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Treatment Outcomes for Women With Substance Abuse and PTSD Who Have Experienced Complex Trauma

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Abstract

Objective—This study assessed the effect of cognitive-behavioral therapy on a range of problems associated with complex trauma in a sample of women with comorbid substance use disorders and posttraumatic stress disorder (PTSD).

Methods—A total of 107 women with current or subthreshold PTSD and a current substance use disorder from an urban, low-income area were recruited from both community and clinical populations. Participants were recruited between 1997 and 2000. A quasi-experimental design was used, and participants who received cognitive-behavioral therapy (N=75) were compared with those in a control group who received no active study treatment (N=32). All participants were given the same list of community treatment resources and told that they could pursue services while participating in the study if they wished.

Results—At the end of treatment (three months post-baseline), compared with participants in the control group, those in the active treatment group showed significant reductions in symptoms of PTSD and alcohol use disorders, with a trend toward reductions in symptoms of drug use disorders. No significant differences were found between the groups on depression, dissociation, and social and sexual functioning outcomes.

Conclusions—These findings underscore the challenge and necessity of addressing the unique and wide-ranging needs of women with substance use disorder who have been exposed to early and multiple interpersonal traumas.

Over the past decade, researchers and practitioners have become increasingly aware of the significant relationship between trauma exposure and substance use disorders among women. As many as 80 percent of women who are seeking treatment for substance use disorders report a lifetime history of sexual assault, physical assault, or both (1–5). Comorbid posttraumatic stress disorder (PTSD) rates in this population range from 30 to 59 percent (2,6), with even higher lifetime rates.

It has also come to light that a majority of women with a dual diagnosis of PTSD and a substance use disorder were victims of childhood abuse (7,8) and are vulnerable to repeated traumas in adulthood (3). Women with both disorders appear to have more severe clinical profiles than those with just one of these disorders (9) and tend to present with a variety of additional problems, including other psychiatric disorders and interpersonal deficits (10).

DSM-IV field trials demonstrate that the earlier the onset and the longer the duration of trauma, the more likely people are to have more severe symptoms that go beyond PTSD and substance use disorders, such as depression, dissociation, somatic complaints, and difficulties managing anger and impulsive behavior (11). Studies also show that interpersonal trauma, especially childhood abuse, puts individuals at higher risk of developing these associated features than do accidents and natural disasters (11).

The recognition of the range of interrelated problems associated with a history of complex trauma is an important development with much relevance for the field of substance abuse. Despite evidence that a majority of women who are seeking treatment for addictions have been exposed to early and multiple traumatic experiences, standard treatment programs do not typically assess or target these associated impairments, which greatly complicates the prognosis.

The main objective of the study presented here was to evaluate the effectiveness of short-term cognitive-behavioral therapy on a range of problems associated with complex trauma in a sample of 107 women with comorbid PTSD and substance use disorders. By using a quasi-experimental design, end-of-treatment outcomes for participants who received cognitive-behavioral therapy were compared with those of participants in a control group on various measures: PTSD, substance use disorders, depression, dissociation, and social and sexual functioning.

Methods

Procedures

Participants had taken part in a treatment trial that evaluated the comparative efficacy of two cognitive-behavioral therapies for the treatment of comorbid PTSD and substance use disorders (12). In the original trial, participants were randomly assigned to one of two active treatment conditions—one model simultaneously addressed symptoms of substance use and PTSD (seeking safety) (13) and the other focused on the identification of triggers and coping strategies for managing substance cravings and relapses (relapse prevention) (14). Both treatments were conducted in twice-weekly one-hour sessions for 12 weeks. A third condition, a non-randomized control group, was also added. Participants were recruited in two waves, first for the controlled comparison between the two types of cognitive-behavioral therapy (seeking safety and relapse prevention) and then for the control group. Forty-one women were in the seeking-safety group, 34 were in the relapse prevention group, and 32 were in the control group.

Findings of the comparative trial showed no statistically or clinically significant differences between the women in the seeking-safety group and those in the relapse prevention group on symptom severity of substance use disorders and PTSD or on clinician ratings. One reason for this result may be that these treatments are in many ways similar; both use cognitive-behavioral techniques with some degree of overlap. Participants in both cognitive-behavioral groups had significant reductions in substance use disorder and PTSD symptoms compared with those in the control group.

Because no differences were found between the two active treatments, in the study presented here we collapsed data for the two active treatment groups into a single cognitive-behavioral therapy group (N=75). A more detailed description of the comparative treatment trial, including study procedures and discussion of specific analyses and outcomes for the treatment groups, has been published elsewhere (12).

The control group served as a non-specific comparison condition to the active treatment group. The women in this group met the same inclusion criteria, were recruited in the same manner, and were followed longitudinally in the same pre-post assessment periods as those in the active treatment conditions. At baseline, women in the control group were given the same list of treatment referrals as those in the cognitive-behavioral therapy groups. All participants were told that they could pursue community treatment options while participating in the study. Service use was tracked, and findings showed no significant differences in community services received between women in the control group and those

in the cognitive-behavioral therapy groups. Over the three-month treatment phase, seven women in the control group (22 percent) received standard outpatient psychological treatment, seven (22 percent) were given a prescription for psychiatric medication, and two (6 percent) were hospitalized for psychiatric reasons. Nine women in the control group (28 percent) reported receiving any drug or alcohol outpatient treatment, seven (22 percent) participated in alcohol or drug detoxification, and five (16 percent) reported attending self-help meetings.

Participants

A majority of participants (70 percent) were recruited through New York City newspaper advertisements for treatment of problems related to substance use and trauma, and the remaining 30 percent were referred by substance use treatment programs in New York City. Participants were recruited between 1997 and 2000. There were no differences in recruitment sources across treatment conditions.

Persons were eligible to participate in the study if they were female, were aged 18 to 55 years old, had current or subthreshold PTSD (defined as the presence of criteria A, B, and E and either C or D), had a current substance use disorder, and were English-speaking. Persons were excluded if they had an advanced-stage medical disease, had an organic mental syndrome, had current suicidality, or had bipolar or psychotic disorders. Informed consent and institutional review board approval by St. Luke's–Roosevelt Hospital Center were obtained as part of the original trial.

Measures

Demographic and diagnostic measures—Demographic variables were measured with the Demographic and Treatment History Form (unpublished measure, Hien DA, Zimberg S, 1991), a structured 62-item interview.

PTSD was diagnosed with the Clinician Administered PTSD Scale (CAPS) (15). The frequency and intensity of PTSD symptoms are rated on separate scales that range from 0 to 4. A symptom is considered present when an item is rated with a frequency of 1 (once a month) or higher and an intensity of 2 (moderate) or higher. To obtain a PTSD diagnosis, severity scores were dichotomized at the item level, creating a present or absent rating for each symptom and following the *DSM–IV* diagnostic algorithm (16). The CAPS has shown sound psychometric properties and excellent diagnostic usefulness (17). Exposure to trauma was measured with the Life Events Checklist, which assesses exposure to 21 possible traumatic stressors.

Other axis I diagnoses, including mood disorders, alcohol use disorders, and psychoactive substance use disorders were assessed with the Structured Clinical Interview for DSM-IV–Substance Abuse Comorbidity Version (18,19), a modified version of the SCID designed to detect the presence of primary and persistent psychiatric disorders that are independent of substance use among persons who abuse substances.

Measures of PTSD and substance use disorders—PTSD symptoms were measured with the CAPS total score, derived from adding the frequency and intensity of each of the 17 items. A total score of 65 or above is typically indicative of a PTSD diagnosis

Drug abuse, alcohol abuse, and social functioning were measured by Addiction Severity Index composite scores (20), a structured interview in which the patient reports number, extent, and duration of symptoms in each domain. Composites are computed by summing

and standardizing individual item scores across sets of interrelated items corresponding to a problem area.

Comorbid symptoms and associated features—Depression symptoms were measured with the widely used 17-item total score on the Hamilton Depression Rating Scale (21).

Dissociative symptoms were measured with the Dissociative Experiences Scale (DES) (22), which assesses the frequency of dissociative experiences in patients' daily lives. The DES is derived from the average of scores on the 28 items.

Sexual functioning was assessed with the Dysfunctional Sexual Behavior scale (DSB) of the Trauma Symptom Inventory (TSI) (23). The TSI comprises ten scales that assess a constellation of symptoms typically reported by trauma victims. TSI scales have demonstrated reasonable reliability and validity in clinical samples (24). The DSB scale includes items such as "Do you have sex that has to be kept a secret?" and "Do you have sex to keep from feeling lonely or sad?"

Results

Demographic characteristics

Demographic characteristics are presented in Table 1. No significant differences were found between the cognitive-behavioral therapy group and the control group on any of these variables.

Trauma exposure

As displayed in Table 2, findings show that the sample was characterized by extensive exposure to interpersonal trauma. On the basis of chi square analyses and t tests, no significant differences were found between the cognitive-behavioral therapy group and the control group on any trauma-related variables. A total of 101 women in the sample (94 percent) endorsed a history of physical abuse (defined as being attacked, hit, slapped, kicked, or beaten up), with a mean±SD age at onset of 12.1±9.2 years. Ninety-one (85 percent) endorsed a sexual abuse history (defined as rape, attempted rape, or coerced performance of sex acts through force or threat of harm), with a mean age at onset of 13.2±9.2 years.

Substance use and PTSD symptoms

By design 100 percent of the sample met criteria for at least one substance use disorder; 54 women (50 percent) indicated use of multiple substances. No significant differences were found between groups on diagnoses of substance use disorders. Seventy-four (69 percent) met criteria for a current alcohol use disorder, and 90 (84 percent) met criteria for a current drug use disorder. The mean age at onset of substance use disorders was 20.6±6.9 years.

Of the total sample, 94 (88 percent) met full criteria for current PTSD and 13 (12 percent) met "subthreshold" criteria. Comparative analyses between those with full and subthreshold PTSD yielded no differences on pretreatment or outcome measures. The mean age at onset of PTSD was 19.6±9.4 years. CAPS scores indicated high levels of PTSD symptoms comparable to clinical samples with complex trauma histories (25).

Comorbid symptoms and associated features

Major depressive disorder was a common additional diagnosis; 42 women (39 percent) met current criteria, and 88 (82 percent) met lifetime criteria. Thirty (28 percent) reported at least

one past psychiatric hospitalization, with an average of two inpatient stays; the most commonly endorsed reasons were depression and suicidal ideation. Forty-six women (43 percent) reported at least one suicide attempt. This sample also endorsed high levels of dissociative symptoms on the DES comparable to those in clinical samples of persons with a history of child abuse (26,27).

Analyses also indicated considerable problems with impulsivity, somatic complaints, and social functioning. Fifty-nine women in the sample (55 percent) reported at least one arrest, and 37 (35 percent) reported at least one incarceration. Twenty-six (24 percent) reported trading sex for drugs, and 37 (35 percent) reported a history of prostitution. Fifty-nine (55 percent) reported chronic medical problems, the most common being gastrointestinal, respiratory, and gynecologic. Finally, 56 women (52 percent) identified themselves as avoidant of relationships and having a fearful attachment style.

Treatment outcome analyses

Study participants were assessed before treatment and at the end of treatment (Table 3). Baseline data were analyzed for differences between the active and comparison conditions. No statistically significant differences were found on any baseline measures, indicating that the quasi-experimental design maintained equivalence of groups before the intervention. The mean number of treatment sessions attended was 12.2±7.82, and retention rates were generally high, with 80 participants (75 percent) completing posttreatment assessment.

An intent-to-treat design was employed, using the last observation carried forward (LOCF) for the 27 participants (25 percent) who were lost to follow-up. This strategy, whereby the missing time point is replaced with the last available assessment point, resulted in data on treatment efficacy for 75 women in the cognitive-behavioral therapy group and 32 women in the control group. Other missing data procedures (that is, use of mean values) were also tested and showed no differences from the LOCF procedure.

All analyses were also conducted and checked against the “completer” group (49 women in the cognitive-behavioral therapy group and 32 women in the control group), which consisted of all participants in the control group and those in the cognitive-behavioral therapy group who completed at least 25 percent of all therapy sessions. A sample size of 25 to 30 participants per group has been identified as sufficient to detect clinically significant differences between two groups of participants who have attended 25 percent or more of all therapy sessions (28). Given that findings from the intent-to-treat and completer groups showed no significant differences, only the intent-to-treat findings are presented.

Because baseline symptom severity was consistently correlated with severity at follow-up, all analyses included the baseline symptom level corresponding to each outcome domain as one of the factors in the analysis of variance (ANOVA). Two-by-two (baseline symptom severity corresponding to outcome domain by treatment group) ANOVAs examined seven outcomes at the end of treatment. To control for inflated type I error the Bonferroni correction was used, yielding an alpha level of .007. Significant main effects for treatment group were found for PTSD symptoms and alcohol use disorder symptoms, with a trend for main effects for drug use disorder symptoms.

Significant main effects for severity were seen on all outcome variables. There were trends for interaction effects on outcomes of alcohol and drug use disorders; participants with more severe symptoms in the cognitive-behavioral therapy group showed more improvement post-treatment than those with more severe symptoms in the control group; no differences were seen between participants who had lower symptom severity in the two groups. Table 4 displays these results.

Discussion

The goal of the study presented here was to assess how cognitive-behavioral therapy affected a range of outcomes in a sample of urban women with comorbid substance use disorders and PTSD. Results show that a majority of participants reported repeated experiences of interpersonal abuse with exposure to trauma beginning at a relatively early age. In addition to PTSD and substance use disorders, a significant portion of participants also met criteria for having an affective disorder. Severity of depression and dissociative symptoms was high, as were rates of poly-substance abuse, impulsivity, somatic complaints, and interpersonal problems.

After three months participants in the cognitive-behavioral therapy group had significant reductions in PTSD and alcohol use disorder symptoms. A trend was found toward a decrease in drug use disorder symptoms, although it did not reach significance. No significant differences existed between groups on depression, dissociation, and social and sexual functioning outcomes. These findings demonstrate that although short-term cognitive-behavioral interventions may decrease some symptom clusters, other problems associated with complex trauma may be less amenable to this type of treatment.

Results of this study highlight a number of important clinical points. First they serve to underscore that this population has multiple comorbid conditions, which are associated with significant functional disabilities and enduring symptoms. The scope and chronicity of these problems present formidable treatment challenges. The numerous obstacles faced by this patient group (for example, limited resources in social environment, ongoing exposure to revictimization, relapsing nature of their disorders, and financial and medical problems) also affect treatment attendance and retention rates. Although the attrition rate in this investigation was reasonably good, more attention to issues of patient engagement and compliance is needed in planning treatment for this chronic, hard-to-reach population.

Second, although it is encouraging that short-term cognitive-behavioral therapy can have a substantial impact on symptoms of PTSD and substance use disorders in this population, the lack of effect on depression, dissociative symptoms, and interpersonal and sexual functioning raises questions and concerns. Interventions designed for one or two discrete problem areas are not likely to consider the whole clinical picture and may not be practical for this population. In practice, more comprehensive multimodel treatments are often recommended for these patients.

Incorporating interventions that specifically target features associated with complex trauma in this population may extend treatment results. For example, treatment focusing on deficits in emotional regulation and social functioning in addition to PTSD symptoms has been used successfully in a non–substance-abusing population of women with extensive trauma histories (25). These problems have been conceptualized as a relatively distinct feature of the consequences of childhood trauma and derive from the trauma’s disruptive impact on the achievement of the developmental goals of affect regulation and interpersonal relatedness (29). This type of treatment is likely to be applicable to the vulnerabilities in self-regulation that have also been implicated in the development and maintenance of substance use disorders (30).

Another option would be lengthening the course of treatment. In clinical practice the presence of comorbid disorders and multiple impairments strongly influences the duration of treatment that is provided. Given the severity and range of pathology, as well as the multiple impediments to recovery in this population, treatments longer than those typically used in treatment protocols (for example, three months) may result in superior outcomes, although this practice needs to be empirically tested.

Whereas most trials of interventions for substance use disorders have stringent exclusion criteria that can result in unrepresentative samples largely composed of stable, Caucasian patients with few comorbid psychiatric conditions (31), a major strength of the study presented here is the focus on an understudied population of urban women with chronic interpersonal trauma, multiple co-occurring conditions, and associated problems. Other strengths include the use of intent-to-treat analyses to measure improvement and assessment of multiple outcome domains.

The study's limitations must also be considered. For example, we cannot rule out the potential for type II error—that is, because of small samples, null effects may have been erroneously accepted. Clearly a clinical trial that sets out to specifically examine outcomes associated with complex trauma, which includes random assignment to a well-defined and larger control group and longer follow-up periods, would address some of the shortcomings of our investigation. Also, the relative efficacy of simultaneous versus sequential treatment for trauma-related disorders among women who abuse substances is still unknown. Longitudinal designs that go beyond the end-of-treatment follow-up period are needed to shed more light on this important question.

Conclusions

The results of this study indicate that although short-term cognitive-behavioral treatments currently used for addictive disorders may positively affect some symptom clusters (for example, PTSD and substance use disorders), other significant problem domains, such as depression, dissociation, and social and sexual functioning, are not as likely to be affected. These findings underscore the challenge and necessity of addressing the unique and multifaceted treatment needs of populations of women who abuse substances and have been exposed to early and prolonged interpersonal trauma. Integrating interventions that specifically target these associated features may facilitate more comprehensive and enduring improvements, although clearly more empirical investigation is needed.

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Table 1

Demographic characteristics of 107 women with substance use disorders and post-traumatic stress disorder who had experienced complex trauma, by treatment group

	Cognitive-behavioral therapy (N=75)		Control (N=32)	
Characteristic	**N**	**%**	**N**	**%**
Age (mean±SD years)	36.17±8.94		39.67±10.71	
Education (mean±SD years)	13.51±2.9		13.43±2.29	
Ethnicity				
African American	31	41	14	44
Caucasian	24	32	10	31
Hispanic	14	19	7	22
Other	6	8	1	3
Marital status				
Married	14	19	9	28
Widowed	2	3	4	13
Separated or divorced	23	31	7	22
Not married	36	48	12	38

Table 2

Clinical characteristics of 107 women with substance use disorders and posttrau matic stress disorder who had experienced complex trauma, by treatment group

	Cognitive-behavioral therapy (N=75)		Control (N=32)	
Characteristic	**N**	**%**	**N**	**%**
Lifetime physical abuse	71	95	30	94
Ten or more episodes	52	69	23	72
Age at onset was 16 years or younger	46	61	15	47
Lifetime sexual abuse	65	87	26	81
Ten or more episodes	21	28	10	31
Age at onset was 16 years or younger	39	52	14	44
Drug used				
Alcohol	52	69	22	69
Cocaine or crack	23	31	11	34
Other drug	38	51	18	56
Current comorbid disorder				
Major depression	26	35	16	50
Dysthymia	25	33	10	31

Table 3

Assessment of 107 women with substance use disorders and posttraumatic stress disorder who had experienced complex trauma, by treatment group

	Cognitive-behavioral therapy (N=75)				Control (N=32)			
	Baseline		End of treatment		Baseline		End of treatment	
Variable	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CAPS[a]	71.36	18.36	54.45	23.70	73.88	19.16	68.00	24.20
ASI alcohol[b]	.40	.30	.31	.28	.40	.31	.41	.34
ASI drug[c]	.17	.13	.13	.12	.22	.15	.22	.15
HAM-D[d]	13.4	8.43	11.07	9.21	12.00	8.56	10.56	8.68
DES[e]	20.44	13.25	16.98	16.03	21.73	13.56	20.55	13.35
ASI social[f]	.31	.25	.24	.25	.28	.28	.25	.25
TSI-DSB[g]	10.11	6.62	6.26	6.80	9.28	7.40	6.91	7.21

[a] Clinician Administered Posttraumatic Stress Disorder (PTSD) Scale. Possible scores range from 0 to 136, with higher scores indicating more PTSD symptoms.

[b] Addiction Severity Index, alcohol composite. Possible scores range from 0 to 1, with higher scores indicating more alcohol abuse symptoms.

[c] Addiction Severity Index, drug composite. Possible scores range from 0 to 1, with higher scores indicating more drug abuse symptoms.

[d] Hamilton Depression Rating Scale. Possible scores range from 0 to 53, with higher scores indicating more depression symptoms.

[e] Dissociative Experiences Scale. Possible scores range from 0 to 100, with higher scores indicating more dissociative symptoms.

[f] Addiction Severity Index, social/family composite. Possible scores range from 0 to 1, with higher scores indicating more problems in social and family functioning.

[g] Traumatic Sexual Experiences Inventory, Dysfunctional Sexual Behavior Scale. Possible scores range from 0 to 30, with higher scores indicating more dysfunctional sexual behavior.

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Table 4

Repeated-measures analyses of variance for treatment outcomes at the end of treatment among 107 women with substance use disorders and posttraumatic stress disorder who had experienced complex trauma, by treatment group

Variable	F	df	p[a]
CAPS total score[b]			
Group	7.88	1, 105	.006
Severity	30.78	1, 105	<.001
Group X severity	0	1, 105	.947
ASI alcohol[c]			
Group	8.19	1, 104	.005
Severity	93.14	1, 104	<.001
Group X severity	4.10	1, 104	.045
ASI drug[d]			
Group	3.83	1, 102	.053
Severity	81.50	1, 102	<.001
Group X severity	3.73	1, 102	.056
HAM-D[e]			
Group	.72	1, 102	.400
Severity	43.17	1, 102	<.001
Group X severity	2.17	1, 102	.144
DES[f]			
Group	3.40	1, 103	.068
Severity	52.51	1, 103	<.001
Group X severity	.01	1, 103	.933
ASI Social[g]			
Group	.20	1, 103	.660
Severity	38.8	1, 103	<.001
Group X severity	2.63	1, 103	.108
TSI-DSB[h]			
Group	1.14	1, 102	.288
Severity	35.05	1, 102	<.001
Group X severity	.10	1, 102	.753

[a] Using Bonferroni correction to correct for multiple comparisons, alpha level=.007

[b] Clinician Administered Posttraumatic Stress Disorder Scale

[c] Addiction Severity Index, alcohol composite

[d] Addiction Severity Index, drug composite

[e] Hamilton Depression Rating Scale

[f] Dissociative Experiences Scale

[g] Addiction Severity Index, social/family composite

[h] Traumatic Sexual Experiences Inventory–Dysfunctional Sexual Behavior Scale