

Treatment Responsivity of Cocaine-Dependent Patients With Antisocial Personality Disorder to Cognitive–Behavioral and Contingency Management Interventions

Nena Messina, David Farabee, and Richard Rawson
University of California, Los Angeles

This study compared the efficacy of 2 approaches for the treatment of cocaine dependence among methadone-maintained patients with and without antisocial personality disorder (ASPD). Patients were randomly assigned to 4 study conditions: cognitive–behavioral treatment (CBT), contingency management (CM), CBT with CM, or methadone maintenance. The Structural Clinical Interview for Mental Disorders–IV was administered to 108 patients to assess ASPD. A 2-way analysis of variance showed that patients with ASPD were more likely to abstain from cocaine use during treatment than patients without ASPD. The strong treatment effect for ASPD patients was primarily due to the CM condition. Regression analyses showed that ASPD remained significantly related to CM treatment responsivity while controlling for other factors.

The essential feature of antisocial personality disorder (ASPD) is a pervasive pattern of disregard for the rights of others (*Diagnostic and Statistical Manual of Mental Disorders*, 4th ed.; *DSM–IV*; American Psychiatric Association, 1994). People with ASPD have minimal inhibitions about committing criminal acts, they have little or no fear of impending punishments, and they are often impulsive and aggressive (Davison & Neale, 1990). This disorder is also strongly associated with substance abuse, with about 40% to 50% of substance abusers meeting the criteria for ASPD (Messina, Wish, & Nemes, 1999; Tims, DeLeon, & Jainchill, 1994) and approximately 90% of persons diagnosed with ASPD being substance abusers (Gerstley, Alterman, McLellan, & Woody, 1990).

The recurring association among ASPD, substance abuse, and crime has led to a variety of treatment outcome evaluations for substance abusers with this disorder. In light of the prevalence of ASPD among substance-abusing populations, it became imperative that effective treatment strategies be identified. However, there is a widely held belief among treatment providers that persons with ASPD do not respond well to treatment as a direct result of the symptoms of their disorder (Abram, 1989; Evans & Sullivan, 1990; Forrest, 1992). This belief was substantiated by a frequently cited report that stated that, compared with other types of patients, antisocial opioid abusers responded poorly to both

routine drug abuse counseling and specialized psychotherapy (Woody, McLellan, Luborsky, & O'Brien, 1985).

However, results from more recent studies that have empirically assessed the relationship between ASPD and substance abuse treatment outcomes have not supported the previous findings regarding this disorder and treatment response (Brooner, Kidorf, King, & Stoller, 1998; Gil, Nolimal, & Crowley, 1992; Messina et al., 1999; Silverman et al., 1998). Gil et al. (1992) compared the treatment outcomes of 55 consecutively admitted methadone maintenance patients with ASPD (42%) and those without ASPD. Although the findings were limited by the small sample and ambiguous design, no significant differences were found between those with and those without ASPD on any 12-month outcome variable (e.g., treatment retention, urine-test results, therapy session attendance). It appeared that ASPD patients did as well as those without ASPD in a traditional methadone maintenance program. However, a lack of difference did not necessarily imply good treatment responsivity. The authors reported low overall retention in this sample of clients.

Valliant (1975) had previously speculated that structured behavioral programs with incentives for participation might produce the best results for antisocial opioid patients. Evans and Sullivan (1990) also stated that “[it] is highly unlikely that antisocials will develop genuine remorse and altruistic reasons for staying clean and sober. However, they may be interested if it will help them win at poker, make more money, or stay out of jail” (p. 104).

Brooner et al. (1998) directly tested Valliant’s hypothesis regarding the use of incentives. Forty opioid abusers with co-occurring ASPD were randomly assigned to an experimental treatment condition combining methadone maintenance (MM) and contingency management (CM) techniques (i.e., a structural behavioral intervention using rapid delivery of positive and negative contingencies) or a control condition (i.e., standard MM). In the experimental condition, take-home methadone doses and dose alterations were contingent on drug-free urine specimens and counseling session attendance. Preliminary findings did not reveal

Nena Messina, David Farabee, and Richard Rawson, Integrated Substance Abuse Programs, University of California, Los Angeles.

This project was supported by the National Institute on Drug Abuse Grant DA 094119. We are grateful to the staff and the patients at the Matrix Institute and the West Los Angeles Treatment Program for their participation. We thank Alice Huber, Christie Thomas, Vikas Gulati, Al Hasson, and Michael McCann for their assistance with the conduct of this study.

Correspondence concerning this article should be addressed to Nena Messina, Integrated Substance Abuse Programs, University of California, 11050 Santa Monica Boulevard, Suite 150, Los Angeles, California 90025. E-mail: nmessina@ucla.edu

significant differences between the groups, yet both groups showed marked reductions in heroin and cocaine use during the 17-week outcome evaluation. The authors contended that these findings were contrary not only to what is commonly thought about ASPD clients in traditional methadone treatment but also to what is commonly thought about ASPD clients in enhanced methadone (i.e., MM combined with CM) treatment programs as well. However, this study was limited by a small sample and by the absence of a non-ASPD control group.

Other CM approaches include giving vouchers that are exchangeable for goods and services in response to drug-free urine specimens. Silverman et al. (1998) compared the treatment responsiveness of 59 MM patients with ASPD (19%) and without ASPD who were participating in voucher-based cocaine abstinence reinforcement therapy. Patients were randomly assigned to one of two levels of voucher-based interventions or to a control group in which vouchers were given on a noncontingent basis. The authors found that both contingent interventions significantly increased abstinence from cocaine and opiates compared with the control group. Moreover, a diagnosis of ASPD was unrelated to treatment outcomes. However, the small sample size (and low prevalence of ASPD) may have rendered any differences in outcomes between substance abusers with ASPD and those without ASPD difficult to detect.

Another study explored the relationship of ASPD and treatment outcomes in therapeutic communities (TCs) with random assignment of (primarily cocaine dependent) respondents to two residential programs differing primarily in length (Messina et al., 1999). TCs often rely on cognitive-behavioral methods to change existing behavior patterns. Clients diagnosed as having ASPD ($n = 166$) were compared with 172 clients with no ASPD on three outcome measures. After controlling for relevant factors, clients with ASPD were as likely to complete treatment as other clients, and they exhibited the same patterns of reduced drug use and criminal activity as did non-ASPD clients.

The findings from these recent studies could indicate that ASPD is not a strong predictor of treatment nonresponsivity, as previously believed. The implications of these findings are important in light of the fact that substance abusers with ASPD are more likely than those without ASPD to engage in violent and serious criminal behaviors (Abram, 1989; Brooner, Schmidt, Felch, & Bigelow, 1992). However, the empirical literature assessing the relationship between ASPD and substance abuse treatment outcomes is lacking, and the existing research has been limited by small sample sizes, nonrandom designs, and/or the absence of an appropriate control group. The present study sought to examine the relationship between ASPD and substance abuse treatment responsivity by addressing these primary weaknesses of the literature.

This study compared the efficacy of two commonly used treatment approaches (cognitive-behavioral treatment [CBT] and CM) for the treatment of cocaine dependence among methadone-maintained patients with and without ASPD. The CBT strategies were based on social learning principles (e.g., Bandura, 1977). These techniques include a wide range of treatment strategies designed to prevent relapse to drug use. The primary focus of CBT is maintaining a habit-changing process. This process is twofold: to prevent the occurrence of initial lapses to drug use after one has embarked on a program of habit change and to prevent any lapse from escalating into total relapse (Marlatt & Gordon, 1985).

CM techniques are founded on principles of operant conditioning (Skinner, 1938). The CM techniques create systems of incentives and disincentives to motivate behavior change. Some positive incentive strategies include take-home methadone doses and cash incentives for drug-free urine specimens. One of the most promising applications of CBT and CM is in the area of cocaine abuse treatment. Cocaine abuse continues to be a serious public health problem and is an important factor in drug-related crime and violence (Everingham & Rydell, 1994). Moreover, cocaine abuse among methadone-maintained patients continues to be a serious challenge for treatment clinicians (Rawson, Obert, McCann, & Ling, 1991; Silverman, Chutuape, Bigelow, & Stitzer, 1999). Both CBT and CM have been shown to be effective in treating cocaine-dependent patients (Carroll, 1999; Carroll et al., 1994; Foote et al., 1994; Marlatt & Gordon, 1985; Silverman et al., 1996, 1998, 1999).

This study offers an opportunity to compare an information-based therapy (CBT) with a purely operant paradigm (CM) for producing desired behavior change among substance-abusing clients with co-occurring ASPD. Furthermore, this study assesses the relative efficacy of combining these interventions (CBT + CM) for reducing cocaine use among methadone-maintained patients with ASPD. As all patients were involved in a platform condition of MM, it was possible to use a study design in which three active cocaine treatment conditions (CBT, CM, and CBT + CM) were compared with a control condition in which patients receive no additional treatment for their cocaine disorder.

Because of the limited literature (both in number and design) regarding substance abuse treatment responsivity for ASPD patients, findings are somewhat difficult to interpret. It is possible that group differences within the MM studies have not been found because of the low power generated by the insufficient sample sizes. For example, it is likely that Brooner et al. (1998) would have found a significant difference between the ASPD patients in the experimental (CM) condition and the ASPD patients in the control condition had they used a larger sample. (By our calculations, their preliminary study generated a power of only .07, with an effect size of .15.) The ASPD patients in the CM condition had a larger number of drug-free urine specimens, on average, than did the ASPD patients in the control condition. Monetary incentives for cocaine abstinence could be a strong external motivator for patients with ASPD.

Monetary incentives combined with drug-relapse education and peer support (i.e., CBT) might prove to be a strong treatment intervention for codisordered patients. Therefore, we hypothesized that ASPD patients in the three treatment conditions (CBT, CM, CBT + CM) would have better treatment responsivity over the 16-week course of treatment than would ASPD patients in the control condition (i.e., MM only). Moreover, we hypothesized that there would be a cumulative treatment effect among ASPD patients over the course of treatment, with good performance in the CBT condition, better performance in the CM condition, and optimum performance in the CBT + CM condition:

$$(CBT) < (CM) < (CBT + CM).$$

Conversely, we hypothesized that the positive treatment effect of CM would decline for the ASPD patients once the incentive was removed (i.e., during the posttreatment outcome period). Because

it has been speculated that ASPD patients have little internal motivation, it is reasonable to hypothesize that they will be less likely to remain abstinent in the absence of external incentives. Because the available literature assessing the relationship between ASPD and treatment outcomes has been lacking, we also posed the more general research question: Is a diagnosis of ASPD a significant predictor of treatment outcomes?

Method

The data for this study are from the Behavioral/Cognitive Behavioral Trial for Cocaine Abuse Project, a treatment-outcome study for methadone-maintained, cocaine-dependent patients. The main treatment outcome report for this project can be found in Rawson et al. (2002). The current study focused on the ASPD diagnosis and its relation to treatment outcomes.

Patients

Study participants were volunteers from two licensed narcotic treatment programs in Los Angeles, California (Matrix Institute and West Los Angeles Treatment Program). To be eligible for the study, all candidates were required (a) to have been on MM treatment at one of the two clinics for a minimum of 90 days, (b) to meet *DSM-IV* criteria for cocaine dependence, and (c) to show evidence of cocaine use (cocaine-metabolite positive urine sample) during the month prior to study enrollment. Individuals were ineligible if they (a) were also dependent on alcohol or benzodiazepines to the point of requiring withdrawal medication, (b) had received specific treatment for cocaine in the previous 30 days, or (c) were court-mandated to treatment.

During a 30-month recruitment period, 120 individuals met study eligibility criteria, enrolled in the study, and were randomly assigned into one of the four study conditions (CBT, CM, CBT + CM, or MM).¹ At admission, slightly more than half (56%) of the sample was male, and the mean age was 43 years. With respect to race/ethnicity, the sample was 38% White, 31% African American, 28% Hispanic, and 6% other. The majority of patients (72%) had completed at least 12 years of school. A small percentage (15%) of the sample reported that they had steady employment over the past 3 years. Among the four conditions, none of the between-group differences in patient characteristics was statistically significant. Similar to the demographic profiles, self-reported prevalence of past-month drug and alcohol use did not vary significantly by study condition.

Procedures

Random assignment into one of the four study conditions (30 patients in each condition) took place following informed consent procedures and a 2-week baseline data collection period. Demographic and background information was captured using the Addiction Severity Index (McLellan et al., 1992). The Addiction Severity Index is a semistructured interview instrument used for both clinical and research purposes to determine service needs. It is a comprehensive instrument consisting of questions pertaining to demographics, employment, living situation, past and current health status, past and current drug use, past and current drug treatment history, past and current criminal and criminal justice involvement, and past and current mental health status and treatment.

The Structural Clinical Interview for Mental Disorders-IV (SCID-IV; First, Spitzer, Gibbon, & Williams, 1998) was administered during the first 30 days of study participation by a trained master's- or doctoral-level staff person to confirm the substance use diagnosis and to determine the presence of ASPD. The SCID-IV is a semistructured interview for making Axis I and Axis II diagnoses on the basis of *DSM-IV* criteria (Kranzler, Rounsaville, & Tennen, 1995). SCID-IV interviews were supervised and reviewed by a doctoral-level staff member. A total of 108 clients were

evaluated by the SCID-IV diagnostic interview and were the focus of this study (12 patients dropped out of treatment prior to administration of the SCID-IV). Forty-four percent of the target sample met the *DSM-IV* criteria for ASPD. The frequency of ASPD among the study patients was consistent with other reports on the psychiatric comorbidity among methadone-maintained individuals (Rounsaville, Eyre, Weissman, & Kleber, 1983; Seivewright & Daly, 1997).

Treatment Interventions

CBT procedures. The CBT procedure consisted of a total of 48 group sessions (3 per week for 16 weeks). Typical groups had 4 to 8 patients. Each group session was scheduled to be 90 min in duration, and the material for each session was provided in a workbook. Each workbook presented a concept or a brief written exercise that explained or illustrated an aspect of CBT. This method has been found in previous work by Rawson, Obert, McCann, Smith, and Scheffey (1989) to help stimulant users achieve and maintain abstinence. Many of the concepts were distilled from Marlatt and Gordon (1985) and/or were consistent with the National Institute on Drug Abuse manual on CBT (Carroll, 1999). Each session was led by a master's level therapist who had received 40–60 hr of supervised training in delivering the materials in a standardized manner. All sessions were audiotaped and reviewed by a counseling supervisor. Feedback was given to the therapist to shape and reinforce consistency.

The session format consisted of the topic being introduced by the staff member/group leader, the sheet being read aloud by the leader or a participant volunteer, and group members being given approximately 5 to 10 min to discuss the relevance of the topic to him- or herself. Those individuals who were unwilling to discuss the topic were allowed to sit and listen. At the end of the topic discussion (typically 45–60 min into the session), each individual was asked to discuss his or her drug use or nonuse over the previous time period since the last group meeting. The group leader and other group members verbally reinforced those reporting no use, less use, and/or the initiation of some new prosocial behavior. Finally, each member was asked to describe his or her behavioral plan for the time period leading up to the next session. Plans that included activities based on the cognitive-behavioral principles presented in the treatment groups received praise from the group leader and other members.

CM procedures. Patients in the CM-only condition were required to provide three urine samples per week and meet briefly (2–5 min) with the CM technician. The meetings with the CM technician covered four topics: (a) a review of the results of the urine test (tested immediately using enzyme multiplied immunoassay tests [EMIT]); (b) the delivery of the appropriate paper voucher certificate, if earned; (c) a discussion of how the voucher or accumulated voucher account could be redeemed; and (d) the delivery of the earned items when the vouchers were redeemed. On occasions when vouchers were earned, the CM technician provided praise and encouragement for successful performance. Patients who provided samples positive for stimulants (there were no contingencies for drug use other than stimulants) were not scolded or punished (other than the punishment of withholding the voucher).

The voucher value was based on an escalating schedule that was similar to that used in previous studies (Higgins et al., 1993, 1994). The initial

¹ Only four individuals volunteered for study participation in the first 60 days of recruitment. The two study clinics operated on a fee-for-service basis in which patients paid either \$140 (Matrix Clinic) or \$180 (West Los Angeles Clinic) per month for methadone maintenance treatment services. Only after a \$40 per month methadone program fee-reduction was offered as an incentive for study participation did study recruitment become adequate. Thus, the group of individuals who participated in this study can be characterized as having relatively low motivation to stop their cocaine use as defined by the requirement of a \$40 per month incentive to encourage study participation.

voucher value started at \$2.50 per stimulant-negative sample, increasing in value by \$1.25 with each successive negative sample, and with a \$10.00 bonus for three consecutive stimulant-negative samples. The maximum voucher value was \$46.25 per sample (excluding the \$10 bonus). Across the course of the entire 16 weeks, the maximum possible earning (48 consecutive stimulant-free samples) was \$1,277.50. Cash was never given to patients. As the voucher account increased in value as a result of stimulant-free urine samples, patients were encouraged to spend their savings on items that could support drug-free activities.

Patients in all study conditions received identical MM services. The average dose of methadone at baseline was 72 mg for the CBT group, 62 mg for the CM group, 68 mg for the CBT + CM group, and 71 mg for the MM-only group. Participation in the study had no effect on the nature of the MM treatment. There were very clear rules for the termination of patients from the study. Termination could be a result of (a) study completion (16 weeks); (b) missing two consecutive weekly data collection visits; or (c) missing either six consecutive CBT groups or six consecutive urine samples. Therefore, a consistent 2-week absence from protocol participation was the criterion for study termination across all study conditions.

Study Measures

The cocaine treatment intervention lasted 16 weeks for all conditions. Cocaine use, as measured by urinalysis, was the principal dependent measure during and after treatment. All study patients were required to give three urine samples per week throughout the 16-week study period and at each of the three follow-up interviews (at 17, 26, and 52 weeks, respectively). All samples were analyzed for metabolites of cocaine (benzoylecognine; BE) and methamphetamine. (Methamphetamine was included as a target along with cocaine to prevent stimulant switching; however, the frequency of methamphetamine use in this population was almost nonexistent. Hence, the study findings are specific to cocaine.) A 300 ng/ml urinary BE cutoff was used to define a positive sample. All samples were analyzed on-site using EMIT (SYVA) reagent test procedures. All samples were monitored (i.e., collected in bottles equipped with temperature strips, and the bathrooms where samples were collected did not have hot water to prevent tampering). In addition, approximately 33% of all samples were collected under observation. Observation of urine specimens was conducted on a random basis. All participants were breath alcohol tested at the time of the collection of each urine sample.

Follow-up urine specimens were analyzed for cocaine, methamphetamine, metabolites of illicit opiates, benzodiazepines, barbiturates, and cannabinoids. Ninety percent of the sample provided urine specimens at the 17-week follow-up, 83% provided specimens at the 26-week follow-up, and 83% provided specimens at the 52-week follow-up. There were no significant differences in follow-up rates between those with and those without ASPD across the four study conditions at any of the follow-up periods (percentages shown below).

17-week follow-up: non-ASPD CBT = 86%; ASPD CBT = 93%; non-ASPD CM = 92%; ASPD CM = 93%; non-ASPD CBT + CM = 89%; ASPD CBT + CM = 100%; non-ASPD control = 87%; ASPD control = 83%.

26-week follow-up: non-ASPD CBT = 79%; ASPD CBT = 93%; non-ASPD CM = 83%; ASPD CM = 87%; non-ASPD CBT + CM = 89%; ASPD CBT + CM = 86%; non-ASPD control = 73%; ASPD control = 75%.

52-week follow-up: non-ASPD CBT = 79%; ASPD CBT = 86%; non-ASPD CM = 75%; ASPD CM = 93%; non-ASPD CBT + CM = 95%; ASPD CBT + CM = 71%; non-ASPD control = 73%; ASPD control = 83%.

Data Analysis

The distribution of demographic and drug-use characteristics by ASPD status was evaluated using chi-square analysis and *t* tests. Similarly, the distribution of SCID-I and II (First et al., 1998) diagnoses across study conditions was evaluated by chi-square analysis. In-treatment cocaine use measures were analyzed using a two-way analysis of variance (ANOVA). To control for inflated alpha error, we conducted Tukey-Kramer's tests for all post hoc comparisons. In addition, a series of regression analyses were conducted to assess in-treatment cocaine use while we controlled for preexisting differences between those with and those without ASPD. To assess cocaine use following treatment, we conducted separate chi-square analyses for those with and those without ASPD at each of the follow-up time periods. All statistical tests were considered significant at $p \leq .05$ and were two-tailed.

Results

Demographic characteristics for ASPD and non-ASPD patients were similar across the four study conditions; however, small cell sizes limited reliable statistical inference. Although patients were randomly assigned to the study conditions, they were not randomly assigned by ASPD diagnosis. To further explore any pre-existing differences, we compared all ASPD patients with all non-ASPD patients with regard to their demographic and drug use characteristics.

Consistent with previous literature, patients diagnosed with ASPD were significantly more likely to be male (71% vs. 43%, $p < .01$) and to have less than a high school education (40% vs. 18%, $p < .05$) than non-ASPD patients (see Table 1). With regard to ethnicity, patients with ASPD were significantly more likely than non-ASPD patients to be Hispanic (48% vs. 17%, $p < .01$). No significant differences between those with and those without

Table 1
Sample Characteristics at Admission, by ASPD Status
($N = 108$)

Characteristic	No ASPD ($n = 60$)	ASPD ($n = 48$)	Total ($N = 108$)
Gender, %			
Male	43**	71**	56
Female	57	29	44
Race/ethnicity, %			
White	43	31	38
Black	40**	21**	31
Hispanic/other	17	48	31
Mean age at admission (years; <i>M</i> and <i>SD</i>)	43.7 (7.6)	43.5 (8.1)	43.0
Education			
Less than 12 years	18*	40*	28
High-school degree or more	82	60	72
Full-time employment for past 3 years, <i>n</i>	17	13	15
Study condition, %			
CBT	23	29	26
CM	20	31	25
CBT + CM	32	15	24
MM	25	25	25

Note. ASPD = antisocial personality disorder; CBT = cognitive-behavioral treatment; CM = contingency management; MM = methadone maintenance.

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

ASPD were found with regard to age or employment, and patients with ASPD were equally distributed among the study conditions.²

Table 2 displays the self-reported drug and alcohol use patterns by ASPD status during the 30 days prior to study admission. Those with ASPD were significantly more likely than non-ASPD patients to have used heroin (79% vs. 58%, $p < .05$) and other opiates (31% vs. 8%, $p < .01$) during this time period. No other substance-use differences were found. Cocaine (99%) and heroin (68%) were most likely to be used during the 30 days prior to study admission, followed by alcohol (58%), marijuana (29%), other opiates (18%), and amphetamines (6%).

Table 3 displays the prevalence of ASPD, substance use disorder, and other SCID-I psychiatric disorders by study condition. Only those diagnoses prevalent in more than 5% of the sample are shown. There were no significant differences among the four study conditions with regard to prevalence of psychiatric disorders. All participants met the criteria for substance use disorder and almost half (44%) had co-occurring ASPD. Of those evaluated by the SCID, 34% had no disorders other than substance use, 21% had substance use and other Axis I disorders,³ 24% had substance use with co-occurring ASPD, and 21% had substance use disorder, co-occurring ASPD, and other Axis I disorders.

In-Treatment Performance

Treatment retention. Treatment retention is frequently an important outcome indicator and is sometimes used as one measure of treatment efficacy. In this study, the value of treatment retention as a dependent measure was compromised by the necessity of reducing patients' monthly methadone program fees by \$40 to promote study enrollment. Therefore, not surprisingly, there was no significant difference in study retention for patients with and those without ASPD across study conditions. The average number of weeks in treatment for the ASPD group was 14.7 ($SD = 3.4$), ranging from 12 to 16. The average number of weeks in treatment for the non-ASPD group was 13.2 ($SD = 4.9$), ranging from 10 to 15 weeks.

Cocaine-abstinence during treatment. The primary dependent measure in this study was cocaine use as measured by urine toxicology. As retention in treatment was not significantly different for those with and without ASPD across study conditions, the most direct measure of cocaine use across the 16 weeks of the trial

was the number of cocaine-negative urine samples given by each participant during their 48 opportunities to give samples (3 times per week for 16 weeks). There were no significant differences between those with and those without ASPD across the four study conditions with regard to the rates of missing urines.

A two-way ANOVA was performed to determine differences in the mean number of cocaine-negative samples (CNS) provided by ASPD status and by study condition. The possibility of an interaction effect (ASPD Status \times Study Condition) was also explored. We initially asked whether ASPD would be a significant predictor of in-treatment responsiveness. There was a significant main effect for ASPD status. The mean number of CNS for patients with ASPD (CNS $M = 27.4$, $SD = 17.5$) was significantly higher than the mean number of CNS for those without ASPD (CNS $M = 20.5$, $SD = 19.4$), $F(1, 107) = 4.74$, $p < .05$, suggesting that ASPD patients performed better during the 16-week treatment course than non-ASPD patients. However, there was no interaction effect between ASPD status and study condition.

We also hypothesized that ASPD patients in the three cocaine treatment conditions (CBT, CM, CBT + CM) would have better outcomes than ASPD patients in the control condition (MM). This hypothesis was supported. Pairwise comparisons of the mean number of CNS indicated that ASPD patients in each of the treatment conditions had significantly higher scores than those in the control condition (CBT = 24.8; CM = 39.4; CBT + CM = 37.7 vs. MM = 9.3, $p < .05$). The same pattern was found among the study conditions for the non-ASPD group, but differences were not statistically significant (see Table 4).

The previous findings indicate that ASPD patients responded positively to the three cocaine treatment conditions; however, we also hypothesized a cumulative treatment effect for ASPD patients, with optimum performance in the CBT + CM condition (CBT < CM < CBT + CM). This hypothesis was not supported. Pairwise comparisons did show that the mean number of CNS for the ASPD patients in the CM condition was significantly higher than the mean number of CNS for the ASPD patients in the CBT-only condition (CBT = 24.8 vs. CM = 39.4, $p < .05$). However, no differences were found for the ASPD patients in the CBT + CM condition compared with the ASPD patients in the CM or CBT-only groups (shown in Table 4).

Moreover, ASPD patients in the CM condition performed significantly better than the non-ASPD CM patients (ASPD-CM CNS = 39.4 vs. non-ASPD-CM CNS = 25.5, $p < .05$). The CNS means were higher for ASPD patients in all of the other study conditions except MM, but differences were not significant (see Figure 1).

The above bivariate analyses, however, do not take into account pre-existing differences between those with and without ASPD that might be related to in-treatment performance. Initially, no demographic differences were found between those with and those without ASPD in any of the treatment conditions; however, when

Table 2
Self-Reported Drug/Alcohol Use 30 Days Prior to Admission, by ASPD Status ($N = 108$)

Substance	No ASPD ($n = 60$) %	ASPD ($n = 48$) %	Total ($N = 108$) %
Alcohol use	57	60	58
Alcohol use to intoxication	23	35	29
Marijuana	30	27	29
Heroin use	58*	79*	68
Other opiates	8**	31**	18
Cocaine use	100	98	99
Amphetamines	3	8	6

Note. ASPD = antisocial personality disorder.
* $p < .05$. ** $p < .01$.

² Comparisons of demographic characteristics of ASPD patients only across the four study conditions were also conducted. No significant differences were found with regard to age, gender, race/ethnicity, or high school education.

³ All analyses combine clients with substance use disorder only and those with other Axis I disorders into the non-ASPD group.

Table 3
SCID-I and II Diagnoses, by Study Condition (N = 108)

Diagnoses	CBT	CM	CBT + CM	MM	Total
	(n = 28) %	(n = 27) %	(n = 26) %	(n = 27) %	(N = 108) %
SCID-I					
Substance use disorder	100	100	100	100	100
Mood disorder	18	33	23	19	23
Anxiety disorder	18	37	27	19	25
SCID-II					
Antisocial personality disorder (ASPD)	50	56	27	44	44
All diagnoses					
Substance use disorder only	29	23	50	36	34
Substance use and other Axis I disorders	21	22	23	19	21
Substance use and ASPD	36	22	12	26	24
Substance use, ASPD, and other Axis I disorders	14	33	15	19	21

Note. Differences are not significant. *ns* vary slightly because of missing data. Only diagnoses prevalent in 5% or more of the sample are shown. SCID-I = Structural Clinical Interview for Mental Disorders—Axis I; SCID-II = SCID, Axis II; CBT = cognitive-behavioral treatment; CM = contingency management; MM = methadone management.

we compared all of the ASPD patients with all of the non-ASPD patients (see Tables 1 and 2), some pre-existing differences were evident (i.e., gender, race, high school education, and opiate use). Therefore, we decided to further explore the association of ASPD with CM treatment using multivariate analyses. Because the total number of patients in the CM condition fell below 30, we were limited in the number of independent variables (or predictors) that could be included in the multivariate analyses (Keppel, 1991). Thus, we conducted a series of regressions pairing ASPD with each of the above characteristics. In all of these pairings, a diagnosis of ASPD remained significantly related to the mean number of CNS ($p < .01$). We further confirmed the lack of an association of ASPD to in-treatment performance among the other study conditions (analyses not shown).

Posttreatment Performance

Cocaine urinalysis results for ASPD patients were obtained at each follow-up period. We hypothesized that the positive treatment effect of CM would decline for the ASPD patients once the

incentives were removed (i.e., no vouchers were given during the posttreatment outcome periods). However, ASPD patients in the CM conditions continued to abstain from cocaine use throughout the follow-up time periods. Figure 2 shows that ASPD patients in the CM-only condition were more likely than those in the other study conditions to have cocaine-free urine specimens at Weeks 17 and 26 (79% and 77%), showing a slight decline at Week 52 (71%). ASPD patients in the CBT + CM condition showed an increase in abstinence from cocaine over the three follow-up time periods, surpassing the CM-only patients at Week 52 (57%, 67%, and 80%, respectively).

ASPD patients in the CBT-only condition also showed an increase in cocaine abstinence over the follow-up time periods (54%, 62%, and 67%, respectively). Finally, few of the ASPD patients in the MM-only condition abstained from cocaine use, and abstinence declined at each follow-up time period (30%, 22%, and 20%, respectively). Most importantly, between 65% and 80% of the ASPD patients in the three treatment conditions were abstaining from cocaine use at the 52-week follow-up period, compared with 20% in the control condition ($p < .05$).

Table 4
Treatment Effectiveness Scores for In-Treatment Cocaine-Free Urine Samples, by Study Condition and ASPD Status

ASPD status	CBT		CM ^a		CBT + CM		MM	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
No ASPD								
CNS for cocaine	17.6 _a	17.9	25.5 _a	20.7	24.2 _a	21.1	14.5 _a	16.9
ASPD								
CNS for cocaine	24.8 _a	15.6	39.4 _b	11.4	37.7 _{a,b}	13.3	9.3 _c	11.3

Note. Subscripts represent the results of pairwise comparisons between study conditions; means that do not have a subscript in common are significantly different from each other ($p < .05$). ASPD = antisocial personality disorder; CBT = cognitive-behavioral treatment; CM = contingency management; MM = methadone maintenance; CNS = cocaine negative specimen.

^a The CM condition was the only condition with a significant difference between those with and without ASPD ($p < .05$).

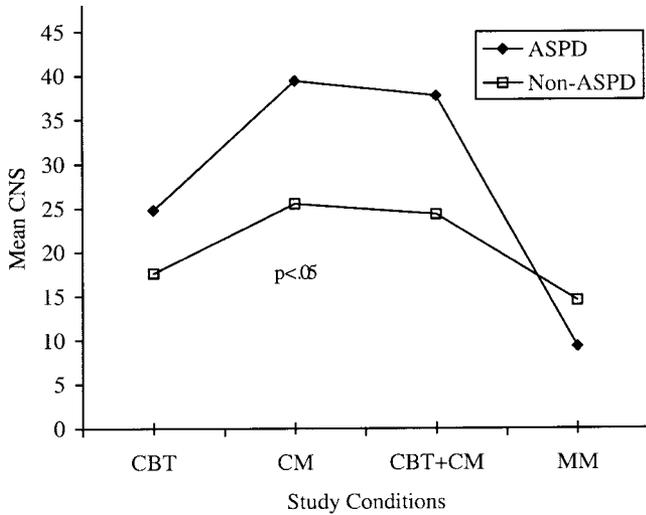


Figure 1. Cocaine-negative specimens (CNS) provided during treatment ($N = 108$). ASPD = antisocial personality disorder; CBT = cognitive-behavioral therapy; CM = contingency management; MM = methadone maintenance.

Cocaine Urinalysis Results for Non-ASPD Patients at Each Follow-Up Period

The rates of cocaine abstinence for the non-ASPD patients did not follow the same trends as those for the ASPD patients. Figure 3 shows that those in the CM-only condition were most likely to have cocaine-free urine specimens at Week 17, but abstinence declined substantially at 26 and 52 weeks (63%, 40%, and 44%, respectively). The same trend occurred for the CBT + CM group (53%, 41%, and 39%, respectively). Conversely, the CBT-only group showed substantial increases in abstinence over the follow-up time periods (33%, 64%, and 81%, respectively). The MM-only group was least likely to have a cocaine-free urine specimen at Week 17, substantially increased abstinence at Week 26, and declined abstinence at Week 52 (31%, 72%, and 55%, respectively). Overall, non-ASPD patients in the CM conditions were least likely to be abstinent from cocaine at the 52-week follow-up, whereas over 80% of those in the CBT-only condition

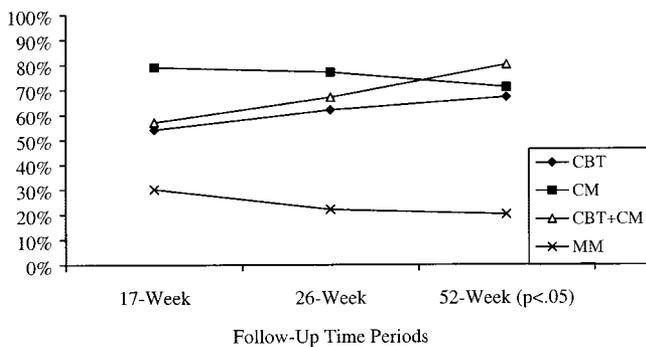


Figure 2. Cocaine-free urine specimens during follow-up: antisocial personality disorder patients. CBT = cognitive-behavioral therapy; CM = contingency management; MM = methadone maintenance.

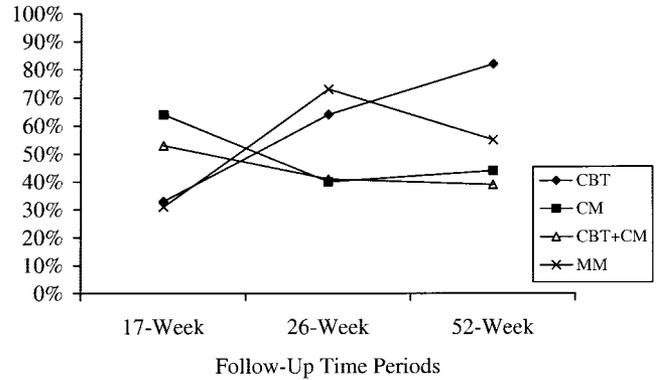


Figure 3. Cocaine-free urine specimens during follow-up: nonantisocial personality disorder patients. CBT = cognitive-behavioral therapy; CM = contingency management; MM = methadone maintenance.

were abstinent at the 52-week follow-up (differences are not significant).

To assess overall differences in posttreatment performance between those with and those without ASPD, we created a posttreatment responsivity measure that totaled the percentages of patients who had cocaine-free urine specimens at all three of the follow-up periods. Figure 4 shows the posttreatment results by study condition for those with and those without ASPD. Among non-ASPD patients, those in the CM condition were most likely to test negative for cocaine at each of the three follow-up time periods (30%), followed by the CBT-only condition (25%), the CBT + CM condition (22%), and the MM condition (18%). However, none of these differences were statistically significant.

In contrast, the ASPD patients in the three cocaine treatment conditions showed large differences in continued abstinence from cocaine compared with those in the control condition ($p < .05$). Over half of the ASPD patients in the CM-only condition had cocaine-free urine results at each follow-up interview (58%), fol-

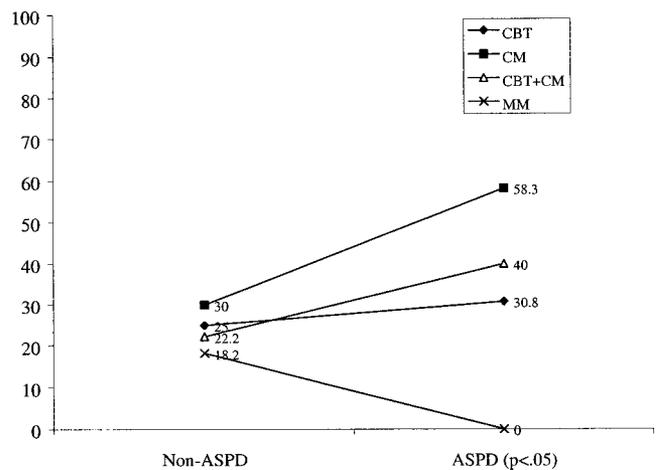


Figure 4. Percentage of cocaine-free urine specimens at all three follow-up periods ($n = 91$). ASPD = antisocial personality disorder; CBT = cognitive-behavioral therapy; CM = contingency management; MM = methadone maintenance.

lowed by those in the CBT + CM condition (40%), and those in the CBT-only condition (31%). None of the MM-only group had three consecutive cocaine-free urine results.

Discussion

Three major trends of in-treatment responsivity are evident. First, in contrast to previous findings (and beliefs), we found that a diagnosis of ASPD was significantly and positively related to treatment responsivity. Those with ASPD were more likely to abstain from cocaine use during treatment than those without ASPD. Second, ASPD patients in each of the treatment conditions performed significantly better than ASPD patients in the control condition, whereas no differences in performance by study condition were found for the non-ASPD patients. Third, the strong treatment effect for ASPD patients was primarily due to the CM condition. During the 16-week course of treatment, those in the CM condition were significantly more likely to abstain from cocaine use than those in the CBT-only condition. In contrast, abstinence levels in the combined treatment group (CBT + CM) fell between the CBT- and CM-only levels and did not differ significantly from either. Furthermore, ASPD patients in the CM condition were significantly more likely to abstain from cocaine use than non-ASPD patients in the CM condition, even after controlling for pre-existing differences.

As earlier theorists hypothesized (Evans & Sullivan, 1990; Valliant, 1975), monetary incentives appear to be a successful treatment intervention for reducing cocaine use among substance abusers with co-occurring ASPD and a more successful intervention for them than for those without ASPD. Furthermore, patients with ASPD responded significantly better to this type of intervention than ASPD patients in "talk-based therapy." The larger question, however, was whether the positive treatment effects of the CM intervention would continue beyond the course of treatment, once the incentive was removed.

Four major results are evident from our posttreatment outcomes. First, and contrary to our hypothesis, ASPD patients in the CM conditions continued to abstain from cocaine use throughout the three follow-up periods. Comparable to in-treatment findings, ASPD patients in the CM conditions maintained the highest levels of posttreatment cocaine abstinence. Second, ASPD patients in all three treatment conditions were more likely to abstain from cocaine use during follow-up than those in the control condition. Third, a clear pattern of posttreatment performance was not evident for the non-ASPD patients. Non-ASPD patients in the CM conditions appeared to do well at the first follow-up, but their performance declined substantially during the remaining follow-up periods. Non-ASPD patients in the MM-only condition were most likely to test negative for cocaine at the 26-week follow-up, and those in the CBT-only condition were most likely to test negative for cocaine at the 52-week follow-up. Fourth, ASPD patients in each of the treatment conditions were significantly more likely to test negative for cocaine at all three of the follow-up periods than those in the MM-only condition, whereas no differences were found for non-ASPD patients. Fifth, and most important, ASPD patients in the CM condition were twice as likely as non-ASPD patients in the CM condition to have negative urine test results for cocaine at all follow-up periods.

These findings provide a strong argument against the perception that substance abusers with ASPD are unresponsive to drug treatment. Consequently, these findings are important in light of treatment program exclusionary criteria and current public policy. Many substance abuse treatment programs across the nation exclude persons with ASPD on the assumption that they will not respond well to treatment efforts (Messina et al., 1999). Furthermore, a diagnosis of ASPD is among the exclusionary criteria for Maryland's newly constructed Public Mental Health System, and ASPD is the only personality diagnosis deemed untreatable within this system of health service delivery (Brooner et al., 1998). The results of the present study and other recent publications suggest that substance abusers with ASPD may be more responsive to treatment than previously believed.

The primary strength of our study was the study design. Random assignment of patients across study conditions created comparable groups. As a result, any differences between group performance tended to reflect the effect of the treatment intervention, rather than error variance (Bordens & Abbott, 1991). Random assignment also eliminated the issue of self-selection, which can be affected by such client attributes as personal motivation, perception of treatment modality, and treatment availability (Hser, 1995). In addition, the platform condition of methadone maintenance made it possible to use a study design with a true control condition.

Another strength of our study was the high prevalence rate of ASPD (45%), which is similar to other estimates of ASPD among methadone-maintained patients (ranging from 25% to 54%; Rounsaville et al., 1983). The high prevalence of this disorder within our sample allowed us to make comparisons of ASPD patients across study conditions, as well as between those with and those without ASPD. Thus, we were able to assess the treatment responsivity of ASPD patients in each treatment condition and compare their performance to those without ASPD.

The use of objective measures of drug use to assess treatment outcomes was an additional strength of this study. Self-reported drug use may be considerably less valid than previously reported (Messina, Wish, Nemes, & Wraight, 2000). For example, Wish, Hoffman, and Nemes (1997) found that among substance-abusing populations, clients were more likely to truthfully report heroin use than cocaine use. The authors further suggested that self-reports may be less valid at follow-up than at intake.

Some limitations of this study should also be kept in mind when interpreting the results. The primary limitation is the sample size. Although our study had a larger sample than previous research among methadone-maintained patients, our posttreatment comparisons were limited by small cell sizes due to the four treatment conditions. However, we were able to improve power as compared with our calculations for Brooner et al.'s (1998) study. (Power calculation for our study = .47, effect size = .37; power calculation for Brooner et al.'s study = .07, effect size = .15.)

Another limitation of this study (and others) is the existence of other psychiatric disorders among the sample. Patients with and without ASPD may have been diagnosed with various other psychiatric disorders. It is difficult to know the degree to which the various combinations of other disorders confounded the distinction between those with and those without ASPD or whether the presence of additional psychiatric disorders in patients with ASPD moderated the effect of the ASPD diagnosis on treatment response. However, recent findings from a large sample of methadone-

maintained patients ($N = 518$) demonstrated minor differences between patients with ASPD only and patients with ASPD and other psychiatric disorders (King, Kidorf, Stoller, Carter, & Brooner, 2001). ASPD-only patients exhibited higher rates of heroin use during treatment, whereas ASPD patients with additional disorders exhibited higher rates of benzodiazepine use. No differences between the two groups were found for cocaine use during treatment.

It should be noted that there is much controversy among social scientists and clinicians over the proper measurement of ASPD among substance abusers. Although social scientists most often use diagnostic interviews that follow *DSM-IV* criteria to assess ASPD (such as the SCID-II), many have raised concerns about possible limitations of the *DSM* (Messina, Wish, Hoffman, & Nemes, 2001). It has been suggested that the *DSM-IV* criteria for ASPD focus on behavioral characteristics instead of on underlying personality traits and do not require that ASPD occur independently of substance abuse (Gerstley et al., 1990). Rounsaville et al. (1983) suggested that clients whose antisocial activities are independent of the need to obtain drugs are "primary antisocial addicts," and those whose antisocial activities are directly related to drug use are "secondary antisocial addicts." The authors speculated that secondary antisocial addicts might have better treatment responses. If most of our sample members were secondary antisocial addicts, it could account for their more positive treatment outcomes.

References

- Abram, K. M. (1989). The effect of co-occurring disorders on criminal career: Interaction of antisocial personality, alcoholism, and drug disorders. *International Journal of Law and Psychiatry*, *12*, 133–148.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*, 191–215.
- Bordens, K., & Abbott, B. (1991). *Research design and methods: A process approach* (2nd ed.). Mountain View, CA: Mayfield Publishing.
- Brooner, R., Kidorf, M., King, V., & Stoller, K. (1998). Preliminary evidence of good treatment response in antisocial drug abusers. *Drug and Alcohol Dependence*, *49*, 249–260.
- Brooner, R., Schmidt, C., Felch, L., & Bigelow, G. (1992). Antisocial behavior of intravenous drug abusers: Implications for diagnosis of antisocial personality disorder. *American Journal of Psychiatry*, *149*, 482–487.
- Carroll, K. (Ed.). (1999). *A cognitive-behavioral approach: Treating cocaine addiction: Therapy Manuals for Drug Addiction*. Rockville, MD: National Institute on Drug Abuse, U.S. Department of Health and Human Services.
- Carroll, K. M., Rounsaville, B. J., Nich, C., Gordon, L. T., Wirtz, P. W., & Gawin, F. H. (1994). One year follow-up of psychotherapy and pharmacotherapy for cocaine dependence: Delayed emergence of psychotherapy effects. *Archives of General Psychiatry*, *51*, 989–997.
- Davidson, G. C., & Neale, J. M. (1990). *Abnormal psychology* (5th ed.). New York: Wiley.
- Evans, K., & Sullivan, J. (1990). *Dual diagnoses: Counseling mentally ill substance abusers*. New York: Guilford Press.
- Everingham, S., & Rydell, C. (1994). *Modeling the demand for cocaine*. Santa Monica, CA: RAND.
- First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. B. W. (1998). *Structured Clinical Interview for DSM-IV Axis I Disorders—Patient Edition* (SCID-I/P, Version 2.0, 8/98 rev.). New York: Biometrics Research Department, New York State Psychiatric Institute.
- Foote, J., Seligman, M., Magura, S., Handelsman, L., Rosenblum, A., Lovejoy, M., et al. (1994). An enhanced positive reinforcement model for the severely impaired cocaine abuser. *Journal of Substance Abuse Treatment*, *11*(6), 525–539.
- Forrest, G. G. (1992). *Chemical dependency and antisocial personality disorder: Psychotherapy and assessment strategies*. New York: Hawthorne Press.
- Gerstley, L. J., Alterman, A. I., McLellan, A. T., & Woody, G. E. (1990). Antisocial personality disorder in patients with substance abuse disorders: A problematic diagnosis? *American Journal of Psychiatry*, *147*, 173–178.
- Gil, K., Nolimal, D., & Crowley, T. (1992). Antisocial personality disorder, HIV risk behavior and retention in methadone maintenance therapy. *Drug and Alcohol Dependence*, *30*, 247–252.
- Higgins, T., Budney, J., Bickel, K., Foerg, F., Donham, R., & Badger, J. (1994). Incentives improve outcome in outpatient behavioral treatment of cocaine dependence. *Archives of General Psychiatry*, *51*, 568–576.
- Higgins, T., Budney, J., Bickel, K., Hughes, R., Foerg, F., & Badger, J. (1993). Achieving cocaine abstinence with a behavior approach. *American Journal of Psychiatry*, *150*, 763–769.
- Hser, Y. (1995). Drug treatment counselor practices and effectiveness: An examination of literature and relevant issues in a multilevel framework. *Evaluation Review*, *19*, 389–408.
- Keppel, G. (1991). *Design and analyses: A researcher's handbook*. Englewood Cliffs, NJ: Prentice Hall.
- King, V., Kidorf, M., Stoller, M., Carter, J., & Brooner, R. (2001). Influence of antisocial personality subtypes on drug abuse treatment response. *Journal of Nervous and Mental Disease*, *189*, 593–601.
- Kranzler, H., Rounsaville, B., & Tennen, H. (1995). *Validity of the SCID in substance abuse patients* (NIDA Research Monograph, 2, p. 35). Rockville, MD: National Institute on Drug Abuse.
- Marlatt, G., & Gordon, J. (Eds.). (1985). *Relapse prevention: Maintenance strategies in the treatment of addictive behaviors*. New York: Guilford Press.
- McLellan, A. T., Kushner, H., Metzger, D., Peters, R., Smith, I., Grissom, G., et al. (1992). The fifth edition of the Addiction Severity Index. *Journal of Substance Abuse Treatment*, *9*, 199–213.
- Messina, N., Wish, E., Hoffman, J., & Nemes, S. (2001). Diagnosing antisocial personality disorder among substance abusers: The Structured Clinical Interview for the *DSM-III-R* versus the Millon Clinical Multiaxial Inventory. *The American Journal of Drug and Alcohol Abuse*, *27*, 699–717.
- Messina, N., Wish, E., & Nemes, S. (1999). Therapeutic community treatment for substance abusers with antisocial personality disorder. *Journal of Substance Abuse Treatment*, *17*(1–2), 121–128.
- Messina, N., Wish, E., Nemes, S., & Wraight, B. (2000). Correlates of underreporting of post-discharge cocaine use among therapeutic community clients. *Journal of Drug Issues*, *30*, 119–132.
- Rawson, R., Huber, A., McCann, M., Shoptaw, S., Farabee, D., Reiber, C., & Ling, W. (2002). A comparison of contingency management and cognitive-behavioral approaches for cocaine dependent methadone maintained individuals. *Archives of General Psychiatry*, *59*, 817–824.
- Rawson, R., Obert, J., McCann, M., & Ling, W. (1991). Psychological approaches to the treatment of cocaine dependency. *Journal of Addictive Diseases*, *11*, 97–120.
- Rawson, R., Obert, J., McCann, M., Smith, P., & Scheffey, H. (1989). *The neurobehavioral treatment manual*. Beverly Hills, CA: Matrix Institute.
- Rounsaville, B., Eyre, S., Weissman, M., & Kleber, H. (1983). The antisocial opiate addict. In B. Stimmee (Vol. Ed.), *Psychosocial constructs: Alcoholism and substance abuse* (pp. 29–43). New York: Hawthorne Press.

- Skinner, B. (1938). *The behavior of organisms: An experimental analysis*. Englewood Cliffs, NJ: Prentice-Hall.
- Seivewright, N., & Daly, C. (1997). Personality disorder and drug use: A review. *Drug and Alcohol Review, 16*, 235-250.
- Silverman, K., Chutuape, M. A., Bigelow, G., & Stitzer, M. (1999). Voucher-based reinforcement of cocaine abstinence in treatment-resistant methadone patients: Effects of reinforcement magnitude. *Psychopharmacology, 146*, 128-138.
- Silverman, K., Higgins, S., Montoya, I., Cone, E., Schuster, C., & Preston, K. (1996). Sustained cocaine abstinence in methadone maintenance patients through voucher-based reinforcement therapy. *Archives of General Psychiatry, 53*, 409-415.
- Silverman, K., Wong, C., Umbricht-Schneiter, A., Montoya, I., Schuster, C., & Preston, K. (1998). Broad beneficial effects of cocaine abstinence reinforcement among methadone patients. *Journal of Consulting and Clinical Psychology, 66*, 811-824.
- Tims, F. M., DeLeon, G., & Jainchill, N. (Eds.). (1994). *Therapeutic community: Advances in research and application* (NIDA Research Monograph No. 144). Rockville, MD: National Institute on Drug Abuse.
- Valliant, G. (1975). Sociopathy as a human process: A viewpoint. *Archives of General Psychiatry, 32*, 178-183.
- Wish, E., Hoffman, J., & Nemes, S. (1997). The validity of self-reports of drug use at treatment admission and at follow-up: Comparisons with urinalysis and hair assays. In L. Harris (Ed.), *The validity of self-reports: The implications for survey research* (NIDA Research Monograph No. 167, pp. 200-225). Rockville, MD: National Institute on Drug Abuse.
- Woody, G., McLellan, A. T., Luborsky, L., & O'Brien, C. (1985). Sociopathy and psychotherapy outcome. *Archives of General Psychiatry, 42*, 1081-1086.

Received July 3, 2001

Revision received October 12, 2001

Accepted April 16, 2002 ■



AMERICAN PSYCHOLOGICAL ASSOCIATION SUBSCRIPTION CLAIMS INFORMATION

Today's Date: _____

We provide this form to assist members, institutions, and nonmember individuals with any subscription problems. With the appropriate information we can begin a resolution. If you use the services of an agent, please do **NOT** duplicate claims through them and directly to us. **PLEASE PRINT CLEARLY AND IN INK IF POSSIBLE.**

PRINT FULL NAME OR KEY NAME OF INSTITUTION _____		MEMBER OR CUSTOMER NUMBER (MAY BE FOUND ON ANY PAST ISSUE LABEL) _____
ADDRESS _____		DATE YOUR ORDER WAS MAILED (OR PHONED) _____
CITY _____ STATE/COUNTRY _____ ZIP _____		<input type="checkbox"/> PREPAID <input type="checkbox"/> CHECK <input type="checkbox"/> CHARGE CHECK/CARD CLEARED DATE: _____
YOUR NAME AND PHONE NUMBER _____		(If possible, send a copy, front and back, of your cancelled check to help us in our research of your claim.)
		ISSUES: <input type="checkbox"/> MISSING <input type="checkbox"/> DAMAGED
TITLE	VOLUME OR YEAR	NUMBER OR MONTH
_____	_____	_____
_____	_____	_____
_____	_____	_____

Thank you. Once a claim is received and resolved, delivery of replacement issues routinely takes 4-6 weeks.

(TO BE FILLED OUT BY APA STAFF)

DATE RECEIVED: _____	DATE OF ACTION: _____
ACTION TAKEN: _____	INV. NO. & DATE: _____
STAFF NAME: _____	LABEL NO. & DATE: _____

Send this form to APA Subscription Claims, 750 First Street, NE, Washington, DC 20002-4242

PLEASE DO NOT REMOVE. A PHOTOCOPY MAY BE USED.