

Comparative Cocaine Abuse Treatment Strategies: Enhancing Client Retention and Treatment Exposure

Jeffrey A. Hoffman, PhD
Barry D. Caudill, PhD
Joseph J. Koman III, PhD
James W. Luckey, PhD
Patrick M. Flynn, PhD
Robert L. Hubbard, PhD

SUMMARY. The current investigation explores the clinical utility in providing a series of enhanced clinical services to a sample of 303 cocaine-abusing clients (primarily crack smokers) relative to a stan-

Jeffrey A. Hoffman, Barry D. Caudill, and Joseph J. Koman III are affiliated with the Center for Drug Treatment and Research, The Koba Institute, Inc., Washington, DC.

James W. Luckey, Patrick M. Flynn, and Robert L. Hubbard are affiliated with the Research Triangle Institute, Research Triangle Park, NC.

Correspondence should be addressed to: Jeffrey A. Hoffman, PhD, Center for Drug Treatment and Research, The Koba Institute, 1156 15th Street, NW, Suite 200, Washington, DC 20005-1704.

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standard group therapy treatment program. In addition to examining the comparative impact of six varying psychosocial treatment approaches for cocaine abuse on client retention and treatment exposure rates, an additional emphasis has been to examine the ability of fixed and dynamic client variables in predicting client outcome in this regard. No fixed (e.g., sex, income, marital status, income level, or employment status) or dynamic (e.g., recent alcohol use, antisocial personality disorder diagnoses, or motivational variables) client characteristics were useful in predicting client retention or treatment exposure rates. Program characteristics, however, or the frequency, intensity, and/or type of treatment services offered, were related to client retention and treatment exposure. Treatment exposure and retention were significantly enhanced by providing clients with more frequent and intensive group therapy, or by adding individual treatment services to a standard group therapy treatment regimen. With a population such as cocaine abusers, who typically have an extremely high treatment dropout rate, an obvious strategy is to focus efforts on engaging and retaining clients in treatment, and maximizing levels of treatment exposure. The current findings suggest that one successful approach towards enhancing psychosocial treatments for cocaine abuse is to increase the frequency, intensity, and/or types of treatment services offered.

Cocaine abuse has received an increasing amount of public attention in recent years as the use of cocaine has increased, and as the crack epidemic and related crime sprees have come to plague a growing number of communities.¹ The 1988 NIDA National Household Survey reported a significant increase in the number of people using cocaine one or more times per week.² The 1991 survey indicated a reduction in cocaine use compared to 1988, however, it was estimated that 500,000 people used crack cocaine in the previous 30-day period.³ An estimate by the White House Office of National Drug Control Policy (ONDCP) suggests 1.7 million crack addicts exist; unlike the Household Survey, this estimate includes the homeless, those in prisons, and other hidden populations. According to a report from the Senate Judiciary Committee, this figure of 1.7 million still underestimates the number of cocaine addicts, which they estimate to be 2.4 million.⁴

In addition, the most commonly used drug among criminals who are arrested in the District of Columbia continues to be crack cocaine, with over 44 percent of arrestees in December 1992, for

example, testing positive for cocaine, which is present in 92 percent of all positive drug tests. Although there are some indications that drug use among the general population is decreasing, it continues to be a severe problem in the *criminal justice* and socially disenfranchised populations with no signs of significant improvement.

The dramatic rise in the use of crack cocaine in recent years¹ may also contribute to the spread of the HIV virus. Although smoking crack itself does not transmit HIV, many persons who are dependent on crack exchange sex for the drug. The relationship between crack use and sexual activity is a particular concern that needs to be addressed since a number of recent studies have shown that a greater percentage of intravenous drug users have changed their drug injection behavior than have changed their sexual behavior as a result of knowledge about AIDS. Effective treatment for cocaine abuse and dependence is therefore of particular importance for this population, not only to reduce drug abuse and dependence, but also as a primary means of reducing risk of HIV infection.⁵

In spite of a continuing public alarm about the crack cocaine epidemic, studies examining the efficacy of treatment strategies for cocaine abuse are in their infancy.^{1,6,7,8} Many of the cocaine abuse treatment strategies advocated by drug treatment clinicians have been derived from studies in treating opiate-dependent addicts.⁹ One problem inherent in extrapolating from the opiate treatment literature is that no demonstratively effective pharmacological approach exists for treating cocaine addicts, as there is for treating opiate-dependent individuals.^{1,10,11} There are, however, a number of studies of opiate addicts that should provide useful strategies for addressing the cocaine problem or epidemic including clinical strategies such as relapse prevention,^{12,13} enhancing clients' levels of social support¹⁴ or treating co-existing psychopathology.⁹

ENHANCING TREATMENT RETENTION

A key challenge with drug treatment in general, and with cocaine abusers in particular, is engaging and retaining clients in treatment.¹⁵ As Wallace has recently noted, the extremely high drop-out rate with cocaine addicts in treatment seems to indicate that a multi-faceted and intensive form of treatment is warranted, especially in

working with crack smokers.¹ In discussing the need to provide enhanced services for this population, Wallace notes that prior clinical efforts with crack smokers have reported rather dismal findings. She notes, for instance, that Charles P. O'Brien of the University of Pennsylvania reports that two-thirds of crack smokers in his outpatient treatment program dropped out in the first month of treatment, and that Bernard Bihari of Kings County Hospital in Brooklyn, New York reports that 85% of his crack-smoking clients never showed up for a second day of treatment. Kleinman and colleagues also reported high dropout rates among cocaine abusers at an outpatient treatment program in New York City.⁶ Forty-two percent of their subjects dropped out after completing research assessments but prior to receiving any treatment. Of those who attended at least one therapy session, 58% had dropped out by the sixth session. Only 25% of clients in this latter study were retained for as many as 6 treatment sessions. Of those retained, only 25% remained cocaine-free during treatment.

High dropout rates from treatment studies of cocaine abusers clearly underscore the need for investigations into the efficacy of providing more intensive, or "enhanced," treatment services for cocaine and crack abusers, with particular attention being paid to engaging and retaining clients in treatment.⁷ Much of the previous research on treatment retention has focused on client characteristics to identify those at high risk for early termination. As an example, Craig and Olson¹⁶ reported that dropouts had a higher need for autonomy and aggression and lower needs for deference, nurturance, and affiliation than those who remain in treatment. Kleinman et al.⁷ identified five general classes of variables that have been examined to distinguish those who stay in treatment versus those who leave. The five areas they identified were sociodemographic characteristics, treatment history, psychiatric symptomatology, level of deviant behavior, and level of drug use. Condelli,¹⁷ in examining the literature on retention in therapeutic communities, argues for distinguishing between fixed client variables (e.g., gender or age) and dynamic variables, such as level of comfort in groups or levels of motivation, that may be amenable to program intervention. In addition, he added a third category of variables for consideration, namely treatment entry variables such as referrals from the legal

system. In another recent article, Condelli and DeLeon¹⁸ noted that dynamic variables, such as client perceptions or levels of motivation, appear to be more meaningful predictors of treatment retention than are fixed client demographic characteristics. Even though some fixed and dynamic variables have been linked to treatment outcome, findings are often inconsistent and equivocal.^{7,15} Clinical researchers in this area have therefore increasingly emphasized enhancing treatment services provided to clients as a means of increasing client retention and treatment exposure rates.⁷ In one recent study, for example, with a cocaine-abusing clientele, Higgins et al.¹⁹ showed that providing more intensive treatments for cocaine abusers, relative to a "standard treatment" regimen, led to significant enhancements in treatment outcome. The enhanced treatment services Higgins et al. examined were based on a Community Reinforcement Approach and included a broad range of individual treatment services such as reciprocal relationship counseling, contingency management procedures, vocational counseling, social skills training, recreational counseling, and the use of disulfiram for clients exhibiting alcohol dependence. Although the latter population differed ethnically and few clients were crack abusers, Higgins et al. revealed five to six times the level of success in retaining clients, and in maintaining their cocaine abstinence, than they found in clients randomly assigned to a standard 12-step program. Another study by Higgins et al.²⁰ revealed that cocaine abusers in treatment with significant others were 20 times more likely to achieve abstinence during treatment than clients participating alone. In summary, with client retention and treatment exposure being so critical to long-term outcome,^{21,22} research on enhancing client retention and maximizing rates of treatment exposure is considered a critical part of enhancing outcome for clients entering cocaine abuse treatment.

As part of a larger project comparing the relative efficacy of six outpatient drug counseling and psychotherapeutic approaches with cocaine abusers, this study examined the relationship between client characteristics (fixed and dynamic variables) and treatment retention and treatment exposure, and between the frequency, intensity, and/or type of treatment services offered and client retention and treatment exposure with a population of cocaine abusers in an outpatient cocaine abuse treatment program in Washington, D.C.

METHODS

Subjects

Subjects for the current investigation were 303 cocaine-abusing clients who sought treatment in a 4-month outpatient cocaine abuse treatment program in Washington, D.C. The majority of participants were self-referred, with fewer than 10% referred by the courts. The client population was 68% male, and was predominantly African-American (93%). The mean age of clients was 32 years; on average, they had a 12th-grade education; 18% were married or lived with a partner (55% had never been married); and 96% identified themselves primarily as crack smokers.

Experimental Design and Treatment Condition Assignments

Upon entry into the study, clients were randomly assigned to one of six 4-month treatment conditions according to a two-by-three design. Clients were either assigned to receive Standard Group Therapy (90-minute sessions twice a week) or Intensive Group Therapy (120-minute sessions five times a week); then they received either (1) no additional services, (2) Individual Psychotherapy by a clinical psychologist, or (3) Individual Psychotherapy and Family Therapy. The six treatment conditions created by this 2 X 3 design are as follows: Standard Group Therapy only (SGT); Standard Group Therapy with Individual Psychotherapy (S-I); Standard Group Therapy with Individual Psychotherapy and Family Therapy (S-I-F); Intensive Group Therapy only (IGT); Intensive Group Therapy with Individual Psychotherapy (I-I); and Intensive Group Therapy with Individual Psychotherapy and Family Therapy (I-I-F). In addition to the described frequencies of the group therapies, the Individual Psychotherapy was offered twice weekly in Month 1 and weekly thereafter, and the Family Therapy was offered once weekly beginning in Month 2. In addition to attending their assigned treatments (group and individual therapies), all clients were also able to attend up to 4 vocational assessment/therapy sessions on an individual basis, and up to four family therapy group sessions (once a month).

The group therapy program examined is based on an intensive biopsychosocial manual-driven cocaine abuse treatment interven-

tion program called the Living in Balance, or the LIB Program.²³ The LIB Program is based on a series of psychoeducational and experiential training modules, with a central emphasis on relapse prevention. The LIB Program has been designed to enhance the clients' levels of functioning in key life areas that have been neglected as a function of prolonged drug use. General sessions, which are mostly psychoeducational, are conducted on the topics of drug education, relapse prevention, self-help groups, and STDs. Experientially-based or interactive intervention sessions are presented to clients with an emphasis on enhancing their functioning in the following key life areas: physical well-being, emotional well-being, social well-being, adult education opportunities, vocational development, daily living skills, spirituality and recovery, sexuality, and recreation and leisure. The latter "more experiential" sessions not only allow clients to actively process personal issues, but also to learn to cope with everyday stressors; these sessions include a large amount of role-playing. Clients' functioning in each key life area is assessed in these sessions, and interventions focus on enhancing each life area.

For the current investigation, analyses were planned to allow for a determination of the predictive utility of fixed client variables (demographic characteristics, for example), or dynamic client variables (such as psychological functioning or levels of motivation) in predicting rates of client retention (time in treatment) or treatment exposure (number of sessions attended) in a cocaine abuse treatment program. Secondly, the differential impact of six program variables, or varying psychosocial treatments, is compared on subsequent rates of client retention and treatment exposure.

RESULTS

Predictors of Client Retention and Treatment Exposure

As part of an assessment of predictors of client retention (time in treatment) and treatment exposure (number of sessions attended), analyses were conducted utilizing fixed and dynamic client variables as predictors of clients' levels of retention in treatment, and rates of treatment exposure. Fixed variables (or client demograph-

ics) examined included gender, age, marital status (married or living together versus "other"), income (above or below \$10,000), and current employment status. Dynamic client variables examined included number of days drunk in the last 3 months, diagnosis of antisocial personality, "whose idea was receiving treatment" (self versus others), client ratings regarding the importance of receiving treatment, and the clients' need for mental health treatment as rated by the assessment interviewer.

Stepwise Multiple Regression analyses utilizing client variables as predictors or independent variables in predicting client retention (days in treatment) or treatment exposure (number of sessions attended) revealed that none of the fixed or dynamic client variables served as meaningful predictors of client retention or treatment exposure rates.

Treatment Retention

Information on clients' differential levels of treatment retention, or days in treatment, is depicted in Table 1. Time in treatment is defined in terms of the number of days between clients' first and last attended treatment sessions, with a maximum of 120 days or four months of active treatment.

Overall, 37% of clients dropped out of treatment within the first week. With the exception of the Standard Group Therapy (SGT) condition, clients in all of the "enhanced" treatment conditions ranged between 28-34% in terms of their dropout rates in this first week. Clients in the SGT condition, however, were far more likely to drop out in this first week (56%); and this difference between the SGT condition and all other groups was statistically significant ($X^2 = 9.68$; $p < .005$).

Table 1 also displays the mean number of days clients remain in treatment by treatment condition. Overall, a statistical trend [$t(301) = 1.55$, $p = .06$] revealed that clients assigned to the intensive group therapy conditions overall, including IGT, I-I, and I-I-F, were retained in treatment longer than clients assigned to the standard group therapy conditions, including SGT, S-I, and S-I-F [49 days versus 41 days, respectively; all t-tests conducted were one-tailed, as based on directional predictions]. In addition, since the standard treatment condition, or SGT, stands out from other treatments

TABLE 1. Days in Treatment by Treatment Condition.

Days	SGT ^a N = 50	S-I ^b N = 53	S-I-F ^c N = 50	IGT ^d N = 50	I-I ^e N = 51	I-I-F ^f N = 49	All Conditions N = 303
0 - 7	56%	34%	28%	34%	35%	33%	37%
8 - 30	18%	23%	18%	8%	22%	14%	17%
31 - 90	12%	15%	24%	20%	20%	22%	19%
91 +	14%	28%	30%	38%	24%	31%	27%
Mean	26.2	43.4	53.3	55.4	43.4	49.2	45.1

a = Standard Group Therapy

b = Standard Group Therapy with Individual Psychotherapy

c = Standard Group Therapy with Individual Psychotherapy and Family Therapy

d = Intensive Group Therapy

e = Intensive Group Therapy with Individual Psychotherapy

f = Intensive Group Therapy with Individual Psychotherapy and Family Therapy

regarding levels of treatment retention, analyses were conducted to compare time in treatment for SGT clients versus all other treatments combined. Results showed that clients were much more likely to remain in treatment longer when they were assigned to any enhanced form of treatment, relative to those assigned to the SGT condition [$t(301) = 3.19$; $p < .001$]. Further analyses showed that adding individual psychotherapy to the SGT treatments led to an enhancement in treatment retention [$t(101) = 1.98$; $p < .05$]; as did adding individual psychotherapy and family therapy to the SGT condition [$t(98) = 3.12$; $p < .005$].

Treatment Exposure

The number of sessions attended by clients across the six varying treatment conditions is depicted below in Table 2.

As with results regarding treatment retention, Table 2 shows that clients assigned to the SGT condition were much more likely to drop out prior to their sixth therapy session (74% versus 34-46% for

TABLE 2. Sessions Attended by Treatment Condition.

Sessions	SGT ^a N = 50	S-I ^b N = 53	S-I-F ^c N = 50	IGT ^d N = 50	I-I ^e N = 51	I-I-F ^f N = 49	All Conditions N = 303
Evaluation Only	28%	21%	18%	18%	18%	27%	22%
1 - 5	46%	25%	22%	16%	24%	8%	23%
6 - 30	24%	38%	34%	32%	26%	27%	30%
31 +	2%	17%	26%	34%	33%	39%	25%
Mean	6.0	12.6	16.5	23.4	23.9	28.3	18.4

a = Standard Group Therapy (40 Sessions Possible)

b = Standard Group Therapy with Individual Psychotherapy (60 Sessions Possible)

c = Standard Group Therapy with Individual Psychotherapy and Family Therapy
(72 Sessions Possible)

d = Intensive Group Therapy (88 Sessions Possible)

e = Intensive Group Therapy with Individual Psychotherapy (108 Sessions Possible)

f = Intensive Group Therapy with Individual Psychotherapy and Family Therapy
(120 Sessions Possible)

other conditions). This respective comparison (SGT versus other "enhanced" treatments) was significant ($X^2 = 20.5$, $p < .001$).

In examining the mean number of sessions attended or level of treatment exposure for all of the six groups compared, several significant findings were revealed. Comparing the three Intensive conditions with the Standard conditions indicated that the Intensive model led to a considerable enhancement in treatment exposure rates for clients (25.2 sessions attended versus 11.7; $t(218) = 5.19$; $p < .0001$). In addition, adding individual psychotherapy to SGT led to an enhancement in treatment exposure [$t(101) = 2.76$; $p < .005$], as did adding individual psychotherapy and family therapy to SGT [$t(98) = 3.98$; $p < .0001$]. Although adding family therapy to the S-I condition increased the level of client treatment exposure, this difference was only a statistically significant trend [$t(101) = 1.30$, $p < .10$]. Adding individual psychotherapy, or psychotherapy and family therapy, to the IGT condition, however, did not lead to any

significant enhancements in treatment retention. An examination of Table 2 also reveals that the least enhanced form of Intensive Group Therapy (IGT) was superior to the most enhanced form of Standard Group Therapy (S-I-F) [$t(86) = 1.68; p < .05$].

Table 2 also displays the number of treatment sessions available for each of the six treatment conditions. One finding of note in this regard is that although the number of sessions clients can possibly attend (88 in IGT versus 40 in SGT conditions) varies only slightly more than double, there is almost a fourfold difference in levels of treatment exposure across these same two conditions (23.4 versus 6.0 sessions, respectively).

DISCUSSION

Overall, findings of the current investigation suggest that program characteristics are more important determinants of treatment retention and exposure than are individual difference variables. Of all the client variables examined, neither demographic differences nor dynamic variables, such as levels of client motivation or recent patterns of drug or alcohol use, were significantly related to client retention in treatment or levels of treatment exposure. As a contrast, a number of comparisons between the provision of "standard treatment services," relative to adding "enhancements" to the standard treatment condition, showed that the inclusion of enhancements had a significant impact on treatment retention and exposure.

As suggested in an earlier study with crack users,⁶ one central and overriding theme in the current results was the inadequacy of "standard treatment services" in maintaining clients in treatment relative to all other treatments examined. Clients who were randomly assigned to the SGT condition, relative to all other treatment conditions, were much more likely to drop out of treatment in the first week, to remain in treatment for much less time overall, and to attend far fewer sessions than clients assigned to other forms of treatment. Future efforts to enhance treatment services provided to cocaine-abusing clients should consider this consequence of the provision of standard treatment services in retaining clients in cocaine abuse treatment; and in maximizing levels of treatment exposure for clients in treatment (as also suggested by Higgins et

al.; Kleinman et al.; and Wallace).^{1,6,19} Since retaining clients in treatment, and increasing their levels of treatment exposure, are so closely linked to long-term outcome in drug abuse treatment^{15,21,22} efforts to maximize client retention and treatment exposure are considered critical towards enhancing long-term outcome for cocaine abusers entering cocaine abuse treatment.

Current findings also specifically suggest that providing more frequent and intensive group therapy services, relative to standard group therapy, enhances client retention and leads to a substantial increase in treatment exposure rates. Results also demonstrate that adding enhancements to standard treatment services, such as the individual psychotherapy and individual psychotherapy plus family therapy conditions examined here, will lead to significant improvements in clients' retention and treatment exposure and will likely enhance the clinical efficacy of the treatment services provided.

Findings of the current investigation suggest that adding enhancements to cocaine abuse treatment, such as increasing the frequencies of group therapy services provided or adding individual treatment services to standard group therapy, will contribute significantly towards enhancing client retention and treatment exposure in cocaine abuse treatment. It was also shown that an intensified group therapy treatment program, namely the Living in Balance (LIB) program,²³ was also superior in this regard to the most significantly enhanced standard group treatment program examined. In terms of cost effectiveness, this finding may be important for future efforts to heighten levels of treatment efficacy, while maintaining reasonable levels of cost.

Although dropping out of substance abuse treatment is common,¹⁵ and retaining crack smokers in treatment is even more difficult,¹ the current findings suggest that these typically high dropout rates can be significantly reduced. This suggestion is also consistent with the emphasis on enhancing treatment program characteristics that a number of authors have increasingly emphasized.^{7,15} These findings are also consistent with results recently presented by Higgins et al.^{19,20} in which the addition of enhancements to standard treatment services provided to cocaine abusers led to substantial improvements in clinical outcomes.

Clients seen in the current investigation are also being tracked

over a 12-month period after treatment services are terminated. In addition to examining patterns of client retention in treatment, and respective levels of treatment exposure, a later examination of outcome at a 12-month follow-up period will allow for an examination of the impact of the differential treatment conditions on clients' long-term levels of drug use and overall levels of functioning.

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