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RESEARCH ARTICLE

A cascade model of complex posttraumatic stress disorder centered on childhood trauma and maltreatment, attachment, and socio-interpersonal factors

Andreas Maercker[1,2] | Florence Bernays[1] | Shauna L. Rohner[1,2] | Myriam V. Thoma[1,2]

[1] Institute of Psychology, Division of Psychopathology and Clinical Intervention, University of Zürich, Zürich, Switzerland

[2] University Research Priority Program: Dynamics of Healthy Aging, University of Zürich, Zürich, Switzerland

Correspondence
Andreas Maercker, University of Zürich, Psychopathology and Clinical Intervention, Binzmühlestr. 14/17, CH-8050 Zürich, Switzerland.
Email: maercker@psychologie.uzh.ch

Abstract

The present study proposes and tests a cascade model of complex posttraumatic stress disorder (CPTSD) focusing on childhood trauma and maltreatment, attachment, and socio-interpersonal factors. Multigroup path analysis was used to examine data from 126 individuals formerly affected by compulsory social measures and placements (CSMP) in their childhood and/or adolescence (i.e., risk group [RG]; M age = 70.8 years) and an age-matched control group (CG; n = 125; M age = 70.6 years). The final model confirmed the cascade structure, with stronger associations emerging in the RG. Childhood trauma and maltreatment were associated with attachment anxiety, β = |.20|−.30, which was related to all socio-interpersonal factors (i.e., disclosure of trauma, social acknowledgment, and social support), β = .27−|.54|; the latter were associated with substantial aspects of the CPTSD symptoms as well as life satisfaction, β = |.21|−.42. Among participants in the CG, we observed more direct, rather than mediated, paths to CPTSD symptoms. Adulthood trauma exposure did not follow the full cascade pattern but was associated with the socio-interpersonal factors. Nevertheless, more in-depth clinical knowledge of CPTSD and potential targets for psychological treatment may be gained from the confirmation of this newly proposed cascade model of CPTSD.

Complex posttraumatic stress disorder (CPTSD) was recognized for the first time as a diagnostic category in the current (i.e., 11th revision) of the *International Classification of Diseases* (*ICD-11*; World Health Organization, 2020). In addition to the core symptoms of the "classic" posttraumatic stress disorder (PTSD; i.e., reexperiencing, avoidance, and current threat), patients with CPTSD are also affected by specific disturbances in self-organization (DSO), which include affective dysregulation, negative self-concept, and disturbances in relationships (Cloitre, 2020; Maercker et al., 2013). With this new diagnosis, the *ICD-11* takes into account that during sensitive developmental periods, individuals can develop far-reaching disturbances in response to exposure to maltreatment or traumatic stress. This aspect is currently not covered diagnostically or therapeutically by the classic PTSD concept.

To date, only a few theoretical models of CPTSD exist, which stands in stark contrast to the extensive number of models for classic PTSD. The existing CPTSD models, such as the impaired social bonds model (Charuvastra & Cloitre, 2008) or the affect dysregulation model (Ford, 2015), are not specified in terms of operationalization but rather general models focused on specific groups of variables. The model proposed by Charuvastra and Cloitre (2008) includes factors related to interpersonal trauma in childhood, social networks, attachment processes, and the associated neurocircuitry underpinnings. The model proposed by Ford (2015) focuses on polyvictimization (i.e., exposure to multiple types of interpersonal traumatic stressors) and subsequent stress reactivity. Thus far, neither of these models has been tested empirically. However, evidence for several of the model assumptions on relevant factors comes from recent investigations with various CPTSD samples (e.g., Hecker et al., 2018; Karatzias et al., 2018; Powers et al., 2017; Simon et al., 2019). In the current study, the proposed CPTSD cascade model integrates some of these preliminary findings into a theoretically meaningful framework, namely that of lifespan psychology, and makes the model empirically testable. As a cascade model, the model is characterized by the inclusion of multiple tiers of mediated associations between variables. The variables of interest for CPTSD examined in the current study are presented in the following sections.

A typical risk constellation for the development of CPTSD is prolonged and repeated childhood trauma and maltreatment of any type (i.e., emotional, physical, and/or sexual; Courtois & Ford, 2020). Such detrimental experiences can be described as complex trauma that "refers to a type of trauma that occurs repeatedly and cumulatively, usually over a period of time and within specific relationships and contexts" (Courtois, 2004, p. 412). Complex trauma has previously been linked to a multitude of detrimental outcomes, including attachment and affect regulation issues, dissociation, problems with behavioral control, the impairment of various cognitive functions, and detrimental health outcomes (Cook et al., 2005). As such, it is important to consider complex childhood trauma and maltreatment as a starting point in a cascade model of CPTSD.

Attachment is another key component that must be considered in a cascade model of CPTSD. This assumption is based upon previous research on classic PTSD and childhood interpersonal trauma, which provides evidence for the pivotal importance of adult attachment difficulties in this psychopathology (Raby et al., 2017; Stovall-McClough & Cloitre, 2006). Attachment refers to the bonding behavior acquired in childhood, which can become dysfunctional in the case of severe childhood adversities and, thus, tends to contribute to distur-

bances in relationships later in life (Raby et al., 2017). For CPTSD, the two dysfunctional styles of avoidant and anxious attachment were found to be distinguishing features (Karatzias et al., 2018). However, whether these dysfunctional attachment styles also play a role as mediating factors in a cascade model of CPTSD remains to be examined.

Drawing on the existing research and previously discussed factors, we derived an empirically testable cascade model of CPTSD. Key factor sets from the impaired social bonds model (Charuvastra & Cloitre; 2008) and the affect dysregulation model (Ford, 2015) were incorporated into the cascade model. This was extended by the inclusion of trauma-specific socio-interpersonal factors in adulthood (i.e., trauma disclosure, social acknowledgement). Previous research has shown these trauma-specific socio-interpersonal factors to be important for consideration in relation to classic PTSD (Maercker & Horn, 2013). From this, a core model was developed for an empirically testable cascade model of CPTSD (see Figure 1 for the flowchart of the core model, depicted using solid lines): Childhood trauma and maltreatment is linked to dysfunctional attachment, which, in turn, is associated with a triad of adult socio-interpersonal factors, including (a) disclosure difficulties, (b) reduced social support, and (c) a lack of social acknowledgment. The socio-interpersonal factors are, in turn, linked to complex posttraumatic symptoms (CPTSS). These socio-interpersonal factors are also linked to reduced satisfaction with life, which was included as an outcome variable in the cascade model of CPTSD as an index for psychosocial functioning, which is also emphasized in the *ICD-11* CPTSD definition.

Further model considerations were also made to complement and expand the core cascade model of CPTSD by taking into account the impact of adult trauma exposure and intrapsychological regulatory processes (see Figure 1 for the expanded model, depicted using dotted lines). Given that childhood and adolescence are particularly vulnerable developmental periods with respect to trauma exposure and maltreatment (e.g., Lupien et al., 2009) combined with the fact that childhood trauma and maltreatment represent a relevant risk constellation for the development of CPTSD (Ford, 2015), the proposed core cascade model of CPTSD included childhood trauma and maltreatment experiences as a starting point in the model. However, additional potentially traumatic experiences can occur later in the life course and can exert a detrimental impact on affected individuals (e.g., Ogle et al., 2013). Therefore, in addition to childhood trauma and maltreatment, adult trauma exposure must also be considered in a cascade model of CPTSD. However, from a lifespan developmental perspective, adult traumatic expe-
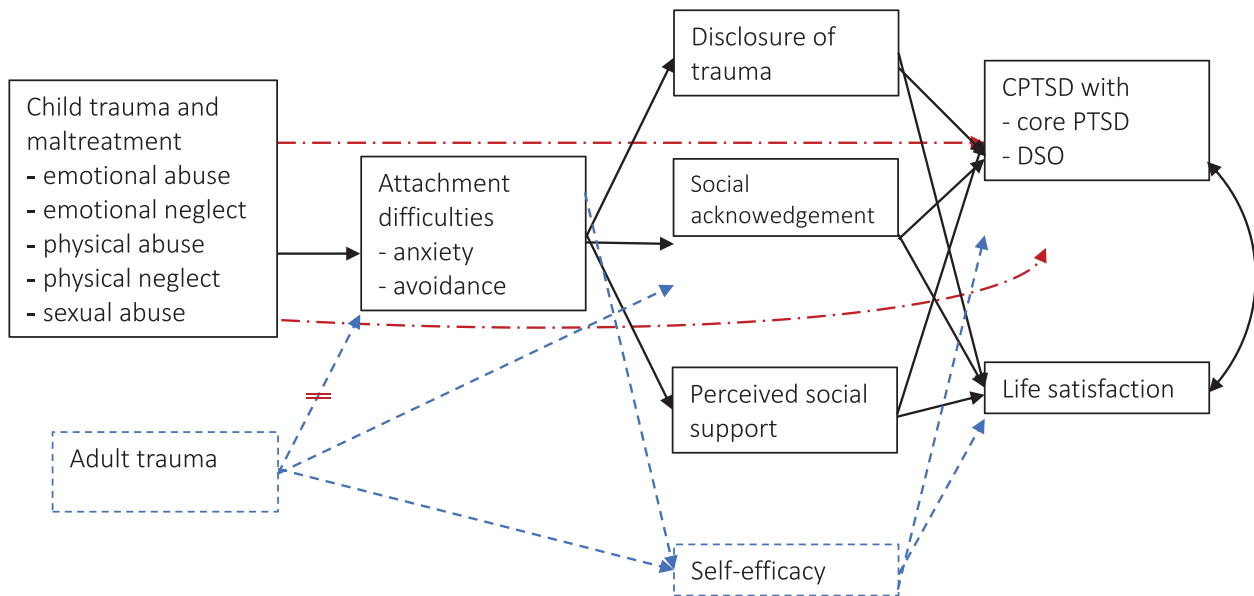
FIGURE 1 Four-level cascade model for complex posttraumatic stress disorder. Note: The figure depicts the core model with solid lines (black), expanded model with dotted lines (blue), consolidated model with direct paths (red), and deleted paths (≠). PTSD = posttraumatic stress disorder; CPTSD = complex PTSD; DSO = disturbances in self-organization

riences are expected to exert an impact on adult socio-interpersonal factors only and not attachment style, which is proposed to develop in childhood.

Furthermore, although the cascade model of CPTSD focuses on socio-interpersonal functioning, it is also essential to consider intrapsychological regulatory processes. Numerous studies have investigated a plethora of cognitive and emotional regulatory processes with respect to classic PTSD, the findings from which are also relevant for CPTSD (Maercker, 2021). Self-efficacy is one such pivotal variable with regard to intrapsychological regulatory processes for mental health in general and for trauma and stress-related disorders in particular (e.g., Benight et al., 2000; Breslau & Schultz, 2013; Gallagher et al., 2020). Earlier studies from our research team on trauma and stress-related disorders have shown that self-efficacy, along with the socio-interpersonal variables, plays an integral role in posttraumatic mental health in predicting stress-related outcomes and disorders (e.g., Maercker et al., 2016). Taking these factors into account results in a more complex cascade model of CPTSD that includes the core factors and their associations with each other (Figure 1, core model) as well as the additional factors and their connections (see Figure 1, expanded model).

The current study tested this proposed cascade model of CPTSD in a group of older individuals with varying degrees of exposure to childhood trauma and maltreatment. This allowed for the investigation of these lifespan variables. Lifespan developmental studies are partic-

ularly informative when conducted through the application of a control-group design, as this design allows for more elaborate statements to be made about the difference between the variations in development. The current study focused on a sample of individuals exposed to highly adverse conditions in childhood and/or adolescence who were impacted by compulsory social measures and placements (CSMP), which were common administrative measures directed at underprivileged and disadvantaged individuals in Switzerland until 1981 (Federal Office of Justice [FOJ], 2020). Through CSMPs, minors were often placed with farming families and made to perform difficult physical labor during their placement; alternatively, they were placed in institutions, various facilities, or with families that were deemed to rule in a sufficiently authoritarian manner. A specific feature of this group is that it typically consisted of slightly more male than female youths. These individuals became known under the term *Verdingkinder*, which roughly means "indentured child laborers" (Leuenberger & Seglias, 2008). CSMP measures were often carried out arbitrarily and for reasons of alleged violations of the social norms of the time, such as being a young single mother or a "work-shy" youth. Today, many of these measures are characterized as severe human rights violations (Baer, 2016). By examining these older individuals affected by CSMP along with a sample of age-matched controls, we aimed to assess the proposed cascade model of CPTSD using a broad range of exposure to childhood trauma and maltreatment.

METHOD

Participants and procedure

Data collection for this study took place within the framework of a national research program on human rights remediation for affected individuals. The study was conducted as part of the Swiss National Research Program (NRP) 76 (http://www.nrp76.ch/en) of the Swiss National Science Foundation. The current study was part of a larger project on the long-term impact of CSMP experiences in childhood and/or adolescence on health in later life. All participating individuals provided informed consent. The study protocol is in accordance with the Declaration of Helsinki and was approved by the Ethics Committee of the Faculty of Arts and Social Sciences in the UZH (ID: 19.4.3).

A group of Swiss individuals who were at least 50 years of age and had been affected by CSMP in their childhood or adolescence (i.e., risk group [RG]) was compared with a group of age-matched control individuals (i.e., control group [CG]). Participants in the RG were recruited through a list provided by the Swiss FOJ (2020). This list included the name and contact information of CSMP-affected individuals who had provided consent to be contacted for research purposes. From this list, 495 individuals were contacted by mail and sent an information letter about the aims and content of the study as well as the contact details for the research team. In addition, a smaller number of participants were recruited using word-of-mouth recommendations from individuals who had participated in the study and by informing publicly active survivors about the study. CG participants were recruited from the general population according to matching criteria via flyers posted in public places, particularly those frequented by older citizens (e.g., senior leisure clubs). In addition, individuals from a study pool of the affiliated University Research Priority Program *Dynamics of Healthy Ageing* of the University of Zurich were contacted and informed about the study.

The study procedure is described in detail elsewhere (Thoma et al., 2021). Interested individuals could contact the screening team by phone or email, both of which were answered by trained study personnel. During this initial communication, interested individuals were informed about the study's aim and procedures. If individuals were still interested in participating after receiving this information, they participated in a phone screen to determine whether they met the inclusion criteria. If all the criteria were met, two face-to-face appointments were scheduled, during which data were assessed using a structured clinical interview and multiple psychometric instruments.

Measures

Trauma and maltreatment exposure in childhood and adolescence

The German version of the Childhood Trauma Questionnaire (CTQ; Bernstein et al. 2003; Wingenfeld et al. 2010) was used to abuse and maltreatment that occurred during childhood and adolescence. The measure includes 28 items grouped into five subscales for emotional abuse and neglect, physical abuse and neglect, and sexual abuse. Items were rated on a 5-point Likert scale ranging from 1 (*never true*) to 5(*very often true*), with higher scores representing higher degrees of trauma exposure. Values established by Tietjen et al. (2010) allow for a distinction between scores that fall above and below the threshold for clinical relevance. In the current sample, Cronbach's alpha for the subscales ranges from .82 to .91.

Mediating factors

Anxiety and avoidance

The German version of the Experiences in Close Relationships–Revised Questionnaire (ECR-R; Fraley et al., 2000; Ehrenthal et al., 2009) was used to assess attachment anxiety and avoidance, which represent the two prototypical forms of attachment difficulties. The questionnaire consists of 36 items, which respondents rate on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), with higher levels of difficulty. In the present sample, Cronbach's alpha values were .87 and .89 for the Anxiety and Avoidance subscales, respectively.

Trauma disclosure

The German version of the Disclosure of Trauma Questionnaire (DTQ; Müller & Maercker, 2006) was used to assess the need for trauma disclosure in the following areas: urge to disclose, reluctance to talk, and emotional reactions during disclosure of the personal trauma. The questionnaire consists of 12 items, which respondents rate on a 6-point Likert scale ranging from 0 (*not at all*) to 5 (*exactly*), with higher total disclosure scores representing higher levels of dysfunctional disclosure. In the present sample, Cronbach's alpha was .83.

Social acknowledgment

The German Social Acknowledgment Questionnaire (SAQ; Maercker & Müller, 2004) was used to assess participants' perceptions of their recognition as a victim or as a survivor by family, friends, acquaintances, and local authorities. The questionnaire consists of 12 items, which

respondents rate on a 4-point Likert scale ranging from 0 (*not at all*) to 3 (*strongly*), with higher scores indicating higher levels of acknowledgment. In the present sample, Cronbach's alpha for the total score was .77.

Social support

The German Social Support Questionnaire–Short Version (F-SozU; Fydrich et al., 2009) was used to assess perceived emotional and practical support as well as perceived social integration. The questionnaire consists of 14 items, which respondents rate on a 5-point Likert scale ranging from 1 (*not at all true*) to 5 (*very true*). Higher scores indicate higher levels of perceived social support. In the present sample, Cronbach's alpha was .87.

Outcome factors

CPTSD

The International Trauma Questionnaire (ITQ; Cloitre et al., 2018; German version: Lueger-Schuster et al., 2015/2018) was used to assess CPTSD according to the criteria in the *ICD-11*. The ITQ consists of six items used to evaluate symptoms related to the core symptom groups of reexperiencing, avoidance, and current threat (α = .85; Cloitre et al., 2018); six items used to measure the DSO symptoms of affect dysregulation, negative self-concept, and disturbed relationships; and several items on functional impairment. Respondents are instructed to refer to past-month symptoms when rating items, which are scored on a Likert scale ranging from 0 (*not at all*) to 4 (*extremely*). A diagnostic algorithm allows for the assignment of a possible CPTSD diagnosis in the presence of one symptom score of 4 or higher per symptom group as well as demonstrated psychosocial impairment (Cloitre et al., 2018). In the current study, Cronbach's alpha was .91 for the items related to posttraumatic stress symptoms and .85 for DSO symptoms.

Life satisfaction

The German version of the Satisfaction with Life Scale (SWLS; Diener et al., 1985; Janke & Glöckner-Rist, 2012) was used to assess participants' satisfaction with life as a whole. The SWLS includes five items, which are rated on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), with higher scores indicating higher degrees of life satisfaction. In the present study, Cronbach's alpha was .87.

Expanded factors

Adulthood trauma exposure

the Traumatic Experiences Checklist (TEC; Nijenhuis et al., 2002; German version: Schumacher et al., 2012) was used for the ad hoc calculation of an adult trauma score encompassing the number of traumatic events a participant experienced after the age of 18 years, according to the *ICD-11* criterion (i.e., excluding grief events). The score includes the respective impact ratings, which are scored on a 5-point Likert scale ranging from 1 (*none*) to 5 (*an extreme amount*). The German version has demonstrated good psychometric properties (Schumacher et al., 2012). In the current sample, Cronbach's alpha for the adult trauma score was .71.

Self-efficacy

The German General Self-Efficacy Scale (GSE; Schwarzer & Jerusalem, 2010) was used to assess self-efficacy. The GSE consists of 10 items, which respondents rate on a 4-point Likert scale ranging from 1 (*not at all true*) to 4 (*exactly true*). The measure yields a total self-efficacy score, with higher scores indicating a higher degree of self-efficacy. In the present study, Cronbach's alpha was .90.

Data analysis

Statistical analyses were performed using R Studio (Version 3.6.2), with the *lavaan* package used for multigroup structural equation modeling (SEM). Less than 5% of the data were missing, and missing values were imputed using multiple imputation with a chaining random forest algorithm (i.e., *MissRanger* package with 5,000 trees calculated), which is suitable for imputation in mixed-type data sets and accommodates for nonlinearity between variables (Mayer & Mayer, 2018).

A multigroup path analysis was used to test the aforementioned a prior–defined, theory-driven framework, based on existing theoretical models (e.g., Charuvastra & Cloitre, 2008; Ford, 2015) in one common analysis. This analysis was also used to examine whether the theoretical framework applied equally well to the two groups (i.e., RG and CG; Bentler, 1995). Three separate theoretical models were tested to examine whether adulthood trauma and intrapsychological processes represented important indicators in addition to childhood trauma. We first tested the core model (see Figure 1, solid lines), which included only childhood trauma and maltreatment as a first-level indicator, socio-interpersonal factors as mediating variables, and CPTSD and life satisfaction as outcome variables. Second, we tested an expanded model (see Figure 1, dotted lines: adulthood trauma and self-efficacy) that included both adulthood trauma and childhood trauma and maltreatment as first-level indicators, socio-interpersonal and intrapsychological factors as mediating variables, and CPTSD and life satisfaction as outcome variables. The additional paths were added based on the aforementioned theory-driven assumptions, with the aim of investigating

whether adulthood trauma and intrapersonal processes would emerge as additional relevant indicators in explaining CPTSD. Third, as child maltreatment and trauma have been shown to be strongly associated with the development of CPTSD (Ford, 2015), a third model was tested (i.e., the consolidated model). This was based on the expanded model but included additional direct paths from child maltreatment and trauma to CPTSD (see Figure 1, dash-dot lines); we examined whether this model better fit the data than a model that only included indirect paths.

For simplification, the observed and latent variables were assumed to be equal (Anderson & Gerbing, 1988). SEM was conducted using maximum likelihood estimation with robust standard errors. The Santorra–Bentler correction was applied to accommodate for nonnormal data. Standardized beta coefficients and their 95% confidence intervals were reported to allow for the comparison of variables and to provide an indication regarding the importance of each variable (see Supplementary Table S3 for the covariance matrix). Correlations between endogenous variables were allowed based on a priori and theory-driven expectations or if they shared similar components. Specifically, residuals between the two scales of attachment difficulties (i.e., anxiety and avoidance) were allowed to correlate, as evidence suggests that they share at least a few common components (e.g., Li & Chan, 2012). Furthermore, residuals were allowed to correlate between adult trauma exposure and childhood trauma and neglect, as considerable negative and traumatic experiences are inherent in both of these forms of trauma. Trauma disclosure, social acknowledgment, and perceived social support were allowed to correlate, as these indicators represent aspects of interpersonal relationships. In addition, age and gender were included as covariates. To test whether paths differed significantly between the two groups, the difference in the chi-squared test statistic was first compared between the free (i.e., coefficients allowed to freely vary between groups) and constrained models (i.e., equal coefficients for all coefficients for both groups). A significant difference in the chi-square value indicated no model equivalence between groups. Second, to investigate which paths specifically varied between groups, each path was successively freed to vary between the two groups, with the chi-square of the free model compared with that of the constrained model. A significant difference in chi-square value indicated that the corresponding path varied significantly between groups. As the chi-square test is highly sensitive to sample size and deviations from normality (Chen, 2007), the goodness of fit was primarily judged by the following fit indicators: a comparative fit index value of .90 or higher, Tucker–Lewis Index (TLI) value of .90 or higher, and a root mean square error of approximation (RMSEA)

value of .08 or lower. Additionally, we examined the Akaike and Bayesian information criterion (AIC and BIC, respectively) as well as sample-size adjusted BIC indices information, whereby lower values indicate better model fit, as well as the coefficient of determination for each group and model. We considered p values smaller than .05 to be significant.

RESULTS

Demographic characteristics

The sample consisted 126 participants in the RG (41.7% female) and 125 participants in the CG (51.2% female), $\chi^2(1, N = 251) = 1,979$; $p = .159$, for the gender ratio comparison. The demographic characteristics of the sample are listed in Table 1. Although current age and partnership status did not differ between groups, individuals in the RG reported significantly lower educational attainment and poorer financial status than those in the CG. CSMP was typically initiated early in life, with a mean age of 4.7 years at first placement, and lasted, on average, 11.7 years.

Group comparisons

The RG demonstrated higher scores for all types of childhood trauma and maltreatment, as measured using the CTQ (see Table 2). Applying the established clinical significance thresholds for the CTQ (Tietjen et al., 2010), 59.5% ($n = 75$) of participants in the RG and 29.6% ($n = 37$) of those in the CG reported substantial sexual abuse. The most commonly reported childhood trauma and maltreatment type was emotional neglect (RG: 100.0%; CG: 72.8%). All other types of childhood trauma showed intermediate prevalence rates. Participants in the RG reported adult trauma exposure, as measured using the TEC, significantly more often than those in the CG. Similarly, severity ratings of CPTSD symptoms in both the PTSD and DSO symptom clusters were significantly higher among participants in the RG. When applying the ITQ diagnostic algorithm for probable CPTSD (Cloitre et al., 2018), 6.35% ($n = 8$) of individuals in the RG and 3.2% ($n = 4$) of those in the CG scored high enough to indicate a probable CPTSD diagnosis, $C^2 = 1.11$, $p = .277$.

Model fit

Multigroup SEM analysis was applied to three different statistical models to assess if these models varied

TABLE 1 Demographic characteristics of the study sample and features of the risk group

Variable	Risk group (n = 126)					Control group (n = 125)					Statistical test	p
	M	SD	Range	n	%	M	SD	Range	n	%		
Age (years)	70.80	12.30	49–94			70.57	9.7	50–95			$\chi^2(246.9, N = 251) = 0.16$	.870
Educational attainment (years)	11.58	4.99	0–17			14.56	3.65	0–17			$\chi^2(239.9, N = 251) = -5.48$	< .001
Average monthly income (CHF)											$t(4) = 18.78$	< .001
< 2,001				31	24.3				11	8.8		
2,001–4,670				51	40.9				40	32.0		
> 4,670				44	34.8				74	59.2		
Current marital status											$t(5) = 7.45$	.189
Never married				32	25.0				28	22.4		
Married				45	35.6				59	47.2		
Living apart or divorced				49	39.4				38	30.4		
Age at initial CSMP (years)	4.7	4.86	0–19			-						
Number of CSMP placements	2.7	2.3	1–16			-						
CSMP duration (years)	11.7	6.16	0-25			-						

Note: CSMP = compulsory social measures and placements.

TABLE 2 Group distributions of model variables for the risk and control groups

Variable	Risk group (n = 126)			Control group (n = 125)			Statistical test	p
	M	SD	Range	M	SD	Range		
Emotional abuse (CTQ)	14.38	5.9	5–25	10.03	5.31	5–25	$t(247.9) = 6.21$	< .001
Emotional neglect (CTQ)	19.32	4.92	5–25	13.6	5.47	5–25	$t(237.9) = 9.82$	< .001
Sexual abuse(CTQ)	10.2	6.59	5–25	6.57	3.54	5–25	$t(200.15) = 5.54$	< .001
Physical neglect (CTQ)	14.02	4.85	5–25	7.81	2.96	5–19	$t(225.5) = 14.07$	< .001
Physical abuse (CTQ)	11.79	5.28	5–25	6.74	2.92	5–20	$t(201.3) = 10.35$	< .001
Adult trauma (TEC)	4.81	5.16	0–21	3.01	4.58	0–23	$U = 48081$	< .001
Attachment anxiety (ECR-R)	2.88	1.42	1–7	2.51	1.22	1–6.8	$t(242.6) = 2.68$	.008
Attachment avoidance (ECR-R)	3.33	1.39	1–66	2.85	1.12	1-6	$t(244.9) = 3.51$	< .001
Disclosure of trauma (DTQ)	59.21	20.64	5–114	48.61	20.57	7-108	$t(248.85) = 3.95$	< .001
Social acknowledgment (SAQ)	23.83	6.73	10–39	29.08	6.6	9-44	$t(248.7) = -5.98$	< .001
Social support (F-SozU)	52.42	13.29	14–70	56.22	10.92	15-70	$t(240.9) = -2.47$	.014
Self-efficacy (GSE)	28.92	6.40	4–40	29.87	4.72	14-40	$t(220.67) = -1.33$	.185
Complex PTSD (ITQ)								
Core symptoms	6.81	6.3	0–23	3.18	4.61	0-24	$t(231.9) = 5.28$	< .001
DSO symptoms	5.42	5.61	0–24	3.9	4.77	0-24	$t(245.2) = 2.92$	.004
Satisfaction with life (SWLS)	21.1	7.37	5–35	24.95	7	6-35	$t(247.8) = -4.25$	< .001

Note: CTQ = Childhood Trauma Questionnaire; DSO = disturbances of self-organization; DTQ = Disclosure of Trauma Questionnaire; ECR-R = Experiences in Close Relationships–Revised; F-SozU = Social Support Questionnaire–Short Version; GSE = General Self-Efficacy Scale; ITQ = International Trauma Questionnaire; PTSD = posttraumatic stress disorder; SAQ = Social Acknowledgement Questionnaire; SWLS = Satisfaction with Life Scale; TEC = Traumatic Experiences Checklist.

substantially regarding their fit indices. The core model demonstrated acceptable fit except for the TLI value, which was .793 (see Supplementary Table S1 for the fit indices), whereas the expanded model showed an incremental improvement in model fit compared with the core model. The consolidated model demonstrated the best model fit in regard to the three fit indices used, CFI = .97, RMSEA = .06, TLI = .90, $\chi^2(74, N = 251) = 132.32$, $p = .014$. In addition, the AIC and sample-size adjusted BIC values were lower for the consolidated model than for the expanded model, indicating better model fit. As the incremental fit indices (i.e., CFI and TLI) exceeded .90 and the absolute fit index (i.e., RMSEA) was below .06, the indices were indicative of good fit (Hu & Bentler, 1999).

Path coefficients

For the following multigroup path analysis, a correlation matrix that included all model variables was created to examine multicollinearity. No associations were above .70, suggesting no multicollinearity (see Supplementary Table S2 for correlations). In the covariance matrix, significant covariances (i.e., .17–.44) were observed within the childhood trauma and maltreatment variables (see Supplementary Table S3 for the covariance matrix). Significant covariances between childhood trauma and maltreatment variables and adult trauma only emerged in the RG, Covs = .16–.18). Regarding the outcomes of interest, significant covariances between CPTSD symptoms and satisfaction with life, Cov = .34 for both, were observed in the RG, whereas only one covariance within CPTSD (i.e., core PTSD and DSO symptoms), Cov = .33, was observed in the CG. The coefficients between the variables of the cascade model of the multigroup path analyses are presented in Table 3, separately for the two groups.

As the consolidated model was superior in terms of the majority of model fit indices, the following results focus on this model. With respect to childhood trauma and maltreatment, three out of five trauma types (i.e., emotional abuse, emotional neglect, and physical neglect) were significantly associated with attachment anxiety among participants in the RG, with the strongest link emerging between emotional neglect and attachment anxiety, $\beta = .30$. Attachment avoidance was only significantly associated with emotional abuse, $\beta = -.30$.

Among RG participants, attachment anxiety was found to be significantly associated with the three socio-interpersonal factors (i.e., disclosure of trauma, social acknowledgment, social support), with substantial-to-moderate coefficients. It is important to note the direction of the signs: The disclosure measure assessed a dysfunctional disclosure process, whereas acknowledgment indicates an adaptive process. Among CG participants, a corresponding pattern was observed for two associations (i.e., disclosure of trauma, social acknowledgment). Attachment avoidance was not found to be significantly associated with socio-interpersonal factors among participants in either group.

Regarding the outcome factors, in the RG group, CPTSD (i.e., core PTSD and DSO symptoms) was significantly associated with dysfunctional disclosure, DSO symptoms were significantly associated with social support, and satisfaction with life was significantly associated with all three socio-interpersonal factors. In the CG, a slightly different pattern emerged wherein dysfunctional disclosure was significantly associated with core PTSD symptoms and satisfaction with life, whereas social acknowledgment was significantly associated with CPTSD (i.e., core PTSD and DSO symptoms) as well as satisfaction with life.

The factors in the expanded model were only significantly associated with a few variables in both groups. Adult trauma was significantly associated with social acknowledgment among RG participants and self-efficacy among CG participants. Attachment anxiety was also significantly associated with self-efficacy, but only for the CG. Among both RG and CG participants, self-efficacy was significantly associated with DSO symptoms; it was also associated with satisfaction with life in the CG.

Between-group differences

In the core model, more associations reached significance in the RG than in the CG. The test for significance of group differences for all beta coefficients indicated higher (i.e., absolute) values in the RG for the associations between four of the childhood trauma and maltreatment factors and attachment anxiety, $\Delta\chi^2(1, N = 251) = 7.27$, $p < .01$ to $\Delta\chi^2(1, N = 251) = 12.15$, $p < .001$; attachment anxiety and social support, $\Delta\chi^2(1, N = 251) = 6.04$, $p = .032$; and disclosure and DSO symptoms, $\Delta\chi^2(1, N = 251) = 32.41$, $p < .001$ (see Table 3). In the CG, significantly higher absolute values emerged for the associations between emotional abuse and attachment anxiety, $\Delta\chi^2(1, N = 251) = 30.69$, $p < .001$, and between attachment anxiety and disclosure of trauma, $\Delta\chi^2(1, N = 251) = 4.55$, $p = .003$

The consolidated model demonstrated almost no significant direct paths in the RG from childhood trauma and maltreatment to CPTSD, with only one exception: physical neglect to DSO symptoms, $\Delta\chi^2(1, N = 251) = 33.48$, $p < .001$. In the CG, the coefficients for various direct paths reached significance, with the two paths for physical neglect being significantly higher in the CG: physical neglect to core PTSD symptoms, $\Delta\chi^2(1, N = 251) = 5.38$, $p = .029$;

TABLE 3 Coefficients of paths between significant factors' groups in the consolidated cascade model[a]

Path	Risk group			Control group		
	β	95% CI	p	β	95% CI	p
Child maltreatment and abuse → Attachment						
Emotional abuse → Attachment anxiety	−.20*	[−.39, −.02]	.038	.43*	[.16, .69]	.004
Emotional neglect → Attachment anxiety	.30*	[.15, .45]	<.001	.00	[−.25, .25]	.997
Physical abuse → Attachment anxiety	.15	[−.02, .32]	.086	−.22	[−.47, .02]	.061
Physical neglect → Attachment anxiety	−.28*	[−.48, −.08]	.007	.07	[−.13, .27]	.511
Sexual abuse → Attachment anxiety	.08	[−.11, .28]	.401	.19	[−.05, .44]	.118
Emotional abuse → Attachment avoidance	−.30	[−.49, −.11]	.003	.21	[−.10, .51]	.185
Emotional neglect → Attachment avoidance	.13	[−.07, .32]	.202	.13	[−.11, .37]	.294
Physical abuse → Attachment avoidance	.19	[−.01, .39]	.062	.01	[−.26, .26]	.991
Physical neglect → Attachment avoidance	−.15	[−.33, .03]	.101	.01	[−.17, .19]	.921
Sexual abuse → Attachment avoidance	.09	[−.10, .27]	.355	.08	[−.11, .26]	.418
Attachment → Socio−interpersonal factors						
Attachment anxiety → Disclosure of trauma	.27*	[.05, .49]	.015	.47*	[.32, .62]	<.001
Attachment anxiety → Social acknowledgement	−.42*	[−.58, −.26]	<.001	−.38*	[−.57, −.19]	<.001
Attachment anxiety → Social support	−.54*	[−.70, −.37]	<.001	−.19	[−.41, .02]	.078
Attachment avoidance → Disclosure of trauma	−.03	[−.23, .18]	.799	−.06	[−.21, .10]	.486
Attachment avoidance → Social acknowledgment	−.06	[−.24, .13]	.543	.02	[−.19, .24]	.844
Attachment avoidance → Social support	−.12	[−.30, .07]	.226	−.24	[−.48, .01]	.064
Socio-interpersonal factors → Outcomes						
Disclosure of trauma → core PTSD symptoms[a]	.38*	[.22, .53]	<.001	.28*	[.12, .43]	.001
Social acknowledgement → core PTSD symptoms[a]	−.06	[−.23, .11]	.491	−.22*	[−.37, −.07]	.006
Social support → core PTSD symptoms[a]	−.13	[−.32, .07]	.218	.05	[−.11, .22]	.531
Disclosure of trauma → DSO symptoms	.42*	[.30, .54]	<.001	−.04	[−.19, .10]	.568
Social acknowledgement → DSO symptoms	−.05	[−.23, .13]	.587	−.19*	[−.31, −.06]	.011
Social support → DSO symptoms	−.31*	[−.51, −.11]	.001	−.16	[−.34, .02]	.054
Disclosure of trauma → Life satisfaction	−.21*	[−.36, −.06]	.007	−.14*	[−.28, .00]	.001
Social acknowledgement → Life satisfaction	.30*	[.15, .45]	<.001	.26*	[.09, .44]	.006
Social support → Life satisfaction	.24*	[.09, .40]	.002	.12	[−.06, 29]	.531
Expanded model factors and paths						
Adult trauma → Disclosure of trauma	.14	[−.02, .29]	.103	.03	[−.10, .16]	.401
Adult trauma → Social acknowledgement	−.17*	[−.39, −.02]	.029	−.12	[−.34, .09]	.238
Adult trauma → Social support	−.05	[−.18, .08]	.426	−.05	[−.25, .16]	.659
Adult trauma → Self-efficacy	.06	[−.09, .21]	.440	.17*	[.05, .28]	.004
Attachment anxiety → Self-efficacy	−.14	[−.38, .10]	.254	−.36*	[−.55, −.15]	.001
Self-efficacy → core PTSD symptoms[a]	−.18	[−.38, .02]	.099	−.08	[−.26, .09]	.374
Self-efficacy → DSO symptoms	−.20*	[−.38, −.02]	.048	−.29*	[−.43, −.15]	<.001
Self-efficacy → Satisfaction with life	.15	[−.00, .30]	.058	.29*	[.11, .47]	.374
Consolidated model specifications						
Emotional abuse → core PTSD symptoms[a]	.06	[−.11, .27]	.473	−.03	[−.24, .17]	.755
Emotional neglect → core PTSD symptoms[a]	−.09	[−.26, .08]	.297	.06	[−.12, .25]	.516
Physical abuse → core PTSD symptoms[a]	−.03	[−.21, .16]	.797	.19	[−.03, .40]	.087
Physical neglect → core PTSD symptoms[a]	−.10	[−.30, .10]	.334	.21*	[.04, .37]	.013
Sexual abuse → core PTSD symptoms[a]	.10	[−.09, 29]	.292	.11	[−.16, .38]	.429
Adult trauma → core PTSD symptoms[a]	.08	[−.07, .24]	.304	.19*	[.04, .34]	.006
Emotional abuse → DSO symptoms	.02	[−.12, .15]	.805	.14	[−.07, .35]	.220
Emotional neglect → DSO symptoms	−.09	[−.24, .06]	.233	−.21*	[−.38, −.04]	.025

(Continues)

TABLE 3 (Continued)

	Risk group			Control group		
Path	β	95% CI	p	β	95% CI	p
Physical abuse → DSO symptoms	.08	[−.09, .24]	.390	.26*	[.08, .43]	.013
Physical neglect → DSO symptoms	−.15*	[−.29, −.01]	.040	.33*	[.17, .48]	< .001
Sexual abuse → DSO symptoms	.07	[−.07, .21]	.335	.15	[−.04, .35]	.108
Adult trauma → DSO symptoms	.06	[−.07, .19]	.351	.03	[−.06, .11]	.532

Note: Attachment factors include attachment anxiety only, as attachment avoidance quite predominantly did not reach significance in any of the paths. DSO = disturbances of self-organization.

[a]Reexperienceing, avoidance, and current threat.

physical neglect to DSO symptoms: $\Delta\chi^2(1, N = 251) = 33.48$, $p < .001$. The coefficients of determination (i.e., R^2) of the endogenous variables for each model are reported in Supplementary Table S4.

DISCUSSION

The present study proposes a cascade model for the newly introduced *ICD-11* CPTSD diagnosis, which we tested empirically using retrospective data from a high-risk group and a control group. The cascade model of CPTSD was developed based on the hypothesized associations among childhood trauma and maltreatment, dysfunctional attachment, and trauma-specific socio-interpersonal factors (Charuvastra & Cloitre, 2008; Maercker & Horn, 2013). The final model confirmed the cascade structure, with stronger associations emerging within the RG: Childhood trauma and maltreatment was associated with attachment anxiety, which was related to all socio-interpersonal factors, which, in turn, was associated with substantial aspects of CPTSD symptoms as well as life satisfaction. In the CG, more direct rather than mediated paths to CPTSD symptoms were observed. Adulthood trauma did not follow the full cascade pattern but was associated with the socio-interpersonal factors.

More specifically, individuals in the RG reported significantly higher frequencies of the five types of childhood trauma and maltreatment in comparison to those in the age-matched CG. In the RG, these five indicators of childhood trauma and maltreatment exceeded the clinical threshold for severe abuse (Tietjen et al., 2010), with high rates (i.e., 60%–100%, depending on the indicator). This further reinforces that the RG represented a high-risk group. Consistent with previous research conducted with traumatized and underprivileged samples, the lifetime educational attainment and current financial status in the current sample was disadvantageous for participants in the RG compared with the CG (Carr et al., 2020; see also Thoma et al., 2021 for a more detailed analysis of the two groups from the current sample). However, it is important

to emphasize that several types of childhood trauma and maltreatment were reported relatively frequently among CG participants (e.g., sexual abuse). Thus, the model associations in the RG and CG can be meaningfully contrasted. Furthermore, in examining these models, the equal gender distribution in the samples expands on earlier research in which female participants comprised the sample majority (e.g., Cloitre et al., 2009).

The rationale behind the cascade model of CPTSD for the RG was that socio-interpersonal factors are particularly relevant for both the development of CPTSD symptoms and current satisfaction with life. In the first cascade step, these socio-interpersonal factors include attachment aspects, such as anxious and avoidant bonding behavior. Subsequent cascade steps encompass specific interactional processes among various social agents, such as partners, family members, and friends of the survivors, which can either contribute to or prevent the development of CPTSD. The present results indicate that this model could be better empirically confirmed by the inclusion of specific additional variables and associations. In particular, potentially traumatic experiences in adulthood and the key intrapersonal factor of self-efficacy were included (Gallagher et al., 2020). This extended model could be further consolidated by two crucial modifications: (a) the well-founded specification that trauma exposure in adulthood does not have a retrograde effect on childhood-related attachment difficulties and (b) the inclusion of direct effects of childhood trauma on the outcome variables. This comprehensive model is also in line with the CPTSD definition in the *ICD-11*, which includes two groups of CPTSD symptoms (i.e., core PTSD and DSO; Böttche et al., 2018). In addition, in the field of traumatic stress studies, there is increasing evidence, beyond clinical patient populations, that severe posttraumatic stress symptoms can also be regarded as egosyntonic, or subjectively perceived as part of one's personality, and, thus, do not constitute a pathological condition in the strict definition of the term (Hiskey & McPherson, 2013). Taking this into account and in accordance with the guiding principle of *ICD-11* that a mental health disorder can only be established in the context of the presence

of psychosocial functioning impairments, the criterion of low-level satisfaction with life was included in the current model (Perkonigg et al., 2016).

The confirmed SEM is discussed in the following sections in order of its contributing elements. We focus on a discussion of the associations observed in the RG, with some contrasting references to the CG. In the present study, different types of childhood trauma and maltreatment predicted attachment behavior, with more significant findings observed for attachment anxiety compared to attachment avoidance. This dominance of attachment anxiety is in line with the findings from reviews and meta-analyses in this area (e.g., Lim et al., 2020; Woodhouse et al., 2015). The absolute values (i.e., independent of the sign) indicate relatively substantial associations between these variables. However, when examined in detail, a mixed pattern of relations emerged that are challenging to interpret. The significant covariances within the variable groups, particularly within attachment anxiety and avoidance, suggest that a more aggregated perspective should be applied. Early in attachment research, Bartholomew and Horowitz (1991) proposed that a fearful–avoidant attachment might be relevant for the consequences of trauma. This suggests that the trauma-exposed individual "enact(s) both strategies in a haphazard, confused, and chaotic manner … their behavior under stress may be an incoherent blend of contradictory, abortive approach/avoidance behaviors or perhaps paralyzed interaction or withdrawal" (Bartholomew & Horowitz, 1991, p. 225). Such a perspective allows for the integration of the results on positive and negative excesses in attachment behavior, which is relevant for consideration in the subsequent attachment problems individuals with CPTSD can experience. Future studies should therefore consider other operationalizations of impaired attachment behavior in addition to the one employed in the current study.

In the next step of the cascade model, socio-interpersonal factors were assumed to be influenced by attachment behaviors. Consistent with previous studies on classic posttraumatic stress symptoms, the present study further confirmed a mediation association between dysfunctional attachment and lower levels of social support (e.g., Besser & Neria, 2012; Shallcross et al., 2014). Specifically, in the present study, attachment behaviors were related to lower perceived social support to a slightly greater extent in comparison to the other two socio-interpersonal variables (i.e., disclosure of trauma, social acknowledgment). Nevertheless, all associations were in the expected direction. For instance, affected individuals reported higher levels of dysfunctional disclosure (i.e., they were unable to properly express what they experienced towards others). To the best of our knowledge, this study was the first to investigate these correlations,

and further studies are needed to corroborate these findings.

The associations between the socio-interpersonal and outcome variables show relatively stronger correlations, particularly in the RG, compared with the other levels of variables in the model. The outcome variables were related to each other in a meaningful way, with a medium-high positive covariance observed between core PTSD and DSO symptoms and a negative covariance observed between DSO symptoms and satisfaction with life. The latter indicates that psychosocial impairment is more strongly related to DSO than to core PTSD symptoms, at least in this particular sample. DSO symptoms and satisfaction with life were significantly associated with the three socio-interpersonal factors, whereby the association between the need for disclosure and DSO symptoms was comparatively stronger. These results confirm earlier findings on PTSD and dysfunctional disclosure in an older sample (Krammer et al., 2016). The strong associations between dysfunctional disclosure and both types of CPTSD symptoms (i.e., core PTSD and DSO) indicate that childhood trauma and maltreatment survivors still have a need for disclosure at older ages. Furthermore, all three socio-interpersonal factors were related to satisfaction with life. This supports earlier findings with diverse samples on the associations between PTSD or CPTSD and disclosure of trauma, social acknowledgment (Hecker et al., 2018; Maercker et al., 2016, 2018), and social support (Dworkin et al., 2019, Zalta et al., 2020).

For the empirical validation of the cascade model, the following result is particularly important. In the consolidated empirical model, the direct paths between the trauma and outcome factors were released. These direct paths were empirically far less significant than the mediated (i.e., indirect) paths via the full cascades. In the RG, only one of the direct paths reached significance. Taken together with the finding that adult trauma showed less of an effect on attachment than childhood trauma and maltreatment, these results further corroborate previous research by Ogle and colleagues (2015) suggesting that attachment is an essential mediating variable for posttraumatic outcomes.

Finally, the comparisons of the path coefficients in the two samples revealed a pattern that supports the previously discussed conclusion that the cascade model was more applicable to the high-risk group of CSMP-affected individuals and less so for the control participants. Overall, present results indicate that in the case of dominant childhood trauma and maltreatment and its effect on dysfunctional attachment, it is important to additionally focus on trauma-specific socio-interpersonal factors. Thus far, these factors have received little research attention and should be considered in future studies as a further

intermediate step in the potential development and maintenance of CPTSD. In the clinical context, the focus should not be limited to the closest caregivers, as both the need for disclosure and the need for acknowledgment as a survivor are also relevant for other interpersonal spheres, such as acquaintances, work colleagues, occasional friendships, strangers, and authorities in social contexts. Within these broader spheres, an inept or incoherent style of interaction may also lead to the persistence of CPTSD (Krammer et al., 2016).

Theoretical and methodological limitations of the study must be acknowledged. Theoretically, the model does not emphasize dissociative symptoms. These symptoms are undisputedly clinically associated with CPTSD and play a role in the biopsychosocial model of CPTSD and the dissociative subtype of PTSD outlined in the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (Lanius, 2015). However, CPTSD as investigated in the current study contains dissociative symptoms in several symptom clusters, as defined by *ICD-11* (e.g., reexperiencing in the present, affective hyperregulation under stress). Therefore, while relevant biological factors and circuits also play an essential role in CPTSD, it can be argued that a parsimonious disorder model can, nevertheless, provide useful evidence. A second theoretical limitation is that we did not examine further refinements of the factors in the model. For example, life-phase–specific factors relevant to CPTSD, such as the invalidation of traumatic experiences in childhood by caregivers (Hong & Lishner, 2016), could be considered, Furthermore, the model should also be expanded to include other self-regulation variables, in addition to self-esteem, of known relevance for the development of PTSD and CPTSD. Another potential limitation was the joint analysis of a mixed-gender sample. Most previous studies have shown that female gender is a risk factor for certain child trauma exposures (e.g., sexualized violence) and posttrauma sequelae, such as the development of CPTSD (Hyland et al., 2017). Relevant gender differences in the model should therefore be investigated in follow-up studies. Finally, in the future, different developmental models of CPTSD should be compared in a comprehensive study.

From a methodological point of view, the first consideration is whether the present sample with low CPTSD prevalence was representative enough for this study. Given the high rates of childhood trauma, the present sample was considered to be suitable. However, the older age group in this sample had specific aspects that distinguish it from typical adult samples (e.g., presumably lower CPTSD prevalence compared with younger age groups; Maercker et al., 2018). It would, therefore, be advantageous for future researchers to study a model, such as that presented in the current study, in a clinical sample with high CPTSD prevalence. Second, the risk group upon which the model was based was rather small and comprised only about one quarter of the approached individuals. This attrition could reflect the higher-symptomatic individuals, which could limit the generalizability of the study. Third, the limitations of a retrospective study design must be considered, as such a design can lead to selection or recall biases, particularly in relation to the study of childhood trauma and maltreatment (Sheikh, 2018). Longitudinal, prospective design studies are needed for future research on childhood trauma and maltreatment and CPTSD. A further limitation is that we did not assess participants' racial or ethnic identification.

As dysfunctional attachment, particularly anxious attachment, appeared to be consistently associated with posttraumatic psychopathology in both the present study and previous literature, this variable may be a useful starting point for clinical treatment or intervention (Lim et al., 2020). This is crucial, as the treatment literature shows that anxious attachment can also limit the benefit of treatment and impede adequate engagement in trauma-focused interventions (Forbes et al., 2010). The growing number of best-practice or evidence-based therapeutic approaches highlights the importance of socio-interpersonal skills, including adult attachment (see Karatzias et al., 2019). This lends support to the present findings, which emphasize a focus on trauma-specific socio-interpersonal factors in the proposed cascade model of CPTSD.

OPEN PRACTICES STATEMENT
The study had not been preregistered. Deidentified data along with a codebook and the data analysis script will be posted after completion of the underlying program in 2024 (http://www.nrp76.ch/en9); access to the data will then be limited to qualified researchers. The materials used in these studies are widely publicly available.

ORCID
Andreas Maercker ● https://orcid.org/0000-0001-6925-3266
Shauna L. Rohner ● https://orcid.org/0000-0001-8273-0987
Myriam V. Thoma ● https://orcid.org/0000-0003-4316-522X

REFERENCES
Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, *103*(3), 411–423. https://doi.org/10.1037/0033-2909.103.3.411

Baer, U. M. (2016). Switzerland's apology for compulsory government-welfare measures: A social justice turn? *Social Justice*, *43*(3), 68–90. http://www.jstor.org/stable/26405723

Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology*, *61*(2), 226–244. https://doi.org/10.1037/0022-3514.61.2.226

Benight, C. C., Freyaldenhoven, R. W., Hughes, J., Ruiz, J. M., Zoschke, T. A., & Lovallo, W. R. (2000). Coping self-efficacy and psychological distress following the Oklahoma City bombing. *Journal of Applied Social Psychology*, *30*(7), 1331–1344. https://doi.org/10.1111/j.1559-1816.2000.tb02523.x

Bentler, P. M. (1995). *EQS structural equations program manual* (Vol. 6). Multivariate Software.

Bernstein, D. P., Stein, J. A., Newcomb, M. D., Walker, E., Pogge, D., Ahluvalia, T., Stokes, J., Handelsman, L., Medrano, M., Desmond, D., & Zule, W. (2003). Development and validation of a brief screening version of the Childhood Trauma Questionnaire. *Child Abuse and Neglect*, *27*(2), 169–190. https://doi.org/10.1016/s0145-2134(02)00541-0

Besser, A., & Neria, Y. (2012). When home isn't a safe haven: Insecure attachment orientations, perceived social support, and PTSD symptoms among Israeli evacuees under missile threat. *Psychological Trauma: Theory, Research, Practice, and Policy*, *4*(1), 34–46. https://doi.org/10.1037/a0017835

Böttche, M., Ehring, T., Krüger-Gottschalk, A., Rau, H., Schäfer, I., Schellong, J., Dyer, A., & Knaevelsrud, C. (2018). Testing the *ICD-11* proposal for complex PTSD in trauma-exposed adults: Factor structure and symptom profiles. *European Journal of Psychotraumatology*, *9*(1), 1512264. https://doi.org/10.1080/20008198.2018.1512264

Breslau, N., & Schultz, L. (2013). Neuroticism and posttraumatic stress disorder: A prospective investigation. *Psychological Medicine*, *43*(8), 1697–1702. https://doi.org/10.1017/s0033291712002632

Carr, A., Duff, H., & Craddock, F. (2020). A systematic review of the outcome of child abuse in long-term care. *Trauma, Violence, and Abuse*, *21*(4), 660–677. https://doi.org/10.1177/1524838018789154

Charuvastra, A., & Cloitre, M. (2008). Social bonds and posttraumatic stress disorder. *Annual Review of Psychology*, *59*(1), 301–328. https://doi.org/10.1146/annurev.psych.58.110405.085650

Chen, F. F. (2007). Sensitivity of goodness of fit indexes to lack of measurement invariance. *Structural Equation Modeling: A Multidisciplinary Journal*, *14*(3), 464–504. https://doi.org/10.1080/10705510701301834

Cloitre, M. (2020). *ICD-11* complex post-traumatic stress disorder: Simplifying diagnosis in trauma populations. *British Journal of Psychiatry*, *216*(3), 129–131. https://doi.org/10.1192/bjp.2020.43

Cloitre, M., Shevlin, M., Brewin, C. R., Bisson, J. I., Roberts, N. P., Maercker, A., Karatzias, T., & Hyland, P. (2018). The International Trauma Questionnaire: Development of a self-report measure of *ICD-11* PTSD and complex PTSD. *Acta Psychiatrica Scandinavica*, *138*(6), 536–546. https://doi.org/10.1111/acps.12956

Cook, A., Spinazzola, J., Ford, J., Lanktree, C., Blaustein, M., Cloitre, M., DeRosa, R., Hub-bard, R., Kagan, R., Liautaud, J., Mallah, K., Olafson, E., & van der Kolk, B. (2005). Complex trauma in children and adolescents. *Psychiatric Annals*, *35*(5), 390–398.

Cloitre, M., Stolbach, B. C., Herman, J. L., Kolk, B. V. D., Pynoos, R., Wang, J., & Petkova, E. (2009). A developmental approach to complex PTSD: Childhood and adult cumulative trauma as predictors of symptom complexity. *Journal of Traumatic Stress*, *22*(5), 399–408. https://doi.org/10.1002/jts.20444

Courtois, C. A. (2004). Complex trauma, complex reactions: Assessment and treatment. *Psychotherapy: Theory, Research, Practice, Training*, *41*(4), 412–425. https://doi.org/10.1037/1942-9681.s.1.86

Courtois, C. A., & Ford, J. D. (2020). *Treating complex traumatic stress disorders in adults: Scientific foundations and therapeutic models* (2nd ed.). Guilford Press.

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessment*, *49*(1), 71–75. https://doi.org/10.1207/s15327752jpa4901_13

Dworkin, E. R., Brill, C. D., & Ullman, S. E. (2019). Social reactions to disclosure of interpersonal violence and psychopathology: A systematic review and meta-analysis. *Clinical Psychology Review*, *72*, 101750. https://doi.org/10.1016/j.cpr.2019.101750

Ehrenthal, J. C., Dinger, U., Lamla, A., Funken, B., & Schauenburg, H. (2009). Evaluation der deutschsprachigen Version des Bindungsfragebogens [Experiences in Close Relationships—Revised" (ECR-RD)]. *Psychotherapie, Psychosomatik, medizinische Psychologie*, *59*(06), 215–223. https://doi.org/10.1055/s-2008-1067425

Federal Office of Justice. (2020). *Compulsory social measures and placements*. http://www.bj.admin.ch/bj/en/home/gesellschaft/fszm.html

Forbes, D., Parslow, R., Fletcher, S., McHugh, T., & Creamer, M. (2010). Attachment style in the prediction of recovery following group treatment of combat veterans with post-traumatic stress disorder. *Journal of Nervous and Mental Disease*, *198*(12), 881–884. https://doi.org/10.1097/NMD.0b013e3181fe73fa

Ford, J. (2015). An affective cognitive neuroscience-based approach to PTSD psychotherapy: The TARGET model. *Journal of Cognitive Psychotherapy*, *29*(1), 68–91. https://doi.org/10.1891/0889-8391.29.1.68

Fraley, R. C., Waller, N. G., & Brennan, K. A. (2000). An item response theory analysis of self-report measures of adult attachment. *Journal of Personality and Social Psychology*, *78*(2), 350–365. https://doi.org/10.1037/0022-3514.78.2.350

Fydrich, T., Sommer, G., Tydecks, S., & Brähler, E. (2009). Social Support Questionnaire (F-SozU): Standardization of short form (K–14). *Zeitschrift fur Medizinische Psychologie*, *18*, 43–48.

Gallagher, M. W., Long, L. J., & Phillips, C. A. (2020). Hope, optimism, self-efficacy, and posttraumatic stress disorder: A meta-analytic review of the protective effects of positive expectancies. *Journal of Clinical Psychology*, *76*(3), 329–355. https://doi.org/10.1002/jclp.22882

Hecker, T., Huber, S., Maier, T., & Maercker, A. (2018). Differential associations among PTSD and complex PTSD symptoms and traumatic experiences and postmigration difficulties in a culturally diverse refugee sample. *Journal of Traumatic Stress*, *31*(6), 795–804. https://doi.org/10.1002/jts.22342

Hiskey, S., & McPherson, S. (2013). That's just life: Older adult constructs of trauma. *Aging and Mental Health*, *17*(6), 689–696. https://doi.org/10.1080/13607863.2013.765832

Hong, P. Y., & Lishner, D. A. (2016). General invalidation and trauma-specific invalidation as predictors of personality and subclinical psychopathology. *Personality and Individual Differences*, *89*, 211–216. https://doi.org/10.1016/j.paid.2015.10.016

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1–55. https://doi.org/10.1080/10705519909540118

Hyland, P., Murphy, J., Shevlin, M., Vallières, F., McElroy, E., Elklit, A., Christoffersen, M. & Cloitre, M. (2017). Variation in post-traumatic response: The role of trauma type in predicting *ICD-11* PTSD and CPTSD symptoms. *Social Psychiatry and Psychiatric Epidemiology*, 52(6), 727–736. https://doi.org/10.1007/s00127-017-1350-8

Janke, S., & Glöckner-Rist, A. (2012). Deutsche Version der Satisfaction with Life Scale (SWLS) [German version of the Satisfaction of Life Scale]. *Zusammenstellung sozialwissenschaftlicher Items und Skalen (ZIS)*. https://doi.org/10.6102/zis147

Karatzias, T., Murphy, P., Cloitre, M., Bisson, J., Roberts, N., Shevlin, M., Hyland, P., Maercker, A., Ben-Ezra, M., Coventry, P., Mason-Roberts, S., Bradley, A., & Hutton, P. (2019). Psychological interventions for *ICD-11* complex PTSD symptoms: Systematic review and meta-analysis. *Psychological Medicine*, 49(11), 1761–1775. https://doi.org/10.1017/s0033291719000436

Karatzias, T., Shevlin, M., Hyland, P., Brewin, C. R., Cloitre, M., Bradley, A., Kitchiner, N. J., Jumbe, S., Bisson, J. I., & Roberts, N. P. (2018). The role of negative cognitions, emotion regulation strategies, and attachment style in complex post-traumatic stress disorder: Implications for new and existing therapies. *British Journal of Clinical Psychology*, 57(2), 177–185. https://doi.org/10.1111/bjc.12172

Krammer, S., Kleim, B., Simmen-Janevska, K., & Maercker, A. (2016). Childhood trauma and complex posttraumatic stress disorder symptoms in older adults: A study of direct effects and social-interpersonal factors as potential mediators. *Journal of Trauma and Dissociation*, 17(5), 593–607. https://doi.org/10.1080/15299732.2014.991861

Lanius, R. A. (2015). Trauma-related dissociation and altered states of consciousness: A call for clinical, treatment, and neuroscience research. *European Journal of Psychotraumatology*, 6(1), 27905–27905. https://doi.org/10.3402/ejpt.v6.27905

Leuenberger, M., & Seglias, L. (2008). *Versorgt und vergessen: Ehemalige Verdingkinder erzählen* [Taken and forgotten: Former Verdingkinder tell their stories]. Rotpunktverlag.

Li, T. & Chan, D. K. (2012). How anxious and avoidant attachment affect romantic relationship quality differently: A meta-analytic review. *European Journal of Social Psychology*, 42(4), 406–419. https://doi.org/10.1002/ejsp.1842

Lim, B. H., Hodges, M. A., & Lilly, M. M. (2020). The differential effects of insecure attachment on post-traumatic stress: A systematic review of extant findings and explanatory mechanisms. *Trauma, Violence, and Abuse*, 21(5), 1044–1060. https://doi.org/10.1177/1524838018815136

Lorenz, L., Perkonigg, A., & Maercker, A. (2018). A socio-interpersonal approach to adjustment disorder: The example of involuntary job loss. *European Journal of Psychotraumatology*, 9(1), 142576–142576. https://doi.org/10.1080/20008198.2018.1425576

Lueger-Schuster, B., Knefel, M., & Maercker, A. (2015/2018). *Der internationale trauma questionnaire–Deutsche version* [International Trauma Questionnaire–German version]. https://www.psychologie.uzh.ch/dam/jcr:ad66be44-4cd9-44c3-9911-488253de04cc/

Lupien, S. J., McEwen, B. S., Gunnar, M. R., & Heim, C. (2009). Effects of stress throughout the lifespan on the brain, behaviour,

and cognition. *Nature Reviews Neuroscience*, 10(6), 434–445. https://doi.org/10.1038/nrn2639

Maercker, A. (2021). Development of the new CPTSD diagnosis for *ICD-11*. *Borderline Personality Disorder and Emotion Dysregulation*, 8(1). https://doi.org/10.1186/s40479-021-00148-8.

Maercker, A., Hecker, T., Augsburger, M., & Kliem, S. (2018). *ICD-11* prevalence rates of posttraumatic stress disorder and complex posttraumatic stress disorder in a German nationwide sample. *Journal of Nervous and Mental Disease*, 206(4), 270–276. https://doi.org/10.1097/nmd.0000000000000790

Maercker, A., Hilpert, P., & Burri, A. (2016). Childhood trauma and resilience in old age: Applying a context model of resilience to a sample of former indentured child laborers. *Aging and Mental Health*, 20(6), 616–626. https://doi.org/10.1080/13607863.2015.1033677

Maercker, A., & Horn, A. B. (2013). A socio-interpersonal perspective on PTSD: The case for environments and interpersonal processes. *Clinical Psychology and Psychotherapy*, 20(6), 465–481. https://doi.org/10.1002/cpp.1805

Maercker, A., & Müller, J. (2004). Social acknowledgment as a victim or survivor: A scale to measure a recovery factor of PTSD. *Journal of Traumatic Stress*, 17(4), 345–351. https://doi.org/10.1023/B:JOTS.0000038484.15488.3d

Mayer, M., & Mayer, M. M. (2018). Package '*missRanger*'[Software program]. https://cran.r-project.org/web/packages/missRanger/missRanger.pdf

Müller, J., & Maercker, A. (2006). Disclosure und wahrgenommene gesellschaftliche Wertschätzung als Opfer als Prädiktoren von PTB bei Kriminalitätsopfern [Disclosure and perceived social acknowledgement as victims as predictors of PTSD in crime victims]. *Zeitschrift für Klinische Psychologie und Psychotherapie*, 35, 49–58.

Nijenhuis, E. R. s., Hart, O., & Kruger, K. (2002). The psychometric characteristics of the Traumatic Experience Checklist (TEC): First findings among psychiatric outpatients. *Clinical Psychology & Psychotherapy*, 9(3), 200–210. https://doi.org/10.1002/cpp.332

Ogle, C. M., Rubin, D. C., Berntsen, D., & Siegler, I. C. (2013). The frequency and impact of exposure to potentially traumatic events over the life course. *Clinical Psychological Science*, 1(4), 426–434. https://doi.org/10.1177/2167702613485076

Ogle, C. M., Rubin, D. C., & Siegler, I. C. (2015). The relation between insecure attachment and posttraumatic stress: Early life versus adulthood traumas. *Psychological Trauma*, 7(4), 324–332. https://doi.org/10.1037/tra0000015

Perkonigg, A., Höfler, M., Cloitre, M., Wittchen, H. U., Trautmann, S., & Maercker, A. (2016). Evidence for two different *ICD-11* posttraumatic stress disorders in a community sample of adolescents and young adults. *European Archives of Psychiatry and Clinical Neuroscience*, 266(4), 317–328. https://doi.org/10.1007/s00406-015-0639-4

Powers, A., Fani, N., Carter, S., Cross, D., Cloitre, M., & Bradley, B. (2017). Differential predictors of *DSM-5* PTSD and *ICD-11* complex PTSD among African American women. *European Journal of Psychotraumatology*, 8(1), 1338914. https://doi.org/10.1080/20008198.2017.1338914

Raby, K. L., Labella, M. H., Martin, J., Carlson, E. A., & Roisman, G. I. (2017). Childhood abuse and neglect and insecure attachment states of mind in adulthood: Prospective, longitudinal evidence

from a high-risk sample. *Development and Psychopathology*, *29*(2), 347–363. https://doi.org/10.1017/s0954579417000037

Schumacher, S., Martin-Soelch, C., Rufer, M., Pazhenkottil, A., Wirtz, G., Fuhrhans, C., Hindermann, E., & Mueller-Pfeiffer, C. (2012). Psychometric characteristics of the German adaptation of the Traumatic Experiences Checklist (TEC). *Psychological Trauma: Theory, Research, Practice, and Policy*, *4*(3), 338–346. https://doi.org/10.1037/a0024044

Schwarzer, R., & Jerusalem, M. (2010). The General Self-Efficacy scale (GSE). *Anxiety, Stress, and Coping*, *12*, 329–345.

Shallcross, S. L., Frazier, P. A., & Anders, S. L. (2014). Social resources mediate the relations between attachment dimensions and distress following potentially traumatic events. *Journal of Counseling Psychology*, *61*(3), 352–362. https://doi.org/10.1037/a0036583

Sheikh, M. A. (2018). Childhood adversities and chronic conditions: Examination of mediators, recall bias and age at diagnosis. *International Journal of Public Health*, *63*(2), 181–192. https://doi.org/10.1007/s00038-017-1021-2

Simon, N., Roberts, N. P., Lewis, C. E., van Gelderen, M. J., & Bisson, J. I. (2019). Associations between perceived social support, posttraumatic stress disorder (PTSD) and complex PTSD (CPTSD): Implications for treatment. *European Journal of Psychotraumatology*, *10*(1), 1573129. http://doi.org/10.1080/20008198.2019.1573129

Stovall-McClough, K. C., & Cloitre, M. (2006). Unresolved attachment, PTSD, and dissociation in women with childhood abuse histories. *Journal of Consulting and Clinical Psychology*, *74*(2), 219–228. https://doi.org/10.1037/0022-006x.74.2.219

Thoma, M. V., Bernays, F., Eising, C. M., Pfluger, V., & Rohner, S. L. (2021). Health, stress, and well-being in Swiss adult survivors of child welfare practices and child labor: Investigating the mediating role of socio-economic factors. *Child Abuse & Neglect*, *111*, 104769. https://doi.org/10.1016/jchiabu.2020.104769

Tietjen, G. E., Brandes, J. L., Peterlin, B. L., Eloff, A., Dafer, R. M., Stein, M. R., Drexler, E., Martin, V. T., Hutchinson, S., Aurora, S. K., Recober, A., Herial, N. A., Utley, C., White, L., & Khuder, S. A. (2010). Childhood maltreatment and migraine (Part I). Prevalence and adult revictimization: A multicenter headache clinic survey. *Headache*, *50*(1), 20–31. https://doi.org/10.1111/j.1526-4610.2009.01556.x

World Health Organization. (2020). *International Statistical Classification of Diseases and Related Health Problems (ICD-11*; 11th rev.). Author.

Wingenfeld, K., Spitzer, C., Mensebach, C., Grabe, H. J., Hill, A., Gast, U., Schlosser, N., Höpp, H., Beblo, T., & Driessen, M. (2010). The German version of the Childhood Trauma Questionnaire (CTQ): Preliminary psychometric properties. *Psychotherapie, Psychosomatik, medizinische Psychologie*, *60*(11), 442–450.

Woodhouse, S., Ayers, S., & Field, A. P. (2015). The relationship between adult attachment style and post-traumatic stress symptoms: A meta-analysis. *Journal of Anxiety Disorders*, *35*, 103–117. https://doi.org/10.1016/j.janxdis.2015.07.002

Zalta, A. K., Tirone, V., Orlowska, D., Blais, R. K., & Dent, A. L. (2021). Examining moderators of the relationship between social support and self-reported PTSD symptoms: A meta-analysis. *Psychological Bulletin*, *147*(1), 33–54. http://doi.org/10.1037/bul0000316

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