



PERGAMON

Behaviour Research and Therapy 36 (1998) 99–125

**BEHAVIOUR
RESEARCH AND
THERAPY**

Invited essay

Methodological advances and developments in the assessment of psychopathy

Scott O. Lilienfeld

*Department of Psychology, Emory University, Room 206, 532 N. Kilgo Circle, Atlanta,
GA 30322, U.S.A.*

Received 4 August 1997; revised 17 September 1997

Abstract

The last decade has witnessed a number of significant methodological advances and developments in the assessment of psychopathy. The Psychopathy Checklist—Revised and the two-factor model of psychopathy have facilitated the assessment of psychopathy and clarified the differential correlates of the personality- and behavior-based operationalizations of this syndrome. Although preliminary evidence suggests that certain features of psychopathy may be underpinned by a latent taxon, the categorical versus dimensional status of psychopathy requires clarification. Researchers have accorded increasing attention to the assessment of psychopathy in non-criminal samples, although the construct of subclinical psychopathy remains controversial. Other recent methodological developments include: (a) the extension of the Five-Factor Model and other higher-order personality taxonomies to psychopathy; (b) development of a Q-sort methodology to permit the assessment of psychopathy by observers; (c) standardized assessment of psychopaths' interpersonal behaviors; (d) assessment of psychopathy in children; and (e) examination of gender, ethnic, and cross-cultural differences in psychopathy. © 1998 Elsevier Science Ltd. All rights reserved.

Key words: Psychopathy, Psychopathic personality, Antisocial personality, Antisocial behavior, Assessment, Measurement

1. Introduction

Although psychopathic personality (psychopathy) has been the subject of intensive research, it remains among the most controversial of all psychopathological syndromes. Psychopathy has not appeared as a diagnosis in any of the last three editions of the American Psychiatric Association's (APA's) *Diagnostic and statistical manual* (DSM-III, DSM-III-R, DSM-IV; APA, 1980, 1987, 1994, respectively). Moreover, as recently as a decade ago one researcher argued that this disorder "remains a mythical entity" and that "Given the lack of demonstrable

0005-7967/98/\$19.00 © 1998 Elsevier Science Ltd. All rights reserved.

PII: S0005-7967(97)10021-3

scientific or clinical utility of the concept, it should be discarded” (Blackburn, 1988, p. 511). The lingering doubts besetting the diagnosis of psychopathy are perhaps best exemplified by the following quotation from Sir Aubrey Lewis: “The diagnostic subgroupings of psychiatry seldom have sharp and definite limits. Some are worse than others in this respect. Worst of all is psychopathic personality, with its wavering outlines” (Lewis, 1974, p. 139). Why has the psychopathy construct been so plagued by controversy?

Until recently (i.e. 10 years ago), the methodological obstacles presented by the assessment of psychopathy were regarded as extremely formidable, if not intractable. The results of several studies (Hare, 1985a; Hundleby and Ross, 1977; Widom and Newman, 1985) indicated that most measures of psychopathy are weakly intercorrelated. Moreover, even these low correlations appear to reflect method factors (e.g. self-report vs interview) more than content overlap (Hare, 1985a). In addition, most self-report psychopathy measures, including the Minnesota Multiphasic Personality Inventory (MMPI) Psychopathic deviate (Pd) scale (McKinley and Hathaway, 1944) and the California Psychological Inventory (CPI) Socialization (So) scale (Gough, 1969), correlate negligibly with many of the central personality features of psychopathy (Harpur et al., 1989).

Nevertheless, the last decade has witnessed a dramatic resurgence in research on psychopathy, along with a renewed optimism regarding its assessment. In this article, I examine advances and developments in psychopathy assessment that have transpired since the last comprehensive review of research on the measurement of psychopathy (Hare and Cox, 1978). I argue that several methodological innovations have improved our capacity to reliably and validly operationalize this construct, and enhanced our understanding of its behavioral and laboratory correlates. Some of these innovations have, however, revealed new challenges and unresolved questions for future researchers.

For reasons to become clearer in the next section, I focus on the classical construct of psychopathy, rather than the DSM-IV (APA, 1994) diagnosis of antisocial personality disorder (ASPD). Issues in the assessment of ASPD have been reviewed elsewhere (Lilienfeld, et al., in press; Widiger and Corbitt, 1993) and will not be examined here. Before examining recent trends in the assessment of psychopathy, however, a review of longstanding problems in its conceptualization is required.

2. The personality-based vs behavior-based conceptualizations

Much of the poor convergence among psychopathy measures (e.g. Hare, 1985a) appears to stem from a persisting disagreement concerning the nature of the psychopathy construct itself. Two approaches to the conceptualization of psychopathy can be distinguished: personality-based and behavior-based (Lilienfeld, 1994). Although operationalizations of these two approaches typically overlap moderately (Harpur et al., 1989), they differ substantially in their assessment implications.

The personality-based approach, which originated largely with Cleckley (1941/1982) (see also Karpman, 1941; McCord and McCord, 1964), regards psychopathy as a constellation of personality traits. Although some disagreement persists regarding the traits comprising psychopathy, virtually all proponents of the personality-based approach agree that

guiltlessness, callousness, dishonesty, egocentricity, failure to form close emotional bonds, low anxiety proneness, superficial charm, and propensity to externalize blame are core features (Davies and Feldman, 1981; Tennent et al., 1990). Cleckley and other proponents of the personality-based approach regard antisocial behavior as being of subsidiary importance in the diagnosis of psychopathy. Indeed, the DSM-II (APA, 1968) diagnosis of “antisocial personality”, which exemplified this approach, emphasized such traits as callousness, guiltlessness, and selfishness and cautioned that “a mere history of repeated legal or social offenses is not sufficient to justify this diagnosis” (p. 43).

The behavior-based approach stems primarily from the work of Robins (1966) and others in the St Louis group, and exerted considerable influence over the DSM-III (APA, 1980) diagnosis of ASPD. The DSM-III criteria for ASPD reflected a marked shift away from the personality-based criteria of DSM-II, and emphasized a history of readily observable antisocial behaviors (e.g. theft, vandalism, cruelty to animals, financial irresponsibility) originating in childhood or adolescence and extending into adulthood. In contrast to DSM-II, DSM-III asserted that “The essential feature is a Personality Disorder ... in which there are (sic) a history of continuous and chronic antisocial behavior” (p. 317). The DSM-III criteria for ASPD were formulated largely in response to criticisms that personality-based criteria for psychopathy are overly subjective and inferential (Cloninger, 1978). Partly as a concession to critics who charged that the DSM-III criteria for ASPD neglected the core personality attributes of psychopathy, DSM-III-R (APA, 1987) added the criterion of “lacks remorse”, but otherwise retained a substantial emphasis on antisocial behaviors. The DSM-IV (APA, 1994) criteria for ASPD did not incorporate additional personality features of psychopathy, despite the fact that the DSM-IV field trial for ASPD indicated that personality-based items provided incremental validity above and beyond behavior-based criteria in interviewers’ and clinicians’ global ratings of psychopathy and ASPD, particularly among inmates (Widiger et al., 1996).

The behavior-based approach has been the target of two major criticisms, both of which suggest that this approach has sacrificed reliability at the expense of validity. Before discussing these criticisms, it is worth noting that although reliability sets constraints on validity, increases in reliability can lead to decreases in validity (Meehl, 1986). This state of affairs can arise for two reasons. Revisions in a criterion set can produce *construct-irrelevant variance*, which occurs when “the assessment is too broad, containing excess reliable variance associated with other distinct constructs” (Messick, 1995, p. 742) and other irrelevant factors. Revisions in a criterion set can also result in *construct under-representation*, which occurs when “the assessment is too narrow and fails to include important dimensions or facets of the construct” (Messick, 1995, p. 742).

First, numerous authors have argued that behavior-based criteria are overinclusive in that they encompass a *mélange* of etiologically diverse conditions, only one of which is Cleckley (i.e. ‘primary’) psychopathy (Hare et al., 1991; Rogers and Dion, 1991; Wulach, 1983). Lykken (1995), for example, maintained that the DSM-IV diagnosis of ASPD subsumes a variety of disorders (sometimes referred to as ‘secondary’ or ‘idiopathic’ psychopathic disorders; Blackburn, 1988; Karpman, 1941), such as neurotic psychopathy (i.e. antisocial behavior resulting from neurotic conflict), dyssocial psychopathy (i.e. antisocial behavior resulting from allegiance to a culturally deviant subgroup), and, in a return to older American terminology

(Partridge, 1930), what he termed ‘sociopathy’ (i.e. antisocial behavior stemming from inadequate parenting).

Although the extent to which the ASPD diagnosis is overinclusive remains controversial, Hart and Hare (1989) found that the majority of a sample of 80 forensic patients with ASPD did not receive high scores on the Psychopathy Checklist (PCL), a well-validated measure that assesses the core features of Cleckley psychopathy. Stalenheim and von-Knorring (1996) similarly found that approximately one-third of a sample of 61 forensic patients received low scores on the PCL-R (the revised version of the PCL). If the findings of these two studies are replicable, they would suggest the ASPD diagnosis contains construct irrelevant variance (Messick, 1995) and subsumes conditions other than primary psychopathy. Moreover, some authors argue that because the prevalence of ASPD in prison settings is extremely high, this diagnosis is not useful for differentiating inmates with vs without psychopathic personality features. Stevens (1993), for example, referred to the search for ASPD in prisons as tantamount to “looking for hay in a haystack” (p. 1). Although there may be some truth to this criticism, approximately 50% of inmates do not meet ASPD criteria (Hare, 1990).

Second, a number of authors argue that behavior-based criteria are under-inclusive in that they fail to identify individuals who possess the core personality features of psychopathy, but who have not exhibited chronic antisocial behavior. Such individuals, who have been variously referred to as subclinical, successful, or adaptive psychopaths (Sutker and Allain, 1983; Widom, 1977), have been the subject of extensive clinical lore, but little systematic research. Because the DSM-III, DSM-III-R, and DSM-IV criteria focus almost exclusively on antisocial behavior, their neglect of personality traits may have resulted in construct under-representation (Messick, 1995). This conclusion rests, however, on the assumption that personality-based criteria possess higher construct validity than behavior-based criteria, an empirical issue addressed in the following section.

3. The Psychopathy Checklist and Psychopathy Checklist—Revised

There is little question that the development of the PCL (Hare, 1985b) and its revision, the PCL-R (Hare, 1990), represent the principal methodological achievements in psychopathy assessment over the past 10–15 years. These measures, which represent more explicit operationalizations of an earlier global measure of primary psychopathy (Hare and Cox, 1978), involve an intensive semi-structured interview and a comprehensive review of file data. Because the PCL and PCL-R are very similar in format and are highly correlated (Hare, 1990), evidence for the reliability and validity of one measure can be regarded as directly relevant for the other. The PCL-R consists of 20 items scored on a 0–2 scale; scores of 30 or above are typically considered diagnostic of psychopathy (see Gacono and Hutton, 1994 for recommendations concerning the use of the PCL-R). The PCL-R has been found to possess high levels of inter-rater reliability and internal consistency in forensic samples (Hare, 1990).¹

¹ In the remainder of the manuscript, inter-rater reliabilities refer to intraclass correlations and internal consistencies refer to Cronbach’s alphas.

The construct validity of the PCL and PCL-R is supported by an extensive body of research. Because this research has been reviewed extensively elsewhere (e.g. Hare, 1990, 1996; Hart et al., 1992), it will be summarized only briefly here. A meta-analysis of 18 studies of the predictive validity of the PCL and PCL-R (Salekin et al., 1996) indicated that both measures are good predictors of violence and criminal recidivism. The effect sizes of these measures for predicting violent behavior and recidivism were $d = 0.79$ and $d = 0.55$, respectively; both of these effect sizes are in the medium to large range (Cohen, 1977). In addition, there is considerable evidence that the PCL-R is a potent predictor of recidivism among sexual offenders (e.g. Quinsey et al., 1995; Serin, 1996). Perhaps more important, the PCL and PCL-R provide substantial incremental validity in the prediction of violence and recidivism above and beyond standard actuarial risk scales based on demographic and life history variables, as well as superior validity to measures of ASPD in the prediction of institutional misbehavior and violent recidivism (Hare, 1990).

In addition, the PCL and PCL-R have been found to predict poor performance on laboratory tasks, including measures of passive-avoidance learning (Newman and Kosson, 1986), which require participants to withhold responses that lead to punishment. High PCL scorers, unlike low PCL scorers, do not exhibit a shorter recognition latency to emotional than to non-emotional words (Williamson et al., 1991), suggesting that psychopaths may possess deficits in affective processing. Finally, the PCL predicts poor treatment response among inmates in a therapeutic community program (Rice et al., 1992).

The validities of the PCL and PCL-R compared with self-report measures of psychopathy, however, require clarification. Simourd et al. (1990) conducted a meta-analysis of the validities of the PCL, Pd scale, and So scale in the prediction and postdiction of criminal behavior. They found that the mean effect size for the So scale ($d = 0.41$) was higher than that of either the PCL ($d = 0.28$) or the Pd scale ($d = 0.21$). After adjusting for characteristics of the design (i.e. nature of comparison sample, use of extreme vs non-extreme groups), the effect sizes for the So scale and PCL were essentially equivalent and larger than that of the Pd scale. Because Simourd et al.'s (1990) meta-analysis examined only criminality as a criterion, the extent to which their findings can be generalized to other criteria (e.g. performance on laboratory tasks) requires investigation. The Pd and So scales primarily assess antisocial behavior, rather than the core affective and personality features of psychopathy (Harpur et al., 1989), and may therefore be inferior to the PCL and PCL-R in the prediction of tasks that assess the emotional deficits characteristic of psychopathy (e.g. autonomic indices of fear conditioning; see Lykken, 1995).

Because the PCL-R requires access to extensive corroborative information, it may not be appropriate for settings in which file data are absent. Alterman et al. (1993) found that PCL-Rs completed without file information yielded lower scores than PCL-Rs completed with file information. Although this finding does not demonstrate that the absence of file information lowers the PCL-R's construct validity, it suggests that the absence of such information might produce an increased false-negative rate. Conversely, there is evidence that reliable and valid PCL-Rs can be completed without the interview, but only if high-quality file data are available (e.g. Wong, 1988).

4. The two-factor model

Although the preceding discussion focused on the PCL and PCL-R total scores, factor analyses of both measures have revealed that much of their common variance can be accounted for by two moderately correlated (r ranges from 0.5 to 0.6 in most studies) factors (Hare et al., 1990; Harpur et al., 1988). Factor I ('emotional detachment'; Patrick et al., 1993) comprises such traits as superficial charm, absence of remorse, callousness, and egocentricity, and assesses many of the core personality features of psychopathy delineated by Cleckley. Factor II ('antisocial behavior'; Patrick et al., 1993) comprises chronic antisocial behaviors, such as early conduct problems, criminal versatility (i.e. variability in the types of crimes committed), and weak behavioral controls, and assesses many of the characteristics of ASPD. Indeed, Factor II, unlike Factor I, tends to be moderately to highly correlated with measures of ASPD (Harpur et al., 1989) and with measures of substance abuse (Smith and Newman, 1990), which is strongly associated with ASPD. Factors I and II provide reasonable operationalizations of the personality- and behavior-based approaches, respectively, and thus serve as useful vehicles for comparing their differential correlates.

Harpur et al. (1989) reported that, in several inmate samples, Factor I was essentially unrelated to educational level, socioeconomic status, and verbal IQ, whereas Factor II was moderately negatively related to these variables. One interpretation of these findings is that although the core personality traits of psychopathy are largely unrelated to shared environmental and cognitive factors, such factors play a crucial role in these traits' behavioral expression. This hypothesis is consistent with McCrae and Costa's (1995) distinction between *basic tendencies* and *characteristic adaptations*, the former being core personality traits and the latter being their overt manifestations. According to McCrae and Costa, the same basic tendencies can be manifested in quite different characteristic adaptations. In McCrae and Costa's terms, Harpur et al.'s data are consistent with the possibility that psychopaths' basic tendencies (i.e. Factor I traits) are expressed in antisocial characteristic adaptations (i.e. Factor II behaviors) only in the presence of adverse environmental factors (Harkness and Lilienfeld, in press).

Harpur et al. (see also Hart et al., 1991) found that most self-report psychopathy measures, including the Pd, So, Self-Report Psychopathy (SRP) Scale (Hare, 1985a), and Millon Clinical Multiaxial Inventory-II (MCMI-II) Antisocial Scale (Millon, 1987), correlated negligibly (r s < ranged from 0.06 to 0.24) with Factor I, suggesting that these measures do not adequately assess the core personality features of psychopathy. Moreover, most of these measures correlated moderately (r s ranged from 0.31 to 0.51) with Factor II and are therefore reasonably good markers of behavioral deviance.

These findings, in conjunction with the low correlations of self-report psychopathy measures with other indices of psychopathy (Hare, 1985a), led Hare (1996) to conclude that the use of self-report measures "as reliable indicants of psychopathy for clinical or research purposes cannot be recommended" (p. 29). Although Hare is surely correct that psychopaths' lack of insight and dishonesty renders the exclusive reliance on self-report indices in the measurement of psychopathy problematic, the validity of psychopaths' self-reports remains an open issue. With regard to the Pd and So scales, it is unclear whether their low correlations with Factor I are attributable to their self-report format, poor content validity, or both. Both of these scales

contain few items explicitly assessing absence of guilt, callousness, and other key features of psychopathy (Lilienfeld, 1994).

The utility of the two-factor model has been borne out in a number of other studies. In a study of 889 male prison inmates aged 16–69, Harpur and Hare (1994) reported that PCL Factor I scores remained relatively stable with age, whereas Factor PCL II scores declined with age, particularly after age 40. These results lend credence to the often discussed ‘burn-out’ phenomenon among psychopaths (see Robins, 1966) and to McCrae and Costa’s (1995) distinction between basic tendencies and characteristic adaptations. Specifically, Harpur and Hare’s data suggest that psychopaths’ basic tendencies remain intact with age, but that their characteristic adaptations change over time, perhaps as a result of decreasing levels of certain hormones (e.g. testosterone), monoamines, or both. Because Harpur and Hare’s design was cross-sectional, however, further studies are needed to exclude the possibility that their findings are due to cohort effects.

Patrick et al. (1993) examined the relation between the PCL factors and the fear-potentiated startle response in a sample of 54 incarcerated prisoners. Participants were administered loud blasts of white noise while viewing photographs (nine threatening, nine positive, and nine neutral), and their startle reactions were assessed by eyeblink magnitude. Non-psychopaths typically exhibit a phenomenon known as fear-potentiated startle: their startle reactions are exacerbated by threatening stimuli. Patrick et al. (1993) found that PCL-R psychopaths, in contrast to non-psychopaths, exhibited little or no fear-potentiated startle. They further reported that this finding was accounted for almost entirely by Factor I, suggesting that the traits assessed by this factor are intimately related to the absence of anxiety-proneness characteristic of psychopathy (see also Harpur et al., 1989).

As noted elsewhere (Lilienfeld, 1994), the two-factor model, heuristic as it has been, leaves one crucial question unanswered: what is psychopathy? Specifically, are individuals with elevated scores on Factor I, but not Factor II, psychopaths? Because such individuals ostensibly possess the core personality features of psychopathy, Cleckley and other proponents of the personality-based approach would presumably respond in the affirmative. Nevertheless, because the PCL-R requires a score of 30 for a diagnosis of psychopathy (Hare, 1990), individuals must exhibit at least some antisocial (i.e. Factor II) characteristics to be classified as PCL-R psychopaths. This state of affairs seems inconsistent with assertions (e.g. Hare, 1996) that the PCL-R embodies the personality-based approach as delineated by Cleckley. In addition, the PCL-R cut-off of 30 appears to exclude the possibility of subclinical psychopaths (Widom, 1977), i.e. individuals who possess the core personality features of psychopathy but who have not engaged in chronic antisocial behavior. Alternatively, however, it may be that Factors I and II both assess personality traits relevant to psychopathy, but that the traits assessed by Factor II are related to a heightened risk for antisocial behavior (Lilienfeld, 1994).

One methodological approach that may shed light on this issue is the use of moderated multiple regression to examine the statistical interaction of the two PCL-R factors. If the multiplicative (i.e. interactive) effects of the PCL-R factors were found to provide incremental validity in the prediction of relevant criteria (e.g. natural history) above and beyond their additive (i.e. main) effects, this would suggest that the joint presence of both factors is necessary to provide maximal predictive power. Aside from a report by Harpur and Hare (1996) that the two factors of the PCL-R statistically interact in the prediction of violence

among inmates, there is little evidence relevant to this issue. Researchers should routinely examine the possibility that the two PCL-R factors statistically interact in predicting external criteria, while bearing in mind that moderated multiple regression techniques tend to have low statistical power (McClelland and Judd, 1993) and therefore provide a conservative test of this possibility.

Which factor is more useful for making inferences concerning psychopathy? An item response theory (IRT) analysis of the PCL-R by Cooke and Michie (1997) in 2067 prisoners revealed that Factor I items are more discriminating and provide more psychopathy-relevant information than Factor II items. Nevertheless, because Cooke and Michie's analysis was based entirely on prisoners, their findings may be a consequence of the fact that all of their participants by definition possessed histories of antisocial behavior and were therefore presumably more homogeneous with respect to Factor II than Factor I items. Further research is needed to determine if Factor I characteristics are more discriminating and informative than Factor II characteristics in samples characterized by a greater heterogeneity of antisocial behaviors.

5. Psychopathy: category or dimension?

The question of whether psychopathy is categorical (taxonic) or dimensional in nature, i.e. whether psychopathy differs in kind or degree from normality, has been a persistent source of controversy (see Grove and Tellegen, 1991, for a discussion of this controversy in the personality disorders literature). Meehl and Golden (1982) defined a taxon as a 'nonarbitrary class', i.e. a class that exists in nature, rather than a class produced by a scientifically arbitrary cutting point on a dimension. Taxonicity can appear in a variety of forms, including bimodality and threshold effects (Meehl and Golden, 1982).

The categorical vs dimensional issue bears important implications for the conceptualization and assessment of psychopathy. If psychopathy were found to be underpinned by a taxon, this would imply that researchers should attempt to identify a dichotomous etiological agent (e.g. a gene of major effect, an all-or-none dysfunction in a physiological system, a specific set of environmental experiences) that distinguishes individuals with vs without the liability to psychopathy. In addition, this finding would imply that research on psychopathy in non-clinical or non-criminal samples may be of questionable external validity. Unless the base rate of the psychopathy taxon in such samples were sufficiently high, the correlations between psychopathy measures and other variables would be produced largely or entirely by non-taxonic factors (Meehl and Golden, 1982). Alternatively, if psychopathy were dimensional in nature, this would imply that psychopathy research in non-clinical and non-criminal samples is generalizable to more severely affected individuals, provided that such samples possess sufficient range in psychopathy scores.

In a study of 653 offenders in a maximum security facility, Harris et al. (1994) reported evidence that psychopathy is taxonic. Their analyses included the PCL-R (completed using file information alone) and variables assessing childhood and adult antisocial behaviors and criminal recidivism. Harris et al. (1994) utilized several taxometric techniques (e.g., MAXCOV-HITMAX) (Meehl and Golden, 1982) to examine the possibility of a latent taxon underlying

scores on these measures. Their analyses suggested the presence of a taxon underlying scores on PCL-R Factor II and childhood (but not adult) antisocial behavior items, and indicated that the base rate of this taxon ranged from 0.44 to 0.46. The finding of a taxon underlying childhood antisocial behaviors may provide support for Moffitt's (1993) proposed subtype of early-onset conduct disorder (CD), which (in contrast to late-onset CD) she views as primarily influenced by biological (e.g. pre- and peri-natal) factors.

Although Harris et al.'s (1994) results are potentially important, they should be viewed with caution for several reasons. First, they found evidence of taxonicity only for Factor II and only for childhood antisocial behaviors. No evidence of taxonicity was found for Factor I traits, which ostensibly represent the core personality features of psychopathy. Consequently, their conclusion that "Results supported the existence of a taxon underlying psychopathy" (Harris et al., 1994, p. 387) appears to be unwarranted. As they note, however, evidence of taxonicity for Factor I traits might have emerged had interview data, which may be more sensitive indicators of personality features, been collected.

Second, Harris et al.'s (1994) sample consisted of mentally disordered offenders treated in a psychiatric institution, 45% of whom had been found not guilty by reason of insanity. The nature of this sample raises the possibility that a non-trivial number of individuals in their sample suffered from schizophrenia spectrum disorders. Because the results of several studies have revealed evidence of taxonicity for schizophrenia spectrum disorders (e.g. Korfine and Lenzenweger, 1995) and because the extent to which schizophrenics produce false-positives on the PCL-R requires clarification (Howard et al., 1984; but see Hare and Harpur, 1986), the possibility that Harris et al.'s (1994) findings reflect the presence of a schizotypy taxon is difficult to exclude with certainty. To address this possibility, they conducted a subsidiary analysis that revealed evidence for taxonicity even after excluding participants with psychotic disorders. Nevertheless, because presumably only a small subset of individuals with schizophrenia spectrum disorders are overtly psychotic, the possibility that a schizotypy taxon accounts for Harris et al.'s (1994) results remains open. Future researchers should attempt to rule out this possibility by including indices of schizotypy (Grove, 1982) in taxometric investigations.

Third, the extent to which taxometric techniques can produce false-positive findings requires further investigation. Miller (1996), for example, delineated several ways in which MAXCOV-HITMAX can yield evidence for a taxon in its absence. Although Harris et al.'s (1994) use of taxometric procedures other than MAXCOV-HITMAX to corroborate their findings addresses this criticism to some extent, more definitive confirmation of their findings must await studies designed to identify a dichotomous causal agent (e.g. a gene of major effect) possessed by only that subset of individuals who comprise their conjectured psychopathy taxon.

6. The assessment of psychopathy in non-criminal samples

6.1. The psychometric detection of subclinical psychopathy

As is evident from the literature reviewed thus far, most research on psychopathy has been conducted on criminal samples. Consequently, the generalizability of this literature to non-

incarcerated samples is unclear (Widom, 1977). Moreover, this nearly exclusive focus on institutionalized samples has led to a neglect of subclinical psychopaths, i.e. psychopaths with little or no history of antisocial behavior.¹ A better understanding of such individuals may shed light on the factors (e.g. adequate impulse control, high IQ) that may protect individuals with elevated levels of psychopathic personality traits from engaging in antisocial behavior (i.e. that protect individuals with elevated Factor I features from developing Factor II features).

In two innovative studies, Widom (1977) and Widom and Newman (1985) developed an assessment methodology to recruit community samples with high rates of subclinical psychopathy. They placed advertisements, which referred to a number of psychopathic personality features phrased in socially desirable language, in local newspapers. The advertisement used by Widom (1977), for example, called for “charming, aggressive, carefree people who are impulsively irresponsible but are good at handling people and at looking after number one” (Widom, 1977, p. 675). In two studies with small samples ($N = 28$ and 40 , respectively), Widom (1977) and Widom and Newman (1985) found that participants who responded to these advertisements possessed many of the same psychometric (e.g. high Pd scores, low levels of self-reported empathy) and psychopathological (e.g. elevated rates of substance abuse) characteristics as incarcerated psychopaths. Nevertheless, because between 70 and 80% of the participants in both studies fulfilled Robins’ (1966) criteria for sociopathy, which are similar to the DSM-IV criteria for ASPD in their emphasis on antisocial behaviors, Widom and colleagues’ findings do not provide strong support for the claim that large number of subclinical psychopaths can be detected in community settings. Nevertheless, their advertisement methodology represents a promising technique that has been largely neglected by subsequent investigators.

The only study that has utilized a similar assessment methodology was conducted by Belmore and Quinsey (1994), who placed advertisements in local newspapers and a local employment center. In contrast to Widom and colleagues, the authors requested male participants who had either been suspended/expelled from school, left home prior to age 16, or both. In addition, the authors used a control advertisement that requested participants “for a study of personality” (Belmore and Quinsey, 1994, p. 342). Fifteen participants who received high scores on an abbreviated version of the PCL-R that was supplemented with measures of childhood and adolescent antisocial behavior were assigned to a ‘high’ group, and 15 participants who received low scores were assigned to a ‘low’ group.

Belmore and Quinsey reported that, compared with participants in the low group, participants in the high group scored higher on a self-report measure of impulsivity. The latter participants obtained lower scores on the So scale and, like incarcerated psychopaths, played more cards in a computerized card-playing task (Newman et al., 1987) characterized by a progressively decreasing likelihood of success. Nevertheless, Belmore and Quinsey found that 100% of participants in the high group had been arrested and convicted, and that 93% had been imprisoned. Thus, their results, like those of Widom and colleagues, do not provide

¹ Technically, the concept of subclinical psychopathy presupposes that psychopathy is taxonic; i.e. that certain individuals are ‘true’ psychopaths and other individuals are ‘true’ nonpsychopaths. Because the categorical vs dimensional status of psychopathy remains unresolved, the term subclinical psychopathy will be used to refer to individuals with high levels of the core personality traits of psychopathy, but low levels of antisocial behavior.

strong evidence for the existence of subclinical psychopaths in community settings, although their use of childhood and adolescent antisocial behavior as a criterion for assignment to the high group may have virtually guaranteed that a substantial proportion of this group would exhibit adult antisocial behavior. The stability of antisocial behavior from childhood to adulthood approaches that of IQ (Olweus, 1979).

6.2. New methods of assessing psychopathy in non-criminal samples

Several investigators have recently developed measures that may prove useful in the assessment of psychopathy in non-criminal populations. In contrast to the PCL and PCL-R, which are recommended for use only in settings in which detailed file information is available (Hare, 1990), the Psychopathy Checklist—Revised: Screening Version (PCL-R:SV) (Hart et al., 1995) was designed to permit the assessment of psychopathy in non-clinical samples. The PCL-R:SV consists of 12 items, which are modified slightly from those of the PCL-R. Unlike its parent measure, the PCL-R:SV does not contain items that are scored entirely on the basis on file data, and thus is suitable for use outside of prison settings. The PCL-R:SV correlates highly ($r = 0.80$) with the PCL-R, and exhibits a similar pattern of correlations with the So scale, the MCMI-II Antisocial Scale, and other measures relevant to psychopathy (Hart et al., 1995).

Forth et al. (1996) examined the psychometric properties of the PCL-R:SV in 75 male and 75 female college students. They reported that the PCL-R:SV exhibited excellent inter-rater reliabilities among both males and females (0.95 and 0.93, respectively) and adequate internal consistencies among both males and females (0.89 and 0.70, respectively). The PCL-R:SV correlated positively and moderately with self-reported measures of antisocial symptoms, with the Self-Report Psychopathy Scale—II (SRP-II) (Hare, 1990), and with self-reported substance use. The PCL-R:SV also correlated positively with observer ratings of the arrogant/calculating and cold-hearted octants, and negatively with ratings of the unassuming-ingenuous and warm-agreeable octants, measures of which were derived from the Interpersonal Adjective Scales (Wiggins et al., 1988).

Nevertheless, Forth et al. (1996) were unable to recapture the two-factor structure reported for the PCL-R, and inspection of the scree plot suggested a one-factor solution for both genders. This finding is difficult to interpret, however, in light of their relatively small sample sizes. In addition, the one-factor solution reported by Forth et al. (1996) may be attributable to the low variances reported for most PCL-R:SV items in their sample. Previous studies have reported a two-factor structure for the PCL-R:SV, but only in samples with adequate variance on measures of psychopathic traits (Hart et al., 1994). Although further investigation of the PCL-R:SV's factor structure is warranted, the PCL-R:SV appears to be a promising measure of psychopathic traits in non-criminal populations.

Levenson et al. (1995) developed primary and secondary psychopathy scales to assess self-reported psychopathic features in non-institutionalized samples. The primary and secondary scales, which were rationally constructed, were designed to provide questionnaire indices of PCL-R Factors I and II, respectively. Following from the writings of Karpman (1941), Levenson et al. (1995) hypothesized that primary and secondary psychopaths can be differentiated on the basis of trait anxiety, with the former being low and the latter being high

on trait anxiety. A typical item from the primary psychopathy scale is “Looking out for myself is my top priority”; a typical item from the secondary psychopathy scale is “I am often bored”.

In a study of 487 university students, Levenson et al. (1995) reported that the primary and secondary psychopathy scales exhibited adequate internal consistencies (0.82 and 0.63, respectively) and were moderately correlated ($r = 0.40$). This correlation raises questions concerning the construct validity of one or both scales, as primary and secondary psychopathy are believed to be essentially orthogonal constructs. Males scored significantly higher than females on both the primary and secondary scales, although only the former difference was substantial in magnitude.

Levenson et al. (1995) found that both the primary and secondary psychopathy scales were positively and significantly correlated with a measure of trait anxiety, although the former correlation was weak ($r = 0.09$). The absence of a negative correlation between the primary psychopathy scale and trait anxiety calls into question the construct validity of this scale, because Levenson et al. predicted that primary psychopaths would be unusually low in trait anxiety. Both psychopathy scales were positively correlated with a measure of antisocial behaviors, although this finding is difficult to interpret because Levenson et al. included (reverse-scored) prosocial behaviors (e.g. volunteerism) in their antisocial behavior measures. Several authors (e.g. Lykken, 1995) have argued that prosocial and antisocial behaviors may be positively, rather than negatively, correlated, because both types of behaviors may stem from similar underlying dispositions (e.g. fearlessness). Levenson et al. (1995) also reported that both psychopathy scales were positively correlated with the boredom susceptibility and disinhibition subscales of the Sensation Seeking Scale (SSS) (Zuckerman, 1989), but were essentially uncorrelated with the SSS Experience Seeking and Thrill and Adventure Seeking subscales. The positive correlation of the secondary psychopathy scale with boredom susceptibility appears inconsistent with the fact that proneness to boredom is a Factor I, not a Factor II, trait on the PCL-R (Hare, 1990). In summary, because several of the correlates of Levenson et al.’s scales appear to run counter to theoretical predictions, further research is needed to clarify these scales’ construct validity.

Lilienfeld and Andrews (1996) reported on the development and initial validation of the Psychopathic Personality Inventory (PPI), a measure designed to assess psychopathic personality traits in non-criminal samples. The PPI was developed in undergraduate samples by means of an iterative process of construct formulation, factor analysis, item revision, and construct reformulation. In the development of the PPI, several guidelines were followed: (a) items explicitly assessing antisocial behaviors were excluded in order to provide a relatively ‘pure’ measure of the personality traits comprising psychopathy; (b) items were phrased so as to appear normative and socially desirable; and (c) an effort was made to be overinclusive in the selection of target constructs so that the boundaries of the psychopathy construct could be more clearly delineated (see Loevinger, 1957).

Factor analyses of the PPI item pool across several rounds of analysis in three student samples (total $N = 1156$) revealed a replicable eight-factor structure. The eight PPI subscales—which were labeled Machiavellian Egocentricity, Social Potency, Cold heartedness, Carefree Nonplanfulness, Fearlessness, Blame Externalization, Impulsive Nonconformity, and Stress Immunity—exhibited a theoretically meaningful pattern of relations with the lower-order scales

of Tellegen's (in press) Multidimensional Personality Questionnaire. The PPI total score was found to correlate positively with the SRP-II ($r = 0.91$ and 0.62 in two samples), negatively with the So scale ($r = -0.59$), and positively with peer and interviewer ratings of Cleckley psychopathy ($r_s = 0.45$ and 0.60 , respectively) and symptoms of DSM-IV ASPD and narcissistic personality disorder ($r = 0.59$ and 0.35 , respectively) as assessed by structured interview. In addition, the PPI total score demonstrated incremental validity above and beyond a composite of four psychopathy-related questionnaires (e.g. the Pd scale, self-report measures of ASPD symptoms) in the prediction of peer and interviewer ratings of Cleckley psychopathy (Lilienfeld and Andrews, 1996). The PPI holds promise in the assessment of psychopathy in non-criminal samples, although further examination of its capacity to predict performance on non-questionnaire measures (e.g. laboratory tasks, biological variables) is necessary.

6.3. Using extant measures to assess psychopathy in non-criminal samples

Several authors have recently argued that certain constructs drawn from the 'normal' personality literature might be brought to bear on the assessment of psychopathy in non-criminal samples. Gustafson and Ritzer (1995), for example, posited the existence of a construct termed 'aberrant self-promotion' (ASP), which they contended constitutes a variant of subclinical psychopathy. ASP is characterized by a tendency to advance one's own interests, often at others' expense, and overlaps substantially with the construct of narcissism. Gustafson and Ritzer operationalized ASP by means of high scores on five measures—the Narcissistic Personality Inventory (Raskin and Hall, 1979), the So scale, a subscale of the Marlowe–Crowne Social Desirability Scale (Crowne and Marlowe, 1960) that focuses on impression management, a self-esteem measure, and the SRP-II—and identified high ASPs by means of cluster analytic and factor analytic methods (which yielded similar results). In an initial validation study in an undergraduate sample, they found differences between 32 ASPs and 30 non-ASPs on the PCL-R and various antisocial behaviors (e.g. stealing, parking violations).

Although these findings provide preliminary support for the validity of the ASP construct and its extension to non-criminal samples, they are not surprising given that this construct is operationalized partly by high scores on the So scale and the SRP-II, both of which have already been shown to correlate positively with the PCL-R (Hare, 1990). In addition, the inclusion of the So scale renders Gustafson and Ritzer's (1995) measure of ASP questionable as an index of subclinical psychopathy, because the So scale contains a number of items referring explicitly to overt antisocial behaviors. Gustafson and Ritzer's operationalization of ASP warrants further investigation, however, because most self-report psychopathy indices do not adequately assess the narcissism and grandiosity characteristic of psychopathy (Harpur et al., 1994). Nevertheless, the incremental validity of this operationalization above and beyond other psychopathy measures remains to be determined.

McHoskey et al. (in press) hypothesized that the construct of Machiavellianism (Christie and Geis, 1970) is isomorphic with psychopathy, and is useful for the study of this syndrome in non-criminal samples. They conjectured that Machiavellianism and psychopathy, having originated in different literatures (social psychology and psychopathology, respectively), have rarely been examined conjointly. Like psychopathy, Machiavellianism is associated with

narcissism, dishonesty, guiltlessness, shallow affect, absence of empathy, boredom proneness, and externalization of blame (McHoskey et al., in press).

In three studies with undergraduates (N s ranged from 48 to 125), McHoskey et al. found that the fourth version of Christie and Geis' (1970) Machiavellianism Scale (Mach-IV) was positively correlated with Levenson et al.'s (1995) primary ($r = 0.64$) and secondary ($r = 0.46$) psychopathy scales and with measures of narcissism and antisocial behavior. In addition, Mach-IV was positively correlated with the Social Psychopathy Scale (Smith, 1985) and SSS Disinhibition subscale.

McHoskey et al.'s (in press) findings suggest that Machiavellianism bears close ties to psychopathy, although it appears to overlap with both primary and secondary psychopathy as operationalized by Levenson et al. (1995). McHoskey's results must be reconciled with findings indicating that the Mach-IV scale is more closely related to PCL-R Factor I than Factor II traits, although its correlations with both factors are relatively low (Hare, 1990). Given that PCL-R Factor II relates highly to some important personality dimensions relevant to psychopathy, such as low Constraint (see "Relations between psychopathy and higher-order personality taxonomies"), the construct of Machiavellianism may not be identical to psychopathy, at least as assessed by the PCL-R.

6.4. Summary

Although the construct of subclinical psychopathy has attracted increasing attention among investigators, research in non-clinical samples has yet to uncover a sizeable number of individuals who possess many of the core personality features of psychopathy but exhibit low levels of antisocial behavior. Researchers who intend to detect subclinical psychopaths may want to target specific samples (e.g. politicians, stuntpersons) that may be characterized by a disproportionate number of high-functioning and socially successful individuals with certain psychopathic traits (e.g. Machiavellianism, low physical anxiety). A number of promising new methods (e.g. PCL-R:SV, PPI) have been developed for the interview and self-report assessment of psychopathy in non-criminal samples, although most of these measures are in relatively preliminary stages of construct validation. A better understanding of the construct of psychopathy in such samples is necessary for identifying the factors that may buffer certain individuals with high levels of psychopathic traits from developing antisocial behavior.

7. Other recent advances in the assessment of psychopathy

7.1. Psychopathy and relations to higher-order personality taxonomies

A key issue that has until recently received little attention is the relation of psychopathy to broader constructs within the personality domain. Although the question of the underlying structure of personality has yet to be resolved, there is increasing consensus that a relatively small number of higher-order dimensions—perhaps three or five—may account for much of the shared variance among personality traits. A better understanding of how psychopathy relates to these dimensions could shed light on its etiology, because some higher-order

dimensions may bear important ties to psychobiological systems. Tellegen's (in press) higher-order dimension of Constraint (CN), for example, may be a marker of Gray's (1982) behavioral inhibition system (BIS), a physiological system that inhibits behavior in response to signals of punishment. In addition, an examination of the PCL-R's relations to higher-order personality dimensions may clarify the meaning of its two factors, as well as their similarities and differences.

Several investigators have examined the relation between measures of psychopathy and the 'Big Three.' Eysenck (see Eysenck and Eysenck, 1975) conceptualized these three dimensions as Extraversion, Neuroticism, and Psychoticism, although his third dimension is more highly associated with impulsivity and aggressiveness than psychosis *per se* (Zuckerman, 1989). In a prison sample, Harpur et al. (1989) reported weak correlations between the PCL total score and Eysenck's Extraversion ($r = 0.11$), Neuroticism ($r = 0.02$), and Psychoticism ($r = 0.14$) dimensions.

When the PCL factors were examined separately, intriguing differences were found for Neuroticism and Psychoticism. PCL Factor I was negatively correlated ($r = -0.17$) with Neuroticism, whereas PCL Factor II was positively correlated ($r = 0.16$) with Neuroticism. This finding may clarify some of the inconsistent findings concerning the relation of psychopathy to anxiety (Lilienfeld, 1994). Specifically, only the core affective features of psychopathy may be associated with low anxiety. The social deviance that sometimes accompanies psychopathy may actually result in increased anxiety, perhaps because such deviance leads to a higher incidence of stressful life events (e.g. arrests, interpersonal problems). Harpur et al. (1989) found that Psychoticism was unrelated to Factor I ($r = 0.01$) but weakly to moderately related to Factor II ($r = 0.22$). This finding suggests that Factor II may be more highly associated than Factor I with the impulsivity and poor planning associated with psychopathy. In addition, this finding suggests that both PCL factors assess personality traits relevant to psychopathy.

Patrick (1995) examined the relations between the PCL-R and Tellegen's (in press) three dimensions of Positive Emotionality (PE), Negative Emotionality (NE), and CN, as assessed by the Multidimensional Personality Questionnaire (MPQ), in a male prison sample ($N = 174$). PE and NE are similar to, although broader than, Eysenck's constructs of Extraversion and Neuroticism, respectively, while CN shares important elements with Eysenck's (reversed) Psychoticism dimension (Tellegen, in press). Patrick reported that PCL-R total scores were correlated positively with NE and negatively with CN.

When Patrick examined the relations of the MPQ higher-order dimensions to the two PCL-R factors, interesting divergences emerged. Factor I was positively correlated with PE, negatively correlated with NE, and relatively uncorrelated with CN. In contrast, Factor II was correlated negatively with PE, positively with NE, and negatively with CN. This last finding is consistent with Harpur et al.'s (1994) finding that the SSS is more highly related to Factor II than to Factor I, because the SSS appears to be a marker of CN (Lykken, 1995). In addition, this finding raises questions concerning Lykken's (1995) hypothesis that fearlessness lies at the core of psychopathic personality traits. Because CN can be thought of as a fearfulness dimension (Tellegen, in press), Lykken's (1995) hypothesis implies that CN should be more highly related to Factor I than to Factor II. Patrick's results concerning the differential relation

of the PCL-R factors to NE essentially replicates the findings of Harpur et al. (1989) regarding Eysenck's Neuroticism dimension.

The higher-order taxonomy of personality that has received the most attention over the past decade has been the Five-Factor Model, which consists of the dimensions of Extraversion, Neuroticism, Agreeableness, Conscientiousness, and Openness to Experience (Costa and McCrae, 1992). Although a number of important conceptual and methodological difficulties with the Big Five remain to be resolved (Block, 1995), this taxonomy has demonstrated impressive consistency in both self- and other-ratings across diverse samples and cultures.

Harpur et al. (1994) reported on the relations between the Big Five, as assessed by the Neuroticism, Extraversion, and Openness Personality Inventory (Costa and McCrae, 1992), and the PCL in inmate and student samples ($N_s = 28$ and 50 , respectively). In both samples, PCL total scores were negatively correlated with Agreeableness and Conscientiousness, although the former correlation was significant only in the inmate sample and the latter correlation was significant only in the student sample. Correlations between PCL total scores and Extraversion, Neuroticism, and Openness to Experience were negligible in both samples. Factor I was negatively correlated with Agreeableness and Conscientiousness in both samples, although these findings were significant only in the student sample. Factor II was negatively correlated with Conscientiousness in both samples, although this correlation was significant only in the student sample. Although Harpur et al.'s findings do not provide strong evidence for differential Big Five correlates of the two PCL factors, they suggest that (reversed) Agreeableness and (reversed) Conscientiousness are the two dimensions most relevant to global psychopathy.

These findings were partially replicated in a sample of 12 inmates and 12 university students by Hart and Hare (1994), who administered the PCL-R:SV and an interpersonal checklist (the revised Interpersonal Adjective Scales—Big Five version: IASR-B5; Trapnell and Wiggins, 1991) to assess the Big Five. PCL-R:SV and IASR-B5 ratings were completed by independent observers. Collapsing across both samples, Hart and Hare reported significant correlations between PCL:SV total scores and Dominance ($r = 0.64$), which is similar to Extraversion, Love ($r = -0.83$), which is similar to Agreeableness, Neuroticism ($r = -0.44$), Conscientiousness ($r = -0.82$), and Openness to Experience ($r = -0.77$).

Nevertheless, the absolute magnitude of these correlations may have been spuriously inflated by combining these samples, because the inmate sample was presumably higher than the student sample on both psychopathy and on several Big Five traits (e.g. Dominance). Hart and Hare did not report information concerning the Big Five correlates of the two PCL-R:SV factors. Hart and Hare's results are consistent with those reported by Harpur et al. (1994) in suggesting that psychopathy is associated with low Agreeableness and low Conscientiousness. Their findings with regard to other Big Five dimensions, although intriguing, should be viewed with caution pending replication with larger samples.

7.2. *Assessment of psychopaths' interpersonal behaviors*

Given that most personality disorders are, to a substantial extent, disorders of interpersonal functioning, one might expect psychopaths to exhibit a number of differences in interpersonal behavior compared with other individuals. Nevertheless, the interpersonal behavior of

psychopaths has received little attention. Rime et al. (1978) compared the interview behaviors of 25 incarcerated adolescents judged to have high levels of psychopathic traits with those of 25 incarcerated adolescents judged to have low levels of these traits. Compared with non-psychopathic adolescents, psychopathic adolescents spent a greater proportion of time engaging in hand gestures, leaning forward toward the interviewer, and looking into the interviewers' eyes. In addition, psychopaths smiled significantly less during the interview than non-psychopaths.

Until recently, no standardized method existed for the assessment of psychopaths' interpersonal behaviors. Kosson et al. (1997) remedied this void with the development of the Interpersonal Measure of Psychopathy (IM-P), a 21-item index designed to be rated on the basis of interview information. Provisional items for the IM-P were generated from the literature on psychopaths' interpersonal functioning and suggestions from psychopathy researchers. Items were retained if their corrected item-total correlations were $r = 0.30$ or above. Among the items on the IM-P are 'Interrupts', 'Ignores professional boundaries' and 'Showmanship.'

In samples of prison inmates ($N = 98$) and undergraduates ($N = 92$), Kosson et al. (1997) found that IM-P scores correlated significantly and positively with PCL-R (or, in the case of undergraduates, PCL-R:SV) total scores. In both samples, IM-P scores were significantly more highly correlated with Factor I than Factor II scores, suggesting that the IM-P may, unlike most self-report measures of psychopathy (Harpur et al., 1989), assess many of the core affective deficits of this syndrome. In addition, Kosson et al. (1997) reported that IM-P scores demonstrated incremental validity above and beyond the PCL-R in the prediction of aggression in the prison sample and observer-rated dominance in the student sample.

The IM-P is a promising measure of interpersonal behavior that may capture aspects of psychopathy not assessed by the PCL-R. Nevertheless, because the interviewers in Kosson et al.'s study may have based their scoring of PCL items, particularly those on Factor I, partly on their observations of participants' interpersonal behaviors, further research is needed to determine the extent to which the correlation between the IM-P and PCL is attributable to rater effects.¹ Because the IM-P relates primarily to Factor I, it will be of interest to examine its incremental validity above and beyond this factor for predicting psychopaths' performance on tasks assessing affective functioning (e.g. fear-potentiated startle; Patrick et al., 1993).

7.3. Development of a Q-sort methodology for the assessment of psychopathy by observers

Despite the fact that observer ratings are regarded as among the most valuable quasi-criteria in personality disorders research (Grove and Tellegen, 1991), there has been little progress in the development of instruments to permit the assessment of adult psychopathy by observers. This void is particularly problematic because virtually all psychopathy indices, including the PCL-R and questionnaires, rely heavily on respondents' self-reports. Because psychopaths are known for their lack of insight into the nature of their symptoms (Cleckley, 1941/1982),

¹ Although the IM-P and PCL-R:SV were completed by different individuals in the student sample, the PCL-R:SV ratings may have been influenced by interviewers' observations of participants' interpersonal behaviors.

observer ratings may be especially helpful for identifying ‘blind spots’ in their self-reports (Grove and Tellegen, 1991).

Reise and Oliver (1994) developed a Q-sort method for the assessment of psychopathy by observers. They asked seven judges with expertise in psychopathy to sort the 100 items of the California Q-set (Block, 1961) into a forced quasi-normal distribution in accord with their conceptions of the Cleckley psychopath. These seven Q-sorts, whose internal consistency was 0.90, were aggregated to form a psychopathy Q-sort prototype. Among the items rated most characteristic by the judges were ‘Is self-indulgent’ and ‘Is personally charming’; among the items rated least characteristic were ‘Has a readiness to feel guilt’ and ‘Behaves in a giving way toward others.’ Reise and Oliver reported that the Psychopathy Q-sort (PQS) correlated significantly ($r = 0.51$) with a Q-sort Narcissism prototype and non-significantly ($r = 0.16$) with a Q-sort Hysteria prototype. In addition, they found a number of items that distinguished the Psychopathy prototype from these two prototypes; for example, ‘Tends toward over-control of needs and impulses’ was more characteristic of the Hysteria prototype and ‘Is thin-skinned’ was more characteristic of the Narcissism prototype.

Reise and Wink (1995) further investigated the construct validity of the PQS by examining its correlations with self-report and observer rating measures in a community sample of 350 individuals. PQS scores tended to be positively correlated with self-reported features of Cluster B (i.e. Antisocial, Histrionic, Borderline, and Narcissistic) personality disorders, but negligibly or in some cases negatively correlated with features of Cluster A and C disorders. In addition, the PQS correlated positively with the CPI Dominance, Social Presence, Self-Acceptance, and Independence Scales, and negatively with the CPI So, Responsibility, Self-control, and Good Impression scales. Surprisingly, the PQS correlated positively with the CPI Empathy Scale. Finally, the PQS demonstrated promising convergent validity with observer and spouse ratings. For example, among observers PQS scores correlated positively with ratings of ‘adventurous’, and ‘egotistical’ in males and females; among spouses PQS scores correlated positively with ratings of ‘aggressive’ and ‘opportunistic’ in males and females.

The PQS possesses several advantages over extant observer rating measures of psychopathy. First, by forcing observers to sort items into a common distribution, the PQS minimizes certain potentially problematic response biases, such as a general tendency to provide extreme item ratings. Second, the development of the PQS allows researchers to reanalyze previous data sets on the California Q-set to examine the extent to which participants’ resemblance to the psychopathy prototype predicts real-life and laboratory variables relevant to psychopathy. Further research is needed, however, to ascertain the incremental validity of the PQS above and beyond self-reports. It will be especially interesting to determine whether the PQS contributes unique variance to the prediction of traits about which psychopaths presumably possess little insight, such as absence of empathy and propensity to externalize blame. In this context, the positive correlation of the PQS with CPI Empathy scores warrants replication and further examination. It is not clear whether this finding calls into question the construct validity of the PQS or whether it reflects the propensity of psychopathic individuals to erroneously perceive themselves as possessing certain positive attributes.

7.4. *Assessment of psychopathy in children*

Until recently, little was known concerning the assessment of psychopathy in children. The question of whether the construct of psychopathy is relevant to children has been controversial, because the maturation of certain characteristics central to an understanding of psychopathy (e.g. conscience, sense of empathy) may not be complete until later in development. The results of several studies (Brandt et al., in press; Chandler and Moran, 1990; Forth et al., 1990; Trevethen and Walker, 1989) suggest that psychopathy measures possess adequate construct validity in adolescents. Because most of these studies involve minor modifications of measures already reviewed here (e.g. the PCL and PCL-R), they will not be reviewed further.

Frick et al. (1994) reported on the development and preliminary validation of the Psychopathy Screening Device (PSD), a measure loosely modeled after the PCL-R that was designed to assess psychopathic traits in children. Unlike the PCL-R, the PSD is designed to be completed by observers (e.g. parents, teachers). Factor analyses of the PSD (completed by both parents and teachers) in a clinical sample of 95 children aged 6–13 revealed two dimensions that are fairly similar to those of the PCL-R (Frick et al., 1994). The first factor, which Frick et al. labeled Impulsivity/Conduct problems (I/CP), appears to correspond to PCL-R Factor II, and consists of such items as 'Acts without thinking' and 'Engages in illegal activities'. The second factor, which Frick et al. labeled Callous/Unemotional (CU), appears to correspond to PCL-R Factor I, and consists of such items as 'Emotions seem shallow' and 'Acts charming in ways that seem insincere'. As Frick et al. noted, however, there were several differences in the pattern in factor loadings on the PSD compared with the PCL-R. Grandiosity, boredom proneness, and failure to accept responsibility for actions loaded primarily on the I/CP factor, although these traits load primarily on PCL-R Factor I. Because the PSD, unlike the PCL-R, is completed entirely by observers, the extent to which these differences are attributable to rater (e.g. halo) effects requires further investigation (Frick et al., 1994).

Preliminary data provide promising support for the construct validity of the PSD. Frick et al. (1994) found that scores on the I/CP factor were moderately and significantly associated with symptoms of CD and oppositional defiant disorder (ODD); the relations between the CU factor and these symptoms were also significant but lower in magnitude. The I/CP factor, but not the CU factor, significantly distinguished children with either CD or ODD from other clinically-referred children. The CU factor contributed to the prediction of sensation seeking above and beyond DSM-III-R CD and ODD symptoms. In addition, the I/CP and CU factors exhibited an opposite pattern of relations to anxiety measures. Controlling for the effects of the CU factor, the I/CP factor tended to be positively correlated with anxiety, whereas controlling for the effects of the I/CP factor, the CU factor tended to be negatively correlated with anxiety.

Several of Frick et al.'s findings, however, run counter to those reported in adults. Sensation seeking, for example, was positively correlated with the CU factor, although the SSS is essentially unrelated to PCL-R Factor I in adults (Harpur et al., 1989). It remains to be determined whether this finding reflects a problem with the construct validity of the PSD or a developmental trend in the relation of sensation seeking to other variables.

Waldman et al. (1995) examined the relations between the PSD and psychiatric symptoms in 61 children referred to an attention deficit disorders clinic. The I/CP factor was more highly correlated with symptoms of CD, ODD, and attention-deficit/hyperactivity disorder than the

CU factor; in contrast, the correlations of both PSD factors with symptoms of internalizing disorders (e.g. depression, separation anxiety disorder) tended to be lower in magnitude. Although the I/CP factor was more highly correlated than the CU factor with indices of both reactive and proactive (i.e. instrumental) aggression, the CU factor exhibited significant incremental validity in the prediction of the latter. This finding is consistent with the cold and calculating nature of instrumentally aggressive acts (Cornell et al., 1996). Finally, the I/CP and CU factors statistically interacted in the prediction of both reactive and proactive aggression, corroborating findings from the adult literature concerning the interaction of the two PCL-R factors (Harpur and Hare, 1996).

The PSD has also been found to predict performance on laboratory measures assessing sensitivity to signals of punishment. Using a game-playing task in which clinic-referred participants ($N = 92$) were confronted with competing cues for reward and punishment, O'Brien and Frick (1996) found that non-anxious children with high levels of CU traits displayed an insensitivity to punishment cues regardless of whether they had conduct problems. Thus, the CU dimension appears to predict unique variance in passive avoidance learning above and beyond CD symptoms.

Lynam (1997) developed a technique for assessing psychopathy in childhood that may represent a useful alternative to the PSD. His 41-item Childhood Psychopathy Scale (CPS) was, like the PSD, designed to permit the assessment of psychopathy by parents and teachers. The CPS was developed by identifying items from the Childhood Behavior Checklist (Achenbach, 1991) and California Child Q-set (Block and Block, 1980) that mapped onto the construct of psychopathy as assessed by the PCL-R. In a sample of 430 boys aged 12–13 rated by their mothers, the CPS was found to be internally consistent (0.91) and to correlate significantly with various indices of delinquency. In addition, the CPS correlated significantly with self-, teacher-, and observer-reported measures of impulsivity, and with several laboratory measures of impulsivity (e.g. a delay of gratification task). Finally, the CPS exhibited incremental validity in the prediction of delinquent behavior at age 13 above and beyond several other variables, including IQ, socioeconomic status, and delinquent behavior at age 10. The CPS holds promise as a rating measure of childhood psychopathy, although it does not provide explicit coverage of several important constructs relevant to psychopathy (e.g. egocentricity, risk taking). The extent to which these omissions compromise the validity of the CPS remains to be ascertained.

7.5. Gender, ethnic, and cultural differences in psychopathy

A final major development in the psychopathy assessment literature is an increasing emphasis on the study of gender, ethnic, and cultural differences in the mean levels, correlates, and behavioral expression of psychopathy. Three studies discussed earlier provide information concerning gender differences in the psychometric properties of psychopathy measures.¹

¹ The results of several studies using exclusively female samples (e.g. Rutherford et al., 1996) suggest that the PCL-R possesses good construct validity in women. In this section, however, I focus on studies comparing the psychometric properties of psychopathy measures in males and females.

Forth et al. (1996) found that males scored significantly higher than females on the PCL-R:SV (on the total score and both factors), although there were few differences in the relations between the PCL-R:SV and other variables (e.g. SRP-II, ASPD symptoms, and observer ratings of dominance, coldheartedness, and other interpersonal dimensions). Zagon and Jackson (1994) reported that males obtained higher scores on the SRP-II than females, although there were few differences in the correlations between the SRP-II and measures of anxiety, narcissism, and empathy across genders. Lilienfeld and Andrews (1996) found that males scored significantly higher than females on the PPI and several of its subscales (e.g. Machiavellian Egocentricity, Fearlessness), but found no clear evidence for gender differences in factor structure. In addition, they reported little evidence for gender differences in the correlation between the PPI and measures of psychopathy or personality traits. It should be noted, however, that all three of these studies were based on non-clinical samples. Examination of gender differences in the correlates and factor structure of psychopathy measures among clinical samples (e.g. prisoners), which may be characterized by greater variance in levels of psychopathic traits, is warranted.

Cooney et al. (1990) examined the psychometric properties of several psychopathy-related measures, including the PCL and So scale, among 79 male and 39 female inpatient alcoholics. Participants were subdivided into ASPD and non-ASPD groups on the basis of a structured interview. Cooney et al. reported no gender differences in PCL mean scores, although male non-ASPD participants scored slightly higher on the PCL than female non-ASPD participants (9.75 vs 8.09). Factor analyses of the psychopathy-related measures yielded a one-factor solution. In the full sample, the loading of the So scale on this factor was extremely high (0.90), whereas the factor loading of the PCL was moderate (0.45). The loadings of the So scale and PCL on this factor were virtually identical in males and females. Nevertheless, Cooney et al.'s sample sizes may not have been sufficient to detect gender differences in factor structure.

Hamburger et al. (1996) examined the relations between psychopathic personality traits, as assessed by the PPI, and self-report measures of DSM-III-R ASPD and histrionic personality disorder (HPD) in 180 undergraduates (90 males, 90 females). Using structural equation modeling, they found that the relation between psychopathic traits and these two DSM-III-R personality disorders was moderated by biological gender, with psychopathic males tending to exhibit higher levels of ASPD characteristics than psychopathic females, and psychopathic females tending to exhibit higher levels of HPD characteristics than psychopathic males. Although this interaction effect was significant, it was weak in magnitude. Parallel analyses examining the moderating role of traditional gender roles, as assessed by the Bem Sex Role Inventory (Bem, 1974), yielded negative results. Hamburger et al.'s (1996) findings are consistent with the possibility that the basic tendencies of psychopathy can be channeled into different characteristic adaptations (see McCrae and Costa, 1995) depending on biological gender. Nevertheless, because Hamburger et al. did not examine DSM personality disorders other than ASPD and HPD, the specificity of their findings to these two disorders requires clarification.

Because most of the psychopathy literature derives from predominantly White samples, little is known regarding the assessment of psychopathy in other ethnic groups. In the first systematic investigation of ethnic differences in psychopathy, Kosson, Smith and Newman

(1990) examined the psychometric properties of the PCL in three samples of White and Black inmates (*Ns* ranged from 59 to 485) Kosson et al. found that Blacks scored significantly higher than Whites on the PCL, although mean differences on the two PCL factors were not reported. In a study of 130 male adolescent offenders, Brandt et al. (in press) reported similar mean differences on the PCL-R in Blacks and Whites, although this difference was only marginally significant. In Forth et al.'s (1996) study, there were no differences between Black and White students on PCL-R:SV total scores, although Blacks received significantly higher scores on Factor II.

The findings of these three studies may reflect genuine racial differences in psychopathy, test bias, interviewer bias, or some combination of all three. Alternatively, these findings may reflect the interaction between race and unknown selection factors (e.g., differential arrest or conviction rates). Because the PCL raters in all three studies reported by Kosson et al. (1990) were White, it will be important to ascertain whether ethnicity differences in psychopathy emerge even when Black interviewers are used (Brandt et al., in press and Forth et al., 1996, did not report the ethnicity of their interviewers).

Kosson et al. (1990) reported that the internal consistency and factor structure of the PCL were fairly similar across races, although there were some notable differences in the latter. Factor I, but not Factor II, exhibited only moderate similarity (coefficient of congruence = 0.67) across Whites and Blacks. In addition, several Factor I items, including pathological lying and deception, exhibited significantly lower correlations with total PCL scores in Blacks than Whites. In contrast, a recent IRT analysis of the PCL-R (Cooke and Michie, 1997), revealed no evidence of item bias in White vs Black inmate samples.

Kosson et al. (1990) reported that the PCL correlated positively with passive-avoidance learning errors in both Whites and Blacks, although this correlation was lower among Blacks. Thornquist and Zuckerman (1995) similarly reported that the correlation among PCL-R scores and passive-avoidance learning deficits was lower in Blacks. Kosson et al. also found that indices of impulsivity were significantly correlated with PCL scores among Whites but essentially uncorrelated with PCL scores among Blacks. In contrast, the correlations between PCL scores and measures of NE were similar across races. Finally, Kosson et al. found that the correlations between PCL scores and criminal history variables (e.g. number and type of offenses) and IQ were comparable in Whites and Blacks.

Thus, the limited literature on ethnic differences in PCL-R scores suggests that this measure is sufficiently similar in its psychometric properties in Whites and Blacks to warrant preliminary application to both groups. Nevertheless, this literature also suggests that the psychopathy construct, as operationalized by the PCL-R, may exhibit several important racial differences in its relations with external variables. In particular, because the PCL-R may be less related to impulsivity in Black than in White samples, the possibility that this measure predicts impulsive behaviors (e.g. recidivism) better in White than in Black samples warrants investigation. In addition, the racial differences in PCL-R scores reported by Kosson et al. (1990) and perhaps by Brandt et al. (in press) and Forth et al. (1996) require replication in more representative (e.g. community) samples so that the influence of selection factors can be excluded. There are virtually no data on the psychometric properties of the PCL-R in other ethnic groups. Forth et al. (1990) found that a relatively small ($n = 56$) sample of Native-

American adolescent prisoners received significantly lower scores on the PCL-R than White adolescents ($n = 17$), although this finding requires replication.

Compared with what is known concerning ethnic differences in psychopathy, even less is known concerning differences in its levels or expression across cultures. Although several investigators have found that the PCL-R possesses adequate construct validity in samples outside of North America (e.g. O’Kane et al., 1996, in England; Rasmussen and Levander, 1996, in Norway; and Stalenheim and von-Knorrning, 1996, in Sweden), few studies have compared the mean levels or rates of psychopathy across different countries.

Cooke (1996) reported that Scottish prisoners scored significantly lower than North American prisoners on the PCL-R (mean = 13.82 vs 23.63); moreover, only 3% of Scottish prisoners were classified as PCL-R psychopaths compared with 23% of North American prisoners (separate data on the PCL-R factors were not reported). As Cooke pointed out, these findings are potentially attributable to a number of factors, including test bias, sampling differences, and genuine national differences in the prevalence of psychopathy. With regard to the first possibility, Cooke reported that Factors I and II exhibited substantial similarity across the two samples, although five PCL-R items (e.g. grandiosity, lack or remorse or guilt) exhibited significantly different corrected item-total correlations across the two samples. Thus, Cooke’s data provide mixed support for the possibility of PCL-R test bias.

8. Conclusion

Several major methodological improvements in the past decade have contributed to a better understanding of psychopathy, and brought into sharper focus a number of important unresolved questions for future research. Although several issues merit increased attention from psychopathy researchers in the next decade, the categorical vs dimensional status of psychopathy is of particular importance in its implications for both the conceptualization and assessment of this syndrome. If psychopathy is underpinned by a latent taxon, researchers who conduct psychopathy research in non-criminal samples must ensure that this taxon possesses a sufficiently high base rate in their samples to render their research valid and generalizable to other samples.

The PCL-R, particularly the two-factor model it has spawned, has clarified the differential correlates of the personality- and behavior-based operationalizations of psychopathy, and revealed important differences between the traditional conception of psychopathy (Cleckley, 1941/1982) and the DSM-IV diagnosis of ASPD. The two-factor model has provided a useful vehicle for examining the construct of subclinical psychopathy and the factors that may buffer individuals with high levels of psychopathic traits from developing antisocial behavior. Nevertheless, because most psychopathy research has been conducted on prison samples and other samples with high rates of antisocial behavior, the potential of the two-factor model to elucidate these issues has not been fully realized. Most of the empirical literature on psychopathy remains a literature on unsuccessful psychopathy.

In this regard, McCrae and Costa’s (1995) distinction between basic tendencies and characteristic adaptations may serve as an overarching framework for examining the differential implications of the personality- and behavior-based approaches to psychopathy. If

the core personality features (i.e. basic tendencies) of psychopathy can in fact be expressed in a variety of characteristic adaptations depending on certain moderating variables (e.g. IQ, impulse control, gender), this might imply that such personality features only manifest themselves in overt antisocial behavior among a subset of individuals. Indeed, these personality features might even predispose certain individuals toward prosocial (e.g. heroic), rather than antisocial, behaviors given the proper environmental conditions (Lykken, 1995). The identification of factors that may shape the characteristic adaptations of psychopaths' basic tendencies should become a priority for the psychopathy researchers of the next decade. For this to occur, however, researchers will increasingly need to move outside of prison walls to examine the manifestations of psychopathic traits in real-world settings.

References

- Achenbach, T. M. (1991). *Integrative guide for the 1991 CBCL/4-18, YSR, and TRF profiles*. Burlington, VT: Department of Psychiatry, University of Vermont.
- Alterman, A. I., Cacciola, J. S., & Rutherford, M. J. (1993). Reliability of the Revised Psychopathy Checklist in substance abuse patients. *Psychological Assessment*, 5, 442–448.
- American Psychiatric Association (1968). *Diagnostic and statistical manual of mental disorders* (2nd edn). Washington, DC: Author.
- American Psychiatric Association (1980). *Diagnostic and statistical manual of mental disorders* (3rd edn). Washington, DC: Author.
- American Psychiatric Association (1987). *Diagnostic and statistical manual of mental disorders* (3rd edn, rev.). Washington, DC: Author.
- American Psychiatric Association (1994). *Diagnostic and statistical manual of mental disorders* (4th edn). Washington, DC: Author.
- Belmore, M. F., & Quinsey, V. (1994). Correlates of psychopathy in a noninstitutional sample. *Journal of Interpersonal Violence*, 9, 339–349.
- Bem, S. L. (1974). The measurement of psychological androgyny. *Journal of Consulting and Clinical Psychology*, 42, 155–162.
- Blackburn, R. (1988). On moral judgments and personality disorders: The myth of psychopathic personality revisited. *British Journal of Psychiatry*, 153, 505–512.
- Block, J. (1961). *The Q-sort method in personality assessment and psychiatric research*. Springfield, IL: Thomas.
- Block, J. (1995). A contrarian view of the five-factor approach to personality description. *Psychological Bulletin*, 117, 187–215.
- Block, J., and Block, J. H. (1980). *The California Child Q-Set*. Palo Alto, CA: Consulting Psychologists Press.
- Brandt, J. R., Kennedy, W. A., and Patrick, C. J. (in press). Assessment of psychopathy in a population of incarcerated adolescent offenders. *Psychological Assessment*.
- Chandler, M., & Moran, T. (1990). Psychopathy and moral development: A comparative study of delinquent and nondelinquent youth. *Development and Psychopathology*, 2, 227–246.
- Christie, R., and Geis, F. L. (1970). *Studies in Machiavellianism*. New York: Academic Press.
- Cleckley, H. (1941/1982). *The mask of sanity*. St Louis: Mosby.
- Cloninger, C. R. (1978). The antisocial personality. *Hospital Practice*, 13, 97–106.
- Cohen, J. (1977). *Statistical power analysis for the behavioral sciences*. New York: Academic Press.
- Cooke, D. J. (1996). Psychopathic personality in different cultures: What do we know? What do we need to find out?. *Journal of Personality Disorders*, 10, 23–40.
- Cooke, D. J., & Michie, C. (1997). An item response theory analysis of the Hare Psychopathy Checklist—Revised. *Psychological Assessment*, 9, 1–14.
- Cooney, N. L., Kadden, R. M., & Litt, M. D. (1990). A comparison of methods for assessing sociopathy in male and female alcoholics. *Journal of Studies on Alcohol*, 51, 42–48.
- Cornell, D. G., Warren, J., Hawk, G., Stafford, E., Oram, G., & Pine, D. (1996). Psychopathy in instrumental and reactive violent offenders. *Journal of Consulting and Clinical Psychology*, 64, 783–790.
- Costa, P. T., Jr., and McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEOFFI) professional manual*. Odessa, FL: Psychological Assessment Resources.
- Crowne, D. P., & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology*, 24, 349–354.
- Davies, W., & Feldman, P. (1981). The diagnosis of psychopathy by forensic specialists. *British Journal of Psychiatry*, 138, 329–331.
- Eysenck, H. J., and Eysenck, S. B.G. (1975). *Manual for the Eysenck Personality Questionnaire*. San Diego: Educational and Industrial Testing Service.

- Forth, A. E., Brown, S. L., Hart, S. D., & Hare, R. D. (1996). The assessment of psychopathy in male and female noncriminals: Reliability and validity. *Personality and Individual Differences, 20*, 531–543.
- Forth, A. E., Hart, S. D., & Hare, R. D. (1990). Assessment of psychopathy in male young offenders. *Psychological Assessment, 2*, 342–344.
- 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.
- Gacono, C. B., & Hutton, H. E. (1994). Suggestions for the clinical and forensic use of the Hare Psychopathy Checklist—Revised (PCL-R). *International Journal of Law and Psychiatry, 17*, 303–317.
- Gough, H. G. (1969). *Manual for the California Psychological Inventory*. Palo Alto, CA: Consulting Psychologists Press.
- Gray, J. (1982). *The neuropsychology of anxiety*. New York: Oxford University Press.
- Grove, W. M. (1982). Psychometric detection of schizotypy. *Psychological Bulletin, 92*, 27–38.
- Grove, W. M., & Tellegen, A. (1991). Problems in the classification of personality disorders. *Journal of Personality Disorders, 5*, 31–42.
- 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.
- 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. (1985a). Comparison of procedures for the assessment of psychopathy. *Journal of Consulting and Clinical Psychology, 53*, 7–16.
- Hare, R. D. (1985b). The Psychopathy Checklist. Unpublished manuscript, University of British Columbia, Vancouver, Canada.
- Hare, R. D. (1990). *The Psychopathy Checklist—Revised*. Toronto: Multi-Health Systems.
- Hare, R. D. (1996). Psychopathy: A clinical construct whose time has come. *Criminal Justice and Behavior, 23*, 25–54.
- Hare, R. D., and Cox, D. N. (1978). Clinical and empirical conceptions of psychopathy, and the selection of subjects for research. In Hare, R. D. and Schalling, D. (Eds.), *Psychopathic behaviour: Approaches to research* (pp. 1–21). New York: Wiley.
- Hare, R. D., & Harpur, T. J. (1986). Weak data, strong conclusions: Some comments on Howard, Bailey, and Newman's use of the Psychopathy Checklist. *Personality and Individual Differences, 7*, 147–151.
- Hare, R. D., Harpur, T. J., Hakstian, A. R., Forth, A. E., Hart, S. D., & Newman, J. P. (1990). The Revised Psychopathy Checklist: Reliability and factor structure. *Psychological Assessment, 2*, 338–341.
- 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.
- Harkness, A. R., and Lilienfeld, S. O. (in press). Individual differences science for treatment planning: Personality traits. *Psychological Assessment*.
- Harpur, T. J., Hakstian, A. R., & Hare, R. D. (1988). Factor structure of the Psychopathy Checklist. *Journal of Consulting and Clinical Psychology, 56*, 741–747.
- Harpur, T. J., & Hare, R. D. (1994). The assessment of psychopathy as a function of age. *Journal of Abnormal Psychology, 103*, 604–609.
- Harpur, T. J., and Hare, R. D. (1996). Psychopathy and violent behavior: Two factors are better than one. Manuscript submitted for publication.
- 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.
- Harpur, T. J., Hart, S. D., and Hare, R. D. (1994). Personality of the psychopath. In Costa, P. T. and Widiger, T. A. (Eds.), *Personality disorders and the five-factor model of personality* (pp. 149–173). American Psychological Association: Washington, DC.
- Harris, G. T., Rice, M. E., & Quinsey, V. L. (1994). Psychopathy as a taxon: Evidence that psychopaths are a discrete class. *Journal of Consulting and Clinical Psychology, 62*, 387–397.
- Hart, S. D., Cox, D. N., and Hare, R. D. (1995). *Manual for the Psychopathy Checklist: Screening version (PCL:SV)*. Toronto: Multi-Health Systems.
- Hart, S. D., Forth, A. E., & Hare, R. D. (1991). The MCMI-II and psychopathy. *Journal of Personality Disorders, 5*, 318–327.
- Hart, S. D., & Hare, R. D. (1989). Discriminant validity of the Psychopathy Checklist in a forensic psychiatric population. *Psychological Assessment, 1*, 211–218.
- Hart, S. D., & Hare, R. D. (1994). Psychopathy and the Big 5: Correlations between observers' ratings of normal and pathological personality. *Journal of Personality Disorders, 8*, 32–40.
- Hart, S. D., Hare, R. D., & Forth, A. E. (1994). Psychopathy as a risk factor for violence: Development and validation of a screening version of the Revised Psychopathy Checklist. In Monahan, J. & Steadman, H. J. (Eds.), *Violence and Mental Disorder: Developments in Risk Assessment* (pp. 81–98). Chicago: University of Chicago Press.
- Hart, S. D., Hare, R. D., and Harpur, T. J. (1992). The Psychopathy Checklist—Revised (PCL-R): An overview for researchers and clinicians. In Rosen, J. C. and McReynold, P. (Eds.), *Advances in psychological assessment* (pp. 104–130). New York: Plenum Press.
- Howard, R., Bailey, R., & Newman, A. (1984). A preliminary study of Hare's "research scale for the assessment of psychopathy" in mentally disordered offenders. *Personality and Individual Differences, 4*, 389–396.

- Hundley, J. D., & Ross, B. E. (1977). A comparison of questionnaire measures of psychopathy. *Journal of Consulting and Clinical Psychology, 45*, 702–703.
- Karpman, B. (1941). On the need for separating psychopathy into two distinct clinical types: Symptomatic and idiopathic. *Journal of Criminology and Psychopathology, 3*, 112–137.
- Korfine, L., & Lenzenweger, M. F. (1995). The taxonicity of schizotypy: A replication. *Journal of Abnormal Psychology, 104*, 26–31.
- Kosson, D. S., Smith, S. S., & Newman, J. P. (1990). Evaluating the construct validity of psychopathy in black and white male inmates: Three preliminary studies. *Journal of Abnormal Psychology, 99*, 250–259.
- Kosson, D. S., Steuerwald, B. L., Forth, A. E., & Kirkhart, K. J. (1997). A new method for assessing the interpersonal behavior of psychopaths: Preliminary validation studies. *Psychological Assessment, 9*, 89–101.
- Levenson, M. R., Kiehl, K. A., & Fitzpatrick, C. M. (1995). Assessing psychopathic attributes in a noninstitutionalized population. *Journal of Personality and Social Psychology, 68*, 151–158.
- Lewis, A. (1974). Psychopathic personality: A most elusive category. *Psychological Medicine, 4*, 133–140.
- Lilienfeld, S. O. (1994). Conceptual problems in the assessment of psychopathy. *Clinical Psychology Review, 14*, 17–38.
- Lilienfeld, S. O., & Andrews, B. P. (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., Purcell, C., and Jones-Alexander, J. (in press). The assessment of antisocial behavior in adults. In Stoff, D. M., Breiling, J. and Maser, J. (Eds.), *Handbook of Antisocial Behavior*. New York: Wiley.
- Loevinger, J. (1957). Objective tests as instruments of psychological theory. *Psychological Reports, 9*, 635–694.
- Lykken, D. T. (1995). *The antisocial personalities*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Lynam, D. R. (1997). Pursuing the psychopath: Capturing the fledgling psychopath in a nomological net. *Journal of Abnormal Psychology, 106*, 425–438.
- McClelland, G. H., & Judd, C. M. (1993). Statistical difficulties of detecting interactions and moderator effects. *Psychological Bulletin, 114*, 376–390.
- McCord, W., and McCord, J. (1964). *The psychopath: An essay on the criminal mind*. Princeton, NJ: Van Nostrand.
- McCrae, R. R., & Costa, P. T. (1995). Trait explanations in personality psychology. *European Journal of Personality, 9*, 231–252.
- McHoskey, J. W., Worzel, W., and Szyarto, C. (in press). Machiavellianism and psychopathy. *Journal of Personality and Social Psychology*.
- McKinley, J. C., & Hathaway, S. R. (1944). The MMPI: V. Hysteria, hypomania, and psychopathic deviate. *Journal of Applied Psychology, 28*, 153–174.
- Meehl, P. E. (1986). Diagnostic taxa as open concepts: Metatheoretical and statistical questions about reliability and construct validity in the grand strategy of nosological revision. In Millon, T. and Klerman, G. L. (Eds.), *Contemporary directions in psychopathology: Toward the DSM-IV* (pp. 215–231). New York: Guilford.
- Meehl, P. E., and Golden, R. R. (1982). Taxometric methods. In Kendall, P. C. and Butcher, J. N. (Eds.), *Handbook of research methods in clinical psychology* (pp. 127–181). New York: Guilford.
- Messick, S. (1995). Validity of psychological assessment: Validation of inferences from persons' responses and performances as scientific inquiry into score meaning. *American Psychologist, 50*, 741–749.
- Miller, M. B. (1996). Limitations of Meehl's MAXCOV-HITMAX procedure. *American Psychologist, 51*, 554–556.
- Millon, T. (1987). *Millon Clinical Multiaxial Inventory—II Manual*. Minneapolis, MN: National Computer Systems.
- Moffitt, T. E. (1993). Adolescence-limited and life-course-persistent antisocial behavior: A developmental taxonomy. *Psychological Review, 100*, 674–701.
- Newman, J. P., & Kosson, D. S. (1986). Passive avoidance learning in psychopathic and nonpsychopathic offenders. *Journal of Abnormal Psychology, 95*, 252–256.
- Newman, J. P., Patterson, C. M., & Kosson, D. S. (1987). Response perseveration in psychopaths. *Journal of Abnormal Psychology, 96*, 145–148.
- O'Brien, B. S., & Frick, P. J. (1996). Reward dominance: Associations with anxiety, conduct problems, and psychopathy in children. *Journal of Abnormal Child Psychology, 24*, 223–240.
- O'Kane, A., Fawcett, D., & Blackburn, R. (1996). Psychopathy and moral reasoning: A comparison of two classifications. *Personality and Individual Differences, 20*, 505–514.
- Olweus, D. (1979). Stability of aggression reaction patterns in males: A review. *Psychological Bulletin, 86*, 852–875.
- Partridge, G. E. (1930). Current conceptions of psychopathic personality. *American Journal of Psychiatry, 10*, 53–99.
- Patrick, C. J. (1995). Emotion and temperament in psychopathy. *Clinical Science, Fall*, 5–8.
- 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.
- Quinsey, V. L., Rice, M. E., & Harris, G. T. (1995). Actuarial prediction of sexual recidivism. *Journal of Interpersonal Violence, 10*, 85–105.
- Raskin, R., & Hall, C. S. (1979). A narcissistic personality inventory. *Psychological Reports, 46*, 55–60.
- Rasmussen, K., & Levander, S. (1996). Individual rather than situational characteristics predict violence in a maximum security hospital. *Journal of Interpersonal Violence, 11*, 376–389.

- Reise, S. P., & Oliver, C. J. (1994). Development of a California Q-set indicator of primary psychopathy. *Journal of Personality Assessment*, 62, 130–144.
- Reise, S. P., & Wink, P. (1995). Psychological implications of the Psychopathy Q-Sort. *Journal of Personality Assessment*, 65, 300–312.
- Rice, M. E., Harris, G. T., & Cormier, C. A. (1992). An evaluation of a maximum security therapeutic community for psychopaths and other mentally disordered offenders. *Law and Human Behavior*, 16, 399–412.
- Rime, B., Bouvy, H., Leborgne, B., & Rouillon, F. (1978). Psychopathy and nonverbal behavior in an interpersonal situation. *Journal of Abnormal Psychology*, 87, 636–643.
- Robins, L. N. (1966) *Deviant children grown up*. Baltimore, MD: Williams and Wilkins.
- Rogers, R., & Dion, K. (1991). Rethinking the DSM-III-R diagnosis of antisocial personality disorder. *Bulletin of the American Academy of Psychiatry and Law*, 19, 21–31.
- Rutherford, M. G., Cacciola, J. S., Alterman, A. I., & McKay, J. R. (1996). Reliability and validity of the Revised Psychopathy Checklist in women methadone patients. *Assessment*, 3, 145–156.
- Salekin, R. T., Rogers, R., & Sewell, K. W. (1996). A review and meta-analysis of the Psychopathy Checklist—Revised: Predictive validity of dangerousness. *Clinical Psychology: Science and Practice*, 3, 203–215.
- Serin, R. C. (1996). Violent recidivism in criminal psychopaths. *Law and Human Behavior*, 20, 207–217.
- Simourd, D. J., Bonta, J., Andrews, D. A., and Hoge, R. D. (1990, May). *Psychopathy and criminal behavior: A meta-analysis*. Paper presented at the meeting of the Canadian Psychological Association, Ottawa, Canada.
- Smith, R. J. (1985). The concept and measurement of social psychopathy. *Journal of Research in Personality*, 19, 219–230.
- Smith, S. S., & Newman, J. P. (1990). Alcohol and drug abuse/dependence disorders in psychopathic and nonpsychopathic criminal offenders. *Journal of Abnormal Psychology*, 99, 430–439.
- Stalenheim, E. G., & von-Knorrning, L. (1996). Psychopathy and Axis I and Axis II psychiatric disorders in a forensic psychiatric population in Sweden. *Acta Psychiatrica Scandinavica*, 94, 217–223.
- Stevens, G. F. (1993). Applying the diagnosis antisocial personality to imprisoned offenders: Looking for hay in a haystack. *Journal of Offender Rehabilitation*, 19, 1–26.
- Sutker, P. B., & Allain, A. N. (1983). Behavior and personality assessment in men labeled adaptive sociopaths. *Journal of Behavioral Assessment*, 5, 65–79.
- Tellegen, A. (in press). *Manual for the Multidimensional Personality Questionnaire*. Minneapolis, MN: University of Minnesota Press.
- Tennent, G., Tennent, D., Prins, H., & Bedford, A. (1990). Psychopathic disorder—a useful clinical concept? *Medicine, Science, and Law*, 30, 39–44.
- Thornquist, M. H., & Zuckerman, M. (1995). Psychopathy, passive-avoidance learning and basic dimensions of personality. *Personality and Individual Differences*, 19, 525–534.
- Trapnell, P. D., & Wiggins, J. S. (1991). Extension of the Interpersonal Adjective Scales to the Big Five dimensions of personality. *Journal of Personality and Social Psychology*, 59, 781–790.
- Trevethen, S. D., & Walker, L. J. (1989). Hypothetical versus real-life moral reasoning among psychopathic and delinquent youth. *Development and Psychopathology*, 1, 91–103.
- Waldman, I. D., Lilienfeld, S. O., and Abramowitz, A. (1995). *The relation of psychopathy dimensions to disruptive disorders, aggression, and temperament in clinically-referred children*. Paper presented at the meeting of the Association for Advancement of Behavior Therapy, Washington, DC.
- Widiger, T. A., Cadoret, R., Hare, R. D., Robins, L., Rutherford, M., Zanarini, M., Alterman, A., Apple, M., Corbitt, E., Forth, A., Hart, S., Kultermann, J., Woody, G., & Frances, A. (1996). DSM-IV antisocial personality disorder field trial. *Journal of Abnormal Psychology*, 105, 3–16.
- Widiger, T. A., & Corbitt, E. M. (1993). Antisocial personality disorder: Proposals for DSM-IV. *Journal of Personality Disorders*, 7, 63–77.
- Widom, C. S. (1977). A methodology for studying noninstitutionalized psychopaths. *Journal of Consulting and Clinical Psychology*, 45, 674–683.
- Widom, C. S., and Newman, J. P. (1985). Characteristics of noninstitutionalized psychopaths. In Gunn, J. and Farrington, D. (Eds.), *Current research in forensic psychiatry and psychology*, Vol. 2 (pp. 57–80). New York: Wiley.
- Wiggins, J. S., Trapnell, P., & Phillips, N. (1988). Psychometric and geometric characteristics of the revised Interpersonal Adjective Scales (IAS-R). *Multivariate Behavioral Research*, 23, 517–530.
- Williamson, S. E., Harpur, T. J., & Hare, R. D. (1991). Abnormal processing of affective words by psychopaths. *Psychophysiology*, 28, 260–273.
- Wong, S. (1988). Is Hare's Psychopathy Checklist reliable without the interview? *Psychological Reports*, 62, 931–934.
- Wulach, J. S. (1983). Diagnosing the DSM-III antisocial personality disorder. *Professional Psychology: Research and Practice*, 14, 330–340.
- Zagon, I. K., & Jackson, H. J. (1994). Construct validity of a psychopathy measure. *Personality and Individual Differences*, 17, 125–135.
- Zuckerman, M. (1989). Personality in the third dimension: A psychobiological approach. *Personality and Individual Differences*, 10, 391–418.