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A Developmental Approach to Complex PTSD: Childhood and Adult Cumulative Trauma as Predictors of Symptom Complexity

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Exposure to multiple traumas, particularly in childhood, has been proposed to result in a complex of symptoms that includes posttraumatic stress disorder (PTSD) as well as a constrained, but variable group of symptoms that highlight self-regulatory disturbances. The relationship between accumulated exposure to different types of traumatic events and total number of different types of symptoms (symptom complexity) was assessed in an adult clinical sample ($N = 582$) *and a child clinical sample* ($N = 152$). *Childhood cumulative trauma but not adulthood trauma predicted increasing symptom complexity in adults. Cumulative trauma predicted increasing symptom complexity in the child sample. Results suggest that Complex PTSD symptoms occur in both adult and child samples in a principled, rule-governed way and that childhood experiences significantly influenced adult symptoms.*

Individuals with a trauma history rarely experience only a single traumatic event but rather are likely to have experienced several episodes of traumatic exposure (Kessler, 2000). This phenomenon has been frequently reported among survivors of childhood abuse, domestic violence, and those who have been witnesses to or targets of genocide. Exposure to sustained, repeated or multiple traumas, particularly in the childhood years, has been proposed to result in a complex symptom presentation that includes not only posttraumatic stress symptoms, but also other symptoms reflecting disturbances predominantly in affective and interpersonal

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self-regulatory capacities such as difficulties with anxious arousal, anger management, dissociative symptoms, and aggressive or socially avoidant behaviors. These symptoms are part of Complex Posttraumatic Stress Disorder (PTSD; Herman, 1992) and are designated in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition-Text Revision* (*DSM-IV-TR*; American Psychiatric Association [APA], 2000) as "PTSD and its associated features." The importance of evaluating the effects of multiple traumas in their cumulative form is critical as this circumstance characterizes the experience of the majority of trauma survivors (Kessler, 2000) and accordingly has substantial implications for evaluation and treatment.

The research focus on childhood abuse as an example of a type of trauma associated with Complex PTSD results from its high prevalence (e.g., Finkelhor & Dziuba-Leatherman, 1994; Childhelp, 2005), typically recurring nature (e.g., Stewart, Livingston, & Dennison, 2008), and well-documented relationship to other types of childhood and adulthood traumas (e.g., Coid et al., 2001; Dong et al., 2004). Consequently, understanding of complex PTSD has been influenced by developmental research, which has demonstrated that childhood abuse as well as other childhood adversities (neglect, emotional abuse, absent or psychiatrically disturbed parents) result in impairment in developmental processes related to the growth of emotion regulation and associated skills in effective interpersonal behaviors (e.g., Shipman, Edwards, Brown, Swisher, & Jennings, 2005; Shipman, Zeman, Penza, & Champion, 2000). Understanding the effects of trauma as the result of disturbances or vulnerabilities in self-regulatory capacities is useful as it creates conceptual coherence to the multiple, diffuse, and apparently contradictory symptoms of complex PTSD. Disturbances in self-regulation account for both overactivation and deactivation/avoidance in emotions and interpersonal behaviors as seen in dysphoria and anger as well as dissociation; and in interpersonal behaviors that are aggressive or dependent, as well as those that are distant and avoidant. Posttraumatic stress disorder symptoms themselves have been described as a form of a chronic dysregulated emotional response to traumatic reminders as reflected in the co-occurring symptoms of hyperarousal/emotional numbing and hypervigilance/poor concentration (e.g., Frewen & Lanius, 2006; Litz, Orsillo, Kaloupek, & Weathers, 2000).

Although self-regulatory difficulties vary from person to person, the associated features of PTSD as described in the *DSM-IV-TR* (APA, 2000, p. 465) specify a core set of symptoms of particular salience. In addition, the expression of self-regulatory problems can be measured and predicted in a principle-governed way as related to trauma history. It has been proposed that an increasing number of different types of traumas is associated with an increasingly greater number of different types of symptoms experienced simultaneously (i.e., symptom complexity; Briere, Kaltman, & Green, 2008; van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005). Briere and colleagues (2008) tested this notion and found that in a community sample of young women (college students), there was a linear relationship between the number of trauma types experienced before 18 and symptom complexity.

We wished to build on and extend this research by adopting this algorithm to evaluate a clinical sample of women with histories of childhood abuse, most of whom had experienced multiple types of childhood abuse and adversity as well as a various number of adulthood traumas. This study addresses the following questions. First, we wished to replicate the findings of Briere et al. (2008) with a clinical sample of women and determine whether childhood cumulative adversity and trauma was predictive of symptom complexity. Second, we wished to test whether regardless of child cumulative adversity and trauma, adulthood cumulative trauma was associated with symptom complexity, which would suggest that the burden of repeated and multiple adulthood traumas in and of themselves may overwhelm self-regulatory systems. It is unknown and remains to be tested whether after adjustment for child cumulative trauma, adulthood trauma contributes to symptom complexity. Third, we wished to compare the impact of child cumulative trauma versus adult cumulative trauma on symptom complexity. We hypothesized that the accumulation of adulthood trauma and of childhood trauma would each play a role, but consistent with developmental theory (Pynoos, Steinberg, & Wraith, 1995), childhood trauma would contribute more strongly to symptom complexity than adulthood trauma. We also calculated the combined load of childhood and adulthood trauma to assess the impact the total lifetime accumulation of trauma on symptom complexity. Lastly, as a further test of the principled nature of the relationship between cumulative trauma and symptom complexity, we identified a sample of children presenting at a trauma-focused outpatient clinic, and evaluated the relationship between the range of experienced childhood traumas and types of symptoms similar to those of our adult population.

STUDY 1

METHOD

Participants

A total of 849 women presenting for treatment of trauma-related symptoms resulting from childhood abuse were assessed as part of a series of four treatment studies over a period of approximately 12 years. No women participated in more than one study. Participants were self-referred by means of advertisements in local papers, hospital and community clinics, and word-of-mouth. Following a brief phone screen, those found eligible for the study participated in the full assessment procedure. All participants provided informed consent approved by the institutional review board of the relevant university. In general, participants enrolled in the studies did not differ from participants who did not enroll. We combined data for analysis because there were no differences in the

sociodemographic characteristics, trauma histories, or symptom characteristics across the four study samples.

For the purposes of this investigation, only women for whom both childhood and adulthood data were available were included, yielding a sample size of $N = 582$ for the reported analyses. Of the 582 participants, the average age was 36.1 ($SD = 10.6$). The sample was comprised of 45.7% Caucasian women; 24.8% African American, 10.8% Hispanic, and 3.5% Asian American, and 9.1% were of other ethnicities. Approximately 26% were either married or living with a significant other, 20.2% were either divorced or widowed, and 53.5% were single. Education varied with 12.3% having a high school diploma or less, 64.1% having finished college or some college training, and 23.7% having more than college training. Earnings of participants for the year previous to the study were as follows: 20.8% had earned less than $5,000; 22.5% had earned from $5,000 to $15,000, 26.6% had earned from $15,000 to $30,000, and 30.1% had earned more than $30,000. This group did not differ from the total group of women on any of the sociodemographic characteristics.

Measures

Exposure to trauma and childhood adversity was assessed using two clinician-administered instruments, the Childhood Maltreatment Interview Schedule (Briere, 1992) to assess childhood events and the Sexual Assault and Additional Interpersonal Violence Schedule (Resick & Schnicke, 1992) to assess adulthood traumas. The child cumulative trauma index was the sum of five indicators of childhood adversities and trauma: sexual abuse, physical abuse, neglect, emotional abuse, and not living with mother (due to impairment or absence/abandonment). The adult cumulative trauma index was the sum of four different types of adulthood traumas: sexual assault, physical assault, repeated sexual assault (e.g., during kidnapping or captivity, by an acquaintance or partner), and domestic violence (e.g., repeated physical assault by a spouse or live-in partner). The reliability of these clinical interviews as well as detailed definitions of childhood and adult events has been reported in previous publications (Cloitre, Cohen, Edelman, & Han, 2001; Cloitre, Scarvalone, & Difede, 1997). Lifetime cumulative trauma index was defined as the sum of the child and adult measures.

The measure of complex PTSD included in this analysis was comprised of six symptoms in three domains: PTSD symptoms, emotion regulation difficulties, and interpersonal regulation difficulties. Posttraumatic stress disorder symptoms were evaluated using the Clinician-Administered PTSD Scale (CAPS; Blake, Weathers, Nagy, & Kaloupek, 1995). Emotion regulation difficulties were evaluated by (1) general emotion regulation self-efficacy as measured by the Negative Mood Regulation Scale (Catanzaro & Mearns, 1990) (2) depression as measured by the Beck Depression Inventory (BDI; Beck, Steer, & Brown, 1996), (3) anger expression difficulties as measured by the anger expression subscale (An/Ex) from the State-Trait Anger Expression Inventory (anger exp; Spielberger, 1991), and (4) dissociation as measured by the Trauma Symptom Inventory (TSI) Dissociation subscale (Briere & Runtz, 1990). Interpersonal problems were measured with the Inventory of Interpersonal Problems (Horowitz, Rosenberg, Baer, Ureno, & Villasenor, 1988), which examines difficulties (either being too high or two low) on six dimensions of interpersonal functioning (sociability, intimacy, assertiveness, submissiveness, responsibility, and control) and a total score is computed. Symptom complexity was defined as the number of symptoms a person had, that exceeded a prespecified level of severity, which were based on guidelines provided in the empirical literature. The cutoff points for the six symptoms were CAPS $\geq$80 (Weathers, Ruscio, & Keane, 1999); Negative Mood Regulation Scale $\leq$90 (Catanzaro & Mearns, 1990); BDI $\geq$25 (Beck et al., 1996); anger exp $\geq$35 (Spielberger, 1991); TSI-dissociation $\geq$1.80 (Briere, 1995); Inventory of Interpersonal Problems $\geq$1.90 (Horowitz et al., 1988).

Data Analysis

The relationships between the potential predictors (child, adult, and total trauma indexes) and the outcome (symptom complexity) were assessed as follows. Chi-square test for independence was used to assess the association between the child and adult indexes. To test for equality of the mean of the outcome at different levels of the predictors against an ordered alternative (because the levels of the predictors were ordinal, rather than nominal factors), Jonckheere–Terpstra (J–T) test (Jonckheere, 1954) was employed. Significance of J–T tests was judged at level $\alpha = .05$, one-sided, whereas everywhere else two-sided tests were used. If the J–T test indicated that the mean of the outcome changed monotonically with the predictors, we next estimated the effect of the predictors on the outcome. Because the outcome is a count between 0 and 6 and thus could not be considered as a continuous Gaussian variable, cumulative logistic regression was used to model the odds for being at a more severe level of the outcome variable. To assess the effect of each predictor regardless of the level of the other, the odds for being at a more severe level of symptom complexity were modeled as a function of each predictor individually. To assess the additional effect of each predictor after controlling for the other, both child and adult trauma scores were included in a model to predict symptom complexity. The results are interpreted as the ratio of the odds for being at a more severe level of symptom complexity for every unit increase of the predictor variable.

RESULTS

Trauma Characteristics and Symptoms

Among the 582 women, the majority had experienced childhood sexual, physical, and emotional abuse; the most common adulthood trauma was sexual assault. Table 1 provides the frequency of women reporting each type of childhood and adulthood trauma.

Table 1. Frequencies by Type of Trauma in Childhood and Adulthood in Adult Sample ($N = 582$)

Childhood traumas	*N*	%	Adulthood traumas	*N*	%
Sexual abuse	380	67.98	Sexual assault	288	50.94
Physical abuse	451	77.62	Physical assault	131	24.13
Neglect	246	45.56	Domestic violence	80	13.75
Emotional abuse	417	77.22	Chronic sexual assault	65	11.38
Did not live with mother	185	34.20			

Table 2. Distribution of Number of Types of Traumas in Childhood and Adulthood for Adult Sample ($N = 582$)

	Adulthood trauma % (*N*)					
Childhood trauma	0	1	2	3	4	Total
% (*N*)						
1	5.0 (29)	2.4 (14)	1.4 (8)	0.0 (0)	0.0 (0)	8.8 (51)
2	7.6 (44)	8.8 (51)	4.3 (25)	0.2 (1)	0.0 (0)	20.9 (121)
3	11.5 (67)	12.7 (74)	9.3 (54)	2.4 (14)	0.2 (1)	36.1 (210)
4	6.0 (35)	7.2 (42)	4.6 (27)	1.5 (9)	0.5 (3)	19.8 (116)
5	5.7 (33)	4.3 (25)	2.9 (17)	1.5 (9)	0.0 (0)	14.4 (84)
Total	35.8 (208)	35.4 (206)	22.5 (131)	5.6 (33)	0.7 (4)	100.0 (582)

Note. Percentages for each cell were computed relative to the total sample of 582.

Table 3. Descriptive Information and Correlations among Symptom Measures in Adult Sample ($N = 582$)

				Correlations Among Symptom Measures					
Measures	*M*	*SD*	% Exceeding clinical cutoff	PTSD	BDI	Anger	NMR	SCL Dissociation	IIP
PTSD	66.34	23.19	31.0	–	.57	.37	−.34	.60	.45
BDI	21.10	10.05	35.4		–	.36	−.50	.58	.60
An/Ex	31.10	9.87	36.8			–	−.42	.34	.46
NMR	91.34	17.45	41.5				–	−.27	−.45
TSI Dissociation	1.29	1.06	29.6					–	.48
IIP	1.71	0.63	39.6						–

Note. PTSD = Posttraumatic Stress Disorder; BDI = Beck Depression Inventory; An/Ex = Anger Expression; NMR = Negative Mood Regulation; TSI = Trauma Symptom Inventory; IIP = Inventory of Interpersonal Problems.

Table 2 identifies the proportion of women at each level of cumulative trauma in childhood (see last column) and at each level of adulthood cumulative trauma (see bottom row) as well as their joint distribution. The mean number of different types of childhood trauma was 3.1 ($SD = 1.16$) and the mean number of different types of adult trauma was 1.0 ($SD = .93$). Child and adult trauma were associated, $\chi^2\,(16, N = 582) = 35.1$, $p < .01$. The total number of types of lifetime trauma, which is the sum of child and adult trauma, ranged from a very small percentage who had experienced only one type of trauma (5.0%) to those with as many as eight types of trauma (0.5%), whereas the majority (67.0%) experienced from three to five types. The number of lifetime trauma types was 4.1 ($SD = 1.58$).

Summary statistics are provided in Table 3 for all symptom measures as well as the percentage of women above the clinical cutoff for that symptom and the correlations among the symptom measures. Correlations among symptoms were in the moderate range (.29 to .60), suggesting that the measures are related but not highly overlapping in shared variance (i.e., a measure explains between 8% and 36% of the variability in another).

Analyses of Symptom Complexity

The mean symptom complexity score (number of different types of symptoms above the cutoff) was 1.94 ($SD = 1.95$) with a range of 0 to 6. Table 4 provides the distribution of symptom

Table 4. Symptom Complexity: Number of Symptoms above the Clinical Cutoff as a Function of Child Cumulative Trauma and Adult Cumulative Trauma ($N = 582$)

	Adult cumulative trauma											
	0		1		2		3		4		Total	
Child cumulative trauma	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
1	1.6	1.3	0.9	1.3	2.0	1.8					1.5	1.4
2	1.7	1.9	2.3	2.0	1.4	1.8	0,0	0.0			1.9	1.9
3	1.8	1.8	2.3	2.0	2.0	2.0	2.3	1.9	0,0	0.0	2.1	1.9
4	2.4	2.1	1.8	1.8	2.4	2.4	2.6	1.2	4.3	1.2	2.3	2.0
5	2.0	1.9	2.2	2.0	2.8	1.8	2.4	1.7			2.3	1.9
Total	1.8	1.9	2.0	2.0	1.9	2.0	2.6	2.0	3.0	2.1	1.9	1.9

complexity scores by levels of childhood and adulthood cumulative trauma. Cumulative childhood trauma was strongly associated with symptom complexity, $Z = 2.51$, $p < .01$, whereas the relationship between adulthood trauma and symptom complexity was not significant, $Z = 1.30$, $p = .10$. The lifetime cumulative trauma was significantly related to symptom complexity, $Z = 2.41$, $p < .01$. Given that adulthood cumulative trauma was not related to symptom complexity in the J–T test, a regression analyses was not performed. A cumulative logistic regression analysis indicated that child trauma was associated with higher symptom complexity, OR = 1.17, 95% CI = 1.04–1.33, $p < .05$, i.e., each additional type of childhood trauma increased the odds of greater symptom complexity by about 17%. Cumulative logistic regression analysis also showed that lifetime trauma (the total of child and adult trauma) was associated with higher symptom complexity, OR = 1.13; 95% CI = 1.03–1.24, $p < .01$. As expected, however, when childhood cumulative trauma was entered into the model along with the lifetime variable, the prediction of lifetime cumulative trauma became nonsignificant, but when adult cumulative trauma was entered as a control variable, the relationship between cumulative life trauma and symptom complexity remained significant ($p = .02$). Because there is evidence that racial/ethnic disparities and poverty are adversities that may contribute to negative mental health outcomes (e.g., Rutter, 2005; van Velsen, Gorst-Unsworth, & Turner, 1996), we repeated the above set of analyses controlling for race/ethnicity and earnings; these analyses yielded the same pattern of results.

Figure 1 shows the relationship between symptom complexity and both child and adult trauma together. The figure shows the results of model-fitting symptom complexity on smooth functions of the two predictors. The relationships appear linear, with a steeper slope associated with child trauma (reflecting the stronger relationship with symptom complexity) compared to adulthood trauma. The three-dimensional figure also provides a visual representation of the joint relationship of adult and childhood cumulative trauma to symptom complexity. The effects of child and adult trauma on symptom complexity seem additive (rather than, e.g., interactive).

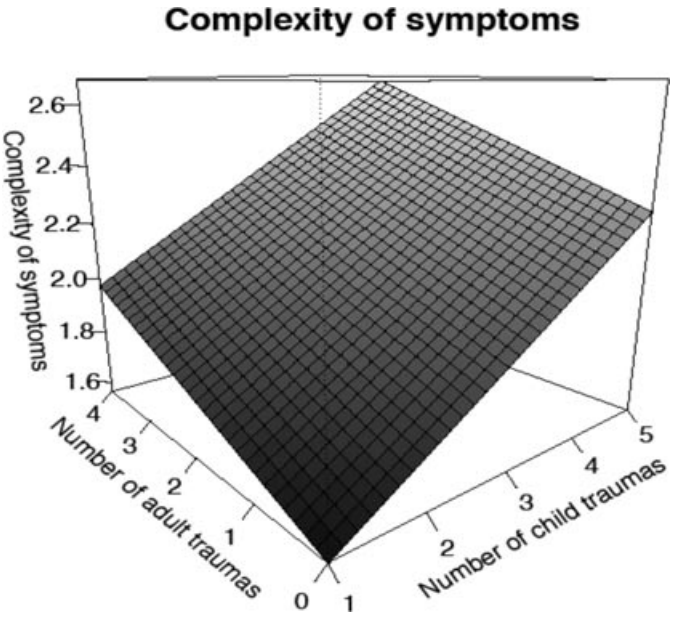

Figure 1. Three-dimensional representation of relationship of child and adult cumulative trauma to current symptom complexity.

STUDY 2

METHOD

Participants

Children and adolescents ($N = 152$) presenting to a child trauma clinic for trauma-focused evaluation and treatment services were

assessed. All had experienced at least one *DSM* PTSD Criterion A traumatic stressor (APA, 2000). Participants were referred by a variety of sources including children's advocacy centers, child protective service investigators, pediatricians, child welfare caseworkers, law enforcement, and word-of-mouth. Legal guardians for all participants provided informed consent approved by the institutional review board of the relevant university and the state child welfare department. Children aged 7 and above provided assent. All children were assessed by licensed clinical social workers, licensed clinical psychologists, or advanced trainees under the supervision of licensed clinicians.

Measures

Trauma history was assessed via self- and caregiver report using two clinician-administered instruments, the UCLA PTSD Reaction Index for DSM-IV, parent version and child/adolescent version (Steinberg, Brymer, Decker, & Pynoos, 2004), and the Diagnostic Interview for Children and Adolescents PTSD and Psychosocial Stressors sections (Reich, 2000; Welner, Reich, & Herjanic, 1987). Based on information gathered from these measures, clinical interview, and when appropriate, review of child welfare, investigative, or hospital records, clinicians completed the Trauma/Loss History Profile (Pynoos & Steinberg, 2004; Pynoos et al., 2008; Stolbach, Dominguez, Rompala, & Gazibara, 2008). For the current study, the child cumulative adversity and trauma index was comprised of seven predictors: sexual abuse, physical abuse, neglect, emotional abuse/impaired caregiver, witnessing domestic violence, witnessing sexual or physical abuse, and not living with mother (due to placement in foster or other substitute care).

Symptom measures included in this analysis were selected to parallel the symptom domains in Study 1 and included child self-report (ages 7–17) and caregiver-report (all ages, completed by primary caregiver) and clinician report to enhance accuracy of symptom report. Child report was utilized for internalizing symptoms (e.g., PTSD and depression symptoms), caregiver report for externalizing and other behavioral symptoms, and an aggregate of all reporters for dissociation. Posttraumatic stress disorder symptoms were evaluated through self-report using the Child/Adolescent Version of the UCLA PTSD Reaction Index for DSM-IV (PTSD-RI; Steinberg et al., 2004). Depressive symptoms were evaluated through self-report using the Children's Depression Inventory (Kovacs, 1992). Dissociative symptoms were assessed through self-report using the Children's Dissociative Experiences Scale (Stolbach, 1997; Stolbach et al., 2007), through caregiver report using the Child Dissociative Checklist (Putnam et al., 1993), and through clinician report using the 10 Dissociation items from the Child Complex Trauma Symptom Checklist (Ford et al., 2007). These 10 dissociation items were reviewed by two leading experts in the field of dissociation (E. Nijenhuis, personal communication, November 16, 2008; O. van der Hart, personal communication, November 17, 2008). In a prior study (Stolbach et al., 2008), the Checklist's dissociation items showed good internal reliability (Cronbach's alpha = .75) comparable to that of the 17 *DSM* PTSD symptom items on the Child Complex Trauma Symptom Checklist (Cronbach's alpha = .77). Interpersonal problems and behavioral regulation were measured through caregiver report using the Child Behavior Checklist Externalizing Problems Scale (e.g., aggressive behavior, rule-breaking behavior; Achenbach & Rescorla, 2000, 2001).

Symptom complexity was defined as the number of symptoms (out of these four) that exceeded a prespecified level of severity, provided by guidelines in the manual or validation studies for each of the measures. For the Child Complex Trauma Symptom Checklist, a relatively new measure with no such guidelines, the severity level was defined as greater than one *SD* above the sample mean. The cutoff points were: PTSD-RI >40; Children's Depression Inventory >65; Child Behavior Checklist >65; Clinical dissociation was defined as meeting one or more of the following criteria: Children's Dissociative Experiences Scale >24 or Child Dissociative Checklist >11 or Child Complex Trauma Symptom Checklist Dissociation >4 or Child Complex Trauma Symptom Checklist Top 5 dissociation >1.

Data Analysis

The data analysis approach was identical to the approach used for Study 1, except that because the sample consisted of both genders and ages ranged from 3 to 17 years, we adjusted for age and gender in the models, regardless of whether age and gender terms were significant.

RESULTS

Of the 152 children assessed, 62.5% were girls and the remainder was boys. There were few gender differences in trauma history and none in sociodemographic, symptom severity, and symptom complexity characteristics. The mean age of the sample was 10.1 years of age ($SD = 3.5$). Race/ethnicity distribution was 76.3% African American; 11.2% Caucasian; 7.2% Hispanic; 5.3% biracial or multiracial. Children and families served at the clinic were typically at or below poverty level. The range of child cumulative adversity and trauma Index ranged from 1 through 7, with a mean of 3.4 ($SD = 1.9$). The frequency of each of the seven different types of child cumulative traumas are presented (with additional information by gender when differences emerged) are as follows: sexual abuse (60%; 44.0% of boys and 69.5% of girls), $\chi^2(1, N = 152) = 9.73$, $p < .001$; physical abuse (34%; 42.1% of boys and 28.4% of girls), $\chi^2(1, N = 152) = 2.99$, $p = .08$; neglect (47%); not living with mother (54%); emotional abuse (68%); witness to domestic violence (44%); and witness to sexual or physical abuse (32%). Of the 152 children, 19.1% had experienced one of the seven types of trauma or adversity; 22.4% two types, 11.8% three types, 17.1% four types, and 11.8% five types, and 17.9% six or

Table 5. Descriptive Information for Symptom Measures and Symptom Complexity in Child Sample ($N = 152$)

Measures	Symptom scores		% at Clinical cutoff
	M	*SD*	
PTSD (UCLA-RI)	28.6	15.6	23.3
Depression (CDI)	50.2	1.5	8.0
Dissociation	–	–	60.8
Interpersonal problems & behavioral dysregulation (CBCL-Externalizing)	3.7	11.0	47.2

Cumulative trauma count (*n*)	Symptom complexity	
	M	*SD*
1 (29)	1.14	1.12
2 (34)	1.76	1.52
3 (18)	1.67	.91
4 (26)	1.39	1.02
5 (18)	1.56	1.42
≥ 6 (27)	1.87	1.03

Note. Posttraumatic stress disorder (PTSD) was measured with the UCLA PTSD Reaction Index (UCLA-RI). Depression was measured with the Child Depression Inventory (CDI). Interpersonal problems and behavioral dysregulation were measured by the Child Behavior Checklist (CBCL) Externalizing Symptoms Scale.

more types of trauma. Summary statistics are provided in Table 5 for all symptom measures along with the percentage of children that exceeded the clinical cutoff for that symptom.

The average symptom complexity score was 1.56 ($SD = 1.24$) with a range from 0 to 4. As among the adults, child cumulative trauma in children was associated with symptom complexity, $Z = 1.80$, $p < .05$. The cumulative logistic regression indicated that for every unit increase in childhood cumulative trauma, the odds for being at a higher level of symptom complexity increased by 17%, OR = 1.17, 95% CI = 1.00–1.37, $p < .05$. Mean symptom complexity scores by level of cumulative trauma are provided in Table 5.

DISCUSSION

A significant relationship between cumulative trauma and symptom complexity was observed. In the adult sample, the analysis of the combined child and adult cumulative trauma index (lifetime trauma) indicated that there was an overall additive effect of the contribution of cumulative trauma to symptom complexity. However, when childhood cumulative trauma was entered into the analyses, the relationship between lifetime trauma and symptom complexity became nonsignificant, whereas the introduction of adult cumulative trauma did not change the outcome. These data suggest that lifetime cumulative trauma is related to symptom complexity due to the presence of childhood cumulative trauma. Moreover, the relationship between cumulative trauma and symptom complexity was found in a sample of children and adolescents. Thus, the results of the two studies together suggest that childhood cumulative trauma is associated in a rule-governed way to a complex symptom set and that childhood cumulative trauma significantly influences the presence of these symptoms in adulthood.

The results of these studies contribute to the growing evidence base for Complex PTSD in that they demonstrate in both children and adults a rule-governed relationship between increasing types of traumatic exposures and the presence of an increasing number of theoretically based and empirically constrained symptoms. The symptom set under study included both traditional PTSD symptoms as well as symptoms reflecting difficulties with self-regulatory functions. These latter symptoms were considered in large part because they have been associated with traumatic exposure in developmental studies of children. Thus, the definition of Complex PTSD articulated in this study represents an integration of the developmental and trauma empirical literature. Taken together, these studies suggest that exposure to multiple or repeated forms of maltreatment and trauma in childhood can lead to outcomes that are not simply more severe than the sequelae of single incident trauma, but are qualitatively different in their tendency to affect multiple affective and interpersonal domains. Recognizing the impact that cumulative trauma has on development beginning in early childhood, van der Kolk (2005) has proposed a new diagnostic category, Developmental Trauma Disorder, to account for the complex symptom profiles of chronically traumatized children, which includes all of the above symptoms (see van der Kolk, 2005).

Several cautions regarding the implications of the study results are warranted. First, the childhood cumulative index included prototypical traumatic stressors (sexual abuse, physical abuse) as well as other experiences more broadly understood as maltreatment (neglect, emotional abuse, absence of parent). We included these events as predictors of symptom complexity because they have been shown in disparate studies to be associated with risk for PTSD (e.g., Widom, 1999). In addition, such events can be argued in many cases to fulfill the prototypical characteristic of a trauma, which is that they create actual or threat of harm to the person. In childhood, traumas are comprised not only of acts of commission (such as sexual assault), but of acts of omission as well (such as neglect or abandonment) where the absence or withdrawal of certain resources may create a threat to the child's survival and physical well-being. This formulation may not include all instances of maltreatment nor sufficiently characterize the influence of maltreatment on psychological disturbances. Thus, future research is necessary in characterizing and understanding experiences of maltreatment in contributing to disorders such as Complex PTSD and Developmental Trauma Disorder.

Second, the predictor variable in this and other studies of negative outcomes (e.g., Briere et al., 2008; Follette, Polusny, Bechtle,

& Naugle, 1996; Kaltman, Krupnick, Stockton, Hooper, & Green, 2005) is a cumulative score of different types of traumas that have occurred rather than the duration or number of incidents that characterize a particular type of trauma (e.g., childhood abuse, domestic violence, prisoners of war). The empirical literature has consistently pointed to the predictive power of this variable whereas studies investigating the duration or other characteristics of sustained trauma have yielded little (e.g., Wyatt, Guthrie, & Notgrass, 1992). Thus, the impact of sustained and chronic trauma (vs. single incident events) may not be so much in the duration or the repetitive nature of a particular trauma, but rather the presence of multiple co-occurring traumatic events (e.g., childhood sexual abuse, physical abuse and neglect), which, in turn, lead to symptom complexity.

Third, the populations under study were those who had experienced childhood abuse and the range of different types of adult interpersonal traumas was restricted to the common traumas of a civilian population in peacetime. Our participants did not include, for example, refugee survivors of torture, political persecution, war zones, or concentration camps. It is possible that studies of such populations might show equally powerful effects for adult and childhood cumulative trauma. Indeed, adulthood traumas of sustained nature such as living in a war zone create a life condition that increases risk of exposure to a multiplicity of types of traumatic events (e.g., actual or threat of injury, sexual assault, witnessing injury or death to others) and the accumulation of such experiences would be expected to increase risk for symptom complexity. In addition, the current data do not rule out the possibility that the substantial burden of exposure to repeated and multiple types of trauma in such situations could lead deterioration of self-regulatory capacities in individuals without previous trauma histories or self-regulatory difficulties.

Lastly, an enduring question regarding the proposed diagnosis of Complex PTSD concerns its utility relative to the strategy of assigning the PTSD diagnosis along with several currently available DSM-IV diagnoses as comorbidities. We propose that diagnosing and labeling a patient with multiple psychiatric disorders increases the risk of the patient feeling and being stigmatized. In addition, the presence of multiple diagnoses can lead to complexity in treatment planning, difficulties in articulating a unifying treatment principle, and in establishing consensus among potentially multiple providers about prioritizing treatment targets. In contrast, a single diagnosis of Complex PTSD presents an empirically based, conceptually coherent and unified set of symptoms that may reduce the stigmatizing impact of being labeled with multiple, disparate disorder unrelated to trauma history. It may simplify clinical decision making and can guide the selection of treatment targets and interventions. Tests of these proposals would include research assessing the strength and specificity of the relationship between childhood trauma and Complex PTSD as compared to other disorders (see Herman, Perry, & van der Kolk, 1989), as well as assessing the predictive power of the single diagnosis of complex PTSD as compared to multiple diagnoses in regards to functional impairment or other important outcome variables.

The principles of treatment intervention for Complex PTSD and Developmental Trauma Disorder are driven by the interpersonal nature of most of the traumas associated with these proposed disorders. Childhood traumas associated with Developmental Trauma Disorder most often occur at the hands of attachment figures (Briere et al., 2008; Roth, Newman, Pelcovitz, van der Kolk, & Mandel, 1997) and traumas associated with Complex PTSD often emerge from a history of sustained relational or interpersonal traumas beginning with early life attachments (see Charuvastra & Cloitre, 2008). Accordingly, treatments for these disorders would seek to heal attachment-related injuries, to rehabilitate developmental competencies, and to revise ongoing emotional reactivity, maladaptive interpersonal patterns, and negative social perceptions.

In summary, this study demonstrates that both in children and adults, greater trauma exposure is associated with more complex symptom presentation. The symptom pattern observed in the child sample is consistent with the concept of a Developmental Trauma Disorder, whereas the corresponding symptom pattern observed in adult subjects is consistent with the concept of Complex PTSD. The results of this study suggest the importance and value of further research in the characterization and standardization of these proposed disorders. Further study is needed to test the relationship between cumulative trauma and measures of additional phenomena, such as somatization and disturbed belief systems, which may fall within the criterion set for developmental trauma disorder in children and Complex PTSD in adults. Comparison of the predictive power of Complex PTSD as compared to multiple comorbidities in regards to important outcomes would help evaluate the benefits of a single streamlined diagnosis. Conversely, further study is needed to demonstrate the specificity of these complex posttraumatic conditions, by delineating those symptoms that are *not* related to cumulative trauma.

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