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## Computer-Assisted Delivery of Cognitive-Behavioral Therapy: Efficacy and durability of CBT4CBT among cocaine-dependent individuals maintained on methadone

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### Abstract

**Objectives**—A previous pilot trial evaluating computer-based cognitive behavioral therapy (CBT4CBT) among 77 heterogeneous substance users (alcohol, marijuana, cocaine, opioids) provided preliminary support for its efficacy in the context of a community-based outpatient clinic. Aims of the present trial were to conduct a more definitive trial in a larger, more homogeneous sample.

**Methods**—Randomized clinical trial in which 101 cocaine-dependent methadone maintained individuals were randomized to standard methadone maintenance or methadone maintenance with weekly access to CBT4CBT, with 7 modules delivered within an 8 week trial.

**Results**—Treatment retention and data availability were high and comparable across the treatment conditions. Participants assigned to the CBT4CBT condition were significantly more likely to attain three or more consecutive weeks of abstinence from cocaine (36 versus 17%,  $p < .05$ ,  $OR = .36$ ). The group assigned to CBT4CBT also had better outcomes on most dimensions, including urine specimens negative for all drugs, but these reached statistical significance only for the completer sample ( $N = 69$ ). Follow-up data collected 6 months after treatment termination were available from 93% of the randomized sample; these indicated continued improvement for those assigned to the CBT4CBT group, replicating previous findings regarding its durability.

**Conclusions**—This trial replicates earlier findings indicating CBT4CBT is an effective adjunct to addiction treatment with durable effects. CBT4CBT is an easily disseminable strategy for broadening the availability of CBT, even in challenging populations such as cocaine-dependent individuals enrolled in methadone maintenance programs.

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### Introduction

Cognitive-behavioral therapy (CBT) has a comparatively strong level of empirical support across a range of psychiatric disorders (1), including substance use disorders (2, 3). Despite

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evidence of positive and durable outcomes (4, 5), CBT remains rarely implemented in the range of settings where individuals with substance use disorders are treated (6). There are a number of obstacles to delivering CBT and other empirically validated therapies in clinical practice, including the limited availability of professional and specialty training programs that provide high quality training, supervision and certification in CBT (7); high rates of clinician turnover and lack of a CBT-trained workforce in many treatment settings (8); the relative complexity and cost of training clinicians in CBT (9, 10); as well as high case loads and limited resources in many settings. Moreover, for the addictions and other psychiatric disorders, available evidence suggests only a minority of individuals who could benefit from treatment actually receive high quality evidence based treatment (11). Hence, computer-assisted delivery of CBT, if demonstrated to be feasible and effective, could play an important role in broadening its availability, reducing costs, improving the quality and greatly extending the reach of treatment (12, 13).

The potential of computer-assisted therapies has led to a burgeoning of new internet and computer-assisted approaches for a range of psychiatric disorders (14). There are now meta-analytic evaluations of computer/internet interventions for multiple disorders, including depression(15), anxiety (16), illicit drugs (17), smoking (18), and alcohol (19). While generally positive and reporting effect sizes in the moderate range, these analyses and systematic reviews uniformly stress the highly variable methodological quality of the trials, with the most common weaknesses being limited adherence, high dropout rates, lack of adequate follow-up, reliance on self-reported outcomes, and inadequate replication (20, 21).

A preliminary randomized evaluation of computer based training for CBT (CBT4CBT) as an adjunct to standard addiction treatment compared it to standard treatment alone among 77 individuals seeking outpatient treatment for a range of substance use disorders (22). Participants were predominantly alcohol, cocaine, marijuana, or opioid dependent, with use of multiple substances reported by most participants (80%). At the end of the 8-week trial, participants assigned to the CBT4CBT condition submitted significantly more urine specimens that were negative for any type of drugs and tended to have longer continuous periods of abstinence during treatment. A six-month follow-up of 82% of the intention to treat sample indicated significantly better durability of effects of CBT4CBT over standard treatment, for both self-report and urinalysis data (23). Limitations of this preliminary study included the small sample size and highly heterogeneous sample that varied greatly in both type and severity of substance use at baseline.

In this report, we describe primary outcome results from a larger, randomized clinical trial of CBT4CBT in a more homogeneous, but highly challenging, clinical population, that is, cocaine-dependent methadone-maintained individuals. Cocaine use is among the most prevalent and intractable problems within methadone maintenance programs (24, 25), and is associated with a wide range of problems including HIV, Hepatitis C (HCV), and multiple other morbidities (26). Methadone treatment programs in the US face rapidly growing censuses, patients presenting with more complex and severe problems, and fewer resources with which to treat them.

In the present trial, cocaine-dependent individuals stabilized on methadone were randomized to standard methadone maintenance (treatment as usual, TAU) or TAU plus CBT4CBT over a period of 8 weeks. Given the established efficacy of clinician-delivered CBT across a range of addictions (2, 3) and the very limited availability of empirically validated therapies in many community based settings, CBT4CBT was evaluated in terms of how it is most likely be used in these settings, that is, as a stand-alone addition to regular methadone services. The primary hypothesis was that individuals assigned to CBT4CBT would reduce their frequency of cocaine and other substance use and submit fewer positive urine toxicology screens than those randomized to TAU. We also hypothesized that the effects of CBT4CBT would be durable relative to TAU through a six-month follow-up. Finally, we compared the groups regarding effects of treatment on HIV risk behavior, as an HIV risk reduction component was added to CBT4CBT to address the high rate of drug- and sex-related risk behaviors in this population (27, 28).

## Methods

### Participants

Participants were recruited from individuals enrolled in one of the methadone maintenance programs of the APT Foundation, the largest provider of methadone maintenance services in New Haven, Connecticut. Participants were English-speaking adults, stabilized on methadone (same dose > 2 months), who met DSM-IV criteria for current (within the past 30 days) cocaine dependence. As in our previous trial, exclusion criteria were minimized in order to facilitate recruitment of a broad and clinically representative group of individuals enrolled in this setting. Thus, individuals were excluded only if (1) they failed to meet DSM-IV criteria for current cocaine dependence, (2) had an untreated/unstabilized psychotic disorder or had current suicidal/homicidal ideation such that more intensive treatment was indicated, or (3) could not read at a 6<sup>th</sup> grade level (required for provision of written informed consent and completion of assessment instruments).

As shown in the CONSORT diagram (Figure 1), 101 of the 154 individuals screened were determined to be eligible for the study, provided written informed consent and were randomized. Following description of the study and provision of written informed consent approved by the Yale University School of Medicine Human Investigations Committee, participants were randomized to either TAU or CBT4CBT, using a computerized urn randomization program (29) to balance treatment groups with respect to gender, ethnicity, education level, and frequency of cocaine use at baseline.

### Treatments

All participants were offered standard treatment at the clinic, which consisted of daily methadone maintenance and weekly group sessions. Participants also met twice weekly with an independent research assistant who collected urine specimens, assessed recent substance use and monitored other clinical symptoms. Those randomized to the CBT4CBT condition were provided access to the program on a dedicated computer in a private room within the clinic. The research assistant guided participants through their initial use of the CBT4CBT program and was available if needed to answer questions and assist participants each time

they accessed the program. Participants accessed the program through an ID/password system to protect confidentiality.

As described earlier (22), the CBT4CBT program was user-friendly and required no previous experience with computers nor reading skills (any material presented in text was also read by an on-screen narrator) and collected no protected health information (PHI). The program was media-rich, using games, cartoons, quizzes and other interactive exercises to teach and model effective use of skills and strategies. At its core was a series of videos which, for each topic, present connected scenes of engaging characters, portrayed by professional actors. These characters first experience a common risky situation or problem and then, after the skill is presented as described above, demonstrate using the targeted skill to successfully negotiate that situation without resorting to drug use.

### Assessments

Participants were assessed before treatment, twice weekly during treatment, at the 8-week treatment termination point, and 1, 3, and 6 months after the termination point by a research assistant. Participants were administered the Structured Clinical Interview for DSM-IV (SCID) (30) prior to randomization to establish substance use and other psychiatric diagnoses. The Substance Use Calendar, similar to the Timeline Follow Back (31), was administered weekly during treatment to collect day-by-day self-reports of drug and alcohol use for the 28-day period prior to randomization, as well as throughout the 56-day treatment phase and the 6-month follow-up. HIV risk behaviors were assessed using the Risk Assessment Battery (RAB) (32).

Participant self-reports of drug use were verified through urine toxicology screens that were obtained at every assessment visit. Of 875 urine specimens collected during the treatment phase of the study (between days 4 and 56), the majority (84.7%) were consistent with participant self-report; only 106 (12%) were positive for cocaine in cases where the participant had denied recent use during the 3 day period that cocaine metabolites are typically detectable in urine. Finally, given that a weakness of the computerized therapy literature is the lack of attention to potential adverse events associated with computerized therapies (20, 21), possible adverse events and hospitalizations were monitored and reviewed regularly by the Data Safety Monitoring Board (DSMB) using procedures worked out in previous multisite behavioral trials (33).

### Data analyses

The primary outcome measures were change in self-reported drug use over time (days of cocaine use by week), results of urine toxicology screens (operationalized as the percentage of drug-negative urine samples collected during treatment) and attainment of three or more weeks of continuous abstinence, a variable found in multiple trials to be predictive of better long-term cocaine outcomes (34). Secondary outcomes included reductions in self-reported HIV risk behaviors. The principal data analytic strategy was random effects regression analysis for the longitudinal outcome (days of cocaine use by week during the 8 weeks of active treatment) and analysis of variance for the other primary outcome variables (percent of urine specimens negative for cocaine, as well as for all other drugs; self-reported

abstinence) for the 101 participants who were randomized to treatment (intention to treat), the 93 participants who initiated treatment (treatment-exposed), and the 69 who completed treatment. Follow up data was evaluated using a single piecewise random effect regression model (35) to assess change from pretreatment through follow up including treatment phase and associated interactions as independent variables. Results were highly consistent across analysis subsamples.

## Results

### Sample description

Table 1 presents baseline demographic characteristics and substance use and psychiatric diagnoses of the 101 randomized participants. Of these, 60% were female, 30% identified themselves as African American, 60% as European-American, and 8% as Latin American. Most (88%) were single or divorced, 89% were unemployed, and 71% had completed high school. The majority (77%) received some public assistance and 17% were on probation or parole. Participants used cocaine an average of 15 days a month and had been using for approximately 11 years. They reported using marijuana for about 2.5 days per month, and alcohol less than 1 day per month. ANOVA and chi-square analyses indicated no significant differences by treatment condition on these and other baseline variables as presented in Table 1.

### Treatment implementation, retention and data availability by condition

Of the 93 individuals who initiated the protocol, 69 (74%) completed the 8-week treatment protocol (34 in CBT4CBT, 35 in TAU, *NS*). Post-treatment data was collected from 98 individuals (97% of the intention-to-treat sample). Regarding rates of follow-up, 96% of the intention to treat sample was reached for at least one follow-up, and 92% were reached for the 6-month follow-up, as the vast majority (97%) were still enrolled in the methadone program. Hence, analyses of the primary substance use outcomes were not constrained by differential rates of attrition nor data availability. Regarding adverse events, there were no participant deaths during the trial and rates of serious adverse events (typically overnight hospitalizations) did not differ by treatment condition either within treatment or during follow-up (see Table 2). None were determined to be protocol-related by the Data Safety Monitoring Board (DSMB).

As shown in Table 2, levels of exposure to the standard counseling services offered in the program were also comparable in both groups, with those assigned to CBT4CBT completing a mean of 47 days and those assigned to TAU completing 44 days of the 56 day protocol. Of those who initiated the CBT4CBT program, the mean number of computer sessions completed was 5.1 ( $SD=2.3$ ) of the 7 modules offered (73%). Participants spent an average of 35.0 ( $SD= 8.6$ ) minutes per session working with each module and tended to complete the modules in the order presented (e.g., 44/44 participants completed Module 1 (patterns of use and functional analysis), 38 completed Module 2 (coping with craving), 34 completed Module 3 (refusing offers), 31 completed Module 4 (problem solving), 26 completed Module 5 (addressing cognitions), 28 completed Module 6 (decision making), and 23 completed the HIV risk reduction module. Most (84.1%) completed at least one of the 6

weekly homework assignments, and participants completed an average of 2.9 homework assignments (maximum=6;  $SD=2.2$ ).

### **Effects of treatment on cocaine and other drug use: Within treatment and 6-month follow up**

Within-treatment cocaine use outcomes were consistently better among the group assigned to CBT4CBT compared with those assigned to TAU alone. As shown in Table 3, for the intention to treat sample, significantly more individuals assigned to CBT4CBT attained three or more continuous weeks of abstinence from cocaine within treatment (36 versus 17%). They also submitted more urine specimens free from all drugs (23 versus 12%), as well as cocaine (24 versus 19%), but these differences fell short of statistical significance. The urine-based outcomes indicators that were not significant for the intention to treat sample did attain statistical significance for the completer sample, including percent of urine specimens testing negative for cocaine as well as all other illicit drugs, but should be interpreted cautiously. Self-reported percent days of abstinence from cocaine did not differ significantly across treatment conditions.

Longitudinal outcomes, that is, change in frequency of cocaine use by time, which paralleled those of the 'static' summary outcomes (percent negative urines, percent days abstinent), are presented in Figure 2. Random effects regression analyses indicated a significant effect for time, indicating reduction of frequency of cocaine use over the course of treatment for the sample as a whole ( $F(df\ 1, 792.6)=42.5, p<.001$ ) as well as significant treatment group by time effect ( $F(df\ 1,792)=10.8, p=.002$ ), indicating greater reduction in cocaine use by time for the participants assigned to CBT4CBT compared to TAU.

The follow-up outcomes indicated relative durability of the effects of CBT4CBT through the 6 month follow up; these are also illustrated in Figure 2. These piecewise random effect regression analyses indicate a significant overall reduction in frequency of cocaine use by month from baseline assessment through the 6 month follow up ( $\log F=35.92, p <.001$ ), where, as expected, the rate of change within treatment was greater than the rate of change during follow up (effect of phase  $F = 4.41, p = .04$ ). Overall, participants assigned to the CBT4CBT condition had a greater reduction in cocaine use compared to those assigned to TAU (group by log time  $8.49, p < .001$ ).

### **Effects on HIV Risk behavior**

To evaluate possible effects of the addition of the HIV/STD risk reduction module, self-reported levels of risk were evaluated with the Risk Assessment Battery (32). Although overall risk levels were low, and analysis of group by time effects did not attain statistical significance, there was a marked decrease in self-reported drug risk behavior for those assigned to CBT4CBT relative to TAU. This effect did not persist during follow-up, however. Sex risk behaviors did not change appreciably in either condition.

## **Discussion**

This randomized clinical trial of CBT4CBT as an adjunct to methadone maintenance therapy for 101 cocaine-dependent individuals indicated improved cocaine and drug use



outcomes relative to standard methadone maintenance treatment (TAU). Those assigned to CBT4CBT were significantly more likely to attain 3 or more consecutive weeks of abstinence within treatment, an outcome indicator associated with better long-term cocaine use outcomes and general functioning across multiple trials. Results of a 6-month follow-up also indicated significant enduring benefit of CBT4CBT relative to TAU over time. Effects on percent of urine specimens negative for all illicit drugs also approached statistical significance.

To our knowledge, this represents the first replication, via randomized clinical trial, of a computer-assisted therapy for addiction (20). This is significant because replication studies, while critical to the advancement of science (36), are comparatively rare in the clinical science literature (37). Moreover, evidence standards for both pharmacologic and behavioral therapies require replication before a therapy can be considered evidence-based (38). Furthermore, we found these favorable outcomes for CBT4CBT when used with a particularly highly challenging population, methadone-maintained cocaine-dependent individuals, many of whom used other drugs in addition to cocaine. Other than Contingency Management, there have been few behavioral or pharmacologic treatments to find a positive effect, much less a durable one, in this population (39). Finally, while the overall magnitude of reduction of drug use in this sample was modest, results do compare favorably with those of recent randomized trials in this population (39–41); and effect sizes were comparable with those found in the initial trial of CBT4CBT (range .45–.59).

The durability of effects of CBT4CBT reported for the initial trial (23), and consistent with clinician-delivered CBT (4), was also replicated here. Few if any other behavioral therapies, and no pharmacologic therapies for cocaine dependence, have demonstrated durable effects once terminated. As addictions are a chronic relapsing condition, durability of effects is a particularly important feature of any empirically validated therapy (42).

The effect of the HIV risk reduction module on risk behavior in this sample was more mixed. As it was the last module delivered, only half of those assigned to CBT4CBT completed it (22/44). Level of self-reported drug-related risk behaviors as assessed by the RAB fell to 0 in the CBT4CBT group by the end of treatment, but analyses did not indicate statistically significant differences by treatment condition. An ongoing trial is evaluating the efficacy of this module, delivered alone, on frequency of high risk behaviors in comparison to standard HIV risk reduction groups in the context of a methadone maintenance program.

Strengths of this protocol included methodological features of importance for rigorous clinical trials of computer-assisted therapies (20, 21) and therapist-delivered behavioral therapies more broadly (38). These include randomization to treatment, follow-up at 6 months of 92% of the sample, assessment of primary outcome using both urine toxicology screen and validated self-report instruments, adequate sample size with intention to treat analyses of outcomes using appropriate statistical procedures, monitoring and reporting of adverse events, and requiring all participants to meet standardized diagnostic criteria for cocaine and opioid dependence. Moreover, in contrast to many computer-delivered interventions where low levels of adherence typically limit inferences that can be drawn

regarding effectiveness (18, 20, 43), level of engagement with the CBT4CBT program was comparatively high, as participants completed an average of 73% of sessions offered.

This study had several limitations as well. First, CBT4CBT was evaluated as an add-on to treatment, and thus conditions were not balanced for time spent and attention. Further, it cannot yet be concluded that effects of CBT4CBT are comparable with those of individual clinician-delivered CBT. For the intention to treat sample, results of study treatments on rates on overall rates of cocaine and all-drug negative urine specimens approached, but did not reach statistical significance. However, rates of negative urine screens did reach statistical significance in the sample of treatment completers, highlighting the importance of retention in evaluation treatment outcomes. Moreover, these effects were seen in the context of participants also attending group and individual counseling at least once per week while the trial was ongoing.

Overall, this extension of an initial trial of CBT4CBT to a more homogeneous (in terms of all participants meeting criteria for current cocaine dependence in addition to opioid dependence) but highly challenging clinical population is another milestone in the validation of this cost-effective (44), easily disseminable approach. A major strength of the CBT4CBT approach itself is the ease of implementation, dissemination, and sustainability of the computer-assisted therapy. Given the multiple roadblocks to implementation of empirically supported therapies into practice, this study confirms that CBT4CBT may provide a safe, inexpensive, and sustainable option for doing so.

Next steps for this line of research include less tightly controlled effectiveness trials which address feasibility and clinical outcomes when delivered in clinical settings. Another line of research would involve evaluation of the efficacy of CBT4CBT with limited clinician involvement (that is, as a stand-alone approach rather than as a clinician extender); as well as direct comparisons of computer-delivered CBT4CBT with CBT when delivered by well trained and closely supervised clinicians, all of which are ongoing in our clinics. In addition, we are exploring the utility of the program when adapted for use by other clinical populations (alcohol-dependent, Spanish-speaking). Ultimately, we hope that carefully studied approaches like CBT4CBT may provide a new paradigm for treating a wide variety of addictive disorders in a broad range of settings.

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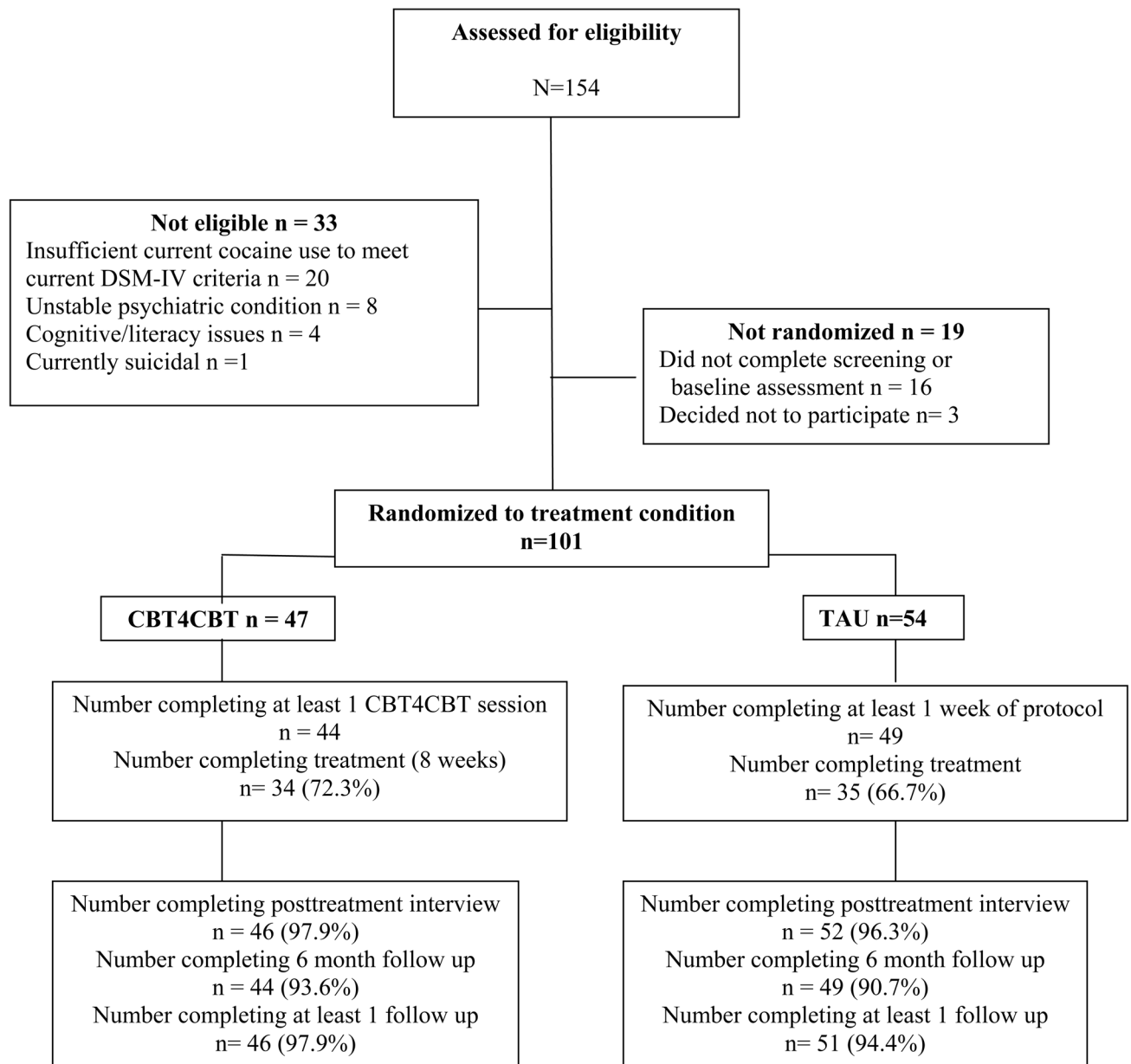
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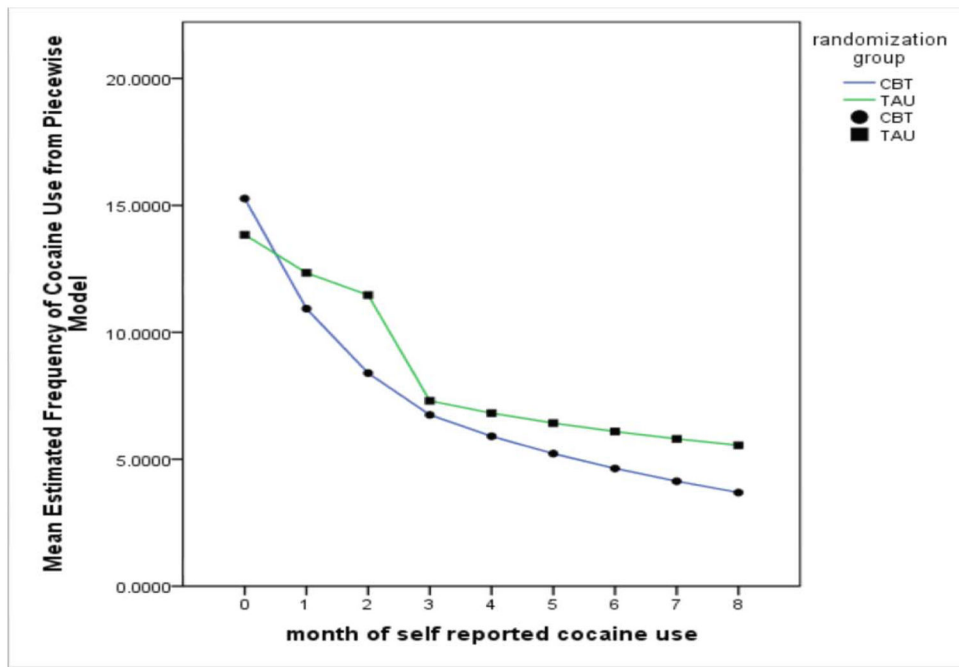
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**Figure 1.**  
CONSORT diagram, flow of participants through study



**Figure 2.** Frequency of cocaine use by month, within treatment (months 0–2) and follow-up (months 3–8), estimates From random regression analyses by treatment assignment

**Table 1**

Baseline variables by treatment assignment, N= 101

<i>Categorical variables</i>	CBT4CBT <sup>1</sup> n=47		TAU <sup>2</sup> n=54		F or X <sup>2</sup>	P
	n or mean	% or SD	n or mean	% or SD		
Number (percent) female	28	59.6%	33	61.1%	.025	.87
Ethnicity, number (%)						
European American	28	59.6	33	61.1	2.57	.63
African-American	16	34	14	25.9		
Latin American	3	6.4	5	9.3		
Native American, other	0	0	2	3.9		
Number (%) completed high school	31	66	41	75.9	1.22	.27
Number (%) never married/living alone	41	87.2	48	88.9	0.07	.80
Number (%) unemployed	43	91.5	47	87	0.51	.47
Number (%) on probation or parole	7	14.9	10	18.5	0.24	.63
Number (%) major depression - Lifetime <sup>3</sup>	15	31.9	14	25.9	0.44	.51
Number (%) anxiety disorder -Lifetime	16	34	16	29.6	0.23	.63
Number (%) current alcohol use disorder	1	2.2	3	5.7	0.77	.38
<i>Continuous variables</i>						
Age, years	42.7	9.5	41.3	9.7	0.55	.46
Years of regular cocaine use	12.6	7.1	10.6	9.6	1.34	.25
Days of cocaine use, past 28	15.5	9.5	13.9	9.3	0.79	.38
Days of heroin use, past 28	1.2	4.2	2.0	5.2	0.77	.38
Days of marijuana use, past 28	1.8	5.3	3.1	7.2	1.06	.31
Days of alcohol use, past 28	0.5	0.5	0.4	0.5	0.60	.44
Age of first use of cocaine	20.0	5.3	20.1	5.1	0.00	.99
ASI Medical Composite <sup>4</sup>	0.4	0.4	0.4	0.4	0.13	.72
ASI Employment Composite	0.7	0.2	0.8	0.3	0.46	.50
ASI Alcohol Composite	0.1	0.1	0.0	0.1	0.89	.35
ASI Cocaine Composite	0.7	0.2	0.6	0.3	0.37	.55
ASI Other Drug Composite	0.1	0.1	0.1	0.1	1.04	.31



<i>Categorical variables</i>	CBT4CBT <sup>1</sup> n=47		TAU <sup>2</sup> n=54		<i>F</i> or $\chi^2$	<i>P</i>
	n or mean	% or SD	n or mean	% or SD		
ASI Legal Composite	0.1	0.1	0.1	0.2	0.83	.36
ASI Family Composite	0.1	0.2	0.1	0.2	0.59	.45
ASI Psychological Composite	0.2	0.2	0.1	0.2	1.19	.28
Days paid for working, past 28	3.4	6.7	2.6	6.5	0.38	.54
Lifetime number of arrests	11.7	14.0	11.0	14.4	0.06	.82
Number of prior outpatient treatment episodes	3.6	3.7	3.0	6.2	0.36	.55
Number of prior inpatient treatment episodes	4.2	6.4	3.1	3.8	1.04	.31
Methadone dose at baseline, mg	84.02	28.32	83.4	27.4	0.01	.91

Note.

<sup>1</sup> CBT4CBT indicates access to computer program in addition to standard methadone maintenance and counseling.

<sup>2</sup> TAU indicates Standard methadone maintenance and counseling.

<sup>3</sup> Indicates DSM-IV diagnosis from SCID interviews.

<sup>4</sup> Indicates ASI composite score. Scores range from 0 to 1, with higher scores indicating greater severity of problems. All statistical tests are two-tailed.

**Table 2**

Treatment process variables and serious adverse events (SAEs) by treatment assignment

Variable	CBT4CBT N=47		TAU N=54		F	p
	N or Mean	Sd or %	N or mean	Sd or %		
Days In treatment (maximum =56)	46.7	17.2	43.9	19.9	0.58	.45
Urine specimens provided	9.5	5.0	10.8	2.8	1.81	.18
Total individual sessions within treatment	3.7	1.8	4.2	2.8	0.8	.38
Total group sessions within treatment	6.3	8.6	5.2	7.3	0.3	.56
Number (%) of participants with 1 or more SAEs <sup>1</sup> within treatment	3	6.4	1	1.9	1.4	.24
Number (%) of participants with 1 or more SAEs during follow-up	8	17	6	11.1	0.8	.39

Note. SAEs included medical hospitalizations (asthma, heart conditions) or brief inpatient substance use detoxification or stabilization.

**Table 3**  
 Primary outcomes: Cocaine and other drug use within treatment: Randomized sample by treatment assignment

Variable	CBT4CBT		TAU		F or X2	p	Effect size <sup>I</sup>
	N or mean	% or Sd	n or mean	% or Sd			
<i>Randomized sample (N=101)</i>							
Percent days of abstinence, self-report	N=47	29.4	N=54	31.6	1.97	.16	.28
Percent cocaine-free urine samples	24.4	35.5	19.0	28.7	2.36	.13	.19
Percent drug-free urine samples	22.5	30.3	11.9	24.0	3.45	.06	.44
Number and percent of sample attaining 3 or more weeks of continuous abstinence	17	36.2	9	17.0	4.77	.03	.36
<i>Completer sample N=69</i>							
Percent days of abstinence, self-report	N=34	26.4	N=35	27.7	1.65	.23	.30
Percent cocaine-free urine samples	33.3	34.2	18.8	24.4	4.14	.05	.59
Percent drug-free urine samples	26.7	29.8	12.4	21.9	5.16	.03	.65
Number and proportion of sample attaining 3 or more weeks of continuous abstinence	11	32.4	3	8.0	6.03	.01	.20

Note.

<sup>I</sup> Indicates effect size expressed as Cohen's *d* for means and odds ratio for proportions (Proportion of sample attaining 3 or more weeks of abstinence)