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Complex posttraumatic stress disorder (CPTSD) is uniquely linked to suicidality beyond posttraumatic stress disorder (PTSD) in adults with childhood maltreatment: A multinational study across four countries

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ABSTRACT

Background: Suicide is a leading cause of death worldwide, with childhood maltreatment identified as a significant risk factor for suicidal behavior in adulthood. The link between childhood maltreatment and suicidality is well-documented; however, the role of complex posttraumatic stress disorder (CPTSD), which includes an additional symptom cluster of disturbances in self-organization (DSO) compared to posttraumatic stress disorder (PTSD), remains underexplored. This study aimed to investigate the association between meeting the criteria for ICD-11 PTSD or CPTSD and suicidality in adults with a history of childhood maltreatment across culturally diverse samples.

Methods: Data were collected across four sites: the United States, the United Kingdom, China, and Malaysia. The Childhood Trauma Questionnaire (CTQ), Suicidal Behaviors Questionnaire-Revised (SBQ-R), and International Trauma Questionnaire (ITQ) were used to assess childhood maltreatment, suicidality, and PTSD or CPTSD, respectively. Linear regressions were conducted to examine the associations, controlling for demographic variables (age, sex, ethnicity, educational level, and subjective socioeconomic status) as well as the severity of maltreatment (CTQ total scores).

Results: Among the 1324 participants who experienced childhood maltreatment, meeting the criteria for CPTSD was significantly associated with higher suicidality compared to not meeting the criteria for either PTSD or CPTSD ($B(SE) = 1.68$ (0.30), $p < .001$), or only meeting the criteria for PTSD ($B(SE) = 1.38$ (0.43), $p < .001$). In contrast, meeting the criteria for PTSD alone was not significantly associated with suicidality ($B(SE) = 0.35$ (0.46), $p = .45$). These associations remained consistent across different cultural settings.

Conclusion: The study findings highlight the unique association of CPTSD with suicidality in adults with a history of childhood maltreatment, suggesting that the DSO symptom cluster of CPTSD, which distinguish it from PTSD, play a critical role in the development of suicidality in this population. Targeting these symptoms may be essential for effective intervention strategies. Screening for childhood maltreatment and CPTSD in individuals at risk of suicide is crucial for guiding treatment planning.

1. Introduction

Suicide is a serious public health issue, resulting in over 700,000 deaths annually worldwide (World Health Organization, 2021). Suicidality is an umbrella term that encompasses various suicidal behaviors, including suicidal ideation, planning, and attempts. Childhood maltreatment, including sexual, physical, and emotional abuse and neglect, is a significant risk factor for suicidality in adulthood (Angelakis et al., 2019). Childhood maltreatment is common: a meta-analysis reported global prevalence rates of 12.7% for sexual abuse, 22.6% for physical abuse, 36.3% for emotional abuse, 16.3% for physical neglect, and 18.4% for emotional neglect (Stoltenborgh et al., 2015). Numerous

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studies have consistently shown a link between various types of childhood maltreatment and suicidality across clinical and community samples, as well as in cross-sectional and longitudinal research designs (Barbosa et al., 2014; Hoertel et al., 2015; Miller et al., 2013; P. Xie et al., 2018; Zatti et al., 2017). Research has shown that the association between childhood maltreatment and suicide risk is largely driven by a latent factor that captures the common effects of different types of maltreatment (Hoertel et al., 2015). Supporting this, two meta-analyses have consistently demonstrated that all forms of childhood maltreatment are significantly associated with an elevated risk of suicide in both youth and adults (Angelakis et al., 2019, 2020). However, there is limited understanding of the factors that contribute to the development of suicidality in individuals exposed to childhood maltreatment (Angelakis et al., 2019). Identifying these factors is crucial for developing effective interventions to mitigate the associated risks (Bahk et al., 2017; Miller et al., 2013). This study asks whether posttraumatic stress disorder (PTSD) and CPTSD are engaged in this relationship.

The 11th revision of the International Classification of Diseases (ICD-11) introduced significant updates to the diagnosis of posttraumatic stress disorders, including the addition of complex posttraumatic stress disorder (CPTSD) alongside posttraumatic stress disorder (PTSD) (WHO, 2019). ICD-11 PTSD is characterized by three core symptom clusters: re-experiencing, avoidance, and a persistent sense of current threat, with diagnosis requiring at least one symptom from each cluster and evidence of functional impairment. In contrast, CPTSD encompasses all PTSD symptoms and additional disturbances in self-organization (DSO), which include affective dysregulation, negative self-concept, and disturbances in relationships. The diagnosis of CPTSD necessitates meeting the PTSD criteria plus the presence of DSO symptoms and related functional impairments.

Several studies have demonstrated the role of PTSD in the relationship between childhood maltreatment and suicidality. Bedi et al. (2011) found that depression and PTSD partially mediate the link between childhood sexual abuse and suicidal behavior in a sample of 2559 Australian twins and siblings. Bornovalova et al. (2011), examining 180 adult inpatients in a US drug and alcohol abuse treatment center, reported that PTSD symptoms partly explain the impact of childhood sexual abuse on deliberate self-harm and suicide attempts. In a study of 726 adult suicide attempters in France, Lopez-Castroman et al. (2015) discovered that PTSD following childhood abuse is associated with more severe suicidal behavior. These findings underscore the critical role of PTSD in understanding how childhood maltreatment leads to increased suicidality.

As CPTSD is a relatively new diagnosis, there is limited research exploring its association with suicidality in individuals exposed to childhood maltreatment. However, it may play a more significant role than PTSD in this relationship, as its symptomatology more accurately reflects the interpersonal and chronic nature of childhood maltreatment experiences (Maercker et al., 2022). As a distinct clinical condition, CPTSD often involves earlier trauma onset and greater victimization by acquaintances or family members, characteristics commonly associated with childhood maltreatment (Guzman Torres et al., 2023). It is also associated with more severe outcomes, including psychotic-like experiences (Rossi et al., 2023a), addictive behaviors (Jannini et al., 2024; Rossi et al., 2023b), and dissociation (Fung et al., 2023). Research indicates that cumulative childhood trauma is more strongly linked to complex PTSD than to PTSD, and that such trauma, rather than trauma experienced in adulthood, predicts increasing symptom complexity in adults (Cloitre et al., 2009, 2019). Furthermore, CPTSD is linked with greater functional impairment, a higher psychiatric burden, and lower psychological well-being, all of which that can elevate the risk of suicide (Brewin et al., 2017; Cloitre et al., 2019). Understanding the distinct ways in which CPTSD and PTSD relate to suicidality in childhood maltreatment survivors is crucial, as these conditions may require different therapeutic approaches (Cloitre, 2015; Cloitre et al., 2011). Current first-line treatments for PTSD, such as trauma-focused cognitive behavioral therapy, may not sufficiently address the interpersonal and emotional dysregulation issues prevalent in this population, as they do not explicitly target these specific problems (Cloitre et al., 2010). Phased-based treatments that include skills training for emotional regulation and interpersonal difficulties may more effectively address these symptoms (Cloitre et al., 2010, 2011). Additionally, PTSD often goes undetected in secondary-care mental health services (Zammit et al., 2018), which increases the risk that more severe psychopathologies, such as CPTSD, may be overlooked in this vulnerable group (Mason et al., 2023).

From a theoretical standpoint, CPTSD may have a stronger association with suicidality than PTSD, especially among individuals with a history of childhood maltreatment. However, to date, no study has explicitly compared the effects of PTSD and CPTSD on suicidality within this population. The Interpersonal Theory of Suicide (IPTS) provides a useful framework for understanding this relationship, positing that suicidal desire results from the combination of thwarted belongingness and perceived burdensomeness, and that suicidal behavior occurs when these factors are accompanied by an acquired capability for suicide (Van Orden et al., 2010). The disturbances in self-organization (DSO) symptoms of CPTSD can interact with IPTS components, exacerbating the risk of suicidality. For instance, childhood maltreatment, often marked by painful and provocative experiences, can lead to affective dysregulation and impulsivity (Weiss et al., 2012), potentially facilitating habituation to pain and reducing the fear of death, thus increasing the acquired capability for suicide (Bender et al., 2011; Joiner, 2005). Furthermore, the negative self-concepts associated with CPTSD can intensify feelings of worthlessness, shame, and self-blame, contributing to perceived burdensomeness (Messman-Moore and Coates, 2007). These feelings, combined with affective dysregulation, can deepen hopelessness and despair, reinforcing the sense of being a burden to others (Van Orden et al., 2010). Additionally, childhood maltreatment can impair the ability to form and maintain healthy relationships, leading to social isolation (Hepp et al., 2021; Vaillancourt-Morel et al., 2019). This isolation can be exacerbated by difficulties in emotion recognition and a heightened fear of one's own emotions (McNeil and Rehman, 2024), further contributing to thwarted belongingness. These factors, as encapsulated in the core diagnostic criteria of CPTSD, collectively create a conducive environment for the development of suicidality in individuals with a history of childhood maltreatment. Given the theoretical link, it is crucial to explore how PTSD and CPTSD relate to suicidality in individuals exposed to childhood maltreatment. This understanding could aid in developing targeted interventions for this at-risk group.

This study aimed to examine the association between meeting the criteria for PTSD or CPTSD and suicidality in adults with a history of childhood maltreatment. The research was conducted across four sites (the United States, the United Kingdom, China, and Malaysia) to ensure a culturally and geographically diverse sample. This diversity allowed us to validate the robustness and generalizability of our findings. We hypothesized that meeting the criteria for PTSD and CPTSD would be linked to suicidality across all sites, with CPTSD having a stronger association with suicidality compared to PTSD.

2. Methods

2.1. Sample and study design

Data were collected via online survey platforms from January 26, 2024, to February 26, 2024. We recruited adult participants (aged $\geq$ 18 years) from four sites: two Western countries (the United States and the United Kingdom) and two Asian countries (China and Malaysia). Participants from the United States and the United Kingdom were recruited via the Prolific platform and redirected to Qualtrics to complete the English version of the survey. Meanwhile, participants from China and Malaysia were recruited through social media platforms (WeChat,

Weibo, and Facebook) and guided to the WenJuanXing platform to complete the Chinese version of the survey. We mentioned that childhood maltreatment and suicidality were variables of interest, but participants did not need to have experienced either to qualify for the study. Participants saw a brief introduction to the survey before beginning. To ensure data quality, we included two attention check questions. Participants failing either attention check were directed to the final page of the survey, and their responses were not recorded or included in the analysis. All questions were mandatory. Participants were included in our analysis if they had experienced childhood maltreatment.

2.2. Measures

2.2.1. Childhood Trauma Questionnaire (CTQ)

We used the Childhood Trauma Questionnaire (CTQ), a widely used and reliable measure, to assess childhood maltreatment among participants (Bernstein et al., 2003). The CTQ includes five subscales: Emotional Abuse, Physical Abuse, Sexual Abuse, Emotional Neglect, and Physical Neglect. Participants responded to items about their childhood experiences (e.g., "Someone threatened to hurt me or tell lies about me unless I did something sexual with them" and "People in my family hit me so hard that it left me with bruises or marks"). Responses ranged from "never true" to "very often true," with higher scores indicating greater severity of maltreatment. The CTQ was translated and validated in Chinese (Zhao et al., 2005). Participants were considered to have experienced childhood maltreatment and were included in our analysis if they scored "moderate to severe" on at least two maltreatment types or "severe to extreme" on at least one maltreatment type (Mason et al., 2023; Weitkämper et al., 2021). The scoring criteria for each maltreatment type are detailed in Table S1 of the Supplementary Materials.

2.2.2. Suicidal Behaviors Questionnaire-Revised (SBQ-R)

The Suicidal Behaviors Questionnaire-Revised (SBQ-R) was used to assess participants' suicidality. The SBQ-R has been validated in both clinical and nonclinical samples (Osman et al., 2001). It measures four aspects of suicidality: lifetime suicide-related thoughts and attempts, frequency of suicidal thoughts in the past year, threats of attempting suicide, and self-reported likelihood of suicide attempts. Higher scores indicate higher levels of suicidality. The SBQ-R was translated and validated in Chinese (Huen et al., 2022).

2.2.3. International Trauma Questionnaire (ITQ)

We used the International Trauma Questionnaire (ITQ) to assess PTSD and CPTSD according to the ICD-11. It has been shown to be effective in identifying individuals who may have PTSD or CPTSD (Cloitre et al., 2018). The ITQ was translated and validated in Chinese (Ho et al., 2019). To meet the criteria of PTSD, participants needed to score at least 2 points on one item from each of three subscales: re-experiencing, avoidance behavior, and a persistent sense of current threat. They also needed to score at least 2 points on one item related to functional impairment. For CPTSD, participants had to meet the PTSD criteria, score at least 2 points on one item from each of three subscales specific to CPTSD (affective dysregulation, negative self-concept, and disturbances in relationship), and score at least 2 points on one item related to functional impairment from the CPTSD subscale. Based on ITQ results, participants were classified as not meeting the criteria for PTSD or CPTSD, meeting the criteria for PTSD, or meeting the criteria for CPTSD. Participants classified as having CPTSD were not classified as having PTSD.

2.2.4. Demographics variables

Demographic variables included age, sex, ethnicity, educational level, subjective socioeconomic status. Ethnicity was categorized into six groups: White/Caucasian, Black/African American, Latino/Hispanic, Asian-Chinese, Asian-Other, and Other. Educational level had four categories: high school, undergraduate, master, and doctoral. Participants indicated their subjective socioeconomic status using the MacArthur Scale of Subjective Socioeconomic Status (Adler et al., 2000; X. N. Xie and Li, 2018). This measure presents a picture of a ladder, with rungs numbered from 1 (lowest) to 10 (highest). Participants were asked to imagine the ladder as a reflection of society, with the top rung representing those with the most wealth, education, and best jobs, and the bottom rung representing those with the least. They then selected the rung that best represented their perceived position in society.

2.3. Statistical analysis

We reported descriptive statistics for demographic variables (age, sex, ethnicity, educational level, and subjective socioeconomic status) and variables of interest (CTQ total score, CTQ subtype scores, ITQ total score, meeting PTSD threshold, meeting CPTSD threshold, not meeting either threshold, and SBQR total score) for each region (West and Asia). T-tests and chi-square tests were performed for continuous variables and categorical variables, respectively.

Linear regressions were conducted to assess whether meeting PTSD and CPTSD thresholds (compared to not meeting either threshold) were independently associated with suicidality. Additionally, we examined if meeting the CPTSD threshold (compared to meeting the PTSD threshold) was associated with suicidality. All regressions controlled for age, sex, ethnicity, educational level, subjective socioeconomic status, CTQ total score, and region. Due to low participant numbers in some ethnic groups, ethnicity was categorized into two levels (white and non-white). We included an interaction term between region and meeting PTSD or CPTSD thresholds to see if the relationship between these thresholds and suicidality varied by region. Bonferroni-corrected p-values were used to determine significance levels, accounting for multiple comparisons. All statistical analyses were performed using Python version 3.11.5.

2.3.1. Sensitivity analysis

We performed a series of sensitivity analyses to ensure the robustness of our results. First, we applied different inclusion criteria to identify participants with childhood maltreatment. Since different thresholds or cut-off scores can significantly affect the prevalence rates of childhood maltreatment (Weitkämper et al., 2021), we used an alternative set of commonly used cut-off scores to check the consistency of our results (Grummitt et al., 2022; Mohammadzadeh et al., 2019; Walker et al., 1999). The cut-off scores for each type of maltreatment were: 10 for emotional abuse, 15 for emotional neglect, 8 for physical abuse, 8 for physical neglect, and 8 for sexual abuse. We included participants with at least one type of maltreatment in our analyses. Furthermore, we conducted additional analyses using sites, instead of region, as control variables to determine whether there are any site-specific effects. We also included interaction terms to assess whether the associations between PTSD or CPTSD and suicidality varied by site. These sensitivity analyses were performed for all regression models, including comparisons between PTSD vs. no PTSD or CPTSD, CPTSD vs. no PTSD or CPTSD, and CPTSD vs. PTSD.

3. Results

3.1. Descriptive statistics

All demographic variables and variables of interest are presented in Table 1. The initial sample, consisting of participants with complete data who passed the attention check questions, included 2515 individuals. Of these, 1324 participants had experienced childhood maltreatment and were included in our analysis. This main sample comprised 618 participants from the West (522 from the US and 96 from the UK) and 706 from Asia (569 from China and 137 from Malaysia). 112 participants met the PTSD criteria, 540 met the CPTSD criteria, and 672 did not meet either criterion.

Table 1
Sample characteristics within each region.

	Total (N = 1324)	West (n = 618)	Asia (n = 706)	χ^2 or t	p
Country					
United States		522	–		
United Kingdom		96	–		
China		–	569		
Malaysia		–	137		
Age (Years)	25.19 (4.05)	27.53 (4.62)	24.48 (2.79)	14.76	<0.001
Sex				12.91	<0.001
Male	552 (41.7%)	225 (36.4%)	327 (46.3%)		
Female	772 (58.3%)	393 (63.6%)	379 (53.7%)		
Ethnicity				1160.72	<0.001
White/Caucasian	443 (33.5%)	443 (71.7%)			
Black/African American	93 (7.0%)	93 (15.1%)			
Hispanic/Latino	5 (0.4%)	5 (0.8%)			
Asian - Chinese	694 (52.4%)	28 (4.5%)	666 (94.3%)		
Asian - Other	61 (4.6%)	21 (3.4%)	40 (5.7%)		
Other	28 (2.1%)	28 (4.5%)			
Educational Level				169.09	<0.001
High School	280 (21.1%)	224 (36.2%)	56 (7.9%)		
Undergraduate	842 (63.6%)	297 (48.1%)	545 (77.2%)		
Master	174 (13.1%)	84 (13.6%)	90 (12.7%)		
Doctoral	28 (2.1%)	13 (2.1%)	15 (2.1%)		
Subjective Socioeconomic Status	4.97 (1.90)	4.78 (1.87)	5.14 (1.92)	−3.49	<0.001
Childhood Maltreatment Exposure					
CTQ total	67.27 (17.35)	65.56 (16.62)	68.76 (17.84)	−3.35	<0.001
CTQ - Emotional Abuse	15.68 (5.40)	15.82 (5.43)	15.55 (5.38)	0.92	0.36
CTQ - Physical Abuse	11.57 (5.84)	10.55 (5.07)	12.46 (6.30)	−6.02	<0.001
CTQ - Sexual Abuse	10.71 (6.32)	10.06 (6.08)	11.28 (6.46)	−3.51	<0.001
CTQ - Emotional Neglect	16.06 (5.00)	17.11 (4.58)	15.15 (5.16)	7.27	<0.001
CTQ - Physical Neglect	13.24 (4.09)	12.01 (4.10)	14.32 (3.77)	−10.65	<0.001
International Trauma Questionnaire					
ITQ total	26.70 (18.60)	21.83 (17.01)	31.54 (18.86)	−12.127	<0.001
PTSD	112 (8.5%)	54 (8.7%)	58 (8.2%)	187.87	<0.001
CPTSD	540 (40.8%)	133 (21.5%)	407 (57.6%)		
No PTSD or CPTSD	672 (50.8%)	431 (69.7%)	241 (34.1%)		
Suicidality					
SBQ-R total	8.48 (3.64)	8.03 (3.80)	8.88 (3.45)	−4.26	<0.001

Note. Data are presented as mean (SD) or n (%). CTQ = Childhood Trauma Questionnaire. ITQ = International Trauma Questionnaire. PTSD = Posttraumatic stress disorder. SBQ-R = Suicidal Behaviors Questionnaire-Revised.

3.2. Linear regressions

Table 2 shows the results of the linear regression for meeting the PTSD threshold on the SBQ-R total score. Compared to not meeting either the PTSD or CPTSD threshold, meeting the PTSD threshold was not significantly associated with the SBQ-R total score ($B = 0.35$, $SE = 0.45$, $p = .45$), after controlling for all demographic variables and the

Table 2
Linear Regression of Meeting PTSD Threshold on SBQ-R total score.

	B(SE)	*t*	*p*
PTSD			
No PTSD or CPTSD	(reference)	(reference)	(reference)
PTSD	0.35 (0.46)	0.76	0.45
Age	0.02 (0.03)	0.58	0.56
Sex			
Female	(reference)	(reference)	(reference)
Male	−0.05 (0.25)	−0.20	0.84
Ethnicity			
White	(reference)	(reference)	(reference)
Non-white	−0.50 (0.36)	−1.40	0.16
Educational Level			
High School	(reference)	(reference)	(reference)
Undergraduate	−0.65 (0.33)	−1.99	0.046
Master	−0.62 (0.42)	−1.48	0.14
Doctoral	−1.31 (0.76)	−1.74	0.08
Subjective Socioeconomic Status	−0.46 (0.07)	−6.33	**<.001**
CTQ total	0.04 (0.01)	4.04	**<.001**
Region			
Asia	(reference)	(reference)	(reference)
West	−0.89 (0.40)	−2.24	0.025
PTSD*Region	−0.40 (0.68)	−0.59	0.56

Note. Examine whether meeting PTSD threshold (compared to those who do not meet PTSD or CPTSD threshold) associates with SBQR total score. Associations are controlled for age, sex, ethnicity, educational level, subjective socioeconomic status, CTQ total scores, and region. PTSD*Region is the interaction term between PTSD and region. Significance of the effects is determined using Bonferroni corrected p-values ($p = .0045$). CTQ = Childhood Trauma Questionnaire. PTSD = Posttraumatic stress disorder. Asia includes China and Malaysia. The West includes the United States and the United Kingdom. Non-white includes Black/African American, Hispanic/Latino, Asian Chinese, Asian other, and other ethnic groups.

Table 3
Linear Regression of Meeting CPTSD Threshold on SBQ-R total score.

	B(SE)	*t*	*p*
CPTSD			
No PTSD or CPTSD	(reference)	(reference)	(reference)
CPTSD	1.68 (0.30)	8.28	**<.001**
Age	0.01 (0.03)	0.35	0.73
Sex			
Female	(reference)	(reference)	(reference)
Male	−0.48 (0.20)	−2.48	0.013
Ethnicity			
White	(reference)	(reference)	(reference)
Non-white	−0.19 (0.33)	−0.58	0.56
Educational Level			
High School	(reference)	(reference)	(reference)
Undergraduate	−0.82 (0.28)	−2.99	0.003
Master	−1.27 (0.36)	−3.58	**<.001**
Doctoral	−1.82 (0.75)	−2.45	0.014
Subjective Socioeconomic Status	−0.31 (0.06)	−5.58	**<.001**
CTQ total	0.05 (0.01)	7.02	**<.001**
Region			
Asia	(reference)	(reference)	(reference)
West	−0.71 (0.37)	−1.89	0.06
CPTSD*Region	0.43 (0.45)	0.95	0.34

Note. Examine whether meeting CPTSD threshold (compared to those who do not meet PTSD or CPTSD threshold) associates with SBQ-R total score. Associations are controlled for age, sex, ethnicity, educational level, subjective socioeconomic status, CTQ total scores, and region. CPTSD*Region is the interaction term between CPTSD and region. Significance of the effects is determined using Bonferroni corrected p-values ($p = .0045$). CTQ = Childhood Trauma Questionnaire. PTSD = Posttraumatic stress disorder. Asia includes China and Malaysia. The West includes the United States and the United Kingdom. Non-white includes Black/African American, Hispanic/Latino, Asian Chinese, Asian other, and other ethnic groups.

CTQ total score. The interaction effect between PTSD and region was not significant ($B = -0.40$, $SE = 0.68$, $p = .56$).

Table 3 shows the results of the linear regression for meeting the CPTSD threshold on the SBQ-R total score. Compared to not meeting either the PTSD or CPTSD threshold, meeting the CPTSD threshold was significantly associated with the SBQ-R total score ($B = 1.68$, $SE = 0.30$, $p < .001$), after controlling for all demographic variables and the CTQ total score. The interaction effect between CPTSD and region was not significant ($B = 0.43$, $SE = 0.45$, $p = .34$).

Table 4 shows the results of the linear regression for meeting the CPTSD threshold compared to meeting the PTSD threshold on the SBQ-R total score. Meeting the CPTSD threshold, as opposed to the PTSD threshold, was significantly associated with the SBQ-R total score ($B = 1.38$, $SE = 0.43$, $p < .001$), after controlling for all demographic variables and the CTQ total score. The interaction effect between CPTSD and region was not significant ($B = 0.87$, $SE = 0.72$, $p = .23$).

3.3. Sensitivity analysis

Using alternative cut-off scores as inclusion criteria for childhood maltreatment, the associations between PTSD and CPTSD (vs. no PTSD or CPTSD) with the SBQ-R total score, as well as CPTSD (vs. PTSD) with the SBQ-R total score, remained consistent (see Tables S2, S3, and S4 in Supplementary Materials). Meeting PTSD thresholds was not significantly associated with the SBQ-R total score. In contrast, meeting CPTSD thresholds was significantly associated with the SBQ-R total score, whether compared to not meeting either threshold or to meeting the PTSD threshold. No significant interaction effects between PTSD or CPTSD and region were found.

When using site (US, UK, China, and Malaysia) instead of region as a control variable, the associations remained consistent (see Tables S4, S5, and S6 in Supplementary Materials). Meeting PTSD thresholds was still not significantly associated with the SBQ-R total score, while meeting CPTSD thresholds was significantly associated with the SBQ-R total score, regardless of the comparison group. No significant interaction effects between PTSD or CPTSD and site were found.

Table 4
Linear Regression of Meeting CPTSD (vs. PTSD) Threshold on SBQ-R total score.

	B(SE)	*t*	*p*
CPTSD vs. PTSD			
PTSD	(reference)	(reference)	(reference)
CPTSD	1.38 (0.43)	3.22	**<.001**
Age	0.01 (0.04)	0.30	0.76
Sex			
Female	(reference)	(reference)	(reference)
Male	−1.05 (0.26)	−4.02	**<.001**
Ethnicity			
White	(reference)	(reference)	(reference)
Non-white	−0.42 (0.55)	−0.76	0.45
Educational Level			
High School	(reference)	(reference)	(reference)
Undergraduate	−1.03 (0.43)	−2.55	0.011
Master	−1.70 (0.50)	−3.39	**<.001**
Doctoral	−4.09 (0.92)	−4.45	**<.001**
Subjective Socioeconomic Status	−0.12 (0.07)	−1.63	0.10
CTQ total	0.05 (0.01)	6.22	**<.001**
Region			
Asia	(reference)	(reference)	(reference)
West	−1.29 (0.68)	−1.88	0.06
CPTSD*Region	0.87 (0.72)	1.20	0.23

Note. Examine whether meeting CPTSD threshold (compared to those who meet PTSD threshold) associates with SBQ-R total score. Associations are controlled for age, sex, ethnicity, educational level, subjective socioeconomic status, CTQ total scores, and region. CPTSD*Region is the interaction term between CPTSD and region. Significance of the effects is determined using Bonferroni corrected p-values ($p = .0045$). CTQ = Childhood Trauma Questionnaire. PTSD = Post-traumatic stress disorder. Asia includes China and Malaysia. The West includes the United States and the United Kingdom. Non-white includes Black/African American, Hispanic/Latino, Asian Chinese, Asian other, and other ethnic groups.

4. Discussion

This study is, to our knowledge, the first to examine the relationship between meeting the criteria for ICD-11 PTSD or CPTSD and suicidality in adults exposed to childhood maltreatment. Using a multinational sample from two Western countries (the US and UK) and two Asian countries (China and Malaysia), our findings revealed that meeting the criteria for ICD-11 CPTSD was significantly associated with higher suicidality, both in comparison to those not meeting either criterion for PTSD and CPTSD and those meeting the PTSD threshold alone. In contrast, meeting the ICD-11 PTSD threshold was not associated with an increased risk of suicidality compared to individuals who did not meet either criterion. Furthermore, we observed no significant differences between regions or sites, indicating that these associations are consistent and robust across different cultural settings.

The observed positive relationship between CPTSD and suicidality among adults with a history of childhood maltreatment is consistent with recent studies examining similar associations in different populations. For example, this relationship has been documented in adult outpatients in Italy (Jannini et al., 2023), UK military veterans in Northern Ireland (Spikol et al., 2022), and sexual minority adults in the US (Ellis et al., 2024). However, our findings diverge from previous research that has shown a significant association between PTSD and suicidal behavior (Lopez-Castroman et al., 2015; Pinheiro et al., 2016) as we found no such link between PTSD and suicidality in childhood maltreatment-exposed adults. Taken together, these results suggest that suicidality in adults with childhood maltreatment histories may be specifically associated with CPTSD rather than PTSD alone. This distinction might be due to the disturbances in self-organization (DSO) symptom cluster unique to CPTSD, which appears to have a distinct relationship with suicidality beyond PTSD. Childhood maltreatment can disrupt key developmental processes, including emotion regulation, self-concept, and relational abilities (Cloitre et al., 2019). These disruptions may persist into adulthood, fostering feelings of perceived burdensomeness and thwarted belongingness—key factors that can lead to suicidal ideation and an increased capability for suicide (Van Orden et al., 2010). Furthermore, our findings indicate that PTSD alone may not fully account for the risk of suicidality in the context of childhood maltreatment. It is possible that PTSD may contribute to suicidality only through other factors. For instance, recent research has found that PTSD is only associated with suicidal risk through depression symptoms (Jannini et al., 2023). Further work is needed to provide more evidence regarding this relationship.

The stronger association between CPTSD and suicidality, compared to PTSD, may also be attributed to underlying mechanisms beyond nosological distinctions or symptom clusters. One such factor is attachment style. Individuals with anxious attachment may struggle to regulate their emotions after trauma, particularly when their proximity-seeking behaviors fail, leading to heightened distress and an increased risk of suicidality (Colmenero-Navarrete et al., 2022; Mikulincer et al., 2006). In fact, attachment anxiety and avoidance have been specifically linked to CPTSD, but not PTSD, in trauma-exposed individuals, suggesting that attachment insecurity may contribute more significantly to the severity of CPTSD symptoms than PTSD (Karatzias et al., 2022). Biological vulnerability may also play a role. Research has shown that individuals with CPTSD exhibit greater activation in the bilateral insula and right amygdala in response to threat stimuli compared to those with PTSD, indicating more pronounced emotional dysregulation as a potential neural marker of CPTSD (Bryant et al., 2021). Additionally, CPTSD has been associated with increased cognitive control during reward rejection, as evidenced by heightened dorsolateral prefrontal cortex activity (Rheude et al., 2024). This dysfunction in reward processing has been linked to altered emotional regulation and suicide attempts, further reinforcing the connection between CPTSD and

suicidality (Herzberg and Gunnar, 2020; Tsypes et al., 2021).

Moreover, our findings imply that treatment for individuals exposed to childhood maltreatment with high suicidality should prioritize addressing the DSO symptom cluster of CPTSD. This is crucial, as it suggests that these individuals require a different approach than other trauma-exposed populations. Traditional treatments for PTSD, such as trauma-focused cognitive behavioral therapy (TF-CBT) and eye movement desensitization and reprocessing (EMDR), are primarily designed to target PTSD symptoms and do not explicitly address interpersonal, self-related, or emotional issues associated with CPTSD (Cloitre et al., 2010). Although many trauma-focused interventions include a stabilization period aimed at teaching emotional regulation skills, the main objective of this phase is to prepare patients for trauma-memory processing by equipping them with coping strategies and relaxation techniques (Hase, 2021; Shapiro, 2014), rather than specifically addressing the core DSO symptoms of CPTSD. As a result, these treatments may not be sufficient for managing DSO symptoms. Furthermore, a meta-analysis has shown that the effectiveness of PTSD treatments is influenced by the timing of trauma onset, with individuals who experienced childhood-onset trauma showing less improvement (Karatzias et al., 2019). This is supported by another recent meta-analysis, which found that early trauma onset and comorbidity—features commonly associated with CPTSD—are predictors of poorer treatment outcomes in trauma-focused psychotherapy (Keyan et al., 2024). This finding underscores the need for specialized treatments for this population with a focus on DSO symptoms potentially offering significant therapeutic benefits. For example, a recent pilot randomized controlled trial (RCT) designed to treat CPTSD utilized distinct modules focused on the three core dimensions of DSO symptoms—affective dysregulation, disturbances in relationships, and negative self-concept—before addressing PTSD symptoms, demonstrating promising efficacy and feasibility (Karatzias et al., 2024). The module targeting affective dysregulation taught skills for identifying and managing emotions, tolerating distress, and fostering positive emotions. The module on disturbances in relationships addressed maladaptive interpersonal schemas, assertiveness training, and improving social awareness and flexibility in interactions. The negative self-concept module provided techniques for mindfulness, self-compassion, and cognitive strategies to challenge negative self-beliefs. This approach, which explicitly targets the core DSO symptoms, is particularly beneficial as it equips individuals with practical skills to manage their emotional and interpersonal difficulties, rather than focusing solely on trauma processing (Karatzias et al., 2024). In addition, another two pilot RCTs of online interventions for CPTSD have also demonstrated benefits, with a mindfulness-based intervention improving DSO symptoms (Dumarkaite et al., 2021) and a self-compassion intervention yielding similar positive effects (Huang et al., 2024). Clearly, more efforts are needed to develop and test interventions that explicitly address the unique symptom profile of CPTSD, particularly those that focus on the DSO dimensions, to better serve this vulnerable population.

Our study emphasizes the importance of screening for CPTSD and childhood maltreatment in individuals with high suicidality. This is particularly crucial as a systematic review found that PTSD often goes undetected in secondary-care mental health services, with a median undetected rate of 28.6% (Zammit et al., 2018). The failure to diagnose PTSD can result in overlooking more severe conditions, such as ICD-11 CPTSD (Mason et al., 2023), which may significantly influence suicidality. Moreover, childhood maltreatment is frequently underreported, with fewer than 10% of self-reports officially recorded by authorities or child protection agencies (Gilbert et al., 2009). A meta-analytic review highlighted that the prevalence rates from informant studies (0.3%–0.4%) were considerably lower than those from self-report studies (7.6%–36.3%) across all types of maltreatment (Stoltenborgh et al., 2015). Together, these findings underscore the critical need for comprehensive screening of childhood maltreatment and CPTSD in suicidal individuals, as such assessments are essential for informing effective treatment planning.

This study has several limitations that should be acknowledged. First, as a cross-sectional study, causation cannot be inferred. Future prospective studies are needed to explore the directional relationships between PTSD, CPTSD, and suicidality. Second, we relied on self-reported measures to identify individuals with PTSD or CPTSD. While the ITQ is a validated and reliable tool for diagnosing ICD-11 PTSD and CPTSD (Cloitre et al., 2018), using a clinical interview, such as the International Trauma Interview (ITI), could provide a more accurate assessment (Gelezelyte et al., 2022). Third, although we recruited participants from four different sites, the sample was obtained through online platforms and may not be representative of the population in each country. However, the geographical and cultural diversity of our sample supports the robustness of our findings. Fourth, our sample, recruited online, may not fully represent a nonclinical (community) population, as we did not explicitly inquire about participants' current psychiatric diagnoses. This may have resulted in a mixed sample of clinical and nonclinical individuals, as indicated by the higher prevalence (52.6%) of childhood maltreatment compared to the general population. Lastly, we did not assess specific aspects of suicidality (i.e., ideation, plans, attempts) in relation to CPTSD and PTSD in this study, as there is insufficient empirical evidence regarding the psychometric properties of individual items in the SBQ-R (Huen et al., 2024). A more comprehensive evaluation of the different dimensions of suicidality in relation to CPTSD and PTSD could be achieved using more reliable methods, such as clinical interviews, which would provide a clearer understanding of these associations.

Future research should investigate the role of specific types of childhood maltreatment, as this study did not differentiate between various forms of maltreatment in examining their associations. Although previous research suggests that all forms of childhood maltreatment have relatively robust independent relationships with suicidality (Miller et al., 2013), the associations between CPTSD and suicidality may vary depending on the type of maltreatment experienced. Additionally, future studies should explore the specific mechanisms through which PTSD or CPTSD impact or interact with suicidality in adults with a history of childhood maltreatment. This would provide a deeper understanding of how these conditions are linked to suicidality.

5. Conclusion

Our study revealed that CPTSD has a unique association with suicidality, beyond the link observed with PTSD, among adults exposed to childhood maltreatment. This relationship was consistently observed across different cultural contexts, highlighting its robustness. The findings suggest that the disturbances in self-organization (DSO) symptom cluster, which distinguishes CPTSD from PTSD, are crucial in the development of suicidality in this population. As such, targeting DSO symptoms may be key for effective intervention strategies. Additionally, screening for childhood maltreatment and CPTSD in individuals at risk of suicide is essential for guiding treatment planning and mitigating the mental health burden on these individuals.

CRediT authorship contribution statement

Dennis Chong: Writing – review & editing, Writing – original draft, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Diyang Qu:** Writing – review & editing, Supervision, Conceptualization. **Yingjun Xi:** Writing – review & editing, Supervision, Conceptualization. **Runsen Chen:** Writing – review & editing, Supervision, Conceptualization.

Ethics approval

We obtained informed consent from each participant. They were informed that their participation was entirely voluntary and that they

had the right to withdraw from the study at any time if they felt uncomfortable answering the survey. This study received ethics approval from the Tsinghua University Ethics Committee (THU01-20230225).

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.socscimed.2024.117406.

Data availability

Data will be made available on request.

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