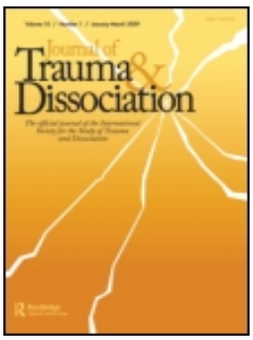

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Annemiek van Dijke PhD, Julian D. Ford PhD, Laurence E. Frank PhD & Onno van der Hart PhD

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Association of Childhood Complex Trauma and Dissociation With Complex Posttraumatic Stress Disorder Symptoms in Adulthood

ANNEMIEK VAN DIJKE, PhD
Yulius Academy & Colk Yulius, Rotterdam, The Netherlands; and Faculty of Psychology and Education, VU University Amsterdam, Amsterdam, The Netherlands

JULIAN D. FORD, PhD
Department of Psychiatry, University of Connecticut School of Medicine, Farmington, Connecticut, USA

LAURENCE E. FRANK, PhD and ONNO VAN DER HART, PhD
Department of Methodology and Statistics, Utrecht University, Utrecht, The Netherlands

This study replicates and extends prior research on the relationship of childhood complex trauma (CCT) and complex posttraumatic stress disorder (cPTSD) in adulthood, examining the role of psychoform and somatoform dissociation as a potential mediator. 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 nonpathological psychoform and somatoform symptoms) warrants further clinical and scientific study as a potential link between CCT and the presence of adult cPTSD symptoms and/or the dissociative subtype of PTSD.

KEYWORDS dissociation, complex posttraumatic stress disorder, childhood trauma

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Address correspondence to Annemiek van Dijke, PhD, Faculty of Psychology and Education, VU University Amsterdam, Van der Boechorststraat 1, NL-1081 BT Amsterdam, The Netherlands. E-mail: a.vandijke@yulius.nl

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 (Ford, 2008; Herman, 1992). cPTSD originally was operationalized for research as well as clinical purposes as disorders of extreme stress not otherwise specified (McLean, Toner, Jackson, Desrocher, & Stuckless, 2006; Pelcovitz, Van der Kolk, Roth, Mandel, & Resick, 1997; Roth, Newman, Pelcovitz, Van der Kolk, & Mandel, 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 subgroups 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, Garvert, Brewin, Bryant, & Maercker, 2013; Knefel & Lueger-Schuster, 2013; Thomaes et al., 2013). Pathological dissociation was not included as a core cPTSD feature but instead was used as a basis for a subtype of PTSD, consistent with research identifying a subgroup of individuals with both biological and psychological features of dissociation in addition to PTSD (Lanius, Brand, Vermetten, Frewen, & Spiegel, 2012) and factor analytic studies showing that dissociative symptoms did not comprise a distinct feature within cPTSD (Scoboria, Ford, Lin, & Frisman, 2008).

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, Ford, Stolbach, Spinazzola, & van der Kolk, 2012; Schafer et al., 2010; Scott et al., 2011; van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 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 the primary caregiver(s) (D'Andrea et al., 2012). In addition, recent studies have demonstrated 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, Petkova, Wang, & Lu Lassell, 2012). Although new and adapted assessment and psychotherapy models are being developed for adults with cPTSD (Courtois & Ford, 2013), in the recently updated International Society for

Traumatic Stress Studies (ISTSS) treatment guidelines for PTSD (Foa, Keane, Friedman, & Cohen, 2009) only two studies are cited that involve complex trauma populations, and there is no mention of techniques to deal with the severe affect and somatic dysregulation, dissociative symptoms, 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 exposure to childhood complex trauma (CCT) 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 sequela of CCT (Brand, Lanius, Vermetten, Loewenstein, & Spiegel, 2012), observed as early as middle childhood (Hulette, Freyd, & Fisher, 2011) 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, Spinhoven, Van Dyck, Van der Hart, & Vanderlinden, 1996). During the past decade there has been growing acknowledgment of somatoform dissociation, which is corroborated by empirical and clinical evidence (Bowman, 1998; Kihlstrom, 1992; Nijenhuis, 2004; Van der Hart, Van Dijke, Van Son, & Steele, 2000). In a survey study of more than 25,000 adults from 16 countries, individuals with PTSD were significantly more likely to report pathological dissociation 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 in 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) were as follows: 327 were female, mean age was 34.7 years (SD = 10.1), 37.9% reported not having a primary partner, 50% lived together with someone, and 12.1% lived separated because of the death of a 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 multimodal treatment (Van Dijke, 2008; 5 days a week of clinical psychotherapy, weekends home with family). Participants failed to benefit sufficiently from former treatments and/or reported a history of dropouts. 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. Participants with severe mental health disorder (i.e., psychotic disorder, severe mood disorder, neurocognitive disorders), those with severe behavioral problems (including but not limited to severe self-harm, suicidal urges, severe eating problems, and intermittent explosive behavior), or participants who currently were homeless were excluded from the study, as they were not indicated for multimodal inpatient group psychotherapy.

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

Measures

cPTSD symptoms were measured using the self-report version of the Structured Interview for Disorders of Extreme Stress Not Otherwise Specified (SIDES-rev-NL; 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; bodily integrity; dissociation; somatization; and fundamentally altered self-perceptions, relationships, and sustaining beliefs (Ford & Kidd, 1998; Van der Kolk, 1996; Cronbach's α = .91). The dissociation items of the SIDES-rev-NL have not been found to constitute a psychometrically robust subscale (Scoboria, Ford, Lin, & Frisman, 2008), and inclusion of them in a total score for cPTSD might have led to an artifactual relationship between dissociation

and cPTSD. Therefore, the SIDES-rev-NL 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 daily life. The version of the DES used in this study required participants to circle a number on a 28-point scale (from 0% to 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 $\alpha = .95$, 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 statements are 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 $\alpha = .96$) and good construct validity (Nijenhuis et al., 1996; Nijenhuis, Spinhoven, VanDyck, Van der Hart, & Vanderlinden, 1998).

Reports of potentially traumatizing events were collected using the Traumatic Experiences Checklist (TEC; Dutch version: Nijenhuis, Van der Hart, & Kruger, 2002), a retrospective self-report questionnaire concerning adverse experiences and potentially traumatizing events. Items address emotional neglect (e.g., being left alone, insufficient affection) by parents, emotional abuse (e.g., being belittled, teased, called names, threatened verbally, or unjustly punished) by parents, physical abuse (e.g., being hit, tortured, or wounded by parents), and sexual abuse (unwanted sexual acts involving physical contact by parents). The TEC has been shown to have good reliability and validity among psychiatric outpatients (Nijenhuis et al., 2002).

Statistical Analysis

SPSS Version 17.0 was used to compute descriptive statistics and correlations. Mediation analysis was carried out with path analysis, and the indirect effects were tested with bootstrap confidence intervals (CIs) using Mplus Version 4.2 (Muthén & Muthén, 2007) following guidelines on mediation analysis by Baron and Kenny (1986), Bollen and Stine (1990), MacKinnon (2008), MacKinnon, Lockwood, Hoffman, West, and Sheets (2002), Muthén and Muthén (2007), and Shrout and Bolger (2002).

RESULTS

From the original sample (N = 472), data from 450 participants were used in the statistical analyses because of missing values for 22 participants. Of 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

TABLE 1 Descriptive Statistics and Correlations of the Study Variables (N = 450)

Variable	*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				–

Notes: cPTSD = complex posttraumatic stress disorder; SIDES-rev-NL = Structured Interview for Disorders of Extreme Stress Not Otherwise Specified; CCT = childhood complex trauma; DES = Dissociative Experiences Scale; SDQ-20 = Somatoform Dissociation Questionnaire.
**p < .01

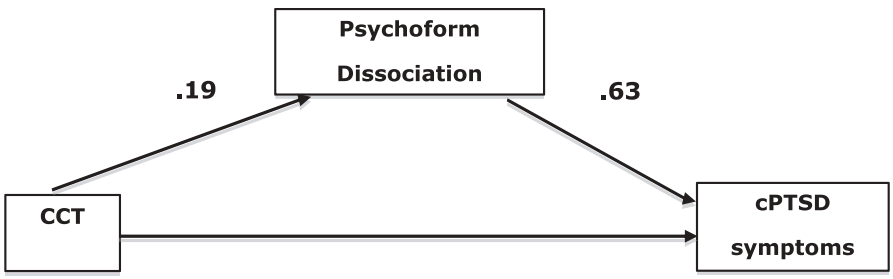

FIGURE 1 Path model with standardized regression coefficients for the relation between childhood complex trauma (CCT) and complex posttraumatic stress disorder (cPTSD) symptoms (direct path coefficient in normal font), with an indirect path including psychoform dissociation (indirect path coefficients in bold font). All path coefficients p < .05.

symptoms showed a statistically significant positive association ($b = 6.71$, 95% CI [3.81, 9.61]), which corresponded to a small to medium effect size (Cohen, 1988). Introducing psychoform dissociation in the model led to a reduction in 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 a 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, psychoform dissociation may mediate the development of cPTSD-symptoms in the aftermath of CCT. This mediation should be studied in future research.

Although 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 we accounted 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). In addition, 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, Shanahan, Costello, & Angold, 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, Yildirim Ornek, Cabalar, Bestepe, & Yayla, 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 versus psychoform dissociation that may need to be considered in future studies of the role of somatoform dissociation in the course of cPTSD following CCT. In addition, 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 although 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 these individuals 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 to promote resolution of betrayal trauma (one type of therapeutic model enhances self-regulation and another type of model promotes 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, DePrince, & Gleaves, 2007; Lyons-Ruth, 2008; Lyons-Ruth, Dutra, Schuder, & Bianchi, 2006) and theoretical models (e.g., the structural model: Van der Hart, Nijenhuis, & Steele, 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 considered both 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 overregulation of affect (emotional numbness, difficulties addressing and identifying emotions, difficulties analyzing and verbalizing emotions) or underregulation of affect (disorganized expression of emotions, being overwhelmed with emotions, difficulties in recovering from negative emotion states; Van Dijke, Ford, et al., 2010). Underregulation of affect has been found to be associated with both somatoform and psychoform

dissociation, whereas overregulation of affect was associated only with a subset of negative psychoform dissociative symptoms (e.g., amnesia, derealization, depersonalization) and primary somatoform illness symptoms (Van Dijke, Van der Hart, et al., 2010). cPTSD may involve either or both under- or overregulation of affect (Van Dijke 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 subtypes 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 detrimental developmentally speaking (D'Andrea et al., 2012; DePrince & Freyd, 2004; Van Dijke, Ford, Frank, Van Son, & Van der Hart, 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 subtype of PTSD as formulated in the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*.

Conclusions

Findings from this study may have implications for the cPTSD criteria proposed for the International Classification of Diseases–11 (Maercker et al., 2013) as they do not include dissociation, in contrast to earlier formulations of cPTSD such as disorders of extreme stress not otherwise specified. 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 International Classification of Diseases–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 subtype of PTSD in the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*) 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 the clinical assessment and treatment of patients with cPTSD, especially those who report CCT, is called for.

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