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Final Report

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Treatment of Incarcerated Women with Substance Abuse
and Posttraumatic Stress Disorder

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The dramatic increase in numbers of the female prison population since 1980 has been attributed to drug offenses, increasingly punitive responses to these crimes, and the lack of viable treatment for these women (Bloom, 1994). Between 1990-1996, the rate of women's drug possession convictions increased by 41% and drug trafficking convictions rose by 34% (U.S. Department of Justice, 1999a). A 1997 survey of State prisoners documented that over 40% of female inmates were under the influence of drugs at the time of their offense, compared to 32% of male inmates (U.S. Department of Justice, 1999b). In addition to high rates of drug use among women prisoners, incarcerated women report extensive histories of interpersonal violence (Singer et al., 1995). The high rates of recidivism among women prisoners has been explained, in part, by the use of illegal substances compounded by high levels of physical and sexual abuse (Bloom, 1994). Thus, the use of illegal substances and interpersonal victimization appear to play key roles in the lives of women prisoners.

Besides high rates of substance use and trauma among incarcerated women, there are other reasons to conduct research on the development and testing of new treatments for incarcerated women with both disorders. These are: 1) A dual diagnosis of posttraumatic stress disorder (PTSD) and substance use disorder (SUD) is associated with a more severe course than would occur with either disorder alone. 2) To date, no treatment that address the specific clinical needs of incarcerated women with comorbid PTSD and SUD have been developed or systematically evaluated.

Prevalence rates for drug abuse or dependence in women prisoners range from 26% to 63%, and alcohol abuse or dependence rates range from 32% to 39% (Jordan et al., 1996; Teplin et al., 1996; Daniel et al., 1988). Current drug abuse or dependence rates range from 30% to 52%, and alcohol abuse or dependence rates range from 17% to 24% (Jordan et al., 1996; Teplin et al., 1996). Women inmates are five to eight times more likely to abuse alcohol than women in the general population, ten times more likely to abuse drugs and 27 times more likely to use cocaine (Covington, 1998; Desjardins et al., 1992; Jordan et al., 1996; Teplin et al., 1996). According to the Center for Substance Abuse and Treatment (1997), "up to 80% of all female offenders in some state prison now have severe, long-standing substance abuse problems," (p. 2). Furthermore, in several studies of women inmates, the most common offenses for incarceration were drug-related crimes (Covington, 1985; Inciardi, 1987; Jordan et al., 1996; Silverman, 1982). Biron et al. (1995) found that 60.7% of women inmates used at least one substance on the day of the offense, and over 84% report drugs played a role in the

criminal activity (Biron et al., 1995).

Prevalence rates of PTSD in the female prison population have been less well studied compared to those of SUD. The only study, to date, to examine the rates of PTSD in women prisoners found that among female jail detainees awaiting trial, PTSD was the most common disorder, besides SUD, with prevalence rates of 33.5% for lifetime PTSD and 22.3% for current PTSD (Teplin et al., 1996). These rates of PTSD among women prisoners are more than three times the rates of PTSD reported in a community sample of women (Kessler et al., 1995). Further, research has shown that 78 to 85% of incarcerated women have experienced at least one traumatic event (Jordan et al., 1996; Lake, 1993; Singer et al., 1995) compared to 69% of the general female population (Resnick et al., 1993). In particular, childhood abuse is strongly associated with PTSD (Rowan et al., 1993) and is common among incarcerated women, with 23 to 48% of women prisoners reporting such experiences (Greenfeld et al., 1991; Singer et al., 1995).

The co-occurrence of SUD and PTSD among incarcerated women is high (Zlotnick, 1997); a finding that is consistent with research with community samples that have found that women with current PTSD have a 1.4 to 5.5 times higher risk for comorbid SUD compared to women without PTSD (Helzer et al., 1987; Kilpatrick et al., 1996; Kessler et al., 1995; Kulka et al., 1990). In the study of women prisoners, 56% of the incarcerated women with lifetime substance abuse disorder met criteria for current PTSD. Also, of those women with current PTSD, all but one woman prisoner reported a lifetime substance abuse disorder.

For individuals with PTSD or those with SUD, psychiatric comorbidity has been identified as a poor prognostic factor. Compared to substance abusers without PTSD, studies have found that those patients with PTSD have poorer treatment compliance, a poorer course of substance abuse, more inpatient admissions, more medical problems, higher rates of recidivism, greater criminal behavior, and expect fewer benefits from discontinuing substance use (Brady et al., 1994; Brown et al., 1994; Druley & Pashko, 1988; Ouimette et al., 1997). Several studies have reported that a dual diagnosis of PTSD and SUD is associated with use of the most severe drugs (Cottler, et al., 1992; Dansky et al., 1995; Goldenberg et al., 1995). Further, patients with SUD plus PTSD evidence significantly more avoidant and arousal symptom clusters and greater sleep disturbances than those with SUD alone (Saladin et al., 1995). Also, research that has compared patients with PTSD and SUD to those with SUD alone has found that the former report poorer psychosocial functioning in that they have more interpersonal

problems (Najavits et al., 1995), homelessness (Smith et al., 1993; Paone et al., 1992), unemployment (Ouimette et al., 1997), and maltreatment of their children (Famularo et al., 1992).

Several authors have emphasized the need to integrate the treatments of PTSD and SUD to better meet the specific needs of these patients and in particular, alleviate suffering sooner (Brady et al., 1994; Brown et al., 1994; Evans & Sullivan, 1995; Fullilove et al., 1993; Kofoed et al., 1993; Ouimette et al., 1997). The rationale for the development of treatments that target concurrently the symptoms of PTSD and SUD is based on research findings that this dual diagnosis is characterized by a more severe course and greater psychosocial impairment than would occur with either disorder alone (see section above). Thus, by not addressing the PTSD symptoms early in treatment, there is the risk of relapse of SUD and recidivism.

A limited number of treatment approaches have been developed or tested for this dual diagnosis. Of the four manualized psychosocial treatments that have been developed and empirically tested thus far, all fit either a coping skills model, e.g., Abueg's 12-session relapse prevention model for veterans with alcoholism (Abueg, 1994) and Najavits' 25-session Seeking Safety: A Cognitive-Behavioral Psychotherapy (SS) (Najavits, 2002) (described in more detail below), or a combination of coping skills plus exposure. The combination of coping skills plus exposure is represented by Brady and colleagues (Brady et al., 2001) using a combination of in vivo and imaginal exposure plus relapse prevention; and Triffleman and colleagues' Substance Dependence Posttraumatic Stress Disorder Therapy (Triffleman et al., 1999) using relapse prevention plus in vivo exposure, without imaginal exposure. There are several reasons why an exposure-based treatment may not be suitable for incarcerated women with PTSD and SUD. Triffleman and colleagues (1999) recommend that their treatment may not be suitable for survivors of childhood sexual abuse who can have difficulties with relationships and maintaining self-safety; childhood sexual abuse and the associated features are frequently found among incarcerated (Jordan et al., 1997; Zlotnick, 1997; Zlotnick, 1999). Furthermore, many experts have asserted that an exposure-based treatment for survivors of childhood abuse can "magnify the horror" and result in decompensation (Herman, 1992). Support for this view is found in the poor treatment response to trauma-focused groups by highly distressed women (Follette et al., 1991), and in reports from the clinical literature that high drop-out rates and increased levels of anxiety are common in these groups (Goodman & Nowak-Scibelli, 1985). In one trauma disclosure group for survivors of sexual abuse, the

authors reported that 29% of the group participants showed an increase in their level of psychological distress after the intervention (Roberts & Gwat-Yong, 1989). The resulting exacerbation of symptoms has been attributed to deficits in self-soothing and affect regulation; common features of incarcerated women, especially among those with PTSD or histories of childhood abuse (Jordan et al., 1997; Zlotnick, 1997; Zlotnick, 1999). Consistent with this notion that exposure treatment may be overwhelming to some individuals, the treatment study by Brady and colleagues (2001) in which patients with SUD and PTSD received exposure treatment, the majority of patients (61.54%) did not meet the minimum dose of the treatment.

Despite the obvious need for effective SUD treatment programs in prison settings, the research literature is limited and little research supports the effectiveness of prison substance abuse treatment programs (Leukefeld & Tims, 1992). Results of substance abuse treatment efforts with the criminal justice population are mixed so treatment recommendations are limited. For instance, the most commonly published prison substance abuse treatment studies are based on the therapeutic community (TC) approach. In two studies that evaluated a modified TC for prison inmates (Field, 1985; 1989), participants showed enhanced self-esteem, decreased psychiatric impairment, and reduced criminal activity and recidivism. In another study evaluating a TC program in the correctional system (Wexler et al., 1988; 1990), TC participants showed no better outcomes than counseling program participants, milieu therapy program participants, and no treatment participants. Most studies are flawed with serious methodological and design problems including a lack of adequate control/comparison groups (e.g., Field, 1985; 1989). Even in studies which included comparison groups (e.g., Lowe, 1997; Wexler et al., 1988; 1990) participants were not randomly assigned and therefore internal validity was compromised. Further, follow-up intervals have not always been equal for all participants, important outcomes have not assessed, and few standardized measures with known psychometric properties have been used.

Unfortunately, there is little research available describing the effectiveness of treatment for substance-abusing women prisoners (Henderson, 1998; Peters et al., 1997). Additionally, there is a dearth of treatments that have been developed specifically to meet the needs of women prisoners with SUD (Prendergast & Wellisch, 1995). The few programs that exist in jails and prisons are often designed using approaches first developed for male inmates (Peters et al., 1997). Numerous authors have advocated the need for gender-specific substance abuse treatments for incarcerated women based on

research findings, which have identified differential needs between male and female inmates (e.g., Austin et al., 1992; Henderson, 1998; Peters et al., 1997; Prendergast & Wellisch, 1995). In particular, these authors have consistently stressed the importance of services for incarcerated women that address both drug abuse and victimization (i.e., sexual violence and domestic violence). Finally, incarcerated women themselves appear motivated to receive services for both substance abuse and interpersonal violence. In a recent survey designed to assess the needs of incarcerated women, the service most frequently rated as very important was a service related to childhood physical and sexual abuse, and over 80% rated drug dependency/addiction-related services as very important (Sanders et al., 1997).

The overall goal of this study was to evaluate the initial efficacy, feasibility, and acceptability of "Seeking Safety (SS)" treatment in a sample of incarcerated women with comorbid PTSD and SUD. More specifically, the aims of this study were to conduct an open feasibility trial of "Seeking Safety (SS)" treatment in a sample of 6 incarcerated women with SUD and PTSD, and to conduct a randomized controlled pilot study to evaluate the initial efficacy, feasibility, and acceptability of the proposed treatment as an adjunct to treatment as usual (TAU) compared to a TAU control group in a sample of 22 incarcerated women with comorbid PTSD and SUD. Regarding the randomized study, our primary hypothesis was that, compared to the TAU condition, women in the SS treatment condition will have less severe drugs and alcohol use as well as fewer PTSD symptoms and legal problems after the intervention, and at 6-weeks and 3-months postrelease. Seeking Safety: A Cognitive-Behavioral Psychotherapy (SS) treatment, which is based on an integration of the literature on SUD and PTSD, is a psychosocial treatment for women with comorbid PTSD and SUD, and is currently the treatment with the most efficacy data for this population (Najavits, 2002). SS treatment appears to be a promising intervention for incarcerated women with PTSD and SUD because the treatment targets many of the deficits found in this population that may interfere with their recovery and place these women at risk for reoffending, such as impulsiveness, anger dyscontrol, and maladaptive lifestyle activities, and teaches skills to manage these problematic behaviors.

Method

Participants:

All participants were drawn from the substance abuse treatment program (Discovery Program) in the minimum security arm of Women's Facility of the Adult Correctional Institution (ACI) in Rhode Island. Discovery Treatment services is a voluntary, residential therapeutic program within the minimum security wing. The standard treatment is an abstinence-oriented program that focuses on substance abuse as a disease and as a maladaptive behavior pattern and on the 12-step model (AA, CA, NA). Treatment is primarily in group format in which all women are required to participate in order to remain in the program.

A research assistant reviewed all admissions to Discovery Program on a weekly basis for possible inclusion. All new admissions to the Discovery Program were approached approximately 12-14 weeks prior to their release date and told about the study.

Of those potential recruits who consented to participate in the study, participants of the study were those women who met DSM-IV criteria for PTSD within the last month as determined by the Clinician Administered Posttraumatic Stress Disorder Scale-I (CAPS-I) (Blake et al., 1990) and SUD within the last month and substance abuse or dependence prior to entering prison as determined by The Structured Clinical Interview for DSM-IV (SCID) (First et al., 1996). Participants were excluded if they a) were actively psychotic (hallucinating or delusional) at the time of recruitment, b) could not understand English well enough to understand the consent form or the assessment instruments, and benefit from the treatment, c) were diagnosed with organic brain impairment.

Protocol:

The first 6 participants received SS group treatment as an adjunct to the treatment provided by the Discovery Program (pilot study). The remaining participants were randomly assigned to either the control group (treatment-as-usual (TAU)) (N=10) or received SS treatment as an adjunct to TAU (N=12) (experimental study). In the randomized trial, there were three groups of four women who received the group treatment rather than 6 women in a group. Based on our open trial, we found that due to the women's severity of symptoms, the women required a level of attention that is not always possible to provide in a larger group. Sessions were 90-minutes long and were held twice a week for 12 weeks. All the participants received the standard treatment provided at Discovery Program.

The treatment groups were conducted by clinicians who worked as substance abuse therapists in the Discovery Program, and a clinical psychologist from Brown University. One of the therapists was a cotherapist for all treatment groups in this study. All SS therapists received training in delivering SS therapy from Lisa Najavits (Dr. Najavits developed SS treatment), and received weekly supervision for the duration of the study from Dr. Najavits.

SS Treatment:

SS treatment draws upon the tradition of four literatures: cognitive-behavioral therapy of substance abuse (Beck et al., 1993; Carroll et al., 1991; Marlatt & Gordon, 1985), PTSD treatment (Herman, 1992), women's treatment (Jordan et al., 1991) and educational research (Najavits & Garber, 1989). Key facets of the treatment include the following. Each session focuses on developing a specific cognitive, behavioral, or interpersonal skill, with each skill designed to combat *both* disorders simultaneously. (For example, distraction techniques can be used for triggers of both drug abuse and PTSD.) The primary goals of the treatment are abstinence from substances and personal safety (e.g., from self-harm, HIV risk, domestic abuse). The treatment seeks to "translate" CBT into the language and themes of these patients, with therapy sessions on topics such as *honesty, asking for help, setting boundaries, integrating the split self, compassion, and taking good care of yourself*. The treatment also focuses heavily on helping women avoid extreme relationship patterns that re-evoked past abusive relationships (e.g., overcompliance, enmeshment, isolation, and identification with aggressors that can lead to retraumatization). The treatment emphasizes therapeutic processes that offset PTSD and substance abuse (e.g., giving the patient "control" whenever possible, as both trauma and drug abuse typically diminished patients' sense of control). The treatment is described in detail in Najavits (2002).

Measures:

Assessments were conducted at pretreatment, posttreatment (during incarceration) and 6- and 3-months postrelease for PTSD-related measures and measures of severity of substance abuse and legal problems were given at pretreatment, as well as the 6- and 12-weeks postrelease intervals. A bachelor level research assistant administered all the measures. The research assistant received training from the Clinical Assessment and Training Unit of Brown University Department of Psychiatry and Human Behavior, an established training program for these measures. This training protocol has led to high levels of reliability and has been used successfully in research projects for the past 6 years.

Substance Use Disorder (SUD).

The Addiction Severity Index (ASI) (McLellan et al., 1992) was used to assess change in severity of substance abuse in the past 30 days. At intake the women were assessed for substance use in the 30 days prior to entering prison. The Structured Clinical Interview for DSM-IV (SCID (First et al., 1996) module on substance use was used to provide a diagnosis of alcohol use or dependence or drug abuse or dependence. Urine drug screens were completed at each postrelease point to detect recent drug use. Also, a significant other (SO) was contacted and interviewed to provide collateral information about drug and alcohol use, at each postrelease period.

Posttraumatic Stress Disorder (PTSD).

The Clinician Administered Posttraumatic Stress Disorder Scale-I (CAPS-I) (Blake et al., 1990) provided a diagnoses of PTSD as well as an assessment of the degree of PTSD symptoms (a composite score from the CAPS of the intensity and severity of PTSD symptoms). The CAPS-I has demonstrated sound psychometric properties and excellent diagnostic utility against the SCID PTSD diagnosis (Blake et al., 1990; Weathers et al., 1993), with better psychometrics than the SCID for PTSD.

Traumatic Event History.

To assess lifetime history of trauma: the Trauma History Questionnaire (THQ; Greene, 1995) was given at pretreatment. This measure yields four frequency scores: physical, sexual, general disaster, and crime-related traumas.

Legal Problems.

The legal composite score from the ASI was used to assess change in criminal activities. The legal composite index contains information about arrests, incarcerations, and engagement in criminal activity since release from prison. At intake the women were

assessed for legal problems in the 30 days prior to entering prison.

Patient Satisfaction with Treatment.

At posttreatment, participants' view of treatment was assessed on the Helping Alliance Questionnaire-II (Haq-II; Luborky et al., 1996) and the Client Satisfaction Questionnaire (Attkisson & Zwick, 1982). Using a sample of patients with Cocaine Dependence Disorder, research has shown that the Haq-II has excellent internal consistency, good convergent validity, and test-retest reliability (Luborsky et al., 1996).

At posttreatment, patients' perceptions of the helpfulness of treatment components of SS treatment was assessed with the End-of-Treatment Questionnaire (Najavitis, 1994).

Therapist Assessments (Adherence).

An Adherence-Competence Scale (Najavitis & Liese, 1997) assessed therapist performance of specific interventions and group processes, each rated on adherence (amount of the behavior) and competence (skillfulness of the behavior), scaled -3 to +3. Ratings were completed by Dr. Najavits on all sessions. She found that the therapists who delivered SS treatment met at least adequate levels of competence and adherence.

Data Analysis.

Several topics were addressed: (1) characteristics of the total participants sample at baseline, (2) participants' satisfaction with SS treatment, (3) outcome of participants who received SS treatment (open trial study including participants from the pilot study and the experimental study), and (4) outcome of participants who received SS treatment as an adjunct to TAU compared to those in the control condition (TAU). Outcome was defined as substance use as determined by the SCID, degree of drugs and alcohol use as measured by the ASI subscale for severity of alcohol and drug use, PTSD symptoms as measured by the composite score of the CAPS, and legal problems as measured by the ASI subscale for legal severity. Percent of women who no longer meet criteria for a diagnosis of PTSD based on the CAPS was also considered.

Topics 1 and 2 were addressed using frequency data. Topic 3 was analyzed via paired *t*-tests. Topic 4 was analyzed using a split-plot test analyses of variance (ANOVA).

Results

The sample of incarcerated women who participated in the present study had fairly similar sociodemographic and criminologic characteristics (i.e., age, ethnicity, type of offense, and length of sentence) to the population of incarcerated women in the Discovery Program at the Women's Facility of the Adult Correctional Institution (ACI) in Rhode Island. Table 1 presents demographic and criminologic characteristics of the sample of incarcerated women who participated in this study (N=28). Table 2 shows the types of traumatic events reported (N=28). The mean age of first onset for PTSD was 15.0 (SD=7.53) years of age and the mean age of first onset for SUD was 12.21 (SD = 4.4) years of age. The average length of abstinence from all substances was 11 months (SD = 9.55). There were no significant differences between the participants in the pilot study and those participants in the experimental study at intake in sociodemographic and criminologic characteristics, trauma histories, degree of PTSD symptoms, severity of substance use, and degree of legal problems at intake. Likewise, there were no significant differences between the treatment group and control group in these intake variables. There was a nonsignificant trend towards the control group reporting less severe substance use at intake (M=.29; SD=.216) than the treatment group (M=.42; SD=.15) ($t= 1.60, df= 10, 12, p = .07$). A similar trend was found for severity of alcohol use at intake with the control group reporting less alcohol use at intake (M=.36; SD=.35) than the treatment group (M=.55; SD=.26) ($t= 1.41, df= 10, 12, p = .08$).

Satisfaction with SS Treatment.

There was a high degree of acceptability of the treatment in that 90% of the women who were approached to participate in the study agreed to participate in the study. All women who were offered treatment, began treatment. Only two women (11%) dropped out of SS treatment. One woman dropped out of the group after the second session due to her decision to transfer out of Discovery Program, the substance abuse program in prison, and was therefore not allowed to attend any groups in the Program. One woman left because she had pregnancy complications and was hospitalized, but posttreatment data were collected on this participant. Of the remaining women who received the SS treatment (N=15), the attendance rate for the treatment was 83% of available sessions. Some women (65%) were unexpectedly released early, that is, before the 12-week period prior to entry of the study. On average, women attended 14 sessions with a range of 6 sessions to 24 sessions.

The mean ratings of the items on the End-of-Treatment Questionnaire (Najavits,

1994), which provide information on the specific aspects of SS treatment clients found most helpful (items scaled from -3, very harmful to +3, very helpful), were all rated 2.50 or above. More specifically, *the therapist overall M = 3.00 (SD =0), the treatment overall M = 2.83 (SD =.39) focus on the relationship between PTSD and SUD M = 3.00 (SD =0), helpfulness of treatment for PTSD M = 2.93 (SD =.29) and helpfulness of treatment for SUD M = 2.83 (SD =.39)*. The mean score on the Client Satisfaction Questionnaire (Attkisson & Zwick, 1982) (scaled 1 to 4 with 4 the highest) was 3.45 (SD=.52) for both therapists at the end of treatment. Patient alliance with treatment, as measured by the Helping Alliance Questionnaire-II (Luborsky et al., 1996) (scaled 1 to 6, with 6 the strongest alliance), showed a combined mean of 4.7 (SD=.53) for both therapists at the end of treatment.

Outcome of Participants who received SS Treatment

Of the women who received SS treatment (N=18) there was follow-up data for 17 woman at posttreatment, 16 at 6-weeks postrelease, and 15 at 3-months postrelease. Results showed that 9 (53%) of the women no longer met criteria for PTSD posttreatment, at 6-weeks postrelease 7 (44%) no criteria for PTSD at 3-months postrelease 46% no longer met criteria for PTSD. Paired t-tests found that for those received SS treatment there was a significant decrease in PTSD symptoms from pretreatment to posttreatment ($t=3.81$, $df = 17$, $p=.002$), from pretreatment to 6-weeks postrelease ($t=2.67$, $df = 16$, $p=.02$) and from pretreatment to 3-months postrelease ($t=2.25$, $df = 15$, $p=.04$) (see Table 3).

Within 6-weeks of release, 2 (11%) of the woman returned to prison, and within 3-months of release 6 (33%) returned to prison. Only one instance occurred in which the urinalysis result was positive and the self-report was negative (at the 6-weeks follow-up). On the basis of this case's positive urinalysis, she was categorized as a substance abuse user and her baseline data on the ASI subscales of drug use and alcohol use for 6-weeks and 3-months postrelease were set at their intake value. During incarceration, random urine drug screens were given, and none of the women received a positive urinalyses. There were two instances in which the significant others report were positive for drug use and the self-report was negative (at the 3-months follow-up). Based on the self-report of substance use from the SCID and the results of the urinalysis, within the 6-weeks follow-up, 5 (29%) of the women reported the use of illegal substances and within 3-months one other women reported substance use. There were a total of 6 (35%) of the women who had reported using illegal substances within 3-months of release. Participants showed a

significant decrease in drug use and alcohol use, and in degree of legal problems from pretreatment to 6-weeks postrelease ($t=6.09$, $df = 1, 15$, $p=.001$) ($t=3.06$, $df = 1, 15$, $p=.002$) ($t=5.13$, $df = 15$, $p=.001$), respectively, and to 3-months postrelease ($t=4.61$, $df = 1, 14$, $p=.001$) ($t=2.88$, $df = 1, 14$, $p=.01$) ($t=4.16$, $df = 1, 14$, $p=.001$), respectively (see Table 3).

Comparison of Outcome Between Participants who received SS Treatment and Control Group

Three (30%) of the women in the control group dropped out of the study. A 2X 4 split-plot test ANOVA was conducted with Time [pretreatment, posttreatment, 6-weeks postrelease, 3-months postrelease] X Treatment (treatment group (TX) (N=12), treatment as usual (TAU) (N=7)), with time as a repeated measure and the dependent variable as severity of PTSD symptoms. The split-plot test ANOVA on the outcome measures revealed a significant main effect for time for PTSD symptoms, $F(2, 13) = 7.47$, $p = .001$, and no significant Treatment X Time interaction for PTSD symptoms, $F(2,13) = .37$, $p = .77$.

Only one instance occurred in which the urinalysis result was positive and the self-report was negative for the treatment condition (9.1%). On the basis of this case's positive urinalysis, she was categorized as a substance abuse user and her baseline data on the ASI subscales of drug use and alcohol use for 6-weeks and 3-months postrelease were set at their intake value. During incarceration, random urine drug screens were given, and none of the women received a positive urinalyses. Based on the self report of substance use from the SCID and the results of the urinalysis, within the 6-weeks postrelease follow-up, 4 (36%) of the 11 women in the treatment group and 2 (28%) of the 7 women in the control group reported using illegal substances and within 3-months postrelease, there was a total of 5 (45%) of the 11 women in the treatment group and 2 (33%) in the control group (N=6) who reported using illegal substances. There were no significant differences between the two groups in use of illegal substances at 6-weeks ($\chi^2=.11$, $df= 1$, $p=.73$) or within 3-months postrelease ($\chi^2=.23$, $df= 1$, $p=.63$).

In the control group, only 1 (10%) woman returned to prison within 3-months postrelease, whereas in the treatment group 6 (50%) returned to prison within 3-months postrelease. There was a nonsignificant trend towards women in the control group to be less likely to return to prison within three months than those in the treatment group ($\chi^2=4.02$, $df= 1$, $p=.08$).

A series of 2X 3 split-plot test ANOVA was conducted with Time [pretreatment, 6-weeks postrelease, 3-months postrelease] X treatment (treatment group (TX), Treatment

as usual (TAU)), with time as a repeated measure and the dependent variables as the ASI subscales of drug use, alcohol use, and legal problems. The ANOVA on the outcome measures revealed a significant main effect for time for severity of drug use, $F(2,13) = 10.64$, $p = .002$, and severity of alcohol use, $F(2,13) = 5.64$, $p = .03$. There was no significant main effect for the severity of legal problems, $F(2,13) = 2.38$, $p = .11$. There were no significant Treatment X Time interactions for the ASI drug severity subscale, $F(2,13) = .91$, $p = .43$, the ASI alcohol severity subscale, $F(2,13) = .64$, $p = .53$, and the ASI legal severity subscale, $F(2,13) = 2.54$, $p = .11$.

Discussion

Preliminary findings from the open clinical trial showed: 1) initial acceptability and feasibility of the project (i.e., appropriate participants were recruited and retained), 2) the treatment appears to be highly appealing to our target sample (there was very strong alliance and satisfaction with SS treatment and retention rate in treatment was high), and 3) the treatment has the potential to be helpful (treatment had some favorable outcomes and the women felt helped by the treatment). More specifically, in the open trial of women who received SS treatment as an adjunct to TAU, there were significant improvements in PTSD symptoms from pre- to posttreatment, which were maintained through three-month after release. At 6-weeks postrelease, there were significant decreases in severity of substance use and degree of legal problems. Only 35% of the women within 3-months after release had used an illegal substance. The treatment, however, did not reduce the recidivism rate below the existing recidivism rate for women within the prison setting of the study.

This present study is the first empirical study to examine the effects of a treatment for women prisoners with comorbid PTSD and SUD. The findings from the open clinical trial that women who received SS treatment as an adjunct to TAU showed a significant improvement in posttraumatic symptoms and that nearly half of the women no longer met criteria for PTSD three months after treatment suggest that the treatment had an impact on one of the main target areas it was designed to affect, PTSD. PTSD is usually a chronic disorder and individuals who receive treatment take, on average, 36 months to recover from their PTSD (Kessler et al., 1995). The impact of SS treatment on substance use was difficult to interpret because most of the women were in a controlled environment (i.e., prison) for the 6-weeks to 3-months follow-up period. In an open clinical trial study of SS treatment in a sample of community women with comorbid PTSD and SUD (Najavits et al., 1998), there were significant decreases in PTSD symptoms and substance use at the 3-month follow-up. In comparing the latter study (Najavits et al., 1998) with the current study in terms of participants' severity of substance use, legal problems, and psychological difficulties at intake as measured by the ASI, the women prisoners at intake reported substantially more problems in all three domains than the women in the community sample. Furthermore, in the community sample used in the Najavits et al.'s study (1998), only 59% had drug dependence (compared to all the women prisoners in the current study) and cannabis was the most frequently reported type of substance type (in contrast to cocaine in the current study). The differences in severity levels of substance

use and response to SS treatment between the two study samples (i.e., most women in the present study returned to prison) suggest that women prisoners may have different treatment needs for their SUD compared to women in the community, such as, a treatment of a longer duration than the existing SS treatment or a different treatment modality.

The present study showed that the treatment was highly appealing to women prisoners. The retention rate was higher than most studies and higher than other studies of substance abuse populations (Crits-Christoph et al., 1996) and higher than the study by Najavits et al. (1998). Using the same definition of completer as Najavits et al. (1998) (i.e., a completer of SS treatment was defined as a participant who attended six or more sessions (Najavits et al.; 1998)), the retention rate was 80% for the current study compared to 63% in the study by Najavits et al., (1998). This definition of "completer" as attending at least 25% of sessions is also more stringent than many other studies of substance abuse samples. Moreover, participants in this study completed 85% of available sessions compared to 67% of available sessions in the study by Najavits et al (1998). The strong participant alliance and satisfaction data suggest that participants in the present study felt helped by receiving SS treatment. These results also suggest that women prisoners are able to engage in treatment and view treatment as beneficial, despite their marked impairment.

While the current form of SS treatment as an adjunct to TAU appears a promising approach for incarcerated women with comorbid PTSD and SUD, the findings of the open trial have several limitations. Without a control group to show that any gains occurred at a significantly higher rate among those women who received the SS treatment compared to a non-SS treatment group, results remain tentative. The improvement in the PTSD symptoms may have been a function of time or the natural course of the disorder for this population of women. The long-term benefits of the treatment are unknown as the study follow-up period was limited to 3 months after release. The small sample limits any generalizability of the findings to other incarcerated women in different prison settings.

The present study found no differences between the group that received SS treatment as an adjunct to TAU and the TAU group on any of the indices of interest. One explanation is that, due to the small sample size in the control group, significant differences between the treatment and the control groups were difficult to detect. Furthermore, there was a 30% attrition rate in the control group, which raises the possibility that the control group was not representative of women who received TAU.

Alternatively, since the SS treatment was an adjunct treatment, perhaps SS treatment did not contribute beyond the effects of the existing substance use treatment (Discovery Program) that prisoners received during incarceration. The nonsignificant trend towards a lower recidivism rate for the control group than the treatment group may be explained by the fact that the treatment group appeared to have a greater severity of drug use than the control group one-month prior to prison, which may have put the treatment group at greater risk than the control group for recidivism.

Our preliminary finding of no difference between the treatment group and control group in outcome is similar to a study that examined the effects of a TC program in the correctional system (Wexler et al., 1988; 1990), which found that TC participants showed no better outcomes than counseling program participants, milieu therapy program participants, and no treatment participants. A series of studies on TC programs provided during incarceration have found that at follow-up (period ranged from 6-23 months), post-relapse and recidivism rates were significantly lower for participants of the TC program compared to a nontreatment comparison group (Hiller et al., 1999; Inciardi et al., 1997; Nielsen et al., 1996). More specifically, 76% of those who completed the prison-based TC treatment program had used drugs in the 18-month period and 55% had been rearrested. An untreated comparison group had the poorest outcomes; 85% had relapsed to drug use and 56% had been rearrested for a new offense (Inciardi et al., 1997). Compared to SS treatment in the present study, which consisted of 24 sessions and took place over a 12-week period during incarceration, the duration of TC programs are generally 6- to 9-months and includes supervised outpatient care.

The finding in the present study that many women who received SS treatment returned to prison suggest that there may have been little transfer of skills learnt in SS treatment during incarceration to the "real world." Numerous researchers have recommended a continuum of care for substance abusers in the criminal justice system because these clients often face a wider range of problems than other substance abusing clients, such as the perceived stigma of a criminal record, dual problems of recovery and reentry into society (Barthwell et al., 1995; Hiller et al., 1999; Peters et al., 1997). Therefore, if at postrelease, women are not actively engaged in treatment, they are at increased risk of resorting to the maladaptive behaviors, such as substance use, that precipitated their incarceration (Lake, 1993). Perhaps an expansion of SS treatment to the postrelease period may substantially improve upon the initial findings of the current study.

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Table 1 Demographic and Criminologic Characteristics of Incarcerated Women (N=28)

<u>Characteristics</u>	<u>No. (%)</u>
Race	
White	19 (67.9)
African American	2 (7.1)
Hispanic	3 (10.7)
Other	4 (14.3)
Age	
M (SD)	30.9 (4.53)
Education,	
High School Graduate	9 (32.1)
Some High School	13 (46.4)
Below 9th Grade	6 (21.4)
Marital status	
Married	2 (7.1)
Separated	3 (10.7)
Divorced	5 (17.9)
Never married	17 (60.7)
Living As Separated	1 (3.6)
First time in prison	4 (14.3)
Nature of Crime	
Felony	11 (39.3)
Misdemeanor	17 (60.7)
Number of previous arrests with conviction	
M (SD)	7.36 (9.81)

Table 2 Types of Reported Trauma and Subtypes of Substance Use Disorders among

Incarcerated Women (N=28)

	<u>N</u>	<u>%</u>
<u>Trauma Variables</u>		
Sexual abuse	27	96.4
Physical abuse	25	89.3
Repeated trauma	28	100
Age of first trauma M (SD)	8.50 (5.54)	
<u>Subtypes of Substance Use Disorders</u>		
Substance Dependence	28	100
Current* Polysubstance Use Disorder	7	25.0
Lifetime Polysubstance Use Disorder	17	60.7
Preferred Current Substance		
Cocaine	12	42.9
Alcohol and Drugs	6	21.4
<u>Number of Periods of Abstinence M (SD)</u>	<u>2.79 (2.81)</u>	

* Current=within 30 days prior to entering prison.

Table 3 The Outcome of Participants Who Received Seeking Safety: A Cognitive-Behavioral Psychotherapy:

Change Over Time

Measure

Measure	Pre-TX to Post TX		Pre-TX to 6 weeks F/U		Pre-TX to 3-months F/U	
	N		N		N	
	<u>M (SD)</u>	<u>M (SD)</u>	<u>M (SD)</u>	<u>M (SD)</u>	<u>M (SD)</u>	<u>M (SD)</u>
CAPS						
PTSD symptoms	17		16		15	
	70.5 (20.4)	47.8 (23.8)	69.62 (20.6)	50.0 (28.1)	69.62 (20.6)	50.(29.1)
ASI						
Drug use composite			16		15	
			.39 (.14)		.16 (.10)	
	.17 (.11)					.37 (.13)
Alcohol use composite			16		15	
			.55 (.27)		.27 (.25)	
	.28 (.29)					.55 (.28)
Legal problems composite			16		15	
			.54 (.24)		.24 (.17)	
	.20 (.18)					.56 (.23)

ASI=Addiction Severity Index

CAPS=Clinician Administered Posttraumatic Stress Disorder Scale

PTSD=Posttraumatic Stress Disorder

Table 4 The Outcome of Participants Who Received Seeking Safety: A Cognitive-Behavioral Psychotherapy Compared

to the Control Group Over Time

Measure	Pre-TX		Post TX		6 weeks Follow-Up		3-months Follow-Up	
	Tx. group	Control group	Tx group	Control group	Tx group	Control group	Tx group	Control group
	N	N	N	N	N	N	N	N
	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)
CAPS								
PTSD symptoms	12	10	12	10	11	7	10	6
	72.1(20.69)	67.16(29.49)	46.0(25.67)	46.0(39.40)	38.83(28.93)	48.40(37.66)	35.6(32.17)	49.10(29.49)
ASI								
Drug use composite	12	10			11	7	10	6
	.38 (.15)	.28(.22)			.19(.09)	.16(.15)	.20(.13)	.14(.12)
Alcohol use composite	12	10			11	7	10	6
	.52 (.26)	.35 (.)			.23(.25)	.22(.29)	.31(.34)	.24(.30)
Legal problems composite	12	10			11	7	10	6
	.52 (.25)	.37 (.22)			.32(.22)	.31(.30)	.19(.20)	.28(.22)

ASI=Addiction Severity Index
 CAPS=Clinician Administered Posttraumatic Stress Disorder Scale
 PTSD=Posttraumatic Stress Disorder

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