Maternal depression and treatment gains following a cognitive behavioral intervention for posttraumatic stress in preschool children

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The evidence base for cognitive behavioral therapy (CBT) to treat child emotional and behavioral symptoms following exposure to trauma in youth is compelling, but relatively few studies are available on preschool children and on moderators of treatment outcomes. This paper examines maternal and child characteristics as moderators of posttraumatic stress (PTS) treatment outcomes in preschool children. Outcome data from a previously published randomized trial in three to six year old preschool children with diagnostic interview data from participating mothers were used. Hypotheses were tested via hierarchical linear modeling. Maternal depression was associated with higher initial child posttraumatic stress disorder (PTSD) symptoms, and was associated with increasing PTSD symptom trends at follow up suggesting potential child PTSD symptom relapse. Maternal PTSD symptoms similarly predicted differential child separation anxiety symptom change but not child PTSD symptom change. Targeting dyads with child PTSD symptoms and maternal depression or PTSD symptoms with enhanced interventions may be a useful strategy to improve treatment maintenance.

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1. Introduction

Research suggests that exposure to traumatic experiences can trigger a number of negative outcomes in youth and children (Carrión, Weems, Ray, & Reiss, 2002; Carrión, Weems, & Reiss, 2007; Scheeringa, Zeanah, Myers, & Putnam, 2003). Research also indicates that these are evident even in very young children such that three to six year olds may experience posttraumatic stress (PTS) including the emotional and behavioral problems associated with the diagnosis of posttraumatic stress disorder (PTSD; Scheeringa et al., 2003). These symptoms include negative re-experiencing, avoidance, emotional numbing and hyper-arousal (APA, 1994). Fortunately, cognitive-behavioral therapy (CBT) for PTS in youth has been shown to be efficacious (Silverman et al., 2008). However, only three randomized trials have examined CBT for PTSD in young children (Cohen & Mannarino, 1996a; Deblinger, Staufffer, & Steer, 2001; Scheeringa, Weems, Cohen, Amaya-Jackson, & Guthrie, 2011) and results suggest feasibility and efficacy in preschool (e.g., 3–6 years) children (i.e., results suggest reduction in rates of the diagnosis of PTSD, reduction of PTSD symptoms, and comorbid symptoms).

In a review and meta-analysis of the child and adolescent PTS treatment literature, Silverman et al. (2008) noted that while CBT treatments appeared generally efficacious many youth are still symptomatic and very little work has been done examining potential moderators and predictors of treatment outcome. Indeed individual level CBT treatment data suggests wide variability in youth PTSD symptom change (Taylor & Weems, 2011). Kazdin (2007) defines an intervention moderator as a “characteristic that influences the direction or magnitude of the relation between the intervention and outcome” (p. 3) implying differential symptom change as a function of putative moderators. The Silverman et al. (2008) review highlights the importance of examining the role of parent characteristics in differential outcomes. Indeed, the results of their meta-analysis showed that including parents in the children’s treatment did appear to enhance child anxiety and depressive symptom outcomes but did not appear to enhance child PTSD symptom outcomes.

Cohen and Mannarino (1996b, 2000) have examined predictors of child PTS outcomes and indicated that the Parent Emotional Reaction Questionnaire was a strong familial predictor of treatment outcome at post treatment (Cohen & Mannarino, 1996b). Given the limited data on moderators of outcomes in youth with PTS, drawing more broadly from the child anxiety treatment literature provides additional support for the importance of maternal characteristics. Berman, Weems, Silverman, and Kurtines (2000) examined predictors of treatment outcomes of exposure based CBT with data from two outcome studies for childhood
anxiety disorders (specific phobias, generalized, social and separation anxiety disorders, Silverman, Kurkies, Ginsburg, Weems, Lumpkin, et al., 1999; Silverman, Kurkies, Ginsburg, Weems, Rabian, et al., 1999). Parents’ self-ratings of depression at pre-treatment were associated with treatment failure, defined as not having ‘recovered’ (i.e., no longer meeting criteria for the DSM diagnostic criteria for the primary and targeted phobic or anxiety disorder). Children’s comorbid diagnoses of depression, and depressive symptoms, as well as trait anxiety at pre-treatment were also associated with treatment failure. Age, income, and primary anxiety diagnosis were not predictors of success or failure in therapy.

Southam-Gerow, Kendall, and Weersing (2001) also examined child and parent predictors of poor response in CBT treatment outcomes (i.e., not meeting criteria for any anxiety disorder versus still meets criteria for one anxiety disorder immediately after treatment or at 1 year follow up). Older age was associated with poor treatment response immediately following treatment and maternal depression was associated with poor response at 1 year follow up. Ethnicity, gender, family income, and a measure of therapeutic relationship were not associated with treatment outcome. It is important to note that none of these studies formally examined differential symptom change as a function of putative moderators (i.e., the studies either simply tested predictors of post assessment or follow up scores (i.e., Cohen & Mannarino, 1999b, 2000) or compared those who did well versus those who did relatively poorly (i.e., Berman et al., 2000; Southam-Gerow et al., 2001).

The purpose of this study was to expand the childhood PTSD treatment literature by examining maternal and child characteristics as moderators of PTSD outcomes using data from a previously published randomized trial (Scheeringa, Weems, et al., 2011). Scheeringa, Weems, et al. (2011) randomly assigned 64 youth to either 12-session manualized CBT or 12-weeks wait list. In the randomized design the intervention group improved significantly more on symptoms of PTSD. After the waiting period, all participants were offered treatment. Effect sizes were large for PTSD symptoms and were maintained at a six-month follow up. Overall, findings suggested that CBT was feasible with preschool children and effective for treating PTSD. Drawing from the extant literature, we predicted that maternal depression may negatively affect PTSD outcomes.

The extant research suggests maternal depression may impede treatment and/or treatment maintenance in child internalizing interventions (Berman et al., 2000; Southam-Gerow et al., 2001). Similar findings exist in the disruptive behavior disorders treatment literature as well (Chronis, Gamble, Roberts, & Pelham, 2006; Owens et al., 2003). Theoretically, offspring of depressed parents are at increased risk for developing anxiety disorders (see Colletti et al., 2009) and depressed mothers may have difficulty fostering the therapeutic process of maintaining treatment gains. Scheeringa and Zeanah (2001) have proposed theoretical models of the parent–child relationship to guide future research. In their moderating effect model, the caregivers’ relationships with their children affect the strength of the relations between the traumatic events and the children’s symptomatic responses. Maternal depression may therefore affect this relationship (Colletti et al., 2009) and create a context of prolonged treatment-resistant PTSD in offspring (see also Pat-Horenczky, Rabinowitz, Rice, & Tucker-Levin, 2009).

We also test whether maternal PTSD symptoms moderate outcomes similar to those of maternal depression as there is evidence to suggest maternal PTSD symptoms are predictive of child outcomes in longitudinal research (Laor, Wolmer, Mayes, & Gershon, 1997). Child comorbid depression and separation anxiety symptoms were also tested as moderators given the findings of Berman et al. (2000). Finally, we explored age, gender, and minority status, but did not expect effects based on past research. Hypotheses were tested via hierarchical linear modeling (HLM; Bryk & Raudenbush, 1987, 1992). HLM analyses are ideally suited for formally testing moderators of treatment outcomes (differential symptom change) across pretreatment to follow up where sharp declines are expected from pre-to post treatment followed by smaller decreases or leveling off from post treatment to follow up (i.e., a curvilinear trajectory). HLM provides an efficient approach to modeling complex trends in individual outcome over time (as well as the effects of between subjects variables), including the curvilinear relations expected (Tate & Hokanson, 1993) and so would provide a methodological advance to the extant literature by modeling the expected growth curves and formally testing maternal and child characteristics as moderators of these curves. HLM has the additional advantage for use with missing data common in treatment studies that are problematic for conventional repeated measures techniques (ANOVA’s) for the participants across all three measurement points (pre, post, six-month follow-up).

2. Method

2.1. Participants and procedures

Data are from a randomized trial reported in Scheeringa, Weems, et al. (2011) where additional details can be found. Briefly, inclusion criteria were (1) experienced a life-threatening traumatic event. (2) Age between 36 and 83 months at the time of the most recent trauma and at the time of enrollment. (3) Four or more PTSD symptoms with at least one of them being a re-experiencing symptom from criterion B or an avoidance symptom from criterion C. A re-experiencing or avoidance symptom was required for the exposure exercises to be salient in CBT for trauma (i.e., all participants either met DSM-IV or the alternative preschool criteria algorithm; see Scheeringa, Zeanah, & Cohen, 2011; Scheeringa, Weems, et al. (2011). Exclusion criteria: (1) Head trauma with Glasgow Coma Scale score of 7 or less in the emergency room. (2) Mental retardation, autistic disorder, blindness, deafness, and foreign language speaking families. Participants were recruited for three main types of trauma exposure (acute, chronic, disaster). For example, children who suffered acute single blow trauma victims were mainly recruited from a Level I Trauma Center. Children who suffered chronic repeated events were recruited through the three main battered women’s programs in the New Orleans metropolitan area. The staff at these programs gave the mothers our phone number. Children who were victims of the hurricane Katrina disaster were recruited primarily through newspaper ads. After it was known that children met the inclusion and exclusion criteria from being evaluated in the assessment study, then caregivers were approached about participation in this treatment study.

Eight-five participants were approached through this process. An additional five participants were enrolled by word of mouth outside of this process, giving a total of 90 participants assessed for eligibility and approached. Fifteen caregivers refused. CONSORT Flow Diagram (Altman et al., 2001) is in Appendix 1. Children’s mean age was 5.3 years (SD 1.1), 66.2% male, 59.5% Black/African-American, 35.1% White and 5.4% Other race. Maternal caregivers mean age was 34.8 years (SD 9.7) on average with 13.5 years (SD 2.7) of education.

2.2. Measures

The Preschool Age Psychiatric Assessment (PAPA) (Egger et al., 2006) is a semi-structured psychiatric interview with the caregiver about the child. Modules administered for this study
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