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Randomized Clinical Trial Comparing Affect Regulation and Supportive Group Therapies for Victimization-Related PTSD With Incarcerated Women

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Traumatic victimization and associated problems with posttraumatic stress disorder (PTSD) and affect dysregulation are prevalent among incarcerated women, but there is limited evidence to support psychotherapeutic interventions for these problems in this underserved population. A group psychotherapy designed to enhance affect regulation without trauma memory processing—Trauma Affect Regulation: Guide for Education and Therapy (TARGET)—was compared to a supportive group therapy (SGT) in a randomized clinical trial with 72 incarcerated women with full or partial PTSD. Both interventions achieved statistically significant reductions in PTSD and associated symptom severity and increased self-efficacy. Dropout rates for both interventions were low (<5%). TARGET was more effective than SGT in increasing sense of forgiveness toward others who have caused harm in the past. Group therapy that teaches affect regulation may enhance incarcerated women's ability to

achieve affective resolution (forgiveness) while also reducing their victimization-related PTSD and associated symptoms. Experiential-focused supportive group therapy also may reduce victimization-related PTSD and associated symptoms. Both group therapy approaches warrant further study with this vulnerable population.

Keywords: posttraumatic stress disorder (PTSD); group therapy; randomized clinical trial; women; criminal justice

AN ESTIMATED 1 IN EVERY 200 ADULTS in the United States is incarcerated in a jail or prison, a total of more than 1 million persons (Sabol, West, & Cooper, 2009). Mental health problems are more prevalent among incarcerated adults than in community samples (Steadman, Osher, Robbins, Case, & Samuels, 2009; Teplin, 1994; Teplin, Abram, & McClelland, 1996; Trestman, Ford, Zhang, & Wiesbrock, 2007). Incarcerated adults diagnosed with psychiatric disorders rarely receive evidence-based treatment (Jordan et al., 2002; Kamath et al., 2010; Manderscheid, Gravesande, & Goldstrom, 2004; Teplin, Abram, & McClelland, 1997), and often (e.g., 33% in a recent study by Trestman et al., 2007) receive no mental health treatment at all.

Experts have identified “trauma interventions” as a priority for incarcerated adults with mental illness (Osher & Steadman, 2007). The relevance of interventions addressing the aftereffects of trauma is highlighted by evidence that a history of trauma exposure is almost universal among incarcerated adults (>85%), and posttraumatic stress disorder

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(PTSD) is 4 to 10 times more prevalent among incarcerated men (6% current, 20% lifetime) and women (10% to 22% current, 20% to 42% lifetime) than in community samples (Bosgelmez, Aker, Kokluk, & Ford, 2010; Green, Miranda, Daroowalla, & Siddique, 2005; Trestman et al., 2007; Wolff et al., 2011). Interpersonal victimization (e.g., childhood history of abuse; family or community violence) is prevalent among incarcerated women and is associated with high risk for PTSD and a range of other psychiatric disorders (Browne, Miller, & Maguin, 1999; Jordan, Schlenger, Fairbank, & Caddell, 1996).

Evidence-based treatments thus are needed for incarcerated adults with victimization-related PTSD and comorbid psychiatric problems. Group therapy is widely utilized as a mental health treatment for incarcerated adults (Morgan et al., 2012). Yet, group therapy for adults with histories of potentially traumatic victimization (Campanini et al., 2010; Taylor & Harvey, 2010) or PTSD (Shea, McDevitt-Murphy, Ready, & Schnurr, 2009; Wampold et al., 2010) has shown mixed evidence of effectiveness. The PTSD treatments for adults with the strongest evidence base are cognitive behavior therapies (CBT) with trauma memory processing (TMP), such as prolonged exposure, cognitive processing therapy, or eye movement desensitization and reprocessing (Cahill, Rothbaum, Resick, & Follette, 2009). A large randomized clinical trial study with male military veterans with PTSD failed to support the efficacy of a CBT/TMP group therapy using prolonged exposure (Schnurr et al., 2003). However, subsequent adaptations of group therapy based on prolonged exposure have shown promise in a small randomized clinical trial with motor vehicle accident victims with PTSD (80% women; Beck et al., 2009) and in an open trial with more than 100 male military veterans with chronic PTSD (Ready et al., 2008).

Studies of group therapy for incarcerated women with PTSD have yielded mixed results, regardless of whether TMP was included extensively (Bradley & Follingstad, 2003), minimally (Cole, Sarlund-Heinrich, & Brown, 2007), or not at all (Zlotnick, Johnson, & Najavits, 2009; Zlotnick, Najavits, Rohsenow, & Johnson, 2003). Although the dose of group therapy provided in these studies was extensive (i.e., 16–25 sessions of 90–150 minute length; in one case also including post-release individual therapy, Zlotnick et al., 2009), most of the outcomes were no better than those associated with receiving services as usual. Dropout rates tended to be relatively high (i.e., 33% to 35%; Bradley & Follingstad; Cole et al., 2007).

A common theme in these therapies was managing trauma-related emotional distress. This is consistent

with research showing that affect dysregulation is a core problem for persons with histories of interpersonal victimization (Hebert, Rose, Rosengard, Clarke, & Stein, 2007; van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005). Posttraumatic affect dysregulation may take several forms, including difficulty in recognizing, managing, and recovering from extreme states of emotional distress (Ehring & Quack, 2010), pathological dissociation (Ford, 2009), somatization or borderline personality disorder (Van Dijke et al., 2010), severe relational (Charuvastra & Cloitre, 2008) or sexual (Messman-Moore, Walsh, & DiLillo, 2010) dysfunction, and alienation from self and spirituality (van der Kolk et al., 2005). Both a history of childhood interpersonal trauma (Cloitre, Miranda, Stovall-McClough, & Han, 2005; Ehring & Quack, 2010) and current PTSD symptoms (Ehring & Quack; Tull, Barrett, McMillan, & Roemer, 2007) are associated with affect dysregulation. In addition, affect dysregulation has been found to increase trauma victims' risk of further revictimization (Dietrich, 2007).

The relevance of affect regulation for incarcerated women is highlighted by Cole and colleagues' (2007) finding that incarcerated women reported a worsening of affect dysregulation over an 8-week period shortly after incarceration. Another study found that hostility was the only form of emotional distress that persisted after the first few days of incarceration among women confined in a high-security prison unit (Islam-Zwart, Vik, & Rawlins, 2007). Further, hostility was found to be associated with antisocial behavior problems in a sample of incarcerated women (Zlotnick, 1999). Thus, intervening to reduce affect dysregulation may be of particular importance for the safety and rehabilitation of incarcerated women with PTSD.

Although the group therapies that have been evaluated for incarcerated women with PTSD have included affect regulation as a topic, they have not systematically focused the treatment on teaching affect regulation skills. Therefore, the present study was conducted in order to evaluate the outcomes of a group therapy that focused singularly on enhancing affect regulation. Trauma Affect Regulation: Guide for Education and Therapy (TARGET; Ford & Russo, 2006) is a manualized therapy that teaches a single sequential affect regulation skill set. The skill set was designed to enhance affect regulation, including clearly recognizing (Ehring & Quack, 2010) and modulating negative emotion states (Kessler & Staudinger, 2009) and accessing and sustaining positive emotion states (Eisner, Johnson, & Carver, 2009). The TARGET skill set also was designed to remediate affect dysregulation: to enhance the ability to anticipate and prevent, or

regain emotional equilibrium and recover from, the rapid acceleration of emotional distress that is associated with traumatic victimization (Cloitre et al., 2010).

TARGET originally was developed as a group therapy, and was shown to be effective in this format in reducing PTSD-related beliefs and sustaining sobriety self-efficacy with adults in substance abuse treatment (Frisman, Ford, Lin, Mallon, & Chang, 2008). TARGET group therapy has shown promising results in uncontrolled trials with youth in juvenile justice detention or inpatient programs (Ford & Hawke, 2012; Marrow, Knudsen, Olafson & Bucher, 2012). TARGET also has been shown to be effective in reducing PTSD severity and enhancing affect regulation as a one-to-one psychotherapy with low-income women (Ford, Steinberg, & Zhang, 2011) and girls involved in delinquency (Ford, Steinberg, Hawke, Levine, & Zhang, 2012). This study therefore used TARGET to test whether group therapy focused on affect regulation skills is effective with incarcerated women with PTSD. Women with subclinical PTSD were included as well, based on evidence that subclinical PTSD as defined in this study (see below) is associated with clinically significant functional impairment (Stein, Walker, Hazen, & Forde, 1997).

The study also sought to provide a more conservative test of therapeutic effects than the with-services-as-usual control conditions that were used in prior studies of PTSD group therapy for incarcerated women. A manualized supportive group therapy (Wallis, 2002) designed for women with histories of interpersonal victimization was used. Supportive therapies have been tested extensively with adults with histories of victimization, although the evidence of efficacy is mixed (Campanini et al., 2010; Taylor & Harvey, 2010). Supportive group therapy (SGT) therefore provided an appropriate comparison condition to test the primary study hypothesis that TARGET would be superior to an active comparison group therapy in reducing PTSD symptoms and affect dysregulation.

A secondary goal of the study was to evaluate the two group therapies' efficacy in reducing mental health symptoms and psychosocial problems that are frequently comorbid with PTSD and are associated with affect dysregulation (Cloitre et al., 2005; Dietrich, 2007; Ehring & Quack, 2010). The secondary hypothesis was that TARGET would be superior to supportive group therapy in reducing symptoms of dysphoria, anxiety, and dissociation, and problems with sexuality, substance use, and trauma-related beliefs about the self.

Finally, two potential correlates of improvement in PTSD and affect regulation were assessed as

outcomes of the group therapies. First, forgiveness for past harm has been found to mediate the association of PTSD and hostility among child abuse survivors (Snyder & Heinze, 2005). Forgiveness also was shown to be associated with reductions in PTSD, depression, and anxiety when it was a focus of therapy for women who had experienced spousal emotional abuse (Reed & Enright, 2006). Second, a sense of hope has been found to be undermined by traumatic victimization (Maughan & Cicchetti, 2002). Hope also has been shown to be associated with posttraumatic resilience and recovery, including affect regulation (Haglund, Nestadt, Cooper, Southwick, & Charney, 2007). The study's tertiary hypothesis was that TARGET would be superior to SGT in improving participants' sense of forgiveness and hope.

Method

PROCEDURE

Participants were enrolled between January 2009 and February 2010 at Connecticut's state prison for women, York Correctional Institution. Applicants were screened for eligibility and assessed by female interviewers according to a protocol approved by the Institutional Review Boards of the University of Connecticut Health Center and the Connecticut State Department of Correction. The female interviewer was trained to reliability with each structured interview, checked periodically with independent ratings, and supervised by the first author. All interviews were conducted in English. Experimental condition was assigned by another study staff member for each cohort of 10 to 12 consecutive enrollees, using an Excel-generated standard sequence-concealed number, in order to ensure that the interviewer was blinded to experimental condition.

Based on requirements of the State Department of Correction and the host prison institution, all participants were required to be provided with both of the group therapy interventions. In order to achieve a randomized design, participants were placed in cohorts of $N=10-12$ as they enrolled in the study, and cohorts were randomly assigned to first receive one of the two group therapies. After completing the assigned group therapy, participants in each cohort were re-tested for the posttreatment assessment, and then provided the other group therapy. Posttreatment data collected following the first type of group therapy that each participant received are reported in this paper in order to avoid a confounding of the effects of the two therapies. Participants were informed during the consent process that they would receive two group therapies believed to be helpful for women coping with stress, with a 50-50 chance of receiving either type of group therapy first.

Inclusion criteria were as follows: age 18 to 50 years old; full or partial (i.e., at least one symptom present in each PTSD symptom domain, see below) PTSD related to interpersonal victimization; and incarceration scheduled to continue for at least 6 months. Exclusion criteria included evidence of substantial cognitive impairment (i.e., score < 16 on Orientation, Attention, and Recall sections of the Mini Mental State Exam (MMSE; Folstein & Folstein, 1975), those who scored in the severe range on psychopathy measured by the Hare P-SCAN (Hare & Neumann, 2009), on one-to-one suicide watch (suicidal ideation was not an exclusion), past month psychiatric hospitalization, monolingual Spanish-speaking, or previous TARGET group therapy.

Applicants were first screened for cognitive impairment using the MMSE Orientation, Attention, and Recall sections. Scores of < 16 on this < 3 minute neuropsychological screener were used to identify and exclude women with cognitive impairment that could prevent valid consent and participation. Next, the four-question PC-PTSD (Prins et al., 2003) was used to include only women with probable PTSD (cutoff ≥ 2). The 30-item Hare P-SCAN was administered to screen applicants with clinically significant psychopathic traits. Structured interviews were used to assess trauma history (at baseline), PTSD, and other psychiatric disorders (at baseline), followed by administering self-report questionnaires in the order shown below. Assessment was done within 4 weeks before (baseline) and after (posttest) the group therapy. Interrater reliability for the structured interview assessment was assessed with a randomly selected 58% sample of baseline ($N=24$) and 41% sample of posttherapy ($N=17$) interviews, which were reviewed on audiotape by an independent interviewer. Self-report questionnaires were administered at each assessment time point.

PARTICIPANTS

Of 197 women screened, 80 were eligible and randomized (by a study assessor with numbers concealed in sealed envelopes prepared by another study staff who used an Excel random number generator), and 72 (age range = 23 to 57 years old) completed TARGET [$N=38$; age $M(SD)=34.6(8.6)$] or SGT [$N=34$; age $M(SD)=38.0(7.8)$] and the posttest (Figure 1). The sample included approximately 40% women of color and 60% White women who primarily (86%) were never married or separated, divorced, or widowed, two-thirds with a terminal high school degree or less education, more than half (56%) with a lifetime substance use disorder, and one quarter incarcer-

ated based on substance use-related legal charges (Table 1). The TARGET and SGT subgroups were comparable on demographics, including age, $t(70)=1.77$, $p=.08$, and history of substance use disorder and related legal charges (see Table 1). They also were comparable in participants' number of episodes of past mental health inpatient or residential treatment: TARGET $M(SD)=1.45(3.0)$; SGT $M(SD)=0.94(4.1)$, $t(70)=0.59$, $p=.56$. The SGT group reported more episodes of past substance use disorder residential or inpatient treatment (TARGET $M(SD)=1.16(2.1)$, SGT $M(SD)=3.15(4.3)$, $t(69)=-2.53$, $p<.01$).

MEASURES

Traumatic Events Screening Inventory (TESI; Ford & Smith, 2008)

History of trauma was assessed only at baseline with this structured interview's behaviorally specific questions about the type, number of episodes, and developmental/chronological index (i.e., before age 6, before age 18, age 18 or later, and in the past year) of experiences fulfilling the DSM-IV criteria for Criterion A1 (life threat, severe injury, or violation of personal integrity, witnessed or directly experienced) and Criterion A2 (fear, helplessness, horror). Seventeen questions inquire at a 5th-grade reading level, in English or Spanish, about direct exposure to and witnessing of potentially traumatic accidents, illness, disasters, deaths of significant others by accident, illness, murder, or drivers under the influence of substances, family violence, community violence, and sexual assault or molestation. In the present study, categorical scores were derived for 12 trauma history variables based on six trauma types (accident or illness, separation or loss, family violence, community violence, physical assault, sexual assault or molestation) and two developmental epochs (i.e., in childhood and adolescence [before age 18 years old] or in adulthood), as well as two additional variables assessing any potentially traumatic event exposure in early childhood (before age 6 years old) or in the past year. Independent interrater reliability for presence or absence of a traumatic event within each category was strong, ranging from kappa = .84 to .91.

Clinician Administered PTSD Scale (CAPS; Blake, Weathers, Nagy, & Kaloupek, 1995; Weathers, Keane & Davidson, 2001)

The CAPS is a reliable and validated structured interview for DSM-IV (American Psychiatric Association, 1994) categorical diagnoses for full and partial (i.e., meets Criterion B and Criterion C or D; Schnurr et al., 2000; Stein et al., 1997) PTSD. The CAPS yields ordinal symptom severity scores for PTSD and

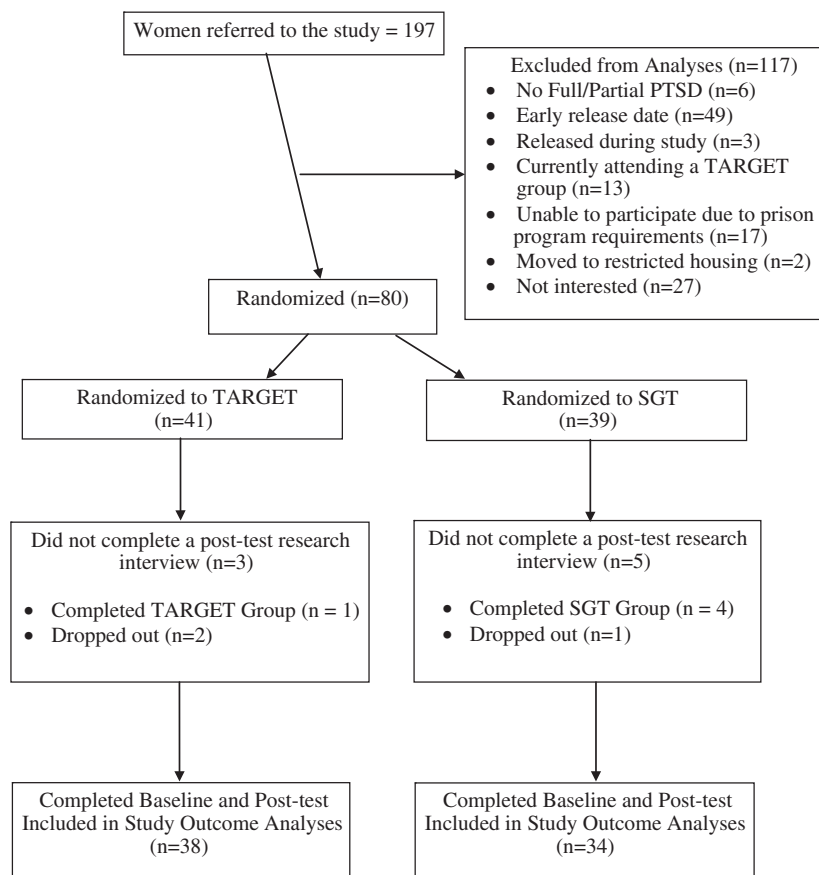


FIGURE 1 Participant Enrollment, Randomization, Allocation, and Final Sample for Analyses.

Criteria B, C, and D, which were used as the primary outcome scores. CAPS scores the intensity (0 = *none* to 4 = *extreme distress*) and frequency (0 = *never* to 4 = *daily or almost every day*) of each PTSD symptom.

Independent interrater reliability for the CAPS total score (intraclass correlation = .97 at baseline, .94 at posttest/follow-up) and detecting full or partial PTSD (92% agreement, kappa = .77) was strong, and adequate for distinguishing full versus partial PTSD (82% agreement, kappa = .61). Diagnosis discrepancies (primarily due to Criterion C avoidance/numbing symptoms) were resolved by the first author. Severity scores > 50 are considered to be in the clinical range, with > 70 reflecting severe PTSD (Weathers et al., 2001). Normative sample data have not been reported (Weathers, personal communication, October 13, 2008), but a study of adult violence and accident trauma survivors reported mean and standard deviation scores for those who did and did not meet criteria for PTSD as $M(SD) = 47(11)$ and $33.5(11)$, respectively (Scragg, Grey, Lee, Young, & Tuner, 2001). Full remission of PTSD at posttest or follow-up was defined con-

servatively as not meeting criteria for either partial or full PTSD and a CAPS total severity score ≤ 20 (Cloitre et al., 2010; Weathers et al.). Partial remission was defined as not meeting criteria for full PTSD and a CAPS total score < 34.

Alcohol, Smoking and Substance Involvement Screening Test (ASSIST; Humeniuk et al., 2008)

The ASSIST is a reliable and validated semistructured interview designed to screen for risk of substance use disorders in adult primary care and substance use treatment populations. Use of eight types of substances (i.e., alcohol, cannabis, cocaine, stimulants, inhalants, sedatives, hallucinogens, and heroin/opioids) and components of abuse (i.e., heavy use despite actual or potential impairment in work, school, or parenting, recurrent legal problems, or problems in relationships) and dependence (i.e., daily use, tolerance, and inability to limit/stop use). Probable lifetime substance abuse or dependence were defined respectively as any abuse criterion endorsed, or daily use and tolerance despite attempts to stop in the past period of heaviest use.

Table 1
Baseline Demographics, PTSD Diagnostic Status, and Substance Abuse/Dependence

Variable	Full Sample		TARGET		SGT		Chi-square	p
	N	%	N	%	N	%		
Ethnocultural Background							1.53	.47
African American	21	30	11	30	10	29		
Latina	9	13	3	8	6	18		
White	41	58	23	62	18	53		
Marital Status							0.80	.67
Married	10	14	4	11	6	18		
Sep/Divorced/Widowed	23	32	13	34	10	29		
Never Married	39	54	21	55	18	53		
Education							0.39	.83
<High School Graduate	32	44	18	47	14	41		
High School Graduate/GED	15	21	8	21	7	21		
College or Higher	25	35	12	32	13	38		
Lifetime SUD	40	56	20	53	20	59	0.28	.84
SUD-related Legal Charges	19	26	10	26	9	26	0.00	.99
Childhood Trauma History								
Physical Abuse	17	24	7	18	10	29	1.20	.27
Sexual Abuse	43	60	21	55	22	63	0.67	.42
Domestic Violence	47	65	25	66	22	65	0.01	.92
Community Violence	35	49	19	50	16	47	0.06	.80
Accident/Illness Trauma	42	58	22	58	20	58	0.01	.94
Trauma before Age 6	31	43	17	44	14	42	0.09	.76
Adult Trauma History								
Domestic Violence	59	82	31	80	28	84	0.01	.93
Sexual Trauma	48	67	28	74	20	58	1.78	.18
Physical Assault	52	72	28	74	24	66	0.09	.77
Community Violence	57	79	30	77	27	80	0.00	.96
Accident/Illness Trauma	62	86	32	84	30	88	0.24	.62
Trauma in Past Year	21	29	11	29	10	29	0.00	.97
Baseline PTSD Status							0.67	.58
Full	56	78	31	82	25	74		

Note. Sep=Separated from primary partner; GED=General Educational Development credential; PTSD=posttraumatic stress disorder; SUD=substance use disorder.

Clinical Outcomes in Routine Evaluation-Outcome Measure (CORE-OM; Barkham et al., 2001)

This 34-item self-report measure reliably and validly assesses psychiatric symptom severity, risk of harm to self/others, and impaired social functioning and well being. Internal consistency reliability for the CORE-OM total score in this study was Cronbach's $\alpha = .95$.

Trauma Symptom Inventory (TSI; Briere, Elliott, Harris, & Cotman, 1995)

The TSI is a population-normed, reliable and validated 100-item measure that generates composite scores 10 subscales. Five of the subscales are variants of PTSD symptoms, and these were not used to avoid duplication with the CAPS and CORE-OM variables. (Analyses with those subscales provided results closely paralleling those with the CAPS and CORE-OM reported below, and are not reported here but are available from the first

author.) The remaining 5 subscales assess symptoms associated with complex PTSD, including dissociation, problems with sexuality, risky sexual behavior, tension reduction behavior (i.e., self-harm and self-soothing), and negative self-perceptions. Internal consistency for each of those subscales in this sample was a $\alpha = .82-.90$.

Generalized Expectancies for Negative Mood Regulation (NMR; Catanzaro & Mearns, 1990)

This 30-item (1–5 scale from *strongly agree* to *strongly disagree*) questionnaire measures affect regulation (i.e., ability to identify, manage, and adaptively use negative emotion states) reliably and validly (Cloitre et al., 2010). Internal consistency in this sample $\alpha = .90$.

Hope Scale (Snyder et al., 1996)

This 6-item questionnaire reliably and validly assesses self-efficacy and optimism in dealing with

stressors. Internal consistency in this sample was $\alpha = .85$.

Heartland Forgiveness Scale (FS; Thompson et al., 2005)

This 18-item questionnaire reliably and validly assesses self-perceived ability to forgive self and others to transgressions. Internal consistency in this sample for the FS total score was $\alpha = .84$. This measure was not given to women in the first two study cohorts due to an administrative error.

Expectancy of Therapeutic Outcome (ETO; Resick, Nishith, Weaver, Astin, & Feuer, 2002)

This 4-item questionnaire was developed for PTSD treatment studies to assess perceived credibility of treatment. The ETO is a 7-item scale with 9-point ratings (ranging from 1 = *not at all* to 3 = *a little* to 5 = *somewhat* to 7 = *a lot* to 9 = *extremely*) for the credibility of the therapy, confidence in its helpfulness in achieving symptom reduction and positive functioning outcomes, and willingness to recommend the treatment. The ETO administered at mid-treatment (session 4) was used in the study and showed good internal consistency ($\alpha = .94$).

Working Alliance Inventory–Brief (WAI-B)

This 7-item questionnaire was developed and validated for assessing persons with mental health problems' perceptions of the therapeutic working alliance with their therapist (Neale & Rosenheck, 1995). Items are positively worded (e.g., "I feel sure that my counselor is able to help me") and ratings range from 0 = *strongly disagree* to 4 = *strongly agree*. WAI-B items were selected to represent the three WAI primary factors (i.e., the therapist's ability to be trustworthy and understanding, to provide a collaborative working relationship, and to provide useful help in achieving personal goals), and has showed evidence of internal consistency and predictive validity in relation to measures of change in client-rated symptom reduction and functioning. The WAI-B administered in the final session was used in the present study and had good internal consistency ($\alpha = .95$).

THERAPY INTERVENTIONS

Trauma Affect Regulation: Guide for Education and Therapy (TARGET; Ford & Russo, 2006)

TARGET begins with psychoeducation linking PTSD symptoms to affect dysregulation, explaining that both are the result of biological adaptations to survival threats that lead to susceptibility to rapid intense emotional reactivity and difficulty in regaining emotional equilibrium. A sequential skill-set for affect regulation is taught, summarized by an acronym, "FREEDOM:" Focusing; Recog-

nizing triggers; Emotion awareness, Evaluating thoughts, Defining goals, choosing Options; and Making a positive contribution to the world by regulating emotions. TARGET was delivered in twelve 75-minute group therapy sessions, including modeling and coaching by the therapist, and in vivo in individualized homework assignments using a template ("Personal Practice Exercise for FREEDOM") for applying the FREEDOM steps to enhance emotion regulation and anticipate and manage current life experiences/stressors.

Supportive Group Therapy (SGT)

This manualized 12-session supportive therapy was adapted from a protocol designed to engage women in identifying current stressors and coping behaviors that work for them or others (Wallis, 2002). SGT includes experiential self-expression activities and nondirective assistance in identifying stresses and effective coping strategies. The first five sessions provided education on group rules and setting personal goals, recognizing symptoms of traumatic stress, personal boundaries, and styles of attachment. The remaining seven sessions are devoted to an open-ended "discussion and to work through some of the issues, needs and concerns raised as participants began to make the connections between past trauma and present problems and function" (Wallis, p. 69). SGT provides a credible intervention similar to supportive counseling approaches used in other PTSD treatment clinical trials (Cahill et al., 2009). The SGT intervention in this study provided a comparable "dose" of contact and attention (i.e., twelve 75-minute sessions) to TARGET. However, SGT did not include the therapeutic mechanisms (i.e., detailed education about traumatic stress and the brain, and emotion/self-regulation skills training) hypothesized to be crucial in TARGET.

THERAPISTS AND FIDELITY

Four experienced female therapists (one African American, two Latina, and one White) and one experienced White male therapist, all of whom had advanced degrees in clinical psychology, social work, or counseling, conducted TARGET and SGT. The second author (a Latina therapist with a clinical psychology doctorate) served as co-therapist for each group in order to ensure fidelity to each group therapy model. Study therapists received more than 20 hours of training and case supervision by the second author before and after conducting groups, and reviewed each session in relation to the treatment manual after each group session. Prison regulations prevented the taping of sessions, but fidelity was assessed in each session by the co-therapist according to detailed manuals and fidelity

checklists for each treatment. The co-therapist identified no instances of TARGET skills or content in any SGT group, and no deviations from the TARGET manual in TARGET groups.

STATISTICAL ANALYSES

Prior to hypothesis testing, data screening was completed and no outliers resulting in nonnormal/linear distributions were detected. Missing data due to dropouts, missed interviews, or incomplete measures were analyzed using the SPSS Missing Value Analysis program and found to be random. Analyses of between-condition baseline differences used the chi-squared statistic. Treatment completion analyses were conducted using mixed model regression in order to include all participants in each analysis regardless of missing data (Bryk & Raudenbush, 1992; Singer, 1998). Within-subject effects were examined to test for change over time in each experimental condition. Interaction effects for experimental condition by time-point were examined to test for differences in change over time. All tests were two-tailed. *N*s of 28–42 per cell were sufficient at $p < .05$ (one tailed) to detect small effects ($d = .20$) with .25 power, and medium ($d = .50$) effects with .80 power (Cohen, 1988, p. 54), except the FS was inadvertently omitted in the first two cohorts of each intervention, and had smaller cell *N*s (i.e., 12–26) and reduced statistical power.

Results

BASELINE RESULTS

All participants met diagnostic criteria for full or partial PTSD, and most ($N = 57$, 79%) had past substance use disorders (Table 1). The experimental conditions did not differ at baseline on any demographic, legal or trauma history, PTSD, or substance use disorder variable (Table 1). They also reported comparably extensive trauma histories (>40% with onset before 6 years of age; see Table 1) as adults and in childhood, including noninterpersonal traumatic stressors (e.g., severe accidents) as well as traumatic interpersonal victimization across multiple domains.

TREATMENT CREDIBILITY AND THERAPEUTIC ALLIANCE

TARGET and SGT received comparable ratings for therapy credibility and working alliance. Session 4 ETO scores (maximum = 63) were: $M(SD) = 48.9(12.8)$ for TARGET, and $M(SD) = 42.3(13.6)$ for SGT, $t = 1.61$, $df = 70$, $p = .114$. Session 10 WAI-B ratings (maximum = 28) were: $M(SD) = 22.0(5.3)$ for TARGET, and $M(SD) = 20.8(4.5)$ for SGT, $t = .81$, $df = 70$, $p = .424$. The ETO and WAI-B scores reflect a consistently high level of positive expectancies

(average item ratings were between 6 to 7, which corresponds to expecting “a lot” of benefits) and therapeutic alliance (average ratings of 3 or higher, reflecting agreement that the alliance was positive). These scores are consistent with ETO (Ford et al., 2011; Resick et al., 2002) and WAI (Cloitre et al., 2010; Ford et al., 2011) scores in prior studies of PTSD treatment with women.

TREATMENT EFFICACY

Mixed model regression analyses showed evidence of change from baseline to posttherapy for the full sample on all variables except the TSI Sexual Concerns Subscale, NMR and Forgiveness Scale (the F_{time} statistic provided for each variable in Table 2). Improvements achieved by both treatments on CAPS PTSD and CORE-OM psychosocial symptoms represented medium (approaching large for TARGET on PTSD symptoms) effect sizes.

The absence of overall improvement in forgiveness was due to TARGET participants having a large effect size improvement while SGT participants reported a small overall decline on the Forgiveness Scale (Table 2). This difference between the treatments in improvement from baseline to posttherapy was statistically significant large effect (see $F_{group \times time}$ and $d_{group \times time}$ in Table 2), indicating clear superiority for TARGET over SGT in enhancing forgiveness.

On the NMR, TARGET participants showed a small to medium effect size improvement but the SGT participants reported no change on average (Table 2). The improvement in affect regulation reported by TARGET participants was comparable to the change and the final NMR levels when TARGET was conducted as an individual therapy with girls involved in delinquency (Ford et al., 2012). However, this difference was not statistically significant.

Results on the TSI subscales generally showed small effect size improvements by both treatment conditions (Table 2). Comparisons of the two treatments identified small effect size and statistically nonsignificant differences between the conditions which favored TARGET (i.e., $d_{group \times time} = .22-.42$), with two exceptions. A medium effect size improvement was found on the TSI Impaired Self-Reference Subscale for the TARGET condition, and on the TSI Dissociation Subscale for the SGT condition. These differences, while suggesting unique effects for each treatment, were not statistically significant and the Group \times Time interaction effect size estimates were small in both cases (i.e., .39 and $-.26$; see Table 2).

At posttest, TARGET ($N = 17$; 43%) and SGT ($N = 15$; 44%) participants were equally likely to no longer meet criteria for full PTSD (i.e., partial

Table 2
Outcome Scores at Baseline and Posttest for TARGET and SGT Conditions

Variable	Baseline			Posttest			F_{time}	d_{time}	$F_{group \times time}$	$d_{group \times time}^a$
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>				
CAPS Total PTSD Symptoms							31.1***		0.3	.13
TARGET	38	65.3	18.0	38	50.0	20.8		.79		
SGT	34	63.1	21.7	34	50.5	24.3		.55		
CORE-OM Total Symptoms							28.5***		0.01	.03
TARGET	30	63.1	22.2	29	50.4	22.1		.57		
SGT	31	54.6	24.4	26	42.6	23.7		.50		
TSI Dissociation Symptoms							5.4*		1.6	-.26
TARGET	31	14.5	6.5	29	14.1	6.4		.06		
SGT	33	12.0	6.0	30	9.1	5.5		.50		
TSI Sexual Concerns							1.8		0.5	.22
TARGET	31	9.6	6.0	28	8.2	7.3		.21		
SGT	34	6.1	5.2	29	5.5	4.7		.12		
TSI Sexual Behavior Problems							6.4*		1.1	.31
TARGET	32	9.2	7.0	28	7.0	7.4		.31		
SGT	34	7.8	7.4	30	6.6	7.1		.17		
TSI Impaired Self-Reference							13.1***		2.3	.39
TARGET	30	14.8	5.6	28	11.4	5.6		.61		
SGT	34	12.7	6.2	28	11.4	5.3		.23		
TSI Tension Reduction Behaviors							9.7**		2.0	.42
TARGET	30	9.3	5.7	29	7.3	5.1		.37		
SGT	33	7.5	5.3	30	6.6	5.3		.17		
Heartland Forgiveness Scale							1.9		4.0*	.38
TARGET	26	69.0	14.6	23	81.3	11.8		.93		
SGT	12	80.2	21.6	9	76.7	15.7		-.19		
Hope Scale							11.2***		0.1	.06
TARGET	31	21.4	4.8	31	23.5	3.6		.49		
SGT	33	22.2	4.7	31	23.7	5.0		.31		
Negative Mood Regulation Scale							2.3		2.0	.32
TARGET	32	98.7	16.2	31	105.1	18.0		.37		
SGT	33	104.7	15.8	31	104.7	15.9		.00		

Notes. CAPS=Clinician Administered PTSD Scale. CORE-OM=Clinical Outcomes in Routine Evaluation-Outcome Measure. TSI=Trauma Symptom Inventory. ^aPositive *d* represents TARGET superior to SGT. **p*<.05 ***p*<.01 ****p*<.001.

remission). Four (12%) TARGET and eight (23%) SGT participants were in full remission (no full or partial PTSD). Symptom worsening at posttest (i.e., CAPS total severity score ≥ 7 points higher than at baseline; Cloitre et al., 2010) was found for *N*=6 participants receiving SGT (18%) and *N*=4 who received TARGET (11%). None of these between-group differences were statistically significant ($X^2 < 1.0$, *df*=1, *p*>.30). The absolute levels of worsening in CAPS PTSD symptoms were relatively small in each of these cases (i.e., <10 points, which corresponds to a <0.3 point increase in frequency and intensity of each PTSD symptom, on average). There were no instances of serious adverse events involving clinically significant deterioration that required crisis care or intensive treatment.

TREATMENT ATTENDANCE AND COMPLETION

SGT participants attended more sessions on average (*M*=10.1, *SD*=2.5) than TARGET participants

(*M*=7.7, *SD*=3.7), $t=3.2$, *df*=70, *p*=.002. The most frequent reasons for not attending were required prison activities (e.g., work duties), segregation for disciplinary problems, or conflict with other group members. Dropouts from group therapy were infrequent: 4.5% in TARGET and 2.5% in SGT (Figure 1). Results of partial correlations controlling for baseline CAPS score showed that the number of TARGET or SGT sessions attended was unrelated to change on CAPS total score at posttherapy, $r_p = -.05$ for TARGET and .02 for SGT (*p*>.75). Analyses were repeated using the number of treatment sessions attended as a covariate, with no change in the results (analyses not reported but available from the first author).

Discussion

Two manualized group therapies were associated with statistically significant change by incarcerated women who began treatment with either full or

partial PTSD, including reductions in PTSD symptom severity and improvement on a variety of psychiatric symptom and psychosocial functioning outcome measures. Dropout rates were very low (<5%) compared to those reported in prior studies of group therapy with incarcerated women (approximately 33%). However, full remission from PTSD occurred for only 12% to 23% of participants. The reduction, on average, in CAPS PTSD severity was comparable to that reported by Zlotnick and colleagues (2009), i.e., approximately 12 to 13 points, but only half the amount of improvement reported in studies of TARGET as a one-to-one therapy for women and girls (Ford et al., 2011, 2012).

Thus, further clinical innovation appears needed in order to address incarcerated women's PTSD—especially with the stressors and constraints faced by incarcerated women (Bradley & Follingstad, 2003; Cole et al., 2007; Salgado, Quinlan, & Zlotnick, 2007). For example, modified approaches to TMP (Beck et al., 2009; Ready et al., 2008) may need to be added to group therapy for incarcerated women in order to consistently achieve remission from PTSD. This would be consistent with results from Cloitre et al.'s (2010) study showing that maximal gains in individual therapy for victimization-related PTSD with women were achieved by combining an affect-regulation intervention with a modification of PE. Those findings plus results of studies demonstrating TARGET's efficacy as an individual therapy for victimization-related PTSD with women and delinquent girls (Ford et al., 2011, 2012) suggest that affect-regulation approaches to individual therapy—with or without TMP—also warrant study with incarcerated women.

Contrary to the other primary study hypothesis, however, TARGET did not achieve greater improvement in affect regulation than SGT. The small increase in NMR scores achieved on average by TARGET recipients suggest that the gains in affect regulation from brief group therapy may not be sufficient to reverse the trend of worsening affect dysregulation that has been documented among incarcerated women over time (Cole et al., 2007). Further research is needed to determine if adaptations to TARGET (e.g., extending the number of sessions, more systematic practice of skills in group, or programming reinforcement in the milieu; Ford & Hawke, 2012) can achieve greater improvements in affect regulation and in associated symptoms. For example, more extensive homework exercises and between-group coaching and self-monitoring may be needed in the prison setting in order to enable women to acquire affect regulation skills. This would be consistent with Morgan and colleagues'

(2012) recommendations for enhancing the applicability and effectiveness of all mental health treatments with incarcerated adults.

The secondary hypothesis received partial support based on TARGET participants' increase in sense of forgiveness (while SGT participants reported a decrease). This finding suggests that a therapeutic focus on affect regulation may provide a basis for incarcerated women with PTSD to achieve a greater sense of emotional resolution in relation to past victimization or betrayal. More research is needed to provide an understanding of whether, and how, forgiveness is related both to affect regulation and to PTSD and associated emotional and behavioral problems among incarcerated women. It is possible, for example, that if incarcerated women with PTSD gain a greater sense of forgiveness toward those who have caused harm, this may be an early indicator of enhanced affect regulation. Or forgiveness may occur along with improvements in PTSD symptoms that are distinct from affect regulation, or alternately, as a precursor to the development of enhanced affect regulation. Studies with more extended treatments, potentially with an emphasis on forgiveness (Reed & Enright, 2006) and follow-up periods to evaluate longer-term sustained or delayed improvements, could provide further insight into the role of forgiveness in posttraumatic recovery and effective PTSD treatment with incarcerated women.

METHODOLOGICAL STRENGTHS AND LIMITATIONS AND IMPLICATIONS FOR RESEARCH

This was the largest study to date evaluating the effectiveness of group therapy for PTSD with incarcerated women, and the first to include a manualized comparison intervention. The study nevertheless was underpowered statistically to detect the expectable (Benish, Imel, & Wampold, 2008; Cloitre et al., 2010) small differences between two active therapies. This may account for the finding on several outcome measures that, despite participants reporting greater improvement after TARGET than SGT, the difference was not statistically significant. In addition, although fidelity ratings conducted in every session of SGT revealed no instances of the use of TARGET psychoeducation or affect-regulation skills training, SGT's focus on discussing emotionally significant problems in relationships may have indirectly facilitated better emotion regulation. This may have occurred without participants' explicit awareness, leading to the gains shown by SGT participants on several study measures despite no change on the NMR. Research on group therapy with incarcerated women clearly is needed with larger samples and with comparison

conditions that better isolate their hypothesized key mechanisms.

Study analyses were not done on an intent-to-treat basis, in order to be comparable to those from prior group therapy studies with incarcerated women (Bradley & Follingstad, 2003; Cole et al., 2007; Zlotnick et al., 2009; Zlotnick et al., 2003). However, the low dropout and study attrition rates resulted in most (90%) of the randomized participants being included in study analyses because they completed the group therapy (with variable amounts of attendance) and the posttest.

The use of only one measure of affect dysregulation was another study limitation. Although the NMR has been used as the sole measure of affect dysregulation in other PTSD treatment outcome studies with victimized women (Cloitre et al., 2010; Ford et al., 2011), use of other measures such as the Difficulties in Emotion Regulation Scale (Gratz & Roemer, 2004) or peer, family, clinician, or staff ratings of participants' emotion regulation should be included in future studies in order to more fully assess change in emotion dysregulation.

Department of Correction policy required that participants receive both interventions without any delay, thus preventing follow-up assessments to ascertain longer-term outcomes. Some benefits of the skills-based TARGET intervention also may not be evident until recipients have an extended period to use the skills (Ford et al., 2011), but that could not be tested in this study. In addition, institutional policies prohibiting the taping of therapy sessions prevented the independent collection of fidelity ratings and reliability check. Having a single potentially biased observer (a study co-author) rate fidelity as a co-therapist in sessions is another study limitation.

As noted above, inclusion of women with partial as well as full PTSD may have reduced the study's statistical power to detect change and between-group effects, due to lesser levels of symptom severity associated with partial versus full PTSD. However, partial PTSD has been shown to be associated with substantial psychosocial impairment (Stein et al., 1997) and therefore warrants consideration as a target for therapeutic intervention. It is also possible that the interventions' positive outcomes were due in part to including women with less severe (i.e., partial) PTSD. This seems unlikely: mean baseline group CAPS severity scores (i.e., 62–68) were comparable to those reported in studies of CBT for women with victimization-related PTSD (e.g., 63–66 in Cloitre et al., 2010) and incarcerated women (e.g., 64–69 in Zlotnick et al., 2009). The only other studies of group therapy with incarcerated women that determined PTSD diagnostic status also included a similar

proportion of participants who met criteria for subthreshold or partial PTSD but not full PTSD (i.e., 15% to 18%; Zlotnick et al., 2009; Zlotnick et al., 2003).

Finally, further research may be warranted to determine if the very preliminary findings of potential advantages to TARGET over SGT in enhancing affect regulation, hope, and reduced sexual concerns, tension reduction behaviors, and trauma-related self-beliefs, and of SGT over TARGET in reducing dissociation, can be replicated. The relative amounts of improvement on those measures reported by participants in the present study were comparable to or greater than those reported on similar measures by Bradley and Follingstad (2003). TARGET and SGT also were relatively efficient in achieving those positive outcomes. Both therapies were delivered in less than one third the time (based on the number and length of sessions) as in the Bradley and Follingstad's group therapy (i.e., twelve 75-minute sessions versus eighteen 150-minute sessions).

IMPLICATIONS FOR CLINICAL PRACTICE

The findings suggest that relatively brief group therapies teaching affect-regulation skills or facilitating experiential self-expression may benefit incarcerated women with PTSD. Although women in TARGET groups overall viewed themselves as achieving only small gains in affect regulation, they did report greater increases in the ability to forgive those who had caused harm than women in SGT groups. TARGET's efficacy in enhancing forgiveness suggests that teaching emotion regulation skills in group therapy may enable participants to achieve a sense of affective resolution, a key characteristic of adaptive resilience (Bonanno, Westphal, & Mancini, 2010) that may be particularly relevant for women who have been victimized (Cloitre et al., 2005).

Anecdotally, women in the TARGET groups reported that they found it difficult to apply the affect-regulation skills due to the limited privacy and high levels of emotional dysregulation by other inmates and staff (see Cole et al., 2007). Consistent with recommendations for universal psychoeducation and skills training for incarcerated women (Koons, Burrow, Morash, & Bynum, 1997), TARGET recipients recommended that all inmates (not only those disclosing a history of victimization), and staff as well, should be taught emotion regulation skills. Several women in TARGET groups spontaneously taught the affect-regulation skills to roommates, friends, and family members, and reported that this helped them remember to use the skills in their daily lives. They also described feeling more able to deal with feelings of anger and thoughts of revenge by focusing on developing a

better life for themselves rather than on past traumas, consistent with their reports of improvement on the measure of forgiveness.

The FREEDOM skills taught in TARGET incorporate many of the strategies in trauma memory processing therapies—but TARGET applies the skills to processing of *traumatic stress reactions in clients' current day-to-day lives* rather than trauma memories. This may be particularly relevant for incarcerated women due to limited privacy to do trauma memory processing homework exercises (Beck et al., 2009; Ready et al., 2008). TARGET's affect-regulation skills also could be used to complement and extend the anxiety management skills that are taught to prepare clients for trauma memory processing. Studies have shown that women with severe affect dysregulation can tolerate and benefit from trauma memory processing therapies (Rauch et al., 2009; Resick et al., 2002). However, some affectively dysregulated individuals may not benefit from trauma memory processing unless they are able to develop stable affect-regulation capacities (Cloitre et al., 2010; Cook et al., 2004). High levels of emotions such as anger, guilt, or shame have been found to be associated with poor response in trauma memory processing therapy for PTSD (Jaycox & Foa, 1996). High dropout rates (i.e., 39% to 43%) from prolonged exposure have been reported among women with childhood-abuse-related PTSD (Cloitre et al., 2010; McDonagh-Coyle et al., 2005), and a clinical study with incarcerated battered women found that 80% did not have a positive response to either trauma memory processing or relaxation therapy (Colosetti & Thyer, 2000). Group therapy aimed at enhancing affect regulation thus may provide a way to prepare incarcerated women for trauma memory processing therapy.

In addition, a structured approach to experiential-oriented supportive group therapy may benefit incarcerated women. This view is consistent with findings in another study in which a relationally based supportive individual therapy was found to be equivalent to TARGET in reducing some PTSD symptoms and more effective than TARGET in achieving reductions in anger and increased self-efficacy with delinquent girls (Ford et al., 2012). Supportive group therapy also was found to be as effective as a TMP therapy in a randomized clinical trial of group therapy for PTSD with military veterans (Schnurr et al., 2003). Thus, the opportunity to interact in a relationally safer and more supportive setting than typically possible in prison may play an important role in group therapy outcomes with traumatized incarcerated adults.

Finally, although few participants failed to complete either group therapy, TARGET recipients may

have received a suboptimal “dose” of therapy because they attended on average only two-thirds of sessions. Most nonattendance was due to unavoidable scheduling problems that are expectable in prisons. However, the outcomes of a fuller “dose” of TARGET warrant testing.

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