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BRIEF REPORT

Symptoms of Dissociation in a High-Risk Sample of Young Children Exposed to Interpersonal Trauma: Prevalence, Correlates, and Contributors

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Children who have experienced interpersonal trauma are at an increased risk of developing dissociation; however, little is known about the prevalence or correlates of dissociation in young children. The current study examined symptoms of dissociation in 140 children (mean age = 51.17 months, range = 36–72 months, SD = 10.31 months; 50.0% male; 45.7% Hispanic) who experienced trauma (e.g., witnessing domestic violence, experiencing abuse). Child dissociation and exposure to traumatic events were assessed using a clinician-administered interview with the biological mother (mean age = 32.02 years, SD = 6.13; 49.3% Hispanic; 25.5% married or cohabitating). Mothers completed measures of maternal dissociation, depression/anxiety, and child behavior problems. At least subclinical dissociation was present for 24.3% of children. Robust regression with least trimmed squares estimation showed that greater maternal dissociation was related to greater child dissociation, adjusting for child internalizing symptoms, number of traumas, and maternal depression/anxiety, $B = 0.09$, $\chi^2 = 10.47$, $p < .001$, $R^2\Delta = .04$. Children who experienced direct victimization did not exhibit a significantly higher level of dissociation compared to children who experienced other traumas, $F(1, 138) = 3.76$, $p = .054$, $\eta^2 = .03$. These findings highlight the need to assess dissociation in traumatized young children.

Dissociation, defined as "a disruption in the usually integrated functions of consciousness, memory, identity, or perception of the environment" (American Psychiatric Association, 1994, p. 477) has been identified as a critical mediator between early adversity and psychopathology (Egeland & Susman-Stillman, 1996). Although earlier age of dissociation onset has been found to predict problematic developmental trajectories (Ogawa, Sroufe, Weinfield, Carlson, & Egeland, 1997), there is scant literature on the prevalence of trauma-related dissociation in children between the ages of 3 and 6 years. Estimates in older children and adolescents range widely from 19%–73% (Silberg, 2000). Given that interpersonal trauma disproportionately affects young children (Chu & Lieberman, 2010), it is possible that the rate of dissociation in early childhood may also be high. In addition to limited research on prevalence, little is known about maternal and environmental characteristics that might contribute to early childhood trauma-related dissociation.

Young children look to their caregivers for evidence of environmental dangers and support in learning to self-regulate (Becker-Blease, Freyd, & Pears, 2008); dissociation in caregivers, resulting from their own trauma history, may be one pathway by which young children exhibit psychopathological responses to trauma. An accumulation of traumatic events may also increase the risk of dissociation (e.g., Dutra, Bureau, Holmes, Lyubchik, & Lyons-Ruth, 2009); however, there is some evidence that the type of traumatic experience is more predictive than the number of traumas, with direct victimization experiences being most likely to result in dissociation (Hulette et al., 2008). The current study evaluated the prevalence of dissociation among young children exposed to a range of traumatic events (e.g., witnessing domestic violence, experiencing physical or sexual abuse) and explored the association between child dissociation, maternal dissociation, and other maternal mental health problems (i.e., a composite of depression and anxiety), as well as number of child traumatic experiences and type of trauma.

Method

Participants and Procedure

Data for this investigation came from a larger study in which caregivers and their children (0–6 years old) were referred to

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the University of California San Francisco Child Trauma Research Program due to child exposure to interpersonal trauma. Referrals came from pediatricians, court staff, child protective services, and local community agencies. Caregivers who contacted the clinic were asked to participate in a study to assess the effectiveness of an evidence-based dyadic treatment for traumatized young children and their caregivers (Lieberman & Van Horn, 2008). Following a telephone screening, caregivers attended an in-person session with a clinician who described the study and services. The current analyses included 140 mother–child dyads who met the following criteria: (a) child was between 3–6 years of age; (b) caregiver was the biological mother; and (c) measures of child dissociation, maternal dissociation, and child exposure to traumatic events were completed at intake. The sample included a diverse group of young children (M_{age} = 51.17 months, SD = 10.31; 50.0% male; 45.7% Hispanic, 25.7% mixed ethnicity, 12.1% Caucasian, 10.7% African American; 3.6% Asian, 2.1% other ethnicity) and their mothers (M_{age} = 32.02 years, SD = 6.13; 49.3% Hispanic, 17.9% Caucasian; 12.1% African American; 6.4% Asian; 2.9% other ethnicity; 25.5% married or living with a partner). Of the 140 dyads, 62 (44.3%) reported speaking primarily Spanish in the home. Education level was available for 87% of mothers (n = 123): The mean number of years of education was 13.03 (SD = 4.06, range = 1–22 years).

The Committee for Human Research at UCSF and the Institutional Review Board of San Francisco General Hospital approved all research procedures. Mothers provided written informed consent. Mother–child dyads participated in an extensive baseline assessment that included mother-report instruments, clinician-administered interviews, and clinical observation of mother–child interactions. All procedures were administered in the mother's preferred language (Spanish or English) by master's or doctoral-level clinicians who were blind to the aims of the current study.

Measures

The Trauma Symptoms Checklist for Young Children (TSCYC) is a 90-item parent-report measure of past-month trauma-related symptoms in children ages 3–12 years with documented reliability and predictive validity (Briere et al., 2001). Due to the nature of the hypotheses, the current study included the 10-item Dissociation (TSCYC-DIS; α = .87 in this sample) and the 27-item Posttraumatic Stress Symptoms (TSCYC-PTS; α = .90) subscales only. To minimize reporting bias, clinicians administered the TSCYC as an interview and probed potentially incongruent responses. Items were rated on a scale of 1 = *not at all* to 4 = *very often*. The TSCYC-DIS subscale has been shown to correlate strongly with multiple measures of child dissociation (Lanktree et al., 2008).

The 24-item Traumatic Events Screening Inventory-Parent Report Form Revised (TESI; Ghosh Ippen et al., 2002) was administered to the mother in interview format to assess child lifetime exposure to traumatic events. Number of traumatic

events was summed to create a total score (α = .55 in this sample). The TESI has shown adequate test-retest reliability (Ford et al., 2000).

The Traumatic Dissociation Scale (TDS; Carlson, Dalenberg, & McDade-Montez, 2012) is a 24-item self-report measure of past-week disruptive dissociative symptoms in adults. Mothers rated items on a 4-point scale from 0 = *not at all* to 4 = *more than 10 times*, with higher scores indicating greater adult dissociation. Internal consistency in the current study was α = .94.

The 21-item Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996) and 12-item Beck Anxiety Inventory (BAI; Beck & Steer, 1993) and the 12-item BAI were used to assess maternal depression and anxiety. Mothers used a 4-point rating scale to indicate the degree to which they experienced each symptom in the previous week (BAI) or 2 weeks (BDI). A composite score of depression/anxiety symptoms was created by averaging the standardized scores on the two measures. Internal consistency for this composite was α = .94; the correlation between each of the two measures (BDI-II and BAI) and the composite was r = .83.

The Child Behavior Checklist for Ages 1.5-5 (CBCL; Achenbach & Rescorla, 2000), a well-validated 99-item caregiver-report measure of children's behavior, was used to assess internalizing and externalizing problems. Mothers rated child's behavior over the past month on a 3-point scale: 0 = *never true*, 1 = *somewhat or sometimes true*, and 2 = *very or often true*. Internal consistency was α = .92 for externalizing and α = .88 for internalizing.

Data Analysis

Missing data were minimal, with less than 1% of cases missing data on only one measure (CBCL); therefore, analyses were based on obtained data rather than employing any replacement strategies. Due to univariate nonnormality, TSCYC-DIS and TDS scores were subjected to natural log-transformation. Multiple regression analyses were conducted to test associations between continuous independent variables and child dissociation scores. Regression diagnostics revealed several cases with high externally studentized residuals; therefore, SAS ROBUSTREG with least trimmed squares (LTS) estimation was used, which computes LTS estimates that are used to detect multivariate outliers and then downweights these outliers in the final regression, yielding a test statistic that follows a χ^2 distribution. First, an association between total number of child traumatic events was tested with child sex in the model. Following this, a 3-step hierarchical multiple regression analysis was conducted: Maternal dissociation was entered into the model (Step 1), which was followed by entering the composite of maternal depression/anxiety (Step 2) and child internalizing problems (Step 3).

For the purpose of testing relations between child dissociation and type of trauma exposure, children were assigned to one of two groups: Direct Victimization or Other Trauma. Consistent with previous studies (e.g., Hulette, Kaehler, &

Table 1
Descriptive Statistics and Zero-Order Correlations of Study Variables

Variable	n or M	% or SD	1	2	3	4	5	6	7
1. Male[a]	70	50.0	–						
2. Child age	4.26	10.3	−.01	–					
3. TESI	5.70	2.7	.02	.09	–				
4. TSCYC	12.76	4.4	.16	.06	.32***	–			
5. TDS	8.72	10.8	.07	−.05	.38***	.44***	–		
6. BAI/BDI	0.00	0.9	.11	.00	.29***	.40***	.66***	–	
7. CBCL-E	19.31	10.2	.37***	.02	.17*	.39***	.23**	.24**	–
8. CBCL-I	16.29	10.0	.21*	−.02	.30***	.53***	.41***	.48***	.63***

Note. $N = 140$ unless otherwise noted. TESI = Traumatic Event Screening Inventory; TSCYC = Dissociation subscale of the Trauma Symptoms Checklist for Young Children; TDS = Trauma-Related Dissociation Scale; BAI/BDI = Beck Anxiety Inventory and the Beck Depression Inventory; CBCL-E = Child Behavior Checklist Externalizing subscale ($n = 135$); CBCL-I = Child Behavior Checklist Internalizing subscale ($n = 135$).
[a]Child sex was coded male = 1 and female = 0.
*$p < .05$. **$p < .01$. ***$p < .001$.

Freyd, 2011), traumas were categorized in a hierarchical fashion. The Direct Victimization group ($n = 78$) included children who had experienced any physical or sexual assault, emotional abuse, or neglect. The Other Trauma group comprised the remaining children ($n = 62$). This group was composed of children who had experienced traumas not involving direct victimization (e.g., witnessing violence, serious accidents). Inspection of log-transformed TSCYC-DIS scores by group revealed three outliers in the Other Trauma group; these scores were Winsorized (Tabachnick & Fidell, 2007). Rank analysis of covariance (Quade, 1967) was employed to test the hypothesis that the Direct Victimization group would show significantly greater dissociation than the Other Trauma group.

Results

Descriptive statistics and zero-order correlations among the study variables are presented in Table 1. There were 34 children (24.3%) who exhibited at least subclinical levels of dissociation (i.e., T scores > 65 on the TSCYC-DIS), with 20 children (14.3%) scoring in the clinical range (i.e., T scores > 70). Compared to children with nonclinical levels of dissociation ($n = 106$), children with at least subclinical levels of dissociation had significantly greater internalizing symptoms ($M_{\text{clinical}} = 21.06$, $SD = 9.70$ vs. $M_{\text{nonclinical}} = 14.75$, $SD = 9.71$), $t(133) = −3.25$, $p = .001$, and posttraumatic stress symptoms ($M_{\text{clinical}} = 50.91$, $SD = 10.77$ vs. $M_{\text{nonclinical}} = 40.21$, $SD = 10.17$), $t(138) = −5.26$, $p < .001$. Number of traumatic events was also significantly greater in the subclinical/clinical group ($M = 6.82$, $SD = 2.48$) compared to the nonclinical group ($M = 5.32$, $SD = 2.72$), $t(138) = −2.86$, $p = .005$. Mothers of children in the subclinical/clinical range reported higher maternal dissociation ($M = 13.44$, $SD = 13.96$) compared to mothers of children in the nonclinical range ($M = 7.21$, $SD = 9.21$), $t(138) = −3.00$, $p = .003$. There was no significant difference in number of externalizing symptoms between the two groups, $t(133) = −1.57$, $p = .121$.

Table 2
Hierarchical Robust Regression Analysis of Associations Between Key Variables and Log-Transformed Child Dissociation Score

Variable	Step 1 β	Step 1 χ^2	Step 2 β	Step 2 χ^2	Step 3 β	Step 3 χ^2
Sex	.09	5.02*	.10	5.93	.07	2.79
TESI	.01	2.71	.01	2.19	.01	2.29
TDS	.09	22.49***	.07	7.21*	.09	11.35***
BAI/BDI			.05	2.31	−.03	0.81
CBCL-I					.01	18.13***

Note. $N = 140$ in Steps 1 and 2; $n = 135$ in Step 3. Analyses were conducted in a hierarchical fashion such that maternal dissociation was entered (Step 1), followed by maternal depression/anxiety (Step 2), followed by child internalizing problems (Step 3). Sex = Male (0) or Female (1); TESI = Traumatic Event Screening Inventory; TDS = Trauma-Related Dissociation Scale; BAI/BDI = Beck Anxiety Inventory and the Beck Depression Inventory; CBCL-I = Child Behavior Checklist Internalizing subscale.
*$p < .05$. **$p < .001$.

Robust regression analyses showed that a greater number of traumatic events was associated with significantly greater child dissociation, $B = 0.02$, $\chi^2 = 9.02$, $p = .003$, with child sex in the model. As shown in Table 2, however, number of events became nonsignificant when maternal dissociation was entered, and greater maternal dissociation was related to greater child dissociation (Step 1). Maternal dissociation remained significantly positively associated after entering maternal depression/anxiety (Step 2) and child internalizing problems (Step 3). Maternal depression/anxiety was not related to child dissociation (Step 2). Child internalizing symptoms were positively related to child dissociation (Step 3). Although results from the rank ANCOVA showed that the Direct Victimization group had higher levels of dissociation than the Other Trauma group,

with maternal dissociation and child sex in the model, this relationship was nonsignificant, $F(1, 138) = 3.76$, $p = .054$ (raw scores: $M_{\text{victim}} = 13.58$, $SD = 4.92$ vs. $M_{\text{other}} = 11.73$, $SD = 3.29$).

Discussion

In a high-risk, low-income, ethnically diverse sample of traumatized young children, almost one fourth exhibited subclinical or clinical levels of dissociation according to maternal report. These children experienced greater trauma exposure, internalizing, and posttraumatic stress symptoms relative to children with nonclinical dissociation. There was a robust association between maternal and child dissociation that could not be accounted for by child exposure to trauma, internalizing symptoms, or maternal depression/anxiety. Trauma type was not significantly related to child dissociation; however, the difference in dissociation across the two groups was in the expected direction. Victimized children exhibited greater dissociation compared to children exposed to other traumas. There are three important limitations to the current study that must be considered. First, we could not rule out the possibility that the extent of child dissociation in the current sample was due to mothers with dissociation viewing their children as exhibiting greater dissociative symptoms. Future research should incorporate the use of clinician-administered play therapy or projective tests (e.g., Macfie, Cicchetti, & Toth, 2001) or behavioral coding during psychometric testing (e.g., Silberg, 1998) in addition to other forms of nonmaternal report of symptoms of young children. Second, the instrument used to assess child dissociation is traditionally completed by the parent in a self-report paper/pencil format. Therefore, results may not generalize to other studies using the traditional administration method. Third, the current study design was cross-sectional; no firm conclusions could be made regarding intergenerational transmission of psychopathology. Despite these limitations, the results suggested that dissociation may be prevalent in young children exposed to trauma, particularly among those who experience victimization, highlighting the importance of screening for dissociative symptoms in young children exposed to interpersonal trauma.

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