Maternal PTSD and Children’s Adjustment: Parenting Stress and Emotional Availability as Proposed Mediators

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Objectives: Maternal posttraumatic stress disorder (PTSD) is a risk factor for negative child adjustment, but it is unclear whether this association is direct (e.g., a mother’s PTSD symptoms are observed, learned, and internalized by children which results in behavioral and emotional problems) or indirect, through parent–child relationship difficulties or parenting stress. We hypothesized that parenting stress and maternal emotional availability would exhibit indirect effects on relationships between maternal PTSD and children’s functioning.

Method: Participants were 52 trauma-exposed mothers and their children (aged 7–12 years). Mothers completed measures of PTSD and parenting stress and reported on their children’s functioning. Emotional availability was assessed through observer-rated mother–child interactions.

Results: Emotional availability was not related to PTSD or child outcomes. Parenting stress had a substantial indirect effect on the relationships between maternal PTSD and child emotion regulation, internalizing, and externalizing behaviors.

Conclusions: Results highlight the need to target parenting stress in interventions with trauma-exposed families. © 2016 Wiley Periodicals, Inc.

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Clinical observations and research have demonstrated that trauma exposure can have harmful effects on both individuals and the family systems within which trauma survivors reside. According to the National Comorbidity Study (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995), 60.7% of men and 51.2% of women have experienced at least one trauma that meets the posttraumatic stress disorder (PTSD) criterion for trauma exposure, with a majority of trauma-exposed individuals experiencing multiple traumas. Trauma exposure among low-income individuals in urban settings is even higher, with an estimated 87.8% of this population experiencing one traumatic event during the course of their lifetime (Gillespie et al., 2009). Mental health sequelae associated with trauma exposure are widespread and include PTSD, depression, and anxiety (Laugharne, Lillee, & Janca, 2010) and, again, are particularly prevalent for women of color and low socioeconomic status (El-Khoury et al., 2004). Lifetime prevalence rates of PTSD in women are 9.7% (Kessler et al., 2005).

The intergenerational transmission of trauma theory, which refers to ways in which a parent’s traumatic experiences can influence the functioning and adjustment of their offspring, highlights the importance of understanding the mechanisms through which these effects occur (Dekel & Goldblatt, 2008; Yehuda, Halligan, & Grossman, 2001). Ecological models of trauma and parenting have been used to understand the conditions under which parental trauma...
exposure can influence parenting, family, and child functioning (Belsky, 1984; Harvey, 1996). These models emphasize the roles of parent characteristics (e.g., parental trauma exposure), child characteristics (e.g., child adjustment), and contextual factors (e.g., socioeconomic status) in family and child functioning.

Levendosky and Graham-Bermann (2000b) have described the need to expand upon this model by addressing parental mental health as a significant outcome of trauma exposure, which in turn influences parenting and child outcomes. Because parental PTSD is associated with parenting deficits (Van Ee, Kleber, & Jongmans, 2015) and child adjustment difficulties (Lambert, Holzer, & Hasbun, 2014), exploring this set of variables concurrently is critical to deepening our understanding of the experience of women and families affected by trauma and guiding clinical interventions. In particular, research exploring the mechanisms by which parental PTSD influences children’s outcomes is limited.

The effects of maternal PTSD on children may be direct or indirect. A direct pathway would indicate that children’s behavioral difficulties develop based on observing problematic parent behaviors. A child of a parent with PTSD, then, would learn PTSD-related behaviors from his or her parent. For example, emotion dysregulation, anger or irritability, or emotional numbing might be learned, internalized, and acted out by a child. An indirect pathway would indicate that children’s problematic behaviors or emotions are not realized through modeling or learning, but instead they emerge in the context of PTSD-related parenting deficits that lead to psychological problems for the child. The present study seeks to examine if the effects of PTSD on child functioning are direct or indirect and mediated by parenting stress and emotional availability.

Parental PTSD and Children’s Functioning

Parental PTSD symptoms have been related to negative child outcomes, including internalizing and externalizing behavior, and emotionally reactive and aggressive behavior (Chemtob et al., 2010; Laor, Wellmer, & Cohen, 2001; Lieberman, Van Horn, & Ozer, 2005; Nomura & Chemtob, 2009; Parsons, Kehle, & Owen, 1990; Rosenheck & Fontana, 1998; Samuelson & Cashman, 2008). A recent meta-analysis revealed a moderate effect size ($r = .35$) for the relationship between parents’ PTSD symptom severity and children’s psychological functioning (Lambert et al., 2014).

The majority of studies have examined relationships between parental PTSD and children’s behavioral symptoms but fewer have focused on emotional functioning outcomes such as emotion regulation. A child’s ability to emotionally regulate is learned through interaction and depends on the mother’s ability to bond and connect and provide a functional emotional regulatory model. The mother–child bond is thought to be a mechanism through which a child learns to self-soothe and modulate his or her own emotions (Cassidy, 1994). Traumatic experiences, and their resultant PTSD symptoms, could affect the mother’s ability to be emotionally available and sensitive to her child’s needs, in turn influencing the child’s emotion regulation and other adjustment problems (Cummings & Davies, 2002). Samuelson and Cashman (2008) found maternal PTSD symptoms to be strongly predictive of mother-rated children’s emotion regulation difficulties, which included affective lability, angry reactivity, and emotional intensity.

Parenting Variables as Possible Mediators of the Relationship Between Maternal PTSD and Children’s Functioning

There has been a surge of research investigating parenting and relational functioning difficulties for individuals with PTSD in the past 10 years. van Ee, Kleber, and Jongmans (2015) recently reviewed 38 studies examining relational patterns and parenting in caregivers with PTSD and found a consistent association between parental PTSD symptoms and problematic parenting. Specifically, parents with PTSD symptoms were more avoidant, overprotective, intrusive, hostile, and controlling and less sensitive and responsive with their children. Although the associations between parental PTSD and both parent–child relational problems and negative child outcomes have been established, it remains unclear whether parenting variables serve as mediators of the effect of parental PTSD on child internalizing and externalizing behaviors.
Parenting stress. When considering the effects of PTSD on parenting, as well as the effects of parenting on child outcomes, it is important to consider parenting stress. Parenting stress (Abidin, 1986, 1992) is defined as a parent’s negative feelings and stress about herself as a parent as well as her appraisal of her child as difficult to parent. It has been consistently linked to a history of trauma in mothers (Holden & Ritchie, 1991; Holden, Stein, Ritchie, Harris, & Jouriles, 1998; Levendosky & Graham-Bermann, 2001; Owen, Thompson, & Kaslow, 2006). More recently, some studies have reported associations between parenting stress and parental PTSD (Davies, Slade, Wright, & Stewart, 2008; Holditch-Davis et al., 2009; Tomassetti-Long, Nicholson, Madson, & Dahlen, 2015). However, other studies of mothers of infants and young children have failed to find a relationship between PTSD and parenting stress (Lang, Gartstein, Rodgers, & Lebeck, 2010; Salloum, Stover, Swaidan, & Storch, 2015) or they found a weak association (McDonald, Slade, Spiby, & Iles, 2011).

Parenting stress is also related to child outcomes, including externalizing and internalizing behaviors (Zerk, Mertin, & Proeve, 2009). Parenting stress has been found to play a mediating role in the relationship between parental trauma exposure and child behavior (Owen et al., 2006; Whitson, Bernard, & Kaufman, 2014), mental health functioning in toddlers and preschoolers (Roberts, Campbell, Ferguson, & Crusto, 2013), and child PTSD symptoms (Crusto et al., 2010). Parenting stress was found to be a more significant predictor of child outcomes than ineffective parenting behaviors such as permissiveness and overreactivity (Huth-Bocks & Hughes, 2008).

Whereas researchers initially theorized that the effect of parenting stress on children’s behavior was mediated by parenting behavior (Abidin, 1992; Deater-Deckard, 1998), numerous studies have contradicted that theory (Anthony et al., 2005; Crnic, Gaze, & Hoffman, 2005; Huth-Brock & Hughes, 2008), suggesting that exposure to a stressed mother may influence a child’s own stress response and emotional regulatory system directly. What is less understood is whether parental PTSD increases parenting stress, which in turn exerts an effect on children’s functioning.

Observer ratings of the mother–child relationship: Emotional availability. Studies analyzing the associations between PTSD and parenting typically rely solely on self-report measures or are exclusively focused on parenting behaviors. In van Ee, Kleber, and Jongman’s (2015) review, the vast majority of studies examining parenting and the parent–child relationship used parental self-report, with only 11 of the 72 studies of trauma and PTSD reviewed using observations of parent–child interactions. Although parents’ opinions of themselves are important to include in studies examining parenting, parental self-reports are sometimes criticized as having limited validity because parents tend to portray themselves in an overly favorable light (Holden, 2001). Third-party observers are often viewed as providing more objective and unbiased reports of family behavior. In addition to the overfocus on parent report of parenting, a second limitation of this body of research is its narrower focus on specific parenting behaviors, such as parenting warmth, control, or discipline, neglecting more relational and emotional aspects of parent–child interactions.

Studies examining maternal PTSD and observations of parenting behaviors have produced mixed findings. In Levendosky, Huth-Bocks, Shapiro, and Semel (2003) study of mothers who had experienced intimate partner violence (IPV) and their preschool-age children, maternal PTSD was not related to observed parenting behaviors, which included the facilitation of self-regulation, nonintrusiveness, and responsiveness and availability. In a sample of preschoolers, Lieberman et al. (2005) found that maternal PTSD mediated the relationship between IPV and children’s functioning, and there was a trend mediation effect ($p = .10$) for observer-rated quality of the parent–child relationship.

In other studies, lower levels of observer-rated maternal control predicted school-age children’s antisocial behavior, over and above the experience of IPV (Levendosky & Graham-Berman, 2000a) and insensitive and harsh-intrusive parenting mediated the relationship between IPV and infants’ and preschool-age children’s effortful control (Gustafsson, Cox, & Blair, 2012). Maternal PTSD was associated with less maternal sensitivity with toddlers, observed during a 5-minute observation of parent–child play (Schechter et al., 2015). Self-reported parenting effectiveness and observer-rated authoritative parenting predicted preschool-age children’s adjustment over and above IPV history and psychological functioning (Levendosky et al., 2003). Notably, these
studies focused primarily on mothers who had experienced IPV and children who were preschool-age or younger; observational research with samples with varied or complex trauma histories and families with school-age children is lacking.

Emotional availability is an aspect of the mother–child relationship that focuses on the mother’s capacity to relate to her child in an emotional dialogue. In order to do this, the mother must be attuned to the child’s emotional experience, and then use that information to flexibly adapt her behavior. The Emotional Availability Scales are observer-rated and reflect a “dyadic or relational perspective to interactions” (Biringen & Easterbrooks, 2012, p. 2), taking into account the child’s response to the mother’s behavior and affect. Although emotional availability has been more widely studied in families of infants and preschoolers, only two studies have examined emotional availability in middle childhood, and their samples primarily comprised Caucasian participants (Easterbrooks, Biesecker, & Lyons-Ruth, 2000; Easterbrooks, Bureau, & Lyons-Ruth, 2012).

Similarly, few studies have evaluated emotional availability in a sample of mothers with a history of trauma. van Ee, Kleber, and Mooren (2012) examined relationships between maternal PTSD and observer-rated emotional availability in a sample of 49 refugee mothers and their infant children. They found higher levels of PTSD symptoms to be associated with insensitive and hostile parent–child interactions and children’s psychosocial problems. However, emotional availability did not function as a mediator between maternal PTSD and infant functioning. Moehler, Biringen, and Poustka (2007) found that mothers’ childhood or adolescent trauma histories predicted poorer emotional availability with their infants.

Both of these studies support the notion that a mother’s capacity to emotionally connect with her child is compromised by past trauma. However, to our knowledge, no studies have examined the association between maternal PTSD and emotional availability during the middle childhood period or emotional availability as a potential mediator between maternal PTSD and children’s functioning in this age group.

The Present Study

In their recent review of the relationship between parental PTSD and the parent–child relationship, van Ee, Kleber, and Jongmans (2015) highlighted several limitations of prior research and directions for future research. The first limitation was the overreliance on parent report and lack of observational data. A second limitation was the lack of research investigating mechanisms involved in the effect of parent trauma on children. Finally, a third limitation was failure to include all three components simultaneously—parental PTSD, parenting and the parent–child relationship, and child outcomes—to fully investigate possible mechanisms in the transmission of trauma from parent to child.

The present study sought to address these limitations. We expand upon prior research that largely focuses on parenting behaviors by examining parenting stress and the quality of the mother–child relationship. As various constructs of parenting and the parent–child relationship have been found to be associated with both maternal PTSD and child outcomes, as reviewed above, it is possible that these constructs mediate those relationships. Furthermore, parenting has typically been measured through self-report, which is susceptible to bias, and less is known about the quality of the mother–child relationship and its associations with PTSD and children’s functioning. Finally, this literature has been largely focused on infants and preschool-age children, and this study extends this line of research into middle childhood. We hypothesized that parenting stress and maternal emotional availability would mediate relationships between maternal PTSD and children’s emotional and behavioral functioning.

Method

Participants

Participants were 52 trauma-exposed mothers and their children. Mothers with trauma histories were recruited using online advertisements and outreach to local community organizations and mental health agencies. All mothers were older than 18 years of age, were English speaking, and
had experienced at least one traumatic event as defined by Criterion A1 of the PTSD diagnosis in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR; American Psychiatric Association [APA], 2000). All traumatic events also meet criteria for DSM-5 (APA, 2013) diagnosis.

Mean age of mothers was 34.7 (standard deviation [SD] = 6.2; range 25–51) and mean years of education was 13.8 (SD = 2.5). Of the participants, 31 identified as African American (59.6%), four as Caucasian (7.7%), six as Latina (11.5%), and 11 as multiracial (21.2%). Mean income was $25,568 (SD = $17,812) and median income was $18,450. Of the participants, 19% were married, and the average number of children reported was 2.75 (SD = 1.57). The majority of participants (98.1%) reported experiencing more than one traumatic event, and the mean number of separate types of traumas reported was 6.94 (SD = 3.08). The most common traumatic event reported was community violence (59.6%), followed by adult IPV (55.8%) and child sexual abuse (48.1%). Average age of children was 9.3 (SD = 1.9), and 57% of the sample identified as male. Of the sample, 58% was African American, 7.7% Latino/a, 1.9% Caucasian, and 32.7% multiracial.

Procedures

The protocol and all consent and assent forms were approved by the host university institutional review board. Following consent procedures, the mother–child dyads participated in an interaction task, which was videotaped. Next, in separate rooms, mothers and children completed interviews and self-report measures, facilitated by graduate clinical psychology students who were trained and supervised by a clinical psychologist. Families were compensated $50 for their time and travel.

Measures

**Maternal trauma exposure and PTSD symptom severity.** Mothers completed the Trauma History Questionnaire (THQ; Green, 1996), a 24-item measure that assesses traumatic events. The mothers were instructed to complete the Posttraumatic Stress Disorder Checklist-Civilian Version (PCL; Weathers, Huska, & Keane, 1991), reflecting on their most distressing traumatic event if they had experienced more than one. The PCL-C is a 17-item self-report questionnaire developed to assess PTSD symptoms based on DSM-IV diagnostic criteria. The PCL-C total score was used as a continuous measure of PTSD symptom severity. The PCL-C has demonstrated excellent internal consistency and validity (Blanchard, Jones-Alexander, Buckley, & Forneris, 1995; Ruggiero, Del Ben, Scotti, & Rabalais, 2003). In the current study, internal consistency was very good (α = .94).

**Maternal emotional availability.** Mothers and children were videotaped engaging in a 40-minute collaborative task, taken from the Dyadic Parent-Child Interaction Coding System (DPICS; Eyberg, Nelson, Duke, & Boggs, 2005), which is a behavioral coding system that measures the quality of parent–child social interactions. Tasks included child-led play, parent-led play, and clean-up. We added a 5-minute problem-solving component, in which the parent and child are instructed to discuss a problem they are having at home and come up with a solution for the problem. Two raters independently observed the videotaped DPICS sessions and completed the Emotional Availability Scale (EAS), Fourth Edition, Middle Childhood version (Biringen, 2008) for each mother–child dyad. For reliability, the author of the measure trained the raters.

The EAS measures four caregiving dimensions: sensitivity, structuring, nonintrusiveness, and nonhostility, and ratings for each generate a continuous score. Maternal dimensions of interest in the current study included sensitivity, or how well a parent is attuned to the child's emotional signals and communications; nonintrusiveness, which refers to a mother's ability to be emotionally present without abandoning or overpowering her child; and nonhostility, which
refers to a mother’s way of talking to or behaving with the child that is patient, calm, and controlled.

The EAS has been widely used and validated through correlations with infant attachment security (Easterbrooks et al., 2012; Ziv, Aviezer, Gini, Sagi, & Koren-Karie, 2000). The coding system was originally designed for interactions between mothers and infants or preschoolers (Biringen, Robinson, & Emde, 1993), but was later adapted for use in middle childhood (Biringen, 2008). Middle childhood EAS scores are longitudinally predicted by infant attachment security (Easterbrooks, et al., 2000), and atypical caregiving behavior in infancy (Easterbrooks et al., 2012), which afford support for EAS in this later developmental period. In the current study, inter-rater reliability was determined with 19% of mother–child interaction observations (n = 10); intraclass correlation was acceptable (range from .72 to .90).

**Parenting stress.** The Parenting Stress Index Short Form (PSI-SF: Abidin, 1995) is a condensed version of the PSI full-length test and was developed for parents with children aged 12 years and younger. The 36-item self-report measure includes three subscales: Parental Distress, which measures a parent’s perception of child-rearing competence; Parent-Child Dysfunctional Interaction, which measures the extent the parent feels that her child does not meet her expectations and their interactions are not satisfying; and Difficult Child, which measures the parent’s view of the child’s noncompliance and demandliness.

The Total Stress score is the sum of these three subscale scores and was used in this study’s analyses. The measure has good internal consistency as well as good convergent validity with measures of parental psychopathology and child adjustment (Haskett, Ahern, Ward, & Allaire, 2006). In the current study, overall internal consistency for the PSI Total Score was very good (α = .94).

**Child trauma exposure.** The Traumatic Events Screening Inventory-Child Version (Ford et al., 2002) is a 15-item interview that was administered to the child and assesses for traumatic events including physical and sexual abuse, injury, disasters, community violence, and accidents. The total number of traumatic events was tallied.

**Child emotion regulation.** Children’s emotion regulation was assessed through the Emotion Regulation Checklist (Shields & Cicchetti, 1997), a 24-item measure completed by the mother. The Lability/Negativity subscale, used in this study, assesses affective lability, angry reactivity, and emotional intensity. Validity has been established through positive correlations with observers’ ratings of children’s self-regulatory abilities (Shields & Cicchetti, 1997). For this sample, the internal consistency was .86.

**Child behavior and symptoms.** Mothers completed the Child Behavior Checklist (CBCL; Achenbach, 1991), which assesses children’s internalizing symptoms (such as anxiety, depressed mood, and somatic complaints) and externalizing behaviors (such as aggressive and delinquent behaviors). For this sample, internal consistency was .89 for the Internalizing scale and .92 for the Externalizing scale.

**Data Analyses**

PASW Statistics (version 19.0) was used to perform statistical analyses. Descriptive statistics were examined to determine demographic characteristics of the sample and means and standard deviations of the variables of interest. Bivariate correlations were calculated between all variables (see Table 1). Spearman’s Rho was used for correlations with child trauma exposure, as that variable was not normally distributed; Pearson correlations were used for all others. Next, tests of mediation were used to examine the direction and significance of indirect effects in Hayes’s PROCESS macro.

Preacher and Hayes (2004, 2008) developed a bootstrapping test that directly tests the magnitude and significance of mediation effects and is recommended for smaller samples. The process takes bootstrap samples and computes the indirect effect, and then repeats it 1,000 times. Using
Correlations between study variables and descriptive statistics are provided in Table 1. Mothers exhibited high levels of PTSD symptomatology; mean scores on the PCL-C were 51.2 (SD = 19.8), which is above the cutoff score of 50 that test authors recommend for indicating a probable diagnosis of PTSD (Weathers, Litz, Herman, Huska, & Keane, 1993). Correlations were conducted to assess the bivariate relationships between demographic variables (mother’s age, ethnicity, income, education, and child’s age, gender, and ethnicity), maternal PTSD, maternal emotional availability (sensitivity, nonintrusiveness, and nonhostility), parenting stress, and child behavioral functioning (emotion regulation, internalizing, and externalizing behaviors). Child trauma history was positively associated with child age and child externalizing behavior. EAS Sensitivity was positively associated with maternal age, education, and income. EAS Nonintrusiveness was positively associated with mothers’ education, and EAS Nonhostility was positively associated with mothers’ education and income.

PCL was associated with child gender. T tests revealed that mothers of girls reported more severe PTSD symptoms (mean [M] = 60.27, SD = 16.74) than did mothers of boys (M = 44.63, SD = 19.48), t(51) = −3.03, p = .004. There were no other significant associations between demographic variables and independent, dependent, or mediator variables. In subsequent mediator analyses, child trauma history was entered as a covariate to determine effects of maternal PTSD, emotional availability, and parenting stress on child outcomes after controlling for the child’s own trauma history.

At the bivariate level, maternal PTSD was significantly related to parenting stress as well as children’s emotion regulation, internalizing, and externalizing behaviors. Measures of emotional availability (maternal sensitivity, nonhostility, and nonintrusiveness) were not related to either maternal PTSD or children’s functioning. Parenting stress was strongly related to all three child functioning variables.

Parenting stress and maternal emotional availability were both hypothesized to be mediators of the relationship between maternal PTSD symptoms and children’s functioning. In mediator analyses using the PROCESS macro, none of the measures of emotional availability exhibited
significant indirect effects in the relationship between maternal PTSD and measures of children’s functioning. For example, in the model predicting emotion regulation, after controlling for child trauma exposure, there was a significant overall effect of maternal PTSD on children’s emotion regulation ($B = .13, p = .008$), but not a significant overall effect of maternal PTSD on maternal sensitivity ($B = .01, p = .75$); the indirect effect was as follows, $B = -.001, 95\% \text{ CI } [-.031, .013]$.

In the model predicting children's externalizing behaviors, after controlling for child trauma exposure, there was not a significant overall effect of maternal sensitivity as a mediator between maternal PTSD and children's externalizing behaviors; the indirect effect was as follows, $B = -.0006, 95\% \text{ CI } [-.029, .016]$. In the model predicting internalizing behaviors, after controlling for child trauma exposure, there was not a significant overall effect of maternal sensitivity mediating the relationship between maternal PTSD and internalizing behaviors; the indirect effect was as follows, $B = -.003, 95\% \text{ CI } [-.046, .017]$. Similar nonsignificant findings were found with nonhostility and nonintrusiveness as mediators.

We then tested three mediation models, with parenting stress as the proposed mediator between PTSD and the three child functioning variables (see Figure 1). In the model predicting emotion regulation, after controlling for child trauma exposure, there was a significant overall effect of maternal PTSD on parenting stress ($B = .58, p < .001$) and a significant overall effect of maternal PTSD on children’s emotion regulation ($B = .13, p = .008$). The indirect effects were examined to determine the mediatational role of parenting stress on the relationship between maternal PTSD and emotion regulation. Results show a significant indirect effect, $B = .05$, Sobel's $z = 2.0, p = .044, 95\% \text{ CI } [.016, .119]$, indicating full mediation because the direct effect of maternal PTSD on emotion regulation after accounting for parenting stress is not significant ($B = .07, p = .11$).

In the model predicting externalizing behaviors, after controlling for child trauma exposure, there was a strong overall effect of maternal PTSD on children's externalizing behaviors ($B = .16, p < .01$). There was a significant indirect effect of parenting stress, $B = .06$, Sobel's $z = 1.9, p = .05, 95\% \text{ CI } [.011, .142]$, indicating partial mediation because the direct effect of maternal PTSD on externalizing behaviors remained significant ($B = .11, p = .04$). In the model predicting internalizing behaviors, there was an initial effect of maternal PTSD on children's internalizing behaviors ($B = .17, p < .001$). There was a significant indirect effect of parenting stress, $B = .06$, Sobel's $z = 2.1, p = .034, 95\% \text{ CI } [.017, .145]$, indicating partial mediation because the direct effect of maternal PTSD on internalizing behaviors was significant ($B = .11, p = .03$). Collectively, these findings supported our hypothesis that parenting stress in part explains the influence of maternal PTSD on children's emotional and behavioral functioning.
Discussion

Identifying mechanisms of transmission of trauma from mothers to children is an important undertaking, particularly in populations for which trauma exposure is highly prevalent, such as women of color in the low-income level (e.g., Caetano, Field, Ramisetty-Mikler, & McGrath, 2005; Gillespie et al., 2009; Rennison & Planty, 2003). In a sample of predominantly African American and multiracial women from low socioeconomic backgrounds residing in an urban area, we tested relationships between maternal PTSD, parenting stress, emotional availability, and children’s behavioral and emotional functioning and hypothesized that parenting stress and emotional availability would mediate relationships between maternal PTSD and child outcomes. Maternal PTSD was related to higher levels of parenting stress and poorer child functioning, and parenting stress was related to poorer child functioning. Mediation analyses revealed that parenting stress exerted an indirect effect on the relationships between maternal PTSD and internalizing and externalizing behaviors and emotion regulation. These findings indicate that the effect of maternal PTSD on children’s functioning appears to be largely indirect, through parenting stress.

Results are consistent with prior research documenting the mediating role of parenting stress in the relationship between parental trauma exposure and children’s behavior (Owen et al., 2006; Roberts et al., 2013; Whitson et al., 2014) and extends this research to better understand the mechanisms by which maternal PTSD influences children’s functioning. Whereas several studies have provided evidence for PTSD as a mediator between maternal trauma exposure and children’s outcomes (e.g., Lieberman et al., 2005), to our knowledge, this is the first study to find parenting stress as a mediator between maternal PTSD and children’s functioning.

The focus on emotion regulation as a child outcome, in addition to the more often studied internalizing and externalizing behaviors, is a noteworthy addition to this research literature. A direct effect of maternal PTSD on children’s emotion regulation would indicate that PTSD symptoms (such as emotional numbing or detachment) affect a mother’s ability to be attuned to her child’s needs and to model self-soothing and modulation of emotions, which in turn would influence a child’s own emotion regulation. However, we found that parenting stress mediated the relationship between maternal PTSD and child emotion regulation, which would suggest that a child’s regulatory system is influenced more by exposure to a mother’s stress in the parenting role than it is by PTSD symptomatology.

Contrary to hypotheses, maternal PTSD was not related to insensitive, hostile, or intrusive parenting, measures of emotional availability were not related to child outcomes, and emotional availability was not a significant mediator. These findings appear inconsistent with research showing PTSD as a predictor of deficient self-reported parenting behaviors, such as reactive and aggressive parenting (e.g., Chemtob & Carlson, 2004; Jordan et al., 1992; Lauterbach et al., 2007). Banyard, Williams, and Siegel (2003) have suggested that mental health symptoms associated with disorders that affect the sense of self (e.g., depression, PTSD) may affect parents’ perceptions of their own parenting as deficient, which can be captured by self-report measures that have a self-evaluative component. The critical issue may be whether the parenting behavior is self-reported or rated by observers; mothers with PTSD may tend to self-report their parenting more critically than do observers.

Findings of Levendosky and colleagues (2003), who failed to show a relationship between maternal depression and PTSD and observed parenting behaviors, support this interpretation. Therefore, the inclusion of an observational measure is an important addition to this research literature because it eliminates possible bias involved in parental self-report. Our findings using observer-rated measures, coupled with similar findings of Levendosky et al. (2003), might suggest that any perceived caregiving deficits experienced by parents with PTSD do not play out in the emotional quality of their interactions with their children. Alternatively, perceived deficits may play out in ways other than through insensitivity, intrusiveness, and hostility.

It should be noted that two other studies that found a significant association between maternal PTSD and the EAS (Biringen & Easterbrooks, 2012) were conducted in early childhood and with children who were not exposed to trauma (Feeley, Gottlieb, & Zelcowitz, 2007; van Ee et al., 2012). It is possible that the relationship between emotional availability and PTSD is not present.
in mothers of school-age children. Consistent with our findings, van Ee et al. (2012) did not find evidence of mediation of emotional availability on the effect of maternal trauma on CBCL scores. Also of note, the review by van Ee et al. (2015), which included studies with children between the ages of 0 and 18, and reported increased dysregulated aggression and hostility, less sensitivity, and more intrusiveness in mothers with PTSD, was focused solely on studies of nonexposed children. In contrast, 69% of the children in the current sample were exposed to trauma. Thus, the possibility remains that a child's exposure to trauma brings about different mechanisms of intergenerational transmission of maternal PTSD.

Additionally, emotional availability was not related to children's functioning. The emotional quality of the mother–child relationship may have a greater effect on child adjustment in the infancy and preschool stages, during which the attachment relationship is a central developmental task, whereas other factors, such as the mother’s own symptomatology and parenting stress, may take more precedence in middle childhood. Given the primacy of the school context in middle childhood, teacher ratings might be a useful tool to assess child functioning in this age group. In the only other study evaluating EAS in relation to the CBCL in middle childhood, Easterbrooks et al. (2012) found that teacher ratings showed some associations with emotional availability: Externalizing symptoms were related to nonintrusiveness and total scores were related to both sensitivity and nonintrusiveness, while internalizing scores did not show any associations with EAS. More studies comparing mother and teacher ratings of child symptomatology in middle childhood should be conducted using EAS to clarify whether this difference in findings may be due to the identity of the reporter.

Further, it is possible that maternal emotional availability in middle childhood influences child outcomes that are more specifically tied to relational functioning rather than internalizing or externalizing behavior. For example, Easterbrooks et al. (2012) reported that EAS scales were associated with disorganized attachment behavior in 7-year-old children. Future studies should explore the association of children's relational skills with EAS in middle childhood.

Limitations

Limitations of the study should be noted. The first is the small sample size, which restricted the statistical power of the analyses and prohibited the use of more sophisticated path analyses. However, mediation analyses used bootstrapping techniques that can be applied to smaller samples. The small sample size also limits generalizability of findings. Second, the data are cross-sectional and the relationship between parenting stress and child functioning is likely bidirectional. As such, we cannot draw definitive conclusions about the direction of findings. Third, PTSD, parenting stress, and children’s functioning were evaluated through mothers’ self-report; thus, it is possible that mothers with significant PTSD symptomatology and/or parenting stress have negative and/or distorted views of their children’s behavior. Future research in this area should attempt to use data from other sources, such as teacher report or observations of child behavior. Finally, we did not assess fathers’ psychological functioning or father–child interactions, which could also play a role in explaining the variance of child functioning.

Conclusion

Parenting stress mediates the relationship between maternal PTSD and children's emotion regulation and internalizing and externalizing behaviors. These results suggest that the mechanism by which children of mothers with PTSD exhibit emotional and behavioral adjustment problems is indirect–through the context of the heightened parenting stress that mothers with PTSD endure. Although our sample was small and data are cross-sectional, limiting any ability to draw causal conclusions around the direction of findings, results highlight the importance of focusing on parenting stress in treatment with trauma-exposed families. Whereas interventions targeting PTSD symptom reduction is always recommended, a focus purely on symptom reduction without directly addressing parenting stress ultimately might not benefit the children of mothers with PTSD symptomatology. As such, clinicians should be cognizant of the substantial role of parenting stress on children’s functioning in families with trauma. One recently developed
intervention that targets parenting stress shows promise: the Strengthening Family Coping Resources, a manualized family intervention for trauma-exposed families that has been found to reduce both parenting stress and child behavior problems (Kiser, Backer, Winkles, & Medoff, 2015).

In addition, mindfulness-based interventions have been shown to reduce parenting stress in parents of children with developmental delays (Neece, 2014) and could be beneficial in trauma-exposed families as well. Future research should continue to assess the effectiveness of interventions for trauma-exposed families with an emphasis on reducing parenting stress. Overall, our results highlight the need to move beyond PTSD symptom reduction when working with mothers with PTSD, to be cognizant of intergenerational effects of trauma on children, and to target parenting stress reduction.

References


