Effectiveness of a Brief Behavioral Treatment for Inner-City Illicit Drug Users With Elevated Depressive Symptoms: The Life Enhancement Treatment for Substance Use (LETS Act!)

Stacey B. Daughters, Ph.D.; Ashley R. Braun, B.A.; Marsha N. Sargeant, B.A.; Elizabeth K. Reynolds, B.A.; Derek R. Hopko, Ph.D.; Carlos Blanco, M.D., Ph.D.; and C. W. Lejuez, Ph.D.

Objective: Depression is highly prevalent among illicit drug users, and this co-occurrence is associated with poorer treatment outcomes. However, there has been limited empirical attention toward developing and assessing behavioral interventions for depression among illicit drug users. The objective of the current study was to test the efficacy of integrating a brief behavioral intervention for depression into standard inpatient substance abuse treatment.

Method: Forty-four adult illicit drug users with mild to moderate depressive symptoms (Beck Depression Inventory-II [BDI-II] score ≥ 10) who were receiving inpatient substance abuse treatment were randomly assigned to either treatment as usual (TAU) alone or TAU plus brief behavioral therapy for depression (i.e., Life Enhancement Treatment for Substance Use [LETS Act!]). Patients were assessed at baseline for DSM-IV psychiatric diagnoses, depressive symptoms (Hamilton Rating Scale for Depression, BDI-II), anxiety symptoms (Beck Anxiety Inventory), and enjoyment and reward value of activities (Environmental Reward Observation Scale). Patients were again assessed at posttreatment and at 2-week follow-up. Treatment satisfaction and attrition rates also were assessed at posttreatment. Data were collected from November 2005 to March 2006.

Results: Patients who received the LETS Act! intervention (N = 22) evidenced significantly greater improvements than the TAU group (N = 22) in severity of depression, anxiety symptoms, and enjoyment and reward value of activities at posttreatment and in depressive symptoms at 2-week follow-up. The LETS Act! group also reported significantly higher treatment satisfaction ratings.

Conclusions: This study supports the efficacy of LETS Act! in treating depressive symptoms and improving the enjoyment and reward value of activities among illicit drug users currently receiving inpatient substance use treatment. Data also indicate the intervention may help prevent treatment attrition. LETS Act! appears to be a feasible and parsimonious intervention to improve the treatment of depression and overall quality of care within inpatient substance abuse treatment settings.

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Received Oct. 16, 2006; accepted April 16, 2007. *From the Center for Addictions, Personality, and Emotion Research, Department of Psychology, University of Maryland, College Park (Drs. Daughters and Lejuez and Mss. Braun, Sargeant, and Reynolds); Department of Psychiatry, Columbia University and New York State Psychiatric Institute, New York, N.Y. (Dr. Blanco); and Department of Psychology, University of Tennessee, Knoxville (Dr. Hopko).*

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Corresponding author and reprints: Stacey B. Daughters, Ph.D., Center for Addictions, Personality, and Emotion Research, Department of Psychology, University of Maryland, College Park, MD 20742 (e-mail: sdaughters@psyc.umd.edu).

The co-occurrence of depression and substance use disorders is well established and is associated with significant clinical and public health implications. Compared with the general population, mood disorders are up to 4.7 times more prevalent in illicit drug–dependent samples.[1–3] Prevalence rates of major depressive disorder among treatment-seeking cocaine- and opiate-dependent patients are especially high, ranging from 25% to 61%.[4–6] These elevated rates are particularly important because there is extensive evidence that depressed drug users are significantly more likely than nondepressed drug users to drop out of substance use treatment and relapse to drug

use.[7–15] Thus, there is a clear need to develop effective interventions that meet the unique needs of drug-dependent individuals with co-occurring depression.[16]

Although some have argued for the need to reduce substance use prior to effectively treating depression, recent evidence highlights the importance of targeting depression and substance use simultaneously.[17] To date, efforts to directly target depressive symptoms among illicit substance users have primarily utilized pharmacologic interventions.[18,19] These studies indicate that pharmacologic treatment can improve depressive symptoms among substance users and that improvement in depressive symptoms, irrespective of whether pharmacologic treatment for depression was received, is accompanied by improvements in substance use outcomes.

There have been no published studies exploring how behavioral treatments focusing on treating depression may be integrated with behavioral and pharmacologic interventions for drug use to establish a potentially more comprehensive and more effective treatment approach. This absence is notable given the pressing need to develop such interventions.[5,16,20,21] Although strong support exists for utilizing more elaborate cognitive-behavioral therapy (CBT) treatments to treat depression across other addictions including alcohol and smoking,[22–24] several complications may hinder the effective implementation of complex depression-focused CBT treatments among illicit drug users. First, the time-intensive nature of traditional CBT for depression makes it difficult to incorporate into substance use treatments already being implemented.[25] Second, elaborate cognitive techniques such as cognitive restructuring may be too complex for chronic drug users with low education levels and cognitive deficits.[26] Third, a majority of counselors in traditional substance use treatment settings may lack the training necessary to implement complex theory-based treatments.[27]

One treatment approach that may be useful in overcoming these obstacles is behavioral activation.[28,29] Behavioral activation strategies are based on conventional behavioral therapy for depression that is designed to increase contact with pleasant events and positive reinforcers and decrease the intensity and frequency of aversive events and consequences.[30,31] There are a number of advantages to using behavioral activation as a depression treatment. First, published literature indicates that behavioral activation is just as effective in treating depression as combined cognitive and behavioral techniques,[29,32] and existing evidence suggests that brief behavioral activation interventions may also be more time efficient and less complex than most other treatment interventions for major depression.[33] Second, in addition to evidence indicating that a brief behavioral activation intervention is effective in treating depression,[34–36] this technique also addresses essential components of substance use treatment such as social support, emotional expression, reordering of life priorities, stress management, avoidance reduction, and issues of symptom control and health education.[33] Third, given its relatively simple structure, behavioral activation may be better suited for chronic drug users with limited cognitive abilities and easier to disseminate for use among substance use therapists. Finally, behavioral activation can be delivered either individually or in a small group setting, providing great flexibility in accommodating patients' needs and preferences and the financial and personnel resources of a variety of treatment settings.

The goal of this study was to compare the efficacy of a specialized brief behavioral activation-based protocol (Life Enhancement Treatment for Substance Use [LETS Act!]) versus treatment as usual (TAU) in treating depressive symptoms exhibited among inner-city illicit drug users in an inpatient treatment setting. The main hypotheses were that (1) individuals treated with LETS Act! would exhibit superior pretreatment to posttreatment gains on all outcome measures and (2) overall treatment satisfaction would be higher in the LETS Act! group relative to the TAU group.

METHOD

Patients and Treatment Setting

The study was conducted at the Salvation Army Harbor Light Center, a 136-bed inpatient substance abuse treatment facility in northeast Washington, D.C. Patients are required to evidence a negative urine drug screen upon entry into the treatment facility; those who wish to enter the facility but evidence a positive urine screen are referred to a local detoxification center before being admitted. Once admitted to Harbor Light, patients receive treatment for the use of a wide range of substances. Although the majority use crack/cocaine, a large percentage also report use of alcohol, heroin, PCP/hallucinogens, and marijuana. Although patients at the facility often meet criteria for a dual diagnosis, treatment for mental health problems other than substance use is typically not available, and the treatment center does not have a psychiatrist on staff. Patients with psychiatric problems are referred to off-site health centers to receive psychopharmacologic treatment (psychosocial care typically is not available). As a result, a limited number of patients at the center (approximately 25%) receive psychotropic medication. Patients at this facility are contracted to receive 60 days (66.7%), 90 days (9.5%), or 180 days (23.8%) of inpatient treatment, which is determined by the funding agency providing financial support for the patient's treatment. Residents are permitted to leave the center grounds during treatment only for treatment-required activities (e.g., group retreats, physician visits). Regular urinalysis drug testing is provided, and any use is grounds for dismissal.

Inclusion criteria for the study were (1) minimum of 18 years of age, (2) met DSM-IV criteria for substance

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dependence for past year, (3) completed a minimum of 2 weeks in the inpatient treatment center in addition to the completion of detoxification as needed prior to entry into the center, (4) a contract length of no less than 60 days of treatment, (5) a score at least in the moderate range on the Beck Depression Inventory-II[37] (BDI-II total score ≥ 10), and (6) the ability to speak and read English sufficiently to complete intervention procedures. Patients were excluded from the study if they did not meet all inclusion criteria, indicated that they were taking but not stabilized on psychotropic medication (i.e., < 3 months), or met diagnostic criteria for a current psychotic disorder.

Main Outcome Assessments

At the baseline assessment, a doctoral-level clinical psychologist and trained advanced graduate research assistants from our research team conducted DSM-IV diagnostic evaluations using the Mini-International Neuropsychiatric Interview (M.I.N.I.)[38] including all mood, anxiety (with the exception of specific phobia and generalized anxiety disorder), and substance use disorder diagnoses. To supplement substance use diagnoses, a polysubstance-use frequency questionnaire also was included to assess severity of past-year substance use across 10 substance categories.[39] Severity of depression was rated using the 24-item Hamilton Rating Scale for Depression (HAM-D)[40] administered by the same interviewer who conducted the M.I.N.I. Patients also completed the following self-report measures at baseline: (1) BDI-II,[37] a 21-item measure of depressive symptoms; (2) Beck Anxiety Inventory (BAI),[41] a 21-item measure specifically designed to distinguish cognitive and somatic symptoms of anxiety from those of depression; and (3) Environmental Reward Observation Scale (EROS),[42] a 10-item measure of the extent to which overt behaviors are associated with positive affect and rewarding environmental experiences.

At the posttreatment assessment, participants were re-administered the HAM-D interview and completed the BDI-II, BAI, and EROS self-report measures. The posttreatment assessment also included a modified version of the 8-item Client Satisfaction Questionnaire (CSQ).[43] The CSQ was modified to appropriately assess satisfaction in an inpatient treatment setting. Items are rated on a 4-point Likert scale and assess satisfaction with the kind of service, treatment staff, quality of service, amount of service, and outcome of service, as well as general satisfaction. Further, patients completed the BDI-II for a third time at a 2-week follow-up. Of note, we use the term *posttreatment* to refer to the assessments completed after participation in the LETS Act! treatment protocol, but while still in residential drug treatment and receiving the same standard drug treatment services. The participants had not yet been discharged from the residential treatment center and were thus still receiving standard residential substance abuse treatment during these follow-up assessments.

Procedure

Fifty-five adult inpatients were approached on the Friday closest to the start of their third week in the treatment center (mean = 15.2 days into treatment, SD = 4.1) and asked if they would like to participate in a treatment study focusing on improving mood. Potential participants were provided with a verbal description of the study and interested participants then provided written informed consent. The research protocol was approved by the University of Maryland Institutional Review Board. Data were collected from November 2005 to March 2006. Of the participants completing the baseline assessment (see Figure 1), 11 had BDI-II scores less than 10 and were therefore ineligible for the study. None of the patients approached declined to participate in the study. The remaining 44 patients (28 male and 18 female) met all the inclusion criteria and were randomly assigned to LETS Act! in conjunction with TAU to start the following Monday or to continue in TAU only. LETS Act! was scheduled to occur during free periods (e.g., recreational time) to prevent interference with regular substance use treatment for this group, thereby ensuring that TAU was equivalent across groups.

For TAU, which was provided to both groups, patients attended daily treatment groups including topics such as relapse prevention, functional analysis, stress management, anger management, and spirituality, as well as groups focusing on teaching basic education, life, and job skills. Patients also attended daily Alcoholics Anonymous/Narcotics Anonymous meetings. Treatment groups were conducted Monday through Thursday from 9 a.m. to 8 p.m., with breaks for meals and recreation. Patients were given specific jobs and spent the day cleaning the center on Fridays, with weekends reserved for free time, visitors (after their first 30 days), and center retreats.

The LETS Act! protocol is based on the empirically validated Behavioral Activation Treatment for Depression (BAT-D),[33] which has been used in both outpatient[34] and inpatient settings.[35] The BAT-D has been modified to accommodate the needs and lifestyles of a substance-using population currently receiving inpatient substance use treatment. Specifically, treatment included 6 sessions over a 2-week period and was provided in small-group format, with each group consisting of 3 to 5 patients. The first 3 sessions were approximately 1 hour in duration, and the last 3 sessions were scheduled for approximately 30 minutes. In addition, the vocabulary within the LETS Act! manual was simplified to be more comprehendible to those with limited educational background and cognitive deficits resulting from acute and more long-term pharmacologic effects of repeated drug use. Further, complex concepts and forms were eliminated, replaced, or modified. Finally, to address both the early (inpatient) and late (posttreatment) stages of substance use treatment, earlier sessions focused on modifying behavior in treatment,

Table 1. Overview of the Life Enhancement Treatment for Substance Use (LETS Act!) Protocol[a]

LETS Act! Protocol Overview
Session 1: introduction and life values and goals
Introduce treatment rationale
Discuss individual life values and goals
Begin self-monitoring of current activities and daily mood ratings
Progressive muscle relaxation
Session 2: identifying activities
Review self-monitoring and daily mood ratings
Identify activities for goals in corresponding life areas
Introduce behavioral contracts
Progressive muscle relaxation
Session 3: daily and weekly goals
Review self-monitoring and daily mood ratings
Review behavioral contracts
Introduce daily and weekly goals
Progressive muscle relaxation
Sessions 4–6: monitoring progress
Review daily and weekly goals
Integrate new activities into daily and weekly goals
Progressive muscle relaxation
Maintenance sessions
Review daily and weekly goals
Revisit life areas and discuss posttreatment life values and goals
Integrate new activities into daily and weekly goals
Progressive muscle relaxation

[a]A comprehensive treatment manual can be obtained from the first author (S.B.D.).

while later sessions gradually moved toward postdischarge planning and goals. Details regarding the content of LETS Act! sessions can be found in Table 1.

Therapist training occurred prior to the onset of the study. Specifically, 2 doctoral-level graduate students conducting the treatment were supervised and observed by a doctoral-level psychologist (S.B.D.) during a 2-week therapy group. The 2 graduate students were then observed leading a second group by the same supervisor. In addition, a 1-hour supervision session followed each treatment session. All therapy sessions were audiotaped, and the tapes were monitored using a therapist adherence checklist to ensure accuracy and consistency across sessions and groups. Supervision occurred immediately to clear up any discrepancies or issues noted in the tapes.

At the conclusion of the sixth session, the baseline measures were again completed (i.e., posttreatment assessment). The HAM-D was administered by the same interviewer from the baseline assessment; this individual was blind to group status. To increase the likelihood that gains would be maintained after treatment, all LETS Act! patients attended 30-minute maintenance group sessions for 2 consecutive weeks following the posttreatment assessment. The maintenance sessions focused on reviewing concepts introduced during that acute treatment phase (i.e., no new treatment concepts were introduced in those sessions). A brief follow-up assessment occurred after the last maintenance session, which included a third administration of the BDI-II. Patients receiving TAU were assessed on the same days as the LETS Act! patients, thus all aspects of the assessments were equated across groups.

Therapist and Treatment Adherence/Competency

A doctoral-level clinician and 2 trained graduate students (different from those administering the outcome assessment) co-led the LETS Act! treatment sessions. All LETS Act! sessions were audiotaped for weekly supervision by the first author (S.B.D.). In addition, 20% of these tapes were selected randomly for ratings of therapist competence and adherence by an independent evaluator with expertise in using behavioral activation strategies (D.R.H.). Ratings were made on a 9-point Likert scale ranging from 0 (no adherence/competence) to 8 (complete adherence/competence) on a session-by-session basis, with ratings for each session highlighting specific session objectives. Ratings indicated high therapist adherence (mean = 7.3, SD = 0.81) and competence (mean = 7.1, SD = 0.76) in administering LETS Act!

Statistical Analyses

Sociodemographic characteristics at baseline of the treatment groups were compared using t tests for continuous variables and χ^2 analyses for categorical measures. Changes from baseline to posttreatment were analyzed using repeated-measures analyses of variance and mixed repeated-measures analyses of covariance (ANCOVAs) with treatment group as the between-subjects factor and scores on the HAM-D, BDI-II, BAI, and EROS as the within-subjects factors. Differences in treatment attrition and satisfaction were assessed only at the end of treatment because treatment satisfaction measures were not applicable at pretreatment. An additional repeated-measures ANCOVA was conducted on BDI-II scores to include the 2-week follow-up. Data also were analyzed only with participants who attended all 3 assessment timepoints (i.e., excluding dropouts and those lost to follow-up) to ensure that findings across assessments were not unduly affected by attrition. As these analyses produced no significant change in the results, data with all participants are provided when available.

RESULTS

Baseline Characteristics, Demographics, and Rates of Study Retention

Baseline demographic and clinical characteristics of the overall sample and each treatment group (LETS Act! and TAU) are summarized in Table 2. The majority of patients were black (86.0%) and male (62.8%), and the mean (SD) age was 42.1 (10.3) years. One patient in the LETS Act! group and 3 patients in the TAU group were currently taking psychotropic medication for major depressive disorder and had been stabilized on this medication for a minimum of 3 months. There were no

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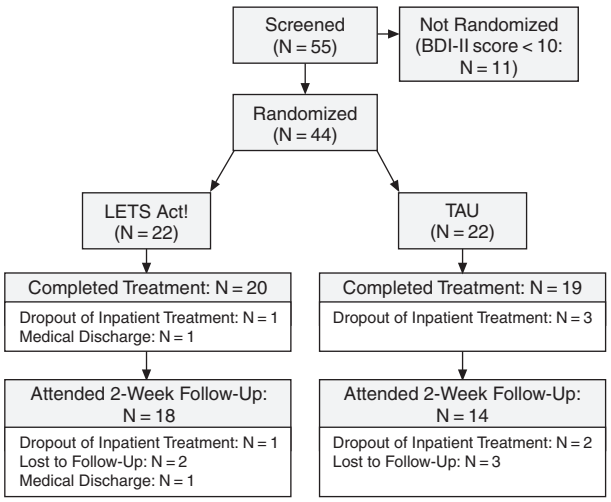
Table 2. Baseline Demographic and Diagnostic Characteristics for the LETS Act! and TAU Groups

Characteristic	LETS Act! (N = 22)	TAU (N = 22)	Statistic[a]	df
Male, %	66.7 (N = 15)	59.1 (N = 13)	$\chi^2 = 0.4$	1
Black, %	81.0 (N = 18)	90.9 (N = 20)	$\chi^2 = 0.9$	1
Age, mean ± SD	43.1 ± 9.7	41.1 ± 11.1	t = –0.62	42
Education, %			$\chi^2 = 1.6$	2
Some high school or less	31.8 (N = 7)	31.8 (N = 7)		
High school graduate or GED	54.5 (N = 12)	59.1 (N = 13)		
College graduate	13.6 (N = 3)	9.0 (N = 2)		
Psychotropic medication (> 3 mo), %	4.5 (N = 1)	13.6 (N = 3)	$\chi^2 = 1.1$	1
Major depressive disorder, %	36.4 (N = 8)	40.9 (N = 9)	$\chi^2 = 0.1$	1
Bipolar disorder, %	22.7 (N = 5)	31.8 (N = 7)	$\chi^2 = 0.5$	1
Anxiety disorder (panic, social phobia, OCD, or PTSD), %	40.9 (N = 9)	45.5 (N = 10)	$\chi^2 = 0.1$	1
Any mood or anxiety disorder, %	54.5 (N = 12)	68.2 (N = 15)	$\chi^2 = 0.9$	1
Drug dependence, %				
Cocaine	68.2 (N = 15)	68.2 (N = 15)	$\chi^2 = 0.0$	1
Heroin	36.4 (N = 8)	31.8 (N = 7)	$\chi^2 = 0.4$	1
Hallucinogens	18.2 (N = 4)	13.6 (N = 3)	$\chi^2 = 0.8$	1
Marijuana	22.7 (N = 5)	22.7 (N = 5)	$\chi^2 = 0.0$	1
Polysubstance	40.9 (N = 9)	36.3 (N = 8)	$\chi^2 = 0.1$	1
Alcohol dependence, %	27.3 (N = 6)	40.9 (N = 9)	$\chi^2 = 0.9$	1
Past year drug use frequency, mean ± SD	13.9 ± 7.7	12.9 ± 8.5	t = –0.32	42

[a]All statistics were not significant.
Abbreviations: LETS Act! = Life Enhancement Treatment for Substance Use, OCD = obsessive-compulsive disorder, PTSD = posttraumatic stress disorder, TAU = treatment as usual.

Figure 1. Inclusion, Exclusion, and Retention of Study Participants



Abbreviations: BDI-II = Beck Depression Inventory-II, LETS Act! = Life Enhancement Treatment for Substance Use, TAU = treatment as usual.

significant differences between the treatment groups on any of the demographic, substance use, or clinical variables at baseline.

As displayed in Figure 1, of the 22 patients randomly assigned to LETS Act!, 20 completed the treatment and posttreatment assessment (1 patient dropped out of the inpatient substance use treatment center and 1 patient was medically discharged during the LETS Act! treatment), and 18 were available for the 2-week posttreatment BDI-II assessment (1 patient dropped out of the inpatient substance use treatment center, 1 patient was medically discharged during the LETS Act! treatment, and 2 additional patients remained in treatment but were unavailable due to a physician visit and court appointment). Of the 22 patients randomly assigned to TAU, 19 completed the treatment and posttreatment assessment (3 patients dropped out of the inpatient substance use treatment center during the treatment phase), and 14 were available for the 2-week posttreatment BDI-II assessment (2 patients dropped out prior to the 2-week posttreatment BDI-II assessment and 3 additional patients remained in the center but were unavailable due to physician visits and a court appointment). There was no significant difference in availability for assessments between the LETS Act! and TAU groups ($\chi^2 = 1.83$, df = 1, p = .31).

Efficacy

Outcome data from the baseline, posttreatment, and 2-week follow-up assessments for the completer sample are provided in Table 3 and Figures 2A–C.

Treatment as usual (TAU). For the TAU group, repeated-measures analyses indicated no significant changes in HAM-D depressive symptoms, anxiety symptoms (BAI), or enjoyment and reward value in activities (EROS) from the pretreatment to posttreatment assessment timepoints. A significant improvement in depressive symptoms (BDI-II) was exhibited from the pretreatment to posttreatment assessment ($F = 7.6$, df = 1,13; $p < .05$, $\eta^2 = 0.37$), but not from the pretreatment to 2-week follow-up assessment. Further, approximately 22.7% (N = 5) of participants in the TAU group dropped out of the inpatient treatment center for nonmedical reasons, and the mean (SD) client satisfaction rating was

Table 3. Mean Outcome Differences Between the LETS Act! and TAU Groups

Variable	Baseline		Posttreatment		2-Week Follow-Up		Statistic		
	LETS Act! (N = 22)	TAU (N = 22)	LETS Act! (N = 20)	TAU (N = 19)	LETS Act! (N = 18)	TAU (N = 14)	F	df	η^2
Depression severity (HAM-D score)	12.4 ± 11.3	14.1 ± 8.2	6.7 ± 6.6	14.9 ± 9.5	…	…	7.5	1,37	0.17*
Anxiety symptoms (BAI score)	15.7 ± 11.9	16.8 ± 12.3	10.7 ± 9.9	15.4 ± 13.3	…	…	2.6	1,37	0.07
Reward value of activities (EROS score)	22.7 ± 4.6	23.8 ± 5.2	26.0 ± 3.9	25.0 ± 4.8	…	…	8.1	1,37	0.18*
Treatment satisfaction (TSQ score)	…	…	27.6 ± 2.8	24.6 ± 2.8	…	…	10.8	1,37	0.23*
Depressive symptoms (BDI-II score)[a]	21.3 ± 8.2	20.0 ± 10.5	13.6 ± 10.6	14.4 ± 9.2	11.3 ± 9.9	15.7 ± 10.1	1.0	1,37	0.03
							6.3	1,30	0.17**

[a]Baseline to posttreatment: F = 1.0, df = 1,37, η^2 = 0.03. Baseline to 2-week follow-up: F = 6.3, df = 1,30, η^2 = 0.17.
*p < .01.
**p < .05.
Abbreviations: BAI = Beck Anxiety Inventory, BDI-II = Beck Depression Inventory-II, EROS = Environmental Reward Observation Scale, HAM-D = Hamilton Rating Scale for Depression, LETS Act! = Life Enhancement Treatment for Substance Use, TAU = treatment as usual, TSQ = Treatment Satisfaction Questionnaire.
Symbol: … = no data.

24.6 (2.8), indicating a moderate level of satisfaction. The BDI-II analyses were conducted with a reduced sample because of missing 2-week postassessments due to treatment dropout or unavailability for assessment as outlined above. However, reanalyzing the baseline to posttreatment assessment above with all participants resulted in similar findings as those found with the reduced sample.

Life Enhancement Treatment for Substance Use (LETS Act!). For the LETS Act! group, repeated-measures analyses indicated significant improvements in BDI-II depressive symptoms (F = 13.4; df = 1,17; p < .01; η^2 = 0.44), HAM-D depressive symptoms (F = 12.0; df = 1,19; p < .01; η^2 = 0.39), anxiety symptoms (BAI; F = 8.4; df = 1,19; p < .01; η^2 = 0.31), and enjoyment and reward value in activities (EROS; F = 9.6; df = 1,19; p < .01; η^2 = 0.18) from the pretreatment to posttreatment assessment timepoints. In addition, improvements in BDI-II depressive symptoms were observed from the pretreatment to 2-week follow-up assessment (F = 5.2; df = 1,17; p < .05; η^2 = 0.24). Approximately 4.5% (N = 1) of participants in the LETS Act! group dropped out of the inpatient treatment center for nonmedical reasons, and the mean (SD) client satisfaction rating was 27.6 (2.8), indicating a high level of satisfaction.

LETS Act! versus TAU. As indicated in Figures 2A–C, there were significant group × time interactions between the 2 groups on HAM-D score (F = 7.5; df = 1,37; p < .01; η^2 = 0.17) and EROS score (F = 8.1; df = 1,37; p < .01; η^2 = 0.18) from the pretreatment to posttreatment assessment timepoints, indicating the superiority of LETS Act! over TAU. Further, there was no interaction for BDI-II from the baseline to the posttreatment assessment, yet a significant group × time interaction was evidenced for BDI-II from the preassessment to 2-week follow-up assessment (F = 6.3; df = 1,30; p < .05; η^2 = 0.17), such that LETS Act! patients evidenced significantly greater improvements than the TAU group. There was a significant difference in posttreatment satisfaction scores, with the LETS Act! group indicating a significantly higher satisfaction rating than the TAU group (F = 10.8; df = 1,37; p < .01; η^2 = 0.23). Although fewer of the LETS Act! participants dropped out of the inpatient treatment center for nonmedical reasons, this finding did not quite reach significance (χ^2 = 3.3, df = 1, p = .068), yet the high odds ratio is noteworthy (β = 1.82, SE = 1.14, odds ratio = 6.18).

DISCUSSION

The current study is the first to demonstrate the effectiveness of integrating a depression-focused treatment into an inpatient substance abuse treatment program. Specifically, patients receiving LETS Act! reported significantly higher pretreatment to posttreatment improvements in severity of depression, anxiety sensitivity, and enjoyment and reward value of activities compared with the TAU group. Further, although both groups reported improvements in depressive symptoms from pretreatment to posttreatment, depressive symptoms among the LETS Act! group continued to decrease at the 2-week follow-up, whereas the TAU group's depressive symptoms evidenced an increasing trend. Although behavioral approaches such as motivational interviewing,[44] CBT,[45] and contingency management[46] have been applied to treat substance dependence in those with co-occurring mood disorders, these treatment approaches do not specifically target depression. As such, the current results are particularly novel and provide a first step in the development of specialized depression-focused treatment for substance-dependent patients with elevated depressive symptoms.

An additional limitation of previous studies includes the absence of effectiveness studies in community-based settings.[20] The preliminary data from this study suggest the feasibility of integrating the treatment into a standard community-based inpatient substance abuse treatment center. First, treatment occurred in small groups (3–5 patients), thereby reducing therapist burden, while at the same time

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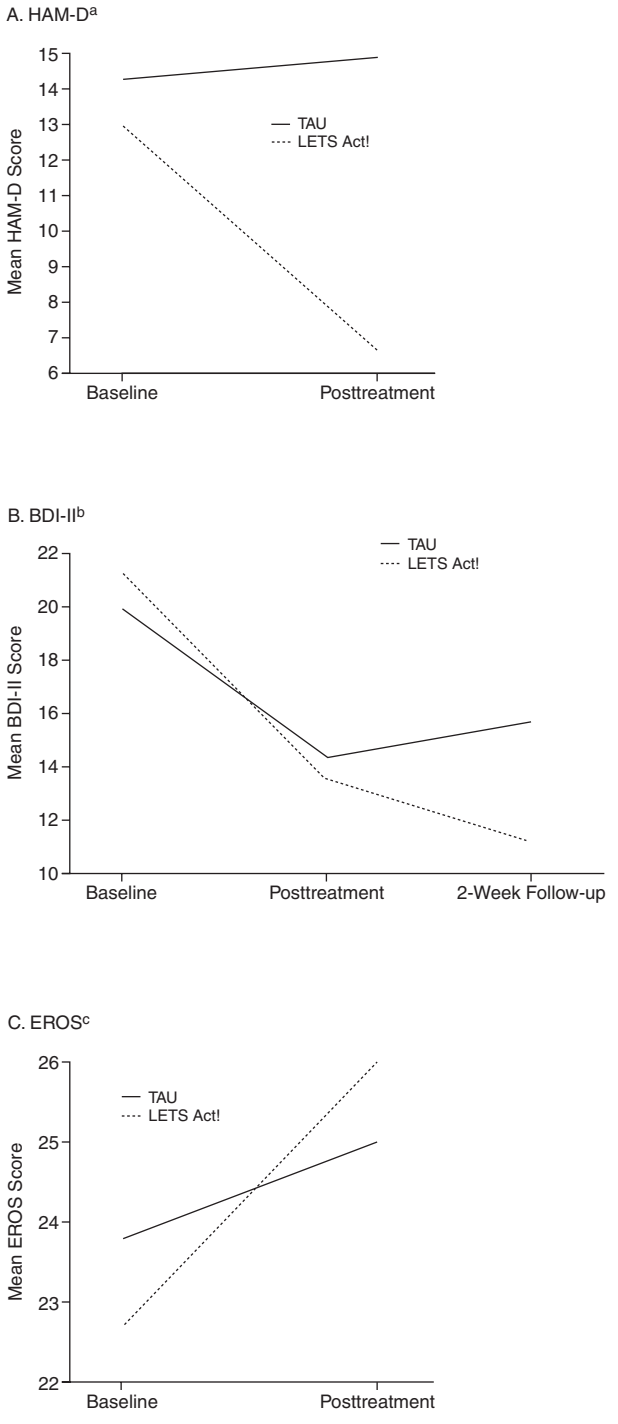
Figure 2. Baseline, Posttreatment, and 2-Week Follow-Up Assessments for the LETS Act! and TAU Groups



[a]$p < .01$, $h^2 = 17\%$.
[b]$p < .05$, $h^2 = 17\%$.
[c]$p < .01$, $h^2 = 18\%$.
Abbreviations: BDI-II = Beck Depression Inventory-II, EROS = Environmental Reward Observation Scale, HAM-D = Hamilton Rating Scale for Depression, LETS Act! = Life Enhancement Treatment for Substance Use, TAU = treatment as usual.

allowing for a moderate level of individual attention and the benefits of group support. Second, the reduction of complex material to meet the needs of a chronic substance-abusing sample with limited educational background was successful. Patients were able to complete the in-treatment exercises and homework on their own with limited therapist assistance. Third, patient satisfaction for LETS Act! was strong and significantly higher than TAU. Fourth, prior evidence indicates that behavioral activation-based treatments can be provided by nondoctoral-level therapists, who often serve as the primary counselors in these treatment settings.[34,47] Finally, although the small sample size limited the power to detect an effect, it is of note that LETS Act! may be useful for improving substance use outcomes, as only 4.5% of the LETS Act! group dropped out of the inpatient substance use treatment center for nonmedical reasons by the end of the 2-week follow-up assessment compared with 22.7% of the TAU group.

This study has a number of limitations. First, the sample was composed of primarily black crack/cocaine and heroin users treated in an inpatient setting, thereby limiting generalizability. Testing of this treatment in more diverse settings (e.g., outpatient and less restrictive inpatient care) and samples is needed. Second, although we did so to limit patient burden in this initial investigation, we only obtained data beyond posttreatment with the BDI-II at a 2-week follow-up period. A longer follow-up period and more comprehensive assessment including psychiatric diagnoses and substance use outcomes (i.e., relapse) are needed in future studies to assess long-term treatment gains across assessment domains. Third, the access to pharmacologic treatment for patients at this inpatient treatment center was limited. As such, examining the effectiveness of LETS Act! both compared to and combined with pharmacologic treatments specifically designed to treat depression among these illicit drug users would have considerable benefit for samples that have access to pharmacologic treatment. Fourth, although patients in this study had elevated depressive symptoms, not all of the patients met full criteria for DSM-IV major depressive disorder. Future studies are needed to determine the generalizability of results to individuals with major depressive disorder. Finally, although TAU provided an appropriate control group to examine the natural short-term course of depression in an inner-city residential treatment setting, future studies should utilize more active control groups including other viable treatments from a variety of theoretical orientations.

Despite these limitations, this study provides preliminary support for the efficacy of LETS Act! in treating depressive symptoms and improving the enjoyment and reward value of activities among illicit drug users currently receiving inpatient substance use treatment. These findings are particularly encouraging given evidence suggest-

ing an increased risk for relapse among depressed substance users, combined with the lack of treatments utilizing behavioral techniques to treat depression among this at-risk group. Future research should investigate the efficacy of LETS Act! over longer follow-up periods using broader assessment measures, the transportability of LETS Act! to diverse treatment settings, and its efficacy when combined with pharmacologic treatment.

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