

Psychopathy, Treatment Involvement, and Subsequent Violence Among Civil Psychiatric Patients

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Individuals with psychopathy typically are viewed as incurable cases that should be diverted from treatment settings to environments where their behavior can be monitored and controlled. The prevailing clinical conviction that psychopaths are untreatable has crucial implications, given the scarcity of mental health care resources, the number of legal contexts that call for assessment of treatability, and the explosion of research on psychopathy and violence risk over recent years. Based on a sample of 871 civil psychiatric patients (including 195 “potentially psychopathic” and 72 “psychopathic” patients), this study explores the relations among psychopathy, receipt of outpatient mental health services in real-world settings, and subsequent violence in the community. The results suggest that psychopathic traits do not moderate the effect of treatment involvement on violence, even after controlling statistically for the treatment assignment process. Psychopathic patients appear as likely as nonpsychopathic patients to benefit from adequate doses of treatment, in terms of violence reduction. We interpret these results in light of prior research with offenders and analyze their implications for future research, policy, and practice.

KEY WORDS: psychopathy; treatment; violence; mental disorder.

INTRODUCTION

Psychopathy may be understood as a cluster of personality traits that includes remorselessness, callousness, deceitfulness, egocentricity, failure to form close emotional bonds, low anxiety proneness, superficial charm, and externalization of blame (Lilienfeld, 1998). Since the time of Cleckley’s seminal conceptualization of psychopathy (Cleckley, 1941), experts largely have regarded the prototypic psychopath as “a virtually incurable case, requiring indefinite institutionalization rather than temporary punishment” (Karpman, 1946, p. 285). Today, this sentiment remains

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essentially unchanged. Kernberg (1998) recently asserted that the prognosis for effectively treating psychopathy “is practically zero. The main therapeutic task is to protect the family, the therapist and society from such a patient . . .” (p. 377). According to Gacono, Nieberding, Owen, Rubel, and Bodholdt (1997), “institutional *management* rather than treatment per se is the state of the art for psychopathy” (p. 111).

Given its wide and increasing acceptance, the Psychopathy Checklist (PCL-R; Hare, 1991) may become a powerful vehicle for translating this sentiment into practice. The Hare PCL-R is regarded in North America as the gold standard for operationalizing psychopathy in multiple legal and clinical contexts that call for assessment of an individual’s capacity to benefit from treatment (e.g., Heilbrun, Bennett, Evans, & Offutt, 1988; Rogers & Webster, 1989). Gacono et al. (1997) asserted that the Hare PCL-R was “perhaps the most useful assessment instrument available” (p. 118) for estimating an individual’s treatability, saying that there was “nothing the behavioral sciences can offer for treating those with psychopathy (PCL-R > 30)” (p. 119).

It is easy to understand why psychopaths are seen as untreatable. Psychopaths’ emotional detachment may prevent them from establishing a strong, genuine alliance with a therapist, thus subverting a factor that explains much of the controllable variance in predicting psychotherapy outcome (see Henry, Strupp, Schacht, and Gaston, 1994). More broadly, interpersonal and affective features of psychopathy like manipulateness, pathological lying, shallow affect, and denial of responsibility “are obstacles in accomplishing empirically validated characteristics of effective psychotherapy such as therapeutic cooperation, self-exploration, cognitive confrontation, affective intimacy, patient engagement, reciprocal attachment, and openness” (Lösel, 1995, p. 101). In addition, one might reason that psychopaths’ deficits in learning, although shown to be limited to particular contexts (see Newman, 1998), would impair their ability to integrate and benefit from treatment experiences. An assumption that such deficits in learning and affect are inborn and immutable (e.g., Karpman, 1946; Mealey, 1995a, 1995b) cements one’s belief that psychopaths are untreatable.

Psychopathy, Treatment, and Outcome

Although it seems reasonable to assume that psychopaths are untreatable, little compelling evidence supports this blanket assumption (for reviews, see Blackburn, 1993, 2000; Dolan & Coid, 1993; Lösel, 1995; Salekin, 2002; Wong, 2000). First, most studies of treatment outcome and psychopathy focus on heterogeneous groups of individuals with antisocial personality disorder (APD) and are quite uninformative about those with “Cleckleyan traits” per se (Stone, 1993, p. 306). APD emphasizes a long history of observable socially deviant behaviors (American Psychiatric Association, 1994), with up to 90% of offenders qualifying for an APD diagnosis (Hart & Hare, 1997). In contrast, psychopathy focuses more narrowly on a specific cluster of personality traits and behaviors, with 30% or fewer offenders typically meeting Hare PCL-R criteria for psychopathy (Hart & Hare, 1997). Second, of the studies that specifically focus on psychopathy, few are prospective, include control groups, and

describe their treatment programs. In this review we emphasize empirical studies that assess psychopathy using the Hare PCL-R, describe treatment, and provide data on clinical improvement during treatment or criminal outcome after treatment (for additional PCL-based treatment studies, see Cooke, 1997; Heilbrun et al., 1998; Hobson, Shine, & Russell, 2000; Kristiansson, 1995; Reiss, Meuz, & Grubin, 2000).

Treatment Makes Psychopaths Worse: The Penetanguishene Study

In the most famous treatment outcome study on psychopathy, Harris, Rice, and Cormier (1991, 1994; Rice, Harris, & Cormier, 1992) retrospectively evaluated a Therapeutic Community (TC) at a forensic hospital in Penetanguishene, Ontario. This now-defunct TC was designed in the 1960s to help mentally disordered offenders (MDOs) develop a sense of empathy and responsibility for each another (Wong, 2000). During the program's decade of greatest activity, 176 men spent at least 2 years in this TC. Rice et al. (1992) matched most of these patients on age, index offense, and criminal history with an untreated patient who typically served a prison sentence. Patients' Hare PCL-R scores ($M = 19$) were coded from hospital files and recidivism was coded from police and hospital records for an average follow-up period of 10 years. The authors found that, compared with untreated psychopaths, treated psychopaths were as likely to recidivate generally (90% vs. 87%, respectively), and *more* likely to recidivate violently (55% vs. 77%, respectively). Despite the TC's somewhat negative impact on psychopaths, it had a positive effect on nonpsychopaths. Compared with untreated nonpsychopaths, treated nonpsychopaths were less likely to recidivate, both generally (58% vs. 44%) and violently (39% and 22%).

This study typically is cited to support conclusions that "therapy may make [psychopaths] worse" (Hare, 1993, p. 198). However, as noted by Rice et al. (1992), the TC studied in this research is inappropriate for psychopathy. The program included radical components, in that it (a) was highly coercive (patients were not allowed to opt out or to drop out); (b) was chiefly peer-operated, with little input or supervision from professional staff; and (c) involved extreme "defense altering" techniques (Harris et al., 1994; Warren, 1994). Specifically, patients were required to spend up to 2 weeks in nude encounter groups in a "total encounter capsule," where they were fed through tubes in the walls, in order to "achieve true communication and discover their essential nature" (Harris et al., 1994, p. 285). Psychopaths were administered LSD, alcohol, and other drugs to disrupt their glibness, aloofness, and hostility, increase their anxiety, and make them "chemically cooled out and dependent" and therefore more accessible to their peers and treatment (Harris et al., 1994, p. 288).

Notably, during their stay in the TC, psychopaths were significantly more likely than nonpsychopaths to be referred to a "disciplinary subprogram" to remedy non-compliance and to be written up and placed in seclusion for disruptive or violent behavior (Rice et al., 1992). These indices of misbehavior and punishment were, in turn, significantly predictive of recidivism. However, the effect of the TC on recidivism after statistically controlling for these disciplinary actions (which may have led to receipt of less treatment) apparently has not been assessed.

Psychopaths Improve Less During Treatment: The Saskatoon Study

In a second often-cited study, Ogloff, Wong, and Greenwood (1990) prospectively evaluated a more structured, professionally supervised, and traditional TC that was established in 1980 to mobilize positive peer group influences to treat personality-disordered MDOs at a forensic hospital in Saskatoon, Saskatchewan. Ogloff et al. (1990) completed interview- and file-based Hare PCL ($M = 23$) ratings on 80 MDOs who participated in this TC and used discharge summaries to rate patients' degree of motivation and improvement (1 = none, 2 = slight, 3 = some, 4 = substantial). During treatment, patients classified as psychopaths (PCL-R ≥ 27) manifested less motivation ("slight" vs. "some," or 1.6 vs. 2.8, respectively) and somewhat less clinical improvement ("none" vs. "slight," 1.3 vs. 2.3, respectively) than did nonpsychopaths (PCL-R ≤ 17). Although Hemphill and Wong (1992) completed a follow-up study of an overlapping sample of 106 MDOs (PCL-R; $M = 23$) who participated in this TC, the study did not include a control group or assess change in conviction rates. Thus, their finding that psychopaths were more likely to be reconvicted than nonpsychopaths leaves open the fundamental question about the effect of treatment on recidivism.

Treatment Makes Offenders With Factor 1 Traits Worse: The English Prison Service Study

Hare, Clark, Grann, and Thornton (2000) recently reported the results of an ongoing, nonrandomized control study of 278 male offenders involved in seven English prisons. PCL-R ($M = 17$) ratings were completed as part of the admission process, and 2-year reconviction rates were analyzed as a function of inmates' participation in "short-term anger management and social skills training programs" (p. 637). The authors found that psychopathy did not moderate the effect of treatment on reconviction. However, after dichotomizing offenders solely on the basis of their Factor 1 scores, the authors found that treatment was associated with *higher* rates of recidivism for offenders with high Factor 1 scores. Of those with high Factor 1 scores, 59% of untreated offenders recidivated compared to 86% of treated offenders. A similar pattern of results was found for offenders' participation in the prison's educational and vocational training programs.

Hare et al. conclude that offenders with high scores on Factor 1 (not necessarily psychopaths, but offenders who are superficial, manipulative, etc.) may learn how better to exploit others in treatment programs. However, as the authors note, the treatment program was probably inappropriate, given its lack of effect on nonpsychopaths. Moreover, the same effect was obtained for educational and vocational programs, which seem less plausible outlets for learning how to better "put the squeeze on" others.

Some Psychopaths Behave Deceptively Well in Treatment: The Kingston Study

For some offenders with psychopathic traits, good behavior during treatment may not bode well for future recidivism. Seto and Barbaree (1999) retrospectively studied a group-based relapse prevention program for imprisoned sex offenders in Kingston, Ontario. The investigators completed pretreatment Hare PCL-R ratings

(interview- and file-based) on 283 sex offenders, reviewed offenders' institutional files to derive a composite measure of treatment behavior, and obtained data on recidivism (follow-up period = 0–6 years).

The authors classified offenders into four groups, on the basis of median splits (high/low) in their PCL-R and treatment behavior scores. On the basis of this classification, offenders who scored high in psychopathy and *better* in treatment behavior were more than five times more likely to seriously reoffend than those in the other three groups combined. The authors reason that sex offenders with more psychopathic traits skillfully manipulate others both during treatment (by exhibiting “positive” behavior) and after treatment (by accessing and exploiting victims).

What May We Conclude? A Closer Look

In summary, several studies of offenders suggest that traits of psychopathy are associated with less improvement during treatment and more recidivism after treatment. Nevertheless, only two (nonrandomized) controlled studies have investigated whether psychopathy moderates the effect of treatment on recidivism (Hare et al., 2000; Rice et al., 1992). Thus, there is “insufficient evidence to support the view that ‘nothing works’ with this group” (Losel, 1995, p. 103; see also Blackburn, 2000; Garrido, Esteban, & Molerao, 1995; Salekin, 2002). In fact, existing research raises questions about (1) the responsiveness of psychopaths to standard treatments in civil as well as criminal settings and (2) the relation between treatment dose and outcome for psychopaths.

How Effective Is “Treatment as Usual” in Civil and Criminal Settings?

Existing research indicates not whether psychopaths are treatable, but how responsive select groups of psychopaths have been to the treatments we have studied (see Wong, 2000). In PCL-based research, the modal treatment studied is a TC and the modal groups of psychopaths are correctional or forensic inmates.⁵ On the basis of a meta-analysis of 44 studies that involved a broader range of treatments and populations, Salekin (2002) found that TCs “were the least effective methods for treating psychopathy, with an average success rate of 25%” (p. 101). This success rate, which reflects various clinical and criminal outcomes, was similar to that of the control groups (20%).

In stark contrast, Salekin found that the success rate for all treatments (e.g., psychoanalytic, cognitive-behavioral, TCs, eclectic) was 62%. Notably, Salekin's review included a number of studies in which “psychopathy” was loosely defined (e.g., juvenile delinquency). Nevertheless, regardless of the way in which investigators defined

⁵Notably, most treatment approaches for psychopaths in correctional populations attempt to prevent recidivism “despite” psychopathy, that is, they focus on reducing antisocial behavior in a group that may include psychopaths (Stephen Hart, personal communication, April 19, 2001). Recent research suggests that correctional programs that directly target “criminogenic factors” including procriminal attitudes (e.g., entitlement; victim blaming) effectively reduce recidivism (Andrews, Bonta, et al., 1990a; Andrews, Zinger, et al., 1990; Gendreau, 1996; Gendreau, Little, & Goggin, 1996). If such approaches were tailored specifically to individuals with psychopathic traits (Wong & Hare, in press; see also Losel, 1995, 1998), they might prove more effective than the “one size fits all offenders” programs studied to date.

psychopathy, psychopaths showed some improvement with treatment (e.g., PCL-R defined psychopaths = 57%). Although preliminary and based on several studies with methodological limitations, Salekin's results challenge the blanket view that "most therapy programs do little more than provide psychopaths with new excuses and rationalizations for their behavior and new insights into human vulnerability" (Hare, 1993, pp. 196–197). In fact, given that correctional treatments for inmates were overrepresented even in Salekin's analysis, these results raise questions about how successful typical treatment programs in civil settings might be for patients with psychopathy.

Unfortunately, very little PCL-based treatment research has been conducted with noncorrectional populations. We found only one such study. On the basis of a sample of 193 men who participated in a methadone maintenance program, Alterman, Rutherford, Cacciola, McKay, and Boardman (1998) found that interview- and file-based Hare PCL-R scores ($M = 15$) were moderately inversely correlated with treatment attendance and positive drug tests during treatment. However, PCL-R scores were not associated with ratings of improvement in substance-related life problems (e.g., social, legal, employment) during the 7-month treatment period.

Because this was a study of a specific treatment for substance abuse, the success rate of "most therapy programs" in civil settings for patients with psychopathy remains unknown. In civil settings, individuals (including those with antisocial personality disorder) are most likely to receive psychiatric treatment on an outpatient basis in specialty mental health/addictive or general medical clinics (Regier et al., 1993). As managed care companies favor inexpensive approaches, these services are likely to involve pharmacotherapy and short-term psychotherapy. Given that clinicians tend to identify themselves and the services that they provide as "eclectic" in orientation (e.g., Norcross, Prochaska, & Farber, 1993), this brief therapy is likely to be characterized by techniques from multiple models (e.g., cognitive-behavioral, psychodynamic, humanistic). The nearest approximation to outcome data on PCL-defined psychopaths' response to standard outpatient treatment is four small studies of *prison-based* treatments that consisted of psychopharmacology (average success rate = 70%) or eclectic psychotherapy (average success rate = 86%; Salekin, 2002).

In short, we do not know whether psychopathic traits complicate the first-line treatment of disorders in civil psychiatric settings, as other personality disorders have been shown to do (e.g., Pilkonis & Frank, 1988; Shea, Widiger, & Klein, 1992). There have been no ecologically valid studies of the relations among psychopathy, patients' receipt of general outpatient mental health services in real-world settings, and subsequent outcomes in the community. Such research has crucial clinical and policy implications, given the potential effect of the prevailing clinical conviction that psychopaths are difficult or impossible to treat. There may be a tendency to exclude individuals with psychopathic traits from outpatient "treatment as usual" based on the assumption that treatment will not work.

Do Psychopaths Receive Sufficient Doses of Treatment?

Even if patients with psychopathic traits are not excluded from treatment, they may respond less favorably than nonpsychopaths because they receive insufficient

doses of treatment. Psychopaths may be more prone to premature self- or staff-induced termination, on the basis of their poor motivation for, and behavior in, treatment. In addition, more intensive treatment may be required to produce meaningful change in those with psychopathic personality traits than those with uncomplicated Axis I disorders.

In several studies reviewed above, psychopaths were treated for substantially shorter periods than nonpsychopaths (e.g., Alterman et al., 1998; Seto & Barbaree, 1999). For example, Ogloff et al. (1990) found that psychopaths' average length of time in their TC was approximately half as long as that of mixed and nonpsychopathic patients (104, 207, and 242 days, respectively). Such early termination has important implications for treatment outcome. For example, on the basis of a sample of 220 adolescent male sex offenders followed for an average period of 10-years, Gretton, McBride, Hare, and O'Shaughnessy (2000) found that, of offenders with high PCL:YV scores, only 30% who completed the treatment program recidivated violently, compared to 80% who did not complete the program (see also Mulloy, McHattie, & Smiley, 1998; Mulloy, Smiley, & Mawson, 1996). In his meta-analysis, Salekin (2002) found a similar, strong relation between the duration of treatment and its success rate for those labeled psychopaths.

It is possible that psychopaths who drop out of treatment are more likely to recidivate than those who do not drop out, regardless of the effects of treatment. Nevertheless, if intensive treatment is required to effectively alter embedded personality patterns (Lambert & Bergin, 1994, p. 148), two clear pathways to poor outcome for psychopathy are premature dropout or termination and provision of inadequate treatment. Identifying whether either of these pathways characterizes psychopaths' relatively poor outcomes would have crucial implications for designing standard outpatient care. Given the mental health care market's emphasis on inexpensive treatment, psychopaths are unlikely to receive outreach services or long-term treatment. This is not a problem if "treatment as usual" is ineffective for patients with psychopathy, regardless of treatment intensity. However, if traditional psychiatric services are effective for patients with psychopathy, particularly or only when they are intensive, it would be prudent to provide increased services to psychopaths to decrease this syndrome's considerable toll on society.

In this paper, we analyze the relations among psychopathy, outpatient treatment involvement, and subsequent violence on the basis of a large study of civil psychiatric patients enrolled in the MacArthur Violence Risk Assessment Study. We focus on these two issues raised by existing research, that is, (1) whether psychopathy moderates the effect of outpatient "treatment as usual" for civil psychiatric patients on subsequent violence, and (2) whether there may be a "dose-response" effect⁶ in treating patients with psychopathic traits. Specifically, we assess the extent to which psychopathic patients respond to different doses of outpatient treatment services by becoming less violent and whether psychopathic traits are related to poorer treatment response, as reflected by involvement in violence.

⁶We refer in this paper to a general concept of "dose-response." We do not use conventional statistical methods for addressing this issue (e.g., probit analyses) here.

METHOD

Participants

The MacArthur Violence Risk Assessment Study is described in detail elsewhere (Monahan et al., 2001). Briefly, participants were sampled from acute inpatient facilities in three states (Pennsylvania, Missouri, and Massachusetts). Patients eligible for the study were civil admissions between the ages of 18 and 40 years, English speaking, and of White or African American ethnicity (or Hispanic in Massachusetts only). They had a medical record diagnosis of a major mental disorder (schizophrenia, schizophreniform disorder, schizoaffective disorder, depression, dysthymia, mania, brief reactive psychosis, delusional disorder), a substance abuse or dependence disorder, or a personality disorder. Eligible admissions were sampled according to age, sex, and ethnicity to maintain a consistent distribution of these characteristics across sites.

During the study period, research interviewers invited a quota sample of 1,695 patients to participate. With a refusal rate of 29%, the final sample size of patients who were interviewed in a hospital was 1,136. Steadman et al. (1998) and Monahan et al. (2001) describe this group's demographic and psychiatric characteristics and provide detailed analyses of the recruitment process.

The analyses reported in this paper are based on a sample of 871 patients who were rated using the Screening Version of the Psychopathy Checklist (PCL:SV; Hart, Cox, & Hare, 1995). As in the larger sample, these patients were young ($M = 30$ years, $SD = 6$), White (70%; African American, 29%; Hispanic, 2%), male (58%), voluntarily admitted (68%) patients. They had independently determined primary diagnoses of depression or dysthymia (42%), substance abuse or dependence (22%), schizophrenia, schizophreniform, or schizoaffective disorder (16%), bipolar disorder or cyclothymia (13%), personality disorder (2%), or other disorder (3%). Some 41% of patients had a co-occurring major mental disorder (defined earlier) and substance abuse or dependence disorder. Of these patients, 195 were classified as "potentially psychopathic," and 72 were classified as "psychopathic," on the basis of recommended cutting scores for the PCL:SV.

Procedure

Interviews

Two sets of interviews were completed. First, patients were interviewed in the hospital by a research interviewer to obtain data on demographic and historical factors, and 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 Brief Psychiatric Rating Scale (BPRS; Overall & Gorham, 1962). Research clinicians' diagnoses corresponded to the medical record diagnosis in 86% of cases, and disagreements were resolved by a consultant psychiatrist at each site. Second, 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 involvement in treatment and violence. A collateral informant (e.g., family member, friend) familiar with each patient's activities was also interviewed on the same schedule.

To reduce the difficulties inherent in validly measuring personality disorder during the acute phases of an Axis I disorder (Loranger et al., 1991), the PCL:SV interview was completed during the follow-up period (typically at follow-up 1 or 2) rather than during hospitalization, and was completed on the basis of information from both patient interviews and hospital records.⁷

Record Reviews

In addition to interviews, official records were used as a source of information. Hospital records were reviewed to assist in the completion of various scales, and arrest records were reviewed to provide information about offense histories and arrests that occurred during the follow-up period.

Measures

Psychopathy

Psychopathy was assessed with Hart et al.'s PCL:SV, which was designed to assess for psychopathy in noncriminal settings and to screen for psychopathy in criminal settings (Hart et al., 1995). The PCL:SV consists of 12 items that were derived from the 20-item Hare PCL-R (Hare, 1991), and is strongly associated with its parent measure (weighted mean $r = .80$; Hart et al., 1995). Six of the PCL:SV items assess interpersonal and affective traits that may be labeled "emotional detachment" (Part 1; see Patrick, Bradley, & Lang, 1993) and include superficial, grandiose, deceitful, lacks remorse, lacks empathy, and does not accept responsibility. The remaining six items assess a socially deviant lifestyle that may be labeled "antisocial behavior" (Part 2; see Patrick et al., 1993), and include impulsive, poor behavioral controls, lacks goals, irresponsible, adolescent antisocial behavior, and adult antisocial behavior. Parts 1 and 2 of the PCL:SV grossly correspond to Factors 1 and 2 of the PCL-R.

Prior to the study, interviewers completed a full day of training on the PCL:SV conducted by Drs Stephen Hart and Robert Hare. Following this training, interviewers independently viewed over 10 videotaped cases, scored each on the PCL:SV, and sent their responses to Dr Hart for reliability analysis and approval. Chance-corrected rates of agreement on PCL:SV total scores were computed on the basis of interviewers' reviews of videotaped interviews and official records for 45 cases. Interviewers were defined as in agreement when their PCL:SV total scores fell within

⁷Because they were typically completed during follow-up 1 and, to a lesser extent, follow-up 2, PCL:SV ratings may have been influenced by patients' involvement in violence or treatment during the first 20 weeks of data collection. On the basis of their analyses, Skeem, Mulvey, and Grisso (in press) concluded that the PCL:SV's power in predicting *violence* was not chiefly based on its being measured concomitantly with violence. To estimate the extent to which PCL:SV ratings were influenced by participation in treatment, we compared the correlation between PCL:SV total scores and treatment involvement, as defined as follows: (a) during follow-ups 1 and 2, and (b) during follow-ups 3, 4, and 5. The former average association ($\eta = -.15$) was only marginally greater than the latter ($\eta = -.11$). This suggests that PCL:SV ratings were not heavily influenced by treatment involvement.

five points of one another. This analysis suggested that interrater reliability on the PCL:SV ($\kappa = .66$) was “good” (Cicchetti & Sparrow, 1981).⁸

Interviewers completed PCL:SV ratings after interviewing patients and reviewing hospital records. Each of the 12 PCL:SV items was scored as 2 (*yes, item applies*), 1 (*maybe*), or 0 (*no*). Items that could not be completed were prorated as recommended by Hart et al. (1995). The PCL:SV’s psychometric characteristics in this sample were described by Skeem and Mulvey (2001).

For the analyses presented in this paper, categorical and dimensional measures of psychopathy were used. On the basis of their efficiency in predicting dichotomous Hare PCL-R diagnoses, Hart et al. (1995) indicated that total PCL:SV scores of 12 or fewer indicate nonpsychopathy, scores of 13–17 indicate potential psychopathy, and scores at or above 18 strongly suggest psychopathy. Thus, our two dichotomous measures of psychopathy classified patients as (a) nonpsychopathic (NPP; scores ≤ 12) or at least potentially psychopathic (PPP; scores > 12) groups, and (b) nonpsychopathic/mixed (NPM; scores < 18) or psychopathic (PSY; scores ≥ 18) groups. The continuous measures of psychopathy were PCL:SV total and part scores.

Treatment Involvement

Although both patients and collateral informants were asked at each interview about patients’ treatment involvement, we relied upon patient self-report as the index of treatment involvement in the analyses described below. Collateral reports added little information to patients’ self-report because collateral informants typically knew little about this aspect of patients’ lives. Notably, even with respect to violence, reconciling patient and collateral reports yielded relatively little new information (Steadman et al., 1998).

At each follow-up, interviewers asked patients whether they were currently (i.e., within the past week) receiving mental health or substance abuse treatment. When patients responded affirmatively, interviewers asked them about the nature of their treatment and how many sessions they had attended during the follow-up period. Interviewers then asked whether patients were currently participating in any *other* type of treatment and, when relevant, repeated their inquiries about the nature and number of sessions attended. As explained below, interviewers also asked patients about treatments that they were not currently receiving, but had received at some point during the follow-up period.

The primary measure of treatment involvement was the total number of sessions that patients attended during each 10-week follow-up period. This measure was dichotomized into 0–6 sessions and 7 or more sessions, on the basis of the results of Monahan et al. (2001), who found that this split in the number of sessions attended during the first follow-up was maximally predictive of violence during the second follow-up. As demonstrated by Farrington and Loeber (2000), dichotomization of

⁸Ideally, we would report kappa for classifications of study participants as nonpsychopathic and potentially psychopathic. However, interrater reliability data were collected a decade ago and could not be located for reanalysis. Nevertheless, the fact that the PCL:SV had excellent predictive validity and concurrent validity in this study indirectly support the favorable results of the original reliability analyses reported here, as validity presupposes reliability.

variables often increases the interpretability of results without reducing the power of analyses.

During follow-up 1, 59% of patients in this sample received 0–6 sessions, and 41% received 7 or more. For patients who received at least 1 session, the median number of treatment sessions attended was 8 ($M = 12.3$, $SD = 14.0$). For those who received 0–6 sessions, the median number of sessions was 3, whereas for those who received 7 or more sessions, the median number was 12. Patients who attended treatment sessions typically received a combination of verbal therapy and medication (37%) or verbal therapy only (40%). Less often, they received medication only (10%), drug and alcohol treatment (5%), group therapy only (5%), or other treatment (3%).

The measure of treatment involvement is a less-than-perfect measure, as it was “gated” on patients’ report of whether they had received treatment during the last week of each follow-up interval. Patients who denied receiving treatment at the end of the follow-up were classified as receiving little or no treatment (0–6 sessions). This was the most appropriate classification, given the nature of the data. Specifically, at each follow-up, interviewers also asked patients whether they were receiving treatment at some point during the follow-up but *not* within the last week and if so, about the nature (but not frequency) of that treatment. Some 40% of patients who said they were not receiving treatment at the end of follow-up 1 described receiving treatment earlier during that follow-up. At follow-ups 2–5, this proportion dropped to 21, 16, 16, and 14%, respectively. Thus, the classification rule is most crucial for the first follow-up.

Three factors suggest that most patients who discontinued treatment during the first 10-week follow-up were correctly classified as receiving six or fewer treatment sessions. First, the median number of sessions attended was only 8. Second, patients typically are referred to outpatient care after hospital discharge, and the majority of patients who discontinue treatment do so either by failing to attend their first scheduled appointment or by dropping out after attending only 1–2 sessions (see Garfield, 1994). Third, the results obtained for treatment involvement during the first follow-up were consistent with those of other follow-ups, in which fewer patients had discontinued treatment.

Future Violence

The measure of violence was based on patient report, collateral informant report, and official records. At each follow-up interview, patients and collateral informants were asked whether the patient had engaged in any of eight categories of aggressive behavior (e.g., pushing, hitting) in the past 10 weeks, based on an expansion of Straus and Gelles’ Conflict Tactics Scale (see Lidz, Mulvey, & Gardner, 1993; Straus & Gelles, 1990). When respondents endorsed an aggressive behavior, they were asked to report the number of times the behavior occurred and to describe the incidents. If multiple aggressive acts were associated with a particular incident, only the most serious act that occurred during the incident was coded. Two trained coders reviewed aggressive acts reported by any information source (patient, collateral, or records) to obtain a single reconciled report of the incident. Any coding disagreements were resolved through discussion in team meetings.

We defined violence as 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 (Steadman et al., 1998). The violence measure reflected whether or not the patient was involved in a violent incident during each of the five follow-up periods.

Covariates of Treatment Assignment

In this study, we applied a propensity score approach (Rubin, 1997) to conservatively estimate the effect of treatment on violence. As explained below (Results), we identified the covariates of treatment involvement and used them to model the process by which patients were assigned to treatment groups. We then examined the extent to which treatment involvement was related to violent behavior after controlling for the treatment assignment process.

The covariates of treatment involvement were identified in three steps. First, a pool of 38 covariates that were theoretically or empirically related to treatment involvement in past work were chosen from the list of variables collected about each case. Second, the bivariate relations between each of these covariates and treatment involvement (as defined previously) at follow-ups 1 and 2 were computed. We retained the 17 covariates that (a) shared at least 1% of their variance ($r \geq .10$) with treatment attendance at either follow-up, (b) were not strongly associated ($\geq .65$) with other covariates in the set, and (c) did not have a substantial number of missing values (e.g., ≥ 300 cases). (These cut values were chosen on the basis of the distribution of correlations and missing values in the dataset.) The 17 covariates reflected patients' clinical and demographic characteristics and recent violence. It is important to note that this set included virtually all of the covariates that were identified statistically in the larger study when all 134 variables in the data set were entered into a stepwise logistic regression analysis to predict treatment assignment (Vesselinov, 2000). Thus, the theory-driven approach produced essentially the same covariate set as a strictly data-driven approach.

Most of the covariates of treatment attendance were clinical characteristics. First, these included whether or not patients had a *DSM-III-R* checklist-based diagnosis of an *alcohol-related disorder* (i.e., alcohol abuse or dependence), a *drug-related disorder* (i.e., drug abuse or dependence), *depression*, or *comorbid depression and alcohol- or drug-related disorders*. Second, they included patients' record-based *legal status* at hospital admission (voluntary/involuntary), their symptoms of *anxiety-depression* (subscale score on the BPRS), and their self-reported number of *prior hospitalizations* and *age at first hospitalization*. Clinical covariates of treatment involvement also included the *proportion of the patients' social network that were mental health professionals*, based on a social network inventory (Estroff & Zimmer, 1994), and their score on a self-report scale of *difficulty with the activities of daily living* (ranging from 0 to 18; see Monahan et al., 2001, p. 105).

The demographic covariates of treatment involvement included patients' *age*, *sex*, *race* (Caucasian/Noncaucasian), and self-reported *years of education* and *employment status* (employed/unemployed) prior to hospital admission. Given its relevance to future violence, a single index of *recent violence* (*yes/no*) was used as a

covariate of treatment involvement. This variable reflected patients' self-report of whether or not they were involved in a violent act (as defined previously) during the 2 months preceding their index hospital admission. The data set and a detailed description of these variables are available at <http://macarthur.virginia.edu>.

RESULTS

We designed the analytic approach primarily (1) to assess the extent to which potentially psychopathic and psychopathic patients' involvement in particular amounts of treatment affected their later violence, and (2) to determine whether traits of psychopathy were related to treatment response, as indexed by involvement in violence. In essence, we wished to assess whether and how much psychopaths responded to treatment by becoming less violent, and whether having more psychopathic traits was related to poorer treatment response along this dimension of outcome. We supplemented basic analyses focused on these issues with propensity score analyses (Rubin, 1997). We included the propensity score approach to help correct for the effect of nonrandom assignment to treatment groups, given that this was an observational study rather than a randomized clinical trial.

Assessing the Basic Relation Between Psychopathic Patients' Treatment Involvement and Subsequent Violence

In the larger study, Monahan et al. (2001) found that patients' treatment involvement during a given follow-up period (X) reduced their likelihood of being involved in a violent incident during the next follow-up period ($X + 1$). To determine whether this finding generalized to patients with psychopathic traits, we repeated these analyses using only the 195 patients who were classified as at least potentially psychopathic (PPP). We concentrated on follow-ups 1 and 2, given that (a) the greatest proportion of violence occurred during these follow-ups, and (b) the rate of attrition after these two follow-ups was relatively high (see Steadman et al., 1998).

During follow-up 1, PPP patients received slightly less treatment than did patients in the larger sample (see above; the difference was not significant). Specifically, 72% of PPP patients received at most six treatment sessions ($Mdn = 3$), and 28% received seven or more sessions ($Mdn = 11$). Of PPP patients who attended 0–6 sessions, 46% received combined medication and verbal therapy, 26% received verbal therapy only, 11% received substance abuse treatment, and 17% received other forms of treatment (e.g., medication only; group therapy). Of PPP patients who received seven or more sessions, 30% received combined medication and verbal therapy, 46% received verbal therapy only, 15% received substance abuse treatment, and 7% received other treatment. These differences in Treatment Types \times Treatment Involvement were not statistically significant, $\chi^2(3) = 4.77$, $p = .19$, unlike the differences found in the larger sample (Monahan et al., 2001).

Some 121 PPP patients had access to the community during the first follow-up period (i.e., were not hospitalized or jailed) and completed both the first and second follow-up interviews. There was a clear relation between these PPP patients'

Table 1. PPP Patient's Treatment Involvement During Follow-Up X and Violence During Follow-Up $X + 1$

Follow-up ($X + 1$)	Violent (n)		OR
	0–6 sessions	7 or more sessions	
2	23.0 (20)	5.9 (2)*	4.8
3	12.5 (10)	7.1 (2)	1.9
4	15.7 (13)	7.4 (2)	2.3
5	11.2 (10)	12.0 (3)	0.9

Note. Values in parentheses are in percentage.

* $p < .05$.

treatment involvement at follow-up 1 and at least one violent act at follow-up 2. Only 6% of PPP patients who received seven or more treatment sessions during the first 10 weeks after hospital discharge were violent during the 10 subsequent weeks, whereas 23% of PPP patients who received six or fewer sessions were violent, $\chi^2(1) = 4.81$, $p < .05$. As shown in Table 1, a similar pattern of results was found for the remaining pairs of follow-ups, where receipt of more treatment during a given follow-up was associated with less violence during the subsequent follow-up. The effect was not statistically significant for the remaining pairs of follow-ups, which is likely due in part to limited power associated with disproportionate marginal distributions (e.g., 13% violent vs. 86% nonviolent; see Uebersax, 1987).

To determine whether treatment was associated with a reduction in the likelihood of future violence among patients who were formally *classified* as psychopathic, we repeated the above analyses using only the 72 psychopathic (PSY) cases. The statistical power of these analyses was limited by small sample sizes (Cohen, 1992), but the pattern of results confirmed the findings reported above. For example, 45 PSY patients had access to the community during the first follow-up period and completed both the first and second follow-up interviews. Although 8% of these PSY patients who received seven or more treatment sessions during the first 10 weeks after hospital discharge were violent during the 10 subsequent weeks, 24% of PSY patients who received six or fewer sessions were violent.⁹

Given limited statistical power in the latter analysis, we wished to estimate the size of the association between treatment and subsequent violence among patients with psychopathic traits and psychopathy. To do so, we computed odds ratios by completing direct logistic regression analyses, where violence at follow-up $X + 1$ was the outcome and treatment involvement at follow-up X was the single predictor. The odds ratios for PPP patients are shown in Table 1. Averaging across follow-ups, PPP patients who received 0–6 treatment sessions during a given 10-week follow-up were approximately 2.5 times more likely to be violent during a subsequent follow-up than those who received more sessions. We obtained similar findings for patients who were classified as psychopathic. The average odds ratio across follow-ups suggested that psychopathic patients who received 0–6 treatment sessions during a given follow-up

⁹For follow-up 3, 29% of PSY patients with 0–6 sessions were violent, compared with 10% who received at least 7 sessions. For follow-up 4, 27% of PSY patients with 0–6 sessions were violent, compared with 10% who received at least 7. For follow-up 5, 18% of PSY patients with 0–6 sessions were violent, compared with 0% who received at least 7.

were about 3.5 times more likely to be violent during a subsequent follow-up than those who received more treatment. Given that an odds ratio of 2 or greater generally indicates a “strong” relationship (Cohen, 1996; see also Farrington & Loeber, 2000), these results suggested that treatment involvement was at least moderately associated with reduced violence potential among patients with psychopathic traits and even psychopathy.

Controlling for the Effect of Nonrandom Assignment to Treatment

However, because this was an observational study without random assignment to treatment groups, simple posttreatment comparisons like those described previously could produce misleading results on the basis of selection bias. Patients who attended more treatment sessions could, on the average, have a lesser likelihood of new violence, regardless of the impact of treatment (Berk & Newton, 1985). These patients could have a more limited history of violence, less substance dependence, and an assortment of other background characteristics that rendered them both more likely to obtain frequent treatment and less likely to be violent.

Thus, propensity score analyses (Rosenbaum & Rubin, 1983, 1984; Rubin, 1997) were completed in an attempt to remove the effect of nonrandom assignment of study participants to treatment involvement groups in order to more accurately estimate treatment effects. This process involved two steps. First, the set of 17 clinical, demographic, and violence covariates of treatment involvement identified above (from among a pool of 133 variables, by means of both a theoretical, “top-down” approach and an empirical, “bottom-up” approach) was reduced into a single composite score for each case that modeled the treatment assignment process. This propensity score reflected the probability of the case attending seven or more treatment sessions, given the vector of observed covariates (Berk & Newton, 1985). Second, an estimate of the relationship between treatment and violence among psychopathic patients was conditioned on propensity scores.

Developing Propensity Scores

Propensity scores were computed by entering the 17 covariates in a stepwise logistic regression analyses to predict treatment group membership at follow-up 1, using an inclusion criterion of .10 (Rubin, 1997). The results of these analyses are shown in Table 2 to illustrate that the nature and signs of the predictors are consistent with available literature on treatment involvement (e.g., substance-related diagnoses are negatively associated with treatment involvement; Dobscha, Delucci, & Young, 1999; Matas, Staley, & Griffin, 1992). A test of the full model with all nine of its predictors against a constant-only model was significant, $\chi^2(9, N = 731) = 119.27, p = .000$, indicating that the set of predictors reliably distinguished the treatment involvement groups. Prediction success was fair, with an overall success rate of 70%. Thus, the coefficients presented in Table 2 were used to construct propensity scores that reflected each case's probability of receiving more treatment, given the set of covariates. The association between participants' propensity scores and treatment involvement was moderately strong ($\eta = 0.33$).

Table 2. Logistic Model for Treatment Assignment Process at Follow-Up 1

Variable	Coefficient (B) ^a	SE	Wald statistic
Proportion of social network that are mental health professionals***	2.29	.62	13.42
Educational level***	0.15	.04	13.87
Difficulty with activities of daily living**	0.08	.03	9.44
Age at first hospitalization**	0.03	.01	8.37
Drug-related diagnosis**	-0.53	.20	7.30
Alcohol-related diagnosis*	-0.35	.18	3.55
Depression diagnosis*	0.31	.18	3.15
Employment status (employed)*	0.40	.18	5.18
Race (White)*	0.47	.20	5.78

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

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

Reassessing the Association of Treatment Involvement With Psychopathic Patients' Subsequent Violence

Next, PPP patients' propensity scores were used as the sole covariate to obtain an unbiased estimate of the association of their treatment involvement with future violence. This was accomplished by completing a sequential logistic regression analysis on PPP patients' violence during follow-up 2 in which propensity scores were entered before treatment involvement during follow-up 1. There was a fair model fit on the basis of the propensity scores alone, $\chi^2(1, N = 119) = 4.96, p < .05$, which increased after the addition of treatment involvement, $\chi^2(2, N = 119) = 8.3, p < .01$. Comparison of the log-likelihood ratios for models with and without treatment involvement showed significant improvement in the prediction of PPP patients' violence with the addition of treatment involvement, $\chi^2(1, N = 119) = 3.31, p < .05$. Thus, even after controlling for the treatment assignment process, PPP patients who received more treatment during follow-up 1 were less likely to be violent during follow-up 2.

After controlling for propensity scores, the odds ratio for treatment involvement was 3.6. Although this ratio is smaller than the "zero-order" odds ratio of 4.8 reported in the first row of Table 1, it suggested that, after controlling for the effects of treatment assignment, PPP patients who received 0–6 treatment sessions during the first follow-up period were 3.6 times more likely to be violent during the second follow-up period than those who received more frequent sessions. Similar results were obtained when we repeated the above analyses for PPP patients' treatment involvement during follow-up 2 and violence during follow-up 3, and when we repeated all of these analyses with patients formally classified as psychopathic.

Is Some Treatment Better Than No Treatment for Psychopathic Patients?

To determine whether PPP patients who received *no treatment* (0 sessions) were also more likely to be violent in subsequent follow-up periods than PPP patients who received *little treatment* (1–6 sessions), the analyses above were modified and then repeated. First, propensity scores were calculated for any involvement (0/1) in treatment at follow-up 1. Then, a direct sequential logistic regression analysis was performed on PPP patients' violence during follow-up 2 in which these propensity

scores were entered before treatment receipt (0 sessions vs. 1–6 sessions) during follow-up 1. Comparison of the log-likelihood ratios for models with and without treatment receipt showed no improvement in the prediction of PPP patients' violence with the addition of treatment receipt, $\chi^2(1, N = 86) = 0.28, p = .60$. Thus, PPP patients who received little treatment during follow-up 1 were not less likely to be violent during follow-up 2 than those who received no treatment. In fact, the odds ratio for treatment receipt was only 0.7, substantially lower than the figures reported previously. Highly similar results were obtained for the remaining follow-up periods,¹⁰ which suggested that PPP patients were not significantly less likely to be violent when provided *little* treatment than when they were provided with *no* treatment.

Relation Between Psychopathic Traits and Treatment Response in the Larger Sample

Does Psychopathy Moderate the Effect of Treatment?

The above analyses suggested that, although psychopathic patients (PPP or PSY) who receive *little* treatment are no less likely to be involved in subsequent violence than those who receive *no* treatment, those who received *more* treatment sessions were less likely to be involved in subsequent violence than those who received *little or no* treatment. The next logical question was whether patients with psychopathic traits responded *less* positively to treatment than patients without such traits. To assess whether psychopathy moderated, or affected the strength of, the association of treatment involvement with future violence, we completed an analysis using the entire sample of patients.

Specifically, we performed a direct logistic regression analysis in which violence during follow-up 2 was the outcome, and the predictors of propensity scores, PCL:SV total scores, and treatment involvement at follow-up 1, were entered before the term of interest, the Psychopathy \times Treatment interaction (see Baron & Kenny, 1986). This analysis indicated that there was a good fit based on the main effects of the predictors alone, $\chi^2(3, N = 624) = 43.33, p < .001$, which increased little after the addition of the interaction term, $\chi^2(4, N = 624) = 45.09, p < .001$. Comparison of the log-likelihood ratios for models with and without the interaction term did *not* show significant improvement in the prediction of violence with the addition of the interaction term, $\chi^2(1, N = 624) = 1.76, p = .19$. This suggested that psychopathy did not significantly moderate the association of treatment involvement with subsequent violence. Similar results were found when these analyses were repeated using treatment involvement during follow-up 2 and violence during follow-up 3.

As explained previously, Hare et al. (2000) found that Factor 1 traits (e.g., callousness, manipulativeness), but not psychopathy per se, moderated the effect of treatment. To test this hypothesis, the above analysis was repeated after replacing

¹⁰One might attribute the lack of effect to potentially overlapping treatment receipt categories because 40% of those who were coded as receiving "no treatment" during follow-up 1 had received some limited treatment during that time (see above). However, similar results were obtained for the remaining follow-ups, in which 20% or fewer patients who were coded as receiving no treatment had received treatment earlier during a given 10-week period.

PCL:SV total scores with PCL:SV Part 1 scores. As before, comparison of the log-likelihood ratios for models with and without the interaction term did *not* show significant improvement in the prediction of violence with the addition of the treatment by Part 1 interaction, $\chi^2(1, N = 629) = 0.73, p = .39$. This suggested that even Part 1 traits of emotional detachment did not moderate the association between treatment involvement and subsequent violence.

*Does Treatment Predict Violence After Controlling for Covariates
That Include Psychopathy?*

Given that psychopathy did not significantly moderate the effect of treatment, a secondary issue of interest for the larger sample was whether treatment involvement had a strong association with violence after controlling for covariates of treatment involvement that included psychopathy. To address this issue, we performed a direct logistic regression analysis in which violence during follow-up 2 was the outcome, and the predictors of propensity scores, PCL:SV total scores, and treatment involvement at follow-up 1 were entered sequentially. As shown above, this model fit the data well, $\chi^2(3, N = 624) = 43.33, p < .001$. Of more interest is the fact that treatment involvement had a strong association with violence ($OR = 2.7$), even after controlling for the effects of a wide range of covariates *including psychopathy*. Thus, treatment involvement explained substantial variance in civil psychiatric patients' violence risk independent of substance abuse, psychopathy, and other factors that affected whether they obtained treatment.

DISCUSSION

This study apparently is the first to assess the relations among civil psychiatric patients' psychopathic traits, involvement in outpatient mental health treatment, and subsequent violence in the community. Although this study clearly must be replicated, its results are inconsistent with the prevailing notion that treatment is ineffective or even iatrogenic for psychopaths. Specifically, the results suggest that psychopathic civil psychiatric patients who receive more treatment sessions (seven or more) during a 10-week period are approximately three times less likely to be violent during a subsequent 10-week period than those who receive fewer (six or fewer) sessions. This remains the case even after controlling for a host of variables (e.g., substance abuse, race, employment status) that are associated with patients' treatment attendance. In fact, after controlling for the treatment assignment process, psychopathy (including Part 1 traits of emotional detachment) did not moderate the association of treatment involvement with patients' subsequent violence. Patients with psychopathic traits appeared as likely to benefit from *adequate* doses of treatment by becoming less violent as those without such traits.

These findings challenge our conception of psychopathy as an inalterable personality disorder that directly elevates violence risk and eviscerates treatment efforts. They are consistent with Salekin's preliminary meta-analytic finding that a range of interventions appear moderately successful for individuals with psychopathic traits,

with longer-lasting and more intensive treatments being significantly more effective (Salekin, 2002).

As the first study of whether PCL-defined psychopathy complicated the treatment of civil psychiatric patients, this study is exploratory. Nevertheless, it suggests several directions for a new generation of more methodologically sound research that may more specifically define the relations among treatment types, treatment intensity, and a broad range of outcomes for psychopathy. This new generation of research may also focus on the issue of whether there are variants of psychopathy that differ in their responsiveness to treatment.

Toward Identifying Optimal Treatments

Given preliminary challenges to “therapeutic pessimism” about psychopathy (Salekin, 2002), one of the chief tasks for this new generation of research will be to identify and refine the types of treatment that are most effective for psychopathy. This study’s limitations suggest several directions for the methods and goals of this research.

Design Progress: Randomized Controlled Trials

This study prospectively measured receipt of mental health services and subsequent involvement of violence, based on a sample of civil psychiatric patients. As explained previously, the essential results of this study were consistent across multiple modes of analyses, subsamples, and follow-up intervals. The results also remained unchanged when we applied a propensity score approach that significantly controlled for the effect of patients’ nonrandom assignment to treatment. Although this is the most appropriate approach for analyzing the results of nonexperimental research, propensity scores cannot control for unobserved variables that might be associated with the treatment assignment process. Our propensity scores imperfectly modeled the treatment assignment process (only 70% of cases were correctly classified). Thus, variables beyond the extensive set of demographic, historical, clinical, and violence covariates that propensity scores comprised may be associated with this assignment process. The only way of addressing this limitation is by conducting prospective, controlled research in which patients are *randomly* assigned to treatment conditions. Randomized controlled trials (RCTs) of treatment are difficult to complete in “real-world” settings, as evidenced by the fact that no PCL-based RCTs have been performed to date. Nevertheless, RCTs are among the best approaches for definitively answering key questions about causation, particularly when (as now) we are ready to go beyond exploring the effect of receiving general mental health services to identifying the efficacy and effectiveness of particular treatment programs.

Treatment Progress: Identifying the Most Effective Treatment Types

This study focused on the association between traditional outpatient mental health services and psychopathic patients’ subsequent violence. Our finding that sufficient doses of “treatment as usual” are associated with reduced violence potential for patients with psychopathic traits is notable. Nevertheless, the treatments studied

here were heterogenous. The next logical step is to determine the extent to which specific types of treatment are optimal for psychopathic patients.

This study suggests that treatment that focuses on reducing psychiatric symptoms may be effective with this group. In keeping with the high rates of comorbidity between personality disorders and Axis I disorders repeatedly found in other studies (see Pilkonis, 2001), only 3% of the psychopathic patients in this study had a primary diagnosis of personality disorder. Some 39% of psychopathic patients had a primary diagnosis of substance abuse, 28% of depressive disorder, and 26% of schizophrenia (15%) or bipolar disorder (11%). This suggests that specific forms of symptom-focused psychotherapy, psychotropic medication, and substance abuse programs are potentially of great interest for their effects on patients with psychopathy. These treatments were aggregated in this study, but may be differentially effective in addressing psychopaths' affective, substance abuse, and other Axis I symptoms.

Arguably, treatments that focus more directly on problematic personality traits and recidivism are of even greater interest for psychopathic patients. Harkness and Lilienfeld (1997) have argued cogently that treatment efforts with personality disordered individuals should be based on the current state of the science in personality psychology, including behavior genetics. They believe that treatment efforts should be matched to personality and should focus on changing patients' *characteristic adaptations* or more experience-based schemas, attitudes, and skills rather than their *basic tendencies*, or temperament that may be more difficult to change (see also McCrae & Costa, 1996). These principles are compatible (and could be combined) with our increasing understanding of treatment components that are likely to reduce recidivism among offenders (Andrews & Bonta, 1998; Andrews, Bonta, & Hoge, 1990; Andrews, Zinger, et al., 1990; Gendreau, 1996). These components include, for example, addressing criminogenic needs or causal dynamic risk factors for violence (Kraemer, Kazdin, Offord, & Kessler, 1999), some of which may be construed as characteristic adaptations (e.g., antisocial attitudes). Programs that tailor empirically supported treatment principles to individuals with psychopathic traits have yet to be tested (see Wong, 2000; Wong & Hare, in press). Given the effect of the basic frequency of receiving mental health services suggested in this study, there may be the potential for detecting stronger effects with appropriately targeted treatment programs for psychopathic patients (but see, e.g., Luborsky, 1995; Project Match Research Group, 1998).

Measurement Progress

The measure of treatment involvement used in this study was based on patient self-report, in part because collateral informants' reports provided little additional information. Nevertheless, we recommend that future research rely upon more intensive measures of treatment involvement (see, e.g., Swartz, Swanson, Wagner, Burns, & Hiday, 2001). With respect to measures of outcome, our focus was on a single outcome for psychopaths, that is, involvement in subsequent violence in the community. Although this is an outcome of great concern to clinicians and policymakers, it is a global one. Future research must determine whether psychopaths also make greater clinical gains, in terms of symptom reduction (Axes I and II), improvement in functioning, and satisfaction, when they receive higher doses of treatments.

An equally important goal is to determine whether these clinical gains are related to reductions in violence.

Are There More Treatment-Responsive Variants of Psychopathy?

In addition to conducting more methodologically sound investigations to identify the “active ingredients” of treatment for psychopathy, future research may also investigate whether there are variants of psychopathy that are more responsive to treatment. One of the most obvious differences between this study and the bulk of past research is in the populations studied. This was a study of civil psychiatric outpatients, whereas virtually all past research was conducted with various incarcerated offender samples. If future research identifies differences in the effectiveness of treatment for psychopathic patients and offenders, one might hypothesize that this was based on differences in the symptoms or traits of these populations.

First, patients may experience psychiatric disorders that are less chronic and more responsive to treatment than offenders, regardless of the influence of psychopathy. This seems unlikely given, for example, that the rate of psychosis among patients in this study was similar to that found among mentally disordered offenders in past research that produced opposite results (e.g., Rice et al., 1992). Second, there may be within-group heterogeneity in traits of psychopathy between patients and offenders. For example, patients may have fewer Part 1 traits like callousness, manipulateness, superficial charm, and pathological lying than offenders, which renders patients better able to profit from treatment. Part 1 or Factor 1 traits may be viewed as particularly poor prognostic signs for treatment engagement and outcome. In fact, iatrogenic treatment responses are often explained by noting that some traditional treatments risk helping “psychopaths to develop better ways of manipulating, deceiving, and using people” (Hare et al., 2000, p. 630; see also Harris et al., 1994; Wong, 2000).

Although civil patients may have fewer Part 1 traits than may offenders, there is little evidence that they do. In this sample, the full range of Part 1 scores was represented and the average Part 1 score was highly consistent with that obtained in other samples of civil psychiatric patients (Douglas, Ogloff, Nicholls, & Grant, 1999; Hart et al., 1995). Although descriptive statistics for the PCL:SV indicate that civil psychiatric patients do tend to obtain lower average total and part scores than offenders, both populations obtain higher average Part 2 scores than Part 1 scores (Hart et al., 1995). This suggests that patients do not obtain *selectively* lower Part 1 scores than offenders.

Rather than having fewer Part 1 traits per se, psychopathic patients may be more likely than psychopathic offenders to manifest a variant of psychopathy. Several theorists (Blackburn, 1998; Mealey, 1995a, 1995b; Porter, 1996) have hypothesized the existence of a “secondary psychopath” that shares many traits with the Cleckleyan or primary psychopath, but, based on differences in etiological pathways, is more responsive to traditional treatment (for a review, see Skeem, Poythress, Edens, Lilienfeld, & Cale, in press). For example, according to Karpman’s seminal theory (Karpman, 1941), secondary psychopaths were capable of responding to psychotherapy because their affective deficits and hostile behavior were part of a character

disorder that was traceable chiefly to environmental causes. In contrast, the primary psychopaths' symptoms were more strongly based on constitutional deficits and they did not possess "the original capacity to absorb the elements of moral and ethical training" (Karpman, 1948, p. 458).

One of the key dimensions thought relevant to discriminating between primary and secondary variants of psychopathy is trait anxiety. Despite the assumption that primary "psychopaths are very sharply characterized by a lack of anxiety" (Cleckley, 1964, p. 271), there is evidence that the Hare PCL-R identifies both "high anxiety" and "low anxiety" psychopaths, and that these psychopathic groups differ in their emotional responsiveness and information processing (Kosson & Newman, 1995; Kosson, Smith, & Newman, 1990; see also Fagan & Lira, 1980; Goldman, Lindner, Dinitz, & Allen, 1971). In this sample, there was no significant relation between PCL:SV and Revised NEO Personality Inventory (Costa & McCrae, 1992) Neuroticism Scale scores ($r = .04$, $p = .21$). This is consistent with Schmitt and Newman's (Schmitt & Newman, 1999; cf. Lynam, 2002) finding that nine measures of anxiety, neuroticism, and fear bore no relation to PCL-R scores in a sample of over 200 offenders. This suggests that the PCL measures may identify both primary and secondary psychopathy in civil as well as offender samples. However, it remains for future research to determine (a) whether the PCL measures identify a greater proportion of secondary or "high anxious" psychopaths in psychiatric than in offender samples, and (b) whether greater anxiety or neuroticism mediates psychopaths' response to treatment. To the extent that legal professionals identify accurately "bad actors" who are more difficult to treat, we would expect to find more primary psychopaths in correctional settings and more secondary psychopaths in traditional treatment settings (see Ishikawa, 2000).¹¹ Again, this is an issue open to future research.

Conclusion and Implications: Treating the Psychopathic Patient

This study suggests that civil psychiatric patients who score highly on the PCL:SV may become less violent after receiving adequate doses of outpatient mental health services. If the results of this single study are replicated, this finding has several implications for policy and practice. Psychopaths typically are viewed as incurable cases that should be identified and appropriately controlled whereas scarce clinical resources are diverted to more treatable individuals. However, it is possible that concentrating treatment resources on the high-risk group of patients with psychopathic traits may be *maximally* efficient in terms of violence reduction. Some 8% of psychopathic patients in this study who received seven or more treatment sessions during the first 10 weeks after hospital discharge were violent during the 10 subsequent weeks, whereas 24% of psychopathic patients who received six or fewer sessions were violent. For comparison purposes, in the larger sample, 3% of patients who attended seven or more sessions during the first follow-up period were violent during the second follow-up, compared to 12% of patients who attended six or fewer sessions (Monahan et al., 2001). If psychopathy is associated with greater violence potential

¹¹If primary psychopaths are found more often in correctional settings, this study's sample may include few primary psychopaths because patients who were incarcerated (or hospitalized) during a given follow-up were excluded from relevant analyses.

but does *not* moderate the effect of treatment, treating a psychopathic patient could prevent substantially more violent incidents than treating a nonpsychopathic patient. This is a key hypothesis to test in future research.

The psychopathic patient, however, may require more frequent sessions than may the nonpsychopathic patient. In this study, there appeared to be a dose–response effect, such that psychopathic patients who received few sessions (1–6) during a follow-up were no less likely to be violent during a subsequent follow-up than those who received *no* treatment. This was not the case in the larger sample (Monahan et al., 2001), where patients who received few sessions were less likely to be subsequently violent than those who received no treatment. This dose–response effect is consistent with a body of literature that indicates that “patients with comorbid Axes I and II disorders are more impaired and require more intensive and extensive treatment” (Blackburn, 2000, p. 11) than patients with only Axis I disorders. For example, Howard and his colleagues have found that personality disordered patients improve at a slower rate and require more intensive treatment than do neurotic patients (Howard, Kopta, Krause, & Orlinsky, 1986; Kopta, Howard, Lowry, & Beutler, 1994). Similar results have been found in studies of juvenile and adult offenders (see Dolan, 1998; Lipsey, 1995; see also Salekin, 2002). Thus, future treatment efforts and research may focus on adapting state-of-the-art treatment models for chronic illnesses and determining “dosage” guidelines for psychopathic patients (Pilkonis, 2001).

In the correctional treatment literature, the principle that higher risk individuals require more intensive treatment services to reduce recidivism is not a new one (Andrews, Bonta, et al., 1990), and has recently found support even in community-based settings (Bonta, Wallace-Capretta, & Rooney, 2000). This stream of literature rarely intersects with that on treatment and psychopathy. If replicated, our finding that psychopathic patients tend to become less violent after receiving adequate doses of treatment suggests that psychopathic patients might be appropriately reconceptualized as high-risk cases in need of intensive services. The optimal types and dosages of these services and the range of psychopathic individuals for whom they may be effective are open questions for future research.

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REFERENCES

- Alterman, A., Rutherford, M., Cacciola, J., McKay, J., & Boardman, C. (1998). Prediction of 7 months methadone maintenance treatment response by four measures of antisociality. *Drug and Alcohol Dependence, 49*, 217–223.

- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Andrews, D., & Bonta, J. (1998). *The psychology of criminal conduct* (2nd ed.). Cincinnati, OH: Anderson.
- Andrews, D., Bonta, J., & Hoge, R. (1990). Classification for effective rehabilitation: Rediscovering psychology. *Criminal Justice and Behavior, 17*, 19–52.
- Andrews, D., Zinger, I., Hoge, R., Bonta, J., Gendreau, P., & Cullen, F. (1990). Does correctional treatment work? A clinically relevant and psychologically informed meta-analysis. *Criminology, 28*, 369–472.
- Baron, R., & Kenny, D. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173–1182.
- Berk, R., & Newton, P. (1985). Does arrest really deter wife battery? An effort to replicate the findings of the Minneapolis spouse abuse experiment. *American Sociological Review, 50*, 253–262.
- Blackburn, R. (1993). Clinical programmes with psychopaths. In C. Hollin & K. Howells (Eds.), *Clinical approaches to the mentally disordered offender* (pp. 179–208). Chichester, UK: Wiley.
- Blackburn, R. (1998). Psychopathy and personality disorder: Implications of interpersonal theory. In D. Cooke, A. Forth, & R. Hare (Eds.), *Psychopathy: Theory, research and implications for society*. (pp. 269–301). Netherlands: Kluwer Academic.
- Blackburn, R. (2000). Treatment or incapacitation? Implications of research on personality disorders for the management of dangerous offenders. *Legal and Criminological Psychology, 5*, 1–21.
- Bonta, J., Wallace-Capretta, S., & Rooney, J. (2000). A quasi-experimental evaluation of an intensive rehabilitation supervision program. *Criminal Justice and Behavior, 27*, 312–329.
- Cicchetti, D. V., & Sparrow, S. A. (1981). Developing criteria for establishing interrater reliability of specific items: Applications to assessment of adaptive behavior. *American Journal of Mental Deficiency, 86*, 127–137.
- Cleckley, H. (1941). *The mask of sanity*. St. Louis, MO: Mosby.
- Cleckley, H. (1964). *The mask of sanity* (4th ed.). St. Louis, MO: Mosby.
- Cohen, M. (1992). A power primer. *Psychological Bulletin, 112*, 155–159.
- Cohen, P. (1996). Childhood risks for young adult symptoms of personality disorder: Method and substance. *Multivariate Behavioural Research, 31*, 121–148.
- Cooke, D. (1997). The Barlinnie Special Unit: The rise and fall of a therapeutic experiment. In E. Cullen, L. Jones, & R. Woodward (Eds.), *Therapeutic communities for offenders*, (pp. 101–120). Chichester, UK: Wiley.
- Cooke, T., & Campbell, D. (1979). *Quasi-experimentation: Design and analysis issues for field settings*. Chicago: Rand McNally.
- Copas, J., O'Brien, M., Roberts, J., & Whiteley, J. (1984). Treatment outcome in personality disorder: The effect of social, psychological and behavioural variables. *Personality and Individual Differences, 5*, 565–573.
- Costa, P., & McCrae, R. (1992). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEOFFI) professional manual*. Odessa, FL: Psychological Assessment Resources.
- Dobscha, S., Delucci, K., & Young, M. (1999). Adherence with referrals for outpatient follow-up from a VA psychiatric emergency room. *Community Mental Health Journal, 35*, 451–458.
- Dolan, B. (1998). Therapeutic community treatment for severe personality disorders. In T. Millon, E. Simonsen, M. Birket-Smith, & R. D. Davis (Eds.), *Psychopathy: Antisocial, criminal, and violent behavior* (pp. 407–430). New York: Guilford.
- Dolan, B., & Coid, J. (1993). *Psychopathic and antisocial personality disorders: Treatment and research issues*. London: Gaskell.
- Douglas, K., Ogloff, J., Nicholls, T., & Grant, I. (1999). Assessing risk for violence among psychiatric patients: The HCR-20 Violence Risk Assessment Scheme and the Psychopathy Checklist: Screening Version. *Journal of Consulting and Clinical Psychology, 67*, 917–930.
- Estroff, S., & Zimmer, C. (1994). Social networks, social support, and violence among persons with severe, persistent mental illness. In J. Monahan & H. Steadman (Eds.), *Violence and mental disorder*. Chicago: University of Chicago Press.
- Fagan, T., & Lira, F. (1980). The primary and secondary sociopathic personality: Differences in frequency and severity of antisocial behaviors. *Journal of Abnormal Psychology, 89*, 493–496.
- Farrington, D., & Loeber, R. (2000). Some benefits of dichotomization in psychiatric and criminological research. *Criminal Behaviour and Mental Health, 10*, 100–122.
- Gacono, C., Nieberding, R., Owen, A., Rubel, J., & Bodholdt, R. (1997). Treating conduct disorder, antisocial, and psychopathic personalities. In J. Ashford & B. Sales (Eds.), *Treating adult and juvenile offenders with special needs* (pp. 99–129). Washington, DC: American Psychological Association.
- Garfield, S. (1994). Research on client variables in psychotherapy. In A. Bergin & S. Garfield (Eds.), *Handbook of psychotherapy and behavior change* (4th ed., pp. 190–228). New York: Wiley.

- Garrido, V., Esteban, C., & Molero, C. (1995). The effectiveness in the treatment of psychopathy: A meta-analysis. *Issues in Criminological and Legal Psychology, 24*, 57–59.
- Gendreau, P. (1996). The principles of effective intervention with offenders. In A. Harland (Ed.), *Choosing correctional options that work* (pp. 117–130). Thousand Oaks, CA: Sage.
- Gendreau, P., Little, T., & Goggin, C. (1996). A meta-analysis of the predictors of adult offender recidivism: What works! *Criminology, 34*, 575–607.
- Goldman, H., Lindner, L., Dinitz, S., & Allen, H. (1971). The simple sociopath: Physiologic and sociologic characteristics. *Biological Psychiatry, 3*, 77–83.
- Gretton, H., McBride, M., Hare, R., & O'Shaughnessy, R. (2000, November). *Psychopathy and recidivism in adolescent offenders: A ten-year follow-up*. Paper presented at the annual meeting of the Association for the Treatment of Sexual Abusers, San Diego, CA.
- Hare, R. (1991). *The Hare Psychopathy Checklist—Revised*. Toronto: Multi-Health Systems.
- Hare, R. (1993). *Without conscience: The disturbing world of the psychopaths among us*. New York: Guilford.
- Hare, R., Clark, D., Grann, M., & Thornton, D. (2000). Psychopathy and the predictive validity of the PCL-R: An international perspective. *Behavioral Sciences and the Law, 18*, 623–645.
- Harkness, A., & Lilienfeld, S. (1997). Individual differences science for treatment planning: Personality traits. *Psychological Assessment, 9*, 349–360.
- Harris, G., Rice, M., & Cormier, C. (1991). Psychopathy and violent recidivism. *Law and Human Behavior, 15*, 625–637.
- Harris, G., Rice, M., & Cormier, C. (1994). Psychopaths: Is a therapeutic community therapeutic? *Therapeutic Communities, 15*, 283–299.
- Hart, S., Cox, D., & Hare, R. (1995). *Manual for the Psychopathy Checklist: Screening Version (PCL:SV)*. Toronto: Multi-Health Systems.
- Hart, S., & Hare, R. (1997). Psychopathy: Assessment and association with criminal conduct. In D. Stoff, J. Breiling, & J. Maser (Eds.), *Handbook of antisocial behavior* (pp. 22–35). New York: Wiley.
- Heilbrun, K., Bennett, W., Evans, J., Offutt, R., Reiff, H., & White, A. (1988). Assessing treatability in mentally disordered offenders: A conceptual and methodological note. *Behavioral Sciences & the Law, 6*, 479–486.
- Heilbrun, K., Bennett, W., Evans, J., Offutt, R., Reiff, H., & White, A. (1992). Assessing treatability in mentally disordered offenders: Strategies for improving reliability. *Forensic Reports, 5*, 85–96.
- Heilbrun, K., Hart, S., Hare, R., Gustafson, D., Nunez, C., & White, A. (1998). Inpatient and postdischarge aggression in mentally disordered offenders: The role of psychopathy. *Journal of Interpersonal Violence, 13*, 514–527.
- Hemphill, J., & Wong, S. (1992, March). *Recidivism rates of criminal psychopaths after treatment*. Paper presented at the biennial meeting of the American Psychology–Law Society, San Diego, CA.
- Henry, W., Strupp, H., Schacht, T., & Gaston, L. (1994). Psychodynamic approaches. In A. Bergin & S. Garfield (Eds.), *Handbook of psychotherapy and behavior change* (4th ed., pp. 467–508). New York: Wiley.
- Hobson, J., Shine, J., & Russell, R. (2000). How do psychopaths behave in a prison therapeutic community? *Psychology, Crime and Law, 6*, 139–154.
- Howard, K., Kopta, S., Krause, M., & Orlinsky, D. (1986). The dose–effect relationship in psychotherapy. *American Psychologist, 41*, 159–164.
- Ishikawa, S. (2000). Psychophysiological, neuropsychological, and psychosocial differences between psychopaths with and without a history of criminal conviction. *Dissertation Abstracts International, 61*(6-B), 3280. (University Microfilms No. AAI9973203)
- Janca, A., & Helzer, J. (1990). DSM III-R criteria checklist. *DIS Newsletter, 7*, 17.
- Karpman, B. (1941). On the need of separating psychopathy into two distinct clinical types: The symptomatic and the idiopathic. *Journal of Criminal Psychopathology, 3*, 112–137.
- Karpman, B. (1948). Conscience in the psychopath: Another version. *American Journal of Orthopsychiatry, 18*, 455–491.
- Karpman, B. (1946). Psychopathy in the scheme of human typology. *Journal of Nervous and Mental Disease, 103*, 276–288.
- Kernberg, O. (1998). The psychotherapeutic management of psychopathic, narcissistic, and paranoid transferences. In T. Millon, E. Simonsen, M. Birket-Smith, & R. D. Davis (Eds.), *Psychopathy: Antisocial, criminal, and violent behavior* (pp. 372–382). New York: Guilford.
- Kopta, S., Howard, K., Lowry, J., & Beutler, L. (1994). Patterns of symptomatic recovery in psychotherapy. *Journal of Consulting and Clinical Psychology, 62*, 1009–1016.
- Kosson, D., & Newman, J. (1995). An evaluation of Mealey's hypotheses based on psychopathy checklist-identified groups. *Behavioral and Brain Sciences, 18*, 562–563.

- Kosson, D., Smith, S., & Newman, J. (1990). Evaluating the construct validity of psychopathy in Black and White male inmates: Three preliminary studies. *Journal of Abnormal Psychology, 99*, 250–259.
- Kraemer, H., Kazdin, A., Offord, D., & Kessler, R. (1999). Coming to terms with the terms of risk. *Archives of General Psychiatry, 54*, 337–343.
- Kristiansson, M. (1995). Incurable psychopaths? *Bulletin of the American Academy of Psychiatry and Law, 23*, 555–562.
- Lambert, M., & Bergin, A. (1994). The effectiveness of psychotherapy. In A. Bergin & S. Garfield (Eds.), *Handbook of psychotherapy and behavior change* (4th ed., pp. 143–189). New York: Wiley.
- Lidz, C. W., Mulvey, E. P., & Gardner, W. (1993). The accuracy of predictions of violence to others. *JAMA, 269*(8), 1007–1011.
- Lilienfeld, S. (1998). Methodological advances and developments in the assessment of psychopathy. *Behaviour Research and Therapy, 36*, 99–125.
- Lipsley, M. (1995). What do we learn from 400 research studies on the effectiveness of treatment for juvenile delinquents? In J. McGuire (Ed.), *What works: Reducing reoffending: Guidelines From research and practice* (pp. 63–78). Chichester, UK: Wiley.
- Loranger, A., Lezenweger, M., Gartner, M., Susman, A., Herzig, J., Zammit, G., et al. (1991). Trait-state artifacts and the diagnosis of personality disorders. *Archives of General Psychiatry, 48*, 720–728.
- Lösel, F. (1995). Management of psychopaths. *Issues in Criminological and Legal Psychology, 24*, 100–106.
- Lösel, F. (1998). Treatment and management of psychopaths. In D. Cooke, A. Forth, & R. Hare (Eds.), *Psychopathy: Theory, research, and implications for society* (pp. 303–354). Dordrecht, The Netherlands: Kluwer.
- Luborsky, L. (1995). Are common factors across different psychotherapies the main explanation for the Dodo Bird verdict that “Everyone has won so all shall have prizes”? *Clinical Psychology: Science and Practice, 2*, 106–109.
- Lynam, D. (2002). Psychopathy from the perspective of the five-factor model of personality. In P. Costa & T. Widiger (Eds.), *Personality disorders and the five-factor model of personality* (2nd ed.). Washington, DC: American Psychological Association.
- Matas, M., Staley, D., & Griffin, W. (1992). A profile of the noncompliant patient: A thirty-month review of outpatient psychiatry referrals. *General Hospital Psychiatry, 14*, 124–130.
- McCrae, R., & Costa, P. (1996). Toward a new generation of personality theories: Theoretical contexts for the five-factor model. In J. Wiggins (Ed.), *The five-factor model of personality: Theoretical perspectives* (pp. 51–87). New York: Guilford.
- Mealey, L. (1995a). The sociobiology of sociopathy: An integrated evolutionary model. *Behavioral and Brain Sciences, 18*, 523–599.
- Mealey, L. (1995b). Primary sociopathy (psychopathy) is a type, secondary is not. *Behavioral and Brain Sciences, 18*, 579–599.
- Monahan, J., Steadman, H., Silver, E., Appelbaum, P., Robbins, P., Mulvey, E., et al. (2001). *Rethinking risk assessment: The MacArthur study of mental disorder and violence*. New York: Oxford University Press.
- Mulloy, R., McHattie, L., & Smiley, W. C. (1998, October). *A follow-up of treated psychopathic and non-psychopathic sex offenders*. Paper presented at the annual meeting of the Association for the Treatment of Sexual Abusers, Vancouver, Canada.
- Mulloy, R., Smiley, W., & Mawson, D. (1996). The impact of empathy training on offender treatment. *Forum on Corrections Research, 11*, 15–18.
- Newman, J. (1998). Psychopathic behavior: An information processing perspective. In D. Cooke, A. Forth, & R. Hare (Eds.), *Psychopathy: Theory, research, and implications for society* (pp. 81–104). Boston: Kluwer Academic.
- Norcross, J., Prochaska, J., & Farber, J. (1993). Psychologists conducting psychotherapy: New findings and historical comparisons on the psychotherapy division membership. *Psychotherapy, 30*, 692–697.
- Ogloff, J., Wong, S., & Greenwood, A. (1990). Treating criminal psychopaths in a therapeutic community program. *Behavioral Sciences and the Law, 8*, 181–190.
- Overall, J., & Gorham, D. (1962). The Brief Psychiatric Rating Scale. *Psychological Reports, 10*, 799–812.
- Patrick, C., Bradley, M., & Lang, P. (1993). Emotion in the criminal psychopath: Startle reflex modulation. *Journal of Abnormal Psychology, 102*, 82–92.
- Pilkonis, P. (2001). Treatment of personality disorders in association with symptom disorders. In J. Livesley (Ed.), *Handbook of personality disorders: Theory, research, and treatment* (pp. 541–554). New York: Guilford.
- Pilkonis, P., & Frank, E. (1988). Personality pathology in recurrent depression: Nature, prevalence, and relationship to treatment response. *American Journal of Psychiatry, 145*, 435–441.
- Porter, S. (1996). Without conscience or without active conscience? The etiology of psychopathy revisited. *Aggression and Violent Behavior, 1*, 179–189.

- Project Match Research Group. (1998). Matching alcoholism treatments to client heterogeneity: Project MATCH three-year drinking outcomes. *Alcoholism: Clinical and Experimental Research*, 22, 1300–1311.
- Regier, D., Narrow, W., Rae, D., Manderscheid, R., Locke, B., & Goodwin, F. (1993). The de Facto US mental and addictive disorders service system: Epidemiologic Catchment Area prospective 1-year prevalence rates of disorders and services. *Archives of General Psychiatry*, 50, 85–94.
- Reiss, D., Meuz, C., & Grubin, D. (2000). The effect of psychopathy on outcome in high security patients. *Journal of the American Academy of Psychiatry and Law*, 28, 309–314.
- Rice, M., Harris, G., & Cormier, C. (1992). An evaluation of a maximum security therapeutic community for psychopaths and other mentally disordered offenders. *Law and Human Behavior*, 16, 399–412.
- Rogers, R., & Webster, C. (1989). Assessing treatability in mentally disordered offenders. *Law and Human Behavior*, 13, 19–29.
- Rosenbaum, P., & Rubin, D. (1983). The central role of the propensity score in observational studies for causal effects. *Biometrika*, 70, 41–55.
- Rosenbaum, P., & Rubin, D. (1984). Reducing bias in observational studies using subclassification on the propensity score. *Journal of the American Statistical Association*, 79, 516–524.
- Rubin, D. (1997). Estimating causal effects from large data sets using propensity scores. *Annals of Internal Medicine*, 127, 757–763.
- Salekin, R. (2002). Psychopathy and therapeutic pessimism: Clinical lore or clinical reality? *Clinical Psychology Review*, 22, 79–112.
- Schmitt, W., & Newman, J. (1999). Are all psychopathic individuals low-anxious? *Journal of Abnormal Psychology*, 108, 353–358.
- Schwartz, M., Swanson, J., Wagner, R., Burns, B., & Hiday, V. (2001). Effects of involuntary outpatient commitment and depot antipsychotics on treatment adherence in persons with severe mental illness. *Journal of Nervous and Mental Disease*, 189, 583–592.
- Seto, M., & Barbaree, H. (1999). Psychopathy, treatment behavior, and sex offender recidivism. *Journal of Interpersonal Violence*, 14, 1235–1248.
- Shea, T., Widiger, T., & Klein, M. (1992). Comorbidity of personality disorders and depression: Implications for treatment. *Journal of Consulting and Clinical Psychology*, 60, 857–868.
- Skeem, J., & Mulvey, E. (2001). Psychopathy and community violence among civil psychiatric patients: Results from the MacArthur Violence Risk Assessment Study. *Journal of Consulting and Clinical Psychology*, 69, 358–374.
- Skeem, J., Mulvey, E., & Grisso, T. (in press). Applicability of Traditional and Revised Models of Psychopathy to the Psychopathy Checklist: Screening Version (PCL:SV). *Psychological Assessment*.
- Skeem, J., Poythress, N., Edens, J., Lilienfeld, S., & Cale, E. (in press). Psychopathic personality or personalities? Exploring potential variants of psychopathy and their implications for risk assessment. *Aggression and Violent Behavior*.
- Steadman, H. J., Mulvey, E. P., Monahan, J., Robbins, P. C., Appelbaum, P. S., Grisso, T., et al. (1998). Violence by people discharged from acute psychiatric inpatient facilities and by others in the same neighborhoods. *Archives of General Psychiatry*, 55, 393–401.
- Stone, M. (1993). Long-term outcome in personality disorders. *British Journal of Psychiatry*, 162, 299–313.
- Strauss, M., & Gelles, R. (1990). *Physical violence in American families*. Brunswick, NJ: Transaction.
- Swartz, M., Swanson, J., Wagner, H. R., Burns, B., & Hiday, V. (2001). Effects of involuntary outpatient commitment and depot antipsychotics on treatment adherence in persons with severe mental illness. *Journal of Nervous and Mental Disease*, 189, 583–592.
- Uebersax, J. (1987). Diversity of decision-making models and the measurement of interrater agreement. *Psychological Bulletin*, 101, 140–146.
- Vesselinov, R. (2000). [Statistical significance of the effect of treatment on future violence: Propensity score analysis.] Unpublished raw data.
- Warren, F. (1994). What do we mean by a “Therapeutic Community” for offenders? *Therapeutic Communities*, 15, 312–318.
- Widiger, T. A., & Corbitt, E. M. (1997). Comorbidity of antisocial personality disorder with other personality disorders. In D. M. Stoff, J. M. Breiling, & J. D. Maser, (Eds.), *Handbook of antisocial behavior* (pp. 75–82). New York: Wiley.
- Wong, S. (2000). Psychopathic offenders. In S. Hodgins & R. Muller-Isberner (Eds.), *Violence, crime and mentally disordered offenders: Concepts and methods for effective treatment and prevention* (pp. 87–112). New York: Wiley.
- Wong, S., & Hare, R. (2001). *Program guidelines for the institutional treatment of violent psychopathic offenders*. Toronto: Multi-Health Systems.