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Breaking the Cycle of Trauma and Criminal Justice Involvement:  
The Mothers Overcoming and Managing Stress (MOMS) Study

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## Summary

The Mothers Overcoming and Managing Stress (MOMS) study was designed to extend previous investigations of counseling for women who had experienced childhood sexual abuse (McDonagh-Coyle et al., 2005) and adults with post-traumatic stress disorder (PTSD) and substance use disorders (Frisman, Ford, Lin, Mallon, & Chang, in press) to address the needs of low-income young mothers of diverse ethnocultural backgrounds. The study goal was to determine if two forms of counseling were more effective than services as usual in assisting these women in recovering from PTSD and enhancing their lives and their ability to parent their young children. The study is one of a series of efforts to develop scientifically-validated approaches to breaking the intergenerational cycle of trauma and criminal justice involvement by helping under-served people recover from PTSD.

The study provided brief one-to-one counseling for twelve weeks to low-income young mothers who were of diverse ethnocultural backgrounds and were experiencing PTSD. The results of the study indicated each of two forms of brief counseling resulted in improvements in PTSD symptoms, stress management, and the ability to successfully engage in social relationships that surpassed those that resulted from services as usual. There was evidence of continued improvement for many of the participants at follow-up assessments three and six months after counseling ended. The counseling approach that was designed specially to improve PTSD symptoms and stress management (called “Trauma Affect Regulation: Guide for Education and Therapy” or TARGET) provided the greatest benefit in those areas. The other counseling model (called “Present Centered Therapy” or PCT) was designed to enhance women’s ability to solve problems constructively in relationships, and provided clear benefits in that area. Neither of the counseling methods required women to talk in detail about painful memories of past traumatic experiences—which is a widely-used approach to counseling for PTSD called “prolonged exposure” that may be helpful in some cases but may be destabilizing for people with severe trauma histories and current adversities (such as poverty or racism).

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The study findings support and extend the prior studies' findings that brief counseling which is focused on enhancing women's abilities to deal effectively with challenges and relationship in their current lives can provide a similar level of benefit in reducing PTSD as that which has been shown for prolonged exposure therapies. Relatively few women dropped out of either TARGET or PCT (which has been a problem in some studies with prolonged exposure counseling; McDonagh-Coyle et al., 2005), indicating that brief counseling can be beneficial for women facing multiple adversities without requiring that they engage in the painful recounting of traumatic memories that had been thought to be a necessary ingredient of recovery from PTSD. The results suggest that it is possible, and beneficial, to help young mothers who have experienced substantial trauma in their lives to recover from PTSD by assisting them in developing skills for managing stress and emotions and solving problems in their relationships. Further research is needed to determine if these counseling approaches can also benefit girls, in order to help trauma survivors earlier in their lives, and men and boys, in order to assist persons of both genders in breaking the cycle of trauma and crime.

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## Introduction

Many women (51-88%) report experiencing psychological trauma, with higher prevalence than men of rape, childhood abuse or neglect (Kessler et al., 1995; Norris, 1992; Resnick et al., 1993; Seedat et al., 2005; Stein et al., 2000), domestic violence victimization (Fishbach, 1997; Roberts, 2000), and post-traumatic stress disorder (PTSD) (Breslau, 2002; Bromet et al., 2000; Kessler et al., 1995; Seedat et al., 2005). Women facing discrimination due to being of ethnoracial minority background or low socioeconomic status face particularly substantial risks of suffering psychological trauma and persistent post-traumatic problems. Almost 25% of inner city women (approximately two-thirds of whom were Black) in a recent study met criteria for PTSD, and a history of either child abuse or rape in adulthood increased their chances of having PTSD sixfold—further, having experienced *both* abuse and rape increased the likelihood of PTSD 17 times (Schumm et al., 2006). Studies of women who were homeless or living in low-income housing find that most of these women report multiple traumatic experiences beginning in childhood and extending to their current lives (Browne & Bassuk, 1997; Rayburn et al., 2005; Sacks et al., in review). A history of childhood sexual or physical abuse, physical assault, and the death or injury of a friend or relative, as well as living in a shelter, were independent risk factors for depression in one representative sample of impoverished women (Rayburn et al., 2005). Exposure to violence, particularly in the absence of a strong support system, is associated with PTSD among women (Andrews, Brewin & Rose, 2003). When low income minority women who are at risk for community and domestic violence also face the challenge of mental illness (Ford & Fournier, in press) or chronic addiction (Ford & Smith, in press), they are highly likely to have experienced multiple types and instances of psychological trauma and post-traumatic impairment beginning in childhood and continuing in adulthood.

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Intergenerational Cycles of Trauma and Legal Problems

Of particular concern is evidence that violence, abuse, addiction, and associated legal problems may occur in inter-generational cycles, such that from early in childhood the offspring of at-risk or legally-involved parents develop ways of solving problems, achieving goals, and affiliating with peers that are based on PTSD and a culture of social isolation and deviance (Widom, 2001). Breaking this intergenerational cycle of violence, deviance, and trauma requires intervention targeted to address the core psychosocial problems that can perpetuate these social, legal, and public health problems across generations. Given the crucial role of maternal caregiving in child emotional, moral, and social development (Anderson et al., 1999; Caldji et al., 1998; Meaney, 2001), and the adverse impact of psychological trauma that disrupts mother-infant relationships (Scheeringa, & Zeanah, 2002) or that is the result of childhood maltreatment (Johnson et al., 2002), helping high-risk mothers of young children recover from PTSD offers a strategy for breaking the intergenerational cycle of trauma.

In addition to PTSD, the kinds of victimization traumas to which high-risk women may be exposed may place them at risk for complex post-traumatic impairment. Psychological traumas that involve victimization and betrayal of trust (Birrell & Freyd, 2006) or impairment of biopsychosocial development (Ford, 2005) place people at risk not only for PTSD but also for profound and persistent affective, somatic, cognitive, and relational dysregulation (Zlotnick et al., 1996). These impairments have been described as complex PTSD (Herman, 1992) or “Disorders of Extreme Stress Not Otherwise Specified” (DESNOS; van der Kolk et al., 2005). Sequelae of childhood abuse consistent with complex PTSD or DESNOS include chronic, debilitating, and potentially life-threatening medical problems (Felitti et al., 1998). DESNOS often (but not always; Ford, 1999) co-occurs with PTSD, but involves symptoms and impairment that are distinct from PTSD (van der Kolk et al., 2005). DESNOS also has been found to be a negative

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prognostic factor for psychiatric treatment independent of abuse history and PTSD (Ford et al., 2005).

### Therapy for PTSD

Treatment and rehabilitation that directly address the post-traumatic symptoms and emotional, cognitive, and interpersonal dysregulation that comprise complex forms of PTSD may be most effective for these high risk women if it enables them to understand how traumatic experiences have primed their brains and bodies to react without thought and on the basis of survival instincts (Ford et al., 2005). Cognitive Behavior Therapies (CBT) have the strongest evidence base for psychotherapy for PTSD with adults (Foa, Keane, & Friedman, 2000; Resick et al., 2002). CBT for women with PTSD involves education about PTSD, helping the woman to confront and create a narrative (in pictures as well as words) describing past traumatic experiences (“prolonged exposure”), and assisting the woman in recognizing and modifying trauma-related beliefs that are associated with PTSD. CBT for PTSD may be contraindicated, however, when a woman has no viable support system or experiences frequent severe behavioral and emotional crises (Cook, Schnurr, & Foa, 2004; Ehlers et al., 1998). Therefore, alternative therapeutic approaches that address affective and behavioral instability and that do not require an intact support system may be necessary for many high risk women with PTSD.

### The Present Study

The goal of the study was to evaluate the efficacy of two therapeutic interventions designed to enhance women’s skills for managing reactive emotions in their current lives as well as to educate them about how using these skills can enhance their personal effectiveness and help them to gain control of post-traumatic stress reactions. The interventions were an adaptation of two manualized psychotherapies that have shown promise with adults with complex PTSD (Trauma Affect Regulation: Guidelines for Education and Therapy; TARGET; Ford & Russo, 2006; Frisman,

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Ford & Linn, 2004) and women with PTSD secondary to histories of childhood sexual abuse (Present Centered Therapy, PCT; McDonagh-Coyle et al., 2005).

Aim #1: To test the efficacy of TARGET and PCT in reducing PTSD symptom severity, compared to a wait-list treatment as usual condition). The study's primary hypothesis is that TARGET will be associated with greater improvements than PCT or the wait-list treatment as usual condition in PTSD symptoms from baseline to post-therapy.

Aim #2: To test the efficacy of TARGET in reducing anxiety, depression, and anger severity, compared to PCT and wait-list. The study's secondary hypothesis is that TARGET will be associated with greater improvements than PCT or wait-list from baseline to post-therapy in indices of affect dysregulation that frequently co-occur with PTSD symptoms.

Aim #3: To test the efficacy of TARGET in enhancing emotion regulation, compared to PCT or waitlist. The study's tertiary hypothesis is that TARGET will be associated with greater improvements than PCT or waitlist from baseline to post-therapy in indices of affect regulation.

## Method

### *Procedure*

Participants were recruited by announcements and presentations in health clinics, family service centers, community centers, and residential treatment centers in the Hartford, CT area. According to the 1990 Census, 26% of families live below the poverty level and females with children head 75% of households living in poverty.. Of adults over the age of 25, 41% have not completed high school. Nearly half of Hartford's neighborhoods have poverty rates between 28-54%. The Hartford area also has high rates of urban problems based on arrest records, drug arrests, violent crime, firearm injuries and fatalities, family violence, and HIV rates.

Applicants were screened for eligibility and assessed and assigned to a treatment condition by one of three experienced female research interviewers according to a protocol approved by the

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Institutional Review Boards of the University of Connecticut Health Center and the Saint Francis Medical Center. Exclusion criteria included evidence of substantial cognitive impairment (i.e., score < 16 on Orientation, Attention, and Recall sections of the Mini Mental State Exam (Folstein et al., 1975), being on one-to-one suicide watch (although suicidal ideation was not an exclusion, and most participants reported current or past suicidal ideation), and age younger than 18. Inclusion criteria included: parenting a child younger than five years old and current PTSD (based on the CAPS-CA structured diagnostic interview, see below). The Structured Clinical Interview for DSM-IV (American Psychiatric Association, 1996) was used to identify comorbid anxiety and affective disorder diagnoses—these were not exclusion criteria.

### *Participants*

One hundred forty seven women (ages 18-45;  $M = 30.7$ ,  $SD = 6.9$ ) were randomized to a wait-list treatment as usual condition ( $N = 45$ ), or to TARGET ( $N = 49$ ) or PCT ( $N = 53$ ), and completed the baseline assessment in the first phase of a three-year study (see Figure 1). Participants' ethnocultural backgrounds included: 33% African/Caribbean American, 28% Latina or Mixed Race, 39% European American. Most lived alone (42% never married, 22% divorced, separated, widowed) and about one in three lived with a spouse or primary partner (36%). More than half had either not completed High School (30%) or had no education beyond High School (27%); one in five had attended college (21%) and another one in five was a college graduate (22%).

Most (72%) participants met criteria for at least one anxiety or affective disorder other than PTSD or a psychotic disorder, and more than one in three had two or more psychiatric disorders other than PTSD. More than one in three met research diagnostic criteria for major depressive disorder (34%), 8% for bipolar disorder, 61% 9% for Obsessive Compulsive Disorder, 9% for a psychotic disorder, and 61% for panic, agoraphobia, social anxiety, or generalized anxiety disorder.

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Exposure to psychological trauma (see Appendix) was extensive, including 100% to a traumatic separation or loss of caregiver(s), 97% to a traumatic accident, disaster, or illness, 88% to physical assault or abuse, 81% to traumatic community violence, 78% to traumatic family violence, 44% to sexual assault or abuse, 41% to traumatic emotional abuse, and 29% to traumatic bullying. All participants met criteria for either full or partial PTSD currently (i.e., in the past month, see below for criteria).

### *Measures*

Traumatic Events Screening Inventory (TESI; Ford & Smith, in press). History of trauma was assessed at baseline with the TESI, which provides 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, 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 5<sup>th</sup> 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. Categorical scores result for 18 trauma history variables based on 6 trauma types (accident/illness, separation/loss, family violence, community violence, physical assault, sexual assault/molestation) and 3 developmental epochs (0-5.9, 6-17.9, past year). Independent inter-rater reliability in this study for the presence or absence of a traumatic event within each category was strong, ranging from Kappa = .84 to .91.

Clinician Administered PTSD Scale (CAPS; Blake et al., 1995; Weathers et al., 2001) is a reliable and validated structured interview for DSM-IV (American Psychiatric Association, 1994) categorical diagnoses for PTSD and partial PTSD (i.e., meets criterion B and criterion C *or* D; Schnurr et al., 2000) that also generates ordinal symptom severity scores for PTSD and criteria B, C, and D. CAPS

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scores the intensity (0=none to 4=extreme distress)and frequency (0=never to 4=daily or almost every day) of each PTSD symptom. In this study, independent inter-rater reliability for presence/absence of full/partial PTSD was acceptable, Kappa=.69. Discrepancies (primarily due to Criterion C avoidance/numbing symptoms) were resolved by the first author. Severity scores >50 are considered in the clinical range, with >70 reflecting severe PTSD (Weathers et al., 2001).

Structured Clinical Interview for DSM-IV (SCID-P; First et al., 1996). The SCID is a reliable and validated structured interview for DSM-IV (American Psychiatric Association, 1994) categorical diagnoses. SCID modules for Affective, Anxiety and Psychotic disorders were administered. Independent inter-rater reliability in this study for the presence or absence of the most common diagnoses (major depression, panic disorder, agoraphobia, social phobia, generalized anxiety disorder) were acceptable to strong, ranging from Kappa = .76 to 1.00.

Beck Depression Inventory (BDI; Beck, Steer, & Garbin, 1988). The BDI is a 21-item measure of depressive symptoms, each of which has four possible answers with behavioral indices (total score range = 0-63), which has been shown to be reliable and valid in clinical samples. Scores  $\geq 19$  reflect clinical level depression, and  $\geq 30$  reflect severe depression.

State-Trait Anxiety Inventory, State Version (STAI-S; Spielberger, 1983). The STAI-S assesses the strength (on a 0-4 scale) of 20 physiological, cognitive, affective, and behavioral symptoms of anxiety in the immediate present moment, with demonstrated reliability and validity. Scores >40 are considered clinical range, with scores >50 reflecting severe anxiety (Kaneda & Fujii, 2000).

Post-Traumatic Cognitions Inventory (PTCI; Foa et al., 1999). The PCTI is a 36-item measure that reliably and validly assesses the strength of posttraumatic beliefs about oneself and the world which have been shown to interfere with psychosocial functioning and problem solving.

Interpretation of PTSD Symptoms Inventory (IPSI; Halligan et al., 2003). This 10-item measure reliably assesses appraisal of distress concerning unwanted trauma memories (Intrusive Symptoms,

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IS; 7 items, range = 0-28) and distress concerning problems in remembering a traumatic event (Memory Deficits, MD; 3 items; range = 0-12) on a 0-4 scale. The total score showed strong concurrent and predictive validity in relation to PTSD symptoms following assault.

Generalized Expectancies for Negative Mood Regulation (NMR; Cantanzaro & Mearns, 1990) is a 30-item scale (range = 30-150) that reliably and validly assesses self-perceived ability to identify, manage, and utilize adaptively a variety of negative emotion states using a 1-5 scale (from strongly agree to strongly disagree) for items phrased as “When I feel upset, I ...”

Health-Related Functioning (SFPC; Gandek et al., 1998; Ware et al., 1996). The Medical Outcomes Study Short Form-12 is a 12-item questionnaire that has been shown to reliably and validly assess overall self-perceived physical health and well-being (including global health, ability to manage physical and emotional health problems and pain). The SF-12 score for *physical health functioning* was used to assess the impact of physical health on overall functioning, on a 1-100 standardized scale (with a score of 50 reflecting the population mean and higher scores reflecting better health and functioning) for which extensive age- and population-based norms exist.

### *Therapy Interventions*

Trauma Affect Regulation: Guidelines for Education and Therapy (TARGET; Ford & Russo, 2006) is a manualized gender-specific treatment for PTSD. The 12-session individual therapy version in the present study is being adapted for adolescent girls based on a parallel version for young mothers and a group version that has been field tested with more than 20 adolescent girls. TARGET has been identified by the National Child Traumatic Stress Network as a promising practice ([www.nctsnet.org/nctsn\\_assets/pdfs/materials\\_for\\_applicants/TARGET\\_2-11-05.pdf](http://www.nctsnet.org/nctsn_assets/pdfs/materials_for_applicants/TARGET_2-11-05.pdf)).

TARGET teaches a practical 7-step sequence of skills for processing and managing trauma-related reactions to current stressful experiences (e.g., PTSD symptoms, traumatic grief, survivor guilt, shame, interpersonal rejection, and existential/spiritual alienation). The skills are designed in a

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sequence mirroring the three phases of complex traumatic stress disorder treatment (Ford et al., 2005), summarized by an acronym (“FREEDOM”): self-regulation via **F**ocusing (“F”); trauma processing via **R**ecognizing current triggers, **E**motions, and cognitive **E**valuations (“REE”), and strength-based reintegration by **D**efining core goals, identifying currently effective responses (**O**ptions), and affirming core values by **M**aking positive contributions (“DOM”). TARGET also uses creative arts activities: personalized “lifelines” via collage, drawing, poetry, and writing.

Present Centered Therapy (PCT) is a 12-session supportive therapy adapted from the Present Centered Therapy co-developed by the first author (McDonagh-Coyle et al., 2005). In PCT, psychoeducation is first provided about the link between trauma experiences and PTSD symptoms that impair the ability for engaging in relationships and solving interpersonal problems. PCT focuses on teaching and facilitating the application of skills for social problem solving as a way to recovering from PTSD by enhancing relationships and reducing the “traumagenic dynamics” of betrayal, powerlessness, stigmatization, and (if applicable) traumatic sexualization (Finkelhor, 1987). PCT specifically does not include the hypothesized active ingredients of TARGET, including education about the biology of traumatic stress and emotion regulation skills. PCT was presented as a widely used therapy that would enable them to reduce PTSD by managing current life difficulties (Nezu, 1987). As in TARGET, PCT focused on addressing current problems, rather than on discussing or intensively reliving traumatic memories. PCT participants chose the content for each session by deciding what current life problem they wanted to address using the social problem-solving skills. In addition to planning specific ways to apply the skills between sessions, and reviewing attempts to do so in subsequent sessions (as in TARGET), PCT participants also kept a between-session journal in which they briefly recorded specific relational stressors and their use of problem solving skills.

Therapists and Fidelity Monitoring. Eight experienced female therapists with doctoral degrees in clinical psychology ( $N=2$ ), psychiatry ( $N=1$ ) or Masters degrees in social work, counseling, or

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marriage and family therapy ( $N=5$ ) conducted either TARGET or PCT. Each therapist received more than 40 hours of training and case supervision by the first and second authors (JF, KS) on each treatment model. Each therapist independently rated the credibility of both TARGET and PCT for this population as high to very high.

To document fidelity to each treatment model and clinical competence, all therapy sessions were audiotaped and a 20% sample was rated by two independent clinically-trained raters using fidelity (dichotomous present/absent ratings) and competence (7-point scales ranging from poor to satisfactory to excellent; Resick et al., 2002) checklists developed for TARGET and PCT which define unique essential items for each session of each treatment. Fidelity to each model was 100%, with no evidence of use of TARGET in PCT sessions or PCT in TARGET sessions. Competence ratings were consistently in the high satisfactory to excellent range with no instances of poor ratings.

Treatment Credibility and Therapeutic Alliance. Following sessions 1, 4, 10 and in the post-test participants completed the Expectancy of Therapeutic Outcome (ETO) scale (Resick et al., 2002). 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. At those time-points, participants also completed the Working Alliance Inventory (WAI-HFP) is a 7-item scale (with answer anchors ranging from 0 = “strongly disagree” to 2 = “neither agree nor disagree” to 4 = “strongly agree”) developed for the multi-site study with low-income women ([www.samhsa.gov](http://www.samhsa.gov); SAMHSA Matrix, Homelessness). The WAI-HFP assesses beliefs about trust in the therapist and the therapist’s ability to understand, provide a collaborative working relationship, and help the participant to achieve her goals.

### *Statistical Analyses*

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Prior to hypothesis testing, data screening was completed to eliminate multivariate outliers and departures from statistical normality and linearity. No variables failed to exhibit adequate reliability across both measurement points. Missing data pattern in the data was analyzed using the missing data library in S-Plus and found to be random. Comparison of the three experimental conditions on demographics and study measures with chi-square for categorical variables and ANOVA for ordinal measures identified the following significant differences:

Intent-to-Treat Analyses were conducted using mixed method regression in order to include all participants in each analysis regardless of missing data (Bryk & Raudenbush, 1992; Singer, 1998; Zorn, 2001). In order to control for the potential effects of age, marital status (living with a partner vs. living alone), education (High School or less vs. some college or more), ethnicity (Black or Latina vs. White), and comorbid psychiatric disorders (major depression, bipolar disorder, anxiety disorder, obsessive-compulsive disorder, psychotic disorder) these variables were included as covariates.

The sample with  $N = 45-53$  per cell was sufficient at  $p < .05$  (one tail) to detect medium ( $>.40$ ) effect sizes with power=.80 (Cohen, 1988, p. 54). In order to identify potentially clinically meaningful differences between TARGET, PCT, and Wait-List Treatment as Usual in pre-post change, effect size estimates (Cohen's  $d$ ) were calculated to determine if these differences reflected small ( $d \sim .20$ ), medium ( $d \sim .40$ ), or large ( $d \geq .70$ ) effect sizes (Cohen, 1988).

## Results

### Drop Outs

The drop-out rate for both TARGET (6%) and PCT (10%) was low. As shown in Figure 1, comparable proportions of TARGET (58%) and PCT (55%) participants who began treatment completed at least two thirds of the therapy sessions (8 or more of 12), which was considered an adequate dose of each of the treatments.

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Participant Views of the Counseling

Both TARGET and PCT received uniformly high ratings for therapy credibility on the ETO, with no significant differences between the conditions across the four assessment time-points. ETO scores ranged from mid-range (3 = “a little”) to high (9 = “extremely”) for both therapies.

TARGET: Session 1  $M/SD = 7.4(1.6)$ ; Session 4  $M/SD = 7.4(1.1)$ ; Session 10  $M/SD = 7.9(0.9)$ ; Post-therapy  $M/SD = 7.7(1.1)$ . PCT: Session 1  $M/SD = 6.7(1.7)$ ; Session 4  $M/SD = 6.4(1.6)$ ; Session 10  $M/SD = 7.7(1.1)$ ; Post-therapy  $M/SD = 6.9(1.6)$ . Credibility/expectancy ratings rose slightly over the course of therapy for both treatments, with a small overall advantage to TARGET.

Therapeutic alliance also was rated consistently positively for both TARGET and PCT at all of the intra-therapy and post-therapy time-points, with ratings ranging from 2 = “neither agree nor disagree” to 4 = “strongly agree” with rare exceptions, and no “strongly disagree ratings.”

TARGET: Session 1  $M/SD = 3.2(0.9)$ ; Session 4  $M/SD = 3.4(0.4)$ ; Session 10  $M/SD = 3.6(0.5)$ ; Post-therapy  $M/SD = 3.6(0.4)$ . PCT: Session 1  $M/SD = 3.1(0.6)$ ; Session 4  $M/SD = 3.2(0.4)$ ; Session 10  $M/SD = 3.5(0.6)$ ; Post-therapy  $M/SD = 3.4(0.5)$ . Alliance ratings increased slightly over the course of therapy in both TARGET and PCT, with levels comparable across both therapies.

Initial Benefits of the Counseling

On analyses examining change from baseline to post-therapy for TARGET and PCT, all showed evidence of statistically significant improvement for each intervention and no change for the Wait List Treatment as Usual condition (see Table 1), with the exception of no change in any condition on physical health-related functioning (SFPC). Group by time interaction terms were statistically significant comparing TARGET and PCT to Wait List treatment as usual on all measures ( $F[2,118-126] = 3.7-7.6, p < .05$ ), complete results available from first author), with the exception of the measure that assessed physical health (the SFPC).

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Group by time interactions comparing TARGET to PCT showed TARGET to be superior to PCT for improvement on the measure of emotion regulation, the NMR ( $t = 2.61, N = 96, p = .01$ ) and the STAI ( $t = 1.97, N = 97, p < .05$ ). Effect size calculations comparing the amount of pre-post treatment change for TARGET vs. Wait List, PCT vs. Wait-List, and TARGET vs. PCT show a similar pattern of results (Table 1). Large effect sizes favored TARGET vs. Wait List in achieving change on the CAPS (PTSD symptoms) and NMR (emotion regulation), with medium effect sizes for PCT on the CAPS and NMR. Medium to large effect sizes favored TARGET or PCT vs. Wait List for improvements in the PTCI (trauma-related beliefs), IPSI (distress related to PTSD symptoms), and STAI (anxiety). Small to medium effect size differences favoring TARGET vs. PCT for improvement in PTSD symptoms (CAPS), trauma-related beliefs (PTCI), and negative mood regulation (NMR). PCT was superior to TARGET on improving BDI (depression) scores (with a small to medium effect size for that comparison).

The absolute levels of PTSD symptoms assessed by the CAPS were reduced by 33% in the TARGET condition, to mean levels below the clinical range cut-off score. Anxiety assessed by the STAI also was reduced for TARGET participants to a mean level below the clinical cut-point. PCT participants reported similar although smaller reductions in PTSD and anxiety symptom severity.

#### Sustained Benefits of the Counseling

The improvements achieved in TARGET and PCT persisted over the two (three and six month) follow-up periods on all measures of PTSD symptoms and cognitions, anxiety, depression, and in emotion regulation (Table 2). CAPS PTSD severity scores continued to be reduced for TARGET participants at both follow-up assessments, to a level more than 50% lower than baseline at the 6-month follow-up. CAPS scores remained stably low for PCT participants at the 3-month follow-up and dropped further at the 6-month follow-up. BDI depression levels remained stably just below the cut-point for moderate depression for PCT participants, and continued to decline to an even

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lower level by the 6-month follow-up for TARGET participants. STAI anxiety levels remained stably below the clinical cut-point across follow-ups for both TARGET and PCT. NMR emotion regulation remained stably improved for both TARGET and PCT. PTSD-related beliefs (PTCI) and attitudes toward PTSD symptoms (IPSI) remained relatively stable or declined slightly at the 3-month follow-up for both conditions, and then dropped substantially at the 6-month follow-up for both conditions on the PTCI (trauma-related beliefs) and for PCT on the IPSI (distress due to PTSD symptoms).

### Did Counseling Help Women Recover from PTSD?

Considering the incidence of PTSD, only 11% of the treatment as usual participants did not meet criteria for *full or partial* PTSD at post-therapy, versus almost one in three in PCT (29%) and TARGET (29%) participants. The difference approached statistical significance in Chi Square tests for both PCT vs. TAU,  $\chi^2(df=1) = 3.4$ ,  $N = 69$ ,  $p = .06$ , and TARGET vs. TAU,  $\chi^2(df=1) = 3.2$ ,  $N = 66$ ,  $p = .07$ . Almost two in three TARGET (63%) and PCT (66%) participants did not meet criteria for *full* PTSD following treatment, compared to 33% of treatment as usual participants, a difference that was statistically significant for both PCT vs. TAU,  $\chi^2(df=1) = 7.8$ ,  $N = 69$ ,  $p = .005$ , and TARGET vs. TAU,  $\chi^2(df=1) = 4.8$ ,  $N = 66$ ,  $p = .025$ .

At the three-month follow-up assessment, the proportion of participants not meeting criteria for *full or partial* PTSD was 30% and 45%, respectively for PCT and TARGET, and for *full* PTSD was 67% and 78%, respectively for PCT and TARGET (see Figure 2), with neither difference achieving statistical significance. However, at the six-month follow-up assessment, only one in five (18%) TARGET participants and one in three (31%) PCT participants met criteria for *full* PTSD, and 60% and 40% of the TARGET and PCT participants, respectively, had neither full nor partial PTSD. Over the post-therapy to 6-month follow-up period, the incidence of *full or partial* PTSD decreased

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for both interventions, but non-significantly for PCT (29% to 40%),  $\chi^2(df=1)= 0.7, N= 59, p = .40$  while declining statistically significantly for TARGET (29% to 61%),  $\chi^2(df=1)= 5.5, N= 54, p = .02$ .

### Discussion

Brief (12 weekly sessions) PTSD psychotherapy intervention for low-income high risk mothers of young children showed evidence of substantially reducing PTSD symptom severity and incidence which was superior to that achieved by treatment as usual. The results constitute an independent replication of the efficacy of a systematic approach to psychotherapy for PTSD with women which does not involve “prolonged exposure” (i.e., repeated intensive recounting of traumatic memories), paralleling the positive findings for PCT reported by McDonagh-Coyle and colleagues (2005).

In addition, the study extends the evidence base for TARGET beyond the findings reported by Frisman and colleagues (2004), demonstrating TARGET’s efficacy as an individual psychotherapy modality. Frisman and colleagues (2004) evaluated TARGET as a group therapy and contrasted it with a “trauma informed” approach to usual care (for substance use disorders) that included some of the education from TARGET and thus may not have been sufficiently distinct to permit as full a test of TARGET’s specific efficacy as the present study’s Wait List treatment as usual condition. Therapists in the present study were entirely of the same gender as participants, as was the case for women but not men in the Frisman et al. (2004) study, and the TARGET protocol was enhanced to maximize its sensitivity to ethnocultural differences amongst participants. Thus, in the present study, there was no evidence of a differential response to TARGET by participants of different genders (because only women participated) or ethnicities, as was the case in the Frisman et al. study (with White participants showing greater reductions in PTCI scores than Black or Latino participants).

### Comparison of Benefits for TARGET versus PCT

The reduction in PTSD symptoms was somewhat greater in the emotion regulation intervention, TARGET, than in the social problem solving intervention, PCT – although gains achieved in each

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intervention not only were sustained but continued to improve over a 3- and 6-month follow-up period. TARGET also was associated with the strongest improvements in self-reported emotion regulation and reductions in PTSD-related beliefs and anxiety symptoms, suggesting that a focus even in brief psychotherapy on emotion regulation skills may reduce both the cognitive and arousal components of PTSD (Cloitre, Koenen, Cohen & Han, 2002; Ford et al., 2005; Resick et al., 2002). The sustained reductions in PTSD symptoms and diagnosis incidence for TARGET are comparable to those reported by therapies that incorporate prolonged exposure intervention (Cloitre et al., 2002; Resick et al., 2002; Schnurr et al., 2007), suggesting that a systematic brief therapeutic intervention without prolonged exposure may be a viable alternative for women with complex severe PTSD.

The finding that emotion regulation improved in both treatments but especially in TARGET (by participant self-report) provides initial validation of TARGET's theoretical focus on enhancing emotion regulation. However, TARGET was associated with lesser change in the severity of depression symptoms at post-treatment than PCT. It is possible that 12 weeks of TARGET was sufficient to enable women to better regulate stress reactions related to PTSD but not to acquire a wide range of emotion regulation skills necessary to counteract depression. PCT may be particularly helpful with depressive symptoms because it was developed to utilize principles and techniques of problem solving therapy (Nezu, 1987), which has a strong evidence base for treating moderate to severe depression. It also has a relational focus which may be important for women with depression. Nevertheless, by the follow-up period, TARGET was associated with equivalent and possibly greater sustained reductions in depressive symptoms than PCT. The affect regulation skills taught by TARGET thus may provide a foundation that, with continued application over time, can help women not only reduce PTSD but also reduce comorbid depressive symptoms. TARGET also was associated with stronger initial reductions in anxiety than PCT, although both treatments showed evidence of sustained efficacy in lowering anxiety symptom severity to sub-clinical levels.

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Consistent with improvements on the PTCI and IPSI, TARGET recipients anecdotally reported improving in their ability to confront and feeling less distressed by traumatic memories or reminders of past traumatic experiences. PCT participants anecdotally reported greater confidence in the ability to be effective in relationships, which was associated with greater confidence in themselves and less fearfulness about facing the world alone or facing hostile relationships, which would be consistent with the strong reductions (though somewhat less than in TARGET) they reported on the measure of trauma-related beliefs (the PTCI). Thus, the spontaneous impressions of participants suggested that each counseling approach was in fact addressing the goals for which it was designed. In light of the importance of managing stress reactions and stress-related emotional distress in recovery from PTSD, it is not surprising that TARGET was particularly helpful in reducing PTSD symptoms. Yet, helping women develop and gain confidence in their skills for dealing with challenges in their relationships—as PCT appeared to do—also may contribute to recovery from PTSD, and may have many additional benefits for women and their children as they face adversities such as poverty.

#### Limitations of the Study

Limitations of the study include reliance on self-report data (although both structured interview and questionnaire measures with strong psychometrics were used), the inclusion of women with partial as well as full PTSD (although PTSD symptom severity levels were consistently in the high clinical range at baseline), an absence of measures of collateral treatment received by the Wait List participants, a relatively short follow-up period of six months, and attrition at the post-test and follow-up assessments (although there was no systematic pattern of missing data). Longer-term follow-up over several years with the children as well as the mothers, and assessment of their life functioning (e.g., school, work, legal status) is needed to fully address the study's aims.

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### Conclusion and Future Directions

On the positive side, the inclusion of typically under-served low-income women with severe PTSD symptoms and common psychiatric comorbidity who also were from diverse ethnocultural backgrounds, provides a strong test of real-world applicability as well as of the efficacy for the TARGET and PCT interventions. Evidence of the superiority of TARGET over PCT was sufficient to suggest that a focus on affect regulation skills warrants note in the PTSD treatment field, but PCT's efficacy also suggests that social problem solving therapy can be of benefit in assisting women resolve chronic severe PTSD.

The results suggest that the efficacy of TARGET should be replicated in relation to the best validated treatments for PTSD which involve "prolonged exposure" (notably "Cognitive-Behavior Therapy with Prolonged Exposure," "Eye Movement and Desensitization Reprocessing," and "Cognitive Processing Therapy"). The effectiveness of TARGET should be replicated in larger multi-site samples with similar samples of low income ethnoculturally diverse women, with independent investigation teams in order to ensure that the results are not specific to the research team of the model developer. Effectiveness also should be replicated with related but different high-risk populations, including youths involved in or at risk for delinquency (such as those on probation), incarcerated or paroled/probationary women, and low-income men and men who are incarcerated, paroled, or on legal probation. The relative benefits of conducting TARGET in a one-to-one therapy approach as in the present study versus as a group therapy intervention (as done in the earlier study by Frisman et al. [in press]) also should be tested. Field studies evaluating the potential for larger scale dissemination of TARGET (e.g., in juvenile detention, probation, or diversion settings) should be conducted to translate the findings to larger scale implementation projects. In fact, a field study funded by OJJDP of TARGET disseminated to all juvenile detention programs in the state of Connecticut is ongoing, and dissemination projects are underway in both

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community and residential juvenile justice systems in Connecticut, Florida, and Ohio, in which TARGET is being adopted with intensive technical support from the researchers. The study results, in combination with those from the prior study by McDonagh-Coyle and colleagues (2005), also suggest that PCT warrants replication in effectiveness studies with larger samples of women with PTSD and other adversities such as poverty that place them at risk for criminal justice involvement or victimization. PCT also should be studied with at-risk or justice-involved men and youths.

Ultimately, longer-term studies that span two or more generations of families who are at risk for legal involvement due to trauma are needed to fully “break the Cycle” of trauma and crime.

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Table 1. Change from baseline to post-therapy (or post-treatment as usual for Wait List participants)

Measure	Baseline <i>M(SD)</i>			Post-Treatment <i>M(SD)</i>			Effect Size ( <i>d</i> )		
	<i>Wait List</i>	<i>TARGET</i>	<i>PCT</i>	<i>Wait List</i>	<i>TARGET</i>	<i>PCT</i>	<i>T vs. WL</i>	<i>P vs. WL</i>	<i>T vs. P</i>
CAPS	79.1 (15.5)	75.2 (15.5)	73.9 (15.6)	71.9 (16.0) <sup>a</sup>	<b>49.7 (16.3)<sup>b</sup></b>	<b>53.6 (16.2)<sup>b</sup></b>	-.75	-.59	-.15
NMR	3.1 (0.2) <sup>a</sup>	3.4 (0.2) <sup>b</sup>	3.2 (0.2)	3.2 (0.2) <sup>a</sup>	<b>3.9 (0.2)<sup>c</sup></b>	<b>3.6 (0.2)<sup>b</sup></b>	.75	.42	.33
STAI	45.6 (4.0)	40.7 (4.0)	44.5 (4.0)	44.0 (4.1) <sup>a</sup>	<b>33.8 (4.2)<sup>b</sup></b>	<b>39.2 (4.2)</b>	-.39	-.22	-.16
BDI	24.1 (3.4) <sup>a</sup>	18.4 (3.4) <sup>b</sup>	21.3 (3.5)	22.6 (3.7) <sup>a</sup>	<b>14.5 (3.7)<sup>b</sup></b>	<b>12.8 (3.7)<sup>b</sup></b>	-.25	-.63	.35
IPSI	3.8 (0.4)	3.3 (0.4)	3.6 (0.4)	3.7 (0.4) <sup>a</sup>	<b>2.4 (0.4)<sup>b</sup></b>	<b>2.6 (0.4)<sup>b</sup></b>	-.46	-.48	.02
PTCI	142.8(12.6)	121.5(12.6)	129.2(13.0)	138.2 (13.1) <sup>a</sup>	<b>95.6(13.2)<sup>b</sup></b>	<b>106.7 (13.5)<sup>b</sup></b>	-.54	-.42	-0.12
SFPC	46.8(10.4)	47.9(10.3)	47.0(9.8)	45.7(10.0)	46.8(10.0)	47.0(10.0)	.08	-.05	-.10

*Means* with different superscripts differ  $p < .05$ . Numbers in **bold** reflect pre-post improvement  $p < .05$ .

Note: CAPS = Clinician Administered PTSD Scale; NMR = Generalized Expectancies for Negative Mood Regulation; STAI = State Trait Anxiety Inventory, State Form; BDI = Beck Depression Inventory; IPSI = Interpretations of PTSD Symptoms Inventory; PTCI = Post-traumatic Cognitions Inventory; SFPC = Physical Component Score of the Short Form-12 Health Related Function Index; T vs. WL = effect size comparing pre-post change for TARGET vs. Wait List conditions; P vs. WL = effect size comparing pre-post change for PCT vs. Wait List conditions; T vs. P = effect size comparing pre-post change for TARGET vs. PCT conditions.

Table 2. Stability of change following the conclusion of therapy ( $N = 67$ )

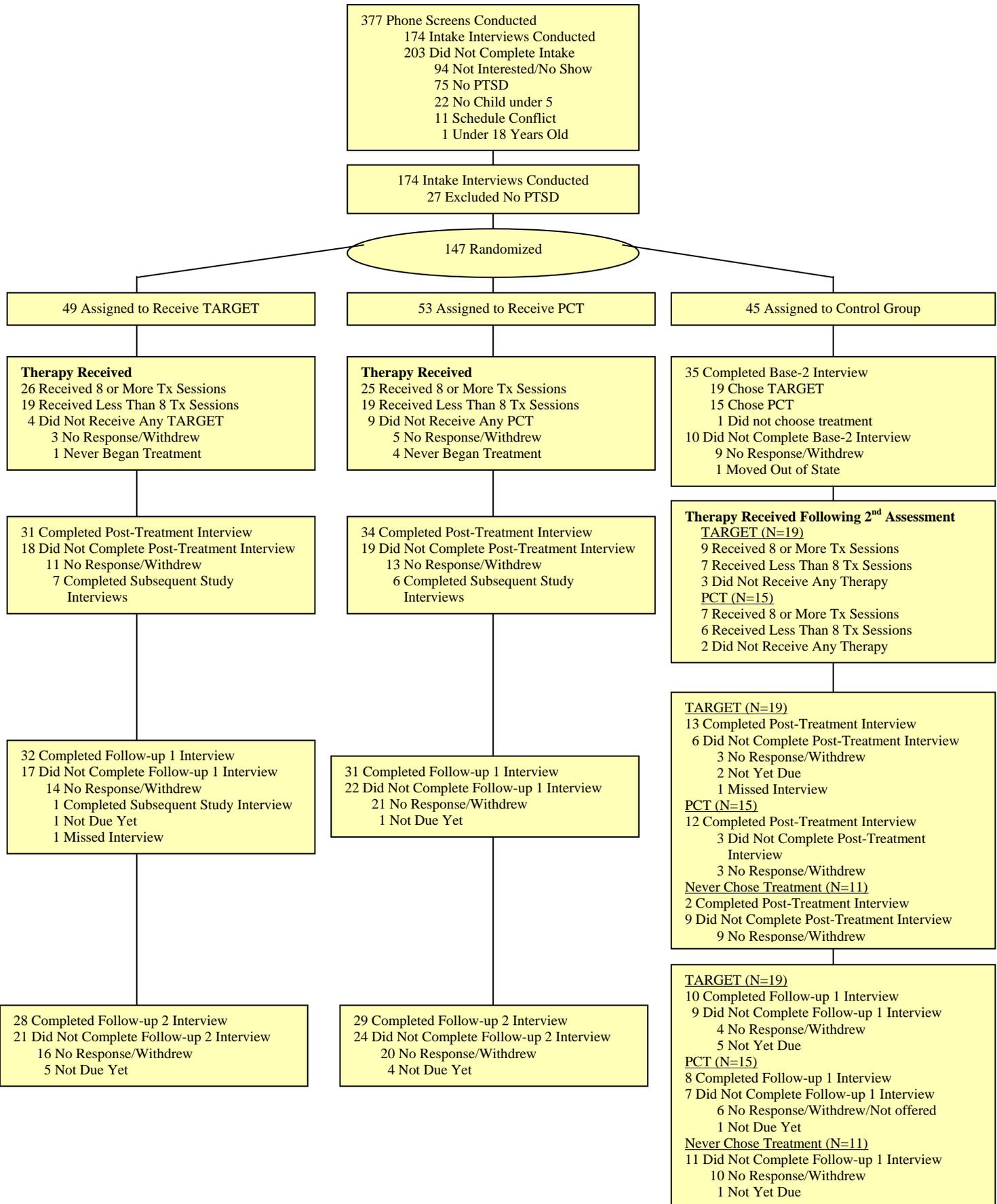
Measure	Post-Treatment <i>M(SD)</i>		3-Month Follow-up <i>M(SD)</i>		6-Month Follow-up <i>M(SD)</i>	
	<b><i>TARGET</i></b>	<b><i>PCT</i></b>	<b><i>TARGET</i></b>	<b><i>PCT</i></b>	<b><i>TARGET</i></b>	<b><i>PCT</i></b>
CAPS	44.1 (10.3)	48.9 (10.6)	40.7 (10.8)	47.5 (11.0)	36.8 (10.7)	42.3 (10.8)
BDI	17.1 (4.9)	16.9 (5.0)	16.3 (4.9)	17.4 (5.0)	15.1 (5.0)	16.4 (5.1)
STAI	32.1 (6.0) <sup>a</sup>	38.3 (5.8) <sup>b</sup>	35.5 (5.9)	36.2 (5.7)	32.0 (5.8) <sup>a</sup>	35.4 (6.1) <sup>b</sup>
NMR	4.1 (0.3) <sup>a</sup>	3.7 (0.3) <sup>b</sup>	4.0 (0.3)	3.8 (0.3)	4.1 (0.3)	3.9 (0.3)
IPSI	2.2 (0.5)	2.5 (0.5)	2.0 (0.5) <sup>a</sup>	2.7 (0.5) <sup>b</sup>	1.9 (0.5)	2.1 (0.5)
PTCI	101.0(13.7)	111.3(14.1)	101.4(13.4) <sup>a</sup>	117.2(14.3) <sup>b</sup>	87.1(11.8)	98.3(13.3)
SFPC	51.3 (4.9)	49.2 (4.9)	51.5 (4.9)	48.4 (4.8)	53.4 (4.9) <sup>a</sup>	48.3 (5.0) <sup>b</sup>

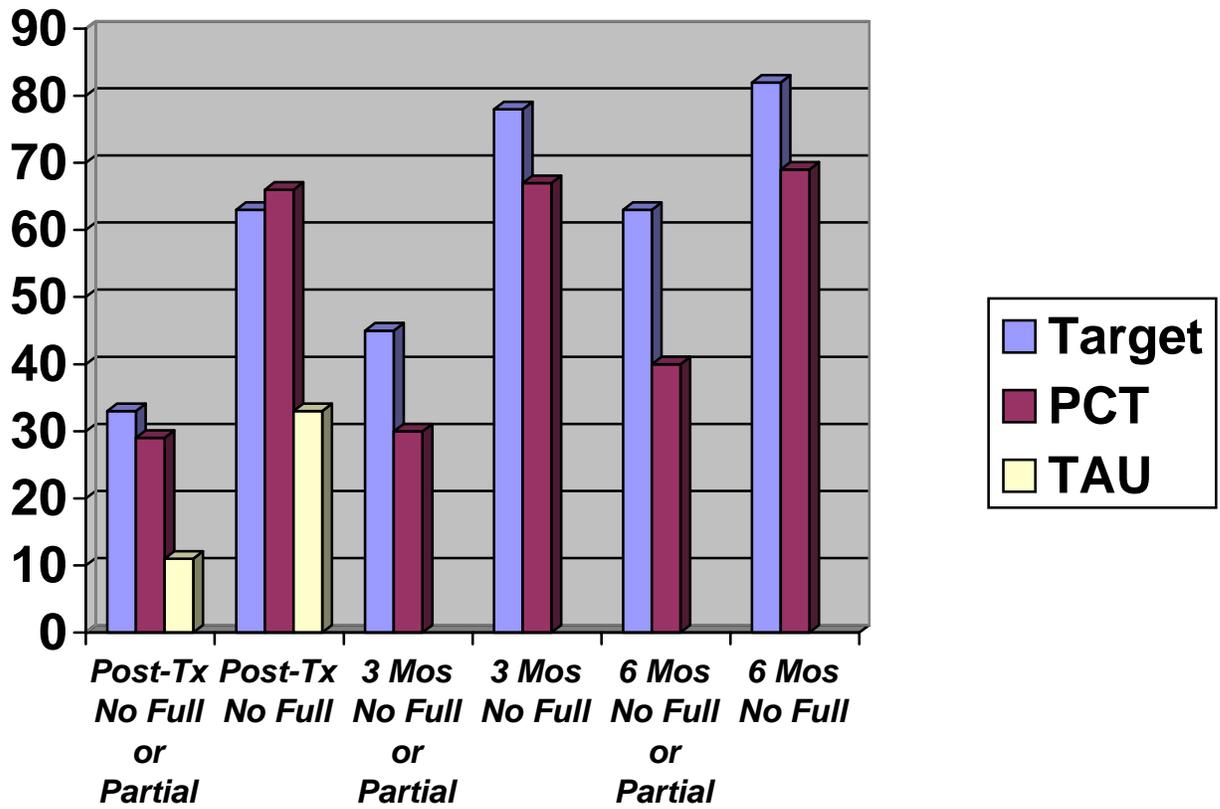
*Means* with different superscripts differ  $p < .05$ . Note: CAPS = Clinician Administered PTSD Scale; NMR = Generalized Expectancies for Negative Mood Regulation; STAI = State Trait Anxiety Inventory, State Form; BDI = Beck Depression Inventory; IPSI = Interpretations of PTSD Symptoms Inventory; PTCI = Post-traumatic Cognitions Inventory; SFPC = Physical Component Score of the Short Form-12 Health Related Function Index.

Figure Captions

Figure 1. Flow chart depicting *N*s for study recruitment, randomization, and participation.

Figure 2. Proportion of participants *not* meeting criteria for full or partial PTSD in each experimental condition at baseline and post-test, and for the TARGET and PCT conditions at the 3-month and 6-month follow-up assessments





Appendix  
Examples of Exposure to Psychological Trauma

Traumatic separations

- As a child, being separated from the adult or adults she felt closest to
- As an adult, having her child or children taken from her
- The unexpected death or separation from a very close family member, partner or loved one
- A miscarriage or abortion

Traumatic accidents, disasters, or illnesses

- Being in a bad accident, fire, flood or other disaster
- Witnessing a horrible accident where someone was or could have been terribly hurt
- Surviving a very bad illness with or without permanent injury or when it could have been fatal
- Being in a war zone

Physical assault or abuse

- Being attacked or mugged
- Being threatened by someone who indicated his/her intent to hurt or kill

Traumatic community violence

- Witnessing non-family members fighting and/or hurting each other

Traumatic family violence

- Hearing and/or seeing family members threatening, attacking and/or hurting each other

Sexual assault or abuse:

- Being in a close relationship with someone who made her feel trapped or fear for her safety
- Having someone close make her feel shamed, humiliated and/or horrible about herself

Sexual assault or abuse:

- Being forced to watch or engage in sexual acts against her wishes