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Skills Training in Affective and Interpersonal Regulation Followed by Exposure: A Phase-Based Treatment for PTSD Related to Childhood Abuse

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Fifty-eight women with posttraumatic stress disorder (PTSD) related to childhood abuse were randomly assigned to a 2-phase cognitive–behavioral treatment or a minimal attention wait list. Phase 1 of treatment included 8 weekly sessions of skills training in affect and interpersonal regulation; Phase 2 included 8 sessions of modified prolonged exposure. Compared with those on wait list, participants in active treatment showed significant improvement in affect regulation problems, interpersonal skills deficits, and PTSD symptoms. Gains were maintained at 3- and 9-month follow-up. Phase 1 therapeutic alliance and negative mood regulation skills predicted Phase 2 exposure success in reducing PTSD, suggesting the value of establishing a strong therapeutic relationship and emotion regulation skills before exposure work among chronic PTSD populations.

Posttraumatic stress disorder (PTSD) has an estimated lifetime prevalence of between 5% and 10% in the general population, with women being affected twice as often as men (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Among women, the most common traumas occur during the developmental years and consist mainly of childhood sexual abuse and physical abuse. Twice as many women have experienced childhood abuse compared with adult rape (e.g., Finkelhor, Hotaling, Lewis, & Smith, 1990), yet the development of empirically supported treatments for adult survivors of child abuse (CA) has lagged far behind that of adult rape. To date, there are two well-tested treatments for PTSD related to rape (Foa, Rothbaum, Riggs, & Murdoch, 1991; Resick & Schnicke, 1992), but none for childhood abuse. One reason for this is that the psychological sequelae of CA include symptoms that extend beyond the PTSD diagnosis, leading to complex treatment considerations. The *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM–IV*; American Psychiatric Association, 1994) PTSD field trials (Roth, Newman, Pelcovitz, van der Kolk, & Mandel, 1997) reported the lifetime prevalence of CA-related PTSD at 67%, making PTSD the leading Axis I disorder in this population. Problems in emotion regulation and interpersonal functioning were identified as two additional symptom sets occurring with equal if not greater frequency than the PTSD symptom constellation. This study presents a randomized, controlled trial of a treatment developed to specifically address the three core problems of the CA population: PTSD symptoms, emotion regulation problems, and interpersonal difficulties.

The affect regulation and interpersonal disturbances of women with CA have been well documented. It has been argued that these problems are a relatively distinct feature of childhood trauma and derive from the trauma's disruptive impact on the achievement of the developmental goals of affect regulation and interpersonal relatedness (van der Kolk, 1996). The most compelling support for this view is provided by studies that have directly compared individuals with childhood onset trauma with individuals with adult onset trauma (e.g., rape victims, disaster victims) and found that CA survivors are consistently more troubled, particularly in the domains of affect modulation, anger management, and interpersonal relationships (Cloitre, Scarvalone, & Difede, 1997; van der Kolk, Roth, & Pelcovitz, 1993; Zlotnick et al., 1996).

Affect dysregulation is broadly defined as the tendency to have low-threshold, high-intensity emotional reactions followed by slow return to baseline. It has recently been investigated in the childhood abuse population (e.g., Rorty, 1996; Zlotnick, 1999), most definitively in the *DSM–IV* PTSD field trials (van der Kolk et al., 1993). Over 70% of respondents endorsed problems in getting upset easily, having trouble calming down, and letting go

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of upsetting things. Other types of emotion management problems were indicated, with the two most prominent being (a) fear of experiencing anger and difficulty appropriately expressing it and (b) transient experiences of dissociation.

In addition to producing acute distress, affect dysregulation plays a significant role in the interpersonal difficulties of women with CA. Typical interpersonal difficulties arise in emotion-laden situations that involve the management of conflict and the effective negotiation of the power dynamics of relationships. According to the *DSM–IV* field trials, 91% of CA victims with PTSD endorsed problems with sensitivity to criticism, inability to hear other viewpoints, difficulty in standing up for themselves, and a tendency to quit jobs and relationships without negotiation. Functional impairments in the interpersonal domain are pervasive, extending across many life roles. Women with CA have reported less satisfaction with dating and marriage partners, difficulties with parenting activities, problems in functioning at work, greater social isolation, and poorer social adjustment than women without a history of CA (Briere, 1988). The frequency and extent of affective and interpersonal difficulties as well as their impact on functional capacity strongly indicate the need for interventions specific to these problem domains.

In addition to the adverse impact these types of problems have on day-to-day life, they raise concerns about the use of exposure-based treatments for CA survivors. Although the emotional processing of traumatic material is largely agreed to be a critical ingredient to the resolution of PTSD symptoms, there is substantial, primarily clinical, literature indicating that exposure interventions can be problematic. Symptom exacerbation, high drop-out rates, and compliance problems have been associated with this emotionally intensive form of treatment (Burnstein, 1986; McDonough-Coyle et al., 2000; Pitman et al., 1991; Scott & Stradling, 1997; Tarrier et al., 1999).

Unfortunately, the patient characteristics associated with poorer outcome in exposure therapy are typical of CA survivors. Specifically, patients who do not fare well in exposure-based treatments show (a) difficulty tolerating distress and managing feelings such as anger and anxiety, (b) vulnerability to dissociation under stress, and (c) difficulty maintaining a good working relationship with a therapist (Chemtob, Novaco, Hamada, Gross, & Smith, 1997; Cloitre & Koenen, 2001; Jaycox & Foa, 1996). Trauma survivors have been noted by many clinicians to have difficulty in tolerating the interpersonal nature of therapy, particularly "the [need] to trust another person with his or her pain" (Turner, McFarlane & van der Kolk, 1996, p. 538). This difficulty would seem further exacerbated in exposure treatment, which requires significant and sustained verbal disclosure of deeply distressing events.

There is evidence, however, that when a client has successfully engaged in exposure therapy, the long-term benefits are superior to those found in other treatments. A recent study in which CA survivors with PTSD were randomized to three treatment conditions found that whereas an exposure-based treatment had higher drop-out rates (41%) than either a present-centered treatment (9%) or a wait list (13%), treatment completers showed better maintenance in PTSD symptom reduction compared with the present-centered treatment at 3- and 6-month follow-up (McDonough-Coyle et al., 2000). This is consistent with results from a study of women with rape-related PTSD that found that exposure therapy tended to produce continuing improvements in PTSD symptom severity at a 3-month follow-up, whereas a supportive-counseling and a symptom-focused cognitive–behavioral treatment produced no further changes (Foa et al., 1991).

Rather than reject the use of exposure and its potential long-term benefits, it was proposed that women with CA PTSD could benefit from exposure if they were provided with and learned skills to reduce trauma-related characteristics associated with poor outcome. Given all of the above considerations, the treatment developed for CA-PTSD women was conceptualized as a sequentially based treatment organized into two phases. The first phase of treatment focused exclusively on skills training in affect and interpersonal regulation (STAIR). The goals of the first phase of treatment were twofold: to directly and vigorously address problems in affect and interpersonal regulation as they negatively impacted on day-to-day functioning and to prepare the client for the effective and successful use of the exposure treatment. The second phase of treatment introduced and implemented the emotional processing of the trauma using a modified version of prolonged exposure (PE) to resolve PTSD symptoms. We hypothesized that the implementation of skills training before exposure would facilitate effective use of exposure by providing time to establish a therapeutic alliance and by the development of affect regulation skills. We also hypothesized that the treatment as a whole would provide significant improvement in PTSD symptoms, emotion regulation problems, and interpersonal skills deficits.

Method

Design

This was a randomized clinical trial in which all potential participants were self-referred by means of advertisements in the community or word-of-mouth. Following a brief phone screen, those found eligible for the study underwent the full assessment procedure. The assessment was completed in two visits. Visit 1 comprised a description of the study; signing of informed consent; self-report questionnaires; and clinical interviews concerning trauma history, medical history, and health status. Visit 2 comprised clinician-administered diagnostic interviews to assess for Axis I disorders and Axis II borderline personality disorder.

Inclusion criteria required the presence of *DSM–IV*-defined diagnosis of PTSD related to childhood sexual abuse, physical abuse, or both (*DSM–IV*). *Sexual abuse* was defined as at least one episode of sexual contact (fondling, attempted or completed vaginal, oral, or anal intercourse) initiated by a caregiver or individual in a position of authority to the participant when she was under the age of 18. The perpetrator must have been at least 5 years older than the participant, unless the participant experienced the sexual contact with this person as against her will. Childhood *physical abuse* was defined as an action by a parent or other adult in charge of the participant when she was under the age of 18 in which the adult purposefully hit, pushed, punched, or cut the participant leaving bruises, scratches, broken bones or teeth, or making her bleed. In addition, study participants were required to always have had at least one clear memory of the abuse. Participants were required to be between 18 and 65 years of age and to plan on residing in the area for the duration of the treatment. Exclusion criteria included current diagnosis of organic or psychotic mental disorders, substance dependence, eating disorder, dissociative disorder, Bipolar I disorder or borderline personality disorder, and the presence of suicide attempt or psychiatric hospitalization within the last 3 months.

Eligible participants were randomized into one of two conditions: a free 12-week, 16-session active treatment (STAIR–modified PE) or a 12-week minimal attention wait list. Active treatment participants and their thera-

pists completed a brief measure of therapeutic alliance following each of the 16 sessions. All study participants completed the clinician-administered and self-report measures at pre- and posttreatment and a subset of self-report measures (PTSD and affect-regulation measures) at midtreatment. Those in the STAIR–modified PE condition received 3-month and 9-month posttreatment follow-ups. Those completing the wait-list condition were offered a free 12-week treatment of either STAIR–modified PE or any other clinically relevant treatment in our clinic of comparable duration and number of sessions.

Sample

During an 18-month period, 207 women were scheduled for initial evaluations. Approximately 50% did not show or cancelled without rescheduling their assessments. Of the 103 who completed the evaluation, 58 were found eligible for and entered into treatment (31 in the active treatment condition and 27 in the minimal attention wait-list condition). Reasons for not being eligible for the study included not meeting criteria for full PTSD (43%), current substance-dependence disorder (18%), and borderline personality disorder (14%). Other reasons represented less than 5% of the rule outs (e.g., recent hospitalization, thought disorder). Of the 58 women who entered treatment, 12 dropped out: 9 from the active treatment (29%) and 3 from the wait list (11%). There were no sociodemographic, clinical, or symptom differences between completers and dropouts.

Sociodemographic characteristics. The average age of the women was 34 years (SD = 7.22). Ethnicity breakdown for the sample revealed that 46% were Caucasian, 20% were African American, 15% were Hispanic, and 19% were other ethnicities including Asian, Caribbean, and American Indian. A majority of the sample was either single (42%) or separated or divorced (24%); the remainder were either married or living with a significant other (34%). Fifty-two percent had completed college or more, 37% had some college, and 11% had a high school education or less. Forty-one percent of the sample worked full time; 35% were either part-time workers, students, or both; and 24% were either homemakers, unemployed, or disabled. Twenty-six percent had an annual personal income of $30,000 or more, 43% had an annual income of $15,000 to $30,000, and 31% had $15,000 or less.

Abuse characteristics. Forty-eight percent (48%) of the sample had experienced both sexual and physical abuse, 39% had experienced sexual abuse only, and 13% had experienced physical abuse only. There were no sociodemographic or clinical differences across the women with different types of childhood abuse.

Comorbidity. Forty-five percent (45%) of the participants had current major depression, with a further 35% having past major depression. Seventy-nine percent (79%) were diagnosed with some type of anxiety disorder, with generalized anxiety disorder (48%) being the most common. Twenty-five percent (25%) met criteria for a past substance abuse disorder, and 16% had a past eating disorder. Almost half (48%) had a history of suicide attempts or engaging in self-mutilating behavior (e.g., cutting or burning). Twenty-five percent (25%) had received a minimum of 10 outpatient visits for psychotropic medications, psychotherapy, or both in the past year, and 29% had used the psychiatry emergency room in the past year.

Treatment

Treatment sessions were conducted by five female doctoral-level clinical psychologists, each of whom treated between 3 and 6 participants. Therapists were trained using manuals with treatment guidelines and received weekly supervision from Marylene Cloitre. Therapists also attended a full-day, intensive workshop on PE supervised by Edna B. Foa in the first year of the study. A second full-day supervisory and review workshop was conducted with Edna B. Foa at the beginning of the second year of the study. All treatment sessions were audiotaped, and sessions were monitored for adherence. Treatment consisted of 16 sessions delivered over a 12-week period and was organized into two phases. The first, Skills Training in Affect and Interpersonal Regulation, consisted of eight weekly 1-hr sessions. The second phase, modified Prolonged Exposure, consisted of twice weekly 1.5-hr sessions. Following is a brief description of the treatment. For more detailed information please see the STAIR–modified PE manual available on request from Marylene Cloitre.

STAIR. STAIR is a cognitive–behavioral treatment that targets the development of emotion management and interpersonal skills. The interventions were derived from generic cognitive–behavioral and dialectical behavior therapy (Linehan, 1993) strategies that were adapted to the needs of the CA trauma population. Each session focuses on a particular skills deficit understood within the context of the experience of CA trauma and its typical consequences. Session-by-session topics are as follows: (1) labeling and identifying feelings, (2) emotion management (particularly anger and anxiety), (3) distress tolerance, (4) acceptance of feelings and enhanced experiencing of positive emotions, (5) identification of trauma-based interpersonal schemas and their enactment in day-to-day life, (6) identification of conflict between trauma-generated feelings and current interpersonal goals, (7) role plays related to issues of power and control, and (8) role plays related to developing flexibility in interpersonal situations involving power differentials. The role plays highlighted the presence and expression of emotion. This included role plays of clients' typical problematic interpersonal behaviors and new, alternative behaviors. All STAIR sessions had the same format and structure. They began with psychoeducation about the rationale and goals of the interventions, followed by skills acquisition, and skills application and practice. Between-sessions work was assigned and consisted of application of the skills to current life difficulties.

Modified PE. Phase 2 used the prolonged imaginal exposure technique described by Foa and Rothbaum (1998) in which clients repeatedly describe their traumatic events in a detailed and emotionally engaged fashion. PE, developed for rape victims, was modified for this population in several ways. The in vivo exposure to rape-related cues was eliminated. Three other components were added. First, a postexposure stabilization check was included that guided the participant in using coping skills to modulate her feeling states to ensure postexposure emotional stability and orientation to the present. Second, a postexposure emotion-focused processing intervention was included in which the participant identified the presence and intensity of fear, anxiety, dissociation, and sadness during the exposure. Last, the participant was asked to identify negative interpersonal schemas embedded in the narrative. Therapist and participant contrasted these abuse-related schemas with the more adaptive schemas generated during STAIR to highlight differences between the past and present circumstances and personal resources. The final component of the session entailed a review of applying coping skills to current life problems and application of new interpersonal schemas to current relationships. Between-sessions work included listening to the taped narratives at least once a day.

Minimal attention wait list. Participants were informed that they could receive treatment in 12 weeks. They were monitored through weekly 15-min phone sessions with the clinical coordinator.

Assessment

Trauma history was assessed at pretreatment using two clinician-administered instruments, the Childhood Maltreatment Interview Schedule (Briere, 1992) and the Sexual Assault and Additional Interpersonal Violence Schedule (Resick & Schnicke, 1992). PTSD was diagnosed with the Clinician-Administered PTSD Scale (CAPS; Blake et al., 1995), which measures both the frequency and intensity of the 17 *DSM–IV* symptoms (range = 0–136). All other Axis I diagnoses were assessed with the Structured Clinical Interview for the *DSM–IV* (SCID-I; Spitzer, Williams, Gibbon, & First, 1994), and borderline personality disorder (BPD) status

was determined with the BPD section of the SCID-II (First, Spitzer, Gibbon, Williams, & Benjamin, 1994). The CAPS and SCID-I were implemented at pre-, post-, and follow-up assessments. Clinician raters were blind to treatment condition at pre- and posttreatment.

Self-report questionnaires were administered for each of the three problem domains. PTSD symptomatology was assessed with the Modified Posttraumatic Stress Disorder Symptom Scale (MPSS-SR; Falsetti, Resnick, Resick, & Kilpatrick, 1993), a 34-item measure that separately assesses the frequency and severity of each of the 17 symptoms of PTSD (range = 0–119). Emotion related problems were assessed with six measures. Capacity to regulate any negative mood was assessed with the General Expectancy for Negative Mood Regulation Scale (NMR; Cantanzaro & Mearns, 1990), a 30-item measure, with higher scores indicating better mood regulation (range = 30–150). Problems with anger were assessed with the Anger Expression subscale (Ax/Ex), a 24-item measure from the State–Trait Anger Expression Inventory (Speilberger, 1991), in which higher scores indicate more frequent experiences of anger (range = 0–72). Ability to identify and label feeling states was measured with the Toronto Alexythimia Scale—20-item version (TAS–20; Bagby, Parker & Taylor, 1993), with higher scores indicating greater difficulty (range = 20–100). Dissociation, generally understood as a protective reaction against painful affects associated with trauma, was assessed with the 14-item Dissociation Scale (DISS; range = 0–36) developed by Briere and Runtz (1990). Emotions of depression and anxiety were assessed, respectively, with the 21-item Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock & Erbaugh, 1981), with a score range of 0–63, and the 20-item State subscale of the State–Trait Anxiety Inventory (STAI–S; Spielberger, 1983), with a score range of 0–80.

Interpersonal and functional impairment were assessed with the 127-item Inventory of Interpersonal Problems (IIP; Horowitz, Rosenberg, Baer, Ureno, & Villasenor, 1988), in which the total score is an average of items rated on a 5-point scale ranging from 0 to 4; the Social Adjustment Scale–Self Report (SAS-SR; Weissman & Bothell, 1976), which measures functioning in family, work and social functioning, where the total score is an average of items rated on a 1–5-point scale; and the 48-item Interpersonal Support Evaluation List (ISEL; Cohen & Hoberman, 1983), which measures social support (range = 0–40), where higher scores indicate more social support. The therapeutic relationship was assessed using the 12-item Working Alliance Inventory (WAI; Tracey & Kokotovic, 1998), in which the total score is an average of items rated on an 8-point scale ranging from 0 to 7.

Results

Treatment Adherence

Audiotapes of 44 therapy sessions (11% of 408 sessions) were rated. Two STAIR–modified PE sessions from each client were selected; one was randomly selected from the STAIR phase of the treatment, the other randomly selected from the modified PE phase. The number of components within a session ranged from 7 to 14, with an average of 8 (SD = 2.3). Raters were familiar with the treatment program but had not treated any participants in the study. They reviewed audiotapes and rated each component as present or absent. Interrater reliability was assessed by randomly selecting four tapes (10% of rated tapes) and comparing ratings for all components (n = 37). There was perfect agreement on the ratings (κ = 1.00).

Of a total of 333 components reviewed across all sessions sampled, 316 were rated as completed (95%). Of the 44 sessions reviewed, 29 (66%) had all components completed, 14 (32%) had one component missing, and 1 (2%) had three components missing. Only one deviation from protocol was detected: In a final STAIR session, the therapist allowed more than 20 min of nonprotocol talk to elapse without redirecting participant back to session agenda.

Immediate Effects of Treatment

Comparison of group means at pre-, mid-, and posttreatment. We conducted 2 (group: STAIR–modified PE vs. wait list) × 2 (time: pre- vs. posttreatment) multivariate analyses of variance (MANOVAs) or 2 (group) × 3 (pre- vs. mid- vs. posttreatment) MANOVAs, depending on the number of assessment points, for each of the three conceptually grouped symptom domains: (a) PTSD symptoms, (b) affect regulation difficulties, and (c) interpersonal problems for the completers sample. Group was a between-subjects variable (STAIR–modified PE and wait list), whereas time was a within-subject variable. A MANOVA was followed by analyses of variance (ANOVAs) for each of the individual measures only when the Wilks's Lambda for the interaction term (Group × Time) was significant. Analyses were conducted on study completers for active (n = 22) and wait-list (n = 24) conditions and also on the intent-to-treat sample (active condition n = 31 vs. wait list n = 27) where end-point or last available ratings were carried forward to the next assessment point.

The Group × Time interaction effects in the MANOVAs were significant for all three symptom domains: PTSD symptom measures (Wilks's $\Lambda = 12.61, p < .01$), the affect regulation measures (Wilks's $\Lambda = 2.85$, $p < .01$), and the interpersonal measures (Wilks's $\Lambda = 4.68$, $p < .01$). Repeated measures ANOVAs were conducted for each dependent measure and the interaction effects are presented in Table 1. All treatment measures show a significant decrease between pre- and posttreatment for STAIR–modified PE compared with the wait list. Simple comparisons indicated that for the wait-list group there were no changes on any measure from pre- to midtreatment or from mid- to posttreatment. Simple comparisons for the STAIR–modified PE group indicated there were significant pre-to-midtreatment improvements in the NMR, Ax/Ex, BDI, and STAI (all $ps < .02$) but not in the MPSS-SR, DISS, or TAS–20. There were, however, significant mid-to-posttreatment reductions in the MPSS-SR, DISS, and the TAS–20 (all $ps < .01$), as well as further significant improvements in the BDI and STAI (all $ps < .01$). There were no further improvements in the NMR and Ax/Ex. Intent-to-treat analyses revealed the same measures as having significant interaction terms and the same significant pairwise comparisons, with the additional finding of continued improvement from mid-to-posttreatment for the NMR.

Phase 1 predictors of Phase 2 PTSD symptom reduction. Partial correlations between Phase 1 change scores in symptom measures and Phase 2 PTSD symptom reduction were assessed, controlling for PTSD symptoms at the beginning of Phase 2. In addition, Phase 1 therapeutic alliance, as measured by the averaged WAI scores for Sessions 3, 4, and 5, was assessed as a predictor of Phase 2 PTSD reduction, also controlling for PTSD symptoms at the beginning of Phase 2. Predictors of Phase 2 improvement were therapeutic alliance ($r = -.62$, $p < .03$) and improvement in negative mood regulation as measured by the NMR ($r = -.47, p < .03$). No other changes in Phase 1, including the significant reductions in depression and anxiety, were associated with Phase 2 PTSD reduction.

Table 1
Analyses of Variance Means and Standard Deviations Pre- and Posttreatment for STAIR-Modified PE Compared With Wait List

	Treatment group					
	STAIR-modified PE (n = 22)		Wait list (n = 24)		Interaction	
Measure and time	*M*	*SD*	*M*	*SD*	$F(1, 44)$	*p*
PTSD measures						
MPSS-SR					5.39	<.01
Pretreatment	69	16.6	73	18.6		
Midtreatment	62	17.6	67	24.6		
Posttreatment	29	27.6	58	28.6		
CAPS					25.19	<.01
Pretreatment	69	16.3	69	16.6		
Midtreatment	—	—	—	—		
Posttreatment	31	25.2	62	22.7		
Affect regulation measures						
NMR					8.82	<.01
Pretreatment	85	15.6	84	17.9		
Midtreatment	100	14.2	89	18.2		
Posttreatment	110	19.5	85	18.6		
Ax/Ex[a]					4.07	.03
Pretreatment	32	8.9	35	7.1		
Midtreatment	28	7.4	35	8.0		
Posttreatment	24	9.4	36	7.1		
DISS[b]					5.25	<.01
Pretreatment	26	12.1	21	14.8		
Midtreatment	20	10.8	19	14.2		
Posttreatment	9	8.2	18	16.1		
TAS-20[c]					5.60	<.01
Pretreatment	56	10.8	55	12.9		
Midtreatment	52	14.1	54	12.0		
Posttreatment	43	13.3	53	14.0		
BDI					5.89	<.01
Pretreatment	25	10.6	23	9.0		
Midtreatment	19	9.8	22	11.3		
Posttreatment	8	7.8	20	11.4		
STAI–S					11.98	<.01
Pretreatment	57	9.6	53	15.6		
Midtreatment	50	8.2	55	14.9		
Posttreatment	36	8.6	55	14.9		
Interpersonal and functional impairment						
IIP					13.73	.01
Pretreatment	1.88	0.57	1.70	0.46		
Midtreatment	—	—	—	—		
Posttreatment	1.06	0.46	1.60	0.66		
SAS-SR					6.11	.02
Pretreatment	2.44	0.29	2.57	0.42		
Midtreatment	—	—	—	—		
Posttreatment	2.06	0.40	2.47	0.53		
ISEL					9.70	.01
Pretreatment	24	8.1	23	8.8		
Midtreatment	—	—	—	—		
Posttreatment	30	7.6	23	9.5		

Note. STAIR-modified PE = skills training in affect and interpersonal regulation and prolonged exposure group; PTSD = posttraumatic stress disorder; MPSS-SR = Modified PTSD Symptom Scale–Self Report; CAPS = Clinician-Administered PTSD Scale; NMR = General Expectancy for Negative Mood Regulation Scale; BDI = Beck Depression Inventory; STAI–S = State subscale of the State–Trait Anxiety Inventory; IIP = Inventory of Interpersonal Problems; SAS-SR = Social Adjustment Scale–Self Report; ISEL = Interpersonal Support Evaluation List.
[a] Ax/Ex = Anger Expression subscale of the State–Trait Anger Expression Inventory. [b] DISS = Dissociation scale. [c] TAS-20 = Toronto Alexithymia Scale–20-item version.

Effect size. We calculated Cohen's *d* (1992) statistics to compare STAIR–modified PE with the wait list at posttreatment. The effect size for the PTSD symptoms as measured by the CAPS was 1.30 and by the MPSS-SR, 1.03. The effect sizes for affect regulation and related problems were as follows: NMR = 1.32, Ax/Ex = 1.46, DISS = 0.73, TAS–20 = 0.70, BDI = 1.24, and STAI–S = 1.60. The effect sizes for interpersonal functioning were as follows: IIP = .96, SAS-SR = .87, and ISEL = .82. According to Cohen (1992), effect sizes for differences between two independent means (i.e., clinically meaningful, usually observable differences between the groups) are considered small for values of .20 or less, medium for .50 or more, and large for .80 or more.

End-state functioning. Good end-state functioning, following Foa et al. (1999), was defined as being an MPSS-SR score < 20, an STAI–S score < 40, and a BDI score < 10. These cutoffs are identical to or close to mean scores found in normative female samples. Using this criterion, we found that 46% of the participants in the STAIR–modified PE condition achieved good end-state functioning in comparison with only 4% of wait-list participants, $\chi^2(1, N = 46) = 10.74, p < .01$. The diagnostic status of participants after treatment was computed as another measure of good end-state functioning. In the STAIR–modified PE condition, 23% of participants retained their PTSD status as assessed by the CAPS compared with 75% of the wait-list condition participants, $\chi^2(1, N = 46) = 12.28, p < .01$.

Symptom worsening. Following Tarrier et al. (1999), we identified patients who showed symptom worsening posttreatment as measured by an increase in CAPS total severity score compared with baseline. One participant (4.5%) in STAIR–modified PE and 6 (25%) in the wait-list condition experienced symptom worsening.

Follow-Up Analyses

Long-term effects were assessed for the active treatment (STAIR–modified PE). We completed two sets of pairwise *t* tests. The first analyses assessed all measures at posttreatment versus 3-month follow-up; data for 20 of 22 completers were obtained. The second analyses assessed posttreatment versus 9-month follow-up; data for 17 of 22 completers were obtained.

CAPS total scores were significantly lower at 3 months ($M = 26$, $SD = 17.4$) compared with immediately posttreatment, $t(29) = 2.23, p = .04$, indicating continuing improvement in the STAIR–modified PE completers. There were no other differences between post- and 3-month follow-up assessment measures, indicating that all other STAIR–modified PE treatment gains were maintained. At 9 months, the CAPS total score ($M = 22$, $SD = 14.5$) was lower than that observed at 3 months and, as expected, was significantly lower than the posttreatment score, $t(16) = 2.82, p = .01$, indicating that the additional posttreatment improvement observed at 3 months was maintained at 9 months. Significant improvements were observed in all of the interpersonal and functional measures at 9 months: the IIP ($M = .84$, $SD = .54$), $t(15) = 2.40, p = .03$; the SAS-SR ($M = 1.83$, $SD = .48$), $t(16) = 2.21, p = .04$; and the ISEL ($M = 34$, $SD = 8.1$), $t(16) = 3.29, p = .01$, indicating additional posttreatment improvement that had not been seen at the 3-month assessment. No other differences were observed between post- and 9-month assessment measures.

Discussion

The primary goal of this study was to test the efficacy of a new treatment, STAIR–modified PE, as compared with a wait-list control for women with PTSD related to childhood abuse. Relative to the women on wait list, those who received STAIR–modified PE showed significant improvement in three specifically targeted problem domains: affect regulation problems, interpersonal skills deficits and PTSD symptoms. These gains were maintained and some were enhanced at 3- and 9-month follow-up. In addition, we hypothesized that the inclusion of a skills-training phase prior to conducting exposure would facilitate effective use of the exposure. Development of a positive therapeutic alliance during Phase 1 and improvement in negative mood regulation were significant predictors of PTSD reduction during Phase 2 exposure.

The changes observed in various symptom domains across the two treatment phases were consistent with the treatment rationale. Simple comparisons for the STAIR–modified PE group indicated that Phase 1 produced significant reductions in negative mood regulation and anger expression but not in PTSD symptoms, whereas Phase 2 exposure work produced significant reductions in PTSD symptoms but not in negative mood regulation or anger expression. Although there was obviously some symptom change across both treatment phases for all study measures, these results suggest the relative specificity of the symptom reduction associated with each treatment phase.

Many aspects of the findings point to the value of implementing a phase-based approach to the treatment of chronic PTSD. First, the organization of the treatment provided the opportunity for clients to develop emotion regulation skills without being burdened by the demands of exposure work. Studies of adult-onset traumas that have implemented cognitive–behavioral and exposure treatment simultaneously (Foa et al., 1999; Marks, Lovell, Noshirvani, Livanou, & Thrasher, 1998) have found that improvements in PTSD and trauma-related symptoms were not greater than in treatments that focused on only one or the other type of intervention. Foa et al. (1999) suggested that the simultaneous presentation of the interventions might have produced "information overload" so that the participants learned none of the interventions particularly well. The sequential organization of STAIR–modified PE allows for skills consolidation and the effective application of these skills in day-to-day life.

Second, the sequential approach allowed for a "preparatory" phase of treatment in which both therapist and participant could assess the strengths and weakness of the participant in engaging in exposure work. The value of skills training as a preparatory phase to emotional processing work is reflected in the data, demonstrating that the development of negative mood regulation skills significantly contributed to the successful outcome of the exposure work.

Third, the phase-based treatment allowed the opportunity for the development of a good therapeutic relationship. Many trauma theorists and researchers have suggested that the therapeutic relationship is a critical component to successful trauma work. This is the first study to provide empirical evidence of the contribution of the therapy relationship to the efficacy of a trauma-focused treat-

ment or, more specifically, to its role in effective exposure work. Future research is required to determine the extent to which the skills-training component, as compared with other preexposure interventions, facilitates the development and impact of the therapeutic alliance on the exposure work.

STAIR–modified PE provided skills training in interpersonal functioning during the first phase of treatment and continued practice of these skills throughout the second phase. Consistent with this effort, treatment outcome was associated with significant improvement in interpersonal skills (IIP), role functioning (SAS-SR), and social support (ISEL). These findings are important because they address a central concern of CA survivors who report significantly impaired functional capacity and impoverished quality of life, especially in regard to their social environment. In addition, there is evidence that complaints concerning interpersonal and social functioning rather than disorder-specific symptoms are the predominant predictors of use of mental health services among chronic PTSD patients (Ford, Fisher, & Larson, 1997), suggesting the importance of such outcome measures in assessing treatment effectiveness.

The participants treated in this study were representative of the CA population and, as expected, carried severe comorbid psychopathology, reflected in high rates of Axis I comorbidities, histories of suicide attempts, self-harm behaviors, and crisis (emergency room) interventions. Despite the relatively impaired sample treated in this study, treatment outcome was generally good. The drop-out rate was 29%, a proportion very similar to those found in studies of adult-onset trauma populations (Marks et al., 1998; Resick, Nishith, Weaver, & Astin, 1999; Tarrier et al., 1999). Negative outcome was limited, with 1 participant (4.5%) experiencing worsening of PTSD symptoms after treatment compared with baseline. This compares favorably with the results found by Tarrier et al. (1999), where 9 (31%) participants in an imaginal exposure treatment and 3 (10%) in cognitive therapy were found to have PTSD symptom exacerbation. In addition, STAIR–modified PE completers experienced continued PTSD symptom reduction posttreatment, a finding similar to that observed among rape victims in PE treatment (Foa et al., 1991). At 9 months, completers showed a significant posttreatment improvement in interpersonal functioning, an outcome that had not emerged at 3 months.

Some aspects of the study should be kept in mind. The small sample size, focus on women, and exclusion criteria limit generalizability of the findings. In addition, for practical and ethical reasons, we did not conduct 3- and 9- month follow-ups with the wait-list group. Thus, the possibility that the maintenance in improvement seen in those who participated in STAIR–modified PE was a result of the passage of time or other factors not related to the treatment cannot be discounted. Last, it should be noted that although this application of PE is consistent with the principles and goals of exposure, it is not identical to the PE treatment used in other studies (Foa et al., 1991, 1999). First, in recognition of the vulnerabilities of the CA population, we included an emotion-focused stabilization period after the exposure. Second, we used imaginal exposure only and eliminated the situation-specific in vivo exposure. We viewed current interpersonal difficulties as resulting not only from trauma-specific fear (i.e., a phobic response) but also from maladaptive interpersonal schemas that were demonstrated in numerous and varied behaviors and situations. For this reason, we encouraged the identification of core interpersonal schemas reflected in a range of day-to-day situations and intervened via role plays on those most relevant to current life. Finally, to minimize anticipatory anxiety and potential dropout, we used a more intensive form of exposure in which the participant received two sessions of exposure per week for 4 weeks rather than one session a week for 8 weeks.

Exposure studies reporting problematic outcomes among those with chronic PTSD have led to the suggestion that exposure may be contraindicated for the CA population. The results of this study suggest that this conclusion is premature and too general. The inclusion of skills training in addition to exposure provides an alternative approach for patients like CA survivors who, because of affective and interpersonal regulation difficulties, might otherwise be inappropriate candidates for exposure-alone treatment. The study results support a widely advocated model of intervention for CA survivors (e.g., Herman, 1992) that includes three principal components: the strengthening of self-management and interpersonal effectiveness, an established therapeutic relationship, and emotional processing of the trauma memories. The positive results of the study provide the rationale for further research on STAIR–modified PE, especially as compared with nonexposure approaches for CA-related PTSD, and across other settings (e.g. community services) and more diversified trauma populations.

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