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Shorter communication

Changes in negative cognitions mediate PTSD symptom reductions during client-centered therapy and prolonged exposure for adolescents☆

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ABSTRACT

Objective: To assess whether changes in negative trauma-related cognitions play an important role in reducing symptoms of posttraumatic stress disorder (PTSD) and depression during prolonged exposure therapy for adolescents (PE-A).
Method: Secondary analysis of data from a randomized controlled trial comparing PE-A with client-centered therapy (CCT) for PTSD. Participants were 61 adolescent female sexual assault survivors ages 13–18 who received 8–14 weekly sessions of PE-A or CCT at a community rape crisis center. PTSD severity was assessed at baseline, mid-treatment, post-treatment, and 3-months post-treatment. Participants also completed self-report measures of negative posttraumatic cognitions and depressive symptoms at the same assessment points.
Results: Cross lag panel mediation analyses showed that change in negative trauma-related cognitions mediated change in PTSD symptoms and depressive symptoms whereas change in PTSD and depressive symptoms did not mediate change in negative cognitions.
Conclusion: Our findings support EPT and suggest that change in negative trauma-related cognitions is a mechanism of both PE-A and CCT.

Prolonged exposure (PE) therapy is an efficacious and effective evidence-based treatment for posttraumatic stress disorder (PTSD) and associated problems (e.g., Powers, Halpern, Ferenschak, Gillihan, & Foa, 2010). PE is derived from emotional processing theory (EPT; Foa, Huppert, & Cahill, 2006; Foa & Kozak, 1986), which provides a theoretical account for the development of PTSD and the mechanisms involved in natural and therapeutic recovery from PTSD. EPT emphasizes the role of negative trauma-related cognitions about the self (e.g., I'm incompetent) and the world (e.g., the world is completely dangerous, no one can be trusted) in the development and maintenance of PTSD. According to EPT, natural or therapeutic recovery occurs when inaccurate, negative trauma-related cognitions are disconfirmed via thinking and talking about the trauma and/or approaching trauma reminders in daily life, and by realizing that thinking and confronting trauma reminders do not result in the anticipated harm (e.g., "being attacked again" or "falling apart"; Cahill & Foa, 2007). In PE, modification of these cognitions is achieved by helping patients to confront trauma-related stimuli and situations (in-vivo exposure) and to revisit and process the traumatic memory (imaginal exposure) in the absence of harm.

Several lines of research support the notion that negative trauma-related cognitions are a key mechanism of recovery from PTSD. Negative trauma related perceptions have been consistently associated with PTSD symptom severity (e.g., Dunmore, Clark, & Ehlers, 2001; Foa, Tolin, Ehlers, Clark, & Orsillo, 1999; Moser, Hajcak, Simons, & Foa, 2007) and decreases in negative cognitions were highly correlated with reductions in PTSD symptoms during PE (Foa & Rauch, 2004) and during other forms of cognitive behavioral therapy (CBT; Smith et al., 2007; Kleim et al., 2013). Moreover, reductions in negative trauma-related perceptions temporally preceded decreases in PTSD symptoms during PE among women with assault-related PTSD (Zalta et al., 2013) and individuals with comorbid PTSD and alcohol dependence (McLean,

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Su, & Foa, in press), while the reverse was not true. These latter results suggest that changes in negative cognitions cause PTSD symptom reduction during treatment.

To date, no study has examined the cognitive mediation hypothesis among adolescents receiving treatment for PTSD. Given that adolescence is a unique developmental period, marked by rapid development and integration of cognitive and emotional regulation (Steinberg, 2005), it is possible that cognitive factors play a less relevant role in adolescents' recovery from PTSD than adults'. Thus, it is important to examine, rather than assume, that the mechanisms of treatment are the same across age groups. The first aim of the present study was to determine whether previous findings on the relationship between changes in negative trauma-related cognitions and changes in PTSD severity extend downward to adolescents receiving PTSD treatment. Given that PE has been found effective in reducing symptoms of depression in adults (e.g., Foa et al., 2005) and in adolescents (Foa, McLean, Capaldi, & Rosenfield, 2013), and that changes in negative automatic thoughts have been found to mediate recovery from depression in adolescents receiving CBT (Kaufman, Rohde, Seeley, Clarke, & Stice, 2005), a second aim of this study was to examine the relationship between changes in negative trauma-related cognitions and changes in depressive symptoms during PE.

Following the findings with adults, we hypothesized that: 1) change in negative cognitions would mediate change in PTSD symptoms during PE treatment; and 2) change in negative cognitions would also mediate change in depressive symptoms during PE treatment.

1. Method

1.1. Participants

The current study analyzed data from the original RCT described in Foa et al. (2013). Participants were 61 adolescent girls between the ages of 13 and 18 (*M* age = 15.3, *SD* = 1.5) who were seeking treatment at a rape crisis center in Philadelphia, Women Organized Against Rape (WOAR). For inclusion in the study, participants must have a primary DSM-IV diagnosis of current or subthreshold (i.e. ≥1 re-experiencing symptom, ≥2 avoidance symptoms, ≥2 arousal symptoms) PTSD resulting from sexual abuse that had occurred 3 or more months prior to intake. Participants were excluded if they met criteria for current suicidal ideation with intent, another disorder that is primary relative to PTSD (e.g. psychotic disorder, thought disorder, conduct disorder, alcohol or substance dependence disorder), or pervasive developmental disorder. Participants were also excluded if they initiated psychotropic medication within the previous 12 weeks or were receiving inpatient psychiatric treatment. See Fig. 1.

1.2. Procedure

Adolescents who were referred to WOAR completed an intake assessment with a WOAR counselor. Those who met study criteria were invited to participate in the study. At the baseline assessment, participants and their guardians signed consent and assent forms and completed a 2–3 h evaluation with an independent evaluator (IE), who was a doctoral-level clinician from the University of Pennsylvania trained to assess PTSD symptom severity. Participants also completed self-report measures of PTSD symptom severity and posttraumatic cognitions. After baseline assessment, participants and their guardians attended 1–3 preparatory sessions in which case management issues (e.g., legal issues, parental involvement, interest in receiving treatment) were discussed. If any safety concerns (e.g., suicidal plans) were identified, participants were excluded from the study and given appropriate referrals. Participants were subsequently randomized to receive either PE modified for adolescents (PE-A, n = 31) or a supportive counseling condition, Client Centered Therapy (CCT, n = 30). Participants also completed assessments at mid-treatment (following session 7), post-treatment (following session 14), and 3- 6-, and 12-months post-treatment. This investigation focused on the effect of changes in negative perceptions during treatment on changes in outcomes at the next assessment (see Data Analysis below); therefore we did not include the 6- and 12-month post-treatment assessments in the present analyses.

1.3. Treatment

Both study treatments were delivered by master's level therapists at WOAR who attended a 4-day PE-A training and a 2-day CCT training. Therapists received biweekly group supervision. New participants were assigned to counselors on a rotating basis and counselors would implement whichever study treatment the participant had been randomly assigned to.

Prolonged Exposure for Adolescents (PE-A) consists of up to 14 weekly 60–90 min treatment sessions comprised of 8 developmentally-appropriate modules that utilize PE techniques typically applied to adults with PTSD. In the first phase, therapists build rapport, explain the treatment rationale, introduce breathing retraining, and provide psychoeducation about healthy sexuality and personal safety. The second phase initiates in-vivo exposure, which consists of confronting safe, trauma-related situations and is completed as homework assignments. During sessions, therapists conduct imaginal exposure, which involves repeated revisiting and recounting of the trauma memory. Participants are asked to talk or write about the trauma, and then the therapist helps them process the memory and modify negative trauma-related perceptions that contribute to maintenance of PTSD symptoms. In the final phase, therapists address relapse prevention and generalization of skills learned in treatment. For more details, see the PE-A manual (Foa, Chrestman, & Gilboa-Schechtman, 2009).

Client-Centered Therapy (CCT; Cohen & Mannarino, 1996a, 1996b**)** consists of 14 weekly 60–90 min treatment sessions that utilize Rogerian principles such as active listening, reflection, establishment of an empathic and trusting therapeutic alliance, and unconditional support. In the first few sessions, therapists gather information about difficulties in daily functioning and explain treatment rationale to patients. The trauma is discussed briefly, and therapists provide participants with information on common reactions to sexual assault. Participants are asked to keep a diary documenting daily difficulties, feelings, and thoughts. Beginning in session 5, participants are asked to direct the content of sessions and to discuss any trauma- or nontrauma-related difficulties. Therapists encourage positive coping techniques and provide psychoeducation about healthy sexuality and personal safety. In the final sessions, therapists review lessons learned from treatment.

Therapists' adherence to both treatment protocols was monitored by trained adherence raters who were otherwise uninvolved in the study. Raters reviewed a randomly selected 20% of video-recorded treatment sessions and assessed adherence to essential components of each treatment and monitored protocol violations. Adherence to prescribed components of the treatments was 90.8% for PE-A and 90.5% for CCT.

1.4. Measures

Child PTSD Symptom Scale-Interview (CPSS-I; Foa, Johnson, Feeny, & Treadwell, 2001**)** is a 24-item measure of PTSD symptom severity that maps on DSM-IV criteria. It is administered to children