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Constructive and Unproductive Processing of Traumatic Experiences in Trauma-Focused Cognitive-Behavioral Therapy for Youth

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Abstract

Although there is substantial evidence to support the efficacy of cognitive-behavioral treatments (CBT) for posttraumatic stress disorder (PTSD), there is some debate about how these treatments have their effects. Modern learning theory and cognitive and emotional processing theories highlight the importance of reducing avoidance, facilitating the constructive processing of feared experiences, and strengthening new inhibitory learning. We examined variables thought to be associated with unproductive and constructive processing of traumatic experiences in a sample of 81 youth with elevated PTSD symptoms, who received Trauma-Focused Cognitive Behavioral Therapy (TF-CBT) for abuse or traumatic interpersonal loss. Sessions during the trauma narrative phase of TF-CBT were coded for indicators of unproductive processing (overgeneralization, rumination, avoidance) and constructive processing (decentering, accommodation of corrective information), as well as levels of negative emotion. In previous analyses of this trial (Ready et al., 2015), more overgeneralization during the narrative phase predicted less improvement in internalizing symptoms at posttreatment and a worsening of externalizing symptoms over the 12-month follow-up. In contrast, more accommodation predicted improvement in internalizing symptoms and also moderated the negative effects of overgeneralization on internalizing and externalizing symptoms. The current study examined correlates of overgeneralization and accommodation. Overgeneralization was associated with more rumination, less decentering, and more negative emotion, suggesting immersion in trauma-related material. Accommodation was

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Conflict of Interest

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associated with less avoidance and more decentering, suggesting a healthy distance from trauma-related material that might allow for processing and cognitive change. Decentering also predicted improvement in externalizing symptoms at posttreatment. Rumination and avoidance showed important associations with overgeneralization and accommodation, respectively, but did not predict treatment outcomes. This study identifies correlates of overgeneralization and accommodation that might shed light on how these variables relate to unproductive and constructive processing of traumatic experiences.

Keywords

exposure; emotional processing; cognitive processing; PTSD; Trauma-Focused CBT

Substantial evidence has accumulated to indicate that exposure-based treatments for posttraumatic stress disorder (PTSD) are effective (Gillies, Taylor, Gray, & D'Abrew, 2012; Watts et al., 2013), but there is ongoing debate about how these treatments have their effects (Asnaani, McLean, & Foa, in press; Bluett, Zoellner, & Feeny, 2014; Craske et al., 2008; Gallagher, Thompson-Hollands, Bourgeois, & Bentley, 2015). Even less is known about how these treatments have their effects with traumatized youths.

Early emphasis was placed on emotional processing as a key mechanism of change in exposure therapy (Foa & Kozak, 1986). Treatments that include exposure aim to decrease avoidance, activate the relevant fear network, and introduce novel information to violate expectations, challenge beliefs, and loosen the hold of the fear-based learning. The discrepancy between the old learning and new information creates the opportunity for emotional processing, which includes shifts in perspectives and meaning, together with new emotional responses to the feared stimuli (Asnaani et al., in press; Foa & Kozak, 1986; Foa, Huppert, & Cahill, 2006).

Emotional processing has been indexed primarily by fear reduction within and between sessions, although the original definition of processing includes both cognitive and emotional change (Asnaani et al., in press). There is now little support for within-session fear reduction, and stronger but mixed support for between-session fear reduction, as predictors of treatment outcomes in exposure therapy for adults (Asnaani et al., in press; Craske et al., 2008) and youth (Peterman, Carper, & Kendall, in press), as well as in written forms of exposure (Wisco, Baker, & Sloan, 2015). Further, there is some evidence that even clients who do not experience fear reduction over time can improve by learning to tolerate their distress and change the meaning of that distress (Bluett et al, 2014; Craske et al., 2008; Zvolensky, Vujanovic, Bernstein, & Leyro 2010). In addition, patterns of sustained arousal and emotional variability during exposure predict improvement, although they do not involve fear reduction (Culver, Stoyanova, & Craske, 2012). These findings have led researchers to call for broader conceptualizations of emotional processing beyond change in fear within and between sessions (e.g. Asnaani et al., in press; Bluett et al., 2014; Craske et al., 2008; Wisco et al., 2015).

Modern learning theory (Arch & Craske, 2008; Craske, Liao, Brown, & Vervliet, 2012; Vervliet, Craske, & Hermans, 2013) and more recent cognitive and emotional processing

theories (Asnaani et al., in press; Brewin, 2014; Ehlers & Clark, 2000; Foa et al., 2006; Resick, Monson, & Chard, 2014) highlight the roles of distress tolerance, decentering or distancing from habitual patterns, constructive processing of feared experiences, and new learning that can compete with or inhibit fear-based learning. Emotional processing of traumatic experiences also involves reducing the unproductive processing cycles of PTSD that interfere with incorporating new, corrective information (Angelakis & Nixon, 2015; Brewin, 2014; Hayes, 2015; Watkins, 2008).

This study examined components of unproductive and constructive processing of traumatic events in the context of an effectiveness trial of Trauma-Focused Cognitive Behavioral Therapy (TFCBT; Cohen, Mannarino & Deblinger, 2006) for youth with PTSD symptoms related to abuse and interpersonal violence. This treatment is one of the most widely studied and efficacious treatments for childhood PTSD (Cohen, Berliner, & Mannarino, 2010; Gillies, Taylor, Gray, & D'Abrew, 2012), and it is similar to adult interventions that involve gradual exposure, verbalization of trauma-related content (verbal and/or written), and cognitive and emotional processing of these memories. TF-CBT facilitates processing by having youth recount their traumatic experience(s) in the form of a narrative and then explore trauma-related beliefs and emotions in session. Although there is strong evidence for the efficacy of TF-CBT, relatively little is known about how it facilitates change. We examined variables that might contribute to unproductive processing (overgeneralization, rumination, avoidance) and more constructive processing (accommodation, decentering) in the trauma narrative phase of TF-CBT.

Unproductive processing in PTSD

PTSD can be characterized as a repetitive, unproductive processing loop of overgeneralization and rumination exacerbated by avoidance (Angelakis & Nixon, 2015; Brewin et al., 2010; Hayes, 2015). Risk for PTSD increases when traumatic memories are processed at a nonverbal, primarily sensory-perceptual level and not organized in a coherent way, whereas more conceptual processing helps individuals put traumatic events in context, make meaning of the experiences, and move forward (Brewin, 2014; Chard, Schuster, & Resick, 2012; Cohen et al., 2006; Ehlers & Clark, 2000; Foa et al., 2006; Moore & Zoellner, 2007). When conceptual processing is low, fear and trauma-related beliefs can overgeneralize across stimuli, contexts, and time frames, with little discrimination and specificity (Dalgleish, Rolfe, Golden, Dunn, & Barnard, 2008; Ehlers & Clark, 2000; Moore & Zoellner, 2007; Resick et al., 2014; Williams et al., 2007).

Overgeneralization

Overgeneralization of trauma-related stimuli or beliefs reflects an impairment in the ability to discriminate danger and safety cues and can contribute to the hypervigilence, emotional reactivity, and avoidance symptoms of PTSD (Christianson et al., 2012; Jovanovic, Kazama, Bachevalier, & Davis, 2012). Anxious youth show similar impairments in discrimination, extinction learning, and responsiveness to safety cues that can interfere with emotional processing of the traumatic experiences (e.g., Waters, Henry, & Neumann, 2009). Negative, overgeneralized trauma-related beliefs have been found to predict PTSD symptoms up to 6

months post-trauma in child and adolescent samples (e.g., Bryant, Salmon, Sinclair, & Davidson, 2007; Meiser-Stedman, Dalgleish, Glucksman, Yule, & Smith, 2009; Palosaari, Punamäki, Diab, & Qouta, 2013; Salmon, Sinclair, & Bryant, 2007).

Changes in overgeneralized trauma-related beliefs precede and predict PTSD symptom change in prolonged exposure for adults (Rauch et al., 2015; Zalta et al., 2013) and adolescents (McLean, Yeh, Rosenfield, & Foa, 2015) and in cognitive therapy for adult PTSD (Kleim et al., 2013). Decreases in overgeneralized statements in trauma impact statements were also associated with change in PTSD symptoms from pre to posttreatment in cognitive processing therapy (CPT) for adults (Sobel, Resick, & Rabalais, 2009). Overgeneralized beliefs were associated with more PTSD symptoms before CPT, after treatment, and at one year follow-up (Owens, Pike, & Chard, 2001). Using the same dataset as in the current study, Ready et al. (2015) coded sessions from the narrative phase of TF-CBT for traumatized youth and found that higher mean levels of overgeneralization during this phase of treatment predicted worse outcomes on broadband symptom measures (more internalizing symptoms at posttreatment and a worsening of externalizing symptoms over the 12-month follow-up period) rather than on a PTSD-specific measure. Together, research on adult and younger populations suggest that overgeneralization should be a central therapeutic target in treatments for PTSD.

Ruminative processing

Recurrent and repetitive negative thinking about traumatic experiences and their consequences is associated with intrusions, re-experiencing, and prolonged distress, which maintain PTSD and related symptoms (Ball & Brewin, 2012; Birrer & Michael, 2011; Brewin et al., 2010; Ehlers & Clark, 2000; Michael, Halligan, Clark, & Ehlers, 2007). Anger and emotional venting can also loop in ruminative cycles that predict and perpetuate PTSD symptoms (e.g., Ehlers, Mayou, & Bryant, 1998; Germain, Kangas, Taylor, & Forbes, 2015; Kunst, Winkel, & Bogaerts, 2011; Orth, Cahill, Foa, & Maercker, 2008).

Ruminative processing reflects over-engagement with trauma-related content and emotional responses and is associated with less productive meaning-making, higher levels of negative affect, and more overgeneralized thoughts than more productive processing styles, which are characterized by maintaining a healthy distance (decentering) and making meaning of the experience (Ayduk & Kross, 2010; Ehring & Watkins, 2008; Kross & Ayduk, 2008; Watkins, 2008). For instance, in a study of youth who provided trauma narratives six years after documented sexual abuse, Simon, Feiring, and McElroy (2010) found that narratives rated as more “absorbed” (ruminative) were associated with more concurrent PTSD symptoms and worse functional impairment than narratives rated as more constructive. Constructive processing included actively engaging trauma-related content, gaining insight, and making meaning of the experiences in a coherent way. Ruminative processing in early sessions of cognitive therapy for adult PTSD (Ehlers & Clark, 2000) has also been identified as an important predictor of poor treatment response (Brady, Warnock-Parkes, Barker, & Ehlers, 2015).

Avoidance

Avoidance behaviors and emotional blunting or numbing can decrease the reactivation of traumatic memories, suppress difficult thoughts and emotions, and quiet overgeneralization and ruminative processes. Although avoidance can provide temporary relief from distress, it is not an effective long-term regulation strategy because it contributes to a rebound of intrusions, nightmares, flashbacks, overgeneralization, and rumination (Brewin et al., 2010; Hayes; 2015; Williams et al., 2007). Avoidance is a key predictor of poorer psychological functioning and PTSD symptoms following a traumatic experience (Plumb, Orsillo, Luterek, 2004; Shenk, Putnam, & Noll, 2012; Shenk et al., 2014).

Avoidance limits exposure to corrective information and interferes with the elaboration, reflection, and cognitive restructuring required to construct adaptive meanings of the traumatic experiences (Ehlers & Clark, 2000; Foa et al., 2006; Resick et al., 2014). Brady et al. (2015) reported similar findings in early sessions of CT for adult PTSD. Those who talked less about their trauma-related thoughts and feelings responded less well to treatment. Simon et al. (2010) also found that sexually abused youth who wrote narratives coded as avoidant reported more concurrent PTSD symptoms and functional impairment than those with more constructive narratives. Thus, as Shenk et al. (2014) conclude, the ability to engage rather than avoid distressing trauma-related beliefs and feelings is an important contributor to recovery in trauma treatments for children, as it is in adults.

Together, overgeneralization, rumination, and avoidance can form an unproductive processing loop that is self-perpetuating and interferes with the constructive processing of traumatic experiences, integration of corrective information, and productive meaning-making (Brewin, 2014; Foa et al., 2006; Hayes, Yasinski, Barnes, & Bockting, 2015; Watkins, 2008). Treatments for PTSD should target the fundamental processes that go awry in PTSD and facilitate emotional processing of the traumatic experiences and new, more adaptive learning.

Constructive processing in PTSD

Constructive emotional processing in those with PTSD involves new, non fear-based learning, which includes incorporating contextual information to increase the specificity of overgeneralized trauma memories, improving threat and non-threat discrimination, incorporating information that is inconsistent with maladaptive beliefs, integrating verbal and nonverbal memories, and making meaning of the traumatic experiences (Asnaani et al., in press; Brewin, 2014; Cohen et al., 2006; Ehlers & Clark, 2000; Foa et al., 2006; Resick et al., 2014; Simon et al., 2010; Watkins, 2008). Modern learning perspectives on exposure emphasize that this new learning can serve inhibitory functions. Exposure exercises can facilitate inhibitory learning (non-threat fear associations) over time and contexts, and therapists can include strategies to increase the accessibility of this new learning so that it can compete with or inhibit the pathological learning (Bouton, 2004; Christianson et al., 2012; Craske et al., 2012, 2014). Inhibitory learning can include enhanced discrimination and expectancy violations related to feared stimuli and emotional reactions, as well as safety learning that involves the ability to discriminate between safe and dangerous conditions (Brown, LeBeau, Chat, & Craske, 2016; Christianson et al., 2012; Craske et al., 2014).

Tiwari, Kendall, Hoff, Harrison and Fizur (2013) highlight the importance of the post task processing phase of exposure-based therapies for youth to promote such inhibitory learning. It is possible that the concept of inhibitory learning extends to other types of new learning, such as changes in maladaptive trauma-related beliefs and the development of new, more adaptive and balanced beliefs that can inhibit or compete with pathological associations related to PTSD (Brewin, 2014; Chard et al., 2012; Ehlers & Clark, 2000). However, this extension of inhibitory learning to broader cognitive change is speculative and needs to be to be examined empirically.

Hembree, Rauch, and Foa (2003) describe an optimal level of fear activation to facilitate emotional processing, as too little activation (under-engagement) or too much activation (over-engagement) can interfere. If not addressed, overgeneralization and ruminative processing can lead to over-engagement and avoidance to under-engagement, both of which hinder corrective learning (Asnaani et al., in press). Related to this, exposure therapy has been conceptualized as a way to teach clients to distance (or decenter) from habitual, conditioned fear responses, which can increase tolerance for distress and enhance inhibitory learning (Arch & Craske, 2008; Arch, Wolitzky-Taylor, Eifert, & Craske, 2012). Decentering can provide a way to unhook from unproductive processing cycles, tolerate negative emotions (Arch & Craske, 2008), and promote the healthy level of engagement necessary for cognitive and emotional processing of new information (Ayduk & Kross, 2010; Bernstein et al., 2015; Kross & Ayduk, 2008; Kross et al., 2012).

It is not clear to what extent children and adolescents can engage in decentering, but children do show introspective metacognitive skills between the ages of 5 and 7 (Flavell, Green, & Flavell, 2000) and can self-report on meta-awareness as young as 7 (Smith & Hudson, 2013). Although they did not code for decentering in youth trauma narratives, Simon et al. (2010) reported that a key difference between constructive and absorbed, ruminative narratives was the amount of emotional engagement with the abuse memories. More constructive narratives were characterized by actively engaging the traumatic content with some distance to modulate the emotional intensity. Together, these findings suggest that decentering might facilitate constructive processing in treatments for PTSD, although this is still an empirical question, especially in child and adolescent populations.

In addition to reducing maladaptive beliefs, treatment can help to develop new more adaptive and balanced beliefs, which Sobel et al. (2009) call accommodation. This new learning might then compete with or inhibit fear-based learning and maladaptive patterns. Sobel et al. (2009) found that increases in accommodation in trauma impact statements were associated with more improvement in cognitive processing therapy, although these were concurrent associations. Ready et al. (2015) examined accommodation as a predictor of treatment outcomes and whether it might serve an inhibitory function by decreasing the negative effects of overgeneralization. Indeed, more overgeneralization during the trauma narrative phase of TF-CBT predicted worse outcomes (more internalizing symptoms at the end of treatment and a worsening of externalizing symptoms over the 12-month follow-up period). More accommodation not only predicted improvement in posttreatment internalizing symptoms, but it also moderated the negative influence of overgeneralization on internalizing at posttreatment and externalizing symptoms over the 12-month follow-up.

Although preliminary, these findings suggest that perhaps new learning (accommodation) might inhibit or compensate for maladaptive processes, such as overgeneralization, to improve long-term functioning. Accommodation might reflect constructive processing, which Simons et al. (2010) reported was associated with fewer concurrent symptoms of PTSD and better functioning in youth when they were assessed years after their abuse.

The Current Study

Components of unproductive and productive processing have not been examined together in one study, and very little is known about the roles these variables play in treatments for youth with PTSD. We examined components of unproductive and productive processing in the context of trauma-focused CBT (Cohen et al., 2006) for 81 youth (age 7-17 years) with PTSD related to sexual and physical abuse and other interpersonal violence. We center the analyses around the findings from the Ready et al. (2015) study that used this same dataset and identified two important predictors of treatment outcome: overgeneralization and accommodation. Overgeneralization predicted worse outcomes (less improvement in internalizing symptoms at posttreatment, worsening of externalizing over 12-month follow-up), and accommodation predicted better outcomes (more improvement in posttreatment internalizing symptoms) and also lessened the negative effects of overgeneralization at posttreatment and over the follow-up. The current study examined avoidance, ruminative processing, and decentering as correlates of overgeneralization and accommodation and as predictors of treatment outcomes. The findings from this study might provide a wider perspective on components of emotional processing than previous distress reduction research.

We predicted that higher mean levels of overgeneralization during the trauma narrative phase of TF-CBT would be associated with more negative emotion across this period and more ruminative processing and avoidance, which together might reflect an unproductive processing loop. More accommodation, on the other hand, was expected to be associated with the ability to decenter from trauma-related distress activated during the narrative phase, which could allow for constructive processing (indexed by accommodation) to occur. Although the focus of this study was on identifying correlates of overgeneralization and accommodation, we also examined whether any of the correlates predicted treatment outcomes on internalizing and externalizing symptoms and PTSD-specific symptoms. In addition to examining mean values of coding variables across the narrative phase of TF-CBT, we also examined maximum (or peak) values of all of the coding variables.

Methods

Participants

Participants were recruited as part of statewide treatment effectiveness trial. Youth were between the ages of 7 and 17, English-speaking, and qualified for Medicaid and publicly-funded treatment. They also had to have a legal guardian who was English-speaking and willing to co-participate in treatment and a 12-month follow-up. Youth were also excluded if: 1) the child had an intellectual disability or untreated psychosis or current substance abuse, 2) the child required frequent hospitalizations or a higher level of care, or 3) a sibling

was already in the study. Based on these criteria, 55 youth were excluded at screening. Qualified youth were administered the UCLA PTSD Reaction Index for DSM-IV-Abbreviated (UPID-A) at their residence. Those scoring 17 or more on the UPID-A or endorsing 3 of 9 PTSD symptoms based on an independently verified (e.g., through child welfare) trauma were included in the study (e.g., Steinberg, Brymer, Decker, & Pynoos, 2004 and A. Steinberg, personal communication, August 2006), and 109 participants met inclusion criteria for the effectiveness trial. More detailed information regarding recruitment and retention of participants is provided in previous publications on treatment outcomes in this sample (Ready et al., 2015; Webb et al., 2014).

The mean age of these 81 youth was 12.56 years (*SD*=2.83). They were racially diverse (52% Caucasian, 41% African-American, 4% Hispanic/Latino, and 3% Biracial), mostly female (67%), and about one third were in foster care (38%). Participants reported an average of 3.5 types of traumatic experiences (*SD*=1.72) in their lifetime, including sexual abuse (51%), physical abuse (58%), domestic violence (54%), traumatic loss of a loved one (51%), community violence (experienced: 26%; witnessed: 32%), car accident or other traumatic accident (25%), fire (5%), witnessing a disaster (6%), or other abuse (11%). According to the UCLA PTSD Reaction Index, 68% of the participants met full criteria for PTSD, 17% met criteria for partial PTSD (i.e., met criteria for two of the three symptom clusters: re-experiencing, avoidance or hyperarousal), and 15% showed elevated symptom severity scores but met criteria for one or no symptom clusters.

Measures

In their review of 435 randomized control trials targeted at treating childhood mental health problems, Becker, Chorpita, & Daleiden (2011) recommend using broadband measures of youth functioning over symptom-specific measures to best capture therapeutic change. In addition to broadband measures of internalizing and externalizing functioning, the current study also included a symptom-specific measure to directly examine changes in PTSD symptoms.

Broadband measures of functioning—The ***Child Behavior Checklist (CBCL)*** is a 113-item parent-report measure that assesses a range of child emotional and behavioral problems. Items are rated on a 3-point Likert scale (0 = *not true,* 1 = *somewhat or sometimes true,* 2 = *very true or often true*). The current study focused on the Internalizing and Externalizing scales of the CBCL to provide a measure of broadband symptom change over time. Raw scores were used in all analyses, as T-scores can truncate the range of data and be less sensitive to gradual changes in symptom trajectories over the course of treatment and the follow-up (Achenbach, 1991). The CBCL is a well-established measure with good reliability and validity as a measure of mental health problems in children (Achenbach, 2001). In the current sample, reliability across treatment and follow-up was excellent for the Internalizing scale (Cronbach's α = .89 to .90) and for the Externalizing scale (Cronbach's α = .92 to .95). Response rates across all assessment periods were high, with either one or zero youth missing data for any of the assessment periods from baseline through 12-month follow-up.

Symptom-specific measure of PTSD—The ***UCLA PTSD Reaction Index for DSM-IV (UPID***; Steinberg, Brymer, Decker, & Pynoos, 2004***)*** was used to assess changes in PTSD symptoms. The UPID, administered as a questionnaire or structured interview, inventories 13 types of trauma, assesses objective and subjective aspects of the most bothersome trauma, and includes questions about the frequency of re-experiencing, avoidance, and hyperarousal symptoms in children ages 7-18. Test-retest reliability is 0.84, and the UPID shows good convergent validity, sensitivity (0.93), and specificity (0.87) in diagnosing PTSD (Steinberg et al., 2004). The full version was used to measure symptom level and change at pre-treatment, mid-treatment, post-treatment, and 9-month and 12-month follow-up. An abbreviated version (only 23 items) was used for initial screening. The UPID demonstrated good reliability in this sample across treatment and follow-up (Cronbach's α = .87 to .90). Response rates across all assessment periods was high, with either one or zero youth missing data for any of the assessment periods from baseline through 12-month follow-up.

Therapists

Therapists included 19 clinicians who either held a professional degree or were doctoral students in clinical psychology programs. Clinicians were either licensed or supervised by a licensed practitioner. Most therapists were Caucasian women (84%), although one clinician identified as Asian, one as Latina, and two were Caucasian males. Twelve qualifying therapists had master's degrees in counseling, psychology, or social work; four had a level of training equivalent to master's degree, and three held doctorates in counseling or clinical psychology. A TF-CBT developer (the last author) trained a core group of five clinicians, who received two days of didactic training, weekly phone consultations, and expert review of at least one case. These core clinicians then trained and supervised the next cohort of therapists with the same process of didactic training, weekly phone consultations, and tape review.

Trauma Focused Cognitive Behavioral Therapy (TF-CBT)

TF-CBT is 12-16 session evidence-based treatment for children, adolescents, and their non-offending caregivers that is designed to address PTSD, depression, and other trauma-related behavioral difficulties. TF-CBT has been successfully applied to a wide range of childhood traumas, including sexual abuse, physical abuse, domestic violence, and traumatic loss. TF-CBT includes an emphasis on both exposure and cognitive restructuring, with a third of treatment (approximately 5 sessions) devoted to gradual exposure to traumatic memories through the creation and processing of a narrative (treatment manual: Cohen et al., 2006). The child and the caregiver each attend a 45-minute session with the same therapist (90 minutes total), and participate in one or more conjoint sessions facilitated by the therapist. TF-CBT can be divided into three phases:

The *stabilization and skills building* phase (sessions 1-4) focuses on therapeutic engagement and psychoeducation about the prevalence, impact, and treatment of trauma, as well as coping skills for managing emotional distress. The therapist also works directly with the caregiver to provide education, strategies, and feedback for assisting the child by modeling and encouraging the practicing of the coping skills learned in session. Additionally, the

caregiver learns to use effective behavior management skills with their child, a task that continues throughout treatment.

The *trauma narration and processing* phase of therapy (sessions 5-10 or 11) focuses directly on gradual exposure to traumatic memories through the development of a narrative. During this phase, the child creates his or her trauma narrative orally or through the use of writing or pictures. The therapist then assists the child in identifying and challenging maladaptive beliefs about the traumatic event and its meaning and consequences. Simultaneously, the therapist shares the child's narrative with the caregiver, helping the caregiver process difficult emotions, challenge cognitive distortions, and practice responding to the child's story in a supportive manner.

The *consolidation and enhancing safety* phase of treatment (1-4 sessions) helps to integrate learning from previous sessions through in vivo mastery activities when needed, trauma-focused parent-child conjoint sessions to share the narrative when clinically appropriate, and the development of personal safety skills to support the child's future development. Skills building in this phase often includes assertiveness training, creating and rehearsing safety plans, and personal safety skills to prevent revictimization.

Treatment adherence—Coders were trained to use a 10-item adherence checklist for child and caregiver sessions developed by Dr. Esther Deblinger, coauthor of the TF-CBT treatment manual (Cohen et al., 2006). Coders were trained to criterion by Dr. Deblinger and her research team, and after training, good to excellent interrater agreement (dichotomous ratings of present or absent) was achieved on all categories (median $\kappa = 0.92$, range $\kappa = 0.89$ to 1.00). As reported in the previous publications (Ready et al, 2014; Webb, 2014), adherence was good and therapists delivered the TF-CBT components in the correct sequence.

Treatment outcomes—The flow of patients is presented in the Webb et al. (2012) publication on treatment effectiveness. The mean treatment dose was 9.79 sessions ($SD = 4.97$). The dropout rate of 11% is comparable with the rate of dropout for TF-CBT's first multisite efficacy trial (11.4%; Cohen et al., 2004). Outcome data are presented in full in Ready et al. (2015). Piecewise hierarchical linear modeling was conducted in that study to examine within-person symptom reduction from pre- to post- treatment (Time A: 0, 3, and 6 months) and from post-treatment through 12-month follow-up (Time B: 6, 9, and 12 months). All participants had completed treatment by the 6 month assessment. There was a significant reduction in PTSD internalizing, and externalizing symptoms across the treatment period. Improvements were maintained over the 6-, 9-, and 12-month follow-up period for PTSD and internalizing symptoms, but there was a significant increase in externalizing symptoms over the follow-up period.

Session Coding

Sessions were drawn from a larger project in which sessions from all three phases of TFCBT were coded. The focus of the current study is on the narrative phase of treatment, during which children develop a trauma account to activate trauma memories and facilitate emotional processing (Cohen et al, 2006). Youth in the current sample completed a mean of

5.1 sessions (*SD* = 2.10) in the trauma narrative phase. Audiotapes of all available trauma narrative sessions were coded for each participant.

Audio recordings of sessions were coded using the CHANGE, an observational coding system designed to code variables thought to be central to therapeutic change, including both facilitators and inhibitors of change (Hayes, Feldman, & Goldfried, 2007). The unit of analysis was the full session. The variables included in this study were: overgeneralization, accommodation, negative emotion, ruminative processing, avoidance, and decentering. The coding variables and examples are presented in Table 1.

In a previous report, Ready et al. (2015) examined mean levels of overgeneralization and accommodation during the narrative phase of TF-CBT as predictors of outcome at posttreatment and over the 12-month follow-up. The current study investigated associations between overgeneralization and variables that might contribute to unproductive processing (rumination and avoidance), as well as decentering, a variable hypothesized be associated with constructive processing (indexed by accommodation). The overgeneralization and accommodation variables were adapted from the Impact Statement Coding System, which Sobel et al., (2009) developed to code trauma narratives in cognitive processing therapy for adult PTSD. These categories were adapted for children and adolescents and for full sessions rather than narratives, the definitions were expanded to capture somewhat broader constructs that could also apply to depression and other disorders, and ratings were changed from dichotomous to the ordinal scale of the CHANGE measure (Hayes, Feldman, & Goldfried, 2007; 0=*absent to very low*, 1=*low,* 2= *medium,* 3=*high*). As with other categories of the CHANGE, ratings of overgeneralization and accommodation considered degree of conviction and elaboration of beliefs expressed by youth, with higher levels required for higher ratings. Accommodation is change that occurs in treatment relative to maladaptive cognitions targeted in treatment.

Categories can co-occur and are not mutually exclusive. The CHANGE has been used to code weekly narratives in a CBT treatment for depression (Hayes, Beevers, Feldman, Laurenceau, & Perlman, 2005; Hayes et al., 2007), and audiotaped sessions of cognitive therapy for personality disorders (Hayes, & Yasinski, 2015), juvenile PTSD (Ready et al., 2015), and treatment-resistant depression (Abel, Hayes, Henley, & Kuyken, 2016).

Coders

A team of 19 coders rated all variables for all available sessions in the narrative phase of TFCBT. Two coders rated each session. Coders were trained to criterion and met as a group each week to prevent rater drift and to discuss and reach consensus on coding discrepancies greater than one point on the 4-point scale. Interclass correlation coefficients (ICC; Shrout & Fleiss, 1979) for all coded sessions were: accommodation= .75; overgeneralization=.70; negative emotion=.85; ruminative processing= .84; avoidance = .73; decentering=.70. These estimates fall into the good to excellent range of agreement (Shrout & Fleiss, 1979). The ratings of the two coders per session were averaged, and these averaged ratings were used in all analyses.

Results

We examined Pearson correlations of mean levels of negative emotion, ruminative processing, avoidance, and decentering during the narrative phase of TF-CBT and two predictors of short- and long-term outcomes identified in the Ready et al. (2015) study: overgeneralization and accommodation. In addition, we examined correlations between maximum (peak) levels of all variables. Peak levels were the highest rating (0=*absent or very low* to 3=*high*) of a given coding category during the narrative phase.

Correlations of Coding Variables with Overgeneralization and Accommodation

Descriptive statistics and correlations of age and all coding variables are presented in Table 2. Older children showed more overgeneralization, negative emotion, and ruminative processing during the trauma narrative phase of TF-CBT, but only with the mean and not the peak values. It is interesting to note that age was not significantly associated with mean levels of decentering. None of the variables were significantly correlated with pretreatment symptom severity of internalizing, externalizing, or PTSD symptoms, so these correlations are not included.

Consistent with hypotheses, more overgeneralization (mean levels) across the narrative phase was associated with more negative emotion and ruminative processing. Overgeneralization was not significantly correlated with avoidance, but it was associated with lower levels of decentering. Accommodation was associated with less avoidance and more decentering, a more adaptive form of distancing from difficult emotions. Analyses of the peak levels of the coding variables showed the same pattern of correlations, except that accommodation at peak levels was not associated with avoidance.

Predictors of Outcome

In the Ready et al. (2015) study, more overgeneralization predicted less improvement in internalizing symptoms at posttreatment and a worsening of externalizing symptoms over the 12-month follow-up, whereas more accommodation predicted improvement in internalizing symptoms and also moderated the negative effects of overgeneralization on internalizing and externalizing symptoms. In the current study, we examined four CHANGE variables (mean negative emotion, ruminative processing, avoidance, and decentering) during the narrative phase of TF-CBT as predictors of posttreatment outcomes (internalizing, externalizing, PTSD symptoms) and of externalizing scores at the 12-month follow up. As in the Ready et al. (2015) study, predictors of internalizing and PTSD symptoms over follow-up were not examined because improvement was maintained, with no significant change and little variability in the slope. However, there was a significant increase in externalizing symptoms over the follow-up, and the CHANGE coding variables were examined as predictors of this worsening of symptoms.

Hierarchical multiple regression analyses were conducted for each posttreatment outcome variable (internalizing, externalizing, PTSD symptoms), controlling for pretreatment symptoms levels (Table 3). Neither overgeneralization nor accommodation predicted externalizing symptoms at the end of treatment in the Ready et al. (2015) study, although

both predicted outcomes at the 12-month follow-up. We found in the current analyses that more decentering predicted lower externalizing symptoms at possttreatment, but not at 12 months. Because decentering was strongly associated with accommodation during the narrative phase of TF-CBT, we examined whether decentering predicted better posttreatment externalizing outcomes when accommodation was also entered into the equation. Decentering remained a significant predictor, and as in the Ready et al. (2015) study, accommodation again did not predict externalizing symptoms at posttreatment (Model F (3,76)=13.97, p<.001; R^2= .36; accommodation (B= −1.13, SE=2.49, Beta= −.05, t =−.45, p=.65); decentering (B=−5.95, SE=2.77, Beta= −.23, t= −2.15, p=.035). None of the other CHANGE coding variables predicted internalizing, externalizing, or PTSD symptoms at the end of treatment or over the follow-up.

Discussion

This study examined components of unproductive and constructive processing of traumatic events in the context of an effectiveness trial of Trauma-Focused Cognitive Behavioral Therapy (Cohen et al., 2006) for youth with PTSD symptoms related to abuse and interpersonal violence. This builds on the Ready et al. (2015) study that used the same sample and identified two key predictors of treatment outcome: overgeneralization, which predicted worse outcomes (less improvement in internalizing symptoms at posttreatment and a worsening of externalizing symptoms over follow-up), and accommodation, which predicted better outcomes (more improvement in internalizing symptoms at posttreatment) and moderated the negative effects of overgeneralization (on internalizing symptoms at posttreatment and worsening of externalizing symptoms over follow-up). The focus of the current study was to identify correlates of overgeneralization and accommodation that might shed light on how these variables relate to unproductive and constructive processing of traumatic experiences.

Overgeneralization was associated with more ruminative processing and negative emotion, as hypothesized, but with lower levels of decentering rather than avoidance. This pattern of findings suggests more immersion in trauma-related content and responses. In contrast, accommodation was associated with being able to engage with traumatic experiences with a combination of less avoidance and more decentering. In addition, more decentering predicted improvement in externalizing symptoms at the end of treatment, although it did not predict externalizing symptoms over the follow-up. The findings did not differ when age was included as a covariate in analyses. Analyses with mean levels of the CHANGE coding variables and peak levels of these variables were similar, except that when accommodation was at its highest (peak), it was not significantly correlated with avoidance. The coding variables also did not covary with any of the symptom measures at baseline, suggesting that the coding variables capture more than symptom severity. Although PTSD symptoms decreased significantly by the end of treatment and were maintained over the 12-month follow-up period (Webb et al., 2012), none of the coding variables predicted change in PTSD symptoms. Instead, they revealed interesting associations with more broadband measures of child functioning—internalizing and externalizing symptoms.

Overgeneralization is not only associated with the onset and maintenance of PTSD, but treatment-related reductions in overgeneralization have also been shown to predict improvement in PTSD symptoms in adult and adolescent populations (McLean et al., 2015; Rauch et al., 2015; Sobel et al., 2009; Zalta et al., 2013). In addition, we previously reported (Ready et al., 2015) that more overgeneralization in sessions during the narrative phase of TF-CBT for children and adolescents predicted worse outcomes on more broadband measures of functioning, internalizing at posttreatment and externalizing symptoms over the follow-up, though not on PTSD-specific symptoms at either assessment point (Ready et al., 2015). The current analyses suggest that more overgeneralization and avoidance in the trauma narrative sessions of TF-CBT were associated with being mired in rumination and less decentered from trauma-related content. In addition, all three unproductive processes (overgeneralization, rumination, and avoidance) were associated with more negative emotion. This combination suggests immersion (Kross & Ayduk, 2008) in the trauma-related material, or what Simon et al. (2010) call absorption, which can interfere with constructive processing and the integration of new information (Angelakis & Nixon, 2015; Brewin et al., 2010; Hayes, 2015; Hayes et al., 2015). This may be one reason that overgeneralization predicted worse treatment outcomes in this trial (less improvement in internalizing symptoms at postreatment and worsening of externalizing symptoms over the follow-up period; Ready et al. 2015).

In the current study, rumination was a correlate of two components of a hypothesized unproductive processing loop -- overgeneralization and avoidance -- but rumination itself did not predict treatment outcomes (internalizing, externalizing, PTSD symptoms). Although rumination has been shown to be associated with PTSD symptoms (for reviews, see Ehring & Watkins, 2008; Michael et al., 2007), only the Brady et al. (2015) study identified rumination as a predictor of treatment outcomes in cognitive therapy for adult PTSD, and that was early in treatment rather than later in treatment where we coded the trauma processing sessions of TF-CBT. Similarly, avoidance is associated with PTSD symptoms in traumatized youth (e.g. Shenk et al., 2012; 2014; Simon et al., 2010), and early avoidance was a predictor of poor outcomes in CT for adult PTSD (Brady et al., 2015), but avoidance had not been examined as a predictor of treatment outcomes in traumatized youth or in the later trauma processing phase of treatment. We found that avoidance did not predict treatment outcomes, but it was associated with lower levels of two constructive processes, accommodation and decentering, both of which did show relationships with outcomes.

Constructive processing is hypothesized to involve stepping back (decentering) from traumatic memories and experiences so that one can unhook from recurrent unproductive processing, open to new information, and learn new and more adaptive associations that might lead to accommodation (Asnaani et al., in press; Bernstein et al., 2015; Arch & Craske, 2008; Hayes, 2015; Resick et al, 2014). Simon et al. (2010) reported that constructive trauma narratives of sexually abused children were characterized by the ability to engage with trauma-related content without avoiding or getting overly absorbed or immersed in the content. Shenk et al. (2014) also emphasize the importance of youth engaging rather than avoiding trauma-related content. Consistent with this, we found that more accommodation occurred in the context of less avoidance and more decentering during the trauma narrative phase of TF-CBT. Although TF-CBT is not specifically designed to

teach decentering skills, decentering was associated in adaptive ways with both of the key predictors of treatment outcomes in the Ready et al. (2015) study: decentering in the narrative phase of treatment was associated with less overgeneralization and also more accommodation. In addition, more decentering predicted improvement in externalizing symptoms at posttreatment, although it was not a predictor of these symptoms over the follow-up period or of internalizing and PTSD symptoms at either assessment. Decentering during treatment might help youth to unhook from the cascade of unproductive processing associated with overgeneralization and provide the opportunity for constructive processing and accommodation.

One might wonder to what extent youth can engage in decentering, but our findings suggest that they can, and that it is useful. As in the Smith and Hudson (2013) study on metacognitions in children and adolescents, level of decentering was not correlated significantly with age, which ranged from 7-17 years in our study. Decentering levels were also not associated with initial symptoms severity, suggesting that decentering might be a skill that can be learned across a range of severity levels in internalizing, externalizing, and PTSD symptoms. These findings add to the literature on decentering and its potential role in therapeutic change with adults and children (Bernstein et al., 2015). We also moved beyond self-report measures of decentering and used observational coding with the CHANGE coding system (Hayes et al., 2007). This might be a useful tool in other research on decentering in the therapeutic change process.

A surprising finding was that although there was clinically and statistically meaningful improvement in PTSD symptoms in this trial at the end of treatment that were maintained over the 12-month follow-up (Webb et al., 2012), neither overgeneralization nor accommodation were associated with symptom change in PTSD-specific symptoms (Ready et al., 2015), and none of the study variables in the current study predicted PTSD symptoms. This might be due, in part, to our sample. Youth enrolled in the study were not required to meet full criteria for PTSD, and PTSD symptoms primarily depended upon youth self-report rather than a structured diagnostic interview, as used in the a dismantling study of TF-CBT by Deblinger et al. (2011). However, recent research has highlighted the importance of using broadband measures of functioning to assess symptom change in treatment studies for youth, as symptom-specific measures may not always provide an accurate or comprehensive assessment of improvement in younger populations (e.g., Becker et al., 2011). Parent and youth report in diagnostic interviews could be a useful addition in future studies.

In general, the findings from this study suggest that emotional and cognitive processing theories for adult PTSD might apply to traumatized children and adolescents. In addition, TF-CBT in this clinical trial was delivered to a diverse and underserved sample by community mental health workers as part of a state-wide effectiveness trial, where it is difficult to maintain treatment fidelity. Even under these conditions, the process of change was consistent with that proposed in adult theories of therapeutic change in exposure-based treatments for PTSD. There are, however, a number of limitations to bear in mind when interpreting the findings.

Over 22 scientific investigations have established TF-CBT's efficacy for reducing many symptoms related to child trauma in children and adolescents (Cohen et al., 2010), but we did not include a control group in this effectiveness trial, so it is not possible to evaluate whether our findings are specific to TF-CBT. This treatment is also an integration of prolonged exposure and more cognitive-focused treatments for PTSD, so the findings might not generalize to more pure forms of treatment. Because we built on the findings of the Ready et al. (2015) study, we used the mean levels of variables during the narrative phase of TF-CBT, as used in that study. Mean levels do not provide information on the pattern of the raw scores during that period or whether variables change. We also examined peak values of all variables, and the pattern of findings was similar to the analyses with mean levels.

Another issue to consider is that the unit of analysis for coding was the full session. Thus, the coding summarizes the session but does not show changes in different segments of the session. For instance, a child might start with high levels of avoidance early in the session, and avoidance might decrease as the session progresses. The CHANGE coding system rates the overall level of variables in the session rather providing than more microanalytic ratings, such as over 5 or 10 minute intervals.

In addition, only the CHANGE coding from the narrative phase of treatment was included in the current study, although sessions were coded across the course of treatment for the larger project from which the sessions were drawn. We focused on the phase of TF-CBT where trauma processing is thought to occur and used the sessions included in the Ready et al. (2015) study. However, important information might be gleaned from sessions in the skills-building and consolidation phases of TF-CBT. It is also possible that more of the coding variables from the early phase of treatment might predict more treatment outcomes and also dropout.

Clinical Implications and Conclusions

One of the major clinical implications of this study is the importance of having clinicians identify and monitor components of unproductive processing (overgeneralization, rumination, avoidance) and constructive processing (decentering, accommodation). Our findings suggest that overgeneralization, a key predictor of worse outcomes in TF-CBT (Ready et al., 2015), is associated with rumination, a less decentered perspective, and more negative emotion, which might contribute to an unproductive processing loop that interferes with new learning. Although research on decentering in children and adolescents is in its infancy, it might help to more specifically teach this skill to facilitate constructive processing and the development of more adaptive trauma-related beliefs, which could be used to inhibit or compete with previous fear-related learning and responses. The principles of inhibitory learning could also be integrated into exposure-based treatments for PTSD by emphasizing inhibitory learning in the processing phase after exposure exercises, and by exercising and elaborating new learning across contexts and under challenge to help prevent relapse (Craske et al., 2008, 2014).

The CHANGE coding system (Hayes et al., 2007) is a useful tool for studying components of unproductive and productive emotional processing in adults (Abel et al., in press; Hayes

et al., 2005, 2007; Hayes, & Yasinski, 2015) and in younger populations (Ready et al., 2015). This coding system could perhaps be used by clinicians to monitor indicators of unproductive and more productive processing and to provide feedback to clients. Although further research is necessary, we examined different aspects of unproductive and productive processing together in one study and in the phase of TF-CBT that focuses on trauma processing.

Our program of research illustrates how to study the process of therapeutic change from multiples levels of analysis. We first examined the timing of symptom change over the acute phase of treatment and a 12-month follow-up (Webb et al., 2012), which revealed significant change in internalizing and PTSD symptoms at the end of treatment that was maintained over the follow-up, and externalizing symptoms that improved at posttreatment but worsened over follow-up. This highlighted where to zero in to study the factors that might interfere with or mobilize change. We then examined overgeneralization and accommodation as predictors of posttreatment outcomes and externalizing symptoms over the follow-up and found that overgeneralization was generally associated with worse outcomes and accommodation with better outcomes (Ready et al., 2015). The next level of analyses in the current study allowed us to better understand overgeneralization and accommodation and how they might link to a broader literature on unproductive and constructive processing of traumatic experiences. The findings from this research have generated ideas that can be examined in more detail in future research. Such research can include more frequent assessment and more sophisticated and dynamic modeling (e.g. Peris et al., 2015) of factors that hinder and facilitate emotional processing. It will be especially important to map the temporal sequencing of components of unproductive and productive processing over time and to identify the factors that predict change in PTSD-specific symptoms. In addition, TF-CBT interventions could be tailored to reduce the unproductive processes that can interfere with change and to facilitate decentering and accommodation. These additions could be evaluated to examine whether they improve treatment outcomes and long-term functioning of youth suffering from PTSD symptoms related to abuse and traumatic loss.

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Highlights

- Unproductive and constructive processing were examined in Trauma-Focused CBT for youth.
- We examined correlates of overgeneralization (OG) and accommodation (ACC), two predictors of treatment outcomes.
- OG was correlated with more rumination, negative emotion, and less decentering.
- ACC was correlated with less avoidance and more decentering, which predicted lower externalizing symptoms at outcome.
- These findings shed light on how OG and ACC might be associated with unproductive and constructive processing of traumatic experiences.

Table 1

Descriptions of Coding Categories

Coding Category	Description	Examples
Accommodation*	Expressing a balanced, view of self, others, or the world. Includes integrating new information, arriving at more realistic and accurate perspectives, discriminating between old and current experiences, and the degree of realistic closure, acceptance, or resolution provided by these new beliefs. Accommodation is change that occurs in treatment and is relative to maladaptive cognitions targeted in treatment.	"As I face the memory, it helps. She [abuser] doesn't have the right to abuse me, it's not ok to beat a child....It's not my fault. I'm in a safe place now. I have a scar on my heart, but it's healing."
Overgeneralization*	Global, exaggerated beliefs about self, others, or the world related to the traumatic event broadly applied across time and life situations. Includes a lack of discrimination, difficulty attending to information inconsistent with beliefs, and an overly general level of abstraction.	"Guys scare me because of what happened with my cousin [sexual abuse]. I get scared when guys come into the house. I get scared that it will happen again."
Negative emotion	Negative emotion expressed during the session is rated based on the number and intensity of negative emotion words (e.g. anxious, sad, angry, irritable, ashamed, guilty) and quality and intensity of the emotional tone (e.g., crying, voice wavering, low or raised volume).	"I hurt so bad. I feel guilty that my dad got arrested because of me, and I'm so embarrassed. I don't want to see anybody."
Avoidance	Difficulty engaging or remaining with aversive emotions, thoughts, memories, or somatic sensations. Includes not talking, pulling way, withdrawing, shutting down, or showing emotional blunting.	" 'Come climb in bed with your father.' I will *never* forget those words. And I don't want to face it. I want to push it back."
Ruminative processing	Approaching, exploring, and attempting to make meaning of a problem area but becoming stuck repeatedly thinking about or analyzing the issue without significant insight. This can take the form of recurrent analysis without progress, emotional venting, worry, or intrusive re-experiencing.	"I can't stop thinking about what happened to me and what I did wrong. I never feel safe. I keep playing things over and over in my head and it won't stop. I am so mad about what he did. I have dreams that I hurt him back."
Decentering	The ability to step back from internal experiences and engage them from a healthy distance. The person can identify what they are thinking and feeling, recognize that this does not necessarily represent reality, and an notice thoughts and feelings without immediately or automatically reacting to them or trying to reduce them.	"I felt myself getting really mad, but instead of punching him [boy in neighborhood], I took a deep breath and told him to stop talking to me like that." "Just because I feel bad does not mean that it was my fault or I did anything wrong. I still feel bad, but I know my dad shouldn't have done that to me."

*Adapted from the Impact Statement Coding System (Sobel et al., 2009).

Table 2

Descriptive Statistics and Correlations for Age and CHANGE Coding Variables during the Narrative Phase of Treatment

Measure	1	2	3	4	5	6	Age	Mean	*SD*	Range
Age	--						--	12.56	2.83	7-17.9
Mean values										Range 0-3.00
1. Overgeneralization							.27*	.38	.48	0-2.50
2. Accommodation	−.01	--					−.01	.62	.50	0-2.25
3. Negative emotion	.49***	−.19	--				.37**	1.51	.60	0-2.67
4. Avoidance	.11	−.32**	.35**	--			.17	1.13	.75	0-3.00
5. Ruminative processing	.57***	.03	.52***	.25*	--		.27*	.41	.51	0-2.00
6. Decentering	−.30**	.48***	−.06	−.44***	−.04	--	.07	.42	.40	0-2.00
Maximum values										Range 0-3.00
1. Overgeneralization	--						.18	1.10	1.07	0-3.00
2. Accommodation	.14	--					−.04	1.44	.88	0-3.00
3. Negative emotion	.51***	.19	--				.17	2.36	.74	0-3.00
4. Avoidance	.12	−.07	.30**	--			.05	.24	.40	0-1.50
5. Ruminative processing	.58***	.18	.55***	.25*	--		.18	1.06	1.08	0-3.00
6. Decentering	−.26*	.62***	.21	−.26*	.21	--	.08	1.70	.90	0-3.00

Note. Mean values=mean levels of CHANGE variables over the narrative phase of treatment; Maximum values=highest level over the narrative phase.

* $p<.05$

** $p<.01$

*** $p<.001$

Table 3

Hierarchical Multiple Regression Analyses: Mean CHANGE Coding Variables in the Narrative Phase as Predictors of Outcomes, Controlling for Pretreatment Symptoms

CBCL Internalizing Post (*n*=81)	**F (5, 74)=8.26, p<.001, R^2=0.36**				
	B	***SE***	**β**	**t**	**CI for B**
CBCL-Internalizing Pre	0.49	0.09	0.56	5.81**	.32, .66
Negative emotion	1.49	1.52	0.11	0.98	−1.53, 4.51
Avoidance	−0.50	1.18	−0.05	−0.42	−2.84, 1.85
Ruminative processing	0.22	1.71	0.14	0.13	−3.19, 3.64
Decentering	−3.19	1.92	−0.17	−1.66	−7.02, .64

CBCL Externalizing Post (*n*=81)	**F (5, 74)=8.37, p<.001, R^2=0.37**				
	B	***SE***	**β**	**t**	**CI for B**
CBCL-Externalizing Pre	0.49	0.08	0.58	6.14***	.33, .65
Negative emotion	1.51	2.12	0.08	0.71	−4.74, 5.74
Avoidance	0.40	1.64	0.03	0.24	−2.87, 3.67
Ruminative processing	−1.86	2.36	−0.09	−0.79	−6.57, 2.86
Decentering	−6.24	2.72	−0.24	−2.29*	−11.66,−81

PTSD Post (*n*=81)	**F (5, 74)=1.04, p=.399, R^2=0.36**				
	B	***SE***	**β**	**t**	**CI for B**
PTSD Pre	0.16	0.10	0.18	1.52	−.05, .38
Negative emotion	3.17	2.76	0.16	1.15	−2.32, 8.66
Avoidance	−0.14	2.16	−0.05	−0.34	−5.05, 3.57
Ruminative processing	0.27	3.16	0.01	0.09	−6.02, 6.56
Decentering	−0.18	3.51	−0.07	−0.52	−8.82, 5.15

CBCL Externalizing 12-months (*n*=52)	**F (5, 45)=5.15, p=.001, R^2=.07**				
	B	***SE***	**β**	**t**	**CI for B**
CBCL-Externalizing Pre	0.43	0.13	0.42	3.40***	.17, .69
Negative emotion	6.19	3.42	0.27	1.81	−.70, 13.07
Avoidance	−1.81	2.56	−0.11	−0.71	−6.96, 3.34
Ruminative processing	4.79	4.15	0.16	1.16	−3.56, 13.15
Decentering	2.11	4.50	0.07	0.47	−6.96, 11.17

Note. CI= Confidence interval; CBCL=Child Behavioral Checklist, PTSD = UCLA PTSD Reaction Index for DSM-IV, Pre=Pretreatment, Post=Posttreatment

* $p < .05$

** $p < .01$

*** $p < .001$