

Psychopathy and Community Violence Among Civil Psychiatric Patients: Results From the MacArthur Violence Risk Assessment Study

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Although psychopathy is recognized as a relatively strong risk factor for violence among inmates and mentally disordered offenders, few studies have examined the extent to which its predictive power generalizes to civil psychiatric samples. Using data on 1,136 patients from the MacArthur Violence Risk Assessment project, this study examined whether the 2 scales that underlie the Psychopathy Checklist: Screening Version (PCL:SV) measure a unique personality construct that predicts violence among civil patients. The results indicate that the PCL:SV is a relatively strong predictor of violence. The PCL:SV's predictive power is substantially reduced, but remains significant, after controlling for a host of covariates that reflect antisocial behavior and personality disorders other than psychopathy. However, the predictive power of the PCL:SV is not based on its assessment of the core traits of psychopathy, as traditionally construed. Implications for the 2-factor model that underlies the PCL measures and for risk assessment practice are discussed.

Scholarly work on psychopathy has been building considerable momentum over the past decade, with this construct now generally considered to have an “unparalleled” ability to predict future violence in criminal samples (Salekin, Rogers, & Sewell, 1996; see also Hare, 1996; Hemphill, Templeman, Wong, & Hare, 1998). Much of the empirical work fueling this momentum has been based on the original or the revised Psychopathy Checklist (PCL or PCL-R; Hare, 1980, 1991) and has focused on men who have been involved in the criminal justice system, either as prisoners or forensic psychiatric patients. These studies suggest that the PCL and PCL-R moderately predict community-based violence and criminal recidivism among general offenders (e.g., Hart, Kropp, & Hare, 1988; Serin & Amos, 1995), sex offenders (e.g., Quinsey, Rice, & Harris, 1995; Rice & Harris, 1997), and mentally disordered offenders (e.g., Harris, Rice, & Quinsey, 1993; Heilbrun et al., 1998; Rice & Harris, 1995a). Meta-analyses suggest an overall effect size of $r = .27-.37$, which corresponds to a Cohen's d of $.56-.79$ (Hemphill et al., 1998; Salekin et al., 1996; Simourd, Bonta, Andrews, & Hoge, 1990; see also Hart, 1998). Given the

range of other single, strong predictors of violence among mentally disordered offenders (e.g., $Z_r = .20-.26$ for criminal history; Bonta, Law, & Hanson, 1998), the relationship between PCL/PCL-R scores and violence is impressive.

Few studies, however, have investigated the relationship between psychopathy and violence in *civil* psychiatric samples. This is partially attributable to the fact that the best-validated measures of psychopathy, the PCL and PCL-R, were normed on, and explicitly target, criminal samples (Hart, Cox, & Hare, 1995). In addition, investigators may be reluctant to apply the PCL/PCL-R in civil samples because it could require considerable time investment for limited yield. Given the low base rate of psychopathy in these samples (Hart et al., 1995), the use of these resource-intensive measures would only be reasonable if limited, subthreshold traits of psychopathy predicted violence. Based on such concerns, Hart et al. (1995) developed a shorter, screening version of the PCL (PCL:SV) to assess for psychopathy in noncriminal settings and screen for psychopathy in criminal settings. Although normed partially on civil psychiatric samples, the PCL:SV is very strongly associated with the PCL-R (weighted mean $r = .80$) and highly similar to the PCL-R in its structure and pattern of relationships to external variables (Hart et al., 1995).

The PCL:SV has been shown to predict postrelease violence among forensic psychiatric patients (Hill, Rogers, & Bickford, 1996; Strand, Belfrage, Fransson, & Levander, 1999) and to differentiate between highly select groups of psychotic patients with and without histories of persistent violent behavior (Nolan, Volavka, Mohr, & Czobor, 1999). Nevertheless, there appears to be only one study that assesses the PCL:SV's ability to predict violence among civil psychiatric patients. Using a postdictive design, Douglas, Ogloff, Nicholls, and Grant (1999) reviewed the files of 193 involuntarily civilly committed patients to compute their scores on the PCL:SV and the HCR-20, a structured checklist of 20 risk factors for violence organized into Historical, Current Clinical, and Future Risk Management scales (Webster, Douglas, Eaves, & Hart, 1997). Douglas et al. compared the ability of these

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measures to predict postrelease community violence over an average 2-year period. The base rate of psychopathy, as defined by a PCL:SV cutting score of 18, was less than 2% (K. Douglas, personal communication, December 3, 1999), which is considerably lower than the 15%–25% found based on PCL/PCL-R cutting scores in North American forensic and correctional samples (Hare, 1998a). Given this low base rate, Douglas et al. chose to use a cutting score of 8, the PCL:SV median score in their sample. Patients who scored at or above this PCL:SV median were 5 times more likely to commit a physically violent act after discharge and 14 times more likely to be arrested for a violent crime than patients who scored below the median. Thus, subclinical traits of psychopathy and limited antisocial behavior, as assessed by the PCL:SV, were shown to be moderately predictive of violence among civil psychiatric patients.

The present study extends Douglas et al.'s (1999) line of inquiry, using data from a multisite investigation of patient violence in the community. The larger investigation (see Steadman et al., 1998) used a prospective design with acute-care psychiatric patients and measures of violence and psychopathy based not only on file information but also on patient- and collateral¹ informant reports and official records. The present study analyzes the nature and strength of the relationship between PCL:SV psychopathy and violence in this sample. In doing so, it systematically addresses relevant, fundamental issues about the model of psychopathy that underlies the PCL:SV.

There is no consensus on the exact contours of the construct of psychopathy. Numerous conceptualizations have been articulated (see Maughs, 1941a, 1941b; Millon, Simonsen & Birket-Smith, 1998), and several measures have been created (e.g., Blackburn, 1987, 1996; Hare et al., 1990; Levenson, Kiehl, & Fitzpatrick, 1995; Lilienfeld & Andrews, 1996). Most contemporary North American literature references a single concept of psychopathy defined by a core set of interpersonal and affective attributes (see Hare, 1998b; Lilienfeld, 1998), but a few contemporary theories present psychopathy as a heterogeneous construct (see Millon & Davis, 1998; Thomas-Peter, 1992). For example, Blackburn and his colleagues (Blackburn, 1998; Blackburn & Coid, 1998) distinguished between primary and secondary psychopaths, who share traits of impulsivity, aggression, and hostility but differ in their degree of sociability.

The most influential recent conceptualization of psychopathy in North America is undoubtedly the two-factor model proposed by Hare and his colleagues and measured by the PCL scales. These scales assess two moderately correlated factors ($r \approx .50$) that are interpreted as a single construct (Hare et al., 1990; Harper, Hakistan, & Hare, 1988; Harpur, Hare, & Hakistan, 1989; Hart et al., 1995; cf. Forth, Brown, Hart, & Hare, 1996). Factor 1 items reflect the interpersonal and affective core of psychopathy, or the "selfish, callous and remorseless use of others" (Hare et al., 1990, p. 340). Factor 2 items describe a collection of socially deviant behaviors, or a "chronically unstable and antisocial lifestyle" (Hare et al., 1990, p. 340). Factors 1 and 2 may be aptly labeled (and are referred to throughout this article) as Emotional Detachment and Antisocial Behavior, respectively (Patrick, Bradley, & Lang, 1993).

This two-factor model may not define psychopathy, however, as much as embody an ongoing debate about "the primacy of and relationship between two constructs that are consistently distin-

guished in the literature" (Pilkonis & Klein, 1997, p. 109; see also Lilienfeld, 1994, 1998). The *personality-based* model, exemplified by Cleckley's (1941) seminal work (see also Karpman, 1961; McCord & McCord, 1964), focuses on a core set of personality traits that generally include remorselessness, callousness, deceitfulness, egocentricity, failure to form close emotional bonds, low anxiety proneness, superficial charm, and externalization of blame (Lilienfeld, 1998). These traits roughly correspond to the PCL Emotional Detachment factor. In contrast, the *behavior-based* approach (Robins, 1966), exemplified in recent versions of the *Diagnostic and Statistical Manual of Mental Disorders (DSM)* (American Psychiatric Association, 1980, 1987, 1994), emphasizes a long history of observable socially deviant behaviors, including those tapped by the PCL Antisocial Behavior factor, such as irresponsibility, adolescent antisocial behavior, and impulsivity (Widiger et al., 1996). Proponents of the personality-based model believe that antisocial behavior is neither necessary nor sufficient for a diagnosis (Lilienfeld, Purcell, & Jones-Alexander, 1997). They often argue that the behavior-based approach overdiagnoses psychopathy in criminal populations because antisocial acts may be caused by a host of factors other than personality deviation (Blackburn, 1998; Hare, Hart, & Harpur, 1991; Harpur et al., 1989).

As noted by Widiger and Lynam (1998), the two-factor structure of the PCL measures is "not particularly satisfying if psychopathy is to be understood as a constellation of personality traits" (p. 180) rooted in Cleckley's (1941) model. Moreover, as cogently argued by Lilienfeld (1994, 1998), the PCL two-factor structure actually begs the question, What is psychopathy? That is, if a patient scores very highly on the Emotional Detachment factor but obtains a very low score on the Antisocial Behavior factor, is he or she psychopathic? Personality-based models like Cleckley's would answer in the affirmative because the patient manifests the core traits of psychopathy. Although the PCL authors do not directly address this issue (see Rogers, 1995; Salekin et al., 1996), the cutoff scores for diagnosing psychopathy based on the PCL require that points be obtained on both factors (Lilienfeld, 1998).² Thus, according to the pure personality-based approach, the PCL measures are highly "contaminated" with Factor 2, Antisocial Behavior.

This issue becomes salient when studying the relationship between psychopathy and violence in psychiatric samples. In these samples, antisocial behavior as measured by the PCL scales may be attributable to factors associated with mental and substance abuse disorders rather than to traits of psychopathy per se. Studies quite consistently indicate that the Antisocial Behavior factor of the PCL measures predicts recidivism and violence more strongly ($r > .30$) than the more personality-based, Emotional Detachment factor ($r < .20$; Harpur et al., 1989; Rogers, 1995; Salekin et al., 1996; cf. Hemphill & Hare, 1999). In turn, unlike the Emotional Detachment factor, the Antisocial Behavior factor is strongly as-

¹ As explained later, collateral informant reports were used for measures of violence but not psychopathy. Patient reports and official records were used to measure both violence and psychopathy.

² For example, the maximum obtainable PCL:SV Emotional Detachment (Part 1) score is 12. To exceed the PCL:SV threshold score of 18 for defining probable psychopathy, at least 6 points must also be obtained on the Antisocial Behavior (Part 2) factor.

sociated with criminal history (Harpur et al., 1989), antisocial and borderline personality disorder (Blackburn, 1998; Hart et al., 1995; Harpur et al., 1989; Stålenheim & von Knorring, 1996), and substance abuse (Blackburn, 1998; Hart et al., 1995; Hart & Hare, 1989; Hemphill, Hart, & Hare, 1994; Smith & Newman, 1990; Stålenheim & von Knorring, 1996) and moderately negatively correlated with indices of socioeconomic status (SES), education, and verbal intelligence (Harpur et al., 1989; Hart et al., 1995). The strongest covariates of the Antisocial Behavior factor are moderate to strong predictors of violence and criminal recidivism among psychiatric patients and mentally disordered offenders (e.g., Bonta et al., 1998; Steadman et al., 1998; Swanson, Holzer, Ganju, & Jono, 1990). This raises a question about the extent to which the PCL's power in predicting violence is attributable to its measurement of a unique personality construct or mere "packaging" of nonspecific behavioral predictors of violence.

In addition, a more general concern has been raised about whether the relationship between psychopathy and violence in psychiatric samples is mediated by coexisting mental disorders (Rogers, 1995). This concern is not based solely on the nonspecificity of the Antisocial Behavior factor of the PCL but also relates to the more personality-focused Emotional Detachment factor, which is moderately to strongly correlated with narcissistic, histrionic, and sometimes, paranoid personality disorders (see Blackburn, 1998; Nedopil, Hollweg, Hartmann, & Jaser, 1998). Notably, psychotic disorders have been found to be unrelated or inversely related to psychopathy, in part because many of their core features conflict (e.g., Nedopil et al., 1998; Stålenheim & von Knorring, 1996).

At least five studies (Harris, Rice, & Cormier, 1991; Hart et al., 1988; Heilbrun et al., 1998; Hill et al., 1996; Rice, Harris, & Quinsey, 1990) have begun to address the above issues by assessing the relationship between the PCL measures and violence in correctional and forensic samples after deleting PCL items that reflect criminal history or controlling statistically for criminal history and demographic variables (see Hart, 1998; Hemphill et al., 1998). These studies indicate that the predictive validity of PCL total scores in these samples is based on more than their measurement of past criminal behavior or demographic covariates. Most of these studies, however, are based on limited covariate sets that exclude critical correlates of psychopathy that are also related to future violence among the mentally ill, such as substance abuse and dependence (Johns, 1997; Swanson et al., 1990; cf. Hill et al., 1996).

The overarching goal of this study is to determine the extent to which the two factors underpinning the PCL:SV measure a unique personality construct that predicts violence in civil psychiatric samples. In this study, we identify the chief covariates of the PCL:SV, control for these covariates, and then estimate the nature and strength of the PCL:SV's unique effect in predicting violence. More importantly, given the debate between personality- and behavior-based approaches to defining psychopathy and concerns about the nonspecificity of the behavior-based approach, we systematically compare the relative power of the PCL:SV's Emotional Detachment and Antisocial Behavior factors in predicting future violence among civil psychiatric patients. We also examine whether the joint presence of the PCL:SV factors is necessary to maximally predict violence, that is, whether the interaction of the

factors adds incremental validity to their simple, additive effects (Lilienfeld, 1998).

In addition to the key controversy focused on the two-factor model, there is ongoing debate about whether psychopathy is a dimensional or categorical construct, that is, whether "psychopaths differ from the rest of us in degree or kind" (Hare, 1998b, p. 194). Psychopathy has been variously conceptualized as (a) a personality disorder that could replace contemporary, categorical *DSM* definitions of antisocial personality disorder (Hare et al., 1991), (b) a trait dimension that crosscuts multiple disorders (Blackburn, 1998), and (c) an amalgam of normal personality traits (Widiger & Lynam, 1998). Unfortunately, none of these positions are strongly supported by empirical work. Two applications of Meehl's MAXCOV-HITMAX and other techniques provide quite limited evidence that psychopathy is a taxon (Cooke, 1994, as cited in Hare, 1998a; Harris, Rice, & Quinsey, 1994). For example, Harris et al. (1994) found taxonicity for the Antisocial Behavior factor but not the Emotional Detachment factor, which is thought to represent the core personality features of psychopathy. Hare (1999) endorsed neither a categorical nor dimensional model but acknowledged that compelling arguments for the dimensional approach have been made.

Although addressing the dimensional versus categorical nature of psychopathy exceeds the scope of this article, we took the issue into account. The PCL measures generate both continuous scores and classifications defined by cutting scores, in keeping with dimensional and categorical approaches, respectively. In this study, analyses completed using both continuous and categorical measures of psychopathy produced highly similar results. To facilitate the comparison of our results with prior research, which typically dichotomizes samples on the basis of diagnostic cutting scores or sample medians, many of the analyses reported here represent psychopathy as a dichotomous construct. However, these results are often supplemented by reports of analyses completed with continuous PCL:SV total and scale or factor scores, which typically retain greater power than dichotomous scores when traditional indices of association (e.g., phi) are used (see Farrington & Loeber, 2000).

Method

Participants

The data analyzed in this study were collected as part of the MacArthur Violence Risk Assessment Study. The methodological details and primary results of the larger study are reported elsewhere (e.g., see Monahan, Steadman, Silver, et al., 2001; Silver, Mulvey, & Monahan, 1999; Steadman et al., 1998, 2000). Participants were sampled from acute inpatient facilities at three sites: a university-based specialty hospital in Pittsburgh, Pennsylvania (Western Psychiatric Institute and Clinic); a public mental health center in Kansas City, Missouri (Western Missouri Mental Health Center); and a university-based general hospital and a state hospital in Worcester, Massachusetts (University of Massachusetts Medical Center and Worcester State Hospital). Study inclusion criteria were (a) civil admission, (b) between the ages of 18 and 40 years, (c) English speaking, (d) White or African American ethnicity (or Hispanic in Worcester only), and (e) a medical record diagnosis of schizophrenia, schizophreniform disorder, schizoaffective disorder, depression, dysthymia, mania, brief reactive psychosis, delusional disorder, alcohol or other drug abuse or dependence, or a personality disorder. Eligible patients were sampled according to age, gender, and ethnicity to maintain a consistent distribution

of these characteristics across sites. Research interviewers approached eligible patients to request informed consent an average of 4.5 days after the patients' hospital admission. Otherwise eligible patients were excluded if they had been hospitalized for over 20 days before being approached.

During the study period, 12,873 patients were admitted to the research facilities, and 7,740 met criteria for inclusion in the study. Research interviewers invited a quota sample of 1,695 patients to participate. The refusal rate was 29% ($n = 492$; see Steadman et al., 1998, for analyses of sample bias). The final sample size of patients who were interviewed in a hospital was 1,136. Their demographic and psychiatric characteristics are described in Steadman et al. (1998). In general, these participants were young ($M = 30$ years, $SD = 6$), White (69%; African American, 29%; Hispanic, 2%), male (59%), voluntarily admitted (58%) patients with independently determined primary diagnoses of depression or dysthymia (40%), schizophrenia or schizoaffective disorder (17%), bipolar disorder (13%), substance abuse (24%), personality disorder (2%), or other disorder (4%). Approximately 36% of these patients had co-occurring Axis I and substance abuse disorders.

Procedure

Initial Hospital Interviews

Patients were interviewed twice in the hospital: once by a research interviewer to obtain data on demographic and historical factors, and then by a research clinician (PhD or MA/MSW) to confirm the medical record diagnosis using the *DSM-III-R* checklist (Janca & Helzer, 1990) and to administer several clinical scales, including the Novaco Anger Scale (Novaco, 1994) and Barratt's Impulsiveness Scale (Barratt, 1994). In the rare event that no study-eligible Axis I diagnosis was present, research clinicians also administered the Structured Interview for *DSM-III-R* Personality (SID-P; Pfohl, Blum, Zimmerman, & Stangl, 1989). Research clinicians' diagnoses corresponded to the medical record diagnosis in 86% of cases, and disagreements were resolved by a consultant psychiatrist at each site. The median length of hospitalization for study participants was 9 days. Patients remaining in the hospital for over 145 days were dropped from the study ($n = 3$).

Follow-Up Community Interviews

Description. Research interviewers attempted to recontact enrolled patients in the community and interview them five times (every 10 weeks) over the 1-year period from the date of discharge from the index hospitalization to obtain information about a range of factors, including the patient's clinical state, living situation, substance use, interpersonal relationships, and involvement in violence. A collateral informant for each patient was also interviewed on the same schedule. This collateral informant was nominated by the patient during each follow-up interview as the person who was most familiar with his or her behavior in the community. If the collateral nominee did not have at least weekly contact with the patient, the interviewer suggested a more appropriate informant based on the patient's social network data. Collateral informants were most often family members (47%) but were also friends (24%), professionals (14%), significant others (12%), or others (3%). Patients and collateral informants were paid for their participation.

Several steps were taken to reduce the difficulties inherent in validly measuring personality disorder during the acute phases of an Axis I disorder (see Loranger et al., 1991). Structured clinical interviews were used to measure key personality disorders, and these were administered during a follow-up interval rather than during hospitalization. Also, these interviews were completed on the basis of information from both official records and patient interviews. In specific, PCL:SV interviews were conducted at Follow-Up 1 or 2, SID-P interviews were usually (in 98% of cases) conducted at Follow-Up 2 or 3, and the Revised NEO Personality

Inventory (NEO-PI-R, see below) was usually administered at Follow-Up 4.

Retention of participants. Of the 1,136 patients enrolled in the study, 84% completed at least one follow-up interview. Some 72% of patients and 77% of collateral informants completed three or more follow-up interviews, and 50% of patients and 45% of collateral informants completed all five follow-up interviews.

Steadman et al. (1998) present detailed analyses of potential sample bias due to participants' refusal to participate and incomplete participation in the study. Compared with patients who agreed to participate in the study, patients who refused were significantly older, more likely to have a medical record diagnosis of schizophrenia, and less likely to have medical record diagnoses of alcohol/drug abuse and personality disorders. Compared with patients who enrolled and completed the study, patients who enrolled but were lost to follow-up were significantly less likely to have a medical record diagnosis of bipolar disorder, more likely to have a medical record diagnosis or history of alcohol/drug abuse, more likely to have a legal status of gravely disabled, and more likely to have a documented history of violence.

Official Records

In addition to patient and collateral interviews, official records were used as a source of information. Hospital records were reviewed (a) prior to clinical interviewing to assist in the completion of certain scales (e.g., the PCL:SV, *DSM-III-R* checklist) and (b) at the end of the study (for those who granted access to records) to ascertain the nature and length of hospital stays during the follow-up period. Arrest records were obtained from the state police agency in each locale to provide information about offense histories and arrests that occurred during the follow-up period.

Measures

Violence and Other Aggressive Acts

At each follow-up interview, patients and collateral informants were asked whether the patient had engaged in any of eight categories of aggressive behavior in the past 10 weeks. The categories, based on Lidz, Mulvey, and Gardner's (1993) expansion of the Conflict Tactics Scale (Strauss & Gelles, 1990), included (a) pushing, grabbing, or shoving; (b) kicking, biting, or choking; (c) slapping; (d) throwing an object; (e) hitting with a fist or object; (f) sexual assault; (g) threatening with a weapon in hand; and (h) using a weapon. When respondents endorsed an aggressive behavior, they were asked to report the number of times the behavior occurred and to provide descriptions of the incidents (e.g., participants, location, and level of injury). If multiple aggressive acts were associated with a particular incident, only the most serious act that occurred during the incident was coded. Incidents of child discipline without injury were excluded.

For statistical analyses, aggressive behavior was divided into two ordinal categories of seriousness: (a) *violence*, or battery that resulted in physical injury (ranging from bruises to death), sexual assaults, assaultive acts that involved the use of a weapon, or threats made with a weapon in hand; and (b) *other aggressive acts*, or battery that did not result in physical injury. Aggressive acts reported by any information source (patients, collateral informants, or official records) at any follow-up were independently reviewed by two trained coders to obtain a single reconciled report of the act. Any coding disagreements were resolved through discussion in team meetings.

The principal violence variable used in this study is dichotomous and reflects whether a patient committed any act or acts of violence, as defined above, in the community during the entire follow-up period (i.e., 1 year after hospital discharge). This violence measure covering the full, 1-year follow-up period is used because (a) psychopathy is arguably a static construct (e.g., Harpur & Hare, 1994; Lynam, 1996), so risk associated

with psychopathy should not fluctuate across follow-up intervals, and (b) base rates of violence are relatively low in civil psychiatric samples (Hart et al., 1995), so it is advantageous to use the most liberal index of violence to reduce the likelihood of underestimating its relationship to other variables (see Otto, 1994; Hart, 1998). On the basis of the full-year follow-up interval, the prevalence base rate of violence was 28%. The greatest proportion of patients was violent within the first 20 weeks after discharge (19%; see Steadman et al., 1998).

The 1-year violence measure is based on all patients who completed at least one follow-up interview. Because patients completed different numbers of follow-up interviews (see "Retention of participants," above), each patient did not have an equal likelihood of having a violent act reported. Although it would be more precise to use only those cases that completed all five follow-ups, preliminary analyses suggested that doing so did not appreciably affect the results (see Steadman et al., 1998).

Psychopathy

The PCL:SV consists of 12 items that were derived from the 20-item PCL-R. Hart et al. (1995) studied its psychometric and normative characteristics, using a sample of 856 participants from correctional, forensic, civil psychiatric, and university settings. Six of the PCL:SV items assess traits of Emotional Detachment (Factor 1) and include *superficial, grandiose, deceitful, lacks remorse, lacks empathy, and doesn't accept responsibility*. The remaining 6 items assess antisocial behavior or Social Deviance (Factor 2) and include *impulsive, poor behavioral controls, lacks goals, irresponsible, adolescent antisocial behavior, and adult antisocial behavior*. The PCL:SV's definitions of the latter two items are somewhat broader than in the PCL-R; they include "actions that did not result in formal contact with the criminal justice system" (Hart et al., 1995, p. 15), including serious conduct problems during adolescence and frequent violation of explicit rules and regulations during adulthood.

Prior to the study, interviewers completed a full day of training on the PCL:SV conducted by Stephen Hart and Robert Hare. In this training, Drs. Hart and Hare provided an overview of psychopathy and the PCL two-factor model, reviewed the item descriptions and scoring criteria for each PCL:SV item, and presented and discussed 3 videotaped practice cases. Following this training, interviewers independently viewed over 10 videotaped cases provided by Drs. Hart and Hare and scored each on the PCL:SV. Their responses were sent to Drs. Hart and Hare for reliability analyses and approval.

In this study, the PCL:SV was completed on the basis of patient interviews and official records, as recommended by Hart et al. (1995). Each of the 12 PCL:SV items were scored as 2 (*yes, item applies*), 1 (*maybe, item applies to some extent*), or 0 (*no, item does not apply*). Items that could not be completed (with a maximum of 1 item per factor per case) were prorated as recommended by Hart et al. (1995). Only 4% of patients' scores were prorated. The PCL:SV's psychometric characteristics in this sample are described in the Results section.

The PCL:SV provides categorical as well as dimensional measures of psychopathy. Hart et al. (1995) recommended PCL:SV "cutting scores" based on their efficiency in predicting individuals' classifications as psychopathic or nonpsychopathic on the full PCL-R, with total PCL:SV scores of 12 or less indicating nonpsychopathy, scores of 13–17 indicating potential psychopathy, and scores of 18 or more strongly suggesting psychopathy. The results reported in this article typically measure psychopathy as a dichotomous variable, with study participants classified as nonpsychopathic (NPP, scores ≤ 12) and potentially psychopathic (PPP, total > 12) based on recommended PCL:SV cutting scores.

Covariates of Psychopathy and Violence

In this study, we conducted conservative tests of the predictive validity of the PCL:SV by identifying and removing the effect of influential

covariates. These analyses were completed not to determine the extent to which psychopathy per se explains or causes violence but to test the extent to which the PCL:SV adds incremental validity in predicting violence (see Pedhazier, 1997). Because some of the covariates included in the analyses described below (e.g., indexes of criminal history and substance abuse) may lie "causally downstream" from psychopathy, controlling for their effects may amount to suppressing statistically some of the variance of the psychopathy construct itself (see Meehl, 1971). However, our effort is not aimed at illuminating the causal or theoretical relationship between psychopathy and violence, but instead on testing the unique predictive power of the PCL:SV for assessing the likelihood of future violence. We parcel out "high-risk" demographic characteristics, criminal history, substance abuse, and other personality disorders because they (a) are related to violence in civil psychiatric samples and (b) are not specific to the construct that the PCL:SV is designed to measure. Our interest is practically focused on the extent to which the PCL:SV predicts violence once these factors are removed from the equation.

In this study, the covariates were identified in two broad steps. First, a pool of 59 covariates that were theoretically or empirically related to psychopathy in past work were chosen from the list of variables collected about each case in the study. Second, the bivariate relationships between each of these covariates and PCL:SV total scores and violence were examined. As explained in the Results section, the strongest correlates of the PCL:SV and violence were chosen for the final set of covariates. These covariates are listed in Table 1 and included the following general types of variables: criminal and violence history; substance use and diagnoses; personality disorder diagnoses; anger, impulsivity, and antagonism; and demographic characteristics.

Criminal history and recent violence. Four indexes of criminal history were used, including (a) the patient's self-reported frequency of prior arrests since age 15 (coded as none, once, twice, and three or more), (b) the patient's self-reported type of prior arrests since age 15 (coded as none; property and minor crimes; serious crimes including rape, assault, and robbery; and murder), (c) police record of arrest(s) for crimes against persons since age 18 (coded as yes/no), and (d) police record of arrest(s) for crimes against property since age 18 (coded as yes/no). A single index of recent violence was used and reflected the patient's self-report of whether he or she was involved in a violent act (defined in the same way as violence was in the preceding section) in the 2 months preceding the index hospital admission.

Substance diagnoses and use. On the basis of the research clinician's administration of the *DSM-III-R* checklist, each patient was coded as yes/no for having an alcohol-related diagnosis (i.e., alcohol abuse or dependence) or drug-related diagnosis (i.e., drug abuse or dependence). During each follow-up interview, patients were questioned in detail about their use of alcohol and other drugs. This information was used to code whether the patient used any alcohol or used any drug during the course of the study.

Personality disorder. Full hospital records were used to code whether the patient had been diagnosed with antisocial personality disorder. Hospital records rather than the SID-P were used to code antisocial personality disorder because there were no missing data for hospital diagnoses. Clinician researchers' completion of the SID-P was used to code whether the patient had been diagnosed with any Cluster B personality disorder (including antisocial, borderline, histrionic, and narcissistic personality disorders).

Impulsivity, anger, and antagonism. Three additional personality measures were also included as covariates. Impulsivity–nonplanning was measured by scores on a subscale of a version of the Barratt Impulsiveness Scale revised specifically for use with samples of civil psychiatric patients (Barratt, 1985, 1994). The subscale reflects a lack of concern for the future. Anger–behavioral was operationalized by a subscale of the Novaco Anger Scale (Novaco, 1994), developed from the Novaco Provocation Inventory (Novaco, 1988) also to meet the needs of this sample. The subscale

Table 1
Description of Measures That Covary With Psychopathy

Variable name	Description and measurement scale
Frequency of prior arrests	Patient's self-report of the number of arrests (ordinal, 4 categories)
Type of prior arrests	Patient's self-report of the type of arrests (nominal, 4 categories)
Arrest for crimes against persons	Official police record of arrest(s) for crimes against persons (dichotomous)
Arrest for crimes against property	Official police record of arrest(s) for property crimes (dichotomous)
Recent violence	Patient's self-report of violence in the 2 months preceding hospital admission (dichotomous)
Alcohol-related diagnosis	Any alcohol-related diagnosis based on the <i>DSM-III-R</i> checklist (dichotomous)
Drug-related diagnosis	Any drug-related diagnosis based on the <i>DSM-III-R</i> checklist (dichotomous)
Any drug use during the study	Patient's self-report of drug use during the study (dichotomous)
Antisocial personality disorder	Hospital record of any diagnosis of antisocial personality disorder (dichotomous)
Cluster B personality disorder	Any Cluster B personality disorder based on the SID-P (dichotomous)
NEO Agreeableness vs. Antagonism	Score on the agreeableness scale of the NEO-PI-R; includes "antagonistic" traits of mistrust, deceptiveness, egocentricity, oppositionalism, conceit, and tough-mindedness (Widiger & Lynam, 1998; continuous)
Barrett Impulsiveness Scale—Nonplanning	Score on the Nonplanning subscale of the Barratt Impulsiveness Scale; tendency toward a lack of concern for the future (continuous)
Novaco Anger Scale—Behavior	Score on the Behavioral Domain of the Novaco Anger Scale; tendency to behave in an antagonistic or confrontative manner as assessed by 4 subscales: Impulsive Reaction, Verbal Aggression, Physical Confrontation, and Indirect Expression (continuous)
Years of education	Patient's self-reported years of education (continuous)
Estimated Verbal IQ	Patient's raw WAIS-R Vocabulary score (continuous)

Note. *DSM-III-R* = *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed., rev.); SID-P = Structured Interview for *DSM-III-R* Personality; NEO-PI-R = Revised NEO Personality Inventory; WAIS-R = Wechsler Adult Intelligence Scale-Revised.

essentially reflects "an inclination to act in an antagonistic or confrontative manner" (Novaco, 1994, p. 38) and is composed of four dimensions: impulsive reaction, verbal aggression, physical confrontation, and indirect expression of anger. Agreeableness-antagonism was measured using this subscale from the NEO-PI-R (Costa & McCrae, 1992), one of the most widely used general personality scales.

Estimated verbal intelligence. Overall verbal intelligence was estimated on the basis of the raw Vocabulary subscale score of the Wechsler Adult Intelligence Scale-Revised (Wechsler, 1981).

Demographic characteristics. The patient's self-reported number of years of education was coded, as was his or her SES. SES was coded into one of three categories based on Hollingshead's index (highest classes 1-3; class 4; lowest class 5; Hollingshead & Redlich, 1958). The three highest categories were combined because the skew of the SES distribution toward the lower end of the scale would not have permitted adequate expected frequencies for the planned logistic regression analyses.

Results

Data analyses focused on two goals: (a) describing the normative and basic psychometric characteristics of the PCL:SV in a civil psychiatric sample and (b) assessing the extent to which the two factor model of psychopathy underpinning the PCL:SV represents a unique personality construct that predicts violence in a civil psychiatric sample. Although the first goal is achieved through straightforward descriptive analyses, the second goal involves a series of steps. First, the simple bivariate relationships between PCL:SV scores and violence are assessed. Second, the two-factor model of psychopathy is explored by determining whether the Antisocial Behavior factor and Emotional Detachment factor are jointly necessary to maximally predict violence (Lilienfeld, 1998). Third, the nature and magnitude of the PCL:SV's unique effect in predicting violence are determined after removing the effect of its chief covariates.

Sample Description

To facilitate comparison of the study results with similar recently published data on the PCL:SV in civil psychiatric samples, we present in Table 2 the mean scores, standard deviations, and select percentile scores of the PCL:SV. Study participants obtained an average PCL:SV score of 8.5, and their scores on Factor 2 (Antisocial Behavior; $M = 5.4$) generally exceeded their scores on Factor 1 (Emotional Detachment; $M = 3.1$).

On the basis of the PCL:SV cutting scores described above (total score > 17), only 8% of study participants were classified as psychopathic. Some 22% of study participants were classified as potentially psychopathic (PPP; total score > 12). PPP participants were compared with nonpsychopathic (NPP; total score ≤ 12) participants across the demographic variables presented in Table 3. Compared with NPPs, PPPs were significantly less likely to be White, $\chi^2(2, N = 871) = 31.70, p = .000$; less likely to be female, $\chi^2(1, N = 871) = 19.16, p = .000$; and less likely to belong to higher social classes, $\chi^2(2, N = 868) = 12.04, p = .002$. These differences, however, were relatively small ($\phi = 0.12-0.19$). Compared with NPPs, PPPs were also significantly less well

Table 2
Descriptive Characteristics of the Psychopathy Checklist: Screening Version (PCL:SV)

PCL:SV measure	<i>M</i>	<i>SD</i>	Percentile			
			25th	50th	75th	90th
Total score	8.52	5.60	4	8	12	17
Factor 1 score	3.11	3.00	1	2	5	8
Factor 2 score	5.41	3.30	3	5	8	10

Table 3
Demographic Differences Between Nonpsychopathic and Potentially Psychopathic Participants

Characteristic	Nonpsychopathic		Potentially psychopathic	
	%	<i>M</i>	%	<i>M</i>
Male	54		71	
Race				
White	74		53	
Black	24		45	
Hispanic	2		2	
Socioeconomic status				
Classes 1-3 (highest)	15		6	
Class 4	26		32	
Class 5 (lowest)	59		62	
Verbal IQ estimate		36		27
Years of education		12		11

educated, $t(867) = 6.4$, $p = .000$, and lower in estimated verbal intelligence, $t(847) = 6.6$, $p = .000$, though the magnitude of these differences was also somewhat limited ($\eta^2 = -0.21$ to -0.22). There were no differences between groups in age at index admission or marital status.

Psychometric Characteristics of the PCL:SV

Reliability

We computed chance-corrected rates of agreement on PCL:SV total scores by asking each of the nine interviewers to videotape interviews with 5 of their cases, and then to rate the total sample of 45 cases, based on the videotapes and official records. In reliability analyses, interviewers were defined as in agreement when their PCL:SV total scores fell within 5 points of one another. By using Cichetti and Sparrow's (1981) descriptive classification, this analysis indicated that combined rates of interrater reliability on PCL:SV were "good" ($\kappa = 0.66$).³ The internal consistency of the PCL:SV was acceptable ($\alpha = .87$), particularly given the scale's brevity and apparent two-factor structure.

Factor Structure

The 12 PCL:SV items were subjected to confirmatory maximum-likelihood factor analysis in EQS (Bentler, 1993) to explore the extent to which the oblique, two-factor structure of Emotional Detachment (Items 1-6) and Antisocial Behavior (Items 7-12) applies in this civil psychiatric sample (Hart et al., 1995). An examination of the PCL:SV item distributions revealed that most of the items were significantly positively skewed. In an attempt to correct for nonnormality, the Satorra-Bentler Scaled Statistic ($SB\chi^2$; Satorra & Bentler, 1988) and its associated corrected comparative fit index (CFI*) were used. Because of the large sample size, the fit of the model to the data was also roughly

estimated using the ratio of the $SB\chi^2$ to its degrees of freedom ($SB\chi^2/df$; Wheaton, 1987).

The $SB\chi^2$ was 425.18 ($p < .001$). The significance of the model, which typically indicates a poor fit to the data, is likely due to the large sample size (Marsh, Balla, & McDonald, 1988; Ullman, 1996). The $SB\chi^2/df$ ratio was 8.02, which falls above a loosely recommended threshold of 5 (Wheaton, Muthén, Alwin, & Summers, 1977), indicating that the model's fit to the data is not ideal. However, the CFI* of .89 falls just below the .90 threshold typically deemed the standard for adequate model fit (Pedhazér & Schmelkin, 1991; Ullman, 1996). Moreover, an exploratory principal-components analysis suggests a two-factor model,⁴ based on Kaiser's criterion, Cattell's scree test, the percentage of variance accounted for by each factor, and the size of correlations contained in residual correlation matrices (see Tabachnik & Fidell, 1996). Thus, we tentatively conclude that the two-factor model provides an adequate, if imperfect, fit to the data. The "borderline" estimates of fit described above may be based on the low base rate of psychopathy in this sample (see Forth et al., 1996; Lilienfeld, 1998) but could reflect PCL:SV structure differences in civil psychiatric samples.

"Cutting Scores" for Violence Assessment

The PCL:SV cutting scores described above were developed to predict PCL-R diagnoses of psychopathy (Hart et al., 1995). However, the concern of many clinicians and the present study is how well the PCL:SV predicts violence among civil psychiatric patients. The threshold for maximal violence prediction may not be the same as that for diagnostic congruence with the PCL-R.

A receiver operating characteristic (ROC) curve analysis was completed both (a) to compare the efficiency of various PCL:SV scores in predicting violence and (b) to provide an estimate of the PCL:SV's overall performance in predicting violence that could easily be compared with other literature (see below). ROC analyses calculate and plot the specificity (or true positive rate) by one-specificity (or false positive rate) of a test at every possible threshold in predicting a criterion (Hanley & McNeil, 1982; Hsiao, Bartko, & Potter, 1989; Metz, 1978; Mossman & Samoz, 1989, 1991; Murphy et al., 1987; Vida, 1999). ROC analyses describe the predictive accuracy of a test across a range of possible thresh-

³ Ideally, given the analyses reported later, we would report (a) kappa for classifications of study participants as nonpsychopathic and potentially psychopathic, and (b) intraclass correlations for total and factor scores. Unfortunately, interrater reliability data were collected nearly a decade ago and could not be located for reanalysis. Only a summary of the original data analyses (as reported here) is available. Nevertheless, the fact that the PCL:SV had excellent predictive validity and concurrent validity in this study indirectly supports the favorable results of the original reliability analyses, as validity presupposes reliability. The strength of the relationship found between PCL:SV scores and constructs, including violence and antisocial personality disorder, is consistent with those found in past research.

⁴ Compared with prior research, however, the order of the factors was reversed. The first factor was Antisocial Behavior (accounting for 42% of the variance prior to rotation), and the second factor was Emotional Detachment (accounting for only 12% of the variance). The correlation between the factors in this analysis was .48, in keeping with past research (Hare, 1991).

old values and are far less dependent on the base rates of violence in a sample than are traditional measures for assessing predictive accuracy, including correlation coefficients and their derivatives (e.g., Mossman, 1994a, 1994b; Rice & Harris, 1995b).

Table 4 presents the sensitivity and specificity of PCL:SV total scores at various cutoff points for predicting violence in the year after discharge. The results indicate that a threshold of approximately 8 simultaneously maximizes the sensitivity and specificity of the PCL:SV in predicting violence in this sample. This threshold for predicting violence is lower than that suggested for considering diagnoses of psychopathy (i.e., > 12) and considerably lower than that set for probable diagnoses of psychopathy (i.e., > 17).

Bivariate Relationships Between the PCL:SV and Violence

Psychopathy as a Categorical Construct and Violence

On the basis of the PCL:SV threshold for considering diagnoses of psychopathy (total score > 12), the rate of violence among NPPs was compared with that among PPPs. PPPs were significantly more likely than NPPs to become violent, $\chi^2(1, N = 871) = 58.07, p = .000$. As shown in Table 5, 50% of PPPs were involved in violent acts, compared with only 22% of NPPs. In fact, an odds ratio calculated to illustrate the magnitude of the difference between groups (Fleiss, Williams, & Dubro, 1986) indicates that PPPs were approximately 3.6 times more likely than NPPs to become involved in violence. Even when assessed on the basis of these dichotomous measures, the relationship between psychopathy and violence was moderate ($\phi = .26$).⁵

Psychopathy as a Dimensional Construct and Violence

Viewing psychopathy as a dimensional construct permits a more refined assessment of its relationship to violence. Individuals who became involved in violence during the study obtained significantly higher total scores on the PCL:SV ($M = 11.8, SD = 5.3$) than those who did not ($M = 7.3, SD = 5.2$), $t(869) = -11.48, p = .000$. The relationship between PCL:SV total scores and violence was moderately strong ($\eta^2 = 0.36$), but violence was significantly better predicted by scores on the Antisocial Behavior factor (Factor 2, $\eta^2 = 0.38$) than scores on the Emotional Detachment factor (Factor 1, $\eta^2 = 0.28$), $T_2(860) = 3.42, p < .001$ (see Steiger, 1980; Williams, 1959).

As previously explained, ROC analyses were conducted to examine the PCL:SV's predictive accuracy. The area under the

Table 5

Frequency of Violence Across Five Follow-Up Intervals for Nonpsychopathic and Potentially Psychopathic Participants

Participant	Nonviolent at all completed follow-ups	Violent at one or more follow-up	Total
Nonpsychopathic	528	148	676
Potentially psychopathic	98	97	195
Total	626	245	871

Note. Positive predictive power = 40%, negative predictive power = 84%, sensitivity = 0.50, and specificity = 0.78, all as defined by Baldessarini, Finkelstein, and Arans (1983).

ROC curve (AUC) generated by the ROC may be interpreted as the probability of correctly distinguishing a (violent, nonviolent) pair. The AUC for the PCL:SV total score was 0.73 ($SE = 0.02$), indicating a 73% chance that an individual who becomes violent will obtain a higher score on the PCL:SV than a randomly chosen individual who does not become violent.

Douglas et al. (1999) found differences in the efficiency with which the PCL:SV predicted particular classes of aggressive acts. Specifically, they found that the PCL:SV predicted criminal and physical violence better than threatening behavior. For this reason, ROC analyses were also completed to determine the PCL:SV's accuracy in predicting other acts of aggression (see above) during any of the five follow-up intervals. The AUC was 0.50 ($SE = .02$), suggesting that the PCL:SV performs no better than chance in predicting battery that does not result in physical injury. Thus, other acts of aggression were not included in the analyses reported below.

The Two-Factor Model and Violence Prediction

The PCL measures assume that both Emotional Detachment (Factor 1) and Antisocial Behavior (Factor 2) are necessary to fully define psychopathy. Because Factor 2 references socially deviant behaviors that could be based on disorders and problems other than psychopathy, it is important to determine whether the shared variance between socially deviant behaviors and the "core" affective and interpersonal personality features of psychopathy aid in predicting violence.

Thus, as recommended by Lilienfeld (1998), we performed a sequential stepwise logistic regression analysis (forward stepping, based on likelihood ratio statistics) to assess the incremental validity of the interaction between the PCL:SV factors in predicting violence after controlling for the main effects of the factors. This analysis indicated that there was a good fit based on the main effects of the factors alone, $\chi^2(2, N = 863) = 132.08, p = .000$, with a moderate effect for the Antisocial Behavior factor (partial $r = .26$; $\beta = .25$) and very small effect for the Emotional Detachment factor (partial $r = .05$; $\beta = .07$). The interaction between Factors 1 and 2 was not significant and did not enter the model. Because the correlation between the summed totals on

Table 4

Indices of Accuracy in Predicting Violence at Selected Cutoff Points on the Psychopathy Checklist: Screening Version

Select cutoff scores ^a	Sensitivity	Specificity
4	.91	.31
8	.72	.65
12	.40	.84
16	.21	.94
20	.06	.98

^a Scores are positive if greater than or equal to the listed cutoff point.

⁵ Phi and eta are variants of correlation coefficients and can be interpreted as such.

Factors 1 and 2 (factor scores) was .57, it is unlikely that this lack of effect is based on multicollinearity (see Tabachnick & Fidell, 1996). The effect suggests that the joint presence of both factors is not necessary to provide maximal power in predicting violence in a civil psychiatric sample. In fact, in this sample, the Emotional Detachment factor provides little additive effect to the Antisocial Behavior factor in predicting violence.

The PCL:SV's Unique Contribution in Predicting Violence

As explained above, the PCL measures, particularly their Antisocial Behavior factor, may be "contaminated" with a variety of nonspecific antisocial behaviors that predict violent behavior. As a result, the extent to which these scales measure a unique personality construct that predicts violence well, or merely repackage well-known predictors of violence, is unclear (e.g., Toch, 1998). We attempted to address this issue using a two-stage approach. First, we used traditional logistic regression analyses to determine whether PCL:SV classifications added incremental validity to predicting violence after controlling for the effects of key correlates of both psychopathy and violence. Second, we conducted propensity score analyses (Rosenbaum & Rubin, 1983, 1984; Rubin, 1997) to remove the effect of identified covariates on PCL:SV scores and then to assess the unique strength of PCL:SV psychopathy in predicting violence. Whereas the traditional analyses focus on the PCL:SV's incremental validity in predicting violence, propensity score analyses remove the effect of nonspecific antisocial behavior directly from PCL:SV scores to better estimate effect size. The initial step toward completing these analyses was to identify relevant covariates to control statistically.

Identifying the Chief Correlates of the PCL:SV and Violence

Traditional incremental validity analyses simply determine the amount of variance in violence that is attributable to PCL:SV psychopathy after controlling for a set of covariates. In contrast, the propensity score approach uses covariates to model the process by which the PCL:SV assigns participants to the category *psychopathy*, then examines the extent to which psychopathy relates to violent behavior after accounting for the diagnostic assignment process. Although covariates relevant to incremental validity analyses are associated both with the PCL:SV and with violence, the covariates most relevant to propensity score analyses are those associated with psychopathy. Nevertheless, because the strongest correlates of the PCL:SV in this dataset were often also strongly related to violence, the same set of covariates was used in the incremental validity analyses and propensity score analyses. This permits a more direct comparison of incremental validity and propensity score results.

The covariates of the PCL:SV and violence were chosen from a pool of 59 theoretically relevant variables in four specific steps. First, the strongest correlates of the PCL:SV were identified. These correlates were defined as those that shared at least 4% of their variance ($r = .20$) with PCL:SV total scores, based primarily on the distribution of correlations between these variables and PCL:SV totals. As shown in Tables 6 and 1, these correlates include various aspects of criminal history, other personality disorders, substance abuse, anger and impulsivity, and specific demographic characteristics. Second, the relationship between these variables and violence was considered, and one variable that was less strongly related to violence than the others was removed from the covariate set (Barratt Impulsiveness Scale—Nonplanning, $r = .09$). Third, the strongest correlates of violence were identified

Table 6
*Correlates of the Psychopathy Checklist: Screening Version (PCL:SV) Total Scores and Their Relationship
to Violence Across Five Follow-Up Intervals*

Variable class	Variable name	Correlation with PCL:SV			Correlation with violence ^b
		Total ^a	Factor 1 ^a	Factor 2 ^a	
Criminal history	Frequency of prior arrests	.45	.29	.49	.26
Criminal history	Type of prior arrests	.43	.28	.48	.29
Criminal history	Arrest for crimes against persons	.29	.23	.27	.14
Criminal history	Arrest for crimes against property	.27	.19	.29	.14
Recent violence	Recent violence	.27	.21	.25	.19
Substance abuse	Alcohol-related diagnosis	.33	.21	.36	.16
Substance abuse	Drug-related diagnosis	.30	.22	.31	.15
Substance abuse	Any drug use during the study	.33	.23	.34	.23
Personality disorder	Antisocial personality disorder	.31	.24	.30	.19
Personality disorder	Cluster B personality disorder	.42	.31	.41	.22
Personality	NEO-PI-R Agreeableness (vs. Antagonism)	-.40	-.33	-.38	-.25
Impulsivity/anger	Barratt Impulsiveness Scale—Nonplanning	.23	.07	.33	.09
Impulsivity/anger	Novaco Anger Scale—Behavioral	.24	.16	.26	.24
Demographics	Years of education	-.26	-.13	-.32	-.17
Demographics	Estimated Verbal IQ	-.25	-.16	-.27	-.14

Note. The variables in bold are the 12 covariates of violence and the PCL:SV that were included in incremental validity and propensity score analyses. NEO-PI-R = Revised NEO Personality Inventory.

^a Figures reported are eta (for categorical variables) or Pearson's (for continuous variables). ^b Figures reported are phi (for categorical variables) or eta (for continuous variables).

(defined again as those that shared at least 4% of their variance with violence; $r = .20$). Because the process revealed no new⁶ variables, no changes were made on the basis of these analyses. Finally, a redundant variable (type of prior arrests)⁷ and a variable with substantial missing values (NEO-PI-R Agreeableness) were removed from the covariate set.

This process yielded 12 covariates of the PCL:SV and violence for inclusion in incremental validity and propensity score analyses (printed in bold in Table 6). These variables were selected from a pool of theoretically related variables on empirical grounds and seem to represent the nonspecific aspects of antisocial behavior and personality disorders other than psychopathy that some argue contaminate measures of psychopathy and account for their power in predicting violence (e.g., Toch, 1998; see also Hart, 1998). Because this study and prior research suggest that race, gender, and SES are related to differences in psychopathy as assessed by PCL measures (see Lilienfeld, 1998), these three variables were also added to the covariate set.

Determining the PCL:SV's Incremental Validity in Predicting Violence

PCL:SV classification. A sequential stepwise logistic regression analysis (forward stepping, based on likelihood ratio statistics) was performed to assess the incremental validity of PCL:SV psychopathy classifications in predicting violence after controlling for the 15 covariates identified above. Covariates entered initially were (a) demographic characteristics (race, gender, SES, educational level, and verbal IQ), (b) multiple indexes of criminal history (frequency of prior arrests, arrest for person crime, arrest for property crime, and recent violence), (c) other personality disorders and traits (antisocial personality disorder, Cluster B personality disorder, and Novaco Anger Scale—Behavioral), and (d) substance use and diagnoses (drug-related diagnoses, alcohol-related diagnoses, and drug use during the study). The criterion for entry was set at .10. There was a good model fit on the basis of the covariates alone, $\chi^2(11, N = 757) = 133.52, p = .000$, which increased after the addition of participants' PCL:SV classifications, $\chi^2(12, N = 757) = 140.55, p = .000$. Comparison of the log-likelihood ratios for models with and without the PCL:SV showed significant improvement in prediction of violence with the addition of PCL:SV classifications, $\chi^2(1, N = 757) = 7.03, p = .008$. The model is presented in Table 7.

PCL:SV scale or factor scores. To determine the extent to which the incremental validity of the PCL:SV was based on Emotional Detachment (Factor 1) or Antisocial Behavior⁸ (Factor 2), the analysis described above was repeated, but participants' PCL:SV summed scores on Factors 1 and 2 (factor scores) were entered on the last step rather than their PCL:SV classifications. Given the liberal criterion for entry of .10, both Factor 1 and Factor 2 scores entered the model. However, comparison of the log-likelihood models with and without the PCL factor scores did not show significant improvement in the prediction of violence with the addition of both factors, $\chi^2(1, N = 755) = 3.38, p = .07$. This is likely based on the nonsignificance of the Emotional Detachment factor. The Antisocial Behavior factor (Factor 2, $\beta = .14$, Wald's = 11.51, $p = .001$) was more predictive of violence than the Emotional Detachment factor (Factor 1, $\beta = .08$, Wald's = 3.39, $p = .07$), even after controlling for the covariate set.

Table 7

Logistic Model for Testing the Incremental Validity of Psychopathy Checklist: Screening Version (PCL:SV) in Predicting Violence

Variable	Coefficient (B) ^a	SE	Wald statistic
Male gender	.03	.20	0.02
Estimate of verbal IQ	-.01	.01	1.22
Years of education	-.09	.05	2.51
Frequency of prior arrests			6.51
Recent violence	.31	.23	1.78
Antisocial personality disorder	.66	.26	5.50*
Cluster B personality disorder	.51	.19	6.90**
Novaco Anger Scale—Behavioral	.04	.01	9.01**
Any drug use during the study	.55	.19	7.97**
PCL:SV classification	.60	.22	7.11**

Note. Multicategory variable: individual coefficients not printed.

^a Change in the log odds associated with a one-unit change in the dependent variable.

* $p < .05$. ** $p < .01$.

Given this finding, we reran the above analysis using a more stringent criterion for entry of .05. In this analysis, only the Antisocial Behavior factor entered the model. Comparison of the log-likelihood models with and without this Antisocial Behavior factor showed significant improvement in the prediction of violence with the addition of this factor alone, $\chi^2(1, N = 755) = 21.54, p = .000$.

Determining the Magnitude of the PCL:SV's Unique Effect in Predicting Violence

Propensity scores (Rosenbaum & Rubin, 1983, 1984; Rubin, 1997) are traditionally used to remove the effect of nonrandom assignment of study participants to treatment and control groups to more accurately estimate treatment effects.⁸ In this study, propensity scores were used to account for important differences in demographics and nonspecific, deviant behavior between participants classified as NPP and PPP by the PCL:SV to better estimate the strength of the measure's unique relationship with violence. This process involved two steps. First, the covariate set identified above was reduced into a single composite score for each case that modeled the PCL:SV classification of participants into NPP or

⁶ Although violence was quite well predicted by a diagnostic classification that grouped participants based on whether substance abuse co-occurred with a major mental disorder, diagnoses of alcohol and drug disorders were used rather than this classification because psychopathy was strongly related only to drug and alcohol diagnoses.

⁷ Type of prior arrests was virtually redundant with frequency of prior arrests ($r = .85$). The frequency of prior arrests was retained because it was associated with fewer missing cases and was less strongly related to the remaining criminal history covariates.

⁸ For example, Berk & Newton (1985) determined whether arresting wife batterers deterred them from future battery by using propensity scores to control statistically for batterers' nonrandom assignment to arrest (treatment) and no-arrest (control) groups. Because the deterrent value of arrest may be underestimated if particularly violent batterers are more likely to be arrested, the basic differences between batterers who are arrested and those who are not arrested must be taken into account.

PPP groups. This propensity score reflected the probability of the case being assigned to the psychopathic category, given the vector of observed covariates (Berk & Newton, 1985). Second, an estimate of the relationship between psychopathy and violence was conditioned on propensity scores.

Developing propensity scores. In keeping with the recommendations of Rosenbaum and Rubin (1984; Rubin, 1997), we computed propensity scores by entering these 15 variables in a stepwise logistic regression analysis (forward stepping, based on likelihood ratio statistics) to predict psychopathy group membership (PPP or NPP), using an inclusion criterion of .10. Although stepwise procedures are poorly suited for developing structural models for predicting outcomes, our purpose was merely to account for systematic variation in assignment to the groups PPP or NPP based on a group of key covariates (see Berk & Newton, 1985). The results of this analysis are presented in Table 8 to illustrate that the signs and nature of the basic effects are consistent with available literature (e.g., diagnoses of Cluster B and antisocial personality disorder are positively associated with psychopathy; Hart et al., 1995). A test of the full model with all nine of its predictors against a constant-only model was significant, $\chi^2(10, N = 757) = 184.84, p = .000$, indicating that the set of predictors reliably distinguished NPP and PPP groups. Prediction success was fair, with an overall success rate of 82%. Perhaps based in part on the low base rate of potential psychopathy in the sample, 95% of NPPs but only 34% of PPPs were correctly classified.

The coefficients presented in Table 8 were used to construct propensity scores that reflect each case's probability of being deemed PPP, given the set of contaminating correlates. The association between participants' propensity scores and PCL:SV classifications as PPP or NPP was strong ($\eta^2 = 0.49$).

Determining the PCL:SV's unique effect in predicting violence. Next, participants' propensity scores were used as the sole covariate to obtain an unbiased estimate of the accuracy of PCL:SV psychopathy in predicting violence. This was accomplished by simply computing partial correlation coefficients. When participants' propensity scores were controlled for, the relationship between PCL:SV classification and any violence was still significant but weak (partial $r = .12, p = .001$). This partial correlation is substantially lower than the basic, zero-order correlation ($r = .26$)

between PCL:SV classification and any violence reported above. Thus, controlling for the effect of key PCL:SV covariates (i.e., indicators of nonspecific antisocial behavior, personality disorders other than psychopathy, and demographic characteristics) substantially attenuates the strength of the relationship between psychopathic personality as assessed by the PCL:SV and future violence.

In fact, the variables combined into propensity scores were as strongly related to future violence as PCL:SV total scores, both at the zero-order and partial level. These relationships are presented in Table 9. Because propensity scores are measured on a continuous scale, Table 9 compares the predictive power of propensity scores and PCL:SV total scores.

Discussion

This study assesses the extent to which the PCL:SV measures a unique personality construct that predicts violence in a sample of civil psychiatric patients. The results of this study can be summarized in three major points. First, despite the low base rate of psychopathy in this sample, the PCL:SV is a relatively strong predictor of violence. Second, the predictive power of the PCL:SV is substantially reduced, but still remains significant, after controlling for a host of covariates, including recent violence, criminal history, substance abuse, and other personality disorders. Third, the predictive power of the PCL:SV is based principally on its Antisocial Behavior factor rather than its Emotional Detachment factor; in this civil psychiatric sample, the joint presence of the Antisocial Behavior and Emotional Detachment factors is not necessary to maximally predict violence. After sequentially discussing these three key findings, we analyze their implications for the two-factor model of psychopathy and for risk assessment practice.

PCL:SV Psychopathy and Its Basic Relationship to Violence

Base Rates of PCL:SV Psychopathy and Association With Future Violence

This study replicates the results of prior research with respect to the base rate of psychopathy among civil psychiatric patients and the basic relationship between psychopathy and violence. The base rate of probable psychopathy among patients in this study is only 8%, in keeping with Hart et al.'s (1995; see also Douglas et al., 1999) observation that base rates in civil samples rarely exceed 10%, despite wide variability across civil psychiatric sites ($M = 10\%$; range = 2%–24%). These rates are very low compared with those found in offender samples (18%–37%, $M = 29\%$; Hart et al., 1995). Whether treated as a continuous score or as a dichotomous variable that discriminates between NPPs and PPPs, the PCL:SV is moderately strongly associated with future, serious violence in this sample. The AUC for PCL:SV total scores indicates that there is a 73% chance that a patient who becomes violent will obtain a higher score on the PCL:SV than a patient who does not become violent. This AUC is identical to that found by Douglas et al. (1999) for PCL:SV total scores and physical violence in a civil psychiatric sample and is consistent with effect-size estimates reported in recent meta-analyses of research conducted primarily with criminal samples (Hemphill et al., 1998; Salekin et al., 1996;

Table 8
Logistic Model (Nonstructural) for Psychopathy Classification Process

Variable	Coefficient (B) ^a	SE	Wald statistic
Cluster B personality disorder	1.24	.24	26.35***
Recent violence	.87	.24	13.28***
Frequency of prior arrests			15.54**
Years of education	-.17	.06	9.53**
Antisocial personality disorder	.56	.27	4.27*
Male gender	.53	.24	5.08*
Any drug use during study	.45	.23	3.85*
Race			8.25*
Alcohol-related diagnosis	.39	.23	2.94

Note. Multicategory variable: individual coefficients not printed.

^a Change in the log odds associated with a one-unit change in the dependent variable.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 9
Zero-Order and Partial Correlations of Psychopathy Checklist:
Screening Version (PCL:SV) Total Scores and Propensity
Scores With Violence

Score	Zero-order r with violence	Partial r with violence
PCL:SV total ^a	.38***	.21***
Propensity	.37***	.21***

^a The zero-order correlation with violence differs slightly (.02) from that reported in the text based on differences in sample sizes due to missing values.

*** $p < .001$.

Simourd, Bonta, Andrews, & Hoge, 1990). When the PCL:SV is considered categorically, PPPs are 3.6 times more likely to become involved in violence than NPPs. This is roughly consistent with Douglas et al.'s (1999) finding that patients who scored above the PCL:SV sample median (a lower and more sensitive cut-point) were 5.3 times more likely to become physically violent than those who did not.

PCL:SV Thresholds: Diagnosing Psychopathy Versus Assessing Risk

The PCL measures are increasingly becoming endorsed for use not only to diagnose psychopathy but also to assess risk (e.g., Gacono & Hutton, 1994; Hare, 1999; Litwack & Schlesinger, 1999). In keeping with the results of Douglas et al. (1999), this study suggests that a PCL:SV threshold score of approximately 8 simultaneously maximizes both the sensitivity and specificity of the measure in predicting violence in civil psychiatric samples. That is, patients who obtain total PCL:SV scores of 8 or above are more likely to become involved in violence than those who do not. It is clear that this maximally predictive threshold for predicting violence in civil psychiatric samples is lower than that set for predicting probable PCL-R diagnoses of psychopathy (PCL:SV total score ≥ 18). Thus, even patients with several traits of psychopathy who fail to meet the PCL:SV diagnostic threshold are at greater risk for violence than those without.

Unique Relationship Between PCL:SV Psychopathy and Violence

As previously explained, concerns have been raised about the extent to which the PCL measures' predictive power is based on their (a) systematic summarization of past antisocial and socially deviant behavior or (b) covariation with other mental and personality disorders that predict violence. In this study, PCL:SV scores are moderately to strongly correlated with a range of variables that predict violence (see Table 6), including indexes of criminal history and recent violence (Harpur et al., 1989); Cluster B personality disorders and antisocial personality disorder (see Hart et al., 1995), substance use and substance-related diagnoses (Blackburn, 1998; Hart et al., 1995; Hart & Hare, 1989; Hemphill et al., 1994; Smith & Newman, 1990; Stålenheim & von Knorring, 1996), and, to a lesser extent, demographic characteristics (educational level, estimated verbal intelligence, race, gender, and SES; Harpur et al., 1989; Hart et al., 1995). Though less frequently studied, the

Behavioral subscale of Novaco's Anger Scale is also moderately correlated with the PCL:SV and violence, perhaps because it assesses impulsive and aggressive behavior similar to that reflected in the PCL:SV's Antisocial Behavior factor.

Even after statistically controlling for the effect of these contaminating covariates, PCL:SV classifications reliably improve the prediction of violence. This indicates that the PCL:SV's predictive power is not based solely on the extent to which it reflects past antisocial behavior, substance abuse, personality disorders other than psychopathy, and high-risk demographic characteristics. Nevertheless, propensity score analyses indicated that the strength of the relationship between PCL:SV classifications and violence was substantially attenuated (to $r = .12$) when the effect of these covariates was removed. Thus, the variance that the PCL:SV shares with these covariates contributes substantially to its prediction of violence.

The next logical question is the extent to which the unique relationship between the PCL:SV and violence is based on its assessment of the core personality construct of psychopathy. Because the factor scores of the PCL measures "permit the social deviance component of psychopathy to be separated from the cluster of personality traits that are fundamental to the construct" (Hare et al., 1990, p. 340), they provide a framework for addressing this question.

Analyses completed with individual factor scores in this study suggest that the PCL:SV's power in predicting violence in civil psychiatric samples has little to do with its assessment of the core traits of psychopathy, which, according to proponents of the personality-based approach (e.g., Cleckley, 1941), define the construct. In this study, patients' scores on the Antisocial Behavior factor predict violence more strongly than their scores on the Emotional Detachment factor, in keeping with much past research on the PCL/PCL-R (Harpur et al., 1989; Hemphill & Hare, 1999; Rogers, 1995; Salekin et al., 1996) and, to a lesser extent, the PCL:SV (Douglas et al., 1999). More importantly, the Antisocial Behavior factor, but not the Emotional Detachment factor, added incremental validity to the host of covariates described above in predicting violence. This is particularly remarkable because all 15 of the covariates, from indexes of deviant behavior to diagnoses of Cluster B personality disorders, were more strongly associated with the Antisocial Behavior factor (mean $r = .34$) than with the Emotional Detachment factor (mean $r = .23$). Although removing the effect of these covariates should have tipped the scales in favor of the core interpersonal and affective traits of psychopathy, such that the Emotional Detachment factor contributed unique variance to the prediction of violence, only the Antisocial Behavior factor added incremental validity to the covariate set.

Past research with criminal samples suggests that the Antisocial Behavior and Emotional Detachment factors are differentially associated with particular patterns of motivation for violence (see Cornell et al., 1996; Hart & Dempster, 1997). *Reactive* violence is an emotionally driven response to perceived provocation, whereas *instrumental* violence is committed to reach a clear external goal (Hart & Dempster, 1997). It may be interesting in future research to attempt to replicate in civil psychiatric samples the finding that the Antisocial Behavior factor is more strongly associated with "opportunistic, spontaneous, and disinhibited" violence, whereas the Emotional Detachment factor is more strongly associated with "planful, predatory" violence (Hart & Dempster, 1997, p. 227).

However, such a finding would not change the fact that, in this large sample of civil psychiatric patients, the Antisocial Behavior factor, but not the Emotional Detachment factor, was able to meaningfully predict serious patient violence. Even if the Antisocial Behavior factor, as noted by Hart and Dempster (1997), is "not specific to psychopathy," it "is observed frequently in many serious and persistent offenders" (p. 227). Using it to predict violence in general seems to be sound advice for a clinician concerned with making predictions as accurately as possible.

Predictive Utility of the Two-Factor Model in Civil Psychiatric Samples

As explained above, PCL diagnoses of psychopathy are contingent on features of both emotional detachment and antisocial behavior (Lilienfeld, 1994). The two factors of the PCL instruments are clearly intended to measure a unidimensional construct of psychopathy (Hare et al., 1990; Harpur et al., 1989; Hart et al., 1995). In principle, then, the two factors thought to underlie the single construct of psychopathy should work together to predict external criteria (see Lilienfeld, 1998). Although the Antisocial Behavior factor may explain the lion's share of the variance in predicting violence, its effect should be at least partially based on the core personality traits of psychopathy measured by the other factor. For example, a patient with a high Antisocial Behavior score who manifests more core personality traits of psychopathy than another patient with a high Antisocial Behavior score should be at much greater risk for future violence.

This, however, does not appear to be the case in this study. First, when statistically controlling for the strong correlation between the two factors, the unique relationship between the Emotional Detachment factor and violence is almost negligible (partial $r = .05$), but that between the Antisocial Behavior factor and violence remains moderate (partial $r = .26$). Second, the interaction between the two factors is not significant and does not add incremental predictive validity to the factors' main effects. This suggests that the joint presence of both PCL:SV factors is not necessary to maximally predict violence. Moreover, patients' summed scores on the Antisocial Behavior factor ($AUC = .74$) are as predictive of violence as their PCL:SV total scores ($AUC = .73$) in this study, suggesting that the Emotional Detachment factor has little additive effect.

These results contradict Harpur and Hare's (1996, as cited in Lilienfeld, 1998) finding that the PCL-R factors significantly interact to predict violence in an inmate sample. They also contravene findings that, in criminal samples, total scores on the PCL measures are often better predictors of violent recidivism than Antisocial Behavior factor scores (see Hemphill & Hare, 1999; Salekin et al., 1996). These contradictions may be attributable to sample differences across studies. Compared with civil samples, criminal samples are likely have more homogeneous and higher scores on the Antisocial Behavior factor. Considering these scores in tandem with scores on the Emotional Detachment factor, therefore, could greatly aid in discriminating between inmates who are, and are not, likely to become violent. In general, the predictive validity and diagnostic importance (see Widiger et al., 1996) of core psychopathic traits of emotional detachment may be greater in criminal than in civil samples.

In summary, in the civil psychiatric sample used in this study, the two factors of the PCL:SV do not function as a unified whole in predicting violence, as would be expected based on the model underlying the measure. Whereas features of the Antisocial Behavior factor predict violence moderately well, the core psychopathic traits of the Emotional Detachment factor add little predictive power. It remains for future research to determine whether completing the full PCL:SV in civil psychiatric samples predicts violence more effectively than completion of only its Antisocial Behavior factor items. If it does not, it may make sense to administer only the Antisocial Behavior half of the PCL:SV in clinical settings with limited resources.

Implications for the Two-Factor Model of Psychopathy

The results of this study highlight the fact that the two-factor model currently underlying the PCL measures "leave some major questions unanswered" (Lilienfeld, 1994, p. 28). Unlike the Emotional Detachment factor, the Antisocial Behavior factor predicts violence relatively well, even when various indexes of antisocial behavior are controlled. Arguably, the Antisocial Behavior factor represents more than just a socially deviant lifestyle. It may also tap personality traits that are more strongly associated with future violence and past antisocial behavior than the Emotional Detachment factor, particularly in civil psychiatric samples (see Lilienfeld, 1994; Widiger & Lynam, 1998). Half of the items that constitute the PCL:SV's Antisocial Behavior factor arguably assess personality traits, including impulsivity, irresponsibility, and a lack of goals. The items that constitute the Emotional Detachment factor include callousness, remorseless, grandiosity, and superficiality. A reasonable hypothesis is that the Antisocial Behavior factor reflects a general lack of self-control that has been associated with violence in past research (e.g., Gottfredson & Hirschi, 1990), in contrast with the more commonly understood, central features of psychopathy. Future research on both criminal and civil samples is clearly needed to determine whether a higher order, but nonpsychopathic, personality construct that is particularly predictive of violence has been mislabeled as antisocial behavior, and whether this construct is the core component of the observed relationship between violence and psychopathy as measured by the PCL scales. As currently articulated, however, the two-factor model of psychopathy is unsatisfying (Widiger & Lynam, 1998), particularly when applied to the prediction of violence in civil samples using the PCL:SV.

Our future work will examine the extent to which the present findings generalize from the original two-factor model to a new, three-factor model of psychopathy recently developed by Cooke and Michie (in press), based on reanalyses of several large datasets. This three-factor model divides the original Emotional Detachment factor into (a) an "arrogant and deceitful interpersonal style" factor and (b) an "deficient affective experience" factor. It also detects several nonspecific behavioral items (e.g., adult antisocial behavior) that were found to be poor indicators of psychopathy from the original Antisocial Behavior factor to create (c) an "impulsive and irresponsible behavioral style" factor. Future research will determine the relative fit of the two- and three-factor models to this study's data and will examine the relative power of the three factors in predicting violence.

Practical Implications

The issues presented above should not detract from the central fact that the PCL:SV performed well as a predictor of violence among civil patients. It was the strongest predictor of violence among a vast array of contenders tested in the MacArthur Violence Risk Assessment Study, the most comprehensive study of community violence by people with mental illness completed to date (see Monahan, Steadman, Silver, et al., 2001), and its predictive power remained significant even after relevant covariates were controlled statistically. The PCL:SV is a useful risk assessment tool, even if its predictive power in civil populations may be primarily attributable to its systematization of the process of gathering and considering six key historical variables and traits associated with antisocial behavior.

The nature of the relationship between the PCL:SV and violence, however, has important implications for risk assessment practice with civil psychiatric patients. First, clinicians should be aware that subdiagnostic PCL:SV threshold scores (i.e., of 8 or above) may be most useful for assessing risk. Second, regardless of the threshold used, patients may pose greater or lesser risk depending on the extent to which their total scores reflect antisocial behavior or emotional detachment (see Salekin et al., 1996). The results of this study suggest that PCL:SV total scores that predominantly reflect high scores on the Antisocial Behavior factor items indicate greater risk for violence than those chiefly based on the Emotional Detachment factor items (see Rogers, 1995).

Third, and perhaps most importantly, when a patient scores below the PCL:SV threshold for diagnosing psychopathy (<18), clinicians should carefully describe the extent to which the score reflects antisocial behavior or emotional detachment. Attributing a civil patient's violence potential to psychopathy in general when it is primarily based on less specific indexes of antisocial behavior invites inappropriate conclusions that the patient is "bad" and potentially untreatable. Psychopathy can be applied as a global "moral judgment" and presently provides little "point of reference for clinical intervention" (Blackburn, 1988, p. 511; see also Gunn, 1998; Lösel, 1998).

Finally, despite its predictive power, sole administration of the PCL:SV is not a sufficient basis for risk assessment (see Hare, 1999; Hart, 1998). A psychiatric patient who obtains a low PCL:SV score is by no means risk free. The predictive validity of the PCL:SV appears to be negligible for less serious forms of aggression that may nonetheless be clinically significant. In this study, the PCL:SV performed no better than chance in predicting acts of aggression that did not result in injury. More importantly, violence is a multidetermined construct (Marzuk, 1996) that can be caused by a host of risk factors other than, or in addition to, psychopathy. Douglas et al. (1999), for example, found that the HCR-20 risk assessment scheme added incremental validity to the PCL:SV in predicting "any violence" but that the reverse was not true. This finding is likely based on the fact that the HCR-20 assesses PCL psychopathy in addition to 9 other Historical or dispositional factors (e.g., substance abuse problems), 5 dynamic or changeable Clinical factors (e.g., active symptoms of major mental illness), and 5 contextual Risk Management factors (e.g., exposure to idiosyncratic factors that will "destabilize" a nonviolent course of behavior). The empirical literature suggests that a range of such variables are critical to consider in assessing a civil

psychiatric patient's violence potential (see Bjorkly, 1995; Eronen, Angermeyer, & Schulze, 1998; Litwack & Schlesinger, 1999; Melton, Petrila, Poythress, & Slobogin, 1997; Monahan, 1996).

Given recent, critical advances in risk assessment technology (Borum, 1996), however, it is important to avoid simplistic thinking and overreliance on any single measure of violence risk. Instead, promising tools such as the PCL:SV should be regarded as valuable components of the data-gathering process in risk assessment—tools that will not provide easy answers in and of themselves but that will aid responsible professionals in generating empirically informed, well-reasoned estimates of violence potential.

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