Time does not heal all wounds: Identifying children suffering from psychological trauma

Verlinden, E.

Chapter 3

Traumatic stress symptomatology after child maltreatment and single traumatic events: Different profiles

Caroline S. Jonkman
Eva Verlinden
Eva A. Bolle
F. Boer
Ramón J.L. Lindauer

Journal of Traumatic Stress 2013, 26, 225-232

Abstract

The sequelae of child maltreatment tend to extend current posttraumatic stress disorder (PTSD) symptoms. This study examined this assumption, hypothesizing that (a) PTSD and trauma-related symptoms are more severe after single trauma than after child maltreatment; (b) symptoms unrelated to trauma are more severe after child maltreatment than after single trauma; and (c) a comorbid association of clinical PTSD with trauma-related symptoms is more prevalent after single trauma, whereas a comorbid association of clinical PTSD with trauma unrelated symptoms is more prevalent after child maltreatment. The Trauma Symptom Checklist for Children (TSCC) assessed PTSD and trauma-related symptoms in 256 children (83 children exposed to single trauma, 173 to child maltreatment). The Strengths and Difficulties Questionnaire (SDQ) assessed trauma-unrelated symptoms. Single-trauma children reported significantly more severe PTSD and trauma-related symptoms. Significantly more severe trauma unrelated symptoms were reported after child maltreatment. A significant relation was found between clinical PTSD and more severe trauma-related symptoms in both samples. Likelihood of children meeting PTSD symptoms after trauma seems to decrease when traumatization becomes more complex. Findings support our assumption that symptomatology of maltreated children extends current PTSD symptoms.

Introduction

Children frequently experience adverse events, but not all of the events are considered traumatic. Classifying events as traumatic depends upon the accompanying threats of injury, death, or the physical integrity of self or others and also causing horror, terror, or helplessness at the time it occurs (American Psychological Association, 2010). Exposure to potential traumatic events in childhood has been reported in more than a quarter of adolescents and in more than two thirds of children by age 16 years (American Psychological Association, 2010; Costello, Erkanli, Fairbank, & Angold, 2002). Although all children show distress after traumatic exposure, this is often short term or modestly problematic, and many children recover without help from mental health professionals (American Psychological Association, 2010). Yet, a minority of the children develops more severe and persistent psychological problems, like school difficulties and anxiety and depressive disorders (Copeland, Keeler, Angold, & Costello, 2007). Posttraumatic stress symptoms are often seen as well, but only a minority of children qualify for a posttraumatic stress disorder diagnosis (PTSD; American Psychiatric Association [APA], 2000). The clinical profile of victims of early chronic and interpersonal traumatization, such as child maltreatment (i.e., complex trauma; Kilpatrick, Ruggiero, Acierno, Saunders, Resnick, & Best, 2003), is more complex and extends the PTSD diagnosis. The exposure to repeated harm, especially when inflicted by a caregiver, negatively affects children's internal warning system, emotional and behavioral regulation systems, and their ability to recognize cues to danger (Cook, Blaustein, Spinazzola, & van der Kolk, 2003). Whereas children exposed to single traumatic events show a narrow range of anxiety dominated symptoms (Sar, 2011), maltreated children are at great risk of developing severe, pervasive, and multifaceted problems, including externalizing problems (Pears, Kim, & Fisher, 2008), internalizing problems (Litrownik et al., 2005; Manly, Kim, Rogosch, & Cicchetti, 2001), and attachment disturbances (Zeanah et al., 2004). Moreover, associations have been reported between childhood adversity and functional impairment (Cloitre, Miranda, Stovall-McClough, & Han, 2005) and a substantial number of adult mental disorders (Greif Green et al., 2010).

The literature distinguishes between two types of traumatic experiences: Type I trauma, a single traumatic experience, and Type II trauma, multiple and/or recurrent traumatic experiences that can be chronic and interpersonal like child maltreatment. Previous attempts to outline different profiles of traumatic stress symptomatology in children with these types of trauma were often unsatisfying, as the types were not clearly defined (e.g., Iverson, Resick, Suvak, Walling, & Taft, 2011) or studied independently from each other (e.g., Cloitre et al., 2010). Therefore, the purpose of the present study was to enhance our knowledge with regard to the different traumatic stress profiles, comparing PTSD symptoms, trauma-related symptoms, and trauma-unrelated symptoms between two exclusive samples of traumatized children. The PTSD symptoms reflect current criteria for PTSD according to the Diagnostic and Statistical Manual of Mental Disorders (4th ed., text rev.; DSM-IV-TR; APA, 2000), for example, intrusion, avoidance, and hyperarousal. Trauma-related symptoms are psychological

difficulties that have been found to be related to trauma, such as anxiety, depression, and/or dissociation (Briere, 1996, 2005). Trauma-unrelated symptoms are general difficulties in childhood, unrelated to traumatic experiences. Symptoms are compared between a first sample consisting of children exposed to a single traumatic event and a second sample of children who have been removed from the home of origin after prolonged child maltreatment. We hypothesized that (a) PTSD and trauma-related symptoms are more severe after single trauma than after child maltreatment; (b) trauma-unrelated symptoms are more severe after child maltreatment than after single trauma; and (c) a comorbid association of clinical PTSD with trauma-related symptoms is more prevalent in single-trauma children, whereas a comorbid association of clinical PTSD with trauma-unrelated symptoms is more prevalent in maltreated children.

Method

Participants

We included 256 children referred to a child and adolescent psychiatric institution. There were two subgroups: children referred to the trauma clinic of the institution, after experiencing a traumatic event; and children referred for therapeutic foster care, after a history of ongoing child maltreatment. Children with mental retardation and children reporting psychotic symptoms were excluded.

To be included in the study, the children referred to the trauma clinic had to report a single Type I traumatic event. Children reporting multiple or recurrent (Type II) traumatic experiences were excluded from this sample; 83 children were found eligible. This sample (*M* age = 14.01 years, *SD* age = 2.65, range: 7–18 years), comprised 25.3% boys (*n* = 21) and 74.7% girls (*n* = 62) of whom most (86.8%) children had a native Dutch background. Nonnative children were equally divided over Western and non-Western backgrounds.

The child maltreatment sample comprised 173 children with a mean age of 7.95 years, (*SD* = 3.53, range: 2–18 years). This sample consisted of 51.4% boys (*n* = 89) and 48.6% girls (*n* = 84), from the following ethnic backgrounds: 89% native Dutch, 0.6% nonnative Western, 9.2% nonnative non-Western, 1.2% unknown. Information from child protective services revealed that all children in this group had prolonged histories of child maltreatment and multiple out of home placements. Therefore, all children were found eligible to participate in this study.

Procedure

Preliminary data gathering strategies were approved by a medical ethical committee. We obtained assent from children 12 years and older and written informed consent from all parents, foster parents, or legal authorities. We did not obtain assent from children younger than 12 years. These children were not actively involved in the study, but only included through parent report or by investigating their medical dossier. The decision whether children

referred to the trauma clinic only had a single Type 1 trauma was based upon the Anxiety Disorders Interview Schedule for DSM-IV–Child and Parent Versions (ADIS-C/P; Silverman & Albano, 1996) interview. The establishment of child maltreatment in the therapeutic foster care group was supported by the Maltreatment Classification System (MCS; Barnett, Manly, & Cicchetti, 1993). Questionnaires and the ADIS-C/P interview were administered to the single-trauma children during a visit at the institution within 3 weeks after being referred to account for treatment effects in the single-trauma group. Questionnaires within the child maltreatment sample were administered to foster parents 3 months after entering the department therapeutic foster care to account for invalid reports of new foster parents in the child maltreatment group (as assignment to therapeutic foster care implies transfer to a new family setting for most children).

Measures

PTSD symptoms and trauma-related symptoms were assessed using the Trauma Symptom Checklist for Young Children (TSCYC; Briere, 2005) and the Trauma Symptom Checklist for Children (TSCC; Briere, 1996). The TSCYC determines the extent and type of posttraumatic stress symptoms based on the (foster) parents report. Respondents report how often each experience (90 items) happens to their child on a 4-point scale (1 = *not at all*, 2 = *sometimes*, 3 = *often*, 4 = *very often*). This questionnaire includes two validity scales: response level and atypical response, which were used to detect and exclude hyper- as well as underscorers from the study. Parents whose report of their children are above the clinical cutoff value of the validity scales are expected to underreport even the most common problems among children or to overreport all symptoms, therefore their questionnaires are considered invalid. The psychological impact of negative life events in children is categorized by the nine clinical scales of the TSCYC with the following alpha coefficients: anxiety = .71, depression = .75, anger = .89, posttraumatic stress intrusion = .73, posttraumatic stress avoidance = .78, posttraumatic stress hyperarousal = .79, posttraumatic stress total = .86, dissociation = .88, and sexual concerns = .56. PTSD symptoms are captured in the TSCYC subscale posttraumatic stress total (PTS-total). The other subscales reflect trauma related symptoms. For all subscales, the manual provides a clinical cutoff value. To test Hypothesis 3, children below the cutoff value of PTS-total are referred to as nonclinical scorers and children above the clinical cutoff are referred to as clinical scorers.

Children 7 years of age or more completed the TSCC. This questionnaire consists of 54 items rated on a 4-point scale (0 = *not at all*, 1 = *sometimes*, 2 = *often*, 3 = *very often*), and includes two validity scales to detect and exclude hyper- as well as underscorers from the study. Children scoring above the clinical cutoff value of the validity scales are expected to underreport even the most common problems among children or to overreport all symptoms; therefore, their questionnaires are considered invalid. The psychological impact of negative life events in children is categorized by nine clinical scales of the TSCC with the following alpha coefficients: anxiety = .86, depression = .88, anger = .83, posttraumatic stress = .90, dissociation = .81,

overt dissociation = .80, fantasy dissociation = .35, sexual concerns = .72, sexual concerns preoccupation = .70, and sexual concerns distress = .68. PTSD symptoms are captured in the TSCC subscale posttraumatic stress (PTS-total). This subscale comprises items reflecting posttraumatic symptomatology. The other subscales comprise trauma–related symptoms. For the all subscales, the manual provides a clinical cutoff value. To test Hypothesis 3, children below the cutoff value of PTS-total are referred to as nonclinical scorers and children above the clinical cutoff are referred to as clinical scorers. Although the TSCC is not a comprehensive measure of the DSM-IV-TR PTSD diagnosis (APA, 2000), the TSCC PTS-total scale appeared an accurate predictor (positive predictive value = .92) for a PTSD diagnosis according to the ADIS-C, χ^2 (1, N = 63) = 5.57, p = .02. The TSCC demonstrates moderate (sexual concerns and hyperresponse; Ohan, Myers, & Collett, 2002) and good reliability (Briere, 1996). The TSCYC demonstrates good reliability (Briere et al., 2001). The TSCC and TSCYC display moderate convergent and discriminant validity (Lanktree et al., 2008).

To assess trauma-unrelated symptoms, the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) was completed by (foster) parents. Based on 25 items that were rated on a 3-point scale (0 = *not true*, 1 = *somewhat true*, 2 = *very true*), we indexed children's status on five subscales and one total scale. Coefficient alphas were these: emotional problems = .65, conduct problems = .68, hyperactivity = .77, peer relations = .57, prosocial behavior = .73, and total difficulties = .67. Reliability and validity of the SDQ-parent report, in a Dutch sample has been found satisfactory (Goedhart, Treffers, & Widenfelt, 2003).

The Anxiety Disorders Interview Schedule for DSM-IV– Child and Parent Versions (ADIS-C/P; Silverman & Albano, 1996) consists of two semistructured interviews designed specifically for the assessment of anxiety disorders experienced by children and adolescents. In addition, other related disorders such as mood and externalizing disorders are included to assess a full diagnostic picture. Diagnoses are based on information about symptoms and interference in daily life. According to Silverman, Saavedra, and Pina (2001), the ADIS-C/P appears to be a reliable instrument for deriving DSM-IV anxiety disorder symptoms and diagnosis in children. The ADIS-C/P was found to have good to excellent test-retest and interrater reliability (Lyneham, Abbott, & Rapee, 2007; Silverman et al., 2001). For the current study the interrater agreement was excellent (κ = .89).

The Maltreatment Classification System (MCS; Barnett et al., 1993) was used to code the type of maltreatment children experienced based on children's records from child protective services, considering five domains: physical abuse, sexual abuse, physical neglect (i.e., failure to provide and lack of supervision), and emotional maltreatment. Every type of maltreatment was coded for all children on a 3-point scale (0 = *not reported*, 1 = *suspicions* or 2 = *reported*). If the record did not mention any incidences of the specific type, it was coded as not reported. All codeable incidences within a referral from a valid reporter (e.g., police officer, doctor, or caseworker) were coded reported unless it was reported that there was insufficient evidence (suspicions).

We used a translated version of the MCS (Jonkman, Bolle, Harten-Hoogendam, Boer, & Lindauer, 2009). The MCS was used with the records of the first 155 consecutive admissions to the clinic. The average agreement between observers (κ) for the MCS was .77. Interrater agreement on a 3-point scale (0 = *not reported*, 1 = *suspicions* or 2 = *reported*) was .76 for physical abuse, .84 for sexual abuse, .74 for failure to provide, .72 for lack of supervision and .45 for emotional maltreatment. Adhering to Landis and Koch's (1977) interpretation, the agreement ranged from moderate to excellent agreement. In this study, two researchers independently from each other classified children's records. In cases of disagreement, the final classification was coded in consultation with a third researcher. The MCS has been found a reliable and valid system to quantify maltreatment (English et al., 2005).

Data analyses

We excluded invalid cases from the analysis, using the validity scales of the TSC(Y)C (Briere, 1996, 2005). Percentages (*n*) of invalid cases in the single-trauma sample for response level, atypical response, underscore, and hyperscore were, respectively, 7.1 (1), 7.1 (1), 13.0 (12), and 3.9 (3). For the child maltreatment sample this was 6.9 (9), 1.2 (2), 12.1 (21), and 3.2 (3), respectively. Following the questionnaire guidelines, these children were excluded from further analyses and 207 children remained in the study. The remaining sample of 207 children consisted of 69 single-trauma children and 138 child maltreatment children. The TSCYC has an age range of 3–12 years, therefore only nine single-trauma children remained available for the TSCYC and we decided to exclude this questionnaire from further between-samples analyses. The TSCYC, however, was used to determine comorbidity patterns in the child maltreatment sample. Within the TSCYC age range, 42 maltreated children remained available. With the TSCC age range of 8 to 16 years, 63 single-trauma children remained available. With regard to the 138 children exposed to child maltreatment, 66 children fell within the age range of the TSCC. One maltreated child was excluded from analyses regarding the Sexual Concerns (SC) Distress Scale because of insufficient answers. The Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) was filled out by 69 single-trauma children, one questionnaire was missing. The SDQ data were available for 77 children in the child maltreatment sample. One maltreated child did not answer enough questions to calculate the Peer Relations Scale and the Total Difficulties Scale. The remaining 61 children did not receive the SDQ because this questionnaire was previously not part of our measurements. By the time we inserted the SDQ, these children had already finished their treatment. We decided, however, to include these children in the study, considering the valuable information provided with their responses on the TSCC. Analyses showed that these children did not differ significantly with regard to age, gender, and symptomatology.

Statistical analyses were performed with SPSS 17.0. To compare severity of PTSD symptoms in children exposed to a single trauma and children exposed to child maltreatment (Hypothesis 1), an analysis of variance (ANOVA) was conducted for the TSCC subscale PTS-total. In addition, severity of trauma-related symptoms was compared using multivariate analysis of

variance (MANOVA; all TSCC subscales minus PTS-total). To compare severity rates of trauma-unrelated symptoms after single-trauma exposure and child maltreatment (Hypothesis 2), a MANOVA was conducted including all SDQ subscales. Furthermore, to compare nonclinical with clinical scorers for the exclusive samples of children exposed to a single trauma and maltreated children on the PTS-total scale (based on the TSCC and TSCYC) with nonclinical scorers in this group (Hypothesis 3), two separate MANOVA's were performed. Strengths of associations were indicated by partial η^2.

Results

Various types of single traumatic events were reported by children in the single-trauma sample (see Table 1). Ninety percent of the children reported direct victimization, 10% reported witnessing an incident as traumatic experience. Three quarters of the reported incidents involved a perpetrator, e.g., death of a relative was coded as not involving a perpetrator. Two children (one a single sexual abuse, the second a single marital conflict) reported a parental perpetrator.

Table 1. Frequencies of single trauma exposure

	n	%
Physical attack	3	3.6
Single marital conflict	2	2.4
Single sexual abuse/rape	50	60.3
Death of a relative	8	9.6
Traffic accident	7	8.5
Crime	9	10.8
Single trauma different	4	4.8

Note. N = 83.

Based on the records of children in the child maltreatment group, we found diverse types of maltreatment (see Table 2), with physical neglect and emotional maltreatment coexisting with other types of maltreatment.

Table 2. Type of child maltreatment

	Not reported		Suspicions		Reported	
	n	%	*n*	%	*n*	%
Physical abuse	90	52	35	20	48	28
Sexual abuse	131	76	35	20	7	4
Failure to provide	40	23	12	7	121	70
Lack of supervision	111	64	15	9	47	27
Emotional abuse	10	6	9	5	154	89

Note. N = 173.

Table 3. Differences between single trauma and child maltreatment groups

	Single trauma			Child maltreatment			
Variable	*n*	*M*	*SD*	*n*	*M*	*SD*	*F*
PTSD	63	55.54	9.92	66	50.02	9.61	10.32**
Trauma related[a]							3.09**
Anxiety	63	54.02	10.92	66	49.38	9.64	6.24
Depression	63	51.30	8.86	66	48.95	9.96	1.67
Anger	63	44.97	6.81	66	46.41	6.59	1.55
Dissociation	63	51.78	9.06	66	49.00	7.28	3.42
Overt dissociation	63	52.73	9.77	66	49.97	8.38	2.78
Fantasy dissociation	63	49.24	7.50	66	47.97	6.62	0.89
SC	63	55.95	13.79	66	52.08	14.92	2.12
SC preoccupation	63	30.67	11.34	66	51.94	12.67	0.44
SC distress	63	63.94	23.76	65	51.68	17.55	11.08**
Trauma unrelated[a]							8.15***
Emotional problems	68	3.74	2.34	78	3.28	2.54	1.28
Conduct problems	68	1.96	1.71	78	2.73	2.43	5.29*
Hyperactivity	68	3.94	2.21	78	5.74	2.93	18.62***
Peer relations	68	1.57	1.58	77	2.48	2.06	8.67**
Prosocial behavior	68	8.35	1.92	78	6.91	2.47	14.79***
Total difficulties	68	11.21	4.56	77	14.32	6.71	10.43**

Note. SC = sexual concerns; PTSD = posttraumatic stress disorder.

[a]*Multivariate test result.*

** p < .05. **p < .01. ***p < .001.*

PTSD and trauma-related symptoms

The ANOVA, $F(1, 127) = 10.32$, revealed that children exposed to single trauma were significantly higher on the subscale PTS-total ($p = .002$, partial $\eta^2 = .075$), compared to children exposed to child maltreatment (see Table 3). In addition, multivariate results, $F(9, 118) = 3.09$, indicated that severity of problems within the trauma-related domain was significantly higher after single trauma ($p = .002$, partial $\eta^2 = .19$).

Table 4. Multivariate comorbid associations after single trauma

	Nonclinical[a]			Clinical[b]			
Variable	*n*	*M*	*SD*	*n*	*M*	*SD*	*F*
Trauma related[c]							3.99**
Anxiety	51	52.10	10.49	12	62.17	9.11	9.37**
Depression	51	49.57	8.13	12	58.67	8.28	12.07**
Anger	51	44.73	7.00	12	46.00	6.09	0.34
Dissociation	51	49.67	8.08	12	60.75	7.58	18.67***
Overt dissociation	51	50.53	8.60	12	62.08	9.13	17.13***
Fantasy dissociation	51	48.12	6.62	12	54.00	9.34	6.50*
SC	51	53.49	12.86	12	66.42	13.15	9.74**
SC preoccupation	51	49.96	10.64	12	53.67	14.05	1.04
SC distress	51	59.42	22.20	12	83.17	21.03	11.34**
Trauma unrelated[c]							0.68
Emotional problems	53	3.59	2.23	12	4.50	2.81	1.49
Conduct problems	53	2.09	1.77	12	1.42	1.31	1.56
Hyperactivity	53	4.00	2.24	12	3.92	2.23	0.01
Peer relations	53	1.43	1.39	12	1.33	1.15	0.05
Prosocial behavior	53	8.28	2.01	12	9.08	0.90	1.80
Total difficulties	53	11.11	4.47	12	11.17	5.56	0.00

Note. SC = sexual concerns.

[a]This sample reflects children that do not meet provisional criteria (T score < 65) for posttraumatic stress disorder (PTSD) using the Trauma Symptom Checklist for Children (TSCC). [b]This sample reflects children that meet provisional criteria (T score > 65) for PTSD using the TSCC. [c]Multivariate test result.

** p < .05. **p < .01. ***p < .001.*

Trauma-unrelated symptoms

Significantly more severe trauma-unrelated problems were reported after child maltreatment than after single trauma, according to the multivariate statistics, $F(5, 139) = 8.15$ ($p < .001$,

partial $\eta^2 = .23$). Univariate subanalyses revealed more severe problems within all subscales, except for emotional problems.

Table 5. Multivariate comorbid associations after child maltreatment

	Nonclinical[a]			Clinical[b]			
Variable	*n*	*M*	*SD*	*n*	*M*	*SD*	*F*
Trauma related[c]							2.38*
Anxiety	52	47.64	8.25	13	56.45	11.86	9.62**
Depression	52	47.13	9.16	13	56.38	9.99	9.85**
Anger	52	45.28	6.36	13	51.00	5.64	8.55**
Dissociation	52	47.34	6.21	13	55.77	7.60	17.01***
Overt dissociation	52	48.17	7.12	13	57.31	9.38	14.65***
Fantasy dissociation	52	47.08	6.28	13	51.62	6.98	4.96*
SC	52	49.60	11.35	13	62.15	22.61	7.88**
SC preoccupation	52	50.17	11.38	13	59.15	15.45	5.37*
SC distress	52	48.88	9.56	13	32.96	32.96	7.22**
Trauma unrelated[c]							1.70
Emotional problems	54	2.80	2.36	22	4.27	2.57	5.91*
Conduct problems	54	2.45	2.41	22	3.50	2.39	2.71
Hyperactivity	54	5.36	3.01	22	6.64	2.63	2.68
Peer relations	54	2.30	1.97	22	2.86	2.29	1.18
Prosocial behavior	54	6.91	2.31	22	6.86	2.92	0.01
Total difficulties	54	13.02	6.27	22	17.27	6.99	6.74*

Note. SC = sexual concerns.

[a]This sample reflects children that do not meet provisional criteria (T score < 65) for posttraumatic stress disorder (PTSD) using the Trauma Symptom Checklist for Children (TSCC). [b]This sample reflects children that meet provisional criteria (T score > 65) for PTSD using the TSCC. [c]Multivariate test result.

** p < .05. **p < .01. ***p < .001.*

Comorbidity patterns after single trauma and after child maltreatment

Nineteen percent of the children exposed to a single trauma and 11% of the maltreated children reported a score above the clinical cutoff value of PTS-total (TSCC). Twenty-eight percent of the foster parents reported a score above the clinical cutoff value of PTS-total in the sample of maltreated children (TSCYC). The MANOVAs revealed a significant relation between clinical PTS-total and increased severity rates within the domain of trauma related symptoms in children exposed to a single trauma, $F(9, 53) = 3.99$ ($p < .001$, partial $\eta^2 = .40$) as well as in maltreated children $F(9, 55) = 2.38$ ($p = .024$, partial $\eta^2 = .28$).Within both samples,

clinical PTS-total was not significantly related to more severe problems in the multivariate domain of trauma-unrelated symptoms (see Tables 4 and 5). It was predictive, however, for the univariate total difficulties scale in maltreated children, $F(51, 74) = 6.74$ ($p = .011$, partial $\eta^2 = .08$).

Discussion

Findings from this study support our hypothesis that PTSD and trauma-related symptoms are more severe after exposure to a single trauma compared to exposure to child maltreatment, as the single-trauma sample reported significantly more severe symptoms of posttraumatic stress and trauma-related symptoms. In addition, the significantly increased severity of trauma-unrelated symptoms in maltreated children, compared to children exposed to a single trauma, supports our second hypothesis that traumatic stress symptomatology after child maltreatment is more diverse. Our third hypothesis was partly confirmed. Results revealed that clinical PTS-total was not predictive for the multivariate domain of trauma unrelated symptoms in maltreated children; however, it was predictive for the univariate total difficulties scale. Results suggest that the criteria for PTSD more accurately reflect the effects of single trauma than the effects of child maltreatment. The PTSD criteria tend to be too narrow to capture the full sequelae of child maltreatment. Therefore, the likelihood of children meeting PTSD symptoms in response to adverse events seems to decrease when traumatization becomes more complex. Whereas traumatic stress symptomatology in children exposed to a single traumatic event confines itself to clinical PTSD, maltreated children show symptoms related and unrelated to trauma.

Conclusions drawn from this study with regard to trauma complexity in early life are in line with other investigations of the sequelae of child maltreatment, such as those by The National Child Traumatic Stress Network (NCTSN), that led to the estimation of seven domains of impairment (attachment, biology, self-perception, dissociation, affect regulation, behavioral management, and cognition) after child maltreatment that extend the current PTSD criteria, and are subsumed under the heading Complex Trauma (Cook et al., 2003) or as proposed by others are subsumed under the heading Complex-PTSD (CPTSD; Herman, 1992).

Although not part of our hypotheses, it is noteworthy to mention that our findings emphasize the shortcomings of studies towards child maltreatment that use exclusive categories. This study shows that there are overlapping patterns within child maltreatment, with physical neglect and emotional maltreatment reported as coexisting with other types of maltreatment, which needs to be taken into account in future research.

Further recommendations are based on the evaluation of our study findings and limitations. We intended to conduct an explorative study and the main focus of the hypotheses was to distinguish the outcomes between two exclusive samples of traumatized children. With the finding that single trauma and child maltreatment exposure indeed leads to different profiles,

we recommend future research to extend data-gathering procedures. To better understand traumatic stress symptomatology after child maltreatment, both the examination of the symptoms within the trauma-unrelated domain and the selection of respondents should be expanded. The symptoms within the trauma-related domain in this study were based on one questionnaire, not embracing all fields of impairment after child maltreatment that have been suggested by previous studies (Cook et al., 2005; van der Kolk, 2005). Thereby the use of multi-informant (Lanktree et al., 2008) and multimethod assessment (e.g., observations, interviews) have been suggested to more accurately determine children's symptomatology (Courtois, 2004; Hoyle, Harris, & Judd, 2002). Furthermore, the present study was limited in controlling for some potentially influencing variables, such as time since trauma, coping strategies, and comorbidity.

To conclude, the results suggest a different diagnostic profile between maltreated children and children with single trauma. Holding on to the current *DSM-IV-TR PTSD* criteria seems to underestimate the posttraumatic stress experienced by children who have been exposed to child maltreatment. Further research is needed to determine this and to decide whether modification of contextually sensitive criteria for traumatic stress symptoms in children is needed. Better understanding of the complexity of child maltreatment histories and its outcomes improves efficient and accurate referral to trauma therapy at an early stage and will help in protecting children against long-term high risk mental health problems (Lindauer, 2012).

Acknowledgements

We want to thank the staff from the Trauma Center and Therapeutic Foster Care from De Bascule. We also would like to thank the children that participated in this study. We acknowledge the assistance of Brent C. Opmeer from the Division of Clinical Methods and Public Health, Academic Medical Center, University of Amsterdam, Amsterdam.

References

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.).Washington, DC: American Psychiatric Association.

American Psychological Association. (2010, March). *Children and Trauma: Update for Mental Health Professionals. Presidential Task Force on Posttraumatic Stress Disorder and Trauma in Children and Adolescents.* Retrieved from http://www.apa.org/pi/families/resources/update.pdf

Barnett, D., Manly, J. T., & Cicchetti, D. (1993). Defining child maltreatment: The interface between policy and research. In: D. Cicchetti & S. L. Toth (Eds.), *Advances in Applied Developmental Psychology: Child Abuse, Child Development and Social Policy* (pp. 7–73). Norwood, NJ: Ablex.

Briere, J. (1996). *Trauma Symptom Checklist for Children: Professional Manual.* Odessa, FL: Psychological Assessment Resources.

Briere, J. (2005). *Trauma Symptom Checklist for Young Children: Professional Manual.* Odessa, FL: Psychological Assessment Resources.

Briere, J., Johnson, K., Bissada, A., Damon, L., Crouch, J., Gil, E., Ernst, V. (2001). The Trauma Symptom Checklist for Young Children (TSCYC): Reliability and association with abuse exposure in a multi-site study. *Child Abuse and Neglect: The International Journal, 25*, 1001–1014. doi:10.1016/S0145-2134(01)00253-8

Cloitre, M., Miranda, R., Stovall-McClough, K., & Han, H. (2005). Beyond PTSD: Emotion regulation and interpersonal problems as predictors of functional impairment in survivors of childhood abuse. *Behavior Therapy, 36*, 119–124. doi:10.1016/S0005-7894(05)80060-7

Cloitre, M., Stovall-McClough, K., Zorbas, P., Cherry, S., Jackson, C. L., Gan, W., & Petkova, E. (2010). Treatment for PTSC Related to Childhood Abuse: A randomized controlled trial. *The American Journal of Psychiatry, 167*, 915–924. doi:10.1176/appi.ajp.2010.09081247

Cook, A., Blaustein, M., Spinazolla, J., & van der Kolk, B., (2003). *Complex Trauma in Children and Adolescents. White Paper from the National Child Traumatic Stress Network Complex Trauma Task Force.* Los Angeles, CA: National Center for Child Traumatic Stress.

Cook, A., Spinazzola, J., Ford, J., Lanktree, C., Blaustein, M., Cloitre, M. ..., van der Kolk, B. (2005). Complex trauma in children and adolescents. *Psychiatric Annals, 35*, 390–398.

Copeland, W. E., Keeler, G., Angold, A., & Costello, E. J. (2007). Traumatic events and posttraumatic stress in childhood. *Archives of General Psychiatry, 64*, 577–584. doi:10.1001/archpsyc.64.5.577

Costello, E. J., Erkanli, A., Fairbank, J. A., & Angold, A. (2002). The prevalence of potentially traumatic events in childhood and adolescence. *Journal of Traumatic Stress, 15*, 99–112. doi:10.1023/A:1014851823163

Courtois, C. A. (2004). Complex trauma, complex reactions: Assessment and treatment. *Psychological Trauma: Theory, Research, Practice, and Training, 41*, 412–425. doi:10.1037/0033-3204.41.4.412

English, D. J., Upadhyaya, M. P., Litrownik, A. J., Marshall, J. M., Runyan, D. K., Graham, J. C., & Dubowitz, H. (2005). Maltreatment's wake: The relationship of maltreatment dimensions to child outcomes. *Child Abuse and Neglect, 29*, 597–619. doi:10.1016/j.chiabu.2004.12.008

Goedhart, A., Treffers, F., & Widenfelt, B. (2003). Vragen naar psychische problemen bij kinderen en adolescenten: de Strengths and Difficulties Questionnaire [Questioning psychological problems in children and adolescents: the Strengths and Difficulties Questionnaire]. *Maandblad Geestelijke Volksgezondheid, 58*, 1018–1035.

Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A research note. *Journal of Child Psychology and Psychiatry, 38*, 581–586. doi:10.1111/j.1469-7610.1997.tb01545.x

Greif Green, J. G., McLaughin, K. A., Berglund, P. A., Gruber, M. J., Sampson, N. A., Zaslavsky, A. M., & Kessler, R. C. (2010). Childhood adversities and adult psychiatric disorders in the National Comorbidity Survey Replication II. Associations with first onset of DSM-IV disorders. *Archives of General Psychiatry, 67*, 113–123. doi:10.1001/archgenpsychiatry.2009.186

Herman, J. L. (1992). *Trauma and Recovery.* New York: Basic Books.

Hoyle, R. H., Harris, M. J., & Judd, C. M. (2002). Research Methods in Social Relations. New York: Wadsworth.

Iverson, K. M., Resick, P. A., Suvak, M. K., Walling, S., & Taft, C. T. (2011). Intimate partner violence exposure predicts PTSD treatment engagement and outcomes in cognitive processing therapy. *Behavioral Therapy, 42*, 236–248. doi:10.1016/j.beth.2010.06.003

Jonkman, C. S., Bolle, E. A., Harten-Hoogendam, H., Boer, F., & Lindauer, R. J. L. (2009). Dutch Translation of the Maltreatment Classification System. Unpublished manuscripts, Department of Child and Adolescent Psychiatry, Academic Medical Center-University of Amsterdam De Bascule.

Kilpatrick, D. G., Ruggiero, K. J., Acierno, R., Saunders, B. E., Resnick, H. S., & Best, C. L. (2003). Violence and risk of PTSD, major depression, substance abuse/dependence, and comorbidity: Results from the National Survey of Adolescents. *Journal of Consulting and Clinical Psychology, 71*, 692–700. doi:10.1037/0022-006X.71.4.692

Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics, 33*, 159–174. doi:10.2307/2529310

Lanktree, C. B., Gilbert, A. M., Briere, J., Taylor, N., Chen, K., Maida, C. A., & Saltzman, W. R. (2008). Multi-informant assessment of maltreated children: Convergent and discriminant validity of the TSCC and TSCYC. *Child Abuse & Neglect, 32*, 621–625. doi:10.1016/j.chiabu.2007.10.003

Lindauer, R. J. L. (2012). Child maltreatment—Clinical PTSD diagnosis not enough?!: Comment on Resick et al. (2012). *Journal of Traumatic Stress, 25*, 258–259. doi:10.1002/jts.21698

Litrownik, A. J., Lau, A., English, D., Briggs, E., Newton, R., Romney, S., & Dubowitz, H. (2005). Measuring the severity of child maltreatment. *Child Abuse & Neglect, 29*, 553–573. doi:10.1016/j.chiabu.2003.08.010

Lyneham, H. J., Abbott, M. J., & Rapee, R. M., (2007). Interrater reliability of the Anxiety Disorders Interview Schedule for DSM-IV: Child and parent version. *Journal of the American Academy of Child and Adolescent Psychiatry, 46*, 731–737. doi:10.1097/chi.0b013e3180465a09

Manly, J. T., Kim, J. E., Rogosch, F. A., & Cicchetti, D. (2001). Dimensions of child maltreatment and children's adjustment: Contributions of developmental timing and subtype. *Development and Psychopathology, 13*, 759–782.

Ohan, J. L., Myers, K., & Collett, B. R. (2002). Ten-year review of rating scales, IV: Scales assessing trauma and its effects. *Journal of the American Academy of Child and Adolescent Psychiatry, 41*, 1401–1422. doi:10.1097/00004583-200212000-00012

Pears, K. C., Kim, H. K., & Fisher, P. A. (2008). Psychosocial and cognitive functioning of children with specific profiles of maltreatment. *Child Abuse & Neglect, 32*, 958–971. doi:10.1016/j.chiabu.2007.12.009

Sar, V. (2011). Developmental trauma, complex PTSD, and the current proposal of DSM-5. European *Journal of Psychotraumatology, 2*. doi:10.3402/ejpt.v2i0.5622

Silverman, W. K., & Albano, A. M. (1996). *The Anxiety Disorders Interview Schedule for Children for DSM-IV: Child and parent versions.* San Antonia, TX: Psychological Corp.

Silverman, W. K., Saavedra, L. M., & Pina, A. A. (2001).Test-retest reliability of anxiety symptoms and diagnoses with Anxiety Disorders Interview Schedule for DSMIV: Child and parent versions. *Journal of the American Academy of Child and Adolescent Psychiatry, 40*, 937–944. doi:10.1097/00004583-200108000-00016

Van der Kolk, B. A. (2005). Developmental trauma disorder: Towards a rational diagnosis for children with complex trauma histories. *Psychiatric Annals, 35*, 401–408.

Zeanah, C. H., Scheeringa, M., Boris, N. W., Hellers, S. S., Smyke, A. T., & Trapani, J. (2004). Reactive attachment disorder in maltreated toddlers. *Child Abuse and Neglect, 28*, 877–888. doi:10.1016/j.chiabu.2004.01.010