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Research paper

PTSD with and without dissociation in young children exposed to interpersonal trauma

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ABSTRACT

Background: A Dissociative Subtype of Posttraumatic Stress Disorder (PTSD) was added to the DSM-5, but little is known about this symptom pattern in young children exposed to trauma. Tailoring treatment to traumatized young children requires understanding the different patterns of trauma-related symptomatology and important correlates. The current study tested the hypothesis that type and number of child traumatic events, caregiver trauma exposure, and caregiver symptomatology would predict whether traumatized young children presented with PTSD, PTSD with clinical dissociation, or non-clinical trauma symptoms.

Methods: A multinomial regression was conducted using data collected from an ethnically and economically diverse sample of 297 trauma-exposed children between the ages of 3 and 6 and their caregivers. Based on parent-report on a well-validated measure of trauma symptoms, children were categorized into three groups: non-clinical (n = 128), PTSD only (n = 104), or PTSD with dissociation (PTSD-DISS; n = 65). Predictors included trauma exposure, parent trauma symptoms, and child sex.

Results: Girls were twice more likely than boys to be in the PTSD-DISS group; sexually abused children were almost three times as likely to be in the PTSD-DISS group; and, for every unit increase in parent avoidance symptoms or number of traumatic events, the odds of being in the PTSD-DISS group increased significantly.

Limitations: Given the cross-sectional study design, conclusions cannot be drawn regarding causality. Measures were completed by a single reporter.

Conclusions: Findings suggest that subgroups of children may be especially vulnerable to comorbid PTSD and dissociation. Implications for treatment are discussed.

1. Introduction

Potentially traumatic experiences (e.g., maltreatment, witnessing family violence, or loss of a caregiver) during the sensitive developmental period of early childhood can result in a wide range of symptomatology in young children, including posttraumatic stress disorder (PTSD) and trauma-related dissociation (Chu and Lieberman, 2010).[1] Similar to its presentation in adults, PTSD in young children is characterized by intrusion, hyperarousal, avoidance, and negative mood symptoms (American Psychiatric Association, 2013). According to a recent meta-analysis, 25% of children exposed to interpersonal trauma meet criteria for PTSD, with higher rates observed among children under the age of six (Alisic et al., 2014; Pfeffer et al., 2007). Trauma-related dissociation is a phenomenon that occurs when there the unification between mental processes and consciousness is disturbed (American Psychiatric Association, 2013) and may appear in young children in the form of overly frequent day-dreaming or trance-like states, perplexing forgetfulness, over-involvement with imaginary friends, a poor sense of time, and sudden changes in social behavior (Silberg and Dallam, 2009). A recent study found that almost a quarter of young children exposed to interpersonal trauma exhibited subclinical or clinical levels of dissociation (Hagan et al., 2015).

The relationship between PTSD and trauma-related dissociation has been controversial. Dissociation is not essential to PTSD and not all individuals who have PTSD experience dissociation (Waelde et al., 2005), but the two conditions are highly correlated. This is not surprising given that dissociation and PTSD share certain features, such as particular types of avoidance symptoms (e.g., emotional numbing; Moser et al., 2013). There has also been some evidence that dissociation can be

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a predictor of PTSD symptom severity rather than a correlate (Armour et al., 2014). Although multiple models have been proposed to describe the nature of their relationship, the best empirical evidence exists for a PTSD Dissociative Subtype (PTSD-DISS), characterized by clinical levels of PTSD along with clinically significant dissociation symptoms (Dalenberg and Carlson, 2012). Emerging research indicates the existence of small subpopulations of individuals who present with PTSD-DISS (Putnam et al., 1996; Waelde et al., 2005; Wolf et al., 2012). Identifying subpopulations of children with PTSD-DISS and external correlates can inform treatment planning and increase the use of clinical methods known to be more effective when dissociation is present.

No study to our knowledge has examined PTSD-DISS in young children, and limited attention has been paid to external correlates or predictors of PTSD-DISS in adults. In children, more complex trauma-related symptomatology is likely to be related to the nature and extent of their trauma exposure as well as their primary caregiver's capacity to support adaptive emotion regulation. It has been shown that both the amount and type of trauma exposure contribute to level of children's trauma-related symptomatology (Hagan et al., 2016). There is extensive evidence supporting a strong association between cumulative trauma exposure and more complex symptomatology (Putnam et al., 2013). In regard to type of trauma, experiences of sexual abuse, for example, have been implicated in more severe levels of PTSD and the development of clinical dissociation in traumatized children (Becker-Blease et al., 2004a; Hulette et al., 2008; Macfie et al., 2001; Price et al., 2013). However, specific tests of sexual abuse as a predictor of PTSD-DISS versus PTSD only have shown inconsistent results in adult populations (Armour et al., 2014; Steuwe et al., 2012; Wolfe et al., 2012). Moreover, a few investigations have found that verbal abuse is a more potent predictor of severe trauma-related symptomatology than other types of abuse or trauma (e.g., Dutra et al., 2009; Teicher et al., 2006).

The mental health of young children's primary caregiver is an important factor in child functioning. Many methodologically robust studies have shown a strong association between parent PTSD and child PTSD, even when child trauma exposure is taken into account (Leen-Feldner et al., 2013; Morris et al., 2012). It is plausible that particular *types* of trauma-related symptoms in the caregiver are associated with different profiles of trauma symptomatology in children, but this connection has not been examined. For example, trauma-related avoidance in caregivers may interfere with their child's appropriate processing of the traumatic event, thereby increasing the risk the child will develop comorbid PTSD and dissociation (Egeland, 1993; Kazak et al., 2004). Greater caregiver hypervigilance, on the other hand, may be more likely to increase the risk of classic post-traumatic symptoms in trauma-exposed children but not necessarily predict a PTSD-DISS subtype directly.

Finally, there is some evidence that parental history of trauma may increase the likelihood of their offspring developing more severe trauma-related symptomatology following a child's traumatic injury (e.g., Zatzick et al., 2006). Parents with extensive trauma histories may experience difficulty supporting their child's adaptive coping behaviors in the context of their child's exposure to trauma. In addition, a parent's history of a specific *type* of traumatic experience may be especially likely to interfere with a parent's ability to be emotionally available to their trauma-exposed child. For example, mothers' history of betrayal trauma (i.e. experiences of victimization perpetrated by a close other) has been identified as a predictor of their child's dissociation symptoms (Chu and DePrince, 2006). The Current Study.

[1] PTSD: Posttraumatic Stress Disorder; PTSD-DISS: Dissociative Subtype of Posttraumatic Stress Disorder.

Based on extensive research in adults, the relationship between PTSD and dissociation symptoms has been formalized as a PTSD Dissociative Subtype (PTSD-DISS) diagnosis in the DSM-5 (American Psychiatric Association, 2013), but little is known about the prevalence and correlates of this sub-type in traumatized young children. The effective treatment of young children exposed to interpersonal trauma requires a thorough understanding of possible profiles of symptom expression. For example, PTSD-DISS is likely to require a different treatment emphasis than PTSD without dissociation (Dalenberg et al., 2012). The present investigation addresses this need by examining the prevalence and predictors of PTSD with and without dissociation in a large ethnically and economically diverse sample of preschool aged children. We examined whether caregiver avoidance, hyperarousal, intrusive thoughts, caregiver history of traumatic experiences, and/or different types of child exposure to trauma predicted the odds of a child exhibiting clinical levels of PTSD only, both PTSD and dissociation, or non-clinical trauma symptoms. Based on research showing that female children are more likely than males to develop PTSD or dissociation following trauma (Alisic et al., 2014; Hulette et al., 2011), analyses also statistically adjusted for child biological sex.

2. Method

2.1. Participants

Participants included in the current study were drawn from a larger population of children and families between the ages of 3–6 years old who sought treatment for trauma-related symptoms in the children from a university-based clinical research program between 2003 and 2015. During this period, 372 families, of whom 344 had children who were at least 3 years old, presented to the clinic with interest in receiving services for their child due to interpersonal trauma exposure and completed the informed consent process. Participants were eligible for inclusion if the caregiver completed the child trauma symptom measure. Although 313 of these families completed the child trauma symptom measure, only 297 children could be categorized into one of the three pre-defined groups (16 children scored high on dissociation without PTSD and were not included in the current analyses). Thus, the final sample included 297 children (51% Male; *M* age = 51.92 months, Range = 36 – 72 months) and their primary caregiver (83.4% biological mother, 6.1% biological father, 10.5% other adult caregiver; *M* age = 33.81 years). Racial and ethnic composition of the children in the sample was as follows: 43.7% Latino; 13.7% European American; 13% African American; 3.1% Asian; 22.5% mixed race and/or ethnicity; 4% other/unknown. Of the 271 parents reporting educational attainment, 54.2% of parents had completed at least 12 years of education. After winsorizing two cases in which average monthly income exceeded $10,000, the median annual income among the 274 families reporting income was $18,000 (range = $0–$120,000), and 72.4% of the 286 parents reporting marital or partner status were single (i.e., unmarried and not cohabitating with a romantic partner).

2.2. Procedures

The institutional review boards of the hospital and the affiliated university medical center approved all study procedures. Families were referred to the clinic from pediatric care or mental health clinics, social service agencies, family resource centers, the family court system, the state department of human services and outpatient hospital clinics. Parents or children who were diagnosed with intellectual developmental disorder, suicidal or homicidal ideation or severe psychosis, parents who were reportedly actively abusing substances, and children diagnosed with a pervasive developmental disorder were deemed ineligible and referred to an appropriate alternative service.

Upon their first visit to the clinic, parents were provided a description of the treatment modality offered (Child Parent Psychotherapy; Lieberman et al., 2015) and invited to participate in a research study of the treatment's effectiveness. Given that all therapists were mandated reporters, parents were informed of the clinicians' obligations to report during the informed consent process. Following informed consent, the parent and child participated in several assessment sessions designed to gather comprehensive information on the family's historical and current circumstances and functioning. All measures were administered in either interview or paper/pencil format, as described below, in the parent's native language (English or Spanish). All interviews and assessment procedures were conducted by licensed mental health professionals or psychology/social work interns and postdoctoral fellows who were under the supervision of a licensed mental health professional. The data in the current study is drawn from this baseline assessment.

2.3. Measures

2.3.1. Child trauma symptoms

The Trauma Symptoms Checklist for Young Children (TSCYC; Briere et al., 2001) is a 90-item parent-report measure of trauma-related symptoms in children ages 3–12; in the current study, masters or doctoral level clinicians administered the TSCYC as a semi-structured interview with the caregiver. The TSCYC 10-item Total Posttraumatic Stress Symptoms subscale and the 10-item Dissociation subscale were used in the current study to identify clinical levels of posttraumatic stress symptoms and dissociation in children. Items were rated on a scale of 1 (*not at all*) to 4 (*very often*). TSCYC scales have demonstrated reliability and predictive validity in a large sample of traumatized children (Briere et al., 2001). In the current study, if both subscale t-scores were at or above 65, a threshold that indicates at least subclinical levels of posttraumatic stress and dissociation symptoms (Briere et al., 2001), children were categorized in the *PTSD with dissociation (PTS-DISS)* group (n = 65) Children who scored at or above a 65 on the PTSD subscale but below this cut-off on the dissociation subscale were categorized as *PTSD only* group (n = 104). The remaining children were categorized in the *non-clinical* group (n = 128).

2.3.2. Caregiver trauma symptoms

Caregivers' post-traumatic stress symptoms were measured by one of two instruments, with the same instrument used within individuals at pre and post-intervention. Caregivers completed either the Davidson Trauma Scale (DTS; Davidson et al., 1997) or the Post-Traumatic Stress Scale Interview (PSSI; Foa et al., 1993). The DTS and PSSI are both 17-item measures that assess the frequency and severity of trauma symptoms in the past two weeks. Because both instruments specifically measure DSM-IV criteria for PTSD, the items in both measures are worded very similarly. During the initial phase of this study, the DTS was used to assess PTSD, and was eventually replaced by the PSSI, a no-cost measure more commonly used in community mental health clinics. The DTS and PSSI were scored such that any item endorsed as occurring more than "not at all" was assigned a 1, and then a count of symptoms created for each category (i.e. hyperarousal, re-experiencing, or avoidance).

2.3.3. Traumatic events screening inventory-parent report form revised (TESI-PRR)

The 24-item TESI (Ghosh Ippen et al., 2002) was used to assess child exposure to variety of traumatic events over the child's lifetime. The TESI-PRR is a revision of the original TESI-PR, expanded to include traumatic events relevant for children under age 6 and administered to the caregiver in an interview format, with responses coded as 0 (not exposed) or 1 (exposed). The total score is the sum of the number of traumatic events endorsed. The TESI-PRR has been validated against other measures of children's violence exposure (Berent et al., 2008), and has been shown to be associated with mental health problems in children under the age of six (e.g., Roberts et al., 2013). The number of endorsed events was summed to create a total traumatic event score. In addition, dichotomous indicators of verbal (i.e. "repeatedly told that s/he was no good, yelled at in a scary way, or threatened with abandonment") and sexual abuse (i.e. made to engage in or witness sexual activity) were drawn from the TESI-PRR.

2.3.4. Life stressors checklist – revised (LSC-R)

Caregiver experiences of traumatic events over their lifetime were assessed using the LSC-R (Wolfe et al., 1996), which was delivered in interview format. The LSC-R includes 30 items assessing the occurrence of abuse, neglect, accidental injury, sudden loss, divorce, incarceration, and other stressful life events over an adult's lifetime. Scores on the LSC-R represent the total number of events endorsed by the caregiver.

2.4. Missing data & data analysis plan

Across 2877 data points, 3.13% of values were missing and 11.45% of all cases had at least one missing value. Little's MCAR test indicated that the null hypothesis that data was missing completely at random could not be rejected (Chi-square = 50.72, DF = 48, p = 0.37); however, this test has been criticized for its potential for Type II error (Enders, 2010). Therefore, a nonparametric imputation method, missForest, was used to impute missing predictor values (Stekhoven and Buhlmann, 2011). The missForest procedure is an algorithm that fits a random forest on observed data and then predicts the missing values, repeating these steps until the maximum number of iterations are reached. The method also produces estimates of imputation error. Errors approaching 1 indicate poor performance of the algorithm. The imputation error estimates in the current analysis were very low (continuous variables = 0.01, categorical variables = 0.10), indicating adequate performance of the algorithm. Multinomial regression was then conducted to test the hypotheses using the imputed data set. Caregiver avoidance, hyperarousal, and intrusion symptoms, child exposure to sexual and verbal abuse, total number of child traumatic life events, child gender, and total number of caregiver traumatic life events were entered as independent variables and group membership (PTSD only, PTSD-DISS, or non-clinical) was entered as the dependent variable.

3. Results

3.1. Descriptive analysis

Children experienced an average of 6.08 (SD = 2.88; Range 1 – 15) traumatic events during their lifetime. Caregivers reported that 94 children (31.6%) experienced verbal abuse, and forty children (13.5%) experienced sexual abuse. Caregivers experienced 13.25 (SD = 4.63; Range 2–28) stressful life events on average. Almost all caregivers (88.0%) reported at least one experience of victimization in their lifetime, and 72.9% of caregivers reported at least one potential betrayal trauma (i.e., sexual touch or sexual intercourse before age 16, exposure to domestic violence in childhood, or physical abuse before age 16). Caregivers reported high relatively high number of PTSD symptoms including avoidance (M = 3.26, SD = 2.17), intrusion/re-experiencing (M = 2.84, SD = 1.68), and hyperarousal symptoms (M = 2.94, SD = 1.68).

3.2. Primary Analyses

Results from the multinomial logistic regression analyses are displayed in Table 1. The model explained a significant amount of variance beyond that explained by an intercept-only model (Log-likelihood

Table 1
Multinomial logistic regression testing the association between child/caregiver characteristics and membership in the PTSD only (n = 104), PTSD with Dissociation (n = 65), or non-clinical trauma symptoms (n = 128).

		95% CI for odds ratio		
	B(SE)	*Lower*	*Odds Ratio*	*Upper*
PTSD Only vs. Non-Clinical				
Intercept	−3.20 (0.59)***			
Child sex	0.87 (0.32)**	1.27	2.39	4.51
Child number of traumatic events	0.20 (0.07)**	1.06	1.22	1.40
Child sex abuse	−0.79 (0.50)			
Child verbal abuse	0.31 (0.36)			
Parent avoidance symptoms	−0.05 (0.10)			
Parent intrusion symptoms	0.30 (0.12)*	1.07	1.35	1.72
Parent hyperarousal symptoms	0.48 (0.14)***	1.24	1.62	2.12
Parent number of traumatic events	−0.05 (0.04)			
PTSD-DISS vs. Non-Clinical				
Intercept	−4.74 (0.73)***			
Child sex	1.64 (0.39)***	2.43	5.18	11.06
Child number of traumatic events	0.29 (0.08)***	1.14	1.33	1.56
Child sex abuse	0.15 (0.49)			
Child verbal abuse	0.41 (0.42)			
Parent avoidance symptoms	0.20 (0.12)			
Parent intrusion symptoms	0.15 (0.14)			
Parent hyperarousal symptoms	0.34 (0.16)*	1.03	1.41	1.94
Parent number of traumatic events	−0.06 (0.05)			
PTSD-DISS vs. PTSD Only				
Intercept	−1.54 (0.70)*			
Child sex	0.77 (0.35)*	1.08	2.17	4.34
Child number of traumatic events	0.09 (0.07)			
Child sex abuse	0.95 (0.49)*	1.00	2.59	6.70
Child verbal abuse	0.11 (0.38)			
Parent avoidance symptoms	0.25 (0.11)*	1.02	1.28	1.60
Parent intrusion symptoms	−0.15 (0.14)			
Parent hyperarousal symptoms	−0.13 (0.16)			
Parent number of traumatic events	−0.01 (0.04)			

*** $p < 0.001$.
** $p < 0.01$.
* $p < = 0.05$.

$= -260.78$, Chi-square $= 109.70$, $p < 0.0001$, McFadden $R^2 = 0.1$). As shown in Table 1, female children were more than twice as likely as males to be in the PTSD only group than in the non-clinical group and more than five times as likely as males to be in the PTSD-DISS group than the non-clinical group. As a child's number of traumatic events increased and as parent hyperarousal symptoms increased, the child's odds of being in either PTSD group compared to the non-clinical group significantly increased. Parent intrusion symptoms were related to PTSD only group membership, but not PTSD-DISS membership: with each unit increase in parent intrusion symptoms, children's odds of PTSD versus no clinical symptoms increased by 1.35. Experiences of verbal or sexual abuse, caregiver avoidance symptoms, and caregiver lifetime history of trauma did not predict likelihood of PTSD only versus no clinical symptoms.

Predictors of membership in the PTSD-DISS group compared to the PTSD only group were of particular interest in the current study. Being female was associated with an increased risk of being in the PTSD-DISS group than in the PTSD only group. *Number of child traumatic events* did not increase the risk of children being in the PTSD-DISS group compared to the PTSD only group; however, compared to those who did not experience sexual abuse, those who experienced sexual abuse were 2.5 times as likely to be in the PTSD-DISS group compared to the PTSD only group. In addition, as caregiver symptoms of avoidance increased, so did the odds of presenting with PTSD-DISS compared to PTSD alone. Experiences of verbal abuse, caregiver hyperarousal and intrusion symptoms, and caregiver lifetime history of trauma did not predict likelihood of PTSD-DISS versus PTSD only.

4. Discussion

Effective treatment of traumatic stress symptomatology in children requires a thorough understanding of possible profiles of symptom expression. The current study examined predictors of post-traumatic stress disorder (PTSD) with and without dissociation in a large sample of young children exposed to interpersonal trauma. Cumulative child trauma exposure and greater parental hyperarousal and intrusion symptoms were associated with a significantly greater likelihood of any clinical trauma-related symptoms. However, children who experienced sexual abuse and whose parents had a higher level of avoidance symptoms were more likely to present with PTSD-DISS rather than PTSD only. Female children were more likely than male children to present with PTSD only or PTSD-DISS relative to lower levels of symptoms. These findings highlight important correlates of different profiles of trauma symptoms in young children and suggest targets for treatment of trauma in early childhood.

Greater cumulative trauma exposure predicted greater likelihood of being in either clinical group compared to the non-clinical group but did not distinguish between children presenting with PTSD-DISS versus PTSD only. The present findings suggest that while *number* of traumatic events predicts a greater likelihood of any trauma-related symptomatology, it is not a predictor of whether children are likely to present with PTSD alone versus PTSD with dissociation. It has been argued that the nature of the traumatic experience may be as important if not more important than number of experiences. In the current study, children who experienced sexual abuse were two and a half times more likely than those who did not to present with PTSD-DISS as opposed to PTSD only, whereas verbal abuse did not predict group membership. This result is consistent with a national study that found childhood sexual abuse to be the most potent predictor of clinical symptom complexity adults (Putnam et al., 2013), but diverges from studies that demonstrated an association between childhood verbal abuse and dissociation in young adulthood (e.g., Dutra et al., 2009). Trauma-related dissociation has been characterized as a psychobiological responses to extreme threat and fear (Dalenberg et al., 2012). As a defense mechanism in the context of sexual abuse, dissociation may arise as an attempt guard against the betrayal inherent in the perpetration of sexual assault by an adult (Chu and DePrince, 2006).

It has been suggested that parental psychopathology is a primary pathway by which trauma and psychological disorders are transmitted

across generations (Lieberman et al., 2011). Although parental PTSD is known to correlate significantly with child PTSD, there have been few if any examinations how different types of trauma symptoms in caregivers might predict particular child outcomes (Leen-Feldner et al., 2013). We found that greater caregiver avoidance symptoms were associated with an increased risk of presenting with PTSD-DISS compared to PTSD only. A number of speculations can be made regarding the mechanisms underlying this association. Young children rely on their primary caregiver to help them make sense of traumatic experiences and to integrate and regulate resulting emotional and behavioral states. A caregiver's avoidance of their own or their child's trauma could interfere with the child's ability to adaptively respond to the experience and model maladaptive coping behaviors. Further, caregiver avoidance symptoms may unintentionally result in caregiver withdrawal and impoverished caregiver-child affective communication, which interfere with co-regulation and may lead to a more complex trauma symptom pattern in offspring (Milot et al., 2010).

Caregiver level of hyperarousal and intrusion symptoms did not distinguish between child PTSD only versus PTSD-DISS; however, greater parental hyperarousal symptoms were associated with a greater likelihood of a child being in either clinical group, and a greater number of parental intrusion symptoms predicted a greater likelihood of a child presenting with PTSD relative to non-clinical trauma symptoms. Caregivers experiencing high levels of hyperarousal or intrusion may be less able to help children effectively regulate their own symptoms of hypervigilance or re-experiencing, thereby increasing the risk that these children will experience clinically significant trauma symptoms following interpersonal trauma. Parental history of trauma exposure was not associated with membership in a particular group. The vast majority of caregivers in the current study reported some kind of interpersonal trauma exposure. Among caregivers with high trauma exposure, it may be that parental reactions to trauma (i.e. psychopathology) are more important to symptom presentation in young children (e.g., Lieberman et al., 2005). It is also possible that type of parental trauma history (i.e., betrayal vs. non-betrayal trauma) rather than number of experiences is predictive of children's symptoms. Due to limited variability in the current sample, we were not able to examine this possibility. Future research should investigate the ways in which parents' history of betrayal trauma contributes uniquely to symptom profiles in children.

Finally, among adults, there has been little evidence of demographic differences across PTSD subgroups with the exception of sex, with females more likely to develop PTSD-DISS than PTSD only compared to males (Steuwe et al., 2012). In the current study, female children were more likely to be in any clinical group as well as more likely to be in the PTSD-DISS group than in the PTSD only group. Meta-analytic studies of sex differences in PTSD have demonstrated that posttraumatic symptomology can manifest differently in males and females, with female children more likely than males to develop internalizing symptoms and PTSD (Alisic et al., 2014; Buckner et al., 2004; Tolin et al., 2006). Females are also more likely to experience peritraumatic dissociation (Olff et al., 2007), suggesting a greater risk of a dissociative PTSD subtype specifically. Greater trauma-related symptomatology in females may be the result of different types of trauma exposure across the sexes (Hetzel-Riggin and Roby, 2013), with females more likely to exhibit PTSD following interpersonal trauma (Alisic et al., 2014; Hetzel-Riggin and Roby, 2013; Olff et al., 2007). The current findings suggest that sex differences in trauma-related symptomatology may already become apparent in early childhood.

There are a number of limitations in the current study that need to be considered. Perhaps most significantly, assessment of caregiver and child trauma exposure and trauma symptoms was completed by a single reporter: the parent. As a result, findings may reflect shared method variance and should be replicated in an investigation that includes multiple reporters of symptomatology (e.g., clinician ratings, teacher ratings). Second, the study design was cross-sectional, precluding the ability to draw conclusions about causality. Research has shown, for example, that the association between caregiver and child symptomatology is likely bidirectional and relational (Scheering and Zeanah, 2001). Third, families included in this study were all seeking treatment for children's emotional or behavioral problems secondary to trauma. The results from this study may not generalize to samples of traumatized families who do not seek treatment or to children in the foster care system. Finally, we did not examine children who scored high on dissociation but did not reach the clinical threshold for PTSD symptoms. Future research should explore the nature of the difficulties in children who appear to present with clinical dissociation but not clinical PTSD.

Despite the limitations, the present findings have clear implications for the treatment of young traumatized children and their caregivers. The distinction between pathological and non-pathological dissociation in children is not always clear (Putnam, 1997). Dissociative symptoms, such as persistent forgetfulness and social disconnection, may be overlooked in young children. For children presenting with histories of sexual abuse, it may be particularly important to screen specifically for PTSD and dissociation. Although not examined here directly, children presenting with PTSD and dissociation may benefit from different treatment emphases compared to those exhibiting PTSD without dissociation. For example, individuals with dissociation are more likely to engage in self-harming behaviors (Briere et al., 2010) and to lack the ability to access and identify emotions (Kliethermes et al., 2014). Relatedly, research has found that children who have experienced severe trauma and present with high dissociation use divided attention to keep threatening information out of awareness (Becker-Blease et al., 2004b). Treatment of PTSD-DISS in young children may be most effective when the therapeutic process emphasizes the treatment of withdrawal in caregiver and child, including the co-articulation of feeling states (between caregiver and child) and explicit modeling of non-harmful behaviors to relieve distress.

As many as a quarter of young children exposed to trauma develop PTSD or trauma-related dissociation (Alisic et al., 2014; Hagan et al., 2015). Extensive research with traumatized adults points to a distinction between PTSD with and without dissociation in regard to symptom expression, clinical needs, and treatment response (Dalenberg and Carlson, 2012). This research has led to the articulation of a PTSD-Dissociative Subtype (PTSD-DISS) in the DSM-5 (American Psychiatric Association, 2013); however, little is known about this symptom pattern in very young children. The present investigation was only a first step in examining the co-occurrence of PTSD and dissociation in very young children exposed to trauma. Findings indicated that characteristics of child's trauma exposure, caregiver trauma symptoms, and child sex differentially predicted whether children presented with PTSD only, PTSD with dissociation or non-clinical trauma-related symptoms.

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