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The efficacy of compassion focused therapy in eating disorders: a systematic review of the literature

Melissa Stock[1], Lily Beaman[1,2], Ro Moreton[2], Clodagh Holland-Borosh[2], Hannah Hartland[2] and Layla Hamadi[2*]

Abstract

Background Compassion Focused Therapy (CFT) is an evolution-informed intervention designed to address high levels of shame and self-criticism, which are common in eating disorders (EDs). Given the mixed findings of current ED treatments and the absence of prior systematic reviews on CFT in this context, this review aimed to critically evaluate its clinical outcomes.

Method A systematic search of databases was conducted, including PsychINFO, MEDLINE, PubMed, CINAHL, Cochrane Library, and Scopus. Grey literature databases were searched including CORE, PsyArVix Preprints, and BASE. The last search was conducted in February 2025. Studies were included where a quantitative outcome was reported following CFT in participants with any ED diagnosis, across the lifespan. A narrative approach was employed to synthesize the results and the Downs and Black (1998) checklist was used to assess the quality of included studies.

Results Twenty-three studies (8 randomized controlled trials, 2 uncontrolled trials, and 13 quasi-experimental) were included. Eighteen papers were English language, and most participants were adult females. Overall, CFT led to a reduction in ED core psychopathology, including across the EDE-Q subscales, as well as improvements in self-compassion and body image, and a decrease in shame. Evidence for change to body mass index was mixed. Results from trials varied in how effective this treatment was relative to other treatment modalities.

Conclusion There is preliminary evidence to support CFT as an effective treatment for adults with a range of ED diagnoses. However, the limited number of comparisons to evidence-based interventions and small sample sizes means there is limited evidence that CFT is as effective as current first-line treatments. Future research may benefit from larger sample sizes; direct comparisons of CFT to evidence-based interventions; standardizing outcomes; and exploring for whom CFT is most effective.

Plain English Summary

People with eating disorders often experience high levels of shame and self-criticism, and low self-compassion. This is the first systematic review examining whether Compassion Focused Therapy is an effective treatment for people with different eating disorders, including binge eating disorder, bulimia nervosa and anorexia nervosa. Twenty-three research papers are included, all in adult populations, and, overall, the evidence suggests that Compassion

*Correspondence:
Layla Hamadi
layla.hamadi@oxfordhealth.nhs.uk

Full list of author information is available at the end of the article

Focused therapy can help people reduce their eating disorder thoughts and behaviors, as well as improve self-compassion and body image. There is not enough evidence yet to say if it is as effective as the main evidence-based treatments.

Keywords Compassion focused therapy, Eating disorders, Systematic review, Self-compassion, Anorexia nervosa, Bulimia nervosa, Binge eating disorder

Background

Eating disorders (EDs) are a group of diagnoses comprising negative thoughts and emotions related to eating, body shape or weight, and often lead to behaviors such as restrictive eating, binge eating, excessive exercise, vomiting, or laxative use [11]. A major public health concern, EDs have a peak age of onset during adolescence [115] and a lifetime prevalence of 2.2% in men and 8.4% in women [39]. Despite previously mixed findings, current research suggests similar prevalence across people of different ethnicities [18]. EDs have severe mental and physical health implications [124], with increased levels of mortality, [77, 123] and associated healthcare costs [1].

The treatment of EDs is often complex and usually requires multiple healthcare disciplines [94]. The recommended psychological treatment for EDs depends on the individuals' age and diagnosis. The National Institute for Health and Care Excellence (NICE) in the United Kingdom recommends family-based therapy for children and young people (CYP) with anorexia nervosa (AN) and bulimia nervosa (BN) as the first-line treatment [52, 98]. For CYP with binge eating disorder (BED), treatment is in line with that for adults [98]. In adults with AN, enhanced cognitive behavioral therapy (CBT-E; [32]), Maudsley Model of Anorexia Nervosa Treatment for Adults (MANTRA [112]), and Specialist Supportive Clinical Management (SSCM [89, 90]) are recommended as first-line treatments [64, 98]. For BN and BED, NICE [98] guidelines recommend CBT-E (in both the guided self-care and therapist-delivered forms) as first-line treatment for adults.

Previous reviews have summarized the efficacy of existing psychological interventions in this population. Atwood and Friedman [6] concluded that CBT-E can be an efficacious and effective treatment for adults and older adolescents across the full spectrum of EDs, however remission rates fell only by 30–50% in included randomized controlled trials (RCTs) and 30–70% in uncontrolled studies. Furthermore, a systematic review spanning 40 years of research highlighted overall recovery rates of 46%, decreasing to 43% at a 2-year follow up [114], replicating the relatively poor prognosis highlighted in a review 20 years earlier [118]. As a result, there has been an increase in interest in understanding the various mechanisms responsible for ED onset and persistence, as well as effectively targeting these mechanisms in treatment to improve outcomes [83, 128].

Shame and self-criticism have long been studied in Westernized cultures and are widely recognized as transdiagnostic states that underpin many psychological difficulties [49, 56, 117]. Shame is often experienced by individuals with EDs [76, 104, 122], whilst self-criticism has been identified as a strong predictor of ED symptoms [34]. An associated construct, self-compassion, has also gained traction in recent ED literature [13]. Compassion is defined as *"the sensitivity to suffering in self and others, with a commitment to try and alleviate and prevent it"* [46], p.19). Studies and reviews have shown that individuals with disordered eating or EDs experience greater self-criticism and shame, lower self-compassion, and greater fear of compassion than non-clinical participants [71, 73, 106, 117]. Furthermore, lower levels of self-compassion have been associated with poor responses to ED treatment [72], whereas increases in self-compassion in early therapy are associated with improvements in ED symptoms [71, 73], suggesting self-compassion could be a mediating factor in recovery.

Compassion focused therapy (CFT), a treatment developed by Paul Gilbert, is an evolution-informed biopsychosocial therapeutic model designed to support individuals who struggle with cultivating a kind and compassionate inner voice [46]. Grounded in Gilbert's model of affect regulation [42, 44, 45], CFT integrates insights from evolutionary psychology, attachment theory, and neuroscience with the overarching aim of fostering compassion for both self and others [46]. Central to CFT, Gilbert proposes three main evolved functions of emotions: 1) the threat system alerts individuals to perceived or actual internal/external threats, activating defensive strategies, 2) the drive system alerts individuals to opportunities to pursue goals and resources, and is associated with feelings of pleasure upon achieving those goals; and 3) the soothing system conveys a sense of safety and is associated with feelings of calmness, peace, and contentment [46]. When these systems become unbalanced, individuals may experience difficulties with emotions and behaviors [117]. CFT proposes individuals with EDs tend to regulate experiences of threat through their drive system, while having limited access to their soothing system [54, 55]. Consequently, threat-based emotions such as shame and self-criticism are addressed through goal-directed food restriction or compensatory behaviors within the drive system, reinforced by feelings of pride [54, 57].

Originally, CFT practices, such as cultivating compassion through imagery, breathing, and writing exercises, were intertwined into evidence-based guidelines for EDs. Over time, a range of compassion-based programs emerged, including Compassion Focused Therapy for EDs (CFT-E), Self Compassion Letter Writing, and Mindful Self Compassion. CFT-E [56] builds on the original CFT model to address the biopsychosocial factors linked to the development and maintenance of EDs. These include the biological impacts of starvation and disordered eating, weight change and set-point theory [58], the role of disordered eating behaviors in managing threat and drive systems, and the challenges of living in a dieting-focused culture [56].

Several studies have evaluated the efficacy of CFT-E. Gale et al. [38] observed significant improvements in ED behaviors and wellbeing in adults across ED diagnoses, and reported that it was particularly effective for individuals diagnosed with BN, 73% of which were defined as 'recovered' at the end of treatment. Furthermore, Kelly et al. [75] found greater improvements in levels of shame, self-compassion, and ED psychopathology in the CFT group compared to treatment as usual (TAU).

Existing systematic reviews have thus far only explored the efficacy of CFT specifically in EDs alongside other third-wave interventions [14, 85]. Reviews focusing only on synthesizing evidence for CFT have either done so in the context of other mental health difficulties [21, 91], or in body image and shame in non-clinical populations [16]. Additionally, previous reviews have excluded grey literature, case series, and non-English studies from analysis. Whilst RCTs represent the gold standard method of testing due to the reducing bias, they are costly, time and resource intensive, and often impractical to conduct in real-world clinical settings. Case series and pilot studies, however, are feasible for clinicians to conduct, perhaps more closely reflecting conventional clinical practice [69]. Evaluating all available evidence is therefore valuable to further understand the efficacy of CFT in ED treatments [85].

The aim of this systematic review was to evaluate the efficacy of both standard CFT interventions for those diagnosed with an ED and those developed within the CFT-E model. Researchers recommend monitoring treatment response across four key areas: ED behaviors and cognitions, physical health, co-occurring mental health conditions, quality of life (QoL) and social functioning [7]. Therefore, two primary outcomes measures of interest in this review were self-reported ED psychological outcomes (e.g., Eating Disorder Examination Questionnaire [EDE-Q] [33]) and physical health outcomes (e.g., Body Mass Index [BMI]). Given the transdiagnostic nature of CFT, this review also explored the effect of CFT interventions on broader psychological wellbeing outcomes (e.g., depression and anxiety).

Method

Protocol and registration

This review was pre-registered with PROSPERO (registration number: CRD42023410803) and performed according to PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines [103]. Completion date, authorship, and quality assessment tool were amended during the review process and recorded appropriately with PROSPERO.

Eligibility criteria

Studies were included if they met the following criteria: (a) any study design, including case studies, grey literature and unpublished papers in any language, that evaluated the efficacy of both standard CFT interventions for those diagnosed with an ED and those developed within the CFT-E model, (b) individuals across the lifespan with a diagnosed ED determined by the International Statistical Classification of Diseases and Related Health Problems (10th ed.; ICD-10; [131],11th ed.; ICD-11; [132]) or the Diagnostic and Statistical Manual of Mental Disorders (DSM) [2–4], as the primary issue, (c) community, day, and inpatient settings, and (d) outcomes measuring physical health or psychological wellbeing. Obesity and weight loss studies, Avoidant Restrictive Food Intake Disorder (ARFID) and other eating and feeding disorders (such as Pica), as well as general population studies and theoretical papers, reviews, and commentaries were excluded.

Search strategy

The first author (MS) conducted a systematic search of databases (PsychINFO, MEDLINE, PubMed, CINAHL, Cochrane Library, and Scopus), and grey literature databases (CORE, PsyArVix Preprints, and BASE). Databases were initially searched in November 2023. Alerts were created to identify any newly published articles, with databases last searched February 2025. See Supplementary Material 1 for search terms. The database search was supplemented with manual reference list screening. Authors were contacted to request any missing papers, and a Google Scholar search was also conducted to ensure all eligible papers were screened.

Selection process

The screening and selection process is detailed in Fig. 1; *PRISMA 2020 flow diagram showing the study inclusion, screening, and selection process.* A total of 939 titles were retrieved from the initial search, 32 additional papers were identified through database alerts, and one via reference searching. Two hundred and ninety-seven

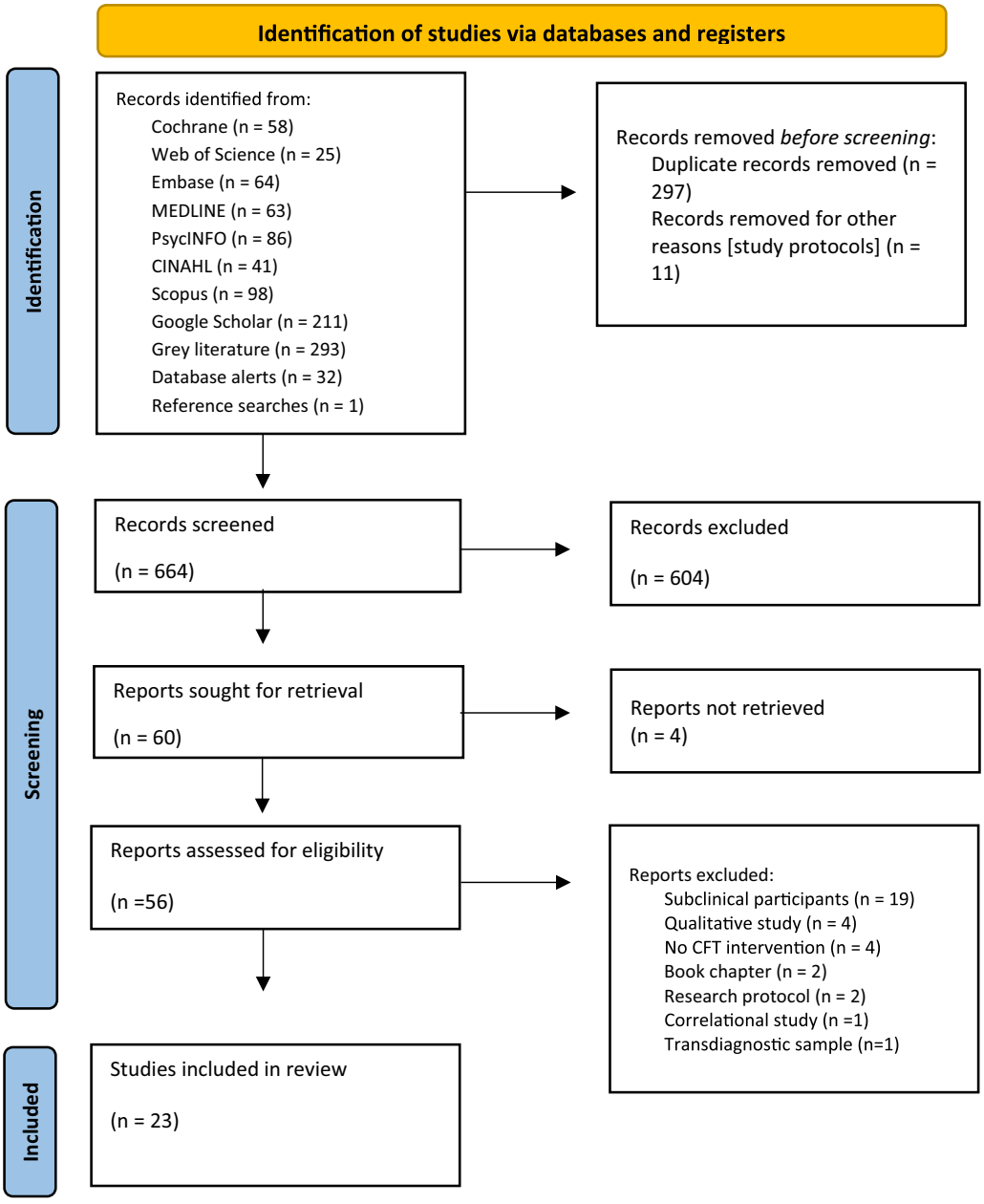

Fig. 1 PRISMA 2020 flow diagram showing the study inclusion, screening, and selection process. Source: [103]

duplicates and eleven study protocols were removed manually via Microsoft Excel. Following the search of databases, MS, and the senior author (LH) independently screened the titles and abstracts ($n = 664$) against eligibility criteria, with inter-rater reliability $\kappa = 0.831$ [88]. Any discrepancies were discussed between authors. Sixty papers were identified for full-text searching. Four papers were not retrieved despite the authors' efforts in contacting authors and both university and NHS libraries. MS and LH independently screened full texts, with inter-rater reliability $\kappa = 0.958$ [88], and any discrepancies were discussed between authors.

Data extraction and analysis

A data extraction form was developed and tested to ensure all relevant information was charted. The remaining articles ($n = 23$) were included for data extraction. Information was extracted on study characteristics (including design, power, appropriateness of methodology), country where the intervention was conducted, aims and rationale of study, target population (age, sex, sample size, attrition, diagnosis, method of recruitment), intervention details (setting and description), outcomes (primary, secondary, and follow up data), and implications (including strengths and limitations of study).

Authors LB and RM extracted data independently. CH-B emailed authors for missing data. Any disagreements were discussed and resolved with MS and LH.

Translation of non-english language articles

Foreign language papers were included to ensure a full and representative systematic review of all available literature. They were translated using a hierarchy of methods to maximize accurate translations [111, 116]. See Supplementary Material 2 for the details of translation of non-English articles.

Quality assessment

The methodological quality of studies was assessed using the Downs and Black [26] checklist. The measure consists of 27 items that assess studies according to four components: (1) reporting, (2) external validity, (3) internal validity, and (4) power. Twenty-six items are rated as 'yes' (1) or 'no/unable to determine' (0), with one item rated on a 3-point scale ('yes' [2], 'partial' [1], and 'no' [0]). Scores range from 0 to 28 with higher scores indicating better methodological quality of the study. The following categories have been proposed to classify studies based on their quality: excellent (28–26), good (25–20), fair (19–15), and poor (14–0; [61]). Downs and Black [26] report high internal consistency, high re-test reliability, and good inter-rater reliability. Studies were rated by LB and RM independently, and any disagreements were discussed and resolved with MS and LH.

Effect measures

Where possible, the results section will present effect sizes. Given the heterogeneity of the included papers, a variety of effect size measures will be reported. These include correlation coefficients (r; small = 0.10, medium = 0.30, large = 0.50), Cohen's d (small = 0.2, medium = 0.5, large = 0.8), and partial eta squared (small = 0.01, medium = 0.06, large = 0.14). To avoid distorting the original results, where alternatives to significance testing were used, including the use of the reliable change index and clinically significant changes [63], this was reported as such.

Synthesis methods

A meta-analysis was not conducted due to substantial heterogeneity across studies in terms of intervention format, outcome measures, and reporting practices. Inconsistent reporting of effect sizes and limited responses from authors further limited the feasibility of quantitative synthesis. A narrative synthesis was therefore deemed the most appropriate approach. With recent literature highlighting the limitations of narrative syntheses, this review follows the Synthesis Without Meta-Analysis (SWiM) guidelines [15]. Findings were initially grouped according to study design 'RCTs and non-randomized trials' and 'Quasi-Experimental Designs,' however this was later changed to group studies by diagnostic group, given that it was helpful to synthesize and interpret findings in the context of ED presentation.

Results

Study characteristics

Twenty-three studies were included in the final analysis (see Table 1). The studies were conducted across eight countries, predominantly in Europe including the United Kingdom ($n = 6$), Norway ($n = 5$), Portugal ($n = 3$), Sweden ($n = 2$), Spain ($n = 1$), and Australia ($n = 1$). All papers were published between 2012 and 2025. Most studies were written in English language ($n = 18$), two in Swedish [20, 105], two in Persian [68, 120], and one in Spanish [62]. Horcajo Berná's paper [62] was translated by a native speaker of Spanish, data extraction for Papoulias [105] was completed by the corresponding author of the paper, Cohen's paper [20] was translated by DeepL SE [24]; and papers by Kavousi et al. [68] and Taher Pour et al. [120] were translated via the OnlineDocTranslator [25] and ChatGPT [101]. Due to the possible inaccuracy of the latter translation tool, authors MS and LB manually translated and checked the numbers and statistics. Most studies were published, peer reviewed articles ($n = 16$), followed by student theses ($n = 6$), and one conference presentation. Thirteen studies adopted a pre-post design, and the remaining ten studies were comparison studies by design, with eight of the 23 studies adopting an RCT approach. Three papers [79, 126, 127] published results from a single RCT (Clinical Trial Registration: NCT02649114).

Diagnoses included AN, atypical AN, BN, atypical BN, BED, eating disorder not otherwise specified (EDNOS), or other specified feeding or eating disorder (OSFED) as defined by DSM-IV [2], DSM-IV-TR [3], or DSM-5 [4]. Of the 16 studies that reported BMI, the average reported mean starting BMI across all participants was 24.82 ($SD = 6.14$, range = 14.33–39.26). There were no papers with a child or adolescent population. All participants were adults except for several 17-year-olds in Gale et al. [38] and Dunk [28]. The average reported age of participants was 31.28 years ($SD = 6.13$, range 17–62). Most participants were female and from a Caucasian background. Socioeconomic status (SES), or a combination of education attainment and employment, was reported in nine papers. An additional three papers reported only employment, and one paper reported only education attainment. From these papers participants were most often recorded as being from a medium–high SES and overall appeared to show a similar split between employed/students and unemployed/on sick leave.

Table 1 Description of studies included in review

Study and country	Interventions and comparison	N	Gender and age	Diagnosis and BMI	Ethnicity and SES	Treatment setting	Analysis	QA
Randomized controlled trials								
Kelly and Carter [70] *Canada*	Self-directed CFT; behavioral self-help; WLC	41	Female (82.9%) Male (17.1%) Mean age: 45 (*SD* = 15.00) Age range not reported	BED (100%) Mean BMI: 33.08 (*SD* = 7.09) BMI range not reported	Caucasian (75.6%) SES not reported	Treatment at home	ITT	18/28
Kelly et al. [75] *USA*	Group CFT; TAU	22	CFT + TAU Female (100%) TAU Female (90.9%), TAU Male (9.1%) Mean age CFT + TAU: 36.73 (*SD* = 12.58) Mean age TAU: 27.10 (*SD* = 10.13) Age range not reported	AN (30%), BN (15%), BED (20%), EDNOS (35%) Mean BMI CFT + TAU: 30.47 (*SD* = 12.30) Mean BMI TAU: 25.58 (*SD* = 10.09) BMI range not reported	Caucasian (100%) Employed (45.5%), Unemployed (54.6%) High school (4.55%), Some college (22.75%), College degree (54.55%), Graduate degree (18.2%)	Outpatient	ITT	20/28
Kelly and Waring [74] *Canada*	Self- compassionate letter writing; WLC	40	Female (100%) Mean age: 21.6 (*SD* = 3.97) Age range: 18–39 years	AN (75%), Atypical AN (25%) Mean BMI: 17.80 (*SD* = 1.09) BMI range: 15.4–20.0	Asian (48.4%), Caucasian (44.1%), Other (7.5%) SES not reported	Treatment at home	Not reported	15/28
Duarte et al. [27] *Portugal*	Self-directed CFT; WLC	33	Female (100%) Mean age CFT: 37.73 (*SD* = 7.50) Mean age WLC: 35.78 (*SD* = 9.08) Age range not reported	BED (100%) Mean BMI CFT & WLC: 31.89 (*SD* = 6.25) BMI range not reported	Caucasian (100%) CFT: Mostly medium SES and M = 15.36 years of education WLC: Medium–high SES (66.6%) and M = 16.75 years of education	Treatment at home	Completer	17/28
Kopland et al. [79][a] *Norway*	Group and 1:1 CFT; CBT	130	Female (97%), Male (3%) Mean age: 30.90 (*SD* = 9.7) Age range not reported	AN (25.4%), BN (39.2%), OSFED (35.4%) Mean BMI: 21.5 (*SD* = 5.5) BMI range not reported	Ethnicity not reported Disabled (41.5%), Unemployed (2.3%), Sick leave (23.1%), Employed (20.8%), Student (12.3%) Primary school (10%), High school (38.5%), Higher education (< 4 years) (20%), Higher education (> 4 years) (12.3%)	Inpatient	ITT	22/28
Vrabel et al. [127][a] *Norway*	See Kopland et al. [79]				Caucasian (97.69%), African (0.77%), Latino-American (1.54%) Living alone (50%)			22/28
Vrabel and Bratland-Sanda (2023)[a] *Norway*	See Kopland et al. [79]							22/28
Taher Pour et al. [120] *Iran*	Group CFT; WLC[b]	30	Female (100%) Mean age not reported Age range: 18–35 years	Clinical diagnosis of eating disorder (restrictive spectrum) No BMI reported	University students (100%)	Community	Not reported	16/28
Non-randomized controlled trials								

Table 1 (continued)

Study and country	Interventions and comparison	N	Gender and age	Diagnosis and BMI	Ethnicity and SES	Treatment setting	Analysis	QA
Pinto-Gouveia et al. [109] *Portugal*	Group BEfree; WLC	59	Female (100%) Mean age: 42.72 (*SD* = 9.94) Age range: 18 -55 years	BED (100%) Mean BMI in BeFree: 34.49 (*SD* = 5.73) Mean BMI WLC: 35.06 (*SD* = 4.93) BMI range not reported	Ethnicity not reported Medium SES (44.95%) M = 15.21 years of schooling	Not reported	Completer	15/28
Kavousi et al. [68] *Iran*	Group CFT; WLC	30	Gender not stated Mean age: 32.20 (*SD* = 8.93) Age range not reported	BED (100%) No BMI reported	Ethnicity not reported Cycle (13.3%), Diploma (63.3%), Bachelor's (23.2%)	Community	Not reported	16/28
Quasi-Experimental Designs								
Andrews [5] *UK*	Group CFT-ELW	9	Female (100%) Mean age: 26.3 years (*SD* = 7.1) Age range: 19–38 years	AN (33.3%), EDNOS (66.7%) Mean BMI: 16.46 (*SD* = 0.65) BMI range: 15.4–17	Not reported[c]	Outpatient	Completer	18/28
Tsivos et al. [121] *UK*	Group CFT-E	47	Female (100%) Mean age: 30.10 years (*SD* = 9.60) Age range not reported	AN (4.3%), BN (40.4%), EDNOS (55.5%) Mean BMI: 21.60 (*SD* = 2.60) BMI range not reported	Not reported	Outpatient	Completer	6/28
Gale et al. [38] *UK*	Group CFT	177	Female (96%) Male (4%) Mean age: 28.01 years (*SD* = 8.67) Age range: 17–62 years	EDNOS (54.5%), BN (26.3%), AN (19.2%) No BMI reported	Not reported	Outpatient	Completer	12/28
Gnatt et al. [51] *Australia*	Group CFT	5	Female (100%) Mean age: 33.40 years (*SD* = 15.61) Age range: 22–60 years	BED (60%), BN (20%), Atypical AN (20%) BMI not reported	Ethnicity not reported Part-time work (80%) Financial support (60%)	Community	Completer	14/28
von Krogh Monclair and Wuttudal [125] *Norway*	Group and 1:1 CFT	41	Female (100%) Mean age: 32.27 years (*SD* = 9.17) Age range: 20–53 years	AN (21.6%), Atypical AN (24.3%), BN (43.2%), Atypical BN (2.7%), EDNOS (8.1%) Mean BMI: 22.81 (*SD* = 6.51) BMI range: 14.33–39.26	Not reported	Inpatient	Completer	20/28
Williams et al (2017) *UK*	Individual CFT	9	Female (100%) Mean age: 29.33 years (*SD* = 6.50) Age range: 18–40 years	BN (55.6%), OSFED (44.4%) Mean BMI: 23.20 (*SD* = 3.5) BMI range: 18–30.5	Not reported	Not Reported	Completer	18/28
Dunk [28] *UK*	Group CFT	125	Female (92.2%), Male (6.9%), Non-binary (1%) Mean age: 27.23 years (*SD* = 9.46) Age range: 17–59 years	AN (13.7%), BN (21.6%), EDNOS (64.7%) BMI not reported	White British (69.6%)[d], White Other (2%), Asian Indian (2%), Asian Pakastani (2%), Asian Mixed/Other (2%), Other (1%) SES not reported	Outpatient	ITT	21/28
Pinto-Gouveia et al. [110] *Portugal*	Group BEfree	31	Female (100%) Mean age: 39.68 years (*SD* = 10.29) Age range: 18-55 years	BED (100%) Mean BMI: 35.35 (*SD* = 6.07) BMI range not reported	Ethnicity not reported Medium SES (48.3%) Years schooling M = 14.93 (*SD* = 2.48)	Not reported	Completer	13/28

Table 1 (continued)

Study and country	Interventions and comparison	N	Gender and age	Diagnosis and BMI	Ethnicity and SES	Treatment setting	Analysis	QA
Christoffersen et al. [19] *Norway*	Group and 1:1 CFT-E	36	Female (100%) Mean age: 32.60 years (*SD* = 9.10) Age range: 20–53 years	AN (22.2%), BN (44.4%), EDNOS (33.4%) Mean BMI: 22.90 (*SD* = 6.60) BMI range not reported	Not reported	Inpatient	ITT	19/28
Simmonds [113] *UK*	Group CFT-E	12	Female (50%), Male (50%) Mean age not reported Age range: 19–43 years	AN (10%), BN (20%), EDNOS (70%) BMI not reported	Caucasian (100%) SES not reported	Not reported	Completer	14/28
Cohen and Cohen [20] *Sweden*	Individual CFT	5	Female (100%) Mean age: 29.60 (*SD* = 7.8) Age range: 23–42 years	BN (40%), EDNOS (60%) BMI not reported	Ethnicity not reported Full-time work (40%), Work and study (20%), Work and sick leave (20%), Sick leave (20%)	Outpatient	Not reported	12/28
Papoulias [105] *Sweden*	Group CFT	8	Female (87.5%), Male (12.5%) Mean age: 25.30 years (*SD* = 8.3) Age range: 19–45 years	AN/Atypical AN (75%), BN/Atypical BN (12.5%), Unspecified (12.5%) Mean BMI: 20.20 (*SD* = 3.80) BMI range: 15.9–26.8	Ethnicity not reported Employment prior to day care: Work (25%), Jobseekers (12.5%), Studies (25%), Sick leave (37.4%) Pre-secondary education (25%), Upper secondary education (62.5%), Post secondary education (12.5%)	Day patient	Not reported	17/28
Horcajo Berná [62] *Spain*	Group CFT	10	Female (100%) Mean age: 20.2 years (*SD* = 8.06) Age range not reported	AN (70%), BN (10%), EDNOS (20%) BMI not reported	Ethnicity not reported In secondary education (60%), At University (20%), Completed studies but unemployed (20%)	Day patient	Not reported	12/28

AN, Anorexia Nervosa; BED, Binge Eating Disorder; BMI, Body Mass Index; BN, Bulimia Nervosa; CBT-E, Enhanced Cognitive Behavioural Therapy; CFT, Compassion Focused Therapy; CFT-E, Compassion Focused Therapy for Eating Disorders; CFT-ELW, Compassion Focused Therapy for Eating at Low Weight; EDNOS, Eating Disorder Not Otherwise Specified; ITT, Intention to Treat; OSFED, Other Specified Feeding or Eating Disorder; QA; Quality Assessment; SD; Standard Deviation; SES; Socioeconomic Status; TAU, Treatment as Usual; UK; United Kingdom; WLC, Waitlist Control

[a] Discrepancy in diagnoses and number of females from pre and post intervention in Modam Bad Inpatient studies. Authors of review requested clarification from researchers, but they received no response. Demographic information and study description compiled for all three studies as they report findings from the same randomised control trial

[b] After study completion, a general educational session on eating disorders was provided to WLC group

[c] Ethnicity data collected but not reported

[d] Ethnicity data missing from 21.6% participants

Most studies were conducted in an outpatient service ($n = 6$); five studies took place in an inpatient setting, three explored treatment at home, three studies recruited individuals with EDs from the community, and two took place in a day unit setting. The remaining four studies did not report treatment setting. Ten papers conducted follow up data collection, seven of which reported their results. Of those which reported results, lengths included 1-month [27], 3- and 6-month [109, 110], 1-year [125–127], and one study which did not report the length of follow up [68].

Studies were mostly commonly excluded from this review after reviewing full text due to participants having subclinical ED symptoms (e.g., [10, 59, 86]), using qualitative methods (e.g., [100]), or not evaluating a CFT intervention (e.g., [60]).

Intervention characteristics

All interventions aimed to foster either compassion or self-compassion (see Table 2). Sixteen interventions were informed by the work of Gale et al. [38], Gilbert [42, 43, 44, 46], and Goss and Allan [54–56]. The remaining studies used other compassion research to inform interventions including but not limited to Petrocchi et al. [107], Evans [29], and Neff [99]. Nearly all studies incorporated some form of psychoeducation, covering topics such as the maintenance of EDs, regular eating, orientation to the CFT approach, and motivation to change. Only a

Table 2 Study characteristics and related outcomes

Author	Intervention	Time point for analysis	Completers *Dropouts, missing data, removed outliers*	Post-intervention Outcomes (*N*) = Included in analysis	Follow Up (*N*) = Included in analysis
Randomized Controlled Trials					
Kelly and Carter [70]	3 weeks of self-compassion compared to behavioral self-help or WLC. One laboratory session followed by at home exercises Both Intervention Conditions: 1) Psychoeducation on regular eating, and regular eating plan [31] CFT Intervention: *Adapted from* Goss [53] 1) Psychoeducation on role self-compassion may play in binge eating 2) Encouraged to build a self-compassionate mindset through daily imagery, self-talk, and letter-writing tasks Behavioral Intervention: 1) Psychoeducation on behavioral strategies and alternatives to binge eating [31] and subsequent self-reflection WLC: Wait-list participants were given the opportunity to learn about one of the two self-help interventions after post-treatment questionnaires completed	1) Baseline 2) Week 1 3) Week 2 4) EOT	N = 35 *4 dropouts CFT, 1 dropout behavioral, 1 dropout WLC* *1 outlier removed from CFT, 1 outlier removed from behavioural*	N = 39 CFT (n = 14), Behavioral (n = 12), WLC (n = 13) Primary Outcomes: Significant reductions only in the CFT condition in global EDE-Q score (p < .010, r = .25); eating concern (p < .050, r = .23) and weight concern subscale (p < .010, r = .31). Non-significant group differences in restraint or shape subscales Significant reduction in number of binge days in both CFT and behavioral conditions (p < .001). Both interventions significantly reduced weekly mean binge days than WLC condition (p < .010, r = .35) BMI did not change significantly in any condition Secondary Outcomes: SC improved in both CFT (p < .001) and behavioral (p < .050) conditions, with average improvement significantly greater in the CFT condition (p < .050, r = .25). When separated, positive SC increased only in the CFT intervention (p < .050, r = .23). Negative SC increased only in the WLC (p < .001, r = .35) No significant group differences in changes in depression symptoms	No follow up
Kelly et al. [75]	12-week 90 min CFT group combined with TAU individual therapy compared to TAU alone in an outpatient ED service CFT Intervention: *Adapted from* Gilbert [44] 1) Group therapy included barriers to SC, compassionate imagery, compassionate letter writing, and compassion from others TAU: Non-manualised weekly sessions with psychologist or Master's-level therapist using CBT and DBT principles	1) Baseline 2) Week 4 3) Week 8 4) EOT	N = 17 *2 dropouts CFT + TAU, 3 dropouts TAU*	N = 22 CFT + TAU (n = 11), TAU (n = 11) Primary Outcomes: Significant reductions in EDE-Q global score only in the CFT + TAU condition (p < .001, r = .46) Secondary Outcomes: SC significantly improved in the CFT + TAU condition (p < .001, r = .57) with TAU showing non-significant changes in SC. When separated, positive SC increased significantly (p < .001, r = .38) and negative SC decreased significantly (p < .001, r = .51) only in the CFT + TAU condition The CFT + TAU condition showed significant decreases in fear of SC (p < .001, r = .36) and fear of receiving compassion (p < .050, r = .29) scores whilst changes in the TAU condition were not significant Shame significantly reduced in the CFT + TAU condition (p < .001, r = .38), whilst changes in the TAU condition were not significant	No follow up

Table 2 (continued)

Author	Intervention	Time point for analysis	Completers *Dropouts, missing data, removed outliers*	Post-intervention Outcomes (*N*) = Included in analysis	Follow Up (*N*) = Included in analysis
Kelly and Waring [74]	15–20 min compassionate letter writing daily for 2 weeks compared to WLC. One laboratory session followed by self-directed treatment at home CFT Intervention: *Adapted from* Gilbert [42] 1) Audio-guided psychoeducation on CFT and compassionate letter writing, WLC: Participants on the WLC completed the treatment 2 weeks after the intervention group	1) Baseline 2) Week 1 3) EOT	N = 40 *95% of Ps (38) completed intervention and 75% of Ps (29) completed daily letters*	N = 40 CFT (n = 20), WLC (n = 20) Primary Outcomes: No significant change in EDE-Q scores or BMI between CFT and WLC conditions Secondary Outcomes: SC significantly increased in the CFT condition ($p < .010$, $r = .26$). Changes in the WLC condition were not significant Fear of SC scores significantly decreased in the CFT condition ($p < .001$, $r = .23$). Changes in the WLC condition were not significant The CFT condition saw a significant decrease in both external shame ($p < .001$, $r = .32$) and body shame ($p < .001$, $r = .31$). Changes in the WLC condition were not significant	No follow up

Table 2 (continued)

Author	Intervention	Time point for analysis	Completers *Dropouts, missing data, removed outliers*	Post-intervention Outcomes (*N*) = Included in analysis	Follow Up (*N*) = Included in analysis
Duarte et al. [27]	Initial 2.5 hr group psychoeducation + 4 weeks self-directed CFT, compared to WLC. Psychoeducation setting unknown, CFT completed at home CFT Intervention: *Adapted from Kabat-Zinn's (1990) programme* [66], BEfree intervention manual [108] *and* Gilbert and Choden, [48] 1) Psychoeducation on self-compassion 2) Mindfulness, body scanning and soothing breathing 3) Compassionate imagery, compassionate self, compassionate mindset, and compassion for others WLC: Invited to receive CFT intervention after programme completion	1) Baseline 2) EOT 3) 1MFU	N = 20 *13 dropouts*	N = 20 CFT (*n* = 11), WLC (*n* = 9) Primary Outcomes: Significant reductions in EDE total scores, all EDE subscales (restraint, eating concern, shape concern, weight concern, and overevaluation), BES scores and binge eating episodes ($p = .003$, $d = 0.89$) in the CFT condition compared to WLC Significant reductions in cognitive fusion for disturbed and undesirable food craving thoughts in the CFT condition (CFQFC; $p = .003$, $d = 0.89$) compared to WLC No significant effect on BMI for either condition Secondary Outcomes: Significant increases in SC in the CFT condition compared to WLC ($p = .018$, $d = 0.71$). Significant improvements in all forms of self-criticising and self-reassurance subscales; reassured self ($p = .045$, $d = 0.60$), hated self ($p = .022$, $d = 0.69$) and inadequate self ($p = .007$, $d = 0.69$), and compassion actions ($p = .010$, $d = 0.78$) in CFT condition No significant effect on compassionate engagement Compared to WLC, the CFT condition significantly reduced body image shame ($p = .014$, $d = 0.74$) and significantly increased body image acceptance and flexibility ($p = .016$, $d = 0.72$) Significant improvements in the mindful subscales of act awareness ($p = .045$, $d = 0.60$) and nonjudging ($p = .007$, $d = 0.60$) in the CFT condition compared to WLC. The additional subscales observe, describe, and nonreacting saw no significant change compared to WLC The CFT condition significantly reduced depression ($p = .007$, $d = 0.81$) and stress ($p = .006$, $d = 0.82$). compared to WLC. No significant effect for anxiety ($p = .070$)	*1-month follow up* N = 11 CFT (*n* = 8), WLC (*n* = 3) For ED psychopathology, effects were maintained at follow-up for EDE total scores all EDE subscales excluding Restraint and Eating Concern, BES scores and body image acceptance. ($p > .050$) Effects maintained for cognitive fusion for disturbed and undesirable food craving thoughts, SC and compassionate actions ($p > .050$) Forms of Self-Criticizing hated self ($p < .001$) and inadequate self ($p = .001$). significantly increased at follow-up. Reassured self also significantly increased ($p = .003$) Body image shame significantly increased at follow-up ($p < .001$), but body image acceptance and flexibility effects maintained ($p > .050$) Mindfulness subscales describe act awareness and nonjudging significantly declined at follow up ($p = .006$) Effects maintained for depression and stress scales ($p > .050$)

Table 2 (continued)

Author	Intervention	Time point for analysis	Completers *Dropouts, missing data, removed outliers*	Post-intervention Outcomes (*N*) = Included in analysis	Follow Up (*N*) = Included in analysis
Kopland et al. [79][a]	13 weeks intensive CFT for ED compared to CBT for ED. Both conditions received 2–3 group sessions and 3 × 45 min individual sessions a week Both Intervention Conditions: 1) Nutrition Psychoeducation 2) Those BMI < 20 received weight normalisation measures CFT-E Intervention: *Adapted from Goss and Allan* [54, 55, 56] 1) Psychoeducation on CFT-E and related theories such as attachment theory 2) Case formulation 2) Increasing self-compassion via compassionate mind training and mindfulness CBT Intervention: *Adapted from* Waller et al. [129] 1) Timeline and case formulation 2) CBT work on patients' cognitive structures (e.g., fear of weight gain), deeper-rooted cognitive schemas, and mapping and changing negative automatic beliefs and coping strategies	Weekly self-report questionnaire throughout 13-week treatment	N = 114 *3 dropouts CFT-E, 5 dropouts CBT* *7 withdrawals CFT-E, 1 withdrawal CBT*	N = 130 CFT-E (*n* = 65), CBT (*n* = 65) Primary Outcomes: EDE scores reduced significantly in both CFT-E and CBT conditions ($p = .001$) Secondary Outcomes: Overall SC increased significantly in both CFT-E and CBT conditions ($p = .001$). There was a significant within-person effect of ED symptoms on self-compassion ($p = .003$) Participants with trauma in the CFT-E group had a stronger within-person relationship between ED symptoms and SC scores than remaining participants ($p = .040$). Cross lagged analysis indicated that SC also predicted ED symptoms in this subgroup ($p = .001$)	*1 year follow up* Data collected but not reported in this paper

Table 2 (continued)

Author	Intervention	Time point for analysis	Completers *Dropouts, missing data, removed outliers*	Post-intervention Outcomes (*N*) = Included in analysis	Follow Up (*N*) = Included in analysis
Vrabel et al. [127][a]	13 weeks intensive CFT for ED compared to CBT for ED. Both conditions received 6 × 90 min group sessions and 3 × 55 min individual sessions a week Both Intervention Conditions: 1) A weekly 90 min supervised group physical activity and a 60 min community group meeting per week 2) Underweight patients encouraged to maintain and restore weight 3) Self-monitoring and homework assignments CFT-E Components: *Adapted* Gale et al. [38] *and* Goss and Allan [56] 1) CMT to develop soothing system and regulate emotions, development of compassionate motivational system, flows of compassion, and blocks to compassion 2) Target of managing ED symptoms, triggers, and functions 3) In cases with complex trauma, CFT-E was used to develop capacities for addressing shame, self-disgust, and self-criticism. This included chair work, compassionate letter writing, cognitive restructuring, and imagery rescripting CBT Components:*Adapted from* Waller et al. [129] 1) Cognitive, behavioral, and psychoeducational strategies to address key maintaining factors of ED psychopathology 2) Imaginal exposure and/or imagery rescripting for those with co-morbid trauma	1) Baseline 2) Pre-treatment 3) EOT 4) 1YFU		N = 130 CFT-E (n = 65), CBT (n = 65) Primary Outcomes: EDE scores significantly reduced in both CFT-E (p < .001, d = 1.00) and CBT conditions (p < .001, d = 1.10). No difference in EDE score reduction was identified between patients with a trauma history and those without, or between treatment conditions Secondary Outcomes: Psychological distress significantly reduced in both CFT-E (p < .001, d = 0.04) and CBT (p < .0001, d = 0.80) conditions Trauma symptoms decreased significantly for those in the CFT-E group (p < .001, d = 0.20), whilst decreases in the CBT condition were nonsignificant Interpersonal issues scores decreased significantly for those in the CBT condition (p < .001, d = 0.30), whilst decreases in the CFT-E condition were nonsignificant. Sub-analysis on those with history of trauma saw significant decreases in both CBT (p < .001) and CFT-E (p < .050) conditions	*1-year follow up* N = 97 CFT-E (n = 46), CBT (n = 51) In the CFT-E condition changes in EDE scores remained stable at follow up for all participants. In the CBT condition, there were non-significant increases in EDE scores at follow up. CFT-E had a more substantial impact on EDE scores than CBT among patients with a history of trauma at follow up Changes in psychological distress were maintained at follow up for both conditions Trauma decreases remained at follow-up in CFT-E group. Non-significant increase in trauma symptoms in CBT condition at follow up Non-significant decrease in interpersonal issues in the CBT condition; scores in the CFT-E condition remained unchanged from post to follow up

Table 2 (continued)

Author	Intervention	Time point for analysis	Completers *Dropouts, missing data, removed outliers*	Post-intervention Outcomes (*N*) = Included in analysis	Follow Up (*N*) = Included in analysis
Vrabel and Bratland-Sanda [126][a]	13 weeks intensive CFT for ED compared to CBT for ED. Both conditions received 6 × 90 min group sessions and 3 × 55 min individual sessions Both Intervention Conditions: 1) 2 × 45 min weekly supervised group physical activity, at least 1 × 45 min individual exercise counselling session, and a weekly 60 min community meeting. 2)Underweight patients encouraged to maintain and restore weight. 3) Self-monitoring and homework assignments See Vrabel et al. [127] for characteristics of CFT-E and CBT interventions	1) Baseline 2) EOT 3) 1YFU		N = 130 CFT-E (*n* = 65), CBT (*n* = 65) Primary Analysis: Total compulsive exercise scores decreased significantly in both conditions, although greater changes were observed in the CBT condition ($p < .001$, $d = -0.61$) compared to the CFT-E condition ($p < .050$, $d = -0.31$) Treatment condition had a significant effect on the CET subscale mood; a greater reduction in mood was observed for patients in the CFT-E condition relative to the CBT condition (B = .24, $p = .025$)	*1-year follow up* N = 97 CFT-E (*n* = 46), CBT (*n* = 51) Total compulsive exercise scores saw no significant difference from post-treatment for both the CFT-E ($p = 1.040$, $d = -0.10$) and CBT ($p = 1.130$, $d = 0.13$) conditions
Taher Pour et al. [120]	8 × 60 min weekly CFT group sessions compared to control in a community setting CFT Intervention: *Adapted from* Neff [99] 1) Rhythmic breathing exercises 2) Psychoeducation on CFT and emotional states 3) Self-compassion and self-criticism 4) Mindfulness and Yoga sessions 5) Compassionate letter writing, compassionate skills, and compassionate mantras Control: General education session on EDs after study completion	1) Baseline 2) EOT	N = 30 *No dropouts / withdrawals reported*	N = 30 CFT (*n* = 15), Control (*n* = 15) Secondary Outcomes: The CFT condition saw a significant reduction in depression ($p < .001$), anxiety ($p < .001$), stress ($p < .001$) and a significant increase in weight self-efficacy ($p < .001$) compared to the control condition RRRS results not reported	No follow up

Non-randomized controlled trials

Table 2 (continued)

Author	Intervention	Time point for analysis	Completers *Dropouts, missing data, removed outliers*	Post-intervention Outcomes (*N*) = Included in analysis	Follow Up (*N*) = Included in analysis
Pinto-Gouveia et al. [109]	12 × 2.5 hr weekly group sessions compared to WLC. Treatment setting not stated CFT Intervention/BEfree: 1) Psychoeducation on ED maintaining factors 2) Discussion of values and control 3) Acceptance work 4) Mindfulness 5) Self-compassion work (safe place and compassionate imagery) 6) Setback prevention 7) Mindful eating exercise WLC: Time on waitlist not reported	1) Baseline 2) EOT 3) 3MFU 4) 6MFU	N = 36 *10 dropouts CFT, 8 dropouts WLC*	N = 36 CFT (*n* = 19), WLC (*n* = 17) Primary Outcomes: The CFT condition demonstrated significantly reduced EDE scores ($p = .001$, partial η2 = .29) and binge eating scores ($p < .001$, partial η2 = .42) compared to WLC There was no significant effect for either condition on BMI Secondary Outcomes: The CFT condition significantly decreased self-judgement ($p < .001$, partial η2 = .36) compared to WLC. No significant effect on positive SC The CFT condition significantly decreased external shame ($p = .005$, partial η2 = .22) compared to WLC The CFT condition significantly decreased psychological inflexibility-body image ($p = .014$, partial η2 = .16) and cognitive fusion-body image ($p = .012$, partial η2 = .17) compared to WLC The CFT condition significantly decreased obesity-related quality of life ($p = .010$, partial η2 = .18) compared to WLC No significant effect was found for mindfulness for either condition The CFT condition significantly decreased depression ($p = .001$, partial η2 = .32) compared to WLC	*3-month and 6-month follow up*[b] 3-month (*n* = 13), 6-month (*n* = 11) CFT effects on all named outcomes appeared to remain stable at 3- and 6-month follow ups, except positive SC which at 6-months had significantly increased ($p = .015$, $d = 0.80$)
Kavousi et al. [68]	8 × 90 min CFT group sessions compared to control at outpatient counselling centres CFT Intervention: *Adapted from* Gilbert [46] 1) Psychoeducation on CFT principles and link between emotions and ED symptoms 2) Mindfulness and breathing exercises 3) Self-compassion work (compassion to self, compassion to others, compassionate mindset, compassionate imagery, and letter writing Control: Received no treatment	1) Baseline 2) EOT 3) FU	N = 30 *No dropouts / withdrawals reported*	N = 30 CFT (*n* = 15), WLC (*n* = 15) Secondary Outcomes: The CFT condition significantly increased perceived social support ($p < .001$, $d = 0.75$) compared to WLC[c] The CFT condition significantly increased self-concept scores ($p < .001$, $d = 0.78$) compared to WLC[c] The CFT condition significantly decreased overall psychological distress ($p < .001$, $d = 0.42$); depression ($p = .005$, $d = 0.25$); anxiety ($p < .001$, $d = 0.38$); and stress ($p = .006$, $d = 0.11$) compared to WLC	*Length of follow up not reported* *n* = Not reported All improvements are qualitatively reported as remaining at follow-up
Quasi-Experimental Designs					

Table 2 (continued)

Author	Intervention	Time point for analysis	Completers *Dropouts, missing data, removed outliers*	Post-intervention Outcomes (*N*) = Included in analysis	Follow Up (*N*) = Included in analysis
Andrews [5]	CFT-ELW 47 × 2.5 hr group sessions held over 42 weeks CEDS NHS outpatient clinic Sessions were twice weekly for first 4 weeks, reduced to once weekly for sessions 17–40. Remaining sessions held monthly CFT-ELW: 1) 4 weeks of psychoeducation programme 2) 17 sessions of standard CFT-E [37] 3) 23 sessions of extended CFT focusing on life skills, managing fear, managing weight restoration, relapse prevention planning, managing emotions, and body acceptance 4) Access to CEDS monthly maintenance program with 3 follow up sessions on coming of a meal plan, trouble shooting, and progress review	1) Baseline 2) Session 20 3) EOT	N = 6 *3 dropouts* *1 removed due to missing data*	N = 5 Primary Outcomes: CFT-ELW significantly decreased all four EDE-Q subscales: restraint ($p = .036$), eating concern ($p = .040$), shape concern ($p = .057^{d}$), and weight concern ($p = .069^{d}$) CFT-ELW significantly decreased the SEDS scores assertiveness ($p = .139^{d}$), self-esteem ($p = .022$), self-directed hostility ($p = .055^{d}$), perceived external control ($p = .074^{d}$), anorexic dietary cognitions ($p = .080^{d}$), and anorexia dietary behaviours ($p = .014$). There was no significant effect of CFT-ELW on bulimic dietary cognitions or behaviours CFT-ELW significantly increased BMI ($p < .050$) <u>Secondary Outcomes:</u> CFT-ELW significantly increased overall SC ($p = .096^{d}$) CFT-ELW had no significant effect on shame and self-criticising scales CFT-ELW significantly decreased CORE scores for wellbeing ($p = .007$), problems ($p = .016$), functioning ($p = .012$), and total score ($p = .009$). There was no significant effect of CFT-ELW on CORE risk scores	Follow up data collected but not reported
Tsivos et al. [121]	20 sessions (session length not reported) of CFT group therapy in a CEDS NHS outpatient service CFT Intervention: 1) Psychoeducation sessions 2) Recovery CFT programme	1) Baseline 2) EOT 3) 3MFU	N = 29 *18 dropouts* *9 removed due to missing data*	N = 20 Primary Outcomes: CFT significantly decreased EDE-Q scores: global: ($p < .001$, $d = 0.92$), restraint: $p < .001$, $d = 0.75$), eating concern: ($p < .001$, $d = 0.86$), shape concern: ($p < .001$, $d = 0.90$), and weight concern: ($p < .001$, $d = 0.88$) BMI outcomes not reported Secondary Outcomes: CFT significantly increased SC ($p < .001$, $d = 0.71$) CFT significantly decreased functions ($p < .001$, $d = 0.78$), and forms ($p < .001$, $d = 0.63$) of self-criticizing/attacking and self-reassuring CFT significantly decreased shame from others ($p < .001$, $d = 0.86$)	Follow up data collected at 3 months but not reported

Table 2 (continued)

Author	Intervention	Time point for analysis	Completers *Dropouts, missing data, removed outliers*	Post-intervention Outcomes (*N*) = Included in analysis	Follow Up (*N*) = Included in analysis
Gale et al. [38]	4 × 2 hr a week group psychoeducation, followed by 20 × 2–2.5 hr group sessions of combined CBT and CFT in a CEDS NHS outpatient service Recovery Program: *CBT adapted from* Fairburn [30]*, and CFT adapted from* Gilbert and Procter [50]*, and* Gilbert [44] 1) Psychoeducation on EDs, maintaining factors, risks of an ED, what recovery involves, and both CBT and CFT models 2) Self-monitoring and meal planning 4) CBT-based cognitive challenges, behavioral experiments, and problem solving 5) Evolutionary functional analysis, understanding ED symptoms as related to safety and emotions, fears, blocks and resistances to compassion and developing a compassionate self (compassionate imagery), compassionate self 6) Relapse prevention	1) Baseline 2) Pre-psychoeducation 3) Pre-recovery programme 4) Session 8 5) EOT	N = 139 *38 dropouts* *38 removed due to missing data* *2 outliers removed*	N = 99 Primary Outcomes: Treatment significantly reduced all EDE-Q subscales (N = 96): restraint ($p < .001$, $\eta_p^2 = 0.48$), eating concern ($p < .001$, $\eta_p^2 = 0.50$), shape concern ($p < .001$, $\eta_p^2 = 0.40$), and weight concern ($p < .001$, $\eta_p^2 = 0.51$) Treatment significantly reduced all SEDs subscales except low assertiveness: low self-esteem ($p = .004$, $\eta_p^2 = 0.13$), self-directed hostility ($p < .001$, $\eta_p^2 = 0.22$), perceived external control ($p < .001$, $\eta_p^2 = 0.18$), anorexic dietary cognitions ($p < .001$, $\eta_p^2 = 0.28$), anorexic dietary behaviours ($p = .002$, $\eta_p^2 = 0.15$), bulimic dietary cognitions ($p < .001$, $\eta_p^2 = 0.31$) and bulimic dietary behaviours ($p < .001$, $\eta_p^2 = 0.34$) Secondary Outcomes: Treatment significantly reduced all CORE scores: wellbeing ($p < .001$, $\eta_p^2 = 0.30$), problems ($p < .001$, $\eta_p^2 = 0.33$), functioning ($p < .001$, $\eta_p^2 = 0.31$, and risk ($p = .002$, $\eta_p^2 = 0.09$)	No follow up
Gnatt et al. [51]	10 × weekly group CFT (length of session not reported) in community setting CFT Programme: *Adapted from* Petrocchi et al. [107] 1) Nine modules including: introduction, goals and rules, definition of compassion, psychoeducation on 'tricky brain', three types of emotions, mindfulness, safeness, flows of compassion, ideal compassionate other, compassionate self, function of emotions and multiple selves, self-criticism, shame and guilt, and creating a compassionate image	1) Baseline 2) Week 6 3) EOT	N = 5 *1 withdrawal* *1 did not consent to research*	Primary Outcomes: No participants showed reliable or clinically significant change on ED symptoms post-treatment Secondary Outcomes: Three participants (60%) showed reliable and clinically significant changes on SC post-treatment Compassionate engagement and action increased for four participants (80%) Fear of compassion from others declined for three participants (60%), stayed the same for one (20%) and increased for one (20%) Shame decreased for all participants Depression, anxiety, and stress symptoms reduced for all but one participant (80%) Four participants (80%) showed reliable change and three (60%) showed clinically significant changes on PTSD symptoms post-treatment	No follow-up

Table 2 (continued)

Author	Intervention	Time point for analysis	Completers *Dropouts, missing data, removed outliers*	Post-intervention Outcomes (*N*) = Included in analysis	Follow Up (*N*) = Included in analysis
von Krogh Monclair and Wuttudal [125]	14 weeks manualised group CFT (4 × 1.5 hr/week) and 2–3 individual sessions a week (approx. 2 hr) in an inpatient setting CFT Programme: *CFT elements based on Gilbert and Goss' CFT for EDs* [38, 44, 54] 1) Group focus on compassion to and from others and developing social support networks 2) CMT (compassionate imagery, compassionate self, and self-soothing) 3) Patients also attended twice weekly customised physical activity group and 4 × daily schedule supportive meals	1) Baseline 2) EOT 3) 12MFU	N = 37 *2 withdrawals* *2 lost eligibility*	N = 37 Primary Outcomes: CFT led to a non-significant reduction seen in EDE-Q global score ($p = .090$)[e] Secondary Outcomes: CFT had no significant effect on general distress or trauma scores	*1-year follow up* N = 26 Descriptive analyses showed global EDE-Q, general distress, and trauma scores remained stable at follow up
Williams et al. [130]	5–7 fortnightly psychoeducation sessions, followed by 10–27 × 50-60 min individual CFT in an outpatient ED service CFT Treatment Programme: 1) Psychoeducation on development, maintenance, risks of EDs and motivation to make changes 2) Collaborative CFT formulation 3) Self-soothing and relaxation skills 4) CFT skills (compassionate imagery, letter writing, and compassionate self) 4) Specialist dietic appointments (2–11 sessions dependant on patient readiness) including nutritional assessment, nutrition psychoeducation, and meal planning	1) Baseline 2) EOT	N = 9 *No dropouts / withdrawals reported*	N = 9 Primary Outcomes: CFT significantly decreased EDE-Q subscales: restraint ($p = .010$, $d = 2.45$), eating concern ($p = .005$, $d = 1.99$), shape concern ($p = .002$, $d = 2.01$), weight concern ($p = .002$, $d = 2.08$), and overall global score ($p = .001$, $d = 2.45$)	No follow up

Table 2 (continued)

Author	Intervention	Time point for analysis	Completers *Dropouts, missing data, removed outliers*	Post-intervention Outcomes (*N*) = Included in analysis	Follow Up (*N*) = Included in analysis
Dunk [28]	Phase 1: 1 day (2 × 3.75 hr) of group psychoedeucation Phase 2: 10 × 3.5 hr group CFT skills development across 3 weeks Phase 3: 10 × 2.5 hr group CFT sessions over 10 weeks, followed by two fortnightly sessions and one final session after one month. Conducted in an outpatient ED service CFT-E2 Treatment: 1) Psychoeducation on physical and social consequences of ED and encourage motivation to change 2) CFT skills development (distress tolerance, self-soothing, compassionate imagery, compassionate self, letter writing, and formulation.) 3) Support with normalised eating, meal planning and weight management 4) Addressing ED cognitions and behaviors, specifically from a self-compassionate perspective	1) Baseline 2) Post-psychoeducation 3) Post-skills 4) EOT	N = 85 *27 withdrew* *13 removed due to missing data* *10 outliers removed*	N = 102 Primary Outcomes: CFT significantly decreased EDE-Q subscales: restraint ($p < .001$, $\eta_p^2 = .38$), eating concern ($p < .001$, $\eta_p^2 = .35$), and combined weight/shape concern ($p < .001$, $\eta_p^2 = .34$) Secondary Outcomes: CFT significantly increased positive SC ($p < .001$, $\eta^2 = .23$) and significantly decreased negative SC ($p < .001$, $\eta^2 = .22$) CFT significantly increased self-esteem ($p < .001$, $\eta^2 = .14$) and decreased shame ($p = .035$, $\eta^2 = .04$). CFT significantly decreased shame from others ($p = .013$, $\eta^2 = .06$) CFT significantly decreased all CORE subscales: wellbeing ($p < .001$, $\eta^2 = .23$), problems ($p < .001$, $\eta^2 = .18$), functioning ($p < .001$, $\eta^2 = .22$), and risk ($p < .001$, $\eta^2 = .17$) CFT significantly affected forms of self-criticizing/attacking and self-reassuring subscales: decrease in inadequate self ($p < .001$, $\eta^2 = .21$), increase in reassure self ($p < .001$, $\eta^2 = .23$), and increase in hated self ($p < .001$, $\eta^2 = .20$). CFT had no significant effect was found on functions of self-criticizing/attacking and self-reassuring	No follow up
Pinto-Gouveia et al. [110]	12 × 2.5 hr weekly group sessions. Treatment setting not reported CFT Intervention/BEfree: 1) Psychoeducation on the evolutionary foundations of emotions and binge eating 2) Mindfulness practice (body scan, mindfulness of thoughts, breathing meditations) 3) Self-compassion exercises (loving-kindness, safe place and compassionate imagery) to diminish self-criticism and shame 4) Exploration of personal values and setback prevention	1) Baseline 2) EOT 3) 3MFU 4) 6MFU	N = 31 *9 DNA sessions, 10 dropouts* *3 removed due to missing data*	N = 31 Primary Outcomes: CFT significantly decreased EDE global score ($p < .001$, $d = 1.34$) and binge eating ($p < .001$, $d = 1.95$) CFT significantly decreased BMI ($p = .008$, $d = 0.52$) Secondary Outcomes: CFT significantly increased positive SC ($p = .004$, $d = 0.58$) and significantly decreased self-judgement ($p < .001$, $d = 1.09$) CFT significantly affected forms of self-criticizing/attacking and self-reassuring subscales: hated self decreased ($p = .011$, $d = 0.50$); inadequate self decreased ($p = .002$, $d = 0.61$), and reassured self increased from ($p = .050$, $d = 0.39$) CFT significantly decreased shame from others ($p = .001$, $d = 0.69$) CFT significantly decreased psychological inflexibility ($p = .001$, $d = 0.70$), and cognitive fusion ($p < .001$, $d = 0.84$). CFT significantly increased value in living ($p = .007$, $d = 0.55$) CFT significantly increased overall mindfulness ($p = .001$, $d = 0.71$). Significant increases were shown in subscales: act awareness ($p = .018$, $d = 0.46$), non-judgement ($p = .002$, $d = 0.61$), and non-reaction ($p = .019$, $d = 0.46$). Non-significant increases shown in observe ($p = .300$, $d = 0.19$), and describe ($p = 0.980$, $d = 0.32$) subscales	*3-month and 6-month follow up* 3-month ($n = 19$), 6-month ($n = 20$) Significant effects of CFT maintained for EDE global score ($p = .818$), binge eating ($p = .159$), and BMI ($p = .630$), at both 3- and 6-month follow ups Significant effects of CFT for all named secondary outcomes maintained at 3- and 6-month follow up

Table 2 (continued)

Author	Intervention	Time point for analysis	Completers *Dropouts, missing data, removed outliers*	Post-intervention Outcomes (*N*) = Included in analysis	Follow Up (*N*) = Included in analysis
Christoffersen et al. [19]	13 weeks CFT-E: 3 × individual and 6 × group sessions a week in an inpatient clinic. Session length unknown CFT-E Programme: *Adapted from* Gale et al. [38] *and* Goss and Allan [56] 1) Psychoeducation on CFT 2) Practising compassionate support to others and from others 3) CMT (compassionate imagery for oneself and others) 4) Skills training in social connectedness and affect regulation 5) Relapse prevention 6) 4 × group meals a day followed by a group meeting 7) 3–5 family days providing psychoeducation on EDs and treatment to loved ones 8) 3 psychoeducation sessions on substance abuse	Weekly self-report questionnaire throughout treatment	N = 36 *3 dropouts* *5 withdrawn due to loss of eligibility*	N = 36 Primary Outcomes: CFT-E significantly decreased EDE-Q scores ($p = .031$, $d = 0.65$) Secondary Outcomes: CFT-E had no significant effect on SC. Reciprocal between-participant effect of SC and ED symptoms. Baseline SC scores predicted later ED symptoms ($p < .001$) and baseline ED symptoms predicted later SC scores ($p < .001$). No significant within-patient effect of SC on ED symptoms or vice versa CFT-E had no significant effect on trauma scores. No significant within-participant effect of trauma on SC. Significant within-participant effect of SC on trauma ($p = .032$).Significant reciprocal relationship between-participant effect of trauma on SC. Baseline SC scores predicted later trauma symptoms ($p = .016$) and baseline trauma symptoms predicted later SC scores ($p = .010$)	No follow up

Table 2 (continued)

Author	Intervention	Time point for analysis	Completers *Dropouts, missing data, removed outliers*	Post-intervention Outcomes (*N*) = Included in analysis	Follow Up (*N*) = Included in analysis
Simmonds [113]	10 × 90 min compassionate imagery sessions in an outpatient ED service[f] CFT-E Programme: *Adapted from* Goss and Allan [56] 1) 1–2 psychoeducation sessions on development and maintenance of EDs 2) 8 × compassionate skills building sessions (compassionate attention and compassionate thinking) 3) 10 sessions on developing compassion (soothing rhythm breathing, generating a compassionate image, and directing compassion towards the self)	1) Session 11 (before recovery phase) 2) Session 15 (during recovery phase) 3) Session 19 (after recovery phase)	N = 10 *2 excluded for clinical reasons*	N = 5 Primary Outcomes: CFT-E significantly decreased EDE-Q subscales: restraint ($p < .001$, $d = 14.42$), eating concern ($p < .001$, $d = 4.16$), and shape concern ($p = .001$, $d = 3.34$). Weight concern reduced but did not remain significant after applying Bonferroni correction ($p = .005$, $d = 2.15$)[g] CFT-E decreased all SEDS subscales: assertiveness: ($p = .038$, $d = 1.07$), self-directed hostility ($p = .033$, $d = 1.13$), perceived control ($p = .046$, $d = 4.88$), anorexic behaviours ($p = .018$, $d = 1.84$), and anorexic cognitions ($p = .001$, $d = 5.02$) reduced significantly. Only anorexic cognitions remained significant after Bonferroni correction was applied Secondary Outcomes: CFT-E significantly decreased three negative SC subscales; self-judgement ($p = .008$, $d = 1.83$), isolation ($p = .003$, $d = 2.50$), and over identification ($p = .043$, $d = 1.02$). None remained significant after Bonferroni correction was applied CFT-E had no significant effect on functions of Self-Criticising/Attacking and Self-Reassuring but did significantly change forms subscales; inadequate self ($p = .014$, $d = 1.52$) and hated self ($p = .034$, $d = 1.12$) decreased, whilst reassured self increased ($p = .019$, $d = -1.38$). None remained significant after Bonferroni correction was applied CFT-E had no significant effect on Shame related scales, but did see a significant increase in self-esteem ($p = .015$, $d = -1.48$). This did not remain significant after Bonferroni correction was applied CFT-E significantly decreased the CORE subscales: wellbeing ($p = .004$, $d = 2.31$), problems ($p = .042$, $d = 1.03$), and functioning ($p = .017$, $d = 1.42$). None remained significant after Bonferroni correction was applied. CFT-E had no significant effect on CORE subscale risk	No follow up

Table 2 (continued)

Author	Intervention	Time point for analysis	Completers *Dropouts, missing data, removed outliers*	Post-intervention Outcomes (*N*) = Included in analysis	Follow Up (*N*) = Included in analysis
Cohen and Cohen [20]	14 × 60–90 min individual CFT in an outpatient ED unit over 8 weeks CFT Treatment: *Modified and adapted from* Goss and Allan's [56] *CFT-E and* Gilbert's [44] *CFT* 1) Formulation and psychoeducation on EDs and CFT 2) CMT (compassionate imagery) 3) Barriers to compassion 4) Dealing with setbacks	1) Pre-measurement 2) Baseline (2 & 3 weeks before treatment) 3) Second pre-measurement for control 4) Each session 5) EOT	N = 4 *2 dropouts*[h]	N = 5[i] Primary Outcomes: CFT decreased EDE-Q global scores in all but one participant. Subscale breakdown: restraint decreased in all but one participant (80%), eating concern, decreased in three (60%), increased in one (20%) and no change in one participant (20%); shape concern decreased in all five (100%) participants; weight concern decreased in three (60%) participants, increased in one (20%) and no change in one participant (20%) Secondary Outcomes: Shame scores decreased in three participants (60%), increased in one (20%) and remained unchanged in one participant (20%) Anxiety scores increased in two participants (40%) and decreased in three participants (60%). Depression scores decreased in four participants (80%) and remained unchanged in one participant (20%)	No follow up

Table 2 (continued)

Author	Intervention	Time point for analysis	Completers *Dropouts, missing data, removed outliers*	Post-intervention Outcomes (*N*) = Included in analysis	Follow Up (*N*) = Included in analysis
Papoulias [105]	8 weekly 60–90 min CFT group in an ED day patient unit CFT Group: *CFT based mainly on* Evans [29], *combined with CFT exercises from* Kolts [78], *and* Gilbert [43] 1) Psychoeducation on CFT and ED 2) Barriers to self-compassion 3) Compassionate skills (compassionate self, compassionate imagery, and compassionate letter writing) 4) Maintenance planning	1) Baseline 2) EOT	N = 8 *Patients attended 60% of the sessions.* *No dropouts* *17% did not complete outcomes*	*n* = 6 for primary outcomes, *n* = 5 for secondary measures Primary Outcomes: CFT significantly decreased EDE-Q Global scores ($p = .030$, $r = .64$). This did not remain significant when Benjamini–Hochberg post-correction was applied ($p = .220$) During CFT 84% of patients restored weight, whilst 16% lost weight. BMI increase was not significant Secondary Outcomes: CFT had no significant effect on SC, shame or fear of self-compassion CFT significantly decreased forms of self-criticism inadequate self scores ($p = .040$, $r = .64$). This did not remain significant when Benjamini–Hochberg post-correction was applied ($p = .280$)	No follow up
Horcajo Berna [62]	10 weekly 105 min CFT group sessions in a day centre CFT: *Adapted from* Gilbert [44], Gilbert [47], *and* García-Campayo et al. [40] 1) Psychoeducation on CFT 2) Breathing exercises and mindfulness 3) Information on shame and self-criticism 4) CMT (compassionate self, compassionate imagery, compassionate letter writing, and gratitude practice)	1) Baseline 2) EOT	N = 10 *No dropouts/ withdrawals reported*	N = 10 Primary Outcomes: CFT significantly decreased eating attitudes total score ($p < .050$, $d = 1.06$), and subscales diet ($p < .050$, $d = 1.00$) and bulimia ($p < .050$, $d = 0.88$). CFT had no significant effect on oral control Secondary Outcomes: CFT did not significantly affect total SC, but did significantly increase positive SC subscales of elf-friendliness ($p < .010$, $d = 1.19$), and shared humanity ($p < .010$, $d = 0.93$), and significantly decrease negative SC subscales self-judgement ($p < .050$, $d = 1.06$), and isolation ($p < .050$, $d = 1.03$) CFT significantly increased self-esteem ($p < .050$, $d = 1.27$) CFT did not significantly effect total body image but did significantly reduced BIAQ subscales food ($p < .010$, $d = 1.40$) and check ($p < .050$, $d = 0.94$) CFT significantly decreased the mindfulness subscale observation ($p < .050$, $d = 0.61$). No other mindfulness subscales were significant, nor was the total score CFT had no significant effect on Stress, Anxiety, and Depression	No follow-up

Table 2 (continued)

Author	Intervention	Time point for analysis	Completers *Dropouts, missing data, removed outliers*	Post-intervention Outcomes (*N*) = Included in analysis	Follow Up (*N*) = Included in analysis

AN, Anorexia Nervosa; BED, Binge Eating Disorder; BES, Binge Eating Scale; BEFree, Binge Eating free; BIAQ, Body Image Avoidance Questionnaire; BMI, Body Mass Index; BN, Bulimia Nervosa; CBT, Cognitive Behaviour Therapy; CEDS, Coventry Eating Disorder Service; CFQFC, Cognitive Food Questionnaire-Food Craving; CFT, Compassion Focused Therapy; CFT-E, Compassion Focused Therapy for Eating Disorders; CFT-ELW, Compassion Focused Therapy for Eating at Low Weight; CMT, Compassionate Mind Training; CORE, Clinical Outcomes in Routine Evaluation; DBT, Dialectical Behaviour Therapy; DNA. Did Not Attend; ED, Eating Disorder; EDE, Eating Disorder Examination (I, Interview; Q, Questionnaire); EDNOS, Eating Disorder Not Otherwise Specified; EOT, End of Treatment; FCS, Fear of Compassion Scale; FSCRS, Forms of Self-Criticising/Attacking & Self-Reassuring Scale; FU, follow-up (M, Month; Y, Year); HADS, Hospital Anxiety & Depression Scale; Ps, participants; PTSD, Post Traumatic Stress Disorder; RRRS, Revised Rigid Restraint Scale; SC, Self Compassion; SD, Standard Deviation; SEDS, Stirling Eating Disorders Scale; TAU, Treatment as Usual; TOSCA, Test of Self-Conscious Affect; WLC, Waitlist Control

[a] Papers publish findings from the same trial but report variations in methodologies

[b] Follow up results were compared to pre-intervention scores rather than post-intervention scores

[c] Discrepancy identified in paper's text and tables. Figures are reported from Table 5 of publication

[d] Authors report significance at $p < 0.15$

[e] P-value between 0.05 and 0.1 considered a "trend towards statistical significance"

[f] Researchers were specifically interested in measuring outcomes during the third phase of CFT-E, but patients received the full programme

[g] Bonferroni correction applied: $p = 0.0017$

[h] For P1, there is only data from pre-measurement, three-week baseline and up to session 11. After that, participant 1 left the study and the post-measurements were conducted at session 12, in comparison to session 14 for the other participants

[i] Study used a single-subject A-B experimental design, and so individual scores were collected but no statistical analysis was conducted

few studies included developing an individualized formulation, invited group discussions on the barriers to compassion, and orientated participants to the affect regulation model. All studies used one or more forms of Compassionate Mind Training (CMT), including soothing rhythm breathing, mindfulness, compassionate letter writing, compassionate imagery exercises, yoga practices, and developing a compassionate voice. Some studies also included an element of integrating changes in everyday life and relapse prevention planning.

Most commonly, interventions were delivered in group format ($n = 13$), followed by a mix of group and individual sessions ($n = 6$), or solely individual sessions ($n = 4$). Some interventions were delivered online as self-directed programs ($n = 3$); however, the majority were delivered face-to-face ($n = 20$) in service or within the community. Intervention length ranged between one session and 117 sessions ($M = 34.30$, $SD = 40.24$). Some studies offered weekly, 60–150 min sessions, across eight weeks (e.g., [120]), 12 weeks (e.g., [75]), or 20 weeks (e.g., [38]). More intensive programs offered multiple individual and group sessions over a period of 5 weeks (e.g., [27]), 13 weeks (e.g., [19, 126, 127]), and 14 weeks (e.g., [125]).

Methodological quality assessment

The methodological quality of papers as rated by the Downs and Black [26] scale ranged from 6 to 22 ($M = 16.59$, $SD = 4.04$). Inter-rater reliability for quality ratings was moderate $\kappa = 0.857$ [88]. Most studies included a statement of the hypotheses and a description of the participant characteristics, interventions, outcomes, and main findings. The majority also used appropriate statistical tests. In contrast, most studies did not have blind researchers involved in the assessment of outcomes, and only four studies included power analyses. Full quality ratings are reported in Table 1.

Eating disorder psychological outcomes

Twenty-two papers measured change to psychological symptoms of eating disorders, generally using measures including the EDE and EDE-Q. Whilst findings vary across studies, results generally support CFT-based interventions in reducing psychological ED symptoms, typically reducing eating and weight concern, as well as reducing ED behaviors. Multiple findings were also maintained at 3- and 6-month, as well as 1-year follow up.

Transdiagnostic Seventeen studies assessed ED psychological outcomes using a transdiagnostic sample, out of which fourteen utilized the EDE or the EDE-Q to measure changes in core ED psychopathology. Three RCTs found CFT interventions, with or without treatment as usual, significantly reduced global ED psychopathology and the subscales of eating and weight concern [75, 79, 127]. Additionally, Vrabel et al. [127] found that these improvements remained stable at one year follow up, with CFT being superior in maintaining improvements compared to CBT for patients with a history of childhood trauma.

In regard to quasi-experimental studies, seven studies that adopted either a manualized CFT-E approach [5, 19, 28, 38, 113, 121] or a broader CFT intervention [130] revealed significant medium-to-large reductions in core ED psychopathology, including global severity, dietary restraint, weight concern, shape concern, and eating concern. Additionally, Cohen and Cohen [20] found that CFT resulted in varying decreases in EDE-Q global

scores in four out of five participants, although no group-level significance testing was conducted. Three other quasi-experimental studies found non-significant reductions using the same measures [105, 125]. Gnatt et al. [51] did not conduct any group-level significance test, however no participants showed clinically significant change in ED symptoms post-treatment.

In studies that used other measures to assess ED psychopathology, Taher Pour et al. [120] reported a significant increase in participants' self-reported confidence in controlling their eating behavior in the CFT group compared to the control condition. However, findings pertaining to another ED psychopathology measure were not reported by the authors. One study [126] measured compensatory exercise. Whilst total scores significantly decreased in both CFT and CBT arms of the trial, those in CFT intervention also had a greater improvement in the measures mood subscale. Finally, Horcajo Berná [62] found significant reductions in global eating concern, diet, and bulimia subscales with large effect sizes, suggesting an improvement in ED psychopathology.

Four studies also measured attitudes towards food alongside ED psychopathology. Three papers reported significant reductions across most subscales except low assertiveness [38], and bulimic cognitions and behaviors [5]. For Simmonds [113], reductions in subscales became non-significant after applying Bonferroni correction.

AN One study explored ED psychopathology outcomes in patients with AN. Kelly and Waring [74] reported finding no significant differences in EDE-Q scores between those doing two weeks of daily compassionate letter writing compared to those in a control group.

BED Four studies explored ED psychopathology in BED samples. In Pinto-Gouveia et al.'s [109] non-randomized trial the CFT intervention called BEfree (Binge Eating free) was superior to the control group in significantly reducing ED psychopathology with a large effect size post-intervention, at 3-month, and at 6-month follow ups. Similarly, two RCTs [27, 70] reported significant reductions in binge eating symptoms or binge days among participants with BED following self-directed CFT [27], and following self-compassion self-help [70] compared to a waitlist control (WLC) and behavioral self-help condition. Effect sizes were medium [70] to large, and reductions were maintained at 1-month [27]. Kelly and Carter [70] also found that on average, binge eating frequency decreased from four days per week to under two days per week in both self-compassion self-help and behavioral self-help interventions, compared to WLC. Similar significant symptom reductions were observed by Duarte et al. [27] who reported a significant reduction in thoughts and cravings about food with a large effect size in the self-directed CFT compared to WLC, which reduced further at 1-month follow up.

One quasi-experimental study found significant reductions in global EDE scores, which remained stable at 3- and 6-month follow ups [110]. Pinto-Gouveia et al. [110] also measured binge eating symptomology, finding significant reductions post BEfree intervention, with large effect sizes. Reductions in binge eating were maintained at both 3-month and 6-month follow up, with further analysis indicating this effect was mediated by reduced psychological inflexibility, body image cognitive fusion, and improved engagement with valued living.

Physical health outcomes

Change in BMI was measured across seven studies, demonstrating mixed effects across diagnostic groups. Transdiagnostic samples revealed increases in BMI, whilst AN and BED samples generally showed no significant change. However, one BED sample demonstrated a significant decrease in BMI following group CFT, remaining stable at follow up.

Transdiagnostic Two studies using a transdiagnostic sample measured BMI changes. Both studies reported that BMI increased with a moderate effect size following group CFT-E [5] and broader CFT interventions, with 84% of patients restoring weight [105]. However, only results established by Andrews [5] remained significant following a Benjamini–Hochberg correction.

AN One study measured BMI in people with AN. Kelly and Waring [74] reported no significant change in BMI between CFT and WLC conditions after three weeks of treatment.

BED Four studies with a BED sample measured changes in BMI. Three of these studies reported no significant changes in BMI across conditions and time, including at follow up; two of these studies were RCTs [27, 70] and one was a one non-randomized study [109]. In contrast, one quasi-experimental study reported group CFT led to a significant decrease in mean BMI from 35.35 to 34.71, which remained stable at 3- and 6-month follow up [110].

Broader psychological wellbeing outcomes

Studies utilized several wider psychological outcomes including compassion, shame, self-esteem, body image, mindfulness, QoL, depression and anxiety, and trauma.

Compassion

Fifteen studies measured change in compassion. Findings supported an increase in self-compassion post-interventions, alongside reduced fear of compassion.

Transdiagnostic Ten studies with a transdiagnostic sample measured the effect of CFT interventions on compassion. Two of these studies were RCTs: Kelly et al. [75] reported significant improvements in both positive and negative items in a self-compassion measure compared to TAU, as well as decreases in fear of self-compassion

and fear of receiving compassion. Kopland et al. [79] found self-compassion improved significantly across both CFT and CBT interventions. Interestingly, Kopland et al. also reported that ED symptoms predicted subsequent self-compassion at a within-person level and that this effect was stronger and bidirectional for participants with a history of trauma in the CFT group, thus, they concluded that self-compassion may have a role in symptom improvement in these patients.

The remaining eight studies adopted a quasi-experimental design and utilized both manualized CFT-E and broader CFT interventions [5, 19, 28, 51, 62, 105, 113, 121]. All studies except two [19, 51] reported increases in self-compassion and reductions in fears of compassion with small to medium effect sizes, however, only three reached statistical significance [5, 28, 121]. Additionally, Gnatt et al. [51] reported that 60% of participants demonstrated clinically significant improvements in self-compassion and a reduced fear of compassion from others, an additional 20% of participants saw an increase in compassionate engagement and action following weekly group CFT. However, the authors did not conduct statistical analysis comparing these changes.

AN Kelly and Waring [74] found self-compassion significantly increased, whilst fears of self-compassion and fears of receiving compassion significantly decreased following a self-directed compassionate letter writing intervention compared to WLC.

BED Four studies with BED samples measured compassion. Two RCTs [27, 70] found CFT interventions led to significant increases in self-compassion compared to an active or WLC with medium effect sizes maintained at 1-month follow up. Duarte et al. [27] also found significant improvements in compassionate actions for those in the compassion intervention group compared to WLC, whilst Kelly and Carter [70] found the rate of improvement in self-compassion was greater in a self-compassion intervention compared to behavioral self-help and WLC. Further analysis indicated the positive subscales of self-compassion improved only in the intervention group.

These findings were replicated by Pinto-Gouveia et al. [110], who reported significant increases in positive self-compassion and significant decreases in self-judgement, both of which were maintained at both 3- and 6-month follow up, with changes in self-judgement and self-compassion mediating decreases in binge eating. Pinto-Gouveia et al. also reported that CFT significantly reduced various forms of self-criticism.

In the only non-randomized trial which measured compassion, Pinto-Gouveia et al. [109] reported a significant decrease in self-judgment post-intervention compared to a WLC. Additionally, whilst they found no significant differences between groups on the self-compassion subscale at post-intervention, there were significant increases in this subscale in the CFT group at the 6-month follow up compared to pre-treatment scores.

Shame and self-esteem

Fourteen studies explored changes in levels of shame and self-esteem. General trends were established for decreased levels of shame, however few papers identified significant change. Results were mixed at follow up, with some studies revealing increases in shame and self-criticism at 1-month, whilst others found effects were maintained at 3- and 6-months. Studies exploring changes to self-esteem, self-reassurance, and perceived social support saw increases across measures, largely maintained at follow up.

Transdiagnostic One RCT [75] found significant reductions in shame in their CFT condition, whilst reductions in the TAU condition were not significant. Results from quasi-experimental trials were mixed: three studies [5, 105, 113] found CFT had no significant effect on shame, whilst two studies [28, 121] found CFT significantly decreased shame of self and shame from others. Finally, two studies [20, 51] found overall decreases in shame in the majority of participants, but neither study reported significance levels. Horcajo Berná [62] found group CFT lead to significant improvements in self-esteem, with a large effect size.

Five quasi-experimental studies measured the forms and functions of self-criticism and self-reassurance. Of these, three studies [5, 105, 113] found trends of improvement, but no significant effects of CFT. Dunk [28] found significant positive changes in forms of self-criticizing but not functions. Only one study [121] reported significant positive effects of CFT on both forms and functions of self-criticism and self-reassurance.

AN One RCT [74] found significant reductions in both external shame and body shame in their CFT condition, whilst the WLC saw no significant changes.

BED One RCT [27], one non-randomized comparison [109], and one quasi-experimental study [110] found CFT significantly reduced external and body image shame compared to WLC. However, follow up results were conflicting with Duarte et al. [27] reporting that shame had significantly increased again by the 1-month follow up, whilst both reported reductions in shame that were maintained at 3- and 6-months. Kavousi et al.'s [68] non-randomized comparison found that beliefs about oneself and perceived social support significantly increased following group CFT compared to WLC, and reported results were maintained at follow up, although follow up length was not reported.

In their RCT, Duarte et al. [27] also found CFT led to significant improvements in self-criticizing and self-reassurance subscales, although both self-criticizing and self-reassurance increased at the 1-month follow up. As with

shame, Pinto-Gouveia et al.'s [110] quasi-experimental study also found CFT led to significant improvements in self-criticizing and self-reassurance subscales, and these improvements were maintained at 3- and 6-month follow ups.

Body image

Three studies measured attitudes towards body image across transdiagnostic and BED samples, broadly suggesting that CFT contributes to increased body acceptance and reduced cognitive fusion.

Transdiagnostic One quasi-experimental study explored body image [62]. They found significant reductions in the body image measure subscales 'food' and 'checking' with large effect sizes, which authors suggested was an indication of improved body avoidance and self-appreciation. Total body image scores on this measure also reduced, but did not meet statistical significance.

BED One RCT [27] and one non-randomized control trial [109] reported changes across body image. Pinto-Gouveia et al. [109] found those in the BEfree intervention reported feeling significantly less stuck and more flexible with their thoughts around body image compared to those in the WLC, with these improvements being maintained at 3- and 6-month follow ups. Duarte et al. [27] found those in the self-directed CFT intervention had significant increases in body image acceptance and flexibility compared to WLC, with effects maintained at 1-month follow up. This is supported by the quasi-experimental study by Pinto-Gouveia et al. [110] which found body image cognitive fusion significantly reduced across time in BED samples, with a large effect size that was maintained at 3- and 6-month follow ups.

Mindfulness and quality of life

Six studies measured mindfulness and QoL. CFT in transdiagnostic samples did not demonstrate significant change. BED samples measuring changes in QoL and engagement with valued living highlighted significant increases, with multiple effects maintained at follow up. Change in mindfulness and QoL were not measured in AN samples.

Transdiagnostic Vrabel et al.'s [127] RCT found patients in the CBT condition experienced significant decreases in interpersonal problems post-therapy compared to those receiving CFT, where decreases were non-significant. Horcajo Berná [62] quasi-experimental trial reported CFT led to non-significant increases in mindfulness.

BED One non-randomized trial measured obesity-related QoL, finding significant increases in QoL for those engaging with BEfree intervention compared to WLC that were maintained at all 3- and 6-month follow ups [109]. However, Pinto-Gouveia et al. found no significant changes in engagement with valued living. Comparably, in their quasi-experimental study, Pinto-Gouveia et al. [110] found CFT led to significant improvements in engagement in valued living and psychological inflexibility, effects which were maintained at 3- and 6-month follow ups. Additionally, Kavousi et al. [68] found CFT led to significant improvements in perceived social support with large effect sizes, but it is unclear whether this intervention was superior to control.

One RCT [27] and one quasi-experimental trial [110] found the mindfulness subscales of act awareness, non-judgment, and non-reacting significantly improved post CFT compared to WLC, with the latter finding improvements were maintained at both 3- and 6-month follow up. However, Pinto-Gouveia et al.'s [109] non-randomized control trial found no significant effects across all mindfulness subscales.

Psychological distress and trauma

Fifteen papers measured psychological distress and trauma pre- to post-CFT-intervention. Psychological distress was seen to significantly reduce across transdiagnostic and BED samples in the majority of papers. Broadly, findings supported decreases in levels of anxiety and depression, however some changes were non-significant. Two papers established significant decreases in trauma symptoms following CFT, whilst two other papers found no significant effect.

Transdiagnostic CFT-E/CFT resulted in significant reductions in psychological distress, including in factors assessing wellbeing, risk, commonly experienced problems, and functioning in all quasi-experimental studies measuring these factors [5, 28, 38] except one [113], with medium to large effect sizes. These results are supported by Vrabel et al.'s [127] RCT which demonstrated significant decreases in psychological distress in both CBT and CFT interventions, with large effect sizes in the former and small effect sizes in the latter.

Results from quasi-experimental studies on the effect of CFT on stress, depression, and anxiety were mixed. Horcajo Berná [62] reported significant decreases in stress, depression, and anxiety whilst von Krogh Monclair and Wuttudal [125] reported a similar, yet non-significant, trend. Cohen and Cohen [20] reported that depression scores decreased in four out of five participants, whilst anxiety scores decreased in three, with the remaining two participants reporting an increase in anxiety scores after receiving CFT. Gnatt et al. [51] reported that all but one participant showed reduced depression, anxiety, and stress symptoms after CFT, but were unable to provide reliable change or clinical significance for these measures.

Two quasi-experimental studies [19, 125] found no significant effect of CFT on trauma. However, in their

quasi-experimental study Gnatt et al. [51] reported that 80% of participants demonstrated a reliable change and 60% showed clinically significant changes in PTSD symptoms post-treatment. This is supported by Vrabel et al.'s [127] RCT which measured PTSD symptoms across time, finding significant decreases in trauma symptoms for those in the CFT group compared to CBT, with continued non-significant decreases observed at follow up.

BED Three RCTs [27, 70, 120] and two non-randomized control trials [68, 109] examined psychological distress in BED samples. Whilst overall findings were mixed, several studies demonstrated significant reductions in stress, anxiety, and depression following CFT interventions. Taher Pour et al. [120] reported large effect size reductions in stress, anxiety, and depression compared to control conditions, while Pinto-Gouveia et al. [109] found significant effects for depression alone. Kelly and Carter [70] also demonstrated the same trend for depression, although their results were not significant. Kavousi et al. [68] observed significant reductions in stress, anxiety, and depression, though the superiority of the intervention over the control condition remains unclear. Finally, Duarte et al. [27] found large effect size decreases in depression and anxiety subscales with self-directed CFT compared to WLC, but stress remained unchanged, whilst depression slightly increased at 1-month follow up.

Discussion

The purpose of this systematic review was to collate and synthesize all the available data on the use of CFT in people with a diagnosed ED. Overall, this review found that CFT interventions are effective at reducing ED psychopathology, body image concerns and ED behaviors, across a range of ED diagnoses, with effects that are maintained at follow up. Furthermore, CFT was superior to TAU, WLC, and controls in the majority of studies, although results were too limited to draw firm conclusions regarding its comparison to alternative treatment modalities. Nonetheless, results regarding psychological and behavioral changes are positive, replicating reports from non-clinical populations [16].

Studies exploring BMI were limited and presented mixed findings. Only two studies had a sample consisting solely of underweight participants (mean BMI < 18.50; [5, 74]). In Kelly and Waring [74], change in BMI was measured following a two-week intervention and authors did not identify any significant differences between a WLC and those who wrote compassionate letters. However, in Andrews' [5] 47-week group CFT intervention, a significant increase in BMI was identified, although mean BMI remained underweight post-treatment. This discrepancy in findings may be due to variations in treatment length, similar to results from BED studies where no significant effect on BMI was found in 3- and 4-week CFT interventions [27, 70], but improvements were found to be significant in Pinto-Gouveia et al.'s [110] 12-week CFT intervention. Indeed, Craig et al. [21] suggest that at least 12 sessions of CFT are needed to make significant changes across different clinical populations. Therefore, conclusions regarding CFT effects on physical changes currently remain uncertain.

Despite this, the collated results from studies in this review [19, 125] support suggestions made by the wider literature [71, 73, 96] that compassion could be a mechanism of change in ED treatment. Furthermore, this review found that CFT increased self-compassion and reduced fears of self-compassion, replicating findings from Carter et al. [16]. Indeed, studies have demonstrated that changes in self-compassion facilitate changes in ED symptomology. For example, Kelly et al. [73] found that early increases in self-compassion were associated with improvements in ED symptoms following treatment. Furthermore, through cross-lagged analysis)[84], recently demonstrated that earlier levels of self-compassion predicted ED psychopathology, with higher levels of self-compassion at baseline predicting greater decreases in ED psychopathology four months later. Nonetheless, most of the literature in this area is limited to exploring associations between self-compassion and ED symptomology, which, as outlined by Linardon [83] is considered the first step in understanding how an intervention works. Future studies would therefore benefit from building on these findings and further explore the temporal relationship between self-compassion and ED symptoms in CFT.

Collated evidence from this review also suggests that CFT interventions improve broader wellbeing outcomes including depression and psychological distress, although findings related to improvements in secondary trauma symptoms were mixed. Overall, these results are in keeping with previous research suggesting that self-compassion is consistently related to mental health symptoms and wellbeing [9] and replicates findings from previous reviews of CFT across a range of clinical populations [21, 91]. As mindfulness can form part of CMT within CFT [44], a small number of included studies also explored how it may be impacted by CFT, but overall results showed no significant effect.

Low self-esteem is strongly implicated in EDs [95] and self-compassion has been theorized to protect against the negative effects of low self-esteem, such as shame [87]. This review found trends of decreasing shame and improvements in self-esteem, in line with Carter et al.'s [16] findings in non-clinical populations. Significance levels were mixed across studies, however, it was observed that non-significant outcomes appeared only in studies with fewer than 10 participants [5, 105, 113], meaning lack of significance may be due to type II errors.

In exploring the sustainability of the effects of CFT, there was a limited number of follow up results, yet these were promising. Those studies which did conduct follow up overall indicated that CFT provides stable improvements in ED psychopathology and reduction in general distress for up to 1-year post-intervention [125–127]. With prospective research suggesting relapse rates for AN are highest between 4 and 9 months [17], the results from the present review therefore point to CFT as a potentially promising treatment option in aiding relapse prevention.

Clinical implications

There is preliminary evidence to support CFT as an effective treatment for adults with a range of ED diagnoses. Results from this review suggest that CFT can help reduce ED psychopathology across a range of diagnoses and improve body image. CFT was found to lead to improvements in self-compassion and a decrease in shame, but results related to changes in BMI were mixed and of lower quality. There is limited evidence that CFT is superior to current first-line treatment for EDs, but this review is promising given that recovery rates for EDs are poor, and self-compassion is often low in this demographic.

Research implications

Despite our wide inclusion criteria, the studies available to be sampled in this review did not include children or adolescents. The absence of papers exploring these populations may reflect the primary use of family-based therapies which are recommended across most national guidelines for adolescents with EDs. However, given that low self-compassion is implicated in many mental health problems, including the development and maintenance of EDs [81, 96], it may be helpful to explore compassion as a treatment target in young people. Additionally, the majority of participants in included studies were Caucasian women. Where other genders and ethnicities were included, they formed a minority of the sample. Given their continued under-representation in the literature [91, 97], it is also of great importance to explore how self-compassion may be implicated in men with EDs, particularly given the promising potential of CFT found in the current review. Furthermore, previous research demonstrates differences between Western and non-Western cultures across shame, self-criticism, and compassion [67], providing a rationale for future research to increase their focus on under-represented cultures. Future research should seek to expand the current knowledge base to include a wider range of social and cultural factors to allow for the wider application of CFT.

Several papers in this review identify moderators and mediators of CFT in ED populations. For example, Vrabel et al. [127] found that CFT was superior in maintaining improvements compared to CBT for patients with a history of childhood trauma, and Pinto-Gouveia et al. [110] reported that reductions in binge eating were mediated by several factors including reduced psychological inflexibility, body image cognitive fusion, and improved engagement with valued living. Indeed, there is large heterogeneity in the presentation of EDs, both between and within different diagnoses [82]. As a result, there is no 'one size fits all' treatment for EDs, and outcomes are generally agreed to be poor [92, 118]. Future research may benefit from expanding on the work identifying the moderators and mediators of the relationship between EDs and factors covered in this review, such as compassion, to better understand the active ingredients in therapies and provide tailored treatments [80].

In line with recommendations in ED research [126], we endeavoured to explore the long-term efficacy of CFT, particularly whether benefits found were maintained. However, very few studies which met our criteria conducted follow up analyses and, of those who did, not all reported the results of these follow ups (e.g., [5, 121]). Previous reviews of CFT also highlight the lack of follow ups as limitations to exploring the long-term efficacy of CFT [91]. To provide clarity on the sustainability of the effects of CFT, future research should analyse data beyond that at post-intervention.

Limitations

Despite its promising outcomes, this review is not without limitations. Firstly, it was not within the scope of the current review to evaluate remission or attrition rates. Several of the studies reported attrition over time and, whilst significance and effect sizes were reported, the number of participants and reason for dropout could change the interpretation of results [8]. Future research should aim to explore attrition rates in this population and treatment.

The inclusion of grey literature presents both strengths and limitations. The peer review process is an important part of research and to include papers which have not been subjected to this step means that results should be interpreted with caution. The decision to include grey literature was based on the aim of including all available evidence to provide a comprehensive overview of the current landscape. It helps to reduce the risk of publication bias and allowed the review to incorporate clinically relevant studies that may not meet the strict inclusion criteria of clinical trials but still reflect real-world practice.

There are also limitations within the sampled papers. Firstly, only four papers had a study design directly comparing CFT to other established treatments, with three of these four studies [79, 126, 127] using the same data set. Given the increased likelihood of false positives when

repeating analyses, it is important to highlight caution around interpretation of these findings. Whilst WLC or placebo controls are acceptable at the initial stage of trials, they impact the quality of results [102]. Research comparing CFT to alternative treatments is also limited in other systematic reviews of CFT in clinical populations [21, 91], indicating a gap in current literature. Such comparisons are needed to understand how CFT can best fit into treatment guidelines or work alongside other recommended treatment protocols.

Furthermore, the majority of papers had small sample sizes, leading to limited and often unreported power, potentially limiting the validity of their results. However, large RCTs are not without their flaws and may not provide the best quality evidence for clinical practice [35]. Many RCTs exclude patients with comorbid conditions [36], despite high rates of comorbidity in real clinical settings. Similarly, RCTs often focus only on one ED diagnosis (for example BN), whilst both symptoms and diagnostic criteria can shift over time [41]. Using observational studies allows for an ecologically valid representation of the target population and for experiments to examine the effects of interventions under real-world conditions [35].

Despite using a combination of artificial intelligence (AI) and human translation, the recommended system for translating studies [93, 116], discrepancies in translations, such as in the follow up data of Kavousi et al. [68], were observed. Whilst efforts were made to contact authors for clarification, these were not always successful. The inclusion of non-western studies is vital for both expanding the applicability of findings and for reducing the possible impact of publication biases [116].

Finally, the quality of included studies varied widely from poor (6) to good (22), with mean scores only reaching fair (16.59; [61]). However, it should be noted that the nature of this research meant some items, such as those on blinding participants, did not apply, thus impacting the overall quality ratings. Additionally, Downs and Black [26] indicate that should information be missing in a paper, it must be given a score of 0 due to being unclear, meaning translated studies (e.g., [62]) may have scored lower than is accurate due to the limitations of translations. Whilst the Downs and Black [26] checklist has been recognized as one of the top six quality assessment tools for systematic reviews (e.g., [23]), like other scale-based measures, the need for potentially subjective interpretations of the score has been questioned [12, 65]. Future studies would benefit from alterations including using blind assessors to rate outcome measures, and, depending on study inclusion, future reviews may wish to consider other tools (e.g., Risk of Bias 2 [119], or Critical Appraisal Skills [22]).

Conclusions

This is, to the authors' knowledge, the first systematic review to examine the efficacy of CFT specifically within ED populations. The results provide preliminary evidence that CFT interventions are effective in reducing ED psychopathology and improving broader psychological wellbeing outcomes across all ED diagnoses. However, evidence regarding the efficacy of CFT in modifying BMI to within a healthy range is too limited to draw firm conclusions, particularly given risks involved in having a low BMI. Strengths of this review include the incorporation of grey literature sources and non-English articles, reducing publication bias and supporting the generalizability of findings. Furthermore, in line with best practice, multiple independent authors screened for bias and extracted data. Future research would benefit from using evidence-based intervention comparison groups, larger sample sizes, and longer follow ups to continue to explore the efficacy of CFT as an alternative to current first-line ED treatment.

Abbreviations

AN	Anorexia nervosa
AI	Artificial intelligence
ARFID	Avoidant restrictive food intake disorder
BEfree	Binge eating free
BED	Binge eating disorder
BES	Binge Eating Scale
BMI	Body Mass Index
BN	Bulimia nervosa
CBT	Cognitive Behavioral Therapy
CBT-E	Enhanced Cognitive Behavioral Therapy
CEDS	Coventry Eating Disorder Service
CFT	Compassion focused therapy
CFT-E	Compassion focused therapy for eating disorders
CFT-ELW	Compassion Focused Therapy for Eating at Low Weight
CMT	Compassionate Mind Training
CORE	Clinical Outcomes in Routine Evaluation
CYP	Children and young people
DSM	Diagnostic and Statistical Manual of Mental Disorders
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders, 4th ed
DSM-IV-TR	Diagnostic and Statistical Manual of Mental Disorders, 4th ed, text revision
DSM-5	Diagnostic and Statistical Manual of Mental Disorders, 5th ed
EDs	Eating disorders
EDE	Eating Disorder Examination
EDE-Q	Eating Disorder Examination Questionnaire
EDNOS	Eating disorder not otherwise specified
FU	Follow up
ICD-10	International Statistical Classification of Diseases and Related Health Problems; 10th ed
ICD-11	International Statistical Classification of Diseases and Related Health Problems; 11th ed
MANTRA	Maudsley Anorexia Nervosa Treatment for Adults
NICE	National Institute for Health and Care Excellence
OSFED	Other specified feeding or eating disorder
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PTSD	Post traumatic stress disorder
QoL	Quality of life
RCTs	Randomized controlled trials
RRRS	Revised rigid restraint scale
SEDS	Stirling Eating Disorders Scale
SES	Socioeconomic status
SD	Standard deviation

SSCM	Specialist supportive clinical management
SWiM	Synthesis without meta-analysis
TAU	Treatment as usual
WLC	Wait list control

Supplementary Information

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Additional file 1.

Additional file 2.

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Author contributions
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No datasets were generated or analysed during the current study.

Declarations

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Not applicable.

Consent to participate
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Competing interests
The authors declare no competing interests.

Author details
[1]Oxford Institute of Clinical Psychology Training and Research, Medical Sciences Division, University of Oxford, Oxford, UK
[2]Step Care Adult Eating Disorder Service, HOPE Provider Collaborative, Oxford Health NHS Foundation Trust, Oxford, UK

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