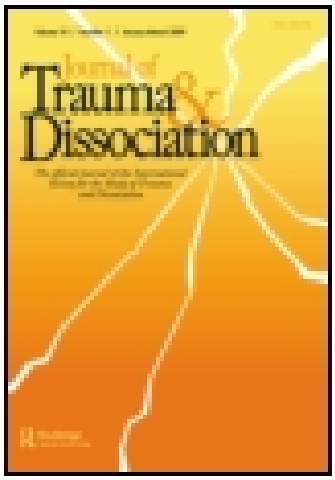

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Association of Childhood Complex Trauma and Dissociation with Complex PTSD Symptoms in Adulthood

Annemiek van Dijke Ph.D.[ab], Julian D. Ford Ph.D.[d], Laurence E. Frank Ph.D.[c] & Onno van der Hart Ph.D.[c]

[a] VU University Amsterdam, Faculty of Psychology and Education, Van der Boechorststraat 1, NL- 1081 BT Amsterdam

[b] Yulius Academy & Colk Yulius, Rotterdam, The Netherlands

[c] Utrecht University, Utrecht, The Netherlands

[d] University of Connecticut School of Medicine Department of Psychiatry, USA

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Annemiek van Dijke, Ph.D.*∞,

Julian D. Ford, Ph.D., [3]

Laurence E. Frank, Ph.D. [2],

Onno van der Hart, Ph.D.[2]

Correspondence:

Annemiek van Dijke, Ph.D.

∞VU University Amsterdam

Faculty of Psychology and Education

Van der Boechorststraat 1

NL- 1081 BT Amsterdam

email: a.vandijke@yulius.nl ; a.van.dijke@vu.nl;

*Yulius Academy & Colk Yulius, Rotterdam, The Netherlands

[2] Utrecht University, Utrecht, The Netherlands

[3] University of Connecticut School of Medicine Department of Psychiatry, USA

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Contact information of co-authors:

Julian D. Ford

University of Connecticut Health Center

Director, Center for Trauma Recovery and Juvenile Justice

263 Farmington Avenue

Farmington, CT 06030-1410

Tel: 860-679-8778

Fax: 860-679-4326

jford@uchc.edu

Laurence Frank,

Utrecht University Utrecht,

Faculty of Social Sciences

Department of Methodology and Statistics,

Heidelberglaan 1, Utrecht

the Netherlands

L.E.Frank@uu.nl.

Onno van der Hart

Utrecht University Utrecht,

Faculty of Social Sciences

Department of Methodology and Statistics,

Heidelberglaan 1, Utrecht

the Netherlands

o.vanderhart@uu.nl

Abstract

This study replicates and extends prior research on the relationship of childhood complex trauma with complex post-traumatic stress disorder (cPTSD) in adulthood, examining the role of psychoform and somatoform dissociation as a potential mediator. Childhood Complex Trauma (CCT), dissociation, and cPTSD were assessed in a large sample of adult psychiatric inpatients. Almost two-thirds of participants reported having experienced CCT. Path analyses with bootstrap confidence intervals demonstrated a relationship between CCT, psychoform (but not somatoform) dissociation, and cPTSD. In addition, psychoform dissociation partially mediated the relationship between CCT and adult cPTSD-symptoms. Dissociation (pathological or non-

pathological psychoform and somatoform symptoms) warrants further clinical and scientific study as a potential link between childhood complex trauma and the presence of adult cPTSD-symptoms and/ or dissociative subtype of PTSD.

Word count: 129

Keywords: dissociation; complex PTSD; childhood trauma

Association of Childhood Complex Trauma and Dissociation with Complex PTSD Symptoms in Adulthood

Almost 25 years ago, complex posttraumatic stress disorder (cPTSD) was proposed as a clinical syndrome to describe the alterations in functioning and guide the treatment of adults who had suffered prolonged and severe interpersonal trauma (Herman, 1992; Ford, 2008). cPTSD originally was operationalized for research as well as clinical purposes as "Disorders of Extreme Stress Not Otherwise Specified" (DESNOS; McLean et al., 2006; Pelcovitz et al., 1997; Roth et al., 1997; Van der Kolk et al., 1996), a syndrome involving pathological dissociation, emotion dysregulation, somatization, and altered core schemas about the self, relationships, and sustaining beliefs (i.e., morality, spirituality) in the aftermath of exposure to traumatic interpersonal victimization. A condensed definition of cPTSD has been formulated based on empirical identification of distinct sub-groups of individuals with histories of traditional versus complex (Cook et al., 2005) traumatic stress exposure: in addition to the core PTSD symptom set, cPTSD was defined as involving three domains of dysregulation (emotion, interpersonal, and altered self-schemas) (Cloitre et al., 2013; Knefel & Lueger-Schuster, 2013; Thomaes et al., 2013). Patho-

logical dissociation was not included as a core cPTSD feature but instead was used as a basis for a sub-type of PTSD, consistent with research identifying a sub-group of individuals with both biological and psychological features of dissociation in addition to PTSD (Lanius et al., 2012) and factor analytic studies showing that dissociative symptoms did not comprise a distinct feature within cPTSD (Scoboria, Ford, Lin, & Frisman, 2007).

cPTSD often (but not always; e.g., Dorahy et al., 2013) has been found to be associated with complex traumatic exposures (Cook et al., 2005) in childhood (D'Andrea et al., 2012; Schafer, et al., 2010; Scott, et al., 2011; Van der Kolk et al., 2005; Wingenfeld et al., 2011; Zlotnick et al., 1996). A key feature hypothesized to distinguish complex from other forms of childhood traumatic stressors is the disruption of the attachment bond with primary caregiver(s) (D'Andrea et al., 2012). In addition recent studies demonstrate that children who are observed to have dysregulated affect, behavior, and relationships tend both to have experienced complex trauma and to be at risk for dysregulation and associated psychosocial problems in adulthood (Althoff, Verhulst, Rettew, Hudziak, & van der Ende, 2010; D'Andrea et al., 2012).

Based on these findings, expert clinicians recognize the need for evidence-based guidelines for assessing and treating trauma survivors who present with problems of dysregulation consistent with cPTSD (Cloitre et al., 2012). Although new and adapted assessment and psychotherapy models are being developed for adults with cPTSD (Courtois & Ford, 2013), in the recently updated ISTSS treatment guidelines for PTSD (Foa, Keane, Friedman, & Cohen, 2009), only two studies are cited that involve complex trauma populations, and there was no mention of tech-

niques to deal with the severe affect and somatic dysregulation, dissociative, and altered life schema problems represented by cPTSD (Busuttil, 2009).

This gap in the clinical repertory of tools and models for assessing and treating adults with cPTSD may be due in part to the paucity of research on the mechanisms by which childhood complex trauma (CCT) exposure is associated with cPTSD. The long-term sequelae of exposure to childhood trauma or adversity are not limited to any single psychiatric disorder, including PTSD; in fact, adults who were traumatized as children tend to meet criteria for a variety of disorders that often involve complex comorbidity (Kessler et al., 2011; Lee et al., 2011; McLaughlin et al., 2010). Moreover, the association between childhood trauma history and the development of mental disorders is complex (D'Andrea et al., 2012), and little is known about how CCT contributes to the etiology or severity of mental disorders later in life (Verdurmen et al., 2007).

One possible mediator of the relationship between CCT and cPTSD is dissociation (Van der Hart, Nijenhuis, & Steele, 2006). Dissociation is a common sequelae of CCT (Brand et al., 2012), observed as early as middle childhood (Hulette, Freyd, & Fisher, 2013) and adolescence (Putnam, 2009) following exposure to CCT. Dissociative symptoms manifest as psychological phenomena, i.e., psychoform or cognitive dissociative symptoms, or as bodily phenomena, i.e., somatoform or somatosensory dissociative symptoms (Nijenhuis et al., 1996). During the last decade there has been growing acknowledgement of somatoform dissociation, which is corroborated by empirical and clinical evidence (Bowman, 1998; Butler et al., 1996; Kihlstrom, 1992; Nijenhuis, 1999; Van der Hart et al., 2000). In a survey study of more than 25,000 adults from 16 countries, individuals with PTSD were significantly more likely to report pathological dissocia-

tion symptoms if they had histories of CCT exposure and a first onset of PTSD in childhood than if they had not experienced CCT and had adult-onset PTSD (Stein et al., 2013). In addition, a study of adults most (95%) of whom met criteria for cPTSD found that dissociation was associated with more severe cPTSD symptoms (Dorahy et al., 2013). Because dissociation emerges early developmentally and often co-occurs with, but is empirically distinct from, cPTSD (Ford, 2009), it could mediate the relationship between CCT and cPTSD. The present study was designed to test the hypotheses that both psychoform and somatoform dissociation mediate the relationship between CCT and cPTSD with adult psychiatric inpatients.

Method

Participants and Procedure

Participants were 472 adult consecutive admissions to two centers for clinical psychotherapy. The demographic characteristics of the participants (N = 472) include N= 327 are female, mean age is 34.7 years (SD= 10.1), and 37.9% reported not having a primary partner; 50% lived together with someone; and 12.1% lived separated due to death of partner or divorce. Also, 24.4% reported primary and low-level secondary education, 41.1% middle level secondary education, and 34.5% high-level secondary education. Participants were referred from departments of medical psychology/ psychiatry in somatic hospitals, outpatient psychotherapy facilities or day-care psychotherapy departments for intensive multi-modal treatment (Van Dijke, 2008; 5 days-a-week clinical psychotherapy - weekends home with family). Participants failed to benefit sufficiently from former treatments and/ or reported a history of drop-outs. Most participants reported

combinations of (subclinical) mental disorders, mainly personality disorder (i.e. borderline personality disorder), some form of somatoform disorder, PTSD, other anxiety or mood symptoms and problems maintaining (intimate or therapeutic) relationships. Grande psychiatry (i.e. psychotic disorder, severe mood disorder, neuro-cognitive disorders), severe behavioral problems (including but not limited to severe self-harm, suicidal urges, severe eating problems, intermittent explosive behavior), or participants who currently were home-less were excluded from the study as they were not indicated for multi-modal inpatient group psychotherapy.

This study was approved by the local medical ethics committee. After complete description of the study and procedure, participants provided written informed consent to participate, according to the Declaration of Helsinki.

Measures

Complex PTSD symptoms, were measured using the self-report version of the *Structured Interview for Disorders of Extreme Stress Not Otherwise Specified* (SIDES-Rev; Ford & Kidd, 1998; Dutch version Van Dijke & Van der Hart, 2002), an adaptation of the interview consisting of items formulating the sequelae of complex trauma, which include dysregulated affect, impulses, and bodily integrity, dissociation, somatization, and fundamentally altered self-perceptions, relationships, and sustaining beliefs (Ford & Kidd, 1998; Van der Kolk, 1996; Cronbach's□alpha= 0.91). The dissociation items of the SIDES have not been found to constitute a psychometrically robust sub-scale (Scoboria, Ford, Lin, & Frisman, 2008), and inclusion of them in a total score for cPTSD might lead to an artifactual relationship between dissociation and cPTSD. Therefore,

the SIDES dissociation items were excluded from the cCPTSD total score in this study's analyses.

Psychoform dissociation was measured with the *Dissociative Experiences Scale* (DES; Bernstein & Putnam, 1986; Dutch version, Ensink & Van Otterloo, 1989), a 28-item self-report questionnaire that surveys the frequency of various experiences of dissociative phenomena in the daily life of the respondents. The version of the DES used in this study required participants to circle a number on a 28-point scale (from 0-100% in increments) to indicate the percentage of time they had experienced the various dissociative experiences. Total scores were calculated by averaging the 28 item-scores. The DES is a widely used instrument with good reliability (Cronbach's alpha = 0.95, test-retest reliability 0.79-0.96) and clinical validity (Ensink & Van Otterloo, 1989; Frischholz et al., 1990).

Somatoform dissociation was measured using the *Somatoform Dissociation Questionnaire* (SDQ-20; Dutch version, Nijenhuis et al., 1996), a 20-item self-report questionnaire using 5-point Likert scales to indicate the extent to which the statements is applicable. Items pertain to negative (e.g. "It sometimes happens that I cannot hear anything for a while (as if I were deaf)") and positive ("It sometimes happens that I have pain while urinating") physical symptoms and bodily experiences indicative of somatoform dissociation. Total scores are the sum of the 20 item-scores and range from 20 to 100. The scale has high reliability (Cronbach's alpha = 0.96) and good construct validity (Nijenhuis et al., 1996, 1998b).

Reports of potentially traumatizing events were collected using the *Traumatic Experiences Checklist* (TEC; Dutch version, Nijenhuis et al., 1999), a retrospective self-report questionnaire

concerning adverse experiences and potentially traumatizing events. Items address Emotional neglect (e.g., being left alone, insufficient affection) by your parents, Emotional abuse (e.g., being belittled, teased, called names, threatened verbally, or unjustly punished) by your parents, Physical abuse (e.g., being hit, tortured, or wounded by your parents), Sexual abuse (unwanted sexual acts involving physical contact by your parents). TEC has been shown to have good reliability and validity among psychiatric outpatients (Nijenhuis et al., 2002).

Statistical Analysis

The Statistical Package for Social Sciences (SPSS, version 17.0) was used for computing descriptive statistics and correlations. Mediation analysis was carried out with path analysis and the indirect effects were tested with bootstrap confidence intervals using software package Mplus, version 4.2 (Muthén & Muthén, 2007) following guidelines on mediation analysis by Baron & Kenny (1986), Bollen & Stine (1990), MacKinnon (2008), MacKinnon, Lockwood, Hoffman, West & Sheets (2002), Muthén & Muthén (2007) and Shrout & Bolger (2002).

Results

From the original sample (N = 472), 450 participants were used in the statistical analyses due to missing values for 22 participants. From the 450 participants, 283 participants (63%) reported on the TEC events consistent with CCT. Table 1 presents means, standard deviations, and intercorrelations for all variables involved in the path analysis for the tests of mediation. None of the assumptions of the statistical analyses were violated.

cPTSD symptoms were positively related to the presence of CCT, higher levels of psychoform dissociation (DES) and higher levels of somatoform dissociation (SDQ-20). In addition, CCT was positively related to psychoform but not to somatoform dissociation.

Mediation analysis

Figure 1 shows a path analysis model that represents the relation between CCT and cPTSD symptom severity, with psychoform dissociation as a potential mediator. The direct relation between childhood CCT and cPTSD symptoms showed a statistically significant positive association (b = 6.71, 95% CI [3.81, 9.61]), which corresponds to a small to medium effect size (Cohen, 1988). Introducing psychoform dissociation in the model led to a reduction of the direct effect between CCT and cPTSD symptoms, but the effect remained statistically significant (b = 3.09, 95% CI [0.61, 4.96]). The indirect effect of CCT via psychoform dissociation to cPTSD symptoms also was statistically significant (b = 3.70, 95% CI [1.99, 5.71]), consistent with a partial mediation relationship.

Discussion

CCT had both a direct association with cPTSD symptoms and an indirect relationship that was partially mediated by psychoform dissociation. Thus, even though psychoform dissociation may not be an structural feature of cPTSD on a psychometric (Scoboria et al., 2007) or nosological (Cloitre et al., 2012) basis, these findings are consistent with its demonstrated relationship to CCT (D'Andrea et al., 2012; Putnam, 2009) and its association with the core features of cPTSD

symptomatology (Brand et al., 2012; Ford, 2009). The finding of partial mediation suggests that, beyond having a correlational association with both CCT and cPTSD, the role that psychoform dissociation may play in the development of cPTSD in the aftermath of CCT should be studied in future research.

While the results imply that both CCT and psychoform dissociation warrant attention in assessment, treatment, and research on cPTSD, the finding that the path between CCT and cPTSD remained statistically significant after accounting for the mediating effect of psychoform dissociation suggests that other factors not assessed in this study may contribute to cPTSD. A number of potential contributors to cPTSD have been shown to be associated with CCT (e.g., parental psychopathology, other forms of childhood or adulthood psychological trauma; D'Andrea et al., 2012), and should be considered in a fuller etiological model of cPTSD (Ford, 2008, 2009). Additionally, other factors that have been shown to be associated with the development of psychopathology (e.g., childhood dysregulation, social isolation, poverty, family relational dysfunction, genetic characteristics; Althoff et al., 2010; Copeland et al., 2009) should be empirically tested as potential mediators of the CCT-cPTSD relationship. Research is needed to determine whether those other potential contributing factors to cPTSD are also associated with the development and course of pathological psychoform dissociation.

CCT was not associated with somatoform dissociation, and therefore could not serve as a mediator of the CCT-cPTSD relationship. This finding is inconsistent with those of two recent investigations showing an association between CCT and somatoform dissociation (Kilic et al., 2014; Kucukgoncu et al., 2014). Those studies involved adults with primary psychosomatic illnesses,

whose prominent somatoform symptoms may have made their somatoform dissociative features more salient than in the current study's psychiatric sample. In one of the studies (Kilic et al., 2014) childhood neglect was specifically associated with somatoform dissociation, but childhood sexual abuse was associated with psychoform dissociation. Thus, there may be distinct relationships between different types of CCT and somatoform vs. psychoform dissociation which may need to be considered in future studies of the role of somatoform dissociation in the course of cPTSD following CCT. Additionally, in the present study, somatoform dissociation was statistically significantly correlated with cPTSD symptom severity, with the two variables sharing >20% common variance. Taken together, the findings suggest that while somatoform dissociation may not mediate the overall CCT-cPTSD relationship, somatoform dissociation should be considered in research and clinical work with individuals who have CCT histories and cPTSD impairments, particularly when they present with clinically significant somatoform problems.

The direct and indirect relationship of CCT to cPTSD symptoms suggests that clinical assessment and treatment of cPTSD may be enhanced for patients with histories of CCT by systematically addressing psychoform dissociation. Therapeutic models that are designed to ameliorate psychoform dissociation while enhancing self-regulation in the cPTSD domains (e.g., Cloitre et al., 2012; Courtois, 2010; Courtois & Ford, 2009; Van Dijke, 2008) and by promoting resolution of betrayal trauma (DePrince & Freyd, 2004) therefore warrant scientific and clinical examination with severely impaired patients with CCT histories.

Study results are consistent with a large body of empirical research (e.g., Freyd et al., 2007; Lyons-Ruth, 2008; Lyons-Ruth et al., 2006) and theoretical models (e.g., the structural

model, Van der Hart et al., 2005, 2006; Betrayal Trauma theory, DePrince & Freyd, 2004; Freyd et al., 2007) on the role of dissociation in the sequelae of early childhood interpersonal trauma. Affect dysregulation is both considered a hallmark of cPTSD (Herman, 1992; McLean et al., 2006; Pelcovitz et al., 1997; Roth et al., 1997; Van der Kolk et al., 1996; Van Dijke et al., 2012) and a potential contributor to or clinical correlate of psychoform dissociation (Ford, 2009). Affect dysregulation can be differentiated as either over-regulation of affect (emotional numbness, difficulties addressing and identifying emotions, difficulties analyzing and verbalizing emotions) or under-regulation of affect (disorganized expression of emotions, being overwhelmed with emotions, difficulties in recovering from negative emotion states;Van Dijke, Ford, et al., 2010). Under-regulation of affect has been found to be associated with both somatoform and psychoform dissociation, while over-regulation of affect was associated only with a sub-set of negative psychoform dissociative symptoms (e.g., amnesia, derealization, depersonalization) and primary somatoform illness symptoms (Van Dijke, Ford, et al., 2010). cPTSD may involve either or both under- or over-regulation of affect (Van Dijke, Ford, et al., 2012). Thus, research is needed to elucidate the potential combined and separate roles of specific forms of affect dysregulation and dissociation in the development of cPTSD following CCT.

Several limitations should be kept in mind when interpreting the results of this investigation. Study findings are generalizable only to the adult psychiatric population consisting of clinically admitted patients with persistent psychopathology. Data were obtained exclusively by retrospective self-report.The CCT variable did not distinguish between different sub-types of potentially traumatic childhood experiences, and did not include traumatic experiences involving adults or peers other than parents or primary caregivers. However, traumatic stressors involving

primary caregivers have been found to be particularly developmentally detrimental (D'Andrea et al., 2012; DePrince & Freyd, 2004; Van Dijke et al., 2013).

For future research to better understand the specific mechanisms involved in the mediation of dissociation in the relations between CCT and cPTSD, differentiating the mediating roles for pathological versus non-pathological dissociative presentations, as well as for depersonalization presentations specifically, may be of relevance to the dissociative sub-type of PTSD as formulated in the *DSM 5*.

Conclusions

Findings from this study may have implications for the cPTSD criteria proposed for the ICD-11 (Maercker et al., 2013) as they do not include dissociation, in contrast to earlier formulations of cPTSD such as DESNOS. The present findings suggest that psychoform dissociation may be an important link between CCT and the cPTSD symptoms that are similar (although not exactly identical) to the emotional-, relational-, and self-dysregulation symptoms proposed to constitute cPTSD in the ICD-11. Further research is needed to determine whether dissociation should be included in cPTSD or aligned with cPTSD in some other way (e.g., the dissociative sub-type of PTSD in the *DSM*-5), in order to address its apparent mediating role between CCT and cPTSD. Meanwhile, carefully assessing the nature (psychoform or somatoform) and severity (normal or pathological) of dissociation in clinical assessment and treatment of patients with cPTSD, especially those who report CCT, is called for.

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Table 1. Descriptive Statistics and Correlations of Study Variables ($N = 450$)

	M	***SD***	1	2	3	4
1. cPTSD symptoms SIDES-rev-NL	61.55	15.37		.21**	.65**	.46**
2. CCT	0.63	0.48			.19**	.07
3. psychoform dissociation DES	18.79	14.78				.55**
4. somatoform dissociation SDQ-20	26.76	8.32				

Note: cPTSD = complex PTSD; SIDES = Structured Interview for Disorders of Extreme Stress-Revised Dutch version; CCT = childhood complex trauma; DES = Dissociative Experiences Scale; SDQ-20 = Somatoform Dissociation Questionnaire. **$p < .01$;

Figure 1. Path model with standardized regression coefficients for the relation between CCT and CPTSD symptoms (direct path coefficient in normal font), with an indirect path including psychoform dissociation (indirect path coefficient in bold font). All path coefficients $p < .05$.