratory tests involving psychophysiological and neuroimaging measures (Lilienfeld, 1998; Patrick, Bradley, & Lang, 1993; Pridmore, Chambers, & McArthur, 2005).

Psychopaths were the focus of subtyping because these individuals are of particular interest to psychologists, psychiatrists, and forensic and legal experts and can be treated as a separable class for clinical and research purposes. The use of inmates with PCL-R diagnoses of psychopathy in this study does not imply an assumption of taxonicity and, as will become evident below, we used a subtyping method that is consistent with both dimensional and categorical approaches to classification and diagnosis. By focusing on participants with a high level of psychopathy, we avoided the potential pitfall that subtypes might not be equally separable or stable at lower severity levels. A second notable feature is our use of a prototype matching approach (Westen, Shedler, & Bradley, 2006), which, as noted above, is well suited for both dimensional and categorical analyses. An ideal type represents a description of a hypothetical exemplar of a condition that contains no necessary or sufficient features; the more an individual approximates the ideal, the more relevant the diagnosis (Schwartz, Wiggins, & Norko, 1995; Widiger, 1982). A prototype is similar to an ideal type in its selective listing of characteristics and recognition of diagnostic fuzziness, but it enumerates all relevant statements that describe the condition rather than being a synthesized abstraction. Its contents are drawn from empirical reality.

To distill personality prototypes in participants with significant personality pathology on an empirical basis, we used a comprehensive personality pathology assessment instrument (one that included psychopathy items, among other items) that did not rely on self-report. In addition, we utilized a clustering technique able to model patterns of covariation among lengthy comprehensive personality profiles to allow naturally occurring participants clusters to emerge with minimal assumptions about their distinctive prototypes.

Hence, a third notable feature of our study is our use of a comprehensive pool of personality and psychopathology descriptors from the Shedler-Westen Assessment Procedure–II (SWAP-II; Westen & Shedler, 1999a) as grouping variables, which imposed no a priori limit on the array of variables (e.g., to selected items or factor scores of the PCL-R, a circumscribed set of normal traits, or a formal group of PD diagnoses). The SWAP-II includes items that capture most of Cleckley's and Hare's indicators of psychopathy, along with a wide range of items covering traits and behaviors putatively linked to psychopathy subtypes. By using a broad array of descriptors spanning normal and abnormal personality, in conjunction with a clustering technique that focused on items rather than scale scores, we were able to compare our results with the three theories of psychopathy discussed earlier. Our strategy thus met criteria for item selection in research on psychopathy subtypes recommended by Poythress and Skeem (2006).

A further methodological feature of this study is our use of Q-factor analysis (QFA) to identify naturally occurring personality constellations (Block, 1978). QFA generates empirical prototypes by intercorrelating participants' item profiles to extract subgroups of patients who resemble one another and differ from others. It also identifies the items that best describe each prototype. The underlying Q-factors can be oblique, which is important because none of the theories we reviewed predict mutually exclusive subtypes. In this regard, QFA has an advantage over CA. Whereas CA defines groups with exclusive membership by drawing distinct boundaries around the participants in each cluster (Punj & Stewart, 1983), QFA extracts prototypes that are separable but not necessarily mutually exclusive. In addition, compared with traditional forms of CA, QFA has stronger conventions and computational procedures to aid in selecting a solution. Compared with QFA, such modern forms of CA as model-based clustering in latent-class analysis have the advantage of offering goodness-of-fit estimates to aid in choosing a model solution. However, compared with modern forms of CA (e.g., Banfield & Raftery, 1993) and latent class and latent profile analysis, QFA does not assume that participants originate from mutually exclusive populations, and it is uniquely suited to identifying prototypes based on a large number of candidate items. Whereas alternative clustering methods

might have required preliminary data reduction (Fraley & Raftery, 2002) of the comprehensive 200-item personality assessments captured by the SWAP-II, QFA accommodated our goal of not limiting classification to only a few select variables to allow for the possibility of unexpected subgroups.

The specific hypotheses of the study were as follows. First, we predicted two oblique Q-factors representing primary and secondary subtypes of psychopathy. We expected PP to be distinguished by low negative emotionality (particularly anxiety) and high agentic positive emotionality, characterized by narcissism and social efficacy. We did not expect high aggression to characterize this subtype. In contrast, we predicted SP to be distinguished by aggressive-externalizing tendencies, elevated negative affectivity (including heightened anxiety and hostility), and impulsive inattention/hyperactivity.

In addition, we made predictions about relationships between participants' match to the psychopathy subtypes and a wide range of criterion variables: PCL-R scores, ASPD diagnosis, and counts of antisocial behaviors in childhood and adulthood provided by an independent research team; childhood abuse history; self-report measures of temperament and general traits including anger, sensation seeking, and socialization; and observer-report measures of aggressive and attentional impulsivity. We hypothesized that the PP subtype would be positively linked to PCL-R Factor 1 and measures of appetitive behavior (extraversion, positive emotionality, sensation seeking, and activity); we also predicted that it would be negatively linked to variables associated with negative affectivity (e.g., neuroticism, anxiety, fear, and the need to control anger). Within a psychopathic sample, PP should be linked to greater restraint; thus, we predicted negative associations and attentional impulsivity and a positive link to age of first criminal charge. PP should also exhibit a weak negative link to childhood abuse, as the greater restraint and social efficacy of children prone to develop PP may protect them from caregiver aggression, especially relative to children prone to develop SP (who likely participate in mutually coercive relationships with their caregivers; e.g., Patterson, Reid, & Dishion, 1992). We hypothesized SP to be linked to PCL-R Factor 2 as well as indices of antisocial behavior, childhood conduct problems, earlier offending, num-

ber of criminal charges, variables associated with negative affectivity (e.g., anger, neuroticism, fear) and impulsivity. We anticipated that, in line with earlier onset of antisocial behavior and pervasive negative emotionality, SP would also be associated with greater levels of childhood adversity, namely, abuse. The hypotheses are listed in Table 1.

To rule out potential confounds associated with rater biases, we included measures of rater confidence and psychopathy-related interview behavior. We operationalized rater confidence with a brief self-report measure and interper-

Table 1

Hypothesized Relationships Between Primary and Secondary Psychopathy and External Criteria

| External Validation Criteria | Psychopathy | |
	Primary	Secondary
PCL−R factor 1	+	
PCL−R factor 2		+
Antisocial Personality Disorder		+
Adult antisocial behaviors		+
Childhood antisocial behaviors		+
Childhood violent behaviors		+
Childhood abuse (records)	−	+
Childhood abuse (interview)	−	+
Age first charge	+	−
Total charges by 17		+
Nonviolent charges		+
Nonviolent institutional charges		+
Anger Expression: Total		+
Anger In	−	+
Anger Out		+
Anger Control	−	+
NEO−FFI Extraversion	+	
NEO−FFI Neuroticism	−	+
NEO−FFI Conscientiousness		−
NEO−FFI Agreeableness	−	
NEO−FFI Openness	+	−
PANAS Positive Affect	+	
PANAS Negative Affect	−	+
MPQ Positive Emotionality	+	
MPQ Negative Emotionality	−	+
MPQ Constraint		−
Socialization Scale		−
Sensation Seeking Scale Total	+	−
EASI Sociability		−
EASI Activity	+	
EASI Impulsivity		+
EASI Fearfulness	−	+
EASI Distress	−	+
EASI Anger		+
IMPQ: Aggressive/antisocial		+
IMPQ: Inattention/hyperactivity	−	+

sonal interview behavior with the Interpersonal Measure of Psychopathy (IM-P; Kosson, Steuerwald, Forth, & Kirkhart, 1997).

Method

Participants

Videotaped interviews, prison file data, and self-report measures were gathered from incarcerated men in part during previous projects (Bernat, Hall, Steffen, & Patrick, 2007; Hicks et al., 2004) and in part during ongoing projects. The participants were male residents of federal and state prisons in Florida and Minnesota who gave informed consent and received modest compensation. From a larger pool of assessment participants ($N = 815$), we selected a probability sample of 91 men who met diagnostic criteria for psychopathy (overall PCL-R score ≥ 30; Hare et al., 1991) for subtyping and validation. (Analyses revealed that the subsamples from the two prisons did not differ significantly in their overall PCL-R scores.) To ensure blindness of ratings, we added a probability sample of 36 men with PCL-R scores <30. The demographics of the resulting sample were similar to those of the overall participant pool: ages range = 19 – 55 years ($M = 32.1$, $SD = 7.6$); racial/ethnic composition = 52% White, 35% Black, 10% Hispanic, and 3% other. The psychopathy sample did not differ significantly in ethnicity and age from the overall participant pool.

Procedures

The first author, then an advanced doctoral student in clinical psychology, served as principal rater and trained the other study raters, who were two research assistants with bachelor's degrees in psychology and four undergraduate research assistants with varying degrees of experience in psychopathology coursework and research ranging from none to considerable for their level of training. The principal rater was blind to the PCL-R scores of the participants, and the remaining raters were naïve to the scope of the project, the hypotheses, the literature on psychopathy subtypes, the base rate of PCL-R psychopathy in the sample, and participants' PCL-R scores. All raters were blind to the validation data. Training consisted of didactic instruction in personality pathology, styles, and

traits, the nature of clinical interviewing, directions for using the rating measures, and practice ratings. Raters received training on five to eight sets of complete ratings with detailed feedback. Attainment of satisfactory reliability (median Q-correlations with the principal rater of $r_q >$ .60 across an additional five to eight ratings) was required to continue in the study; two raters (not included in the count above) were excluded on the basis of a failure to reach this criterion.

The raters viewed the videotaped interviews while taking detailed notes and then rated the personality traits, personality pathology, interpersonal behavior, and impulsivity of target participants, as described below. Thus, ratings using the Shedler-Westen Assessment Procedure-II, the Interpersonal Measure of Psychopathy, and the Impulsivity Questionnaire were made immediately following the viewing of each interview. The procedure took approximately four hours per participant. The principal investigator completed half of the ratings, whereas the remaining raters completed approximately equal numbers of the other half.[1]

Measures Collected Prior to the Project

Psychopathy Checklist–Revised. The PCL-R (Hare et al., 1991, 2003) consists of 20 items rated from 0–2 based on information from a semistructured diagnostic interview and prison file records (cf., Hicks et al., 2004). Sample items include "glib/superficial charm," "shallow affect," and "poor behavioral controls." The interview also included questions that assessed symptoms of CD and ASPD from the Diagnostic and Statistical Manual of Mental Disorders (*DSM–IV*; APA, 1994). Trained BA or MA-level students administered the interview, coded prison file data, and scored the PCL-R. A second BA or MA-level diagnostician viewed a recording of the interview along with a transcript of relevant file information and completed an independent rating. The two sets of PCL-R scores for each participant were averaged to increase reliability. Interrater reliability as indexed by intraclass correlation coeffi-

---

[1] In a subsequent multivariate analysis, the extent to which participants' comprehensive personality profiles correlated with the personality subtypes we identified was statistically independent of the identity of the raters, $F(6, 84) = 0.27$, $\Lambda = .962$, $p = .993$.

cients (ICC) ranged from .77–.95 for the larger studies and from .90–.96 for the current project. We used PCL-R Total scores for participant selection as described above, and PCL-R Factor 1 and 2 scores for external validation of subtypes. We based PCL-R factor scores on the two-factor solution rather than the three- or four-factor solutions found in prior research, because, as we noted above, the more complex solutions appear to reflect areas of functioning rather than syndromes. Child (CD) and adult symptoms of ASPD were also rated by the primary and secondary diagnosticians on the basis of interview and file information, and averaged to optimize reliability. The following additional objective variables were coded from the interview and file records by trained research assistants for use in validation: age at first criminal charge, number of juvenile charges, number of adult nonviolent criminal and institutional charges, and presence or absence of childhood abuse.

Multidimensional Personality Questionnaire-Brief Form.   The MPQ-BF (Patrick, Curtin, & Tellegen, 2002) is a 155-item measure with 11 scales and three largely orthogonal superordinate factors. Its structure maps closely onto the full version of the MPQ developed by Tellegen (1982). Sample items include "My mood often goes up and down," "I usually like to spend my time with friends rather than alone," and "I like hard work." Because roughly half of the men had completed the full MPQ and half the MPQ-BF, we standardized the scores in each half-sample to compute scores on the MPQ's three superordinate factors: Positive and Negative Emotionality (PEM and NEM) and Constraint (CON). We used these dimensions to capitalize on their reliability and to avoid difficulties arising from use of subscales from two instrument versions as equivalent. Because PEM, NEM, and CON scores are weighted aggregates of primary trait scales, we do not report α coefficients.

Data for the following seven measures were available for those participants who were recruited from the prison in Florida:

NEO Five-Factor Inventory.   The NEO-FFI (Costa & McCrae, 1992) measures five well-replicated superordinate personality traits: Neuroticism (N; e.g., "I am not a worrier", reversed), Extraversion (E; e.g., "I laugh easily"), Openness (O; e.g., "I have a lot of intel-

lectual curiosity"), Agreeableness (A; e.g., "Most people I know like me"), and Conscientiousness (C; e.g., "I keep my belongings clean and neat"). NEO-FFI data were available on a third of the sample: $\alpha(N) = .67$, $\alpha(E) = .74$, $\alpha(O) = .75$, $\alpha(A) = .68$, $\alpha(C) = .81$.

Positive and Negative Affect Schedule–20. The PANAS-20 (Watson, Clark, & Tellegen, 1988) is a 20-item self-report measure that uses Likert-type ratings to capture two largely orthogonal dispositional dimensions of mood: positive affect (PA; e.g., "interested," "proud") and negative affect (NA; e.g., "upset," "scared"). PANAS data were available on 43 participants: $\alpha(PA) = .85$ and $\alpha(NA) = .75$.

State-Trait Anger Expression Inventory–2.   The STAXI-2 (Spielberger, 1999) is a 57-item self-report measure. For 34 participants, data were available on the following scales of Trait Anger Expression: Anger Out (how often anger is expressed, $\alpha = .80$; e.g., "I argue with others"), Anger In (how often it is suppressed, $\alpha = .71$; "I keep things in"), Anger Control (efforts to cool off/calm down, $\alpha = .74$; "I control my anger"), and Total ($\alpha = .56$).

Sensation Seeking Scale–V.   The SSS–V (Zuckerman, Eysenck, & Eysenck, 1978) is a 40-item forced-choice self-report measure of "the seeking of varied, novel, complex, and intense sensations and experiences, and the willingness to take physical, social, legal, and financial risks for the sake of such experience" (Zuckerman, 1994, p. 27) that contains four subscales: Thrill and Adventure Seeking ($\alpha = .66$; e.g., "I often wish I could be a mountain climber"), Experience Seeking ($\alpha = .88$; e.g., "People should dress in individual ways even if the effects are sometimes strange"), Boredom Proneness ($\alpha = .71$; e.g., "I can't stand watching a movie I've seen before"), and Disinhibition ($\alpha = .72$; e.g., "I like wild 'uninhibited' parties"). SSS-V data were available for 33 participants, and to minimize the total number of analyses, only total SSS-V scores were used. (Subsequently, an a posteriori exploration revealed that all subscales exhibited essentially the same patterns of intercorrelation with the psychopathy subtypes as did the total SSS-V scores).

Emotionality-Activity-Sociability-Impulsivity Survey.   The EASI (Buss & Plomin, 1984) uses 25 self-report questions to measure four temperament dimensions: Emotionality

(negative emotions and their intensity; Anger, Fearfulness, and Distress subscales); Activity (tendency toward high energy, many activities, and fast-paced living); Sociability (enjoyment of the company and attention of others); and Impulsivity (disinhibition and acting before thinking). Sample items for these four dimensions include, respectively, "I get emotionally upset easily," "I am full of energy," "I am somewhat of a loner" (R), and "I often say the first thing that comes into my head." In part because of the brevity of the scales, reliabilities were more modest ($\alpha = .44–.75$, $N = 44$).

Socialization Scale. the So (Gough, 1987, 1994) consists of 46 true/false items that assess a disposition ranging from high compliance with social norms to extreme delinquency. Low scorers are seen as immature, erratic, antisocial, and irresponsible. Sample items include "Before I do something, I try to consider how my friends will react to it," and "I have often gone against my parents' wishes." We had data for 41 participants ($\alpha = .74$).

Measures Collected Specifically for the Current Project

Shedler-Westen Assessment Procedure-II. The SWAP-II (Westen & Shedler, 1999a, 1999b, 2000, 2007) is a personality pathology Q-sort. To score the SWAP-II, a trained observer rank-orders 200 items from 0 to 7, with high ranks indicating that the item is highly relevant to understanding the participant's personality and 0 indicating that the item is relatively unimportant or irrelevant. The rater makes fine-grained decisions about which items are most relevant, with eight items always receiving a rank of 7, progressively more item receiving lower ranks, and half of the items receiving a rank of 0. The resulting score distribution is asymmetric, with low item ranks implying only the absence or the relative unimportance of the item, not the importance of its opposite. Items were based on diagnostic criteria for PDs, other relevant psychopathological constructs, the personality pathology literature, research on normal traits and psychological health, and pilot research. The SWAP-II features items corresponding to most psychopathy symptoms from the PCL-R and from Cleckley's (1941/1988) list. We used the PCL-R interview videos to evaluate each participant using the SWAP-II. In a subsample of 48 participants, the median Q-correlations between SWAP-II factor profiles based on ratings by the principal rater and each of the other raters ranged from $r_q = .66 – .88$ (Md $r_q = .82$), indicating high reliability. The median internal consistency of the 16 factors was $\alpha = .71$. The following factors had $\alpha < .60$ (.26 – .53), probably because of range restriction: Obsessionality, Schizotypy, Somatization, Anxiety, and Histrionic Sexualization. Eleven factors exhibited acceptable to high reliability (αs = 62 – .91). The mean test–retest Q-correlation for five participants selected at random for reevaluation with the SWAP-II after a 4-month period was .85. We used raw item scores for the subtyping analyses to model the naturally occurring covariation patterns characteristic of the high psychopathy population.

Confidence Scale. To capture variability in rater confidence in the SWAP-II ratings, we constructed 16 questions assessing ease of making judgments, sufficiency of information, feelings of doubt, belief that the rater understood the participant well, beliefs about rating accuracy, and difficulty making the Q-sort rankings for the participant. Sample items included "I felt confident about my rankings of the items" and "It was difficult for me to decide to what extent certain items described this person [Reversed]." A principal components analysis (PCA) with the extraction of two components and a Varimax rotation explained 59% of the variance and yielded a simple structure. The first component, "Confidence," explained 45% of the variance and contained 12 items ($\alpha = .93$). The second component, "Difficulty," explained 15% of the variance and contained four items ($\alpha = .79$).

Interpersonal Measure of Psychopathy. The IM-P (Kosson, Steuerwald, Forth, & Kirkhart, 1997) is an observer measure of interpersonal interactions related to psychopathy that take place in an interview. Interviewers estimate the frequency of certain behaviors to rate each of 21 items (e.g., "interrupts," "fills in dead space") from 1–4. Because we used videos, we omitted item 21 ("intense eye contact"; see also Zolondek, Lilienfeld, Patrick, & Fowler, 2006).

In the original report on the IM-P (Kosson et al., 1997), the authors reported internal consistencies of $\alpha = .75–.91$ and interrater reliabilities

of r = .60–.83. Replicated findings regarding the scale's validity include its moderately high association with PCL-R Factor 1 and a weaker association with Factor 2 that is attributable to Factor 1 (Kosson et al., 1997; Zolondek et al., 2006). In addition, the Kosson et al. and Zolondek et al. studies each reported evidence for the IM-P's convergent and discriminant validity with respect to observer-report and self-report measures of interpersonal traits, general traits, and Antisocial Personality Disorder and Conduct Disorder; with findings for the latter, diagnostic variables were mixed. Some scholars have adopted the IM-P as an adjunct measure in comprehensive psychopathy assessments, particularly when selecting participants in psychophysiological and neuroimaging research (e.g., Yang et al., 2005). In the current study, internal consistency for the IM-P was α = .84, and interrater reliability was r = .63 (ICC = .54). Notably, the interrater reliability figure was modest compared with that reported by Kosson et al., perhaps because our raters attended to a broad array of personality and personality pathology items in rating the SWAP-II prior to the IM-P, whereas Kosson's raters were trained in scoring the PCL-R and scored it immediately before the IM-P.

The Impulsivity Questionnaire. The IMPQ (Westen & Heim, 2005), still under development, contains 50 observer-report questions measuring on a 1–7 scale the extent to which specific behaviors and inferred cognitive-affective processes (e.g., "Blurts things out without thinking") describe the participant. In the present study, a simple structure explaining 43% of the variance resulted from an Unweighted Least Squares (ULS) extraction of five factors with a Promax rotation (κ = 4). We used Aggressive Impulsivity (12 items, α = .91, interrater r = .79, ICC = .64) and Attentional Impulsivity (seven items, α = .81, interrater r = .48, ICC = .41) for the validation analyses with the recognition that the latter factor had modest interrater reliability. The remaining factors (Cognitive/affective Impulsivity, Behavioral Dyscontrol, and Immediate Gratification) were interpretable but less reliable, perhaps because these factors require more inference than the others (a possibility corroborated by feedback from raters).

Results

Most Descriptive Characteristics

Before conducting subtyping analyses, we examined descriptive characteristics of the high psychopathy sample (N = 91, PCL-R $\geq$ 30) by averaging the SWAP-II profiles across participants and sorting the items by mean score (see Table 2). The average profile in part reflected the PCL-R definition of psychopathy, featuring items that overlapped in content with 14 of the PCL-R items. Three PCL-R items (juvenile delinquency, early behavior problems, and revocation of parole) were not represented, as they have no direct SWAP-II equivalents. The SWAP-II item corresponding to the PCL-R item *grandiosity* was not represented among the top 30 ranks but played a role in delineating the subtypes, as shown below. The most descriptive characteristics included items not directly represented in the PCL-R but that reflect aggressive-externalizing tendencies (cf. Patrick, Fowles, & Krueger, 2009)—oppositionality, anger, violence, and engagement in power struggles. We averaged the 30 most descriptive items to compute a SWAP-II psychopathy score in the overall sample of 127. This total score correlated highly with overall PCL-R scores, $r(125)$ = .69, p < .001, indicating that the SWAP-II ratings were validly detecting psychopathic features.

Psychopathy Subtypes

To identify latent dimensions that capture subtypes of highly psychopathic participants, we subjected the entire SWAP-II profiles of the 91 men (PCL-R $\geq$ 30) to QFA. To determine the number of factors to extract, we performed a PCA to examine for the proportion of variance explained by the variance components. The first seven eigenvalues were greater than 1.0 and were as follows: 57.1, 3.9, 2.8, 2.0, 1.9, 1.7, and 1.2. We inspected the patterns of factor loadings and factor scores for extractions using different numbers of factors and different extraction methods with orthogonal and oblique rota-

tions.[2] The ULS extraction, which tends to maximize estimation accuracy with small samples, tended to produce the optimal combination of simple structure and meaningful Q-factors. This was also true of the Promax rotation, an oblique rotation appropriate when factors are intercorrelated, which is more likely to reflect the nonmutually exclusive nature of psychopathy subtypes. We used Promax with $\kappa = 2$ to balance the need for ecological validity (by allowing the q-factors to be oblique) with the taxonomic need to obtain relatively independent Q-factors (by restricting the κ value and, therefore, the extent of covariation among factors). The data suggested either two or three Q-factors. A parallel analysis (Horn, 1965) revealed that the observed eigenvalues of the first two Q-factors were higher than their empirical critical values, whereas the third fell short of statistical significance. We therefore retained two Q-factors that explained 62.8% and 4.3% of the variance, respectively. In terms of items with high factor scores, these two Q-factors replicated across extraction and rotation methods, whereas the third was unstable.

The Q-factor solution explained up to 69% of the variance. Its obliqueness was evident in the .50 interfactor correlation. The median communality was .71, and 97% of the cases had communalities $\geq$ .50, with only one communality $<$ .46—indicating that this solution explained a substantial proportion of the variance in the SWAP-II profiles. Participant loadings on the first Q-factor ranged from $-.15$ to .84, and loadings on the second Q-factor ranged from $-.10$ to .82. All participants had loadings $>.30$ on at least one Q-factor, and 82% had loadings $\geq.40$ on one and only one Q-factor, suggesting that the participants could be classified relatively easily. Based on the highest loading, 52 (57%) fell into the first subtype and 39 (43%) into the second. Cross-classification on the basis of loadings $>.30$ on both Q-factors was possible in 29 (32%) of the cases. In 17 (58%) of these cases, the primary classification was on the first Q-factor; in 12 (41%) of the cases, the primary classification was on the second Q-factor. In approximately half of the cross-classified cases, the loadings on the two Q-factors were substantially different (e.g., loadings of .60 and .30); in the remaining half of the cross-classified

cases (14–15 cases), the participants profile associations with the two Q-factors were similar in magnitude (e.g., loadings of .42 and .36). Thus, we could classify more than 80% of the participants on one Q-factor.

The first Q-factor (see Table 3) described a person with poor behavioral and emotional controls who tends to be hostile, violent, abusive, impulsive, unempathic, irresponsible, and prone to negative emotional experiences that may spiral out of control. Unstable relationships, employment, and lifestyle, proneness toward substance abuse, and failure to learn from negative consequences also characterize this subtype. [Although this subtype bears some similarities with the diagnoses of Antisocial and Borderline Personality Disorders (American Psychiatric Association, 1994), it cannot be conflated with these constructs because the participants overall were selected on the basis of their extreme psychopathy scores and, as evidenced by their most descriptive characteristics, participants from both subtypes were best characterized as highly psychopathic.] We labeled this hostile and dysregulated subtype SP.

The second Q-factor described a grandiose, entitled, arrogant, extraverted, manipulative, articulate, socially skilled, hypermasculine, and seductive personality subtype who tends to report a positive self-image, to be critical and exploitative of others, and to lie without remorse. This subtype was not associated

---

[2] In Q-factor analysis, participants load on Q-factors, and the Q-factor loadings indicate the degree of association between each participant's personality profile and the latent Q-factor. Under typical circumstances, loading values range from -1 to $+1$, and in the correlation-based Q-factor analysis we conducted they can be interpreted as the Pearson correlation between the participant's SWAP-II profile and the Q-factor. Q-factor loadings can be contrasted with factor loadings in regular R-factor analysis, where an item's factor loadings indicate the degree of association between that item and each of the factors. Researchers generally use absolute values of .3 or .4 as a cutoff to retain items on a factor in R-factor analysis, and they may treat such items with negative loadings as reverse-scored items. In the context of Q-factor analysis and the meaning of item ranks in the SWAP-II, a similar cutoff is meaningful for positive loadings, whereas negative loadings are not as meaningful.

Table 2

The 30 Highest−Ranking SWAP-II Items Comprising the Most Descriptive Characteristics of 91 Incarcerated Men With High PCL-R Total Scores (PCL-R ≥ 30)

SWAP-II Item	M	SD	PCL-R Equivalent
Tends to engage in unlawful or criminal behavior.	6.5	1.0	Item # 20
Tends to show reckless disregard for the rights, property, or safety of others.	6.2	1.1	(Item #10)
Tends to be deceitful; tends to lie or mislead.	6.1	1.4	Item #4
Appears impervious to consequences; seems unable or unwilling to modify behavior in response to threats or negative consequences.	6.1	1.2	
Experiences little or no remorse for harm or injury caused to others.	6.0	1.2	Item #6
Has little empathy; seems unable to understand or respond to others' needs and feelings unless they coincide with his/her own.	5.9	1.3	Item #8
Takes advantage of others; is out for number one.	5.9	1.6	Item #9
Tends to seek thrills, novelty, excitement, etc.; appears to require a high level of stimulation.	5.7	1.3	Item #3
Tends to be manipulative.	5.6	1.6	Item #4
Tends to abuse drugs or alcohol.	5.6	1.9	
Tends to be unreliable and irresponsible (e.g., may fail to meet work obligations or honor financial commitments).	5.5	1.8	Item #15
Seems unable to settle into, or sustain commitment to, identity−defining life roles (e.g., career, occupation, lifestyle, etc.).	5.4	1.4	Item #13
Tends to blame own failures or shortcomings on other people or circumstances; attributes his/her difficulties to external factors rather than accepting responsibility for own conduct or choices.	5.4	1.6	Item #16
Tends to be impulsive.	5.1	1.7	Item #14
Is prone to violence (may break things or become physically assaultive).	5.1	2.0	
Work and/or living arrangements tend to be chaotic or unstable (e.g., job or housing situation seems always temporary, transitional, or ill−defined).	5.0	1.8	
Tends to have numerous sexual involvements; is promiscuous.	5.0	1.8	Item #11
Appears comfortable and at ease in social situations.	4.8	1.5	(Item #1)
Tends to get into power struggles.	4.3	1.8	
Relationships tend to be unstable, chaotic, and rapidly changing.	4.3	1.6	(Item #17)
Has an active and satisfying sex life.	4.3	1.3	
Appears unable to describe important others in a way that conveys a sense of who they are as people; descriptions of others come across as two−dimensional and lacking in richness.	4.2	1.3	
Appears to have a limited or constricted range of emotions.	4.2	1.5	Item #7
Repeatedly convinces others of his/her commitment to change but then reverts to previous maladaptive behavior; tends to convince others that "this time is really different."	4.1	1.9	
Tends to react to perceived slights or criticism with rage and humiliation.	4.1	1.9	
Tends to be conflicted about authority (e.g., may feel s/he must submit, rebel against, win over, defeat, etc.).	3.9	1.9	
Tends to be energetic and outgoing.	3.9	1.8	
Expresses contradictory feelings or beliefs without being disturbed by the inconsistency; has little need to reconcile or resolve contradictory ideas.	3.8	1.6	
Tends to be angry or hostile (whether consciously or unconsciously).	3.8	1.9	
Generally finds contentment and happiness in life's activities.	3.8	1.7	

with negative emotionality or affective/behavioral dyscontrol. As a consequence, we labeled it PP. We examined the subtypes for rater effects in univariate and multivariate analyses, and found that participants' degree of match to the subtypes did not vary significantly as a function of the researcher who viewed the interview and provided ratings.

Preliminary External Validation

To evaluate the validity of these distinctive Q-factors, we tested a priori hypotheses regarding their associations with external criteria (see Table 4) by constructing a multitrait multimethod matrix of correlations between the extent to which the participants matched the empirical

Table 3

Personality Constellations: The 30 SWAP-II Items With Highest Factor Scores (FS) on Each of Two Q-factors, Primary and Secondary Psychopathy, That Emerged in Q-Factor Analysis of 91 Incarcerated Men With High Levels of Psychopathy

Q-factor 1: Secondary Psychopathy	FS
Tends to feel unhappy, depressed, or despondent.	3.0
Attempts to dominate a significant other (e.g., spouse, lover, family member) through violence or intimidation.	2.8
Tends to blame own failures or shortcomings on other people or circumstances; attributes his/her difficulties to external factors rather than accepting responsibility for own conduct or choices.	2.4
Work−life and/or living arrangements tend to be chaotic or unstable (e.g., job or housing situation seems always temporary, transitional, or ill−defined).	2.3
Is prone to violence (e.g., may break things or become physically assaultive).	2.3
Appears impervious to consequences; seems unable or unwilling to modify behavior in response to threats or negative consequences.	2.3
Tends to be unreliable and irresponsible (e.g., may fail to meet work obligations or honor financial commitments).	2.2
Tends to abuse drugs or alcohol.	2.2
Tends to feel s/he is inadequate, inferior, or a failure.	2.1
Tends to be hostile toward members of the opposite sex, whether consciously or unconsciously (e.g., may be disparaging or competitive).	2.1
Lacks a stable sense of who s/he is (e.g., attitudes, values, goals, and feelings about self seem unstable or ever−changing).	2.0
Has little empathy; seems unable to understand or respond to others' needs and feelings unless they coincide with his/her own.	2.0
Tends to be angry or hostile (whether consciously or unconsciously).	2.0
Is prone to intense anger, out of proportion to the situation at hand (e.g., has episodes of rage).	1.9
Relationships tend to be unstable, chaotic, and rapidly changing.	1.9
Tends to be impulsive.	1.9
Emotions tend to spiral out of control, leading to extremes of anxiety, sadness, rage, etc.	1.8
Tends to show reckless disregard for the rights, property, or safety of others.	1.8
Tends to engage in unlawful or criminal behavior.	1.8
Tends to feel anxious.	1.8
Repeatedly convinces others of his/her commitment to change but then reverts to previous maladaptive behavior; tends to convince others that "this time is really different."	1.8
Tends to react to perceived slights or criticism with rage and humiliation.	1.7
Takes advantage of others; is out for number one.	1.7
Seems unable to settle into, or sustain commitment to, identity−defining life roles (e.g., career, occupation, lifestyle, etc.).	1.7
Tends to feel like an outcast or outsider.	1.7
Appears to gain pleasure or satisfaction by being sadistic or aggressive toward others (whether consciously or unconsciously).	1.6
Tends to be deceitful; tends to lie or mislead.	1.5
Lacks close friendships and relationships.	1.5
Tends to use his/her psychological or medical problems to avoid work or responsibility (whether consciously or unconsciously).	1.4
Appears unable to describe important others in a way that conveys a sense of who they are as people; descriptions of others come across as two−dimensional and lacking in richness.	1.3
Q-factor 2: Primary Psychopathy	
Has an exaggerated sense of self−importance (e.g., feels special, superior, grand, or envied).	4.3
Seeks to be the center of attention.	3.8
Is articulate; can express self well in words.	3.3
Has fantasies of unlimited success, power, beauty, talent, brilliance, etc.	3.3
Appears to feel privileged and entitled; expects preferential treatment.	3.3
Seems to treat others primarily as an audience to witness own importance, brilliance, beauty, etc.	3.1

Table 3 (*continued*)

Q-factor 2: Primary Psychopathy	FS
Tends to express qualities or mannerisms traditionally associated with own gender to an exaggerated or stereotypical degree (a hyper−feminine woman; a hyper−masculine, "macho" man).	2.8
Tends to seek power or influence over others (whether in beneficial or destructive ways).	2.6
Tends to be energetic and outgoing.	2.4
Tends to be manipulative.	2.3
Tends to be competitive with others (whether consciously or unconsciously).	2.3
Tends to be controlling.	2.3
Enjoys challenges; takes pleasure in accomplishing things.	1.8
Takes advantage of others; is out for number one.	1.8
Appears comfortable and at ease in social situations.	1.7
Tends to be dismissive, haughty, or arrogant.	1.7
Generally finds contentment and happiness in life's activities.	1.6
Tends to use his/her physical attractiveness to an excessive degree to gain attention or notice.	1.6
Tends to be self−righteous or moralistic.	1.5
Tends to be sexually seductive or provocative (e.g., may be inappropriately flirtatious, preoccupied with sexual conquest, prone to "lead people on," etc.).	1.5
Tends to be critical of others.	1.5
Tends to believe s/he can only be appreciated by, or should only associate with, people who are high−status, superior, or otherwise "special."	1.5
Has a good sense of humor.	1.4
Experiences little or no remorse for harm or injury caused to others.	1.4
Tends to have numerous sexual involvements; is promiscuous.	1.4
Tends to be emotionally intrusive (e.g., may not respect other people's needs for autonomy, privacy, etc.)	1.3
Tends to be deceitful; tends to lie or mislead.	1.3
Tends to be oppositional, contrary, or quick to disagree.	1.2
Is able to assert himself effectively and appropriately when necessary.	1.1
Is prone to idealizing people; may see admired others as perfect, larger than life, all wise, etc.	1.1

SWAP-II prototypes for PP and SP and their scores on criterion variables. We used participants' Q-factor loadings as an index of the degree to which their SWAP-II profiles "matched" the psychopathy subtypes.

The validation results did not change substantially when controlling for ethnicity, confidence, and difficulty, or the MPQ's validity scales. Ethnicity, coded dichotomously as White/Nonwhite, received Q-factor scores of small magnitudes (.07 and .24) when included in the QFA, suggesting that this variable was not associated strongly with either subtype. It also did not predict participants' loadings on the Q-factors. Because a small number of SWAP-II items evinced significant correlations with ethnicity,[3] we report the validation findings as partial correlations controlling for ethnicity, even though these results were quite similar to the zero-order correlational findings (the latter analyses are available from the first author on request).

Power. Because of sample size limitations, not all validation analyses had adequate power

to detect medium effects. The power of partial correlations ranged, for a medium effect ($f^2 = .15$) from .85 ($N = .91$) to .45 ($N = 34$), and for a large effect ($f^2 = .35$) from .99 ($N = 91$) to .83 ($N = 34$). The low N's resulted largely from two influences. One was the fact that, apart from the PCL-R and MPQ, validation data were available only for the participants from the Florida prison. The other consisted of constraints on the volunteers' time imposed by prison schedules. Because we could not easily attribute "missingness" to factors that we could model, and because we did not have data we could use to impute missing values for the Minnesota

_____

[3] For example, being non-White was linked to Item 112 ("Appears impervious to consequences; seems unable or unwilling to modify behavior in response to threats or negative consequences"), $r(89) = .30$, $p < .01$, whereas White ethnicity was linked to Item 114 ("Tends to be critical of others."), $r(89) = .32$, $p < .01$.

Table 4

Descriptives and Partial Correlations (Controlling for Ethnicity) Between Psychopathy Subtypes (Participant's Q-Factor Loadings) and External Validation Variables

Partial Correlations	Psychopathy							
	Descriptives					Primary		Secondary
External Validation Criteria	N	Min	Max	*M*	*SD*	pr	p	pr	p
PCL-R total	91	30	38	32.49	2.07	−.01	.93	.17	.12
PCL-R factor 1	91	5	16	13.02	1.82	**.45***	**<.01**	−.17	.25
PCL-R factor 2	91	11.5	17.5	14.76	1.59	−.30*	<.02	**.27***	**.01**
Antisocial Personality Disorder	41	0	1	.93	.26	−.28	.08	.26	.05
Adult antisocial behaviors	41	2.8	7	4.90	1.14	−.09	.58	.28	.04
Childhood antisocial behaviors	41	1	11	5.09	2.10	−.27	.09	**.43***	**<.01**
Childhood violent behaviors	41	0	5	1.21	1.36	−.25	.11	**.40***	**.01**
Childhood abuse (records)	41	0	1	.17	.38	−.23	.16	**.44***	**<.01**
Childhood abuse (interview)	41	0	1	.20	.40	−.05	.75	.24	.07
Age first charge	41	11	41	19.39	5.00	.29	.06	**−.43***	**<.01**
Total charges by 17	38	0	17	1.29	3.19	−.38*	.02	*.16*	*.18*
Nonviolent charges	41	0	61	17.90	13.6	−.14	.40	−.01	.48
Nonviolent institutional charges	40	0	1	.45	.50	−.15	.35	.22	.09
Anger Expression: Total	34	24	65	41.32	8.39	−.18	.29	**.45***	**<.01**
Anger In	34	9	24	15.91	3.77	**−.35***	**.04**	**.42***	**.02**
Anger Out	34	8	27	16.50	4.36	−.01	.96	.31*	.06
Anger Control	34	3	12	7.79	2.10	*.05*	*.80*	*−.31*	*.15*
NEO-FFI Extraversion	33	18	43	29.45	5.63	**.41***	**.02**	−.20	.26
NEO-FFI Neuroticism	33	0	35	19.76	8.10	**−.37***	**.04**	.30	.25
NEO-FFI Conscientiousness	33	17	45	32.88	5.94	.21	.26	−.06	.76
NEO-FFI Agreeableness	33	17	35	25.33	5.07	*−.10*	*.30*	−.20	.26
NEO-FFI Openness	33	18	42	27.36	6.05	*.15*	*.42*	**−.54***	**<.01**
PANAS Positive Affect	18	18	43	33.83	7.46	**.60***	**.02***	**−.64***	**<.01**
PANAS Negative Affect	18	11	29	17.72	4.60	−.06	.83	.40	.12
MPQ Positive Emotionality	79	−2.5	1.9	.10	.96	**.21***	**.04**	−.16	.16
MPQ Negative Emotionality	79	−2.9	2.3	.10	1.03	*.12*	*.30*	*.12*	*.31*
MPQ Constraint	79	−2.2	2.6	−.09	1.03	−.09	.44	*.01*	*.90*
Socialization Scale	33	16	37	26.44	6.07	.18	.35	**−.55***	**<.01**
Sensation Seeking Scale Total	33	0	34	2.94	8.04	*.20*	*.26*	−.33	.07
EASI Sociability	33	4	15	9.27	2.93	.12	.53	−.07	.70
EASI Activity	33	2	16	1.94	3.02	**.42***	**.03**	−.09	.62
EASI Impulsivity	33	2	16	9.27	3.57	.13	.50	.08	.69
EASI Fearfulness	33	0	12	4.30	2.98	**−.50***	**<.01**	**.44***	**.02**
EASI Distress	33	0	11	5.36	3.15	*−.21*	*.24*	**.42***	**.02**
EASI Anger	33	2	16	8.58	4.05	−.18	.32	**.52***	**<.01**
IMPQ: Aggressive/antisocial	90	1.75	5.92	4.26	1.01	−.17	.12	**.57***	**<.01**
IMPQ: Inattention/hyperactivity	90	1.29	5.86	3.14	.96	**−.23***	**.03**	**.36***	**<.01**

Note. Significant findings are bolded if consistent with predictions; inconclusive findings are italicized.
* *p* ≤ .05 (two-tailed).

sample, we did not use imputation procedures.[4] Thus, the external validation results should be treated as preliminary data regarding the nomological network of psychopathy subtypes and not as accurate estimates of population parameters.

Hypothesis Tests. Results shown in Table 4 indicate support for 23 (53%) of the predictions listed in Table 1, and 20 inconclusive findings. Within the high psychopathy sample, degree of match to the PP subtype was posi-

[4] We did not find significant correlations between "missingness" of data (e.g., on the Sensation Seeking Scale) and participant age (*p* = .54), ethnicity coded as White vs. Other (*p* = .49), total PCL-R score (*p* = .88), match to Primary (*p* = .79) or Secondary (*p* = .74) Psychopathy, MPQ PEM (*p* = .94), MPQ NEM (*p* = .09; participants without missing data tended to score slightly lower), MPQ CON (*p* = .68), IM-P (*p* = .65), rater confidence (*p* = .18), or rating difficulty (*p* = .45).

tively linked to PCL-R Factor 1,[5] higher age at first criminal charge, three self-report measures of extraversion/positive emotionality, and the activity dimension of self-reported temperament. This subtype was linked negatively to internal expression of anger, self-reported neuroticism and fearfulness, and observer-reports of inattention/hyperactivity. Notable null findings where we expected significant relationships concerned NA on the PANAS, NEM on the MPQ, EASI Distress EASI, and sensation seeking. Not part of the predictions, but broadly consistent with the notion of a psychopathic style that is relatively nonimpulsive and planful, were significant negative correlations of the PP subtype with PCL-R Factor 2 scores, ASPD diagnosis, number of juvenile charges, and number of different types of childhood antisocial behaviors.

The extent to which participants' SWAP-II profiles matched the SP subtype was linked, as predicted, to PCL-R Factor 2 scores, number of antisocial and violent behaviors, childhood abuse, high anger expression (internal and external), low anger control, low openness, low socialization, and high negative emotionality (fearfulness, distress, and anger) on the EASI, as well as high aggressive/antisocial and inattentive/hyperactive impulsivity on the MPQ. We expected but did not find significant relationships between the SP subtype and number of juvenile charges and nonviolent charges, drinking motivation, NEO-FFI C, MPQ CON and NEM, or subscales of the EASI. Several significant relationships we had not anticipated were broadly consistent with a highly aggressive and explosive character ridden with anger and other negative emotions.

As a supplemental analysis, to rule out the possibility that the interpersonal behavior of highly psychopathic individuals during the interview might have biased the findings, we reexamined the external validation matrix after partialing out IM-P scores. The IM-P correlated significantly with PP ($r = .59, df = 91, p < .01$) but not SP ($r = -.13, df = 91, p = .22$). Nevertheless, the validation matrix remained largely unchanged and similar to that presented in Table 4 after controlling for IM-P scores.[6] As an even more stringent test, we repeated the validity analyses for the PP and SP subtypes after controlling for PCL-R Factors 1 and 2, respectively. Despite the substantial statistical

overlap between the SWAP Psychopathy total score and these factors, many theoretically important relationships remained significant, indicating that scores on the SWAP-II subtypes contain substantial unique variance not shared with the PCL-R factors.[7]

Discussion

Psychopathy has devastating consequences for the people who have it and for those around them (Cleckley, 1941/1988; Hare, 1980). Recent efforts to identify subtypes of the syndrome have been suggestive of at least a primary (emotionally stable) and secondary (aggressive-explosive) subtype (Hervé, 2007). The dual-process model of psychopathy may account for this heterogeneity (Lykken, 1995; Patrick, 2006). The current study utilized novel descriptive and analytic approaches to test for subtypes reflecting differing personality constellations in incarcerated men who met conventional cutoffs for psychopathy.

Few previous studies have subtyped the personalities of conventionally defined psychopaths, and all prior studies have relied on cluster

---

[5] This association did not change substantially after controlling for PCL-R Factor 2 scores. Similarly, the association between SP and PCL-R Factor 2 did not change substantially in magnitude or significance after controlling for PCL-R Factor 1.

[6] With regard to SP, its inverse relationship to PCL-R Factor 1 was attenuated, suggesting that the raters may have used interpersonal behavior during the interview to evaluate constructs that load on Factor 1 (as they should). Nonetheless, the fact that the association between PP and PCL-R Factor 1 remained positive and significant after controlling for IM-P scores is worth noting, because it suggests that raters were not relying exclusively on the behaviors the IM-P measures when describing participants who matched this subtype. It mirrors Zolondek et al.'s (2006) findings that raise concern about the IM-P's incremental validity above and beyond Factor 1. Conversely, significant relations with NEO-FFI Openness and the Sensation Seeking Scale that had been predicted but not found significant did emerge after controlling for IM-P scores. These results suggest that the IM-P may capture constructs that both mediate and suppress important relationships between the SWAP-II prototype and traits measured by self-report.

[7] PP retained inverse relationships with childhood abuse, negative emotionality, and impulsivity, as well as positive relationships with positive emotionality. SP remained positively linked to childhood antisocial behavior, earlier offending, childhood abuse, and measures of anger, distress, fearfulness, and impulsivity. It was inversely linked to socialization, openness, positive affectivity, and sensation seeking.

analytic methods that limited the number of variables that could be included. We identified psychopathic individuals on the basis of bona fide PCL-R assessments (Hare, 2003), and used an omnibus measure of personality pathology (the SWAP-II) that contained a comprehensive item set not limited by theoretical preconceptions. Our derivation of personality constellations relied on an empirical technique that combines quantitative and qualitative procedures for determining the number of subtypes. The resulting subtypes were not mutually exclusive, and could be translated into both dimensional and categorical diagnoses. After identifying these distinctive subtypes, we tested a set of predictions about their discriminant relations with assorted criterion variables.

The average SWAP-II description of the participants (their most descriptive characteristics) subsumed all PCL-R items represented in the SWAP-II except for grandiosity (which played a key role in distinguishing subtypes). Several highly descriptive SWAP-II items without direct PCL-R equivalents mapped onto some of Cleckley's (1941/1988) criteria: "appears impervious to consequences" corresponds to Cleckley's eighth criterion ("poor judgment and failure to learn by experience"), and "appears comfortable in social situations" corresponds largely to his third criterion ("absence of nervousness or psychoneurotic conditions"). These findings are in turn consistent with prior research using the SWAP-II (and its preceding versions) with mental health patients in which a similar broad psychopathy dimension emerged (Westen & Shedler, 1999b). Notably, the SWAP-II description includes items related to thrill seeking, substance abuse, reactive and instrumental violence, anger, and hostility—all consistent with psychopathy's documented link to the externalizing spectrum (Patrick, Hicks, Krueger, & Lang, 2005).

We found evidence for two psychopathy subtypes (primary and secondary) broadly consistent with predictions from the dual-process model (Fowles & Dindo, 2006) as framed by Patrick (2007; see also Hicks et al., 2004; Poythress et al., 2010). Relative to the highly psychopathic participants in general, PP was distinguished by a number of items related to PCL-R Factor 1 psychopathy, particularly grandiosity, manipulativeness, remorselessness, deceitfulness, and socially and sexually appealing

qualities related to glibness and superficial charm. This subtype correlated positively with PCL-R Factor 1 and negatively with PCL-R Factor 2 even after controlling for interpersonal behavior in the interview (IM-P scores). This subtype's relationship to agentic and dominance-oriented aspects of extraversion (E) and positive emotionality (PEM) is consistent with Patrick's (2007) account of the dual-process model. Thus, PP was somewhat more strongly associated with NEO-FFI E than with MPQ PEM, consistent with previous findings suggesting that this subtype of psychopathy is linked to the appetitive surgency and social potency of extraversion rather than its affiliative aspects (Church, 1994; Hicks et al., 2004). The substantial correlations with EASI Activity and PANAS Positive Affect support this interpretation. Furthermore, controlling for the IM-P attenuated the relationship with NEO-FFI E, again suggesting that appetitive and domineering interpersonal behavior may explain PP's link to the E/PEM superfactor.

We also found support for predictions that PP would exhibit inverse relationships with measures saturated with negative affectivity (including neuroticism, fearfulness, and internally directed anger) as well as with inattention/hyperactivity and childhood abuse. These observed associations, which in many cases remained robust even after controlling for relevant covariates, are consistent with the hypothesis of a specific affective deficit (not readily attributable to attentional impairments or coercive parenting) as an etiological factor in PP. Further consistent with prediction, individuals matching the PP prototype, relative to others in the high psychopathy sample, were less likely to receive ASPD diagnoses and to report a variety of childhood antisocial behaviors and an early age of first charge. However, predictions regarding sensation seeking in relation to this subtype did not find consistent support. Nevertheless, the overall picture of PP emerging from this study is similar to prior findings of an emotionally stable (Alterman et al., 1995; Hicks et al., 2004), primary (Skeem et al., 2007), extraverted (Blackburn, 1975), or narcissistic-antisocial (Blackburn & Coid, 1999) type. Prisoners who match this subtype resemble closely the theoretical (Kernberg, 1998) and empirical (Russ, Shedler, Bradley, & Westen, 2008) construct of "malignant narcissism."

The findings regarding SP were also generally consistent with predictions. As expected, a number of features of PCL-R Factor 2 characterized this subtype: impulsivity, irresponsibility, and unstable relationships and lifestyle. As anticipated, the SWAP-II prototype for this psychopathy variant described an emotionally and behaviorally dysregulated person who suffers from a range of negative affects (particularly depression, anxiety, and anger), emotional and violent outbursts, hostility, and other externalizing features. Degree of match to the SP prototype displayed a weak negative link to PCL-R Factor 1 and a low to moderate positive link to PCL-R Factor 2, ASPD diagnosis, versatility of antisocial behavior, and lower age at first charge. SP was linked to self-report measures associated with negative affectivity (fearfulness, distress, anger, and general negative emotionality) and (reversed) socialization. It correlated with observer-report measures of impulsive aggression and inattention/hyperactivity as well as file records of childhood abuse.

In early theorizing based on clinical observation, Karpman (1946) distinguished between types of psychopathy he considered to be either primary (reflecting a constitutional deficit in emotion) or secondary (developed out of emotional conflict). Despite our adoption of the "secondary psychopathy" label, we do not believe that "psychoneurosis" alone can account for the severe presentation of these participants. The SWAP-II prototype for SP includes items that imply conflicting motivation. Nevertheless, the data overall suggest a more complex etiology related to insensitivity to punishment cues (e.g., Dadds & Salmon, 2003) stemming from a confluence of attentional and executive deficits/low effortful control (Blair, 1995; Kochanska, 1993), coercive conditioning (Patterson, 1982), and abusive or incompetent parenting (Lykken, 1995). Whereas PP may be consistent with developmental psychopathology findings of callous/unemotional and narcissistic children who develop severe externalizing disorders (Frick et al., 2003), SP may be consistent with findings of children with comorbid attention-deficit/hyperactivity disorder and CD (Colledge & Blair, 2001; Lynam, 1996).

The external validity findings regarding the PP and SP subtypes were relatively robust when controlling for potential confounds (rater confidence and participant ethnicity). Thus, the two psychopathy subtypes were embedded in a multimethod nomological net that was resistant to tear. Importantly, they evidenced incremental validity, respectively, over PCL-R Factors 1 and 2 in predicting childhood abuse, antisocial history, socialization, basic traits and temperament, anger expression, and impulsivity, and as well as over observer ratings of interpersonal behavior.

Limitations

Despite limitations related to potential self-selection, range restriction, and sample size/power, and reliance primarily on self-report measures for external validation, we found support for our main predictions and more than half of the validation predictions. A notable limitation of Q-factor analysis, like standard R-factor analysis, is that different rotations of the extracted factors are equally tenable mathematically. Nevertheless, when we examined solutions using different rotations we tended to find similar patient groupings corresponding to primary and secondary psychopathy subtypes.

A further potential limitation is that although the interviews entailed lengthy clinical evaluations, they were not tailored to the SWAP-II, leaving potentially relevant items (e.g., posttraumatic stress, suicidality, paraphilias) with minimal variances. Expanded interviews and additional collateral data may address this limitation in future research. Yet another limitation is that the sample consisted entirely of men. Compared with antisocial men, antisocial women may score lower on behavioral PCL-R items (e.g., juvenile delinquency; Bolt, Hare, Vitale, & Newman, 2004) while endorsing higher rates of relationship problems, anxiety, and depression (Mulder, Wells, & Bushnell, 1994). Relationship problems and promiscuity may have more discriminative power in women than in men (Salekin, Rogers, & Sewell, 1997) and restricted ranges in psychopathic men. Men of this sort may tend to receive ASPD diagnoses, whereas psychopathic women may more often receive alternative diagnoses of borderline or histrionic PDs (Cale & Lilienfeld, 2002; Hamburger, Lilienfeld, & Hogben, 1996). Notably, PP in the current male offender sample was linked to histrionic PD symptoms (attention seeking, seductiveness, sexualization, machismo),

whereas SP was linked to borderline PD symptoms (emotional dysregulation, volatile anger). Future research with female or mixed-gender samples using the SWAP-II, which measures relational functioning and DSM PD symptoms, should be of benefit in clarifying questions about gender and psychopathy.

A further point is that the generalizability of the current findings is limited to psychopathic men convicted of crimes. "Successful psychopaths" with high PCL-R scores may function effectively without experiencing legal difficulties (Babiak, 1995; Salekin, Trobst, & Krioukova, 2001). Furthermore, subclinical psychopathy may seriously affect individuals and communities (Gustafson & Ritzer, 1995), and the primary and secondary subtypes may generalize to nonclinical populations (Falkenbach, Poythress, & Greevy, 2008). Subtyping using a comprehensive personality assessment has not yet been conducted in general or subclinical samples.

A final point is that the SWAP-II has been criticized on grounds that it may artifactually reduce correlations among items and factors because of information loss resulting from its fixed item distribution (Wood, Garb, Nezworski, & Koren, 2007). The implication is that SWAP-II prototypes may evidence artificially high separation and low comorbidity and discriminant validity (see Westen & Shedler, 2007, for a rebuttal). Whether the current findings would replicate using the SWAP-II item set if the score distribution were not fixed remains an important empirical question.

Implications and Conclusions

Our understanding of the "psychopath" is now reaching the point at which we cannot only delineate the boundaries of the broad construct (Hare, 1996) but identify two salient, replicable, and theoretically meaningful subtypes, PP and SP. The main implications of the current findings concern diagnosis. Although psychopathy is formally not an entity in the *DSM–IV*, a PCL-R diagnosis of psychopathy may outperform the DSM's ASPD diagnosis in predicting criminal behavior and recidivism (Hare, 2003; Hare et al., 1991). Historically, psychopathy formed the basis for antisocial diagnoses in initial versions of the DSM but was replaced with the current ASPD conceptualization in

1980 in a push toward a more behavioral operationalization. On one hand, the diagnosis of ASPD lacks specificity, in that it applies to a broad range of criminal offenders, some of whom have conduct problems secondary to poverty, substance use, or intellectual and skills deficits (Hare et al., 1991). On the other hand, it lacks sensitivity, insofar as it "misses" noncriminal or undetected criminal psychopaths (Widom, 1977). Given these and other notable psychometric and conceptual shortcomings of the ASPD diagnosis (Cunningham & Reidy, 1998; Lilienfeld, 1994), psychopathy as operationalized by instruments such as the PCL-R represents a promising alternative conceptualization. The current findings, in conjunction with other recent work on psychopathy subtyping, suggest that it may be justifiable to include the two psychopathy subtypes as provisional diagnostic qualifiers in future editions of the DSM and to test their utility in the field using appropriate measures such as the PCL-R, the Psychopathic Personality Inventory (Lilienfeld & Widows, 2005), and the SWAP-II.

The theoretical implications of the findings concern their relevance to the newly introduced triarchic model (Patrick, Fowles, & Krueger, 2009), according to which the phenotypic structure of psychopathy consists of the partially overlapping dimensions of *meanness*, *boldness*, and *disinhibition* (each theorized to have independent etiology). Our findings demonstrate that PCL-R psychopathy (in which, according to Patrick and colleagues, *meanness* is distributed across items from both factors; see also Lynam & Derefinko, 2006) was highly descriptive of all participants, whereas PP (characterized by a non-neurotic, fearless, socially positive, and active style akin to *boldness*) and SP (characterized by both emotional and behavioral dysregulation akin to *disinhibition*) defined the personality subtypes, which partially overlapped.

In the long run, psychopathy subtypes may account for some of the inconsistent findings in the literature regarding psychopathy's relationships to laboratory performance (Hicks et al., 2004; Morgan & Lilienfeld, 2000; Pridmore et al., 2005; Raine et al., 2004). Nevertheless, further delineation of these subtypes will require examining their validity with regard to genetic, neurobiological, psychobiological, and prospective behavioral criteria. A better understanding

of these subtypes may promote integration among competing theoretical accounts of psychopathy, increased understanding of its differential etiology, and new strategies for prevention and treatment.

References

Aldenderfer, M. S., & Blashfield, R. K. (1984). *Cluster analysis.* Beverly Hills, CA: Sage.

Alexander, F. (1930). The neurotic character. *International Journal of Psycho-Analysis, 11,* 292–311.

Alterman, A. I., McDermott, P. A., Cacciola, J. S., Rutherford, M. J., Boardman, C. R., McKay, J. R., & Cook, T. J. (1998). A typology of antisociality in methadone patients. *Journal of Abnormal Psychology, 107,* 412–422.

American Psychiatric Association. (1994). *The Diagnostic and Statistical Manual of Mental Disorders, 4th ed.* Washington, DC: Author.

Babiak, P. (1995). When psychopaths go to work: A case study of an industrial psychopath. *Applied Psychology: An International Review, 44,* 171–188.

Banfield, J. D., & Raftery, A. E. (1993). Model-based Gaussian and non-Gaussian clustering. *Biometrics, 49,* 803–821.

Benning, S. D., Patrick, C. J., Hicks, B. M., Blonigen, D. M., & Krueger, R. F. (2003). Factor structure of the Psychopathic Personality Inventory: Validity and implications for clinical assessment. *Psychological Assessment, 15,* 340–350.

Bernat, E. M., Hall, J. R., Steffen, B. V., & Patrick, C. J. (2007). Violent offending predicts P300 amplitude. *International Journal of Psychophysiology, 66,* 161–167.

Blackburn, R. (1975). Am empirical classification of psychopathic personality. *British Journal of Psychiatry, 127,* 456–460.

Blackburn, R., & Coid, J. W. (1999). Empirical clusters of *DSM–III* personality disorders in violent offenders. *Journal of Personality Disorders, 13,* 18–34.

Blair, J. (1995). A cognitive developmental approach to morality: Investigating the psychopath. *Cognition, 57,* 1–29.

Block, J. (1978). *The Q-Sort method in personality assessment and psychiatric research.* Palo Alto, CA: Consulting Psychologists.

Bolt, D. M., Hare, R. D., Vitale, J. E., & Newman, J. P. (2004). A multigroup item response theory analysis of the Psychopathy Checklist-Revised. *Psychological Assessment, 16,* 155–168.

Brinkley, C. A., Newman, J. P., Widiger, T. A., & Lynam, D. R. (2004). Two approaches to parsing the heterogeneity of psychopathy. *Clinical Psychology: Science and Practice, 11,* 70–94.

Buss, A. H., & Plomin, R. (1984). *Temperament: Early developing personality traits.* Hillsdale, NJ: Erlbaum.

Cale, E. M., & Lilienfeld, S. O. (2002). Sex differences in psychopathy and antisocial personality disorder: A review and integration. *Clinical Psychology Review, 22,* 1179–1207.

Church, A. T. (1994). Relating the Tellegen and the five-factor models of personality structure. *Journal of Personality and Social Psychology, 67,* 898–909.

Cleckley, H. (1941/1988). *The mask of sanity.* Oxford, England: Mosby.

Colledge, E., & Blair, R. J. R. (2001). Relationship between attention-deficit-hyperactivity disorder and psychopathic tendencies in children. *Personality and Individual Differences, 30,* 1175–1187.

Cooke, D. J., & Michie, C. (1997). An item response theory analysis of the Hare Psychopathy Checklist-Revised. *Psychological Assessment, 9,* 3–14.

Cooke, D. J., & Michie, C. (2001). Refining the construct of psychopathy: Towards a hierarchical model. *Psychological Assessment, 13,* 171–188.

Cooke, D. J., Michie, C., & Hart, S. D. (2006). Facets of clinical psychopathy: Toward clearer measurement. In C. J. Patrick (Ed.), *Handbook of psychopathy* (pp. 91–106). New York: Guilford Press.

Costa, P. T., & McCrae, R. R. (1992). *NEO PI-R. Professional manual.* Odessa, FL: Psychological Assessment.

Cunningham, M. D., & Reidy, T. J. (1998). Antisocial personality disorder and psychopathy: Diagnostic dilemmas in classifying patterns of antisocial behavior in sentencing evaluations. *Behavioral Sciences and the Law, 16,* 333–351.

Dadds, M. R., & Salmon, K. (2003). Punishment insensitivity and parenting: Temperament and learning as interacting risks for antisocial behavior. *Clinical Child and Family Psychology Review, 6,* 69–86.

Dolan, M. C., & Rennie, C. E. (2006). Reliability, validity, and factor structure of the Swedish Youth Psychopathic Trait Inventory in a UK sample of conduct disordered boys. *Journal of Forensic Psychiatry and Psychology, 17,* 217–229.

Falkenbach, D., Poythress, N., & Greevy, C. (2008). The exploration of subclinical psychopathic subtypes and the relationship with types of aggression. *Personality and Individual Differences, 44,* 821–832.

Fowles, D. C. (1987). Application of a behavioral theory of motivation to the concepts of anxiety and impulsivity. *Journal of Research in Personality, 21,* 417–435.

Fowles, D. C., & Dindo, L. (2006). A dual-deficit model of psychopathy. In C. P. Patrick (Ed.), *Handbook of the psychopathy* (pp. 14–34). New York: Guilford Press.

Fraley, C., & Raftery, A. E. (2002). Model-based clustering, discriminant analysis, and density estimation. *Journal of the American Statistical Association, 97,* 611–631.

Frick, P. J., Cornell, A. H., Bodin, S. D., Dane, H. A., Barry, C. T., & Loney, B. R. (2003). Callous-unemotional traits and developmental pathways to severe conduct problems. *Developmental Psychopathology, 39,* 246–260.

Frick, P. J., Lilienfeld, S. O., Ellis, M., Loney, B., & Silverthorn, P. (1999). The association between anxiety and psychopathy dimensions in children. *Journal of Abnormal Child Psychology, 27,* 383–392.

Frick, P. J., O'Brien, B. S., Wootton, J. M., & McBurnett, K. (1994). Psychopathy and conduct problems in children. *Journal of Abnormal Psychology, 103,* 700–707.

Gough, H. G. (1987). *California Psychological Inventory administrator's guide.* Palo Alto, CA: Consulting Psychologists.

Gough, H. G. (1994). Theory, development, and interpretation of the CIP Socialization scale. *Psychological Reports, 75,* 651–700.

Gray, J. A. (1987). *The psychology of fear and stress* (2nd ed.). New York: Cambridge.

Gustafson, S. B., & Ritzer, D. R. (1995). The dark side of normal: A psychopathy-linked pattern called aberrant self-promotion. *European Journal of Personality, 9,* 147–183.

Haapasalo, J., & Pulkkinen, L. (1992). The Psychopathy Checklist and non-violent offender groups. *Criminal Behaviour and Mental Health, 2,* 315–328.

Hamburger, M. E., Lilienfeld, S. O., & Hogben, M. (1996). Psychopathy, gender, and gender roles: Implications for antisocial and histrionic personality disorders. *Journal of Personality Disorders, 10,* 41–55.

Hare, R. D. (1970). *Psychopathy: Theory and research.* New York: Wiley.

Hare, R. D. (1980). The assessment of psychopathy in criminal populations. *Personality and Individual Differences, 1,* 111–119.

Hare, R. D. (1996). Psychopathy: A clinical construct whose time has come. *Criminal Justice and Behavior, 23,* 25–54.

Hare, R. D. (2003). *The Hare Psychopathy Checklist–Revised, 2nd ed.* Toronto: Multi-Health Systems.

Hare, R. D., Hart, S. D., & Harpur, T. J. (1991). Psychopathy and the DSM–IV criteria for antisocial personality disorder. *Journal of Abnormal Psychology, 100,* 391–398.

Harpur, T. J., Hare, R. D., & Hakstian, A. R. (1989). Two-factor conceptualization of psychopathy: Construct validity and assessment implications. *Psychological assessment, 1,* 6–17.

Hart, S. D., & Hare, R. D. (1996). Psychopathy and antisocial personality disorder. *Current Opinion in Psychiatry, 9,* 129–132.

Hervé, H. (2007). Psychopathic subtypes: Historic and contemporary perspectives. In H. Hervé and J. C. Yuille (Eds.), *The psychopath: Theory, research, and practice* (pp. 431–460). Hillsdale, NJ: Erlbaum.

Hicks, B. M., Markon, K. E., Patrick, C. J., Krueger, R. F., & Newman, J. P. (2004). Identifying psychopathy subtypes on the basis of personality structure. *Psychological Assessment, 16,* 276–288.

Hicks, B. M., & Patrick, C. J. (2006). Psychopathy and negative affectivity: Analyses of suppressor effects reveal distinct relations with trait anxiety, depression, fearfulness, and anger-hostility. *Journal of Abnormal Psychology, 115,* 276–287.

Horn, J. L. (1965). A rationale and test for the number of factors in factor analysis. *Psychometrika, 32,* 179–185.

Karpman, B. (1946). Psychopathy in the scheme of human typology. *Journal of Nervous and Mental Disease, 103,* 276–288.

Kernberg, O. F. (1998). The psychotherapeutic management of psychopathic, narcissistic, and paranoid transferences. In T. Millon, T. Simonsen, & D. Birket-Smith (Eds.), *Psychopathy: Antisocial, criminal, and violent behavior* (pp. 372–382). New York: Guilford Press.

Kochanska, G. (1993). Toward a synthesis of parental socialization and child temperament in early development of conscience. *Child Development, 64,* 325–347.

Kosson, D. S., Steuerwald, B. L., Forth, A. E., & Kirkhart, K. J. (1997). A new method for assessing the interpersonal behavior of psychopathic individuals: Preliminary validation studies. *Psychological Assessment, 9,* 89–101.

Levenson, M. R., Kiehl, K. A., & Fitzpatrick, C. M. (1995). Assessing psychopathic attributes in a non-institutionalized population. *Journal of Personality and Social Psychology, 68,* 151–158.

Lilienfeld, S. O. (1994). Conceptual problems in the assessment of psychopathy. *Clinical Psychology Review, 14,* 17–38.

Lilienfeld, S. O. (1996). Development and preliminary validation of a self-report measure of psychopathic personality traits in noncriminal populations. *Journal of Personality Assessment, 66,* 488–524.

Lilienfeld, S. O. (1998). Methodological advances and developments in the assessment of psychopathy. *Behaviour Research and Therapy, 36,* 99–125.

Lilienfeld, S. O., & Widows, M. (2005). *Professional manual for the Psychopathic Personality Inventory-Revised (PPI-R).* Lutz, FL: Psychological Assessment Resources.

Lykken, D. T. (1957). A study of anxiety in the sociopathic personality. *Journal of Abnormal and Social Psychology, 55,* 6–10.

Lykken, D. T. (1995). *The antisocial personalities.* Hillsdale, NJ: Erlbaum.

Lynam, D. R. (1996). Early identification of chronic offenders: Who is the fledgling psychopath? *Psychological Bulletin, 120,* 209–234.

Lynam, D. R., & Derefinko, K. (2006). Psychopathy and personality. In C. J. Patrick (Ed.), *Handbook of psychopathy* (pp. 133–155). New York: Guilford Press.

Morana, H. C. P., Camara, F. P., & Arboleda-Florez, J. (2006). Cluster analysis of a forensic population with antisocial personality disorder regarding PCL-R scores: Differentiation of two patterns of criminal profiles. *Forensic Science International, 164,* 98–101.

Morgan, A. B., & Lilienfeld, S. O. (2000). A meta-analytic review of the relation between antisocial behaviour and neuropsychological measures of executive function. *Clinical Psychology Review, 20,* 113–136.

Mulder, R. T., Wells, J. E., & Bushnell, J. A. (1994). Antisocial women. *Journal of Personality Disorders, 8,* 279–287.

Newman, J. P. (1998). Psychopathic behavior: An information processing perspective. In D. J. Cooke, A. E. Forth, and R. D. Hare (Eds.), *Psychopathy: Theory, research and implications for society,* (pp. 81–104). New York: Springer.

Newman, J. P., MacCoon, D. G., Vaughn, L. J., & Sadeh, N. (2006). Validating a distinction between primary and secondary psychopathy with measures of Gray's BIS and BAS constructs. *Journal of Abnormal Psychology, 114,* 319–323.

Patrick, C. J. (2007). Getting to the heart of psychopathy. In H. Hervé and J. C. Yuille (Eds.), *The psychopath: Theory, research, and practice* (pp. 207–252). Hillsdale, NJ: Erlbaum.

Patrick, C. J. (Ed.). (2006). *Handbook of psychopathy.* New York: Guilford Press.

Patrick, C. J., Bradley, M. M., & Lang, P. J. (1993). Emotion in the criminal psychopath: Startle reflex modulation. *Journal of Abnormal Psychology, 102,* 82–92.

Patrick, C. J., Curtin, J. J., & Tellegen, A. (2002). Development and validation of a brief form of the Multidimensional Personality Questionnaire. *Psychological Assessment, 14,* 150–163.

Patrick, C. J., Fowles, D. C., & Krueger, R. F. (2009). Triarchic conceptualization of psychopathy: Developmental origins of disinhibition, boldness, and meanness. *Development and Psychopathology, 21,* 913–938.

Patrick, C. J., Hicks, B. M., Krueger, R. F., & Lang, A. R. (2005). Relations between psychopathy facets and externalizing in a criminal offender sample. *Journal of Personality Disorders, 19,* 339–356.

Patterson, G. R. (1982). *Coercive family processes.* Eugene, OR: Castalia.

Patterson, G. R., Reid, J. B., & Dishion, T. J. (1992). *Antisocial boys.* Eugene, OR: Castalia.

Porter, S., Fairweather, D., Drugge, J., Herve, H., Birt, A., & Boer, D. P. (2000). Profiles of psychopathy in incarcerated sexual offenders. *Criminal Justice and Behavior, 27,* 216–232.

Porter, S., & Woodworth, M. (2006). Psychopathy and aggression. In C. J. Patrick (Ed.), *Handbook of psychopathy* (pp. 481–494). New York: Guilford Press.

Poythress, N. G., Edens, J. F., Skeem, J. L., Lilienfeld, S. O., Douglas, K. S., Frick, P. J., . . . Wang, T. (2010). Identifying subtypes among offenders with antisocial personality disorder: A cluster-analytic study. *Journal of Abnormal Psychology, 119,* 389–400.

Poythress, N. G., & Skeem, J. L. (2006). Disaggregating psychopathy: Where and how to look for subtypes. In C. J. Patrick (Ed.), *Handbook of psychopathy* (pp. 172–192). New York: Guilford Press.

Pridmore, S., Chambers, A., & McArthur, M. (2005). Neuroimaging in psychopathy. *Australian and New Zealand Journal of Psychiatry, 39,* 856–865.

Punj, G., & Stewart, D. W. (1983). Cluster analysis in marketing research: Review and suggestions for application. *Journal of Marketing Research, 20,* 134–148.

Raine, A., Ishikawa, S. S., Arce, E., Lencz, T., Knuth, K. H., Bihrle, S., . . . Colletti, P. (2004). Hippocampal structural asymmetry in unsuccessful psychopaths. *Biological Psychiatry 552,* 185–191.

Russ, E., Shedler, J., Bradley, R., & Westen, D. (2008). Refining the construct of narcissistic personality: Diagnostic criteria and subtypes. *American Journal of Psychiatry, 165,* 1–9.

Salekin, R. T., Rogers, R., & Sewell, K. W. (1997). Construct validity of psychopathy in a female offender sample: A multitrait-multimethod evaluation. *Journal of Abnormal Psychology, 106,* 576–585.

Salekin, R. T., Trobst, K. K., & Krioukova, M. S. (2001). Construct validity of psychopathy in a community sample: A nomological net approach. *Journal of Personality Disorders, 15,* 425–441.

Schwartz, M. A., Wiggins, O. P., & Norko, M. A. (1995). Prototypes, ideal types, and personality disorders: The return to classical phenomenology. In W. J. Livesley (Ed.), *The DSM–IV personality disorders* (pp. 417–432). New York: Guilford Press.

Skeem, J. L., Johansson, P., Andershed, H., Kerr, M., & Louden, J. E. (2007). Two subtypes of psycho-

pathic violent offenders that parallel primary and secondary variants. *Journal of Abnormal Psychology, 116,* 359–409.

Skeem, J. L., Poythress, N. G., Edens, J. F., Lilienfeld, S. O., & Cale, E. M. (2003). Psychopathic personality or personalities? Exploring potential variants of psychopathy and their implications for risk assessment. *Aggression and Violent Behavior, 8,* 513–546.

Spielberger, C. D. (1999). *STAXI-2: State-Trait Anger Expression Inventory-2.* Odessa, FL: Psychological Assessment Resources.

Tellegen, A. (1982). *Brief manual for the Multidimensional Personality Questionnaire.* Minneapolis, MN: University of Minnesota.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology, 54,* 1063–1070.

Westen, D., & Heim, A. K. (2005). *Impulsivity Questionnaire.* Unpublished manuscript. Atlanta, GA: Emory University.

Westen, D., & Shedler, J. (1999a). Revising and assessing Axis II, Pt. 1: Developing a clinically and empirically valid assessment method. *American Journal of Psychiatry, 156,* 258–272.

Westen, D., & Shedler, J. (1999b). Revising and assessing Axis II, Pt. 2: Toward an empirically based and clinically useful classification of personality disorders. *American Journal of Psychiatry, 156,* 273–285.

Westen, D., & Shedler, J. (2000). A prototype matching approach to diagnosing personality disorders toward DSM-V. *Journal of Personality Disorders, 14,* 109–126.

Westen, D., & Shedler, J. (2007). Personality diagnosis with the Shedler-Westen Assessment Procedure (SWAP): Integrating clinical and statistical measurement and prediction. *Journal of Abnormal Psychology, 116,* 810–822.

Westen, D., Shedler, J., & Bradley, R. (2006). A prototype approach to personality disorder diagnosis. *American Journal of Psychiatry, 163,* 846–856.

Widiger, T. (1982). Prototypic typology and borderline diagnoses. *Clinical Psychology Review, 2,* 115–135.

Widom, C. S. (1977). A methodology for studying noninstitutionalized psychopaths. *Journal of Consulting and Clinical Psychology, 45,* 674–683.

Wood, J. M., Garb, H. N., Nezworski, M. T., & Koren, D. (2007). The Shedler-Westen Assessment Procedure-200 as a basis for modifying DSM personality disorder categories. *Journal of Abnormal Psychology, 116,* 823–836.

Yang, Y., Raine, A., Lencz, T., Bihrle, S., LaCasse, L., & Colletti, P. (2005). Volume reduction in prefrontal gray matter in unsuccessful criminal psychopaths. *Biological Psychiatry, 57,* 1103–1108.

Zolondek, S., Lilienfeld, S. O., Patrick, C. J., & Fowler, K. A. (2006). The Interpersonal Measure of Psychopathy: Construct and incremental validity in male prisoners. *Assessment, 13,* 470–482.

Zuckerman, M. (1994). *Behavioral expressions and biosocial bases of sensation seeking.* New York: Cambridge.

Zuckerman, M., Eysenck, S. B. G., & Eysenck, H. J. (1978). Sensation seeking in England and America: Cross-cultural, age, and sex comparisons. *Journal of Consulting and Clinical Psychology, 46,* 139–149.