Cumulative trauma and symptom complexity in children: A path analysis☆

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ABSTRACT

Multiple trauma exposures during childhood are associated with a range of psychological symptoms later in life. In this study, we examined whether the total number of different types of trauma experienced by children (cumulative trauma) is associated with the complexity of their subsequent symptomatology, where complexity is defined as the number of different symptom clusters simultaneously elevated into the clinical range. Children's symptoms in six different trauma-related areas (e.g., depression, anger, posttraumatic stress) were reported both by child clients and their caretakers in a clinical sample of 318 children. Path analysis revealed that accumulated exposure to multiple different trauma types predicts symptom complexity as reported by both children and their caretakers.

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Childhood trauma, for example sexual and physical abuse, neglect, exposure to domestic violence, and assaults by peers, has been associated with a wide range of later psychological symptoms, including anxiety, depression, anger, posttraumatic stress, dissociation, sexual concerns, and "acting out" or externalizing behaviors (Arata, Langhinrichsen-Rohling, Bowers, & O'Farrill-Swails, 2005; Putnam, 2003). In fact, the childhood trauma literature suggests that early maltreatment or adversity has significant impacts on the overall mental health status of adults in the general population (e.g., Felitti et al., 1998; Rees et al., 2011; see a review by Briere & Jordan, 2009).

In many cases, different types of childhood trauma are experienced within the same time-frame (Kessler, 2000). For example, child physical abuse and witnessing domestic violence frequently co-occur (e.g., Herrenkohl, Sousa, Tajima, Herrenkohl, & Moylan, 2008; Lanktree et al., 2008), as do child physical abuse and psychological maltreatment (e.g., Claussen & Crittenden, 1991), and sexual and physical abuse (e.g., Lanktree et al., 2008; Westen, Ludolph, Misle, Ruffins, & Block, 1990). Further, it appears that children who have experienced maltreatment or other victimizations are at an increased risk of continued victimization from others (Finkelhor, Ormrod, & Turner, 2007).

The tendency for children or adults to have experienced multiple, different forms of trauma is referred to as *cumulative trauma* in the literature, operationalized as the total number of different types of interpersonal trauma experienced by a given individual (e.g., Briere, Hodges, & Godbout, 2010; Briere, Kaltman, & Green, 2008; Cloitre et al., 2009; Follette, Polusny, Bechtle, & Naugle, 1996). As noted by Cloitre et al. (2009), the interpersonal violence literature suggests that a count of the number of types of trauma exposures per individual appears to be a robust predictor of negative psychosocial outcomes, suggesting that there may be something particularly injurious about experiencing multiple forms of interpersonal victimization.

In the adult trauma literature, cumulative trauma over the life span has been associated with *symptom complexity* (Briere et al., 2008): the simultaneous presence of multiple, different types of symptomatology in the same affected individual. This variable was intended by Briere and colleagues to be a broad statistical marker for what some clinicians describe as *Complex PTSD* (Herman, 1992), *Disorders of Extreme Stress, Not Otherwise Specified* (DESNOS; van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005), or *Developmental Trauma Disorder* (DTD; van der Kolk, 2005), generally defined as high levels of symptoms in a number of different areas, often associated with repeated, often childhood, trauma exposure (Cook et al., 2005).

Several studies of adults have indicated that symptom complexity is a valid construct. In a large sample of female university students, Briere et al. (2008) observed a significant linear relationship between the number of trauma types experienced before 18 and the number of different types of symptoms reported simultaneously in adulthood. Cloitre et al. (2009) replicated and extended these findings in a large sample of adults, demonstrating that childhood exposure to multiple types of trauma predicted the complexity of currently reported symptoms. Notably, in the Cloitre et al. (2009) study, and generally consistent with the complex trauma literature, adult traumatic experiences were unrelated to symptom complexity once childhood trauma was taken into account.

To date, however, only one study has examined whether cumulative trauma predicts symptom complexity in children. Cloitre et al. (2009) studied the effects of exposure to up to seven different trauma types in a clinical sample of 152 children and adolescents. They found that, as hypothesized, cumulative trauma exposure predicted symptom complexity. They interpreted this finding as supporting the complex/developmental trauma model for children but urged additional research in this area.

Despite Cloitre et al.'s (2009) replication in children, however, a number of issues remain. First, as they suggest, this single study should be replicated in other child samples, to ensure its generalizability. Second, although Cloitre et al. combined child- and caretaker-report of child symptoms in their assessment of complexity, it is not clear whether these two sources of information on the child's psychological symptoms should be collapsed into a single variable. For example, research suggests that child and parent reports of child symptomatology often are only slightly correlated with one another, and, in fact, may represent relatively divergent perspectives and antecedents (e.g., Achenbach, McConaughy, & Howell, 1987; Kolko & Kazdin, 1993; Lanktree et al., 2008). Third, although the covariation between demographics, number of traumas experienced, and child- and caretaker-report of child symptoms suggests the benefit of a path-analytic approach, where a hypothesized causal order may be tested and all variables (including multiple outcomes) are taken into account simultaneously, statistical analyses of this type have not been used thus far in symptom complexity research. Finally, variables such as cumulative trauma history and symptom complexity are unlikely to be normally distributed (Briere et al., 2008), and hence statistical analyses employed in this domain should be resistant to normality violations.

In response to these issues, we used path analysis to formally evaluate the hypothesis that children's cumulative trauma exposure leads to the complexity of their symptomatology, controlling for relevant demographic variables. Further, we did so using (a) standardized and validated measures of child- and caretaker-report of child symptoms, considered as separate outcome variables and (b) a robust estimation methodology, in order to evaluate model fit in the presence of potentially nonnormally distributed data.

Methods

Data for this study were gathered from a record review of clients from two specialized child trauma treatment centers in southern California. As members of the National Child Traumatic Stress Network (NCTSN), each center was funded by the Substance Abuse and Mental Health Administration (SAMHSA) to provide treatment to children exposed to a trauma and experiencing significant trauma-related symptoms, ranging from neglect, to physical and sexual abuse. Children were referred through several sources, including outreach activities in the public school system, hospital social workers, pediatricians or other physicians, child advocacy centers, child protective service workers, and forensic evaluators located at each of the two centers. Any child with significant psychological symptoms associated with exposure to one or more traumatic experiences was eligible for services at these treatment centers, and no children were screened out of this study. Data represent children seen at one of these two centers between 2001 and 2006. Legal guardians for all participants provided informed consent, and child participants provided assent. Data were not available on the number of children eligible for this study who ultimately did not agreed to participate, although study clinicians reported that few children or their caretakers opted out of the study.

All participants were assessed by licensed clinical psychologists, clinical social workers, marriage and family therapists, or advanced trainees under the supervision of licensed clinicians. Following approval from the Institutional Review Board

committees at each treatment center, data were collected on participant demographics, trauma exposure, and psychological symptoms as part of standard intake procedures.

Participants

A total of 335 children aged 8–12 and their primary caretakers were included in this study. Significant data were missing for 17 children (e.g., self-reported or caretaker-reported questionnaires were not completed), leaving a final sample of 318. This final sample consisted of 215 girls and 103 boys with a mean age of 9.8 years (*SD* = 1.5). The sample was ethnoculturally diverse, with 145 child participants (45.6%) identified by caretakers as Anglo American, 86 (27%) as Latino American, 34 (10.7%) as African American, 25 (7.9%) as multiethnic, 4 (1.3%) as Asian American, and 2 (.6%) as American Indian; and 22 (6.9%) did not report ethnicity of their children. Caretakers completing measures were primarily female (254, 79.9%). A majority (95, 74.4%), were biological parents, 31 (9.7%) were foster parents, 11 (3.5%) were adoptive parents, 33 (10.3%) were classified as "other legal guardian," and 25 (7.9%) did not indicate relationship to the child participant. Data on age and ethnicity of caretaker were not available for this study.

Measures

Childhood trauma exposure. Exposure to trauma was assessed using the Core Clinical Characteristics (CCC) measure, a clinician-administered interview measure developed by the National Child Traumatic Stress Network. Information was collected from children and caretakers at baseline and updated if new traumas were revealed during treatment or if they occurred during the treatment period. The CCC assesses general trauma information, including whether the child experienced specific trauma types, and includes a category for "other trauma" not reported elsewhere. Response choices include "yes," "no," "suspected," or "unknown." Additionally, the CCC elicits information from clinicians on the primary focus of treatment.

Five CCC trauma types were included in this study: *child sexual abuse* (CSA): any kind of unwanted sexual contact (e.g., touching, penetration) with an adult or person in an authority position, or involving the child in prostitution or using the child in pornographic material; *child physical abuse* (CPA): abusive physical punishment or physical assault by at least one caretaker; *neglect* (Neg): a significant lack of psychological or physical care of the child; *psychological abuse* (PA): emotional or psychological maltreatment of the child, committed by at least one caretaker (PA); and *witnessed partner violence* (wPV): witnessing at least one episode of intimate partner violence between caretakers. Each trauma type included in this study was coded as *not experienced* (0) or *experienced* (1), and thus the total number of trauma types (cumulative trauma) ranged from zero to five. Trauma categories coded as *suspected* or *unknown* were treated as *not experienced* (0) for the purposes of this study.

Trauma Symptom Checklist for Children. The TSCC (Briere, 1996) is a normed and standardized 54-item self-report measure to evaluate trauma-related symptoms in children ages 8–16, with separate norms for boys and girls. This measure has two validity scales (*Underresponse* and *Hyperresponse*) and six clinical scales: *Anxiety* (ANX, nine items), *Depression* (DEP, nine items), *Posttraumatic Stress* (PTS, 10 items), *Sexual Concerns* (SC, 10 items), *Dissociation* (DIS, 10 items), and *Anger* (ANG, nine items). Items are rated on a Likert-type scale from 0 ("never") to 3 ("almost all the time"). The TSCC has been shown to be internally consistent and a valid measure of trauma-related symptoms in children in a number of studies (e.g., Finkelhor, Ormrod, Turner, & Hamby, 2007; Lanktree & Briere, 1995; Sadowski & Friedrich, 2000; Singer, Anglin, Song, & Lunghofer, 1995; Wolfe, Wekerle, Scott, Straatman, & Grasley, 2004), and has demonstrated convergent and discriminant validity with other measures of depression, anxiety, PTSD and dissociation (e.g., Sadowski & Friedrich, 2000).

Trauma Symptom Checklist for Young Children. The TSCYC (Briere, 2005) is a standardized 90-item caretaker-report measure, developed for assessing trauma-related symptoms in children ages 3–12, with separate norms for boys and girls within three age ranges: 3–4; 5–9; and 10–12. Items are rated on a Likert-type scale from 1 ("not at all") to 4 ("very often"). In addition to two validity scales (*Response Level* and *Atypical Response*), the TSCYC includes 6 clinical scales: *Posttraumatic Stress-Total* (PTS-TOT, 27 items), *Sexual Concerns* (SC, nine items), *Anxiety* (ANX, nine items), *Depression* (DEP, nine items), *Dissociation* (DIS, nine items), and *Anger/Aggression* ANG, nine items). Results from several studies report acceptable reliabilities and have shown the TSCYC to be correlated with exposure to childhood sexual abuse, physical abuse and domestic violence (e.g., Becker-Blease, Freyd, & Pears, 2004; Briere, 2005; Briere et al., 2001; Finkelhor, Hamby, Omrod, & Turner, 2005).

Symptom complexity. Two outcome variables were calculated for this study: child self-reported symptom complexity and caretaker-reported symptom complexity. The clinical scales of the TSCC and TSCYC were each dichotomized (0, 1) according to whether they were at or above the clinical cut-off based on their respective age and gender norms, and then were summed to create total complexity scores for each measure, each ranging from 0 (no scale reached clinical significance) to 6 (all scales reached clinical significance). The TSCYC manual indicates that scores are clinically elevated when they are at least 2 standard

Table 1
Frequency of trauma types.

Trauma type	n	%
Sexual abuse	162	51
Physical abuse	68	21
Psychological abuse	68	21
Neglect	88	28
Witnessed partner violence	133	42

Table 2
Total number of different traumas experienced (cumulative trauma) and associated symptom complexity.

Number of trauma types	n	%	Symptom complexity			
			Self-reported		Care-taker reported	
			M	SD	M	SD
0	50	16	.50	.15	.70	1.13
1	106	33	.67	.12	1.23	1.80
2	63	20	1.08	1.68	2.17	2.40
3	55	17	.78	1.24	2.00	2.14
4–5	44	14	1.48	1.93	2.60	2.15

deviations above the mean (T-score $\geq$ 70), whereas the TSCC manual sets clinical significance at 1.5 standard deviations above the mean (T-score $\geq$ 65) for all scales except *Sexual Concerns*, which is considered clinically elevated at $T \geq 70$.

Data analytic strategy

Path analysis, using Bentler's (2005) EQS software, was used to examine the relative contributions of age, gender, and total number of trauma types to self-reported and caretaker-reported symptom complexity. The robust estimation method was used to estimate maximum likelihood of model fit due to the expectation that data were categorical or nonnormally distributed (Byrne, 2006).

Adequacy of model fit was assessed through multiple indices. Because of well-known problems of fit estimation when using the χ^2 in large data sets, the ratio of the Satorra–Bentler χ^2 to degrees of freedom was also used, with ratios of 2.0 or less indicating the absence of significant unexplained error. The Non-Normed Fit Index (NNFI) and the Comparative Fit Index (CFI) were both calculated, with values close to .95 or higher indicating a good-fitting model (Hu & Bentler, 1999). Finally, the Root Mean Square Error of Approximation (RMSEA) considers the error of approximation in the population and estimates the difference between the proposed model and actual variances and covariances in the data, with values less than .06 being preferred (Hu & Bentler, 1999).

Results

Descriptive analyses of the data revealed that some variables, as expected, were not normally distributed: gender (categorical variable, girls and boys), cumulative trauma (skew = .45, kurtosis = −.72), age (skew = .15, kurtosis = −.91), self-reported symptom complexity (skew = 1.84, kurtosis = 2.70) and caretaker-reported symptom complexity (skew = 4.45, kurtosis = 1.38) (see Bulmer, 1979 for cut-off indicating non-normality). The Shapiro–Wilk test for normality (Shapiro & Wilk, 1965) was significant ($p < .001$) for these variables, indicating that the null hypothesis that the data are normally distributed should be rejected. These findings support the use of the robust estimation approach described in the Methods section.

Table 1 presents the frequency of trauma types examined in this study. Symptom complexity frequencies as reported by participants and caretakers along with means and standard deviations are reported in Table 2. Means, standard deviations, and percentage of participants reporting clinical elevations are reported for each scale in Table 3. Correlations among symptom scales and path analysis variables are presented in Table 4.

Results of path analysis support the hypothesized relationships between cumulative trauma and symptom complexity in children, for both child- and caretaker-report, with satisfactory fit to the proposed model (CFI = .98; χ^2 [5,318] = 5.88; p = .32; χ^2/df ratio = 1.18; RMSEA = .02 [C.I. = .00, .08]). Total variance explained was 3% for self-reported symptom complexity and 9% for caretaker-reported complexity. Fig. 1 illustrates these results, with standardized β weights for all hypothesized paths. Results indicate that cumulative trauma is significantly associated with both self-reported (β = .16, $p \leq .001$) and caretaker reported (β = .26, $p \leq .001$) symptom complexity. Child age of participants was not related to either self-reported or caretaker-reported symptom complexity. Child gender was significantly associated with caretaker-reported, but not child-reported, symptom complexity.

Table 3
Means, standard deviations, and clinical elevations on symptom scales.

Measures	Range	*M*	*SD*	% above clinical cutoff
TSCC				
Anxiety	0–27	7.92	4.83	17.8
Depression	0–27	7.23	4.95	14.1
Anger	0–27	6.73	5.23	7.8
PTS	0–30	10.21	6.14	17.1
Dissociation	0–30	7.46	5.08	11.5
Sexual concerns	0–30	3.21	3.39	16.9
Self reported complexity	0–6	.85	1.44	
TSCYC				
PTS	0–108	42.46	13.08	33.2
Sexual concerns	0–36	10.86	2.82	15.3
Anxiety	0–36	14.24	4.96	27.9
Depression	0–36	14.76	5.08	28.5
Dissociation	0–36	13.70	5.53	20.3
Anger	0–36	14.59	5.74	24.1
Caretaker reported complexity	0–6	1.67	2.15	

Table 4
Correlations among symptom scales and path analysis variables.

Scale	Caretaker-reported						
	Anxiety	Depression	Anger	PTS	Dissociation	Sexual concerns	Complexity
Self-reported							
Anxiety	.32**	.21**	.13*	.18**	.19**	.13*	.22**
Depression	.13**	.23**	.19**	.11^{ns}	.16**	.18*	.18**
Anger	.05^{ns}	.18**	.30**	.07^{ns}	.11^{ns}	.11*	.10^{ns}
PTS	.24**	.19**	.10^{ns}	.16**	.08^{ns}	.20**	.18**
Dissociation	.12*	.14*	.13*	.10^{ns}	.18**	.10^{ns}	.11*
Sexual concerns	.14*	.16**	.13*	.19**	.17**	.31**	.23**
Complexity	.16**	.19**	.20**	.13*	.13*	.17**	.17**

* $p \leq .05$.
** $p \leq .001$.

Discussion

The current study examined the effects of exposure to multiple interpersonal trauma types (cumulative trauma) in children aged 8–12, and found that the number of different types experienced was significantly associated with complexity of self- and caretaker-reported trauma-related symptoms. These results add to a small but growing number of studies suggesting that childhood experiences of multiple types of trauma are associated with significant comorbidity. Importantly,

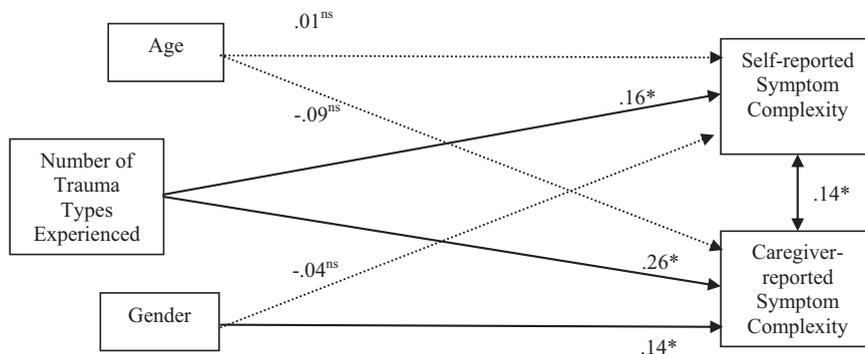Running head: CUMULATIVE CHILDHOOD TRAUMA AND SYMPTOM COMPLEXITY

Fig. 1. Model representing relationships among age, gender, number of trauma types experienced and complex traumatic outcomes as reported by participants and their caregivers. *Note*: Paths marked with asterisks are significant at $p \leq .001$. Nonsignificant paths are indicated with dotted lines.

two separate perspectives on trauma-related symptoms (i.e., children and their caretakers) were measured in this study, adding to the validity of these findings.

Although the basis for such complexity has not been established, several explanations are possible. Most obviously, the trauma literature suggests that different types of traumas may have, to some extent, different impacts: for example sexual traumas are often associated with later sexual fears, issues, or maladaptive sexual behaviors (e.g., Briere & Runtz, 1990); physical assaults or abuse may produce subsequent anger or aggression (e.g., Godbout, Dutton, Lussier, & Sabourin, 2009); and psychological abuse may be especially associated with low self-esteem (Briere & Runtz, 1990). As a result, those with a greater number of different trauma exposures might be expected to also experience a wider array of psychological effects simultaneously. It has also been suggested that the accumulating effects of multiple traumas may produce or exacerbate outcomes (e.g., anxiety, anger, or posttraumatic stress) that, in turn, motivate the use of additional, potentially maladaptive, coping strategies, such as dissociation, externalization, or substance abuse (e.g., Briere et al., 2010).

Interestingly, caretakers reported more complex symptomatology for girls than they did for boys in this study. Because there are very few studies on symptom complexity, per se, it is not possible to explain this finding based on prior research. One possibility is that caretakers view female children as more prone to complex mental health issues, as has been suggested elsewhere for societal responses to females versus males (Becker & Lamb, 1994; Garb, 1997), and may rate them accordingly. Alternatively, because girls are socialized to express a wider range of emotional distress than are boys (e.g., Chaplin, Cole, & Zahn-Waxler, 2005), they may be perceived by parents and others as having more kinds of symptoms. It should be noted, however, that males and females did not, themselves, differ in the number of symptom types they endorsed. Finally, given elevated rates of posttraumatic symptoms and complex clinical presentations in females relative to males (e.g., Breslau, 2002; Zanarini et al., 1998), caretakers may, in fact, correctly ascribe greater symptomatology to victimized girls relative to boys.

The relationship between self-reported versus caretaker-reported symptoms was relatively small in this study. This is not surprising, since various studies indicate only low to moderate correlations between child- and caretaker-reports (Achenbach, 1991; Achenbach et al., 1987; Kolko & Kazdin, 1993). Yet, although not especially correlated, both indices of symptom complexity were significantly related to cumulative trauma history, suggesting the consistency of this phenomenon across report sources. Such self- versus other-report "triangulation" (Lanktree et al., 2008) probably allows more complete information on children's symptomatic experience, as well as partially addressing the biases (e.g., defensiveness, under- or over-report of symptoms) associated with self-report-only studies (Friedrich, 2002; Lanktree et al., 2008; Nader, 2004).

As observed in previous studies (e.g., Cloitre et al., 2009), the percentage of explained variance for symptom complexity was relatively low in the present study, particularly for self-reported symptoms. As is the case with most psychological outcomes, the range and type of trauma-related symptomatology undoubtedly reflects the converging influences of multiple factors, including age of the child at the time of victimization, relationship to perpetrator(s), severity and duration of the trauma, reactions from others, as well as the effects of traumatic experiences on developing biological systems and psychological capacities (Briere & Jordan, 2009). Thus, cumulative exposure to different trauma types is likely to be only one of a number of factors determining symptom complexity.

An additional factor contributing to the small but significant association between cumulative trauma and complexity may be the use of an exclusively trauma-exposed sample who were referred to treatment for trauma-related symptoms. Although cumulative trauma in this study ranged from 0 to 5, all participants experienced some degree of trauma exposure, in some cases only to lower frequency events not evaluated in this study (e.g., traumatic loss, community violence). The absence of children with no trauma exposure means that only the relative degree of cumulative trauma was examined in the present study, as opposed to an evaluation of the full range of this variable. Studies that included nontraumatized children (who, presumably, would have less symptom complexity) might easily observe an increase in the correlation between these two variables.

Overall, the current study suggests that cumulative interpersonal trauma in childhood leads to complex symptom presentations relatively quickly, as opposed to (or in addition to) its development over the long-term. Such data generally support the notion of a developmental trauma disorder, as suggested by van der Kolk (2005), except that the current study does not specify a unique pattern of symptoms. Further research is clearly indicated to determine if different patterns of early child trauma and neglect lead to specific symptom configurations, as opposed to just increasing symptom complexity, per se.

As noted by both Briere et al. (2008) and Cloitre et al. (2009), the independent variable used to index cumulative trauma in most research (i.e., the total number of different types of trauma experienced by an individual) may be a limitation of this and other studies. For example, two individuals, one with extended childhood sexual and physical abuse, and the other with only one incident of each, would each receive a "2" on the cumulative trauma variable. An alternative might be to create an index of the total number of times an event occurred, summed across all events. However, it appears thus far that number of trauma types may be a better predictor of outcomes than frequency of trauma exposure, per se (Cloitre et al., 2009). A possible next step in complexity (and other) research might be to include both number of trauma types and an estimate of total number of traumatic events experienced within the same analyses, to determine their differential and interactive predictive validity.

It also should be noted that in most previous studies, as well as in this one, *cumulative trauma* is indexed by a count of types of *interpersonal* trauma. However, it may be that noninterpersonal traumas contribute in different ways, and thus

should be included in subsequent research, or, alternatively, the variable should be referred to as *cumulative interpersonal trauma.*

A possible limitation of this study may be the use of a single measure for each symptom complexity variable (i.e., the TSCC for child self-report and the TSCYC for caretaker-report). For example, multiple measures of self- and other-reported trauma-related symptomatology might allow more robust representations of each form of symptom complexity. Mitigating this concern, to some extent, are several studies providing support for the convergent and discriminant validity of the TSCC and TSCYC, suggesting that they are reasonable proxies for other symptom measures as well. Nevertheless, future studies examining symptom complexity might include multiple measures of self- and caretaker-reported trauma symptoms.

It is important to note that the frequency of trauma types found in this sample is not representative of maltreatment reported in the general population. Statistics reported on an annual basis, for example by the National Child Abuse and Neglect Data System (NCANDS), indicate that, across all victims, physical abuse is reported more frequently than sexual abuse, roughly 18% versus 9% in 2011 (Department of Health and Human Services, 2012). Yet, in the present sample, sexual abuse was reported by just over half of the participants, as compared to 21% who reported physical abuse.

Several factors likely contributed to the overrepresentation of sexual abuse in this sample. First, independent of their treatment programs, both centers also contained forensic evaluation teams that examined or interviewed children referred by police and others regarding allegations of sexual abuse. When sexual abuse was suspected or confirmed, a number of these children were referred for treatment and thereby became eligible for this study. Second, more generally, research suggests that sexual abuse may be associated with a greater amount of symptomatology relative to some other forms childhood abuse (e.g., Briere & Elliott, 2003), which likely results in more treatment referrals for sexually abused children. Third, it is possible that clinicians working with traumatized children consider only moderate or severe levels of certain type of violence to be traumatic. For example, clinicians working with clinical populations of traumatized children might not identify occasional occurrences of nonsexual (e.g., physical) abuse as a trauma requiring clinical referral, whereas even one instance of sexual contact is generally reported as sexual abuse and is often thought to require clinical intervention.

This specific sample, then, may be similar to other clinical groups of children who were referred by clinicians, forensic evaluators, and other agencies to an abuse treatment center. On the other hand, data generated from this specific sample are unlikely to be representative of abused children in the general population. As well, although the participation rate in this sample was judged by clinicians to be high, the record-review nature of the study's methodology precluded a direct estimation of this report. As a result, we cannot assess the possible effects of nonparticipation on the results of this study.

As with other studies, it should be emphasized that the retrospective and cross-sectional nature of this research cannot prove the causal direction of the variables examined here. Although we tested the fit of the data to the hypothesis that accumulated trauma types result in greater symptom complexity, it is also possible that greater symptom complexity can lead to greater exposure to different types of trauma. Although not examining complex outcomes, per se, research suggests that children suffering significant psychological symptomatology are at greater risk of interpersonal victimization (e.g., Turner, Finkelhor, & Ormrod, 2010). Future research might explicitly examine these competing hypotheses, as well as the possibility that both may be true simultaneously.

In summary, the current data indicate that children with a history of exposure to multiple different types of trauma are more likely to experience wider-ranging symptomatology than those with more circumscribed trauma histories. It is likely, although not yet proven, that such complexity in childhood can progress to more complex adult presentations, as opposed to such complexity just appearing de novo later in life. To the extent that this is true, intervention for multiply traumatized children may not only assist with immediate symptom, but potentially reduce the likelihood of complex outcomes in adults.

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