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The Rating of Emotional Abuse in Childhood (REACH) Questionnaire: A new self-report measure assessing history of childhood emotional abuse

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ABSTRACT

Background: A history of childhood emotional abuse (CEA) is prevalent among adults with affective disorders; therefore, a comprehensive measure of it is vital. The Rating of Emotional Abuse in Childhood Questionnaire (REACH) was developed to assess history of CEA in relation to parental behaviours of threat, ignoring, humiliation/denigration, scapegoating, antipathy, and overcontrol/conditionality in a single measure. This paper investigated the psychometric properties of REACH in a community sample and proposes values for classifying individuals as high-risk for CEA.

Method: A convenience sample of $N = 483$ adults (Female, 78.3%) was recruited to complete questionnaires that included the REACH alongside measures of mental health, insecure attachment, emotion regulation, and childhood abuse. A subset of participants ($n = 198$) completed the REACH 7 days later.

Results: Factor analysis indicated a 2-factor model provided a good fit. Factors were named 'threatening' and 'devaluing'. A total scale score of CEA was also recommended. The threatening, devaluing, and total scales demonstrated strong psychometric properties with high internal consistency, test-retest reliability, and convergent validity, while cutoff values for identifying a high-risk CEA group demonstrated good discriminant utility.

Conclusions: The results support REACH as a valid measure and suggest a history of CEA should be measured in relation to threatening and devaluing CEA as they represent unique dimensions of CEA even though they often co-occur.

1. Introduction

A history of maltreatment in childhood has the potential to cause serious harm over the life course (Green et al., 2010). Worldwide estimates suggest that emotional abuse is the most common type of abuse and a common underpinning factor in maltreatment suggesting more research attention to its impact on adult wellbeing is urgently required (Stoltenborgh et al., 2012). The contribution of childhood emotional abuse (CEA) to adult psychopathology is especially under-emphasized in previous literature due in part to an over-focus on 'Big T' trauma (e.g., physical and sexual abuse) rather than more ubiquitous forms of maltreatment like CEA (Pernetelj-

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Taylor, 2018). However, research suggests that a history of CEA compared to other abuse types may have a crucial role in affective disorders as a prognostic indicator of severe and treatment-resistant course of illness (Martins et al., 2014; Negele et al., 2015; Taillieu et al., 2016). Despite this, efforts to build theory of the links between CEA and affective disorders have been hampered by complexities in defining and measuring CEA. Firstly, there is considerable variation in understanding of what constitutes emotional abuse versus inappropriate parenting behaviour (Wolfe & McIsaac, 2011). Secondly, some measures of emotional abuse or psychological abuse conflate behaviours relating to both acts of commission (non-physical aggressive acts) and acts of omission (e.g., absence of parental warmth, support and encouragement), with other studies relying on single items to represent different types of emotional abuse (e.g., Allen, 2008). The aim of this study was to evaluate the psychometric properties of a new self-report measure assessing history of CEA in adults that focuses on a range of deliberate non-physical aggressive behaviours in a single measure.

There is growing consensus among researchers in the field that the unique impacts of CEA on affective development should be studied in its own right given its prevalence in adults with a protracted course of mental illness. Research shows that among chronically depressed patients, up to two-thirds have specific histories of CEA (Negele et al., 2015). Moreover, while research shows all forms of abuse are associated with adult mental health, history of CEA is known to specifically increase the risk of persistent and treatment-resistant depression, mania, and anxiety (Martins et al., 2014; O'Mahen et al., 2015; Taillieu et al., 2016; Wright et al., 2009). It is therefore imperative to understand the risk associated with CEA among adults to identify potentially distinct psychological profiles of affective illness salient to personalising treatments for this population (Oral et al., 2016).

A number of theoretical pathways have been proposed to explain mechanisms linking a history of CEA and adult affective disorders. Drawing on the developmental literature, Riggs and Kaminski (2010) propose experiences of CEA contribute to insecure attachment organisation which is associated with compromised emotion regulation capacity and negative models of the self and others. These, in turn, lead to low trust in others, low self-regard and negative cognitive models, posing a risk for later psychopathology, such as anxiety and depression. Additionally, the adverse childhood experiences and traumatic stress literature posits psychobiological mechanisms linking exposure to intense or chronic childhood stress and anxiety in adults (Sachs-Ericsson et al., 2005). Chronic stress exposure in childhood is proposed to lead to sensitization of the stress responding system, leading to dysregulated responses to acute stress in adulthood (Duprey et al., 2021; Juster et al., 2011). CEA may be a particularly pervasive type of abuse, as it has the potential to exert social, cognitive and neurobiological impacts that increase the risk for psychopathology (Heim et al., 2013).

CEA is a heterogeneous construct characterised by a repeated pattern of caregiver behaviour or serious incidents that convey to children that they are either unsafe or 'lesser than' in the sense of being unloved, flawed, worthless or only of value in meeting the needs of another person (APSAC; Myers et al., 2001; Taillieu et al., 2016). This can occur through acts of omission or emotional neglect (e.g., absence of parental warmth, support and encouragement) or commission (e.g., parental non-physical aggression towards children) (Wright et al., 2009). According to Brassard and Donovan (2006), some of the commonly recognised forms of CEA include threatening, rejecting, failure to show affection, modelling and encouraging anti-social behaviour (corruption) negativity/rejection. Glaser (2002, 2011) framework expanded these categories to include failure to promote socialisation, negative attribution and emotional unavailability. While the FRAMEA model provides robust indicators for identifying and intervening with CEA, research measures vary in terms of their comprehensiveness and specificity. As Glaser (2011) noted, if measures are reliable and valid, they have utility for research, despite potentially not capturing a full range of CEA indicators. The conceptualisation of types of CEA behaviours measured is however of high significance to research investigating mechanistic pathways from CEA to adult psychological outcomes. Some studies, for example, have suggested that different types of emotional abuse are associated differentially with outcomes. For example, Allen (2008) demonstrated that terrorising was associated with anxiety, while ignoring was associated with depression. These findings emphasise the salience of modelling the multiple pathways CEA may influence the risk for affective disorders.

These research aims are thwarted by a lack of a consistency in the conceptualisation of CEA. For instance, CEA and emotional neglect are often considered together due to their common co-occurrence (Glaser, 2011). However, there are a number of reasons why CEA and emotional neglect can be usefully treated as distinct concepts in research studies. Firstly, while some individuals experience both CEA and emotional neglect, a substantial proportion of maltreated adults experience CEA in isolation (Taillieu et al., 2016). Furthermore, CEA and emotional neglect have been shown to have differential associations with adult mental health (Spertus et al., 2003; Taillieu et al., 2016), suggestive of unique pathways.

A further issue that limits specificity in determining the unique impacts of CEA is that behaviours that could be classified as emotionally abusive are relatively common, with the majority of parents reporting shouting at, threatening or insulting their children (Straus et al., 1998). To distinguish CEA from poor parenting, there is growing recognition that CEA must include actual or potential risk to a child (Heyman & Slep, 2006). Wolfe and McIsaac (2011) devised a continuum which distinguishes poor/dysfunctional parental behaviours from emotionally abusive/neglectful behaviours and defined CEA as: expressing conditional love and ambivalent feeling towards child; emotionally rejecting the child's attention; responding unpredictably, accompanied by emotional discharge; using an emotional tone that is frightening, threatening, denigrating and insulting; exploits or corrupts for parents' benefit, and uses cruel and harsh control methods that frighten the child.

Parental behaviours that deliberately render a child to feel unsafe or frightened may be of particular relevance to adult affective disorders. A review by McLaughlin et al. (2014), suggests that childhood experiences involving social and cognitive neglect are likely to impact neurodevelopment in distinct ways compared to experiences of threat. Secondly, the attachment literature demonstrates a substantial overlap between neglectful emotional abuse behaviours and parental behaviours associated with the development of insecure attachment, including being neglectful, insensitive and rejecting. While the insecure attachment sub-types of avoidance and anxiety are considered a risk factor for mental health disorders, they remain organised strategies, which are adaptive at the time (Kobak & Bosmans, 2019). By contrast, disorganised attachment, which has been linked to frightening caregiver-child interactions has

been reliably associated with a higher levels of impairment in emotion regulation, social cognition and identity development (Fonagy et al., 2002; Riggs, 2010), suggesting that threatening CEA may be particularly important to determining mechanistic pathways to affective disorders over the life course.

Research aims of examining pathways between CEA and adult affective disorders are also thwarted by measures of retrospective child abuse that assess only a limited range of types of CEA. For example, several scales measure multiple types of abuse, but rely on a single subscale for CEA, such as the Childhood Abuse and Trauma Scale (CAT—S; Sanders & Becker-Lausen, 1995), Childhood Trauma Questionnaire (CTQ; Bernstein et al., 2003), and the Early Trauma Inventory (ETI; Bremner et al., 2007). These scales demonstrate limited construct validity, as they assess a restricted range of dimensions of CEA (Coates & Messman-Moore, 2014). As such, longer measures have emerged assessing a range of CEA experiences. For example, the Emotional Abuse Questionnaire (EAQ; Momtaz et al., 2022) is a 30-item instrument for measuring emotional abuse and psychological maltreatment in youth. Results from factor analysis supported 6 factors: Verbal Abuse, Overcontrol, Terrorising, Insufficient Control, Emotional Rejection, and Overexpectations. However, the EAQ was developed to measure current experiences of CEA in child and adolescent populations only. The Computer Assisted Maltreatment Inventory (CAMI; DiLillo et al., 2010) consists of a psychological maltreatment scale for adults, with factor analysis supporting four subscales of denying emotional responsiveness spurning/terrorising, corrupting and demanding/rigid (Nash et al., 2012). While measures like the CAMI have utility in determining pathways to adults outcomes, categories are not always mutually exclusive (Miller-Perrin & Perrin, 2009). For example, the CAMI combines terrorising and spurning, making it difficult to determine the impact of threatening behaviours.

To that end, the Rating of Emotional Abuse in Childhood (REACH) scale was developed to be a longer behavioural assessment tool based on the multiple theoretical dimensions of CEA enabling research into the different pathways to affective disorders. The REACH was designed to include items that convey impressions to a child that they are unsafe or lacking in some way (Taillieu et al., 2016). The REACH therefore included behaviours of threat, humiliation/denigration, conditionality, ignoring and scapegoating, but did not include behaviours relating to emotional responsiveness. Although corrupting is often viewed as a deliberate tactic, we excluded it on the grounds that it can be more usefully characterised as a neglectful behaviour, especially in parents where developmental knowledge is lacking. Based on the assumption that CEA typically comprises a persistent or repeated pattern of behaviour, rather than isolated incidents (Myers et al., 2001), the REACH is designed to measure frequency of CEA experiences to identify adults who may have had higher exposure to CEA. Establishing the REACH as a valid and reliable measure of CEA addresses an overlooked consideration of identifying emotional abuse as an adverse childhood experience that may subsequently warrant tailoring treatment to individual needs (Oral et al., 2016).

In summary, the aim of this study was to evaluate the psychometric properties of the REACH questionnaire. This was done by examining the factor structure of REACH items and psychometric properties of the final scales. The final REACH scales were expected to demonstrate good psychometric properties of high internal consistency and test-retest reliability, as well as convergent validity with CAT-S scales, mental health, and emotion dysregulation. In tests of incremental validity, it was expected that the final REACH scales would be uniquely associated with measures of mental health and emotion dysregulation after controlling for other types of child abuse measured by the CAT-S. Finally, we propose values for identifying individuals with a history of persistent or repeated pattern of adverse CEA experiences (i.e., high-risk group of CEA) based on the top 20% scores on the REACH questionnaire. The utility of the proposed values was assessed using discriminant analysis in a sample with clinically elevated anxiety and/or depression. It was expected that the cutoff value of top 20% scores would identify individuals with a unique social, emotional and mental health profile compared to individuals below the threshold (Riggs, 2010).

2. Method

2.1. Participants and procedures

Participants were recruited through convenience sampling via advertising a link to the study distributed using university student email lists and social media. The link directed participants to an online survey administered on the JISC Online Surveys platform. Participants were provided with an information sheet, and confirmation of eligibility and informed consent was required prior to participation in the study. No compensation was offered. This study was approved by the School of Health in Social Science Research Ethics Committee at the University of Edinburgh and data were collected in accordance with ethical guidelines. Participation was voluntary, and participants had the right to withdraw from the study at any point and have their data excluded from the final analysis.

Participants were eligible for inclusion if they were over 18 years of age, living in the United Kingdom or Ireland, and if they had the ability to read and respond to an online questionnaire in English. Due to the sensitive nature of the current research study, participants were advised not to take part in the study if they had a current diagnosis of PTSD or were currently accessing mental health support. The study was anonymous and unable to provide support to participants vulnerable for becoming distressed. Eligible participants who provided informed consent to participate in the study ($N = 483$) were asked to complete a battery of survey questionnaires at two time points (T1 and T2). At T1, participants ($N = 483$) completed questionnaires assessing socio-demographic information (age, gender, ethnicity), the REACH, experience of childhood abuse and trauma, and current mental health functioning. Participants were provided with a warning prior to questions assessing childhood abuse, providing them the opportunity to skip that section if they wished to do so ($n = 26$; 5.4%). At T2, participants were invited by email to complete the REACH administered seven days after T1. Forty-one percent of participants ($n = 198$) completed both T1 and T2 surveys. Participants were provided with a debrief sheet at the end of each survey time point with information signposting them to local services if they were experiencing distress.

Table 1 summarises the characteristics of participants included in the current study. Participants were mostly young adults between

20 and 29 years old ($n = 251$; 50 %; median = 28.0), female (78.3 %), and from a White ethnic background (84.1 %). Levels of depression, anxiety, and stress as measured by the Depression, Anxiety, and Stress Scale (Lovibond & Lovibond, 1995) were within the normal range. Mean score levels of childhood abuse and trauma was low, approximately equal to 1 - 'Rarely'. Participants who completed both T1 and T2 surveys were the same to those who completed T1 survey only in relation to gender, $\chi^2(3) = 3.06$, $p > .05$, depression, $F(1,481) = 2.51$, $p > .05$, and childhood abuse and trauma $F(1,455) = 1.64$, $p > .05$, but were older, $M_{T1} = 34.13$, $M_{T1T2} = 43.44$, $F(1,481) = 35.56$, $p < .05$, and reported lower anxiety, $M_{T1} = 8.65$, $M_{T1T2} = 6.36$, $F(1,481) = 9.21$, $p < .05$, and stress, $M_{T1} = 13.75$, $M_{T1T2} = 11.84$, $F(1,481) = 5.47$, $p < .05$. Differences in anxiety levels were small and stress levels were in the normal range for both groups of participants.

2.2. Item development

An initial item pool for the REACH was generated by a team comprising two doctoral level experts in child abuse/development and three masters-level research assistants (RAs). The research assistants reviewed published literature, and independently compiled a list of items taken from scales of CEA or psychological abuse (Bifulco et al., 2002; Parker et al., 1979; Sanders & Becker-Lausen, 1995; Teicher et al., 2006). Items characterised as emotional neglect and corruption were excluded. A consensus of 52 items was reached through group discussion. Item reduction using factor analysis was then conducted with data collected from these measures in a sample of $n = 324$ normal volunteers prior to the start this study (see Table 2 in supplementary information for results). Factor analysis indicated a 2-factor model provided a good fit. Items with loading >0.60 on either factor were retained for consideration for inclusion in the REACH. Positively worded items were excluded from the list. Where duplicate/similar items appeared across several measures, an amalgam of wording was used to ensure that the item measured a behaviour that could be construed as deliberate/threatening. For example, items referring to shouting were re-worded to 'scream or shout loudly when standing close to you'. Correlations between items on the REACH and CAT-S as a guide for similarity are reported in Table 1 in supplementary information.

Table 1
Characteristics of participants in the current study.

	Statistic
Age (M, SD)	37.95 (1.23)
Gender (N, %)	
Female	378 (78.3 %)
Male	102 (21.1 %)
Other	3 (0.6 %)
Ethnicity (N, %)	
White	406 (84.1 %)
Asian	57 (11.8 %)
Mixed-Race	14 (2.9 %)
Other	6 (1.2 %)
Depression ^a (N, %)	
Normal	283 (58.6 %)
Mild	58 (12.0 %)
Moderate	69 (14.3 %)
Severe	41 (8.5 %)
Extremely severe	32 (6.6 %)
Anxiety ^a (N, %)	
Normal	287 (59.4 %)
Mild	30 (6.2 %)
Moderate	85 (17.6 %)
Severe	30 (6.2 %)
Extremely severe	51 (10.6 %)
Stress ^a (N, %)	
Normal	306 (63.4 %)
Mild	61 (12.6 %)
Moderate	63 (13.0 %)
Severe	39 (8.1 %)
Extremely severe	14 (2.9 %)
Childhood abuse and trauma ^b (M,SD)	1.19 (0.65)

Note: N = number of participants, % = percentage of sample, M = mean, SD = standard deviation

^a Mental health difficulties measured by the Depression, Anxiety, Stress Scale (Lovibond & Lovibond, 1995).

^b Childhood abuse and trauma measured by the Childhood Abuse and Trauma Scale – Total (Kent & Waller, 1998).

Table 2
Factor loadings from CFA and rotated varimax solution in development sample.

Number	Items	Communalities	Varimax Rotation	
		Final extraction	Factor 1	Factor 2
22	Had expectations of you that were very difficult for you to meet	0.73	1.04	−0.26
23	Control your choice of hobbies, friends, or clothes at an age when you could choose yourself	0.66	0.92	−0.15
21	Make you feel like you were only acceptable if you acted or looked a certain way	0.73	0.89	−0.05
20	Compare you unfavorably to other people	0.73	0.83	0.03
8	Punish you through silence	0.58	0.73	0.04
15	Single you out for negative attention	0.83	0.71	0.24
9	Ignore you when you tried to contribute to a conversation	0.74	0.66	0.24
18	Make you feel that they disliked you	0.86	0.62	0.35
12	Put you down or criticise you in front of others	0.73	0.60	0.30
10	Make you feel that your thoughts or emotions were unimportant	0.82	0.60	0.36
17	Pick on you unfairly	0.85	0.60	0.38
16	Blame you for problems that you didn't cause	0.76	0.59	0.33
11	Laugh at things that you said or did in an unpleasant way	0.69	0.51	0.36
13	Call you insulting names, such as 'stupid' or 'ugly'	0.81	0.50	0.45
2	Shout or scream loudly at you	0.77	−0.22	1.04
1	Get so angry with you that you felt afraid	0.83	−0.12	1.01
6	Lose their temper without warning	0.74	0.00	0.86
4	Threaten you	0.81	0.12	0.80
3	Threaten to break or spoil your things	0.68	0.07	0.76
7	Make you feel on edge in your own home	0.77	0.15	0.75
14	Swear at you	0.55	0.04	0.71
5	Threaten to hurt a person or animal close to you	0.55	0.19	0.58
19	Make you feel unwanted	0.86	0.48	0.50

2.3. Measures

2.3.1. Childhood Abuse and Trauma Scale (CAT-S Kent & Waller, 1998)

The original CAT-S is a 38-item measure of childhood emotional abuse, physical abuse and sexual abuse (Sanders & Becker-Lausen, 1995). Participants rate how frequently a particular abusive experience occurred to them during childhood and adolescence, using a scale of 0 (*never*) to 4 (*always*). Although the original factor analytic structure of the CATS did not support an emotional abuse scale, Kent and Waller (1998)'s later analysis supported the psychometric properties of this additional scale. Item-level responses are aggregated by mean level scores on five subscales: Punishment (Pun), Sexual Abuse (SA), Negative home environment (Neg), Emotional Abuse (EA), and Total Childhood Abuse and Maltreatment (Total CAT-S). The Total CAT-S score represents the average level of CEA experiences in relation to these dimensions. The internal reliability of the CAT-S in the current study was high (Pun: $\alpha = 0.79$; SA: $\alpha = 0.83$; Neg: $\alpha = 0.92$; EA: $\alpha = 0.94$; Total CAT-S: $\alpha = 0.93$).

2.3.2. Depression, Anxiety and Stress Scale (DASS-21; Lovibond & Lovibond, 1995)

The DASS-21 is the short form of the DASS-42, a self-report scale designed to measure severity of depression, anxiety, and stress in the previous week. Participants rate each item on a 4-point Likert scale, ranging from 0 (*did not apply to me at all*) to 3 (*applied to me very much, or most of the time*). Scores for each of the three scales were calculated by summing responses of relevant items. As the original scale comprised 42 items, the total is then multiplied by two to derive standardised scores equal to the full version. The internal reliability of each subscale in the current study was high (Depression: $\alpha = 0.91$; Anxiety: $\alpha = 0.85$; Stress: $\alpha = 0.85$).

2.3.3. Difficulties in Emotional Regulation Scale (DERS; Gratz & Roemer, 2004)

DERS is a 36-item self-report measure assessing clinically relevant difficulties in emotion regulation. Items measure six types of emotion regulation: emotional clarity, emotion regulation strategies, non-acceptance of emotional responses, emotional awareness, impulse control, and difficulties faced in engaging in goal-directed behaviour. Participants rate each statement on a 5-point Likert scale ranging from 1 (*almost never*) to 5 (*almost always*), with higher scores indicating greater difficulties regulating emotions. A total scale score of difficulties in emotion regulation was used for the current study. The internal reliability for the Total DERS scale was high ($\alpha = 0.95$).

2.3.4. Experiences in Close Relationships- Relationships Structures Questionnaire (ECR-RS; Fraley et al., 2011)

The ECR-RS is a short and psychometrically robust measure, derived from the item pool of the Experiences in Close Relationships-Revised (ECR-R; Fraley et al., 2000). Similar to other self-report attachment measures, including the ECR-R, the ECR-RS yields two dimensions of attachment avoidance and attachment anxiety. Attachment anxiety is characterised by worry about the availability of others and the possibility of rejection and abandonment. Attachment avoidance is characterised by a need for independence emotional distance. The ECR-RS can be used to measure attachment to specific individuals (e.g. mother, partner), or can be used to assess general (or global) attachment. In this study, participants rated items on the extent to which they believed each statement described their feelings about close relationships in general on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Higher scores

indicate greater attachment insecurity. Internal reliability for each scale was high ($\alpha_{\text{avoidance}} = 0.89$; $\alpha_{\text{anxiety}} = 0.90$).

2.3.5. Rating of Emotional Abuse in Childhood (REACH) questionnaire

The REACH was developed as a 23-item self-report measure of experiences of CEA in relation to threat, ignoring, humiliation/denigration, scapegoating, antipathy, and overcontrol/conditionality (see supplementary information for complete questionnaire). Participants were instructed 'Thinking about your childhood, to what extent did a parent, step parent or carer in your family do the following behaviours.' Threat was assessed using 7 items targeting experiences that caused feelings of being threatened or fearful (e.g. "Get so angry with you that you felt afraid"). Ignoring was assessed using 2 items targeting the parent/caregiver's deliberate failure to acknowledge the individual as a child (e.g., "Ignore you when you tried to contribute to a conversation"). Humiliation/denigration was assessed using 5 items targeting experiences of critical parental behaviour (e.g., "Put you down or criticise you in front of others"). Scapegoating was assessed using 3 items targeting experiences of being unfairly blamed as a child (e.g., "Blame you for problems that you didn't cause"). Antipathy was assessed using 3 items targeting dislike from parents/caregivers (e.g., "Make you feel unwanted"). Overcontrol/conditionality was assessed using 3 items targeting experiences of inappropriate control or acceptance only on meeting conditions (e.g., "Control your choice of hobbies, friends, or clothes at an age when you could choose yourself"). Respondents are asked to rate how frequently these types of emotional abusive experience occurred to them during their childhood and adolescence on an ordinal 5-point scale of: 0 (*never*); 1 (*rarely*); 2 (*occasionally*); 3 (*a moderate amount*); 4 (*a great deal*). Like the CAT-S, scale scores were expected to be calculated from taking average response scores across items.

2.4. Analysis plan

The factor structure of REACH items was examined using a multistep factor analysis approach (MacCallum et al., 1992). A development sample of $n = 240$ (51.7 %) randomly selected participants (Sample A) was first used to determine initial factor structure via exploratory factor analysis (EFA). Using Sample A, we examined the suitability of questionnaire items for EFA by size of inter-item correlations (>0.3), Bartlett's Test of Sphericity (BTS >0.5), Kaiser-Meyer-Olkin test (KMO >0.5) and measure of sampling adequacy (MSA > 0.5) (cutoff values from Williams et al., 2010). Number of factors to extract was determined by multiple tests: Scree plot, eigen value >1 , Parallel Test, and Velicer's minimum average partial (MAP) test (Cattell, 1966; Hayton et al., 2004; Horn, 1965; O'Connor, 2000; Velicer, 1976). Factor loadings from EFA (estimation method: maximum likelihood estimation; rotation method: promax) was analysed for item-factor loading, item redundancy, and cross-loadings after optimal number of factors was determined. Non-significant loadings or significant cross-loadings were assessed for possible model specification in context of theoretical previsions until optimal factor structure was achieved representing the final model.

The final EFA factor structure was subsequently tested via confirmatory factor analysis (CFA) using the development sample (Sample A) and an independent validation sample (Sample B) of remaining participants ($n = 243$). CFA model specification was conducted in MPlus (Version 8; Muthén & Muthén, 1998–2017) using the robust weighted least squares estimator (WLSMV) because of the ordinal response scale (Rhemtulla et al., 2012). CFA specification was evaluated by model fit according to cut-off values (Hu & Bentler, 1999; Little, 2013) indicating close fit (comparative fit index, CFI > 0.95 ; Tucker-Lewis index, TLI > 0.95 ; root mean square error of approximation, RMSEA < 0.05) and moderate fit (CFI > 0.09 , TLI > 0.90 , RMSEA < 0.08). For CFA modelling, one item within each factor was fixed to the value of 1 and all factor means were fixed to the value of zero (Muthén & Muthén, 1998–2017).

The psychometric properties of the final REACH scale(s) were examined using the total sample of participants ($N = 483$). Cronbach's α evaluated the internal consistency of final REACH scale(s). Convergent validity was examined by correlations between the final REACH scale(s) and the CAT-S scales of Emotional Abuse, Negative Home Environment, and Total Childhood Abuse and Trauma. Concurrent validity was examined by correlations between the final REACH scale(s) and mental health functioning assessed by severity of depression, anxiety, and stress (DASS-21) and emotion dysregulation (DERS). Divergent validity was examined by correlations between the final REACH scale(s) and the CAT-S scales of Punishment and Sexual Abuse. We investigated divergent validity by comparing the strength of associations between the group of REACH and CAT-S scales used for convergent validity versus scales used for divergent validity. Associations between the REACH scale(s) and CAT-S used for testing divergent validity were expected to be weaker compared to associations used to establish convergent validity. Test-retest reliability was examined by the correlation between final REACH scales across T1 and T2. Finally, incremental validity was examined by partial correlation analyses between final REACH scales and total DERS score, and depressions, anxiety, stress scores on the DASS-21, after controlling for CAT-S negative home environment, CAT-S punishment, CAT-S sexual abuse, age, and gender.

Methods for classifying individuals as high-risk of CEA were based on those previously described for case identification using elevated scale scores (e.g., Strengths and Difficulties Questionnaire; Goodman, 2001; Parent Attribution Measure; Sawrikar et al., 2019). Cutoff values for the top 20 % of scores on an overall score of CEA established a high-risk group, while the bottom 80 % of scores represented the low-risk group. Our approach expands on methods used by DiLillo et al. (2010) for the CAMI (scores for more than one standard deviation above the mean to identify victims of psychological abuse; top 16.15 % of scores) such that we included individuals with moderate (top 10–20 % scores) to high levels (top 10 % scores) of CEA experiences compared to a normative mean. To test the validity and utility of classification, a series of group comparisons within analysis of variance (ANOVA) were conducted in a subsample of participants with clinically elevated emotional problems (severity of depression or anxiety in the mild to extremely severe range). Validity was evaluated by comparing CEA groups on CATS-S ratings of emotional abuse as an independent measure of CEA. Utility was evaluated by comparing CEA groups on measures of attachment insecurity, difficulties in emotion regulation, and mental health. All statistical tests were evaluated at $\alpha = 0.05$.

3. Results

3.1. Preliminary analysis of REACH items in development sample

Analysis of inter-item correlations and measures of sampling adequacy are reported in Table 3 in supplementary information. All items demonstrated significant positive inter-item correlations (0.39–0.92) and high sampling adequacy (0.92–0.97). Furthermore, results from Bartlett's test of sphericity ($\chi^2(253) = 7442.36, p < .05$) and KMO measure of sampling adequacy (KMO = 0.95) indicated that the data was suitable for factor structure detection. All items were subsequently retained for factor analysis.

3.2. Model specification of REACH using EFA in the development sample

Results from tests to determine the number of factors to extract are summarised in Table 4 and Fig. 1 in supplementary information. Results from eigen>1 test, parallel test, minimum average partial test, and scree plot were consistent in indicating that 2 factors were the optimal number of factors. Table 2 summarises the results from EFA based on a 2 factor solution in the development sample. The 2-factor solution explained 74.2 % of the variance among REACH items. Item communalities indicate that the proportion of each item's variance explained was high, ranging from 0.55 to 0.87. Promax rotation solution indicated that most items generally loaded onto one factor (>0.5) with low cross-loading on the other factor (<0.4). Factor 1 consisted of items assessing ignoring, scapegoating, over-control/conditionality, as well as 4 items assessing humiliation/denigration, and 2 items assessing antipathy. Content of these items suggested that Factor 1 represented non-aggressive covert types of CEA devaluing personhood. Factor 1 was named 'devaluing'. Factor 2 consisted of all items assessing threat-based CEA and 1 item 'Swear at you' drawn from the humiliation/denigration bank, suggesting this factor represented threat-based types of CEA. Factor 2 was named 'threatening'. Two items demonstrated relatively equal loadings across factors (items 13 and 19). However, since the content of these items did not contain occurrences of direct threat-related behaviours, these items were judged to align closer with Factor 1. There was high correlation between factors ($r = 0.80$), suggesting a total scale score could be used to assess an overall dimension of CEA.

3.3. CFA model specification in the development and validation sample

Factor loadings from the final 2-factor model of the REACH scale using CFA are reported in Table 5 in supplementary information. Fit indices indicated a moderate to close fit for the 2-factor CFA model in both the development sample ($\chi^2(229) = 652.70, p\text{-value} <$

Table 3

Psychometric properties of the REACH scales in the total sample (N = 483).

	Direct threat CEA	Covert CEA	Total
Internal reliability			
Cronbach's α	0.93	0.97	0.98
Convergent validity (r)			
CAT-S Emotional Abuse	0.89*	0.88*	0.92*
CAT-S Negative Home Environment	0.81*	0.83*	0.85*
CAT-S Total	0.86*	0.85*	0.88*
Divergent Validity (r)			
CAT-S Punishment	0.31*	0.28*	0.30*
CAT-S Sexual Abuse	0.46*	0.47*	0.48*
Concurrent validity (r)			
DASS21 - Depression	0.44*	0.45*	0.46*
DASS21 - Anxiety	0.34*	0.33*	0.34*
DASS21 - Stress	0.34*	0.32*	0.33*
DERS - Total	0.46*	0.49*	0.50*
Test-retest reliability (r)			
$r(T_1, T_2)$	0.85*	0.99*	0.85*
Incremental validity (ρ)			
Depression	0.09	0.14*	0.14*
Anxiety	0.12*	0.15*	0.16*
Stress	0.11*	0.13*	0.14*
DERS	0.15*	0.25*	0.24*
Distribution characteristics			
Mean	1.26	1.21	1.23
Standard deviation	1.02	1.14	1.06
Skew	0.67	0.70	0.69
Kurtosis	-0.52	-0.77	-0.70
80th percentile	2.25	2.33	2.30
90th percentile	2.75	3.00	2.85

Note. r = Pearson correlation; Incremental validity was tested using partial correlations after controlling for age, gender, CAT-S sexual abuse, CAT-S negative home environment; CAT-S punishment; ρ = partial correlation; CAT-S = child abuse and trauma scale; CEA = childhood emotional abuse; DERS = difficulties in emotion regulation scale

* Significant at $\alpha = 0.05$.

Table 4

Discriminant analysis of cutoff value for classifying individuals as high-risk of CEA in sample of participants with clinically-elevated emotional symptoms ($n = 255$).

Variable	Low-risk ($n = 183$)	High-risk ($n = 72$)	F-Statistic (Df = 1, 253)	Effect size (η_p^2)
CAT-S emotional abuse	1.12 (0.75)	3.00 (0.59)	343.32***	0.59
Insecure attachment - avoidant	2.90 (1.24)	3.83 (1.46)	26.79***	0.10
Insecure attachment - anxious	3.51 (1.67)	4.41 (2.09)	12.80***	0.05
DERS - total	94.32 (21.11)	114.28 (22.78)	44.16***	0.15
Depression	13.54 (7.44)	22.67 (10.66)	60.02***	0.19
Anxiety	11.7 (7.30)	15.61 (9.81)	12.06***	0.05
Stress	16.62 (7.50)	20.78 (9.06)	14.04***	0.05

Note. High-risk group identified by values of Total CEA ≥ 2.30 ; Low-risk group identified by values of Total CEA < 2.30 ; CEA = childhood emotional abuse; CAT-S = Child Abuse and Trauma Scale; DERS = Difficulties in Emotion Regulation Scale; Df = degrees of freedom; η_p^2 = partial eta squared; effect size criteria: 0.01: small, 0.06: medium, 0.14 or higher: large (Cohen, 1988).

*** p -Value < 0.001

.05, CFI = 0.98, TLI = 0.98, RMSEA = 0.09) and validation sample ($\chi^2(229) = 602.48$, p -value $< .05$, CFI = 0.99, TLI = 0.99, RMSEA = 0.08). The factor loadings all demonstrated good convergence across the development and validation sample. Finally, all factor loadings were significant at $\alpha < 0.001$.

3.4. Psychometric properties of REACH scales

The psychometric properties of the REACH scales in relation to internal reliability, convergent validity, concurrent validity, divergent validity, test-retest reliability, incremental validity, and distribution characteristics are summarised in Table 3. The results indicate that the REACH scales have high internal reliability (0.93–0.98), strong convergent validity with the CAT-S Emotional Abuse (0.88–0.92), CAT-S Negative Emotional Environment (0.81–0.85), and CAT-S Total (0.85–0.88), as well as concurrent validity with measures of depression (0.44–0.46), anxiety (0.33–0.34), stress (0.32–0.34), and difficulties in emotion regulation (0.46–0.50). While associations between the REACH scales and the CAT-S Punishment scale (0.28–0.31) and CAT-S Sexual Abuse scale (0.46–0.48) were significant, the strength of associations between these variables were weaker (moderate range) compared to associations between the REACH scales and CAT-S scales used to establish convergent validity (high range). Test-retest reliability indicated high stability in scores across T1 and T2 (0.85–0.99). In relation to incremental validity for the threatening CEA factor, significant positive correlations of moderate effect were indicated for anxiety, stress, and difficulties in emotion regulation. There was no significant association between threatening CEA and depression. For the devaluing and total CEA factors, significant positive correlations of moderate effect were each indicated for depression, anxiety, stress, and difficulties in emotion regulation.

Analysis of mean level scores for the REACH scales indicated that participants generally reported low levels of CEA ($\sim 1 = Rarely$). Scores fell within the acceptable limits of ± 2 for skewness and kurtosis demonstrating normal univariate distribution (Gravetter & Wallnau, 2017). Values for the top 10 % and 20 % of total CEA scores indicate a value of 2.85 or higher classify high levels of CEA, values between 2.30 and 2.84 classify moderate levels of CEA, and values < 2.30 classify normal levels of CEA experiences.

3.5. Subgroup analysis: Discriminant utility of classifying CEA experiences

Results of discriminant analysis using values to classify individuals as high-risk of CEA (top 20 % scores) in a subsample of participants with clinically-elevated emotional symptoms are reported in Table 4. In relation to validity, results indicated that individuals in the high-risk group had higher ratings on the CAT-S emotional abuse scale compared to the low-risk group, with differences in the large range $F(1,253) = 343.32$, $p < .05$, $\eta_p^2 = 0.59$. In relation to the utility of classification, individuals in the high-risk group were significantly worse on measures of avoidant and anxious insecure attachment, difficulties in emotion regulation, depression, anxiety, and stress, compared to participants in the low-risk group. Differences were in the medium-large size for avoidant insecure attachment, $F(1,253) = 26.79$, $p < .05$, $\eta_p^2 = 0.10$, small-medium size for anxious insecure attachment, $F(1,253) = 12.80$, $p < .05$, $\eta_p^2 = 0.05$, large size for difficulties with emotion regulation, $F(1,253) = 44.16$, $p < .05$, $\eta_p^2 = 0.15$, large size for depression, $F(1,253) = 60.02$, $p < .05$, $\eta_p^2 = 0.19$, small-medium size for anxiety, $F(1,253) = 12.06$, $p < .05$, $\eta_p^2 = 0.05$, and small-medium size for stress, $F(1,253) = 14.04$, $p < .05$, $\eta_p^2 = 0.05$.

4. Discussion

This study examined the psychometric properties of the Rating of Emotional Abuse in Childhood (REACH) questionnaire, a new self-report measure assessing history of deliberate childhood emotional abuse (CEA). The results indicated that a 2-factor model provided a good fit, and we named these factors 'threatening' and 'devaluing' as the former comprises behaviours likely to cause fear or fright, and the latter comprises behaviours that devalues the child, as an individual, giving the child the impression that they are unlikeable, inferior, lacking or to be controlled. High correlations between sub-scales underlines the utility of a total score. Scales of threatening, devaluing and total CEA demonstrated strong psychometric properties in relation to reliability and validity. A value of total CEA ≥ 2.30 may classify individuals as high-risk of CEA, with this high-risk group demonstrating a distinct profile of greater

insecure attachment, difficulties in emotion regulation, as well as depression, anxiety, and stress. Overall, REACH is a reliable and valid measure assessing history of CEA to identify adults who may have been exposed to emotional abuse in childhood that has resulted in unique profiles of social and emotional difficulties.

Our analysis suggest that two latent factors of threatening and devaluing underpin retrospective ratings of emotional abuse in childhood. These results differ from previous results suggesting experiences of CEA should be measured along specific CEA types in youth populations (Momtaz et al., 2022). Instead, our two factor model demonstrates a broad distinction between parental behaviours that lead to a child being threatened and those which deliberately devalue the child as an individual in their own right, through scapegoating, ignoring, humiliation/denigration and conditionality. These findings are consistent with Hart and colleagues' definition of CEA that the caregiver engages in a repeated or severe pattern of behaviour that communicates to the child that they are endangered or are worthless, flawed, unloved, unwanted, or only of value in meeting another's needs (Hart et al., 2002). These results also broadly converge with the adult literature of a two-factor structure of emotional abuse (overt-threatening and covert abuse) in intimate relationships (e.g., Loring, 1998). It is noted that overt and covert categorisation of emotional abuse mostly represent female's experience of emotional abuse, and since our sample was predominantly female, our 2-factor model is preliminary until replicated in the wider population. Meanwhile, results from our factor analysis preliminarily suggest that multiple CEA subtypes share communalities such that assessing history of CEA involves aggregating the cumulative experience of CEA in relation to threatening and devaluing types of experiences.

The two-factor categorisation of CEA was also supported by results from psychometric analysis examining internal reliability and validity. However, specific results from psychometric analysis also warrant discussion in relation to scoring the CEA factors. For instance, there was a high degree of association between the threatening and devaluing factors suggesting that these types of CEA likely co-occur, a finding supported by previous research showing high rates of co-occurrence of child abuse types (Bifulco et al., 2002). Emotional abuse may represent a common underpinning factor in maltreatment, which may explain the co-occurrence and significant correlations among multiple subtypes of child abuse (Stoltenborgh et al., 2012). Results from testing incremental validity suggested that a behaviourally-specific assessment of CEA can uniquely explain variability in psychosocial functioning after controlling for the occurrence of other types of abuse. Interestingly, the threatening and devaluing factors were indicated to have differential associations with anxiety and depression. However, caution in interpreting the result is suggested unless replicated as it may only reflect an artefact of partial correlation analyses whereby covariates were highly correlated with REACH subscales. Nevertheless, these results emphasise the need for multidimensional measures of CEA recognising the individual influence of different CEA factors in emotional health outcomes among adults.

Finally, we propose a value of total CEA ≥ 2.30 to classify individuals as high-risk of CEA. We note that the proposed value is only preliminary since our study did not use strategies of stratified sampling to ensure different population groups were included in the analysis. Nevertheless, our results from discriminant analysis in a subsample of individuals with clinically-elevated emotional problems preliminarily suggest that those who meet this criteria report more severe interpersonal, emotional, and mood impairment compared to low-risk individuals below this criteria. These results support proposals that treatment of emotional problems may warrant specific consideration of adverse experiences of CEA (Oral et al., 2016). We propose that the results suggest specific consideration should be given to adult attachment insecurity and concomitant emotion regulation profiles of adults with a significant history of CEA, which may partly explain the greater severity, chronicity, and recurrence of affective illness in adults with histories of CEA (Riggs, 2010). Research suggests that attachment insecurity predisposes adults towards psychopathology via social cognitive factors, such as negative expectancies, defensive and hyperactivating cognitive responses and dysfunctional interpersonal styles (Kobak & Bosmans, 2019; Sachs-Ericsson et al., 2005). In particular, the medium-large effect size for attachment avoidance suggests that those who have experienced significant CEA are likely to be defensively self-reliant and mistrustful of others (Schimmenti & Bifulco, 2015). Future use of the REACH in attachment-informed research would assist in determining pathways between specific types of CEA and cognitive and emotional profiles linking to affective symptoms, further informing frameworks for clinical intervention.

Several limitations of the current study are noted for future research. Indices of model fit generally indicated close fit except for the RMSEA which indicated moderate fit. Inconsistencies in model fit indices suggests some caution is required in the interpretation of the current results. As discussed by Lai and Green (2016), however, inconsistent fit indices is not uncommon in CFA and relying on arbitrary criteria is suboptimal for judging model fit. Indeed, several strengths of the current study are noted in supporting the reliability of the findings. The current study used both EFA and CFA, alongside use of multiple criteria to determine factor extraction and 'split-in half' sampling, to demonstrate the reproducibility of results in different samples. Nevertheless, future research should test reproducibility in different populations to determine whether the latent structure of the REACH presented in this study is robust. All measures used for this study relied on self-report instruments, thus analyses examining correlations were susceptible to shared-method variance. Future research could include objective measures derived from diagnostic schedules or behavioural tasks to gain a more reliable assessment of the validity of the REACH's scales. This includes tests of convergent validity that include longer measures of CEA (e.g., CAMI).

Addressing the generalisability of results is another area for further methodological improvement. The sample used for the current study was relatively small, majority-white and majority-female, which makes the findings less generalizable to other populations. Convenient sampling methodology across two time points was used to recruit participants, which may have introduced selection bias. Further, discouraging participations from individuals experiencing PTSD or those receiving treatment means these population subgroups are under-represented in the current study. The results are therefore preliminary until methods of stratified sampling are used to represent various subgroups of the population. With greater diversity of participants, measurement invariance analysis can test the stability of the REACH scales. For example, future research could conduct analyses in clinical samples where CEA is prevalent and may have a causal role in the emergence of illness (e.g., major depression). CEA is also prevalent in adults with post-traumatic symptoms (e.

g., complex PTSD, dissociative disorders) and personality disorders (Borderline Personality Disorder) (Burns et al., 2010). We speculate that higher scores of the threatening subtype may be particularly associated with complex PTSD and dissociative disorders due to increased fear exposure (Paternelj-Taylor, 2018). The REACH putatively allows for testing such pathways between CEA subtypes and these conditions, which may indicate overlapping or different associations among CEA factors across clinical diagnoses.

In conclusion, the Rating of Emotional Abuse in Childhood (REACH) questionnaire shows strong psychometric properties in assessing history of CEA in adult populations. The current results suggest scoring the REACH according to threatening CEA, devaluing CEA (representing parent/caregiver behaviour that devalues the child through ignoring, antipathy, humiliation/denigration, scapegoating and overcontrol/conditionality), and total CEA representing an overall assessment of history of CEA. The results also support using the top 20 % scores on the total CEA scale to classify individuals as high-risk of CEA. The high-risk group demonstrated a more severe profile of interpersonal, emotional, and mental health difficulties that may require specific consideration in treatment planning for this population. The introduction of the REACH questionnaire will hopefully help pave the way in specifying the distinct pathways CEA may have on adult psychopathology.

Informed consent and ethics approval

Details are provided on Page 9.

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Author contributions

Both authors were involved in conceptualizing, data curation, formal analysis, and writing of the original draft and revisions.

Declaration of competing interest

Authors have no conflict of interest to declare.

Data availability

The authors do not have permission to share data.

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