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Cognitive Emotion Regulation Strategies as Mediators Between Childhood Maltreatment and Eating Disorders: A Cross-Sectional Study

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ABSTRACT

Background: Eating disorder (ED) symptoms are common in the general population and are often associated with childhood maltreatment (CM). Emotion regulation difficulties are likewise linked to both CM and ED symptoms, yet the role of cognitive emotion regulation strategies (CERS) in this relationship remains underexplored. Culturally specific forms of adversity, such as parental overprotection and overcontrol (OP–OC), have also been largely overlooked.

Method: This cross-sectional study investigated whether adaptive and maladaptive CERS mediate the associations between six forms of CM and ED symptoms in a non-clinical sample of 352 Turkish adults. Participants completed the Childhood Trauma Questionnaire–Expanded, the Eating Disorder Examination Questionnaire–Short Form, and the Cognitive Emotion Regulation Questionnaire. Mediation analyses were conducted using the PROCESS macro (Model 4) in SPSS v29.

Results: The results revealed that, except for physical abuse, maladaptive CERS significantly mediated the associations between all CM types and ED symptoms, with full mediation found for emotional neglect and sexual abuse. Although adaptive CERS did not mediate these relationships, their use was significantly lower among individuals exposed to emotion-related maltreatment, including OP–OC.

Discussion: These findings underscore the potential of maladaptive CERS as early indicators and modifiable risk factors in subclinical populations. Tailoring emotion regulation components within interventions like Cognitive Behavioural Therapy–Enhanced (CBT-E) and Dialectical Behaviour Therapy (DBT) may enhance efficacy, especially for trauma-exposed individuals. Preventive psychoeducational programmes in youth and community settings could offer timely support before clinical symptoms emerge.

1 | Introduction

Eating disorders (EDs) represent a growing global health concern, affecting between 0.6% and 2.4% of young men and 5.5%–17.9% of young women (Silén and Keski-Rahkonen 2022). These conditions are frequently comorbid with psychiatric disorders, such as anxiety (53%) and depression (43%; Ulfvebrand et al. 2015) and are associated with serious medical complications, including cardiovascular, endocrine, and neurological problems (Dalle Grave et al. 2021; Westmoreland et al. 2022). Current treatments for EDs include cognitive-behavioural therapy (CBT) and family-based therapy (FBT) as first-line psychological approaches, alongside pharmacotherapies, such as fluoxetine for bulimia nervosa and lisdexamfetamine for

Implications for Policy and Practice

- The findings highlight the need to increase awareness about emotion regulation difficulties among individuals with histories of childhood maltreatment, particularly emotion-related maltreatments, including parental overprotection and overcontrol, which may be underrecognised in non-Western contexts.
- Preventive psychoeducational programmes in community, school, and university settings could help young adults develop healthier cognitive emotion regulation strategies before the potential onset of disordered eating symptoms.
- Emotion regulation–focused content may be integrated into early mental health literacy campaigns, especially those targeting populations exposed to familial adversity.
- Although this study did not assess clinical diagnoses, the observed associations point to the potential value of incorporating brief emotion regulation screenings into routine mental health evaluations, particularly for individuals with known histories of childhood adversity.
- Policymakers and mental health practitioners may consider adapting evidence-based therapies, such as Cognitive Behavioural Therapy–Enhanced (CBT-E) or Dialectical Behaviour Therapy (DBT), to incorporate emotion regulation training components for individuals at risk, including those in subclinical populations.

binge-ED (Allam and Attia 2025). More recent advances, including self-help and digital CBT programmes, have expanded treatment accessibility and shown modest improvements in comorbid anxiety and depression (Linardon et al. 2025). However, despite these developments, longitudinal evidence indicates that up to one-third of individuals relapse following treatment (Bazo Perez et al. 2023). Such persistent relapse rates highlight the importance of understanding psychological mechanisms that contribute to ED risk.

Childhood maltreatment (CM) is increasingly recognised as a key developmental risk factor contributing to the emergence of EDs (Caslini et al. 2016; Molendijk et al. 2017). Research has examined the associations between different types of CM and EDs. Among these, emotional abuse (CEA) has consistently been identified as a strong predictor of ED symptoms (Friedman et al. 2023; Vajda and Láng 2014), while physical (CPA) and sexual abuse (CSA) are also linked to EDs (Afifi et al. 2017; Talmon and Widom 2022). Emotional neglect (CEN) and physical neglect (CPN), although receiving comparatively less empirical attention (Talmon and Widom 2022; Moody et al. 2018), both are common among individuals with EDs, with CPN in particular linked to severe obesity (Emery et al. 2021; Pignatelli et al. 2017).

Expanding beyond abuse and neglect, traditional forms of CM emphasised in Western literature, recent research highlights parental overprotection and overcontrol (OP–OC) as a culturally relevant form of adversity, particularly in collectivist societies, such as Turkey (Şar et al. 2021). Parental OP–OC refers to emotionally intrusive and autonomy-restricting parental behaviours that limit children's independence and self-regulation (Şar et al. 2021). Although significantly associated with other maltreatment types, parental OP–OC represents a distinct dimension of CM reflecting developmentally inappropriate psychological control (Şar et al. 2021; Zhang et al. 2023; Wu et al. 2022). It has been associated with greater anxiety and depression (Vigdal and Brønnick 2022), poorer coping and resilience (McLafferty et al. 2019), and heightened vulnerability to psychiatric symptoms in adulthood (Lima et al. 2010). Furthermore, neuroimaging research demonstrates that parental OP–OC is associated with altered connectivity in salience–executive brain networks, further supporting its classification as a unique subtype of CM comparable to other established forms of maltreatment (Carbone et al. 2024). Collectively, these findings underscore the importance of examining parental OP–OC alongside other forms of CM.

Although emerging evidence suggests that OP–OC may increase vulnerability to develop ED symptoms (Gruber et al. 2020; Iqbal et al. 2023; Albinhac et al. 2019), it remains underrepresented in the ED literature, and to our knowledge, no study has examined it alongside other forms of maltreatment. Examining all types of CM, including culturally specific patterns like parental OP–OC, which is viewed as an emotion-related form of maltreatment (Zweig-Frank and Paris 1991), can provide insights into culturally influenced risk factors for disordered eating.

Because early maltreatment is often associated with emotional difficulties, emotion regulation (ER) has been proposed as a potential mechanism underlying the link between CM and EDs (Afifi et al. 2017; Burns et al. 2012). ER refers to the cognitive, behavioural, and physiological processes involved in monitoring, evaluating, and modifying emotional responses to adapt to situational demands and internal needs (Gross 1999). Within this framework, Garnefski et al. (2001) proposed the cognitive emotion regulation model, which emphasises the conscious, cognitive strategies individuals use to manage emotions following stressful or adverse experiences. While researchers suggest that the effectiveness of these strategies is often context-dependent (Garnefski et al. 2001; Bonanno and Burton 2013; Aldao and Nolen-Hoeksema 2010), their consistent long-term associations with psychological outcomes have led scholars to classify them as adaptive (e.g., positive reappraisal, planning, acceptance) or maladaptive (e.g., rumination, self-blame, catastrophising; Garnefski et al. 2001; Garnefski and Kraaij 2007; Jermann et al. 2006). Adaptive strategies usually facilitate emotional integration and constructive coping, whereas maladaptive strategies tend to prolong negative affect and hinder recovery from distress (Garnefski and Kraaij 2007). Difficulties in ER, therefore, reflect a tendency to rely more heavily on maladaptive strategies and fewer adaptive ones, which can heighten vulnerability to emotional distress and maladaptive coping patterns, including disordered eating (Haynos and Fruzzetti 2011).

Building on this, the developmental transdiagnostic model proposed by McLaughlin et al. (2020) offers a broader developmental lens, suggesting that early adversity alters fundamental emotion-processing systems (emotional awareness, learning, and modulation), thereby shaping later emotion-regulation patterns. This model aligns with established emotion

regulation theories (Gross 1999; Garnefski et al. 2001), which emphasise that when individuals fail to develop flexible and adaptive regulation capacities, they are more likely to rely on maladaptive strategies such as rumination or catastrophising, which are highly relevant among various psychopathologies. In other words, within this framework, emotion regulation difficulties, or the habitual use of maladaptive strategies, are conceptualised as developmental consequences of early adversity that maintain vulnerability to a range of psychopathologies. Consistent with this perspective, emotion regulation difficulties have been closely linked to eating pathology, with individuals with disordered eating often relying on maladaptive strategies and showing reduced adaptive regulation (Brockmeyer et al. 2014; Prefit et al. 2019; Svaldi et al. 2012). Together, these dual associations suggest that, within McLaughlin's model, CERS may play a mediating role in the link between CM and EDs, a pathway that, to our knowledge, has not yet been empirically examined.

Given that ED symptoms are prevalent in the general population (Burns et al. 2012; Prefit et al. 2019; Svaldi et al. 2012; Brockmeyer et al. 2012; Puttevils et al. 2021; Racine and Wildes 2015; Ghanei et al. 2020) and often occur below diagnostic thresholds (Scrandis and Arnow 2023), examining these processes in non-clinical populations provides valuable insight into psychological patterns associated with disordered eating. Working with a community sample allows the examination of associations between CM, ER, and eating-related outcomes without the confounding effects of clinical treatment or comorbidities, while also enabling the inclusion of individuals who experience symptomatology but do not meet full diagnostic criteria. This approach improves the generalisability of findings beyond clinical groups and may inform prevention efforts. Guided by McLaughlin et al.'s (2020) framework, the present cross-sectional study aims to investigate whether adaptive and maladaptive cognitive emotion regulation strategies (CERS) mediate the relationship between six forms of CM (CPA, CEA, CSA, CPN, CEN, and parental OP–OC) and disordered eating symptoms in a community sample from Turkey.

2 | Methodology

2.1 | Procedure

This study utilised a quantitative, cross-sectional survey design to investigate the associations among CM, CERS, and EDs in the general population of Turkey. While cross-sectional designs do not permit causal inferences, they are methodologically appropriate for efficiently capturing data from large community samples and identifying patterns of association among psychological constructs (Creswell 2015).

Following approval by the Human Research Ethics Committee of the researchers' affiliated university, data collection was initiated via the SurveyMonkey platform. The survey link was disseminated through social media channels, university mailing lists, and community networks using a combination of convenience and snowball sampling. These approaches were deemed appropriate given the exploratory nature of the study and the aim to reach individuals across diverse non-clinical settings. To enhance transparency, it is acknowledged that these methods may introduce sampling bias, limiting generalisability beyond similar populations. To enhance data quality, the survey was configured to accept only one response per IP address. Additionally, response completeness and consistency were reviewed to minimise the risk of automated or duplicate entries. Mandatory response settings were enabled to prevent missing data, and only fully completed responses were included in the final analysis.

2.2 | Participants

Participants were eligible if they were 18 years or older, residing in Turkey, and capable of providing informed consent. Informed consent was obtained electronically prior to participation. The survey was anonymous and voluntary, and participants were informed of their right to withdraw at any point.

A total of 575 individuals initially accessed the survey. Of these, 352 completed all items and were included in the final sample, while 223 were excluded due to incomplete responses. The dropout rate (38%) may reflect survey fatigue (Hoerger 2010), disengagement (Mann 2024), or emotional sensitivity related to the topic (Fortier et al. 2020). Although this attrition rate is comparable to that observed in other online studies addressing sensitive experiences, it may have introduced some bias by excluding individuals with lower engagement or heightened emotional reactivity (Fortier et al. 2020). Nevertheless, the final analytic sample remained sufficiently large to support the planned analyses. The final sample consisted of 352 Turkish adults (Mage = 29.55, SD = 8.63; range = 18–79), with a majority identifying as female (88.1%). Sociodemographic details, including gender, BMI, and history of psychological or eating disorder diagnoses, are summarised in Table 1. As expected in a non-clinical sample, only 5.4% reported a formal eating disorder diagnosis.

2.3 | Measures

The survey consisted of a demographic form and three validated self-report instruments (93 items in total) and required approximately 15–20 min to complete.

2.3.1 | Demographic Information

Participants provided data on age, gender, height, and weight (used to compute BMI), as well as any history of psychiatric or eating disorder diagnoses.

2.3.2 | Childhood Trauma Questionnaire—Expanded (CTQ-33)

The CTQ-33 (Şar et al. 2021), an expanded version of the CTQ-28 (Bernstein et al. 2003), assesses six forms of CM: emotional, physical, and sexual abuse; emotional and physical neglect; and parental OP–OC. Responses are rated on a 5-point Likert scale (1 = never true to 5 = very often true). In the present study, Cronbach's alpha coefficients for subscales ranged from $\alpha = 0.75$ to 0.88.

TABLE 1 | Demographic variables.

Variable	*n*	%
Gender		
Woman	310	88.1
Man	42	11.9
BMI		
Underweight	24	6.8
Normal	197	56.1
Overweight	85	24.1
Obese	35	9.9
Extremely obese	11	3.1
Psychopathologic diagnosis		
Yes	79	22.4
No	273	77.6
Eating disorder diagnosis		
Yes	19	5.4
No	333	94.6

Note: $N = 352$.

2.3.3 | Eating Disorder Examination Questionnaire—Short Form (EDE-Q-13)

The EDE-Q-13 (Lev-Ari et al. 2021) is a 13-item scale that assesses disordered eating behaviours and attitudes over the past 28 days, including eating restraint, overevaluation of shape and weight, body dissatisfaction, binge eating, and purging. Items are rated on a 7-point Likert scale. The Turkish adaptation (Esin and Ayyıldız 2022) was used in this study. Subscale internal consistency ranged from $\alpha = 0.78$ to 0.93.

2.3.4 | Cognitive Emotion Regulation Questionnaire (CERQ)

The CERQ (Garnefski et al. 2001) measures nine cognitive strategies used in response to adverse life events, comprising 36 items rated on a 5-point Likert scale. The Turkish version (Tuna and Bozo 2012) was used. Subscale reliabilities in this study ranged from $\alpha = 0.74$ to 0.86. Cognitive strategies were classified as adaptive or maladaptive in accordance with prior literature and supported by the pattern of intercorrelations observed in the current sample.

2.4 | Data Analysis

All analyses were conducted using SPSS version 29. Normality of continuous variables was assessed via the Kolmogorov–Smirnov test, which is appropriate for large samples ($n > 300$; Mishra et al. 2019). The test indicated non-normal distributions ($p < 0.05$); thus, non-parametric methods were applied.

Descriptive statistics were used to summarise sociodemographic variables. Frequencies and percentages were reported for categorical data (e.g., gender, BMI, and psychiatric diagnoses), and means, standard deviations, and ranges were calculated for continuous variables (e.g., CTQ-33, EDE-Q-13, and CERQ scores).

Spearman's rank-order correlations (rs) were used to examine associations among CM, CERS, and EDs. This non-parametric method is well suited for data that violate normality assumptions (Xiao et al. 2016). Based on correlation patterns and prior literature, CERQ subscales were grouped into adaptive and maladaptive categories.

Mediation analyses were conducted using the PROCESS macro Model 4 (Hayes 2022) to test whether adaptive and maladaptive CERS mediated the relationships between six types of CM and EDs. Twelve models were tested, each examining the indirect effects of CERS dimensions on the association between specific CM subtypes and the total score of EDs (tsEDs). To minimise potential collinearity, separate mediation models were conducted, as preliminary correlations revealed moderate to high associations among certain maltreatment types (e.g., CEA and parental OP-OC, $r = 0.56$). Conducting simple mediation analyses for each maltreatment type separately allowed for the isolation of the unique indirect effects of each pathway through maladaptive and adaptive CERS. Given the number of mediation tests performed (12 indirect effects), the Benjamini–Hochberg false-discovery-rate correction (Benjamini and Hochberg 1995) was applied at $q = 0.05$ to control for multiple comparisons and reduce the likelihood of Type I errors. BH-adjusted q-values are reported with their corresponding bootstrap confidence intervals.

3 | Results

3.1 | Spearman's Correlation Analyses

3.1.1 | Categorisation of Cognitive Emotion Regulation Strategies

CERQ subscales were grouped into adaptive and maladaptive categories in accordance with established literature (Tuna and Bozo 2012; Garnefski and Kraaij 2006). Maladaptive strategies included self-blame, rumination, catastrophising, and blaming others, due to their associations with psychological disorders. Conversely, adaptive strategies involved positive refocusing, planning, positive reappraisal, and putting into perspective, which are generally related to lower psychological distress.

The classification of acceptance remains debated. Although initially conceptualised as adaptive (Carver et al. 1989), recent evidence indicates that there are different types of acceptance. Its passive and resigned forms are linked to poorer mental health outcomes, such as depression and anxiety (Duncanson et al. 2022; van Beugen et al. 2017). In the current sample, acceptance showed stronger positive correlations with maladaptive strategies (e.g., self-blame: $rs = 0.55$; catastrophising: $rs = 0.39$) than with adaptive strategies (only putting into perspective:

$rs = 0.25$). It also positively correlated with tsEDs ($rs = 0.17$, $p < 0.001$), supporting the reclassification of the acceptance subscale of CERQ as a maladaptive form of acceptance. The full correlation coefficients are detailed in Table 2.

3.1.2 | Associations Among Core Variables

Spearman's correlation analysis was performed to explore relationships among CM subtypes, adaptive and maladaptive CERS, and tsEDs.

All CM subtypes were significantly correlated with tsEDs, with CPA ($rs = 0.25$) and CEA ($rs = 0.23$) showing the strongest associations. Maladaptive CERS demonstrated positive associations with all CM subtypes and with tsEDs ($rs = 0.24$, $p < 0.001$). Notably, these associations were strongest with emotion-related maltreatments at the $p < 0.001$ level, specifically with CEA ($rs = 0.47$), parental OP–OC ($rs = 0.33$), and CEN ($rs = 0.32$). By contrast, adaptive CERS were negatively associated with most forms of CM, particularly with emotion-related maltreatments (CEN; $rs = -0.25$), parental OP–OC ($rs = -0.19$), and CEA ($rs = -0.16$). However, there was no significant association with tsEDs. The full correlation coefficients are detailed in Table 3.

3.2 | Mediation Analyses

3.2.1 | Maladaptive CERS as a Mediator

To examine the potential mediating role of maladaptive CERS in the relationship between CM and tsEDs, six simple mediation models were tested. Each type of CM was entered as an independent variable, maladaptive CERS served as the mediator, and tsEDs as the dependent variable.

TABLE 2 | Spearman correlation between subscales of CERQ.

N = 352	1	2	3	4	5	6	7	8	9	10
1. Self-Blame	—									
2. Acceptance	0.55***	—								
3. Rumination	0.48***	0.35***	—							
4. Positive refocusing	−0.25***	−0.07	−0.03	—						
5. Refocus on planning	0.07	0.01	0.38***	0.35***	—					
6. Positive reappraisal	−0.08	0.02	0.17***	0.53***	0.64***	—				
7. Putting into perspective	0.09	0.25***	0.11**	0.25***	0.28***	0.46***	—			
8. Catastrophising	0.45***	0.39***	0.32***	−0.17***	−0.07	−0.28***	−0.09	—		
9. Blaming others	0.05	0.25***	0.17**	0.03	0.02	−0.10	0.06	0.43***	—	
10. Total score of EDs	0.21***	0.17***	0.16***	0.01	0.01	−0.06	0.05	0.17***	0.12**	—

**$p < 0.05$.
***$p < 0.001$.

TABLE 3 | Spearman correlation among the key variables.

N = 352	*M*	SD	1	2	3	4	5	6	7	8	9
1. CPA	9.26	4.28	—								
2. CEA	6.29	3.01	0.53***	—							
3. CSA	7.89	2.96	0.27***	0.34***	—						
4. CPN	12.28	4.59	0.35***	0.45***	0.34***	—					
5. CEN	6.55	2.90	0.43***	0.72***	0.30***	0.60***	—				
6. OP-OC	11.41	4.48	0.36***	0.56***	0.25***	0.36***	0.54***	—			
7. tsEDs	23.26	17.24	0.25***	0.23***	0.12**	0.16***	0.17***	0.18***	—		
8. A. CERS	51.74	9.73	−0.06	−0.16***	−0.08	−0.13**	−0.25***	−0.19***	−0.02	—	
9. M. CERS	60.98	12.27	0.18***	0.47***	0.19***	0.14***	0.32***	0.33***	0.24***	−0.08	—

Note: A.CERS, Total score of Adaptive Cognitive Emotion Regulation Strategies; M.CERS, Total score of maladaptive cognitive emotion regulation strategies.
Abbreviations: CEA, Childhood Emotional Abuse; CEN, Childhood Emotional Neglect; CPA, Childhood Physical Abuse; CPN, Childhood Physical Neglect; CSA, Childhood Sexual Abuse; OP-OC, Parental Overprotection–Overcontrol; tsEDs, Total score gained from EDE-Q-13.
** $p < 0.05$.
*** $p < 0.001$.

Across all models, each form of CM significantly predicted higher use of maladaptive CERS, which, in turn, was associated with elevated tsEDs. In four models (CPA, CEA, CPN and OP–OC), both direct and indirect effects were statistically significant, indicating partial mediation. In the remaining two models (CSA and CEN), the indirect effect through maladaptive CERS was significant, whereas the direct effect was not, suggesting full mediation. Among these, CEA exhibited the strongest indirect effect ($B = 0.27$, SE = 0.11, 95% CI [0.05, 0.47]), followed by parental OP–OC ($B = 0.23$, SE = 0.08, 95% CI [0.06, 0.39]) and CEN ($B = 0.22$, SE = 0.08, 95% CI [0.06, 0.38]). To ensure control over inflated Type I error due to multiple testing, indirect-effect p-values were adjusted using the Benjamini–Hochberg false-discovery-rate procedure ($q = 0.05$). After correction, all indirect effects remained significant except for CPA ($q = 0.060$). All significant indirect pathways are illustrated in Figure 1 for clarity.

Although causal conclusions cannot be drawn due to the cross-sectional design, the observed associations are consistent with the role of maladaptive CERS as a potential intermediary between all forms of CM, particularly emotionally salient forms, and EDs. See Table 4 for full mediation results.

3.2.2 | Adaptive CERS as a Mediator

Although adaptive CERS were not directly associated with disordered eating symptoms, exploratory mediation models were conducted to assess whether CM predicted reduced use of these strategies, which may indirectly relate to eating pathology. The analyses revealed no significant indirect effects in any of the models, indicating that adaptive CERS did not mediate the relationship between CM and tsEDs. To ensure control over Type I error due to multiple testing, indirect-effect p-values were adjusted using the Benjamini–Hochberg false-discovery-rate procedure ($q = 0.05$); all BH-adjusted q-values exceeded 0.50, confirming the absence of significant indirect effects. However, emotion-related CM types were significantly associated with a reduced use of adaptive CERS. Specifically, CEA ($B = -0.29$, SE = 0.12, $p < 0.05$, 95% CI [−0.52, −0.05]), CEN ($B = -0.50$, SE = 0.11, $p < 0.001$, 95% CI [−0.71, −0.28]), and parental OP–OC ($B = -0.37$, SE = 0.12, $p < 0.001$, 95% CI [−0.59, −0.14]) were significantly associated with lower levels of adaptive CERS. These results suggest that while adaptive regulation may not directly buffer the impact of CM on disordered eating in this sample, emotion-related forms of maltreatment may impair the development or habitual use of adaptive CERS. Full model statistics are provided in Table 5.

4 | Discussion

This study examined whether adaptive and maladaptive forms of CERS mediate the associations between CM and EDs. The findings revealed that maladaptive CERS significantly mediated the associations for all forms of CM, either partially or fully. After controlling for multiple testing using the Benjamini–Hochberg false-discovery-rate procedure, the indirect effect for CPA did not survive correction, suggesting that its mediating role may be weaker or sample-specific. Following this, adaptive CERS did not serve as a mediating factor in these associations; however, specific forms of CM, particularly those characterised by emotional maltreatment, were negatively associated with their use.

Among the six maltreatment types examined, CEN and CSA were fully mediated by maladaptive CERS, suggesting that their associations with disordered eating symptoms may be better explained by emotional processing difficulties than by direct pathways. This aligns with prior evidence highlighting emotional dysregulation as a key vulnerability mechanism, particularly in nonclinical populations where the effects of trauma may be more subtle (Vajda and Láng 2014; Afifi et al. 2017; Kimber et al. 2017). These findings extend existing literature by pointing out that maladaptive regulatory patterns can bridge early adverse experiences into a risk of disordered eating. The full mediation observed for CEN, in particular, underscores the need for focused attention on emotionally neglectful environments, which often lack overt markers of abuse yet appear to exert long-term psychological effects through disrupted ER processes.

CSA, though often directly linked to psychopathology, did not independently predict disordered eating symptoms in this sample once cognitive regulation was accounted for. This finding is consistent with some prior studies (Burns et al. 2012) and may reflect overlapping effects with other maltreatment types, such as emotional abuse. Additionally, the absence of a direct effect may result from underreporting due to stigma (Bondurant 2001) or the insensitivity of frequency-based assessments to capture CSA's complex impact, particularly in non-clinical samples (Li et al. 2024). Given the sensitive and potentially stigmatising nature of CSA, underreporting remains a notable limitation in self-report studies using the CTQ. Previous research suggests that some individuals may minimise or fail to identify their experiences as "abuse" due to cultural taboos or self-censorship (Bondurant 2001; Li et al. 2024), which may obscure true prevalence and attenuate observed associations. Moreover, the CTQ's focus on frequency rather than severity may fail to capture the psychological impact of infrequent but highly distressing CSA experiences (Burns et al. 2012). Nevertheless, there is a significant indirect effect through maladaptive CERS between CSA and the development of disordered eating, even within non-clinical populations.

The other three forms of CM (CEA, CPN, and parental OP–OC) demonstrated both direct and indirect associations with disordered eating. These partially mediated effects suggest a dual pathway, where early adversity may exert influence both directly and through maladaptive CERS. Among these, CEA exhibited the strongest indirect effect, in line with evidence indicating its particularly robust association with disordered eating symptoms (Burns et al. 2012; Musetti et al. 2023). The consistent pattern of findings across various CM types reinforces the notion that maladaptive CERS constitute a transdiagnostic psychological process linking early adversity to disordered eating pathology (Racine and Wildes 2015). In the case of CPA, after controlling for multiple testing using the Benjamini–Hochberg false-discovery-rate correction, the indirect effect was no longer significant, indicating that this pathway may be less robust or sample-specific. To our knowledge, no published study has directly examined emotion regulation as a mediator in the association between CPA and EDs. Nonetheless, the direct association between CPA and ED

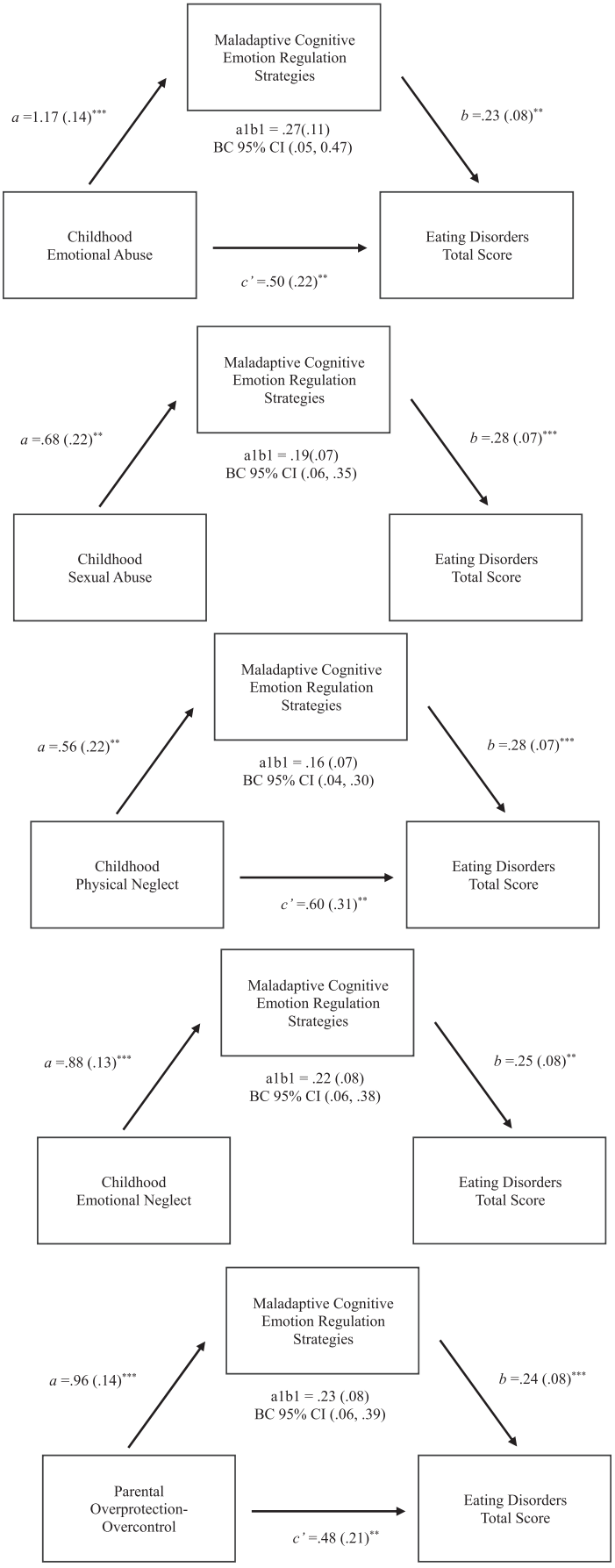

FIGURE 1 | Only significant indirect pathways are presented. Coefficients represent unstandardised effects (B) with standard errors (SE) in parentheses and 95% bias-corrected bootstrap confidence intervals. $^{**}p < 0.05$; $^{***}p < 0.001$.

TABLE 4 | Maladaptive CERS as a mediator.

Independent variable	Unique effect of IV on the mediator (a)	Unique effect of the mediator on DV (b)	Direct effect of IV on DV (c′)	Indirect effect (a1b1)	BC 95% CI		BH—adjusted *q*
					Lower	Upper	
CSA	0.67 (0.22)**	0.28 (0.07)***	0.35 (0.32)	0.19 (0.07)**	0.06	0.35	0.035
CEN	0.88 (0.13)***	0.25 (0.08)**	0.36 (0.21)	0.22 (0.08)**	0.06	0.38	0.035
CPA	0.59 (0.22)**	0.27 (0.07)***	0.79 (0.30)**	0.16 (0.07)**	0.04	0.32	0.060
CEA	1.17 (0.14)***	0.23 (0.08)**	0.50 (0.22)**	0.27 (0.11)**	0.05	0.47	0.035
CPN	0.56 (0.22)**	0.28 (0.07)***	0.60 (0.31)**	0.16 (0.07)**	0.04	0.30	0.048
OP-OC	0.96 (0.14)***	0.24 (0.08)**	0.48 (0.21)**	0.23 (0.08)**	0.06	0.39	0.035

Note: In this table, the mediator signifies maladaptive cognitive emotion regulation strategies. DV signifies the total score of eating disorders. CSA, Childhood sexual abuse. *p*-values were corrected for multiple testing using the Benjamini–Hochberg false-discovery-rate procedure ($q = 0.05$). The indirect effect for CPA did not remain significant after correction. All coefficients are reported as unstandardised effects (*B*) with standard errors (SE) and 95% bias-corrected bootstrap confidence intervals.
Abbreviations: CEA, Childhood emotional abuse; CEN, Childhood emotional abuse; CPA, Childhood physical abuse; CPN, Childhood physical neglect; OP-OC, Parental overprotection-overcontrol.
**$p < 0.05$.
***$p < 0.001$.

TABLE 5 | Adaptive CERS as a mediator.

Independent variable	Unique effect of IV on the mediator (a)	Unique effect of the mediator on DV (b)	Direct effect of IV on DV (c′)	Indirect effect (a1b1)	BC 95% CI		BH—adjusted *q*
					Lower	Upper	
CSA	−0.25 (0.18)	0.01 (0.10)	0.55 (0.32)	−0.002 (0.03)	−0.07	0.06	0.96
CEN	−0.50 (0.11)**	0.06 (0.10)	0.61 (0.20)**	−0.031 (0.05)	−0.14	0.07	0.96
CPA	−0.14 (0.17)	0.01 (0.09)	0.95 (0.30)**	−0.001 (0.02)	−0.05	0.05	0.96
CEA	−0.29 (0.12)**	0.04 (0.09)	0.78 (0.21)***	−0.01 (0.03)	−0.08	0.05	0.96
CPN	−0.26 (0.18)	0.02 (0.09)	0.76 (0.31)**	−0.003 (0.03)	−0.07	0.06	0.96
OP-OC	−0.37 (0.12)***	0.05 (0.10)	0.72 (0.21)***	−0.02 (0.04)	−0.11	0.05	0.96

Note: In this table, the mediator signifies adaptive cognitive emotion regulation strategies. DV signifies the total score of eating disorders. All adaptive-CERS indirect effects were non-significant, and none reached significance after applying the Benjamini–Hochberg correction ($q = 0.05$). All coefficients are reported as unstandardised effects (B) with standard errors (SE) and 95% bias-corrected bootstrap confidence intervals.
Abbreviations: CEA, childhood emotional abuse; CEN, childhood emotional abuse; CPA, childhood physical abuse; CPN, childhood physical neglect; CSA, childhood sexual abuse; OP-OC, parental overprotection-overcontrol.
**$p < 0.05$.
***$p < 0.001$.

observed in the present study aligns with prior evidence indicating that CPA contributes to greater ED severity (Caslini et al. 2016; Afifi et al. 2017; Talmon and Widom 2022; Kovács-Tóth et al. 2022). Future studies employing longitudinal or experimental designs with more diverse samples are warranted to clarify these mechanisms further.

Parental OP–OC, introduced as a culturally salient adversity in Turkish contexts (Şar et al. 2021), predicted disordered eating through maladaptive CERS, adding to growing evidence that intrusive caregiving can undermine emotion-related processes and with higher levels of internalising and eating-related psychopathology (Iqbal et al. 2023). When parents are excessively protective or controlling, children have fewer opportunities to develop autonomy and self-regulation, which can foster reliance on maladaptive CERS and, over time, increase vulnerability to disordered eating (Gruber et al. 2020; Iqbal et al. 2023; Albinhac et al. 2019). This interpretation aligns with studies linking overprotective parenting to greater emotional vulnerability and internalising symptoms, such as anxiety and depression (Vigdal and Brønnick 2022; Lima et al. 2010), and with neuroimaging findings showing that parental OP-OC alters connectivity in emotion-regulation and self-monitoring networks (Carbone et al. 2024). Comparable neural alterations have also been observed following CEA and CEN, which are known to distort emotion-regulation pathways through disrupted communication between limbic and prefrontal regions (Cassiers et al. 2018). Importantly, although parental OP–OC and CEA were moderately correlated in the present study, this overlap appears theoretically and empirically meaningful rather than redundant, as both represent distinct yet related facets of emotion-related maltreatment. Accordingly, the present findings suggest that parental OP–OC, while conceptually distinct, functions

as an emotion-related form of maltreatment associated with elevated tsEDs through disruptions in emotion-regulation processes.

In contrast to maladaptive strategies, adaptive CERS were not significantly associated with tsEDs and did not mediate the effects of CM. This finding aligns with Aldao and Nolen-Hoeksema's (2010) meta-analytic evidence that the absence of adaptive regulation contributes less to psychopathology than the presence of maladaptive regulation, implying that adaptive CERS alone may not buffer against adversity. Even though Dawson et al. (2022) reported that adaptive CERS, particularly cognitive reappraisal, mediated the association between emotional maltreatment and emotional eating, they also noted that individuals exposed to emotional maltreatment were less likely to learn or employ adaptive emotion-regulation strategies, indicating impaired emotional-processing mechanisms that may reduce their ability to protect against disorder-related outcomes. Within McLaughlin et al.'s (2020) developmental transdiagnostic framework, early emotional adversity disrupts core emotion-processing systems (awareness, modulation, and learning), thereby limiting the capacity to flexibly apply adaptive strategies even when individuals have knowledge of them. In the present sample, only emotional maltreatment types (CEA, CEN, and parental OP–OC) were negatively associated with adaptive CERS, whereas other CM types showed no significant associations. This pattern suggests that emotionally adverse environments may compromise the development and effective use of adaptive regulation, even if such deficits do not directly relate to tsEDs. Neurobiological findings further reinforce this interpretation, as emotional maltreatment has been linked to alterations in prefrontal–limbic connectivity supporting adaptive regulation (Carbone et al. 2024; Cassiers et al. 2018). Overall, these findings highlight that while adaptive strategies may not directly buffer the effects of childhood adversity, their disruption reflects deeper developmental alterations in emotion-regulation systems that sustain vulnerability to disordered eating, a mechanism that warrants further longitudinal and experimental research to clarify its causal pathways.

5 | Limitations

This study has several limitations that warrant consideration. First, the cross-sectional design limits causal interpretations between CM, CERS, and EDs; however, it remains suitable for identifying potential psychological pathways and generating hypotheses in a large community sample. Second, the sample was not nationally representative; the use of convenience and snowball sampling methods, along with the predominance of young women, may introduce sampling bias and limit generalisability. Nevertheless, this demographic represents a high-risk group for disordered eating and thus provides valuable insights. Third, exclusive reliance on self-report measures may have introduced response biases, such as inaccuracies in memory recall and social desirability effects, which could undermine the validity of the findings. However, the use of standardised, psychometrically validated instruments was deemed appropriate for the study's aims and ensured consistency across all constructs. Finally, although parental OP–OC may not universally be viewed as maltreatment, its inclusion reflects a culturally sensitive approach to emotional adversity in collectivist societies.

6 | Future Directions and Implications

These findings underscore the importance of examining specific CERS individually, rather than relying solely on broad adaptive–maladaptive classifications. Future research should prioritise emotion-related maltreatment types, particularly neglect and parental OP-OC, which are overlooked in trauma and eating disorder research despite their significant psychological impacts. Employing mixed-methods approaches could help uncover how cultural expectations, family dynamics, and personal meaning shape emotion regulation patterns. Longitudinal studies are also needed to determine when emotion regulation vulnerabilities emerge and whether there are optimal windows for prevention. Additionally, controlled trials should test whether interventions targeting specific regulatory skills, such as cognitive reappraisal, can buffer against disordered eating in trauma-exposed individuals.

Clinically, while this study involved a non-clinical community sample, the identified role of maladaptive CERS suggests that these strategies may serve as potential early indicators or modifiable risk factors before clinical eating disorder symptoms fully develop. Interventions such as Cognitive Behavioural Therapy–Enhanced could be improved by incorporating specific emotion regulation components tailored to trauma-related cognitive patterns. Similarly, Dialectical Behaviour Therapy, with its structured modules for emotion regulation, may be adapted for subclinical populations with histories of CM. Although adaptive CERS did not mediate outcomes, enhancing these skills may still promote resilience, particularly in emotionally adverse contexts. Preventive interventions in young adult settings may offer a timely opportunity to adopt strategies for emotion regulation before symptoms emerge.

7 | Conclusion

This study aimed to investigate whether cognitive emotion regulation strategies mediate the relationship between various forms of CM and disordered eating symptoms in a non-clinical Turkish sample. By incorporating both widely studied and culturally relevant forms of maltreatment, such as parental overprotection and overcontrol, the study provides a broader understanding of the relationship between CM, ER patterns, and EDs. The findings revealed that maladaptive CERS served as a significant mediator across all types of CM, with full mediation observed for CEN and CSA. Although adaptive strategies did not mediate these relationships, their reduced use among individuals exposed to emotion-related maltreatment suggests potential long-term impacts on emotional functioning. Given the cross-sectional design, these results do not support causal conclusions; however, they identify meaningful associations that can inform future longitudinal and intervention research. Overall, the findings underscore the importance of targeting maladaptive regulation patterns and addressing culturally relevant forms of CM in efforts to prevent disordered eating symptoms.

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Disclosure

Submission Declaration and Verification: We hereby declare that the submitted article is our original work and has not been published previously, nor is under consideration for publication elsewhere and that its submission has been approved by all co-authors. We further acknowledge that this article will not be published elsewhere in the same form, in English or any other language, including electronically, without the written consent of the copyright holder.

Ethics Statement

The study was reviewed and approved by Ibn Haldun University Ethical Committee board, reference number E-71395021-050.04-39018. The patients/participants provided their written informed consent to participate in this study.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

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