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The Impact of Compassion-Focused Therapy on Positive and Negative Mental Health Outcomes: Results of a Series of Meta-Analyses

Nicola Petrocchi[1, 2], Cristina Ottaviani[3], Simone Cheli[4, 5], Marcela Matos[6], Beatrice Baldi[2, 3], Jaskaran K. Basran[7, 8], and Paul Gilbert[7, 8]

[1] Department of Psychological and Social Sciences, John Cabot University
[2] Compassionate Mind Italia, Rome, Italy
[3] Department of Psychology, Sapienza University of Rome
[4] Department of Psychology, St. John's University
[5] Center for Psychology and Health, Tages Onlus, Florence, Italy
[6] Faculty of Psychology and Educational Sciences, Center for Research in Neuropsychology and Cognitive and Behavioral Intervention (CINEICC), University of Coimbra
[7] Centre for Compassion Research and Training, College of Health, Psychology and Social Care, University of Derby
[8] The Compassionate Mind Foundation, Derby, United Kingdom

Objectives: Compassion-focused therapy (CFT) is an integrative, evolution-informed approach to mental health difficulties that has been growing rapidly in the last 30 years. This series of meta-analyses examined the overall efficacy of CFT on positive and negative mental health outcomes, in both clinical and nonclinical populations, compared to active and passive control conditions. ***Method:*** A systematic search of six databases was conducted, focusing on randomized controlled trials (RCTs) and controlled pilot/feasibility studies of CFT only. All non-English articles and studies focusing on other compassion-based approaches were excluded. Forty-seven controlled trials from the last 14 years were included, with data from 7,875 participants from 17 countries. ***Results:*** Even after the exclusion of extreme outliers, CFT was effective in reducing overall negative mental health outcomes ($k = 32$, $g = 0.72$, $p < .0001$), depression ($k = 23$, $g = 0.49$, $p < .0001$), self-criticism ($k = 17$, $g = 0.40$, $p < .0001$) and in improving compassion for self and others ($k = 24$, $g = 0.51$, $p < .0001$). Heterogeneity was high and only partially reduced by moderation analysis, which highlighted larger effects in specific subgroups. Publication bias was present in the meta-analyses conducted on negative outcomes and depressive symptoms. ***Discussion:*** Although the long-term effects of CFT are yet to be established and larger-scale, higher-quality RCTs are required, the current state of evidence highlights the benefits of CFT on a range of outcomes in both clinical and nonclinical samples.

Public Health Significance Statement

The benefits of cultivating compassion have been described for thousands of years. Over the last two decades, one of the compassion-based approaches that has received increasing scientific interest is compassion-focused therapy (CFT). Findings from this meta-analysis suggest that CFT is effective in reducing several manifestations of mental suffering, in particular, depression and self-criticism, and in improving compassion for self and others in both clinical and nonclinical samples. Significant heterogeneity in treatment protocols and outcome measures highlights the need for further larger-scale and higher-quality studies.

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Nicola Petrocchi https://orcid.org/0000-0002-7210-2319
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Correspondence concerning this article should be addressed to Nicola Petrocchi, Department of Psychological and Social Sciences, John Cabot University, Via della Lungara 233, 00165 Rome, Italy. Email: npetrocchi@johncabot.edu

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Keywords: meta-analysis, compassion-focused therapy, compassionate mind training, depression, self-criticism

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The benefits of cultivating compassion on well-being, moral, and prosocial behavior have been described for thousands of years (Dalai Lama, 1995). In addition, the last 30 years have seen a rapid growth in scientific studies exploring the psychophysiology underpinning prosocial behavior, in general (Wu & Hong, 2022), and compassion, in particular, including studies on the links between compassion and the neurohormonal (Carter et al., 2017), neurological (Kim et al., 2020), and autonomic nervous systems (Di Bello et al., 2020, 2021). Although there are some variations in the definition of compassion, both Buddhist traditions and evolutionary-focused models conceptualized it as a prosocial motivation, characterized by "the sensitivity to suffering in self and others, with a commitment to try to alleviate and prevent it" (P. Gilbert, 2014, p. 19). As an evolved prosocial motivational system, compassion has a profound impact on mental states, influencing affect regulation and social behavior due to the evolved psychophysiological mechanisms that underpin caring motives and behaviors (e.g., the vagus nerve and oxytocin; for a meta-analysis on the connection between compassion and heart rate variability see Di Bello et al., 2020).

Despite the existence of several models of compassion, meta-analytic studies have consistently reported a negative relationship between dispositional compassion and psychopathology (depression, anxiety, and stress) and a positive correlation with indexes of positive mental health functioning, including well-being, life satisfaction, and personal meaning (MacBeth & Gumley, 2012; Phillips & Hine, 2021; Zessin et al., 2015). In light of the benefits related to dispositional compassion, several compassion-based interventions have been developed that specifically aim to train compassion. A recent review of the literature identified that there are at least six interventions that focus on the cultivation of compassion and that have been subjected to the "gold standard" evaluation of randomized controlled trials (Kirby, 2016). The subsequent meta-analysis examining the effects of all compassion-based interventions found significant between-group differences in change scores on a range of outcome measures, including compassion, mindfulness, depression, and well-being (Kirby et al., 2017).

Origins and Scope of Compassion-Focused Therapy (CFT)

Over the last three decades, one of the compassion-based approaches that has received increasing scientific interest is the evolution-informed, biopsychosocial therapy model of CFT. CFT was developed by Paul Gilbert who observed that clients with high shame and self-criticism might be able to engage with cognitive and behavioral tasks but still responded poorly to traditional therapy mainly because they struggled with generating self-soothing and self-encouraging self-talk. CFT was initially created to help those individuals develop a kinder and more compassionate inner voice (for a detailed outline, see H. Gilbert, 2022; P. Gilbert, 2010). CFT then evolved by integrating a mounting body of evidence from affective neuroscience, psychophysiology, and evolutionary psychology on the impact that affiliative motives and emotions have on affect regulation, self-concept, and cognitive and metacognitive processes (Cozolino, 2002; Depue & Morrone-Strupinsky, 2005).

By adopting an evolutionary perspective, CFT conceptualizes compassion as arising from the affiliative motivation found in mammals, in particular, caregiving. This caring motivation that we have in common with mammals would have extended, in the evolution of the human species, to the well-being of all living creatures and the self (P. Gilbert, 1989/2016; Mayseless, 2016). As a result, compassion can manifest in three different directions: compassion we feel for others, compassion we feel from others, and compassion we direct toward ourselves (self-compassion). The main aim of CFT is to cultivate a compassionate motivation in all three directions (called "flows of compassion"; P. Gilbert, 2014), allowing for distress to be regulated through our evolved physiological infrastructures, which are activated in response to affiliative behaviors. A crucial part of this cultivation is to identify and work with potential inhibitors of the different flows of compassion. Many studies have now shown that the fears of compassion, particularly of self-compassion and of being open to receiving compassion from others, are associated with a range of mental health problems (Kirby et al., 2019). Fear and resistance to giving or receiving compassion impair an individual's ability to utilize their own care-based psychophysiological mechanisms of affect regulation, thus increasing their vulnerability to mental health difficulties.

Components of CFT

CFT is typically divided into two types of components. The first is linked to common therapeutic interventions, such as assessment, building a therapeutic relationship, dealing with therapeutic ruptures and attachment dysfunctions in the transference and therapeutic processes, and evolution-informed psychoeducation (H. Gilbert, 2022; P. Gilbert & Leahy, 2007). CFT suggests that the mind evolved four basic functions to enable animals to meet their life tasks (basic motives, emotions, competencies, and behaviors). These four domains are the focus of therapeutic intervention: CFT helps people understand their motives, the link between motives and emotions, and how to cultivate helpful motives, like compassion, to promote the emergence of helpful emotions and work with unhelpful ones (usually toning down competitive and narcissistic self-focus). Given that CFT utilizes, but does not rely on, insight or the therapeutic relationship alone, the second component of CFT has been labeled compassionate mind training (CMT). CMT comprises a set series of compassion-focused strategies and exercises designed to help clients develop the key aspects and attributes of compassion (care for well-being, sensitivity, distress tolerance, empathy, and nonjudgment; P. Gilbert, 2010, 2014). The skills used to cultivate these attributes include compassionate reasoning, compassionate behaviors, compassionate imagery, compassionate feeling, and compassionate sensation (P. Gilbert, 2010). The practices comprising CMT can be delivered in a range of lengths, from as briefly as a 15-minute audio-guided exercise (Kim et al., 2020) to a short 2-hr seminar (Matos et al., 2017) or even a longer eight-session program (Irons & Heriot-Maitland, 2020). In the delivery of CFT, specific CMT exercises are used, as required, according to the CFT formulation. Even though CFT and other mindfulness-

based therapies share some common principles related to mindfulness and self-awareness (i.e., cultivating mindfulness, body awareness, and the use of psychoeducation), they also have distinct differences. Mindfulness-based therapies focus primarily on cultivating mindfulness, which involves paying nonjudgmental attention to the individual's present-moment experiences, with the goal of reducing stress, managing symptoms of anxiety and depression, and enhancing overall well-being. While CFT incorporates mindfulness, it is rooted in evolutionary psychology and attachment theory; therefore, it places specific emphasis on actively cultivating compassion toward the self and others, and it is specifically designed to address issues related to self-criticism and shame. With this aim, CFT involves the application of specific exercises and techniques, such as guided imagery, compassionate self-talk, understanding the evolved nature of the human mind, and exploring the origins of self-criticism.

Applications

CFT has been used for a range of different mental health problems, including depression (Noorbala et al., 2013), bipolar disorder (P. Gilbert et al., 2022), anxiety (Cuppage et al., 2018; Gharraee et al., 2018), obsessive-compulsive disorder (Petrocchi et al., 2021), psychosis (Braehler et al., 2013), personality difficulties (Lucre & Corten, 2013), posttraumatic stress disorder (PTSD; Ashfield et al., 2021), eating disorders (Kelly & Carter, 2015), substance use disorder (Carlyle et al., 2019), intellectual disability (Clapton et al., 2018), acquired brain injury (Ashworth et al., 2015), pain (Dhokia et al., 2020), and psoriasis (Muftin et al., 2022). It has also been applied in particular settings, for example, to help students with mental health difficulties (Griner et al., 2022) and to reduce psychopathic traits in youths in custodial settings (Ribeiro da Silva et al., 2021). The inherent focus of CMT on psychoeducation and skills training allows it to be used outside of clinical settings, for example, with members of the general public (Irons & Heriot-Maitland, 2020). In fact, CMT has been used as a stand-alone intervention for guided self-development and self-help.

State of the Evidence

The evidence in support of CFT is constantly growing and previous meta-analyses have investigated its efficacy with several populations, yielding promising results. In the first systematic review on CFT, Leaviss and Uttley (2015) examined 14 studies published between 2004 and 2014 (only three studies were randomized controlled trials [RCTs]) and found that CFT was effective, particularly for those with high levels of self-criticism. Subsequently, Kirby et al. (2017) published a meta-analysis on all compassion-based interventions (not exclusively CFT) to better understand their overall effectiveness. They included 21 RCTs published between 2005 and 2017 and found that compared to both active and passive control groups, CFT yielded significant between-group differences in change scores on seven outcomes (compassion, self-compassion, mindfulness, depression, anxiety, psychological distress, and well-being). However, given the distinctive features of CFT compared to other compassion-based interventions, it is important to determine the specific effects of CFT. Craig et al. (2020) investigated the acceptability and effectiveness of CFT in clinical populations, meta-analyzing 29 studies (nine RCTs, three nonrandomized trials, and 17 observational studies) published between 2004 and 2019. They found that CFT shows promise for a range of mental health problems, especially when delivered in a group format over at least 12 hr. Vidal and Soldevilla (2023) conducted a meta-analysis to specifically test the effectiveness of CFT in decreasing self-criticism and in increasing self-soothing and included seven controlled trials and seven observational studies. CFT was found to be an effective intervention for reducing self-criticism but the authors advised that these results should be interpreted with caution given the small number of controlled trials included. More recently, Millard et al. (2023) investigated the effectiveness of CFT only in clinical populations, meta-analyzing 15 studies from 2013 to 2022 (only randomized controlled trials and randomized pilot/feasibility studies were included). The findings suggest that CFT was effective in improving compassion-based outcomes and clinical symptomatology from baseline to postintervention and compared to waiting-list control in those with mental health difficulties.

Aims

CFT interventions have been increasingly used in various settings (clinical and nonclinical), with a variety of modalities (group, individual, self-help) to improve people's well-being and to ameliorate symptoms of several psychopathological conditions. However, existing meta-analyses have not been able to produce a comprehensive synthesis of the data on CFT for several reasons: first, only three of the 14 studies in the meta-analysis by Leaviss and Uttley (2015) were RCTs, while Kirby et al. (2017) did not focus exclusively on CFT, rather they included in the analysis a variety of compassion-based interventions. Of the 29 studies included in the meta-analysis by Craig et al. (2020), only 11 were controlled trials, while Vidal and Soldevilla (2023) meta-analyzed only seven controlled trials and focused specifically on self-criticism and self-soothing as outcomes. Lastly, Millard et al. (2023) included only RCTs with clinical populations (15 studies), which does not allow for a comparison of the efficacy of CFT between clinical and nonclinical populations.

Thus, to date, there has been no meta-analytic synthesis that: (a) includes randomized controlled trials (the "gold standard" approach when measuring the efficacy of interventions); (b) comprises both clinical and nonclinical populations; (c) encompasses the variety of both positive and negative mental health outcomes that are present in the CFT literature. At this stage of the development of CFT, we believe that a comprehensive meta-analytical synthesis of the overall efficacy of compassion-focused interventions will encapsulate and systematize the heterogeneity of settings, modalities, and outcomes that characterize this approach and provide clinicians with a better understanding of its potential.

Thus, the aims of this study were: (a) to examine the efficacy of exclusively compassion-focused interventions compared to control conditions in impacting overall negative mental health outcomes (meta-analysis 1) and, in particular, depression (meta-analysis 2), self-criticism (meta-analysis 3), and the overall positive mental health outcomes (meta-analysis 4), in clinical and nonclinical populations; and (b) to identify potential moderators of the efficacy of compassion-focused interventions on each of the examined outcomes.

Method

Protocol and Registration

The review protocol was preregistered in International Prospective Register of Systematic Reviews (PROSPERO-CRD42022300739). This meta-analysis was conducted following the preferred reporting

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items for systematic reviews and meta-analyses (PRISMA) guidelines. There was no funding for this study.

Inclusion and Exclusion Criteria

Inclusion criteria for studies were: (a) English language, (b), peer-reviewed articles; (c) controlled study design, (d) positive or negative mental health outcomes, (e) at least one CFT intervention condition, and (f) at least one non-CFT control group (active or passive).

CFT does not have a rigid protocol for its implementation that therapists should strictly follow. Rather, it presents a set of evolution-informed psychoeducational elements, procedures, and practices that can be incorporated into and inform the psychotherapeutic process with an adaptable sequence of modules that allows for "flexibility within fidelity" (Kendall & Frank, 2018).

Only those interventions that explicitly referred to and used Gilbert's model of compassion as an evolved social motive were considered to be CFT (P. Gilbert, 2014); furthermore, to be included in this study, they had to demonstrate that they incorporated: (a) key psychoeducation elements of the compassion-focused model (i.e., the concept of the evolved "tricky" brain, the three emotion regulation systems, an affect regulation model with a focus on affiliation, and the parasympathetic system), and (b) key compassion-focused practices (i.e., soothing rhythm breathing and body-based practice to increase parasympathetic tone, basic mindfulness skills, and compassion-focused visualizations and techniques to train the three flows of compassion).

Treatments such as mindful self-compassion (Neff & Germer, 2013), compassion cultivation training (Center for Compassion and Altruism Research and Education, 2015), cognitively based compassion training (Pace et al., 2009), cultivating emotional balance (Kemeny et al., 2012), loving-kindness meditation and compassion meditation (CM; e.g., Wallmark et al., 2013), or other forms of compassion informed treatments were excluded. In the case of combined or integrated treatment (e.g., CFT and cognitive behavioral therapy; CBT), studies were included only if it was possible to disentangle the unique contribution of CFT (e.g., the control group had CBT only).

Data Sources and Search Strategy

The Web of Science and EBSCO (which includes Embase, Medline, PsychInfo, ProQuest, and PsychArticles) databases were searched on 27 July 2021 without a specific start date, refining the search to title/abstract, English (language), and articles (document type) and using the following keywords: (compassion focus* OR compassion-focus* OR compassionate mind) AND (intervention OR training OR program OR therap* OR treatment). On 29 December 2022, our search was rerun before the final analysis to identify any studies that were published after the initial search date (specifying 27 July 2021 as a start date). In both searches, the reference lists of previous systematic reviews and meta-analyses were also examined for relevant studies and we also sought additional studies by inquiring with colleagues via listservs and social media.

Study Selection

Two authors (Nicola Petrocchi and Cristina Ottaviani) reviewed each abstract and full text for initial eligibility; discrepancies were discussed until a resolution was reached. The reasons for exclusion were coded for all studies that were not eligible upon full-text review. Intraclass correlation coefficients and kappa coefficients were used to assess interrater reliability. Values for the primary variables of interest (pre- and postintervention means and *SD*s for experimental and control groups) and the moderators of interest showed excellent interrater reliability across variables (>0.90).

Coding and Data Extraction

A standardized data coding form was developed to first extract the following study-related variables from each study: (a) authors and publication year; (b) primary outcome; (c) secondary outcomes; (d) sample size for experimental and control groups; (e) outcome means and standard deviations at pre- and posttreatment of primary and secondary outcomes; (f) outcome type. If more than one outcome was present, we selected the primary outcome of the study (as defined by the authors). If the primary outcome had a total score, this was used in the analysis. If the primary outcome was not clearly stated by the authors, we opted for the outcome that was the most consistent with the overall aims of the study and most conceptually similar to the outcomes of the other studies included. If the primary outcome of the study only had subscales, we chose the subscale that was considered by the raters as the most relevant target of a CFT intervention considering that specific sample. In the case of a pre-, postintervention and follow-up, we used the pre- and postintervention assessment, because the follow-up was less consistently available. With regard to sample characteristics, the following variables were extracted: (a) sex (% of females); (b) age; (c) participant compensation (yes vs. no); (d) population type (healthy or clinical); (e) comorbidities (yes vs. no); (f) medication intake (yes vs. no); (g) ongoing psychotherapeutic treatment (yes vs. no); (h) participants' prior meditation experience. The following treatment-related characteristics were also gathered: (a) country where the study was conducted; (b) setting (inpatient vs. outpatient); (c) type of intervention (individual vs. group); (d) delivery format (self-help vs. other administered vs. mixed); (e) intervention length (number of sessions); (f) session length (in minutes); (g) whether CFT was administered alone or in combination with other interventions (e.g., compassion-focused CBT); (h) homework assignment; (i) number of facilitators; (j) level of training of facilitators; (k) facilitators' experience in meditation practice; (l) developer involvement (i.e., whether the developer of the intervention was an author of the study); (m) postintervention attrition rate; (n) presence of a protocol adherence checklist; (o) setting (face to face vs. online vs. mixed); (p) origin of intervention (personal connection with the developer; publication based; mixed); (q) control group (active vs. passive); (r) facilitators' supervision. Following the indications of Cooper et al. (2009), each study (and each participant) was included only once in one of our meta-analyses. If studies did not report data for the coded variables, attempts were made to contact study investigators via email to obtain the missing data. All the corresponding investigators were contacted twice by an author (Simone Cheli), before excluding the missing data from the final analysis.

Treatment Classification

Two authors (Nicola Petrocchi and Cristina Ottaviani) classified the treatment and control conditions for all the examined studies. Treatment was classified as CFT or CMT or compassion-focused intervention (i.e., CFT plus CBT [CF-CBT], and CFT plus acceptance and commitment therapy). Control conditions were classified

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as passive (waiting list) or active: treatment as usual (TAU) or other psychotherapeutic approaches. If more than one experimental group implementing a compassion-focused intervention was present in the same study, we selected the group with the compassion-focused intervention that would most likely recur in other RCTs. In the case of more than one control group, we opted for the active condition; when several active control groups were present, we included in the analysis the active group that was closer to the gold standard for that specific condition according to American Psychological Association guidelines.

Quality Assessment

To avoid the risk of bias, a quality assessment was also conducted for each study by the coders, using a modified Jadad scale (Jadad et al., 1996). The scale takes into account the following methodological aspects: (a) Was the research described as randomized? (b) Was the approach to randomization appropriate? (c) Was the research described as blinded? (d) Was the approach to blinding appropriate? (e) Was there a presentation of withdrawals and dropouts? (f) Was there a presentation of the inclusion/exclusion criteria? (g) Was the approach used to assess adverse effects described? (h) Was the approach of statistical analysis described?

According to the modified scale, the maximum score that a study could achieve was 8. Studies with a total score > 4 are usually considered of high quality, while scores below 4 are rated as poor-quality studies (Olivo et al., 2008).

Data Synthesis

For each study (or subsample of a study), we calculated a Hedges' *g* effect size. Based on conventional standards, effect sizes of *g* equal to .20, .50, and .80 were considered small, medium, and large, respectively (Cohen, 1988). Separate meta-analyses were conducted for overall negative mental health outcomes, and then, more specifically, for depression and self-criticism, while the meta-analysis on positive mental health outcomes only included compassion (to others and self), as it was the only outcome examined by almost all studies. The *g* coefficient represents the pre- to postintervention difference between the experimental and control groups on the examined outcome divided by the pooled standard deviation (Hedges & Olkin, 1985). A positive sign means a larger decrease in negative mental health outcomes and a larger increase in positive mental health outcomes in the experimental compared to the control group, from pre- to posttreatment.

The calculation of effect sizes was based on means, standard deviations, differences in mean scores, *p* values, and sample sizes of the groups. When only *SE*s were provided, standard deviations were obtained by applying the following formula: $SD = SE \times \sqrt{n}$ (Higgins & Green, 2011). When studies did not provide raw data to calculate effect sizes and instead provided statistics (e.g., *t*), transformation formulas were applied to convert to *g* (Lipsey & Wilson, 2001). When an article reported $p < .05$ or *ns*, we computed Hedges' *g* with *p* values of .045 and 1 (one-tailed), respectively, which likely yielded a highly conservative estimate of the effect size. The effect sizes were computed in ProMeta Version 2.0 (Internovi). Random-effects models were used in all the analyses as they account for the amount of variance caused by differences between associations as well as differences among participants. ProMeta also computed 95% confidence intervals (CIs) around the point estimate of an effect size. The Q and I^2 statistics were used to assess heterogeneity among studies. A significant Q value indicates a lack of homogeneity of findings among studies. I^2 values of .25, .50, and .75 correspond to low, moderate, and high between-trial heterogeneity, respectively.

As the main aim of a meta-analytical study is to aggregate overall data, we first ran the analyses including the entire set of studies and subsequently reran them without some potential outliers, to examine the impact of these specific studies. Potential outliers were excluded if they had statistically significant standardized residuals (Ellis, 2010).

Publication Bias

The issue of publication bias is mostly due to the tendency of journals and authors to publish studies with positive results rather than those with negative or nonsignificant results. In the present work, we relied on both formal and informal assessments of publication bias. First, we used a funnel plot of effect size against standard error for asymmetry and then Begg and Mazumdar's rank correlations and Egger's regression intercept test.

Moderation Analysis

For each outcome, we examined how the size of the association varied as a function of all the sample-related and treatment-related variables, as well as a function of study quality. A minimum of five studies for each subgroup was required for the moderation analysis. Continuous moderators were evaluated using meta-regression, that is, percentage of females, age, level of training of facilitators (0–4), number of sessions, session length, attrition rate, and methodological quality, while categorical moderators, that is, population type (healthy or clinical), comorbidities (yes vs. no), medication intake (yes vs. no), ongoing psychotherapeutic treatment (yes vs. no), participants' prior meditation experience (yes vs. no), country in which the study was conducted, setting (inpatient vs. outpatient), type of intervention (individual vs. group), delivery format (self-help/mixed vs. other administered), whether CFT was administered alone or in combination with other interventions (alone vs. combined with CBT or TAU); homework assignment (yes vs. no); number of facilitators (1 vs. more), facilitators' experience in meditation practice (yes vs. no), developer involvement (yes vs. no), presence of a protocol adherence checklist (yes vs. no), setting (face to face vs. online/mixed), origin of intervention (personal connection with the developer vs. publication based), and control group (active vs. passive) were entered as grouping variables in the effect size calculations. To have a comparable number of studies in each subgroup to reliably detect moderator effects, the country where the study was conducted had to be recoded as Iran versus Europe versus other. The overall results of the moderation analysis conducted on each of the examined outcomes after the exclusion of extreme outliers are reported in Table 1.

Results

Literature Search

On July 27, 2021, a total of 1,157 results were retrieved. A comparison of the retrieved titles identified 291 studies that were duplicates, thus leaving 866 abstracts for further evaluation (see Figure 1

Table 1
Efficacy of Compassion-Focused Therapy After Exclusion of Extreme Outliers on Negative and Positive Outcomes, and in Different Subgroups

	Random-effects model			Heterogeneity		Test of difference
Outcome	*k*	*N*	*g* (95% CI)	*Q*	I^2	*Q*
Negative outcomes	32	1,937	0.72 [0.53, 0.91]***	93.79***	66.95	
Type of intervention						0.15
CFT only	22	961	0.70 [0.49, 0.92]***	50.96***	58.79	
CFT + (TAU or CBT)	9	342	0.20 [0.01, 0.40]**	33.74***	76.29	
Control group						6.66*
Active	16	1,371	0.49 [0.30, 0.68]**	29.16*	48.57	
Passive	16	566	0.97 [0.66, 1.28]*	43.27***	65.33	
Country						14.46**
Europe	18	1,560	0.47 [0.29, 0.64]***	35.16**	51.65	
Iran	8	207	1.14 [0.79, 1.50]***	10.54	33.57	
Other	6	170	1.09 [0.59, 1.59]***	11.41*	56.18	
Developer involvement						1.36
No	23	745	0.79 [0.55, 1.03]***	54.62***	59.72	
Yes	9	1,192	0.57 [0.30, 0.85]***	26.55**	69.87	
Diagnosis						0.01
Healthy	13	1,207	0.74 [0.43, 1.05]***	49.9***	75.95	
Psychopathological	17	525	0.76 [0.53, 1.00]***	27.61*	42.05	
Number of facilitators						1.29
1	7	216	1.02 [0.52, 1.52]***	18.28**	67.17	
>1	7	404	0.67 [0.34, 1.00]***	14.34*	58.15	
Format of intervention						0.03
Group	18	1,297	0.75 [0.48, 1.01]***	58.21***	70.80	
Individual	13	619	0.71 [0.43, 0.99]***	31.31**	61.67	
Medications						2.61
No	10	443	0.90 [0.56, 1.24]***	24.24**	62.87	
Yes	10	421	0.52 [0.22, 0.83]**	19.79*	54.51	
Ongoing psychotherapy						0.10
No	19	845	0.77 [0.54, 0.99]***	42.06**	57.20	
Yes	6	164	0.66 [0.04, 1.28]*	18.57*	73.07	
Origin of content						2.24
Personal connection	7	1,122	0.53 [0.26, 0.81]***	19.85*	54.66	
Publication based	10	311	0.86 [0.50, 1.22]***	18.55**	67.66	
Mixed	11	404	0.76 [0.35, 1.17]***	38.44***	73.98	
Outcome						7.41**
Anxiety and depression	13	385	1.01 [0.72, 1.30]***	21.68*	44.65	
Other	19	1,552	0.53 [0.33, 0.72]***	44.34**	59.40	
Format of administration						3.09[§]
Other administered	21	709	0.83 [0.56, 1.09]***	55.84***	64.19	
Self-help and mixed	10	1,198	0.51 [0.27, 0.75]***	21.92**	58.94	
Setting						0.86
Face to face	20	774	0.79 [0.56, 1.02]***	41.77**	54.51	
Online and mixed	10	1,107	0.61 [0.29, 0.92]***	32.07***	71.94	
Depression	23	1,424	0.49 [0.34, 0.64]***	37.54*	41.39	
Type of intervention						1.28
CFT only	19	1,231	0.45 [0.28, 0.61]***	29.75*	42.85	
CFT + (TAU or CBT)	4	106	0.73 [0.26, 1.20]**	4.30	30.31	
Control group						0.00
Active	7	214	0.49 [0.17, 0.81]**	8.33	27.97	
Passive	16	1,210	0.50 [0.32, 0.68]***	43.27***	48.41	
Country						2.74
Europe	13	929	0.41 [0.24, 0.58]***	18.14	33.84	
Iran	4	99	0.79 [0.33, 1.24]**	3.88	22.62	
Other	6	396	0.61 [0.21, 1.00]**	12.14*	58.82	
Developer involvement						0.73
No	14	838	0.55 [0.36, 0.74]***	18.67	30.38	
Yes	9	586	0.41 [0.15, 0.67]**	16.94*	52.79	
Diagnosis						2.94[§]
Healthy	12	1,118	0.39 [0.22, 0.56]***	18.14[§]	39.37	
Psychopathological	11	306	0.67 [0.40, 0.94]***	14.21	29.61	
Number of facilitators[b]						
Format of intervention						0.03
Group	11	488	0.49 [0.23, 0.76]***	18.54[§]	46.06	
Individual	12	936	0.50 [0.31, 0.69]***	18.70[§]	41.18	

(*table continues*)

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Table 1 (*continued*)

Outcome	Random-effects model			Heterogeneity		Test of difference
	k	*N*	*g* (95% CI)	*Q*	I^2	*Q*
Medications						0.14
No	8	602	0.59 [0.30, 0.87]***	15.77*	55.61	
Yes	7	367	0.52 [0.31, 0.72]***	5.28	0.00	
Ongoing psychotherapy[b]						0.10
Origin of content						0.09
Personal connection	4	250	0.53 [0.04, 1.02]*	9.64*	68.87	
Publication based	8	710	0.45 [0.26, 0.64]***	8.91	21.48	
Mixed	8	381	0.46 [0.14, 0.77]**	14.30*	51.06	
Format of administration						0.65
Other administered	13	552	0.57 [0.29, 0.85]***	27.91**	57.00	
Self-help and mixed	9	842	0.44 [0.27, 0.60]***	9.62	16.86	
Setting						0.22
Face to face	11	504	0.56 [0.27, 0.86]***	23.52**	57.48	
Online and mixed	10	864	0.48 [0.30, 0.66]***	12.94	30.44	
Self-criticism	17	1,631	0.40 [0.21, 0.41]***	13.74	0.00	
Type of intervention[b]						
Control group						2.03
Active	6	943	0.25 [0.12, 0.38]***	3.85	0.00	
Passive	10	688	0.39 [0.24, 0.55]***	7.86	0.00	
Country[a]						1.84
Europe	11	1,482	0.29 [0.19, 0.39]***	8.16	0.00	
Other	5	149	0.52 [0.20, 0.84]***	3.74	0.00	
Developer involvement						1.53
No	10	604	0.41 [0.22, 0.60]***	10.97	17.96	
Yes	6	1,027	0.26 [0.14, 0.39]***	1.25	0.00	
Diagnosis						1.28
Healthy	8	1,358	0.28 [0.17, 0.39]***	2.12	0.00	
Psychopathological	7	243	0.47 [0.16, 0.78]**	8.53	29.68	
Number of facilitators[b]						1.29
Format of intervention						0.17
Group	10	1,121	0.33 [0.16, 0.50]***	11.44	21.33	
Individual	6	510	0.38 [0.21, 0.56]***	1.41	0.00	
Medications						0.00
No	5	255	0.41 [0.14, 0.68]**	4.49	10.95	
Yes	5	416	0.41 [0.22, 0.60]**	3.16	0.00	
Ongoing psychotherapy[b]						0.10
Origin of content						4.06
Personal connection	5	975	0.24 [0.11, 0.37]***	1.44	0.00	
Publication based	6	464	0.39 [0.19, 0.58]***	5.28	5.28	
Mixed	4	171	0.54 [0.54, 0.84]***	2.85	0.00	
Format of administration						0.74
Other administered	8	335	0.41 [0.15, 0.68]***	9.89	29.19	
Self-help and mixed	7	1,211	0.29 [0.17, 0.40]***	3.27	0.00	
Setting						0.15
Face to face	8	394	0.33 [0.14, 0.53]**	6.83	0.00	
Online and mixed	7	1,211	0.29 [0.17, 0.40]***	3.27	0.00	
Compassion	24	2,373	0.51 [0.37, 0.66]***	55.07***	58.23	
Type of intervention						0.03
CFT only	17	1,527	0.51 [0.34, 0.68]***	38.67**	58.63	
CFT + (TAU or CBT)	7	846	0.54 [0.21, 0.88]**	11.35[b]	47.15	
Control group						0.10
Active	12	1,195	0.54 [0.33, 0.74]***	19.40[b]	43.30	
Passive	12	1,178	0.49 [0.26, 0.71]***	34.51***	68.12	
Country[a]						0.01
Europe	19	2,024	0.52 [0.37, 0.68]***	42.35**	57.50	
Other	5	349	0.54 [0.07, 1.02]*	10.80	62.96	
Developer involvement						0.01
No	14	970	0.42 [0.26, 0.57]***	16.85	22.85	
Yes	10	1,403	0.62 [0.35, 0.88]***	37.66**	76.10	
Diagnosis						0.01
Healthy	13	1,977	0.52 [0.32, 0.71]***	44.19***	72.84	
Psychopathological	11	396	0.50 [0.30, 0.70]***	10.26	2.56	
Number of facilitators[b]						1.29
Format of intervention						1.41
Group	12	1,374	0.59 [0.33, 0.85]***	42.33***	74.01	
Individual	11	917	0.40 [0.26, 0.55]***	11.34	11.83	

(*table continues*)

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Table 1 (*continued*)

Outcome	Random-effects model			Heterogeneity		Test of difference
	k	*N*	*g* (95% CI)	*Q*	I^2	*Q*
Medications						0.11
No	6	568	0.50 [0.24, 0.77]***	10.12[§]	50.58	
Yes	9	585	0.45 [0.25, 0.65]***	10.38	22.96	
Ongoing psychotherapy[b]						0.10
Origin of content						0.05
Personal connection	5	1,067	0.48 [0.24, 0.72]***	9.38[§]	57.36	
Publication based	8	800	0.52 [0.29, 0.76]***	15.46*	54.73	
Format of administration						3.24[§]
Other administered	13	722	0.63 [0.40, 0.87]***	26.53*	54.76	
Self-help and mixed	11	1,651	0.38 [0.24, 0.52]***	15.01	33.36	
Setting						0.86
Face to face	12	609	0.64 [0.38, 0.91]***	26.08*	57.82	
Online and mixed	11	1,651	0.38 [0.24, 0.52]***	15.01	33.36	

Note. Moderation analyses are presented for the set of studies excluding potential outliers (see the Results section for moderation results with outliers). Other = United States/Canada/China/Japan. CFT = compassion-focused therapy; TAU = treatment as usual; CBT = cognitive behavioral therapy; k = number of studies; n = number of participants; ES = Hedges' g effect size; CI = confidence interval; Q, I^2 = heterogeneity statistics; Q = contrast between (sub)sets of studies.
[a] In this meta-analysis there was an insufficient number of studies to allow the comparison between Europe, Iran, and other, therefore Iran was included in the other category. [b] Insufficient number of studies to perform the moderator analysis.
[§] $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .0001$.

for the PRISMA flow diagram of selected studies and reasons for study exclusion). After this first search, 32 studies met the inclusion criteria. On December 29, 2022, our search was rerun before the final analysis to identify any studies that were published after the initial search date. The current meta-analyses are based on data extracted from 47 studies that met the inclusion criteria. Among the 47 studies, additional data (not published in the reviewed article but needed to calculate effect sizes or run moderator analyses) were received for 20 studies (see Supplement A in the online supplemental materials for an overview of data extraction from all of the included studies).

Characteristics of Studies

The meta-analyses were performed on overall data from 47 studies, with a total of 7,875 participants, and conducted over a 14-year period. Studies included both clinical and nonclinical participants from 17 countries (Australia, Iran, Nigeria, the Netherlands, France, Japan, Sweden, Ireland, Iceland, China, Denmark, Canada, Japan, Portugal, Scotland, the United Kingdom, and the United States). Sample sizes ranged from 16 to 701. Eight studies (17%) reported that participants were compensated, while 51% of the studies reported no compensation. Fifteen studies (32%) did not report any information on compensation. Only 17 studies (36%) reported that the trial had been properly registered. Thirteen articles (28%) reported that the study had not been registered, and 17 (36%) studies did not report this information. CFT was applied in an inpatient regime in four studies (8.5%); all the other studies were conducted in an outpatient regime and in seven (14.9%) of the studies, participants reported being in ongoing psychotherapeutic treatment. In 16 studies (34%), participants did not have any previous meditation experience and in six studies (12%), they had practiced some type of meditation before the treatment. The remainder of the studies did not report whether or not participants had had prior meditation experience. Similarly, personal practice at home (homework) was assigned in only 29 studies (61%). In more than half of the studies (55%), CFT was implemented as a group intervention; in 18 studies, it was implemented as an individual intervention, but mostly in a self-help, self-paced regime.

In the majority of studies (78%), the experimental group was administered CFT as a stand-alone intervention, while in eight studies (17%), CFT was administered in combination with TAU and, in two studies, in conjunction with CBT (CF-CBT). The number of sessions in a CFT intervention ranged from 1 to 20 and the length of each session spanned from 11 min (the duration of a single video) to 135 min. In 11 studies (23%), CFT was delivered by one facilitator, in 12 studies (25%) by two or three facilitators and in the rest of the studies, interventions were delivered in a self-paced regime and online or this information was not reported. Importantly, 24 studies (51%) did not report the level of training of those who conducted or designed the intervention and in 19 studies (40%), the facilitators were supervised during the intervention; in the rest of the studies, this information was not available or the facilitators were not supervised. There was high variability in the content of the CFT intervention. In fact, 16 studies (34%) employed a sequence of steps and techniques described in previous articles, nine (19%) implemented an ad hoc protocol created in connection with the developer, and 17 (36%) adopted a protocol created ex novo and ad hoc for the study. Thirty studies (63%) did not report having used a protocol check. In 33 of the 47 studies considered (70%), the developer of the intervention was not included in the study.

Methodological Quality of Studies

The quality appraisal (using the modified Jadad scale) of each of the studies is displayed in Supplement A in the online supplemental materials. Across the 47 studies, randomization, random sequence generation, the presentation of withdrawals and dropouts, the presentation of inclusion and exclusion criteria, and the statistical analyses employed were generally rated as a low risk of bias. Three of the domains (blinding, methods employed to ensure blinding, and description of adverse effects) were primarily rated as having a high risk of bias across all studies. In all cases, this is due to

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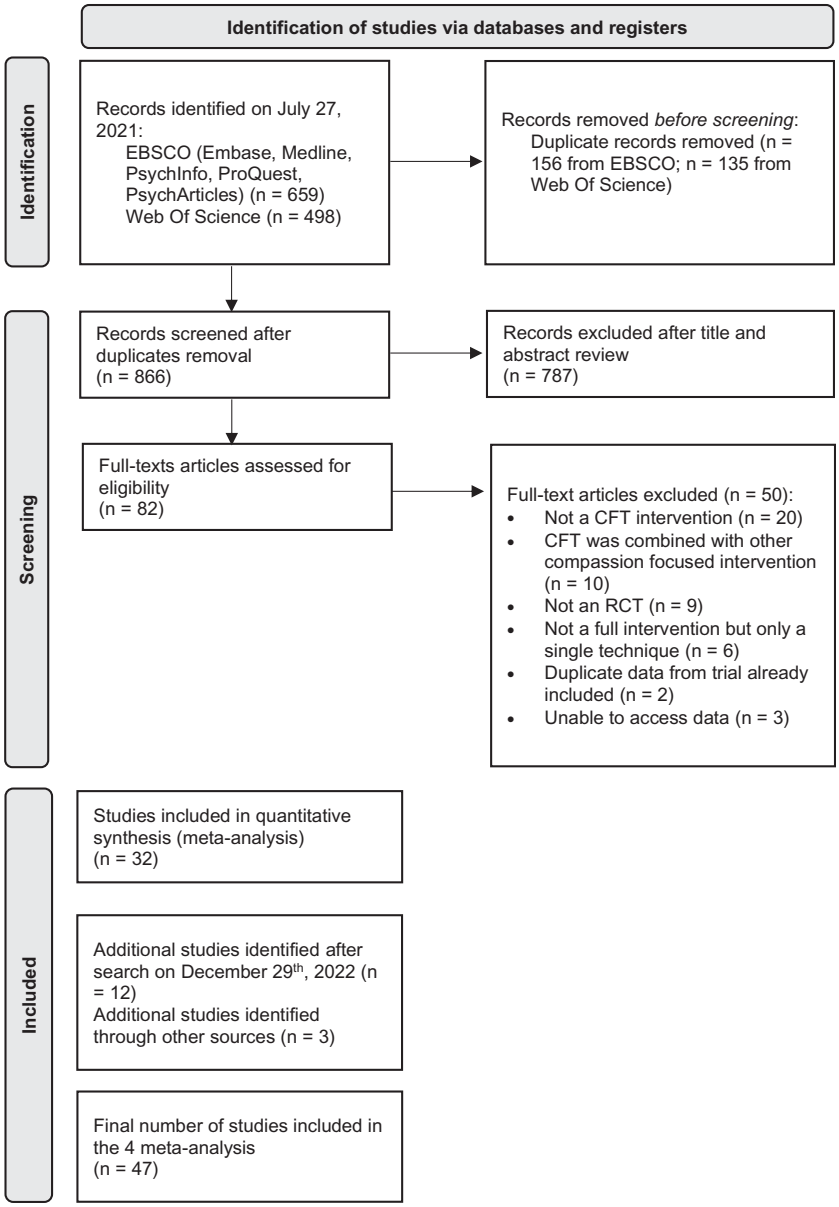
Figure 1
PRISMA Flow Diagram of Articles Selected for Meta-Analyses



Note. PRISMA = Preferred Reporting Items for Systematic Reviews and Meta-Analyses.

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participants and facilitators being aware of the intervention being delivered. Overall, 15 studies (31.9%) scored lower than 4 on the modified Jadad scale, qualifying as poor-quality studies, especially due to unclear information regarding methodological aspects.

Meta-Analysis on (Negative) Main Outcomes

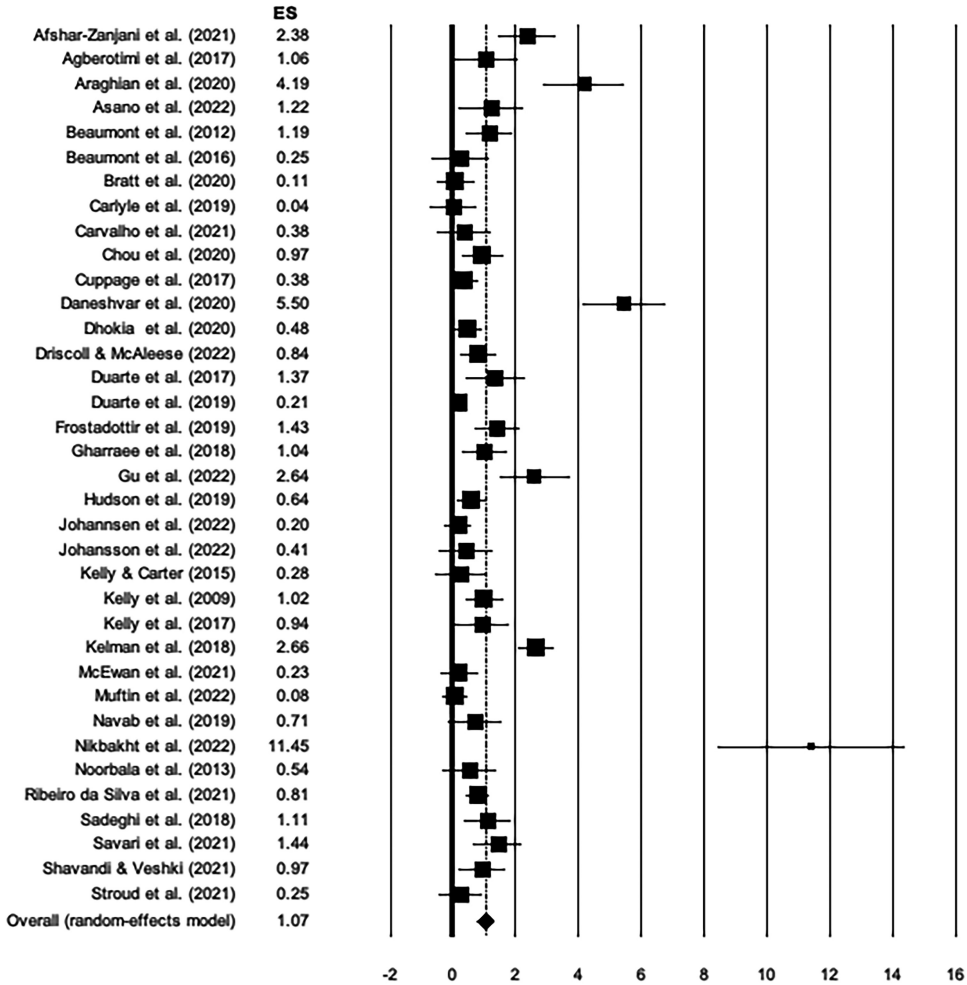
Overall, when comparing conditions at posttreatment on negative mental health measures, CFT was superior to control conditions, with a large effect size ($k = 36$, 2,123 participants, $g = 1.07$, 95% CI [0.78–1.36], $p < .0001$; see Figure 2 for forest plot). Heterogeneity across studies was high, as shown by Q (28) = 281.75, $p < .0001$, and I^2 statistics ($I^2 = 87.58$). Exclusion of extreme outliers (Araghian et al., 2020; Daneshvar et al., 2020; Kelman et al., 2018; Nikbakht et al., 2022) reduced the effect size ($k = 32$, 1,937 participants, $g = 0.72$, 95% CI [0.53–0.91], $p < .0001$) and heterogeneity, Q (31) = 93.79, $p < .0001$, $I^2 = 66.95$, which remained statistically significant.

Moderator Outcomes

Studies with a passive control condition (i.e., waiting list) had larger effects for CFT ($g = 1.59$, 95% CI [1.05, 1.59], $k = 19$, $n = 668$) compared to those with an active control condition (CBT

Figure 2

Forest Plot for Meta-Analysis of the Effects of CFT on Negative Mental Health Outcomes



Note. CFT = compassion-focused therapy; ES = Hedges' g effect size.

or mindfulness or TAU; $g = 0.67$, 95% CI [0.37, 0.96], $k = 17$, $n = 1{,}455$); Q (3) = 8.74, $p = .003$. Contrasting studies conducted in different countries yielded significant differences, Q (2) = 18.65, $p < .0001$, with a higher effect size for studies conducted in Iran ($g = 2.33$, 95% CI [1.38, 3.28], $k = 11$, $n = 309$) compared with studies conducted in Europe ($g = 0.47$, 95% CI [0.29, 0.64], $k = 18$, $n = 1{,}560$) or other countries (United States/Canada/China/Japan; $g = 1.09$, 95% CI [0.59, 1.59], $k = 6$, $n = 170$). Medication intake also played a significant role as a moderator, Q (1) = 8.23; $p = .004$, with studies in which participants were not taking medications being characterized by larger effect size ($g = 1.55$, 95% CI [0.92, 2.17], $k = 12$, $n = 503$), compared to studies in which participants were medicated ($g = 0.52$, 95% CI [0.22, 0.83], $k = 10$, $n = 421$). Overall, subgroup analysis was not effective in reducing heterogeneity. No other significant moderators emerged.

After the exclusion of extreme outliers, control condition and country remained statistically significant moderators, Q (1) = 6.66, $p = .01$, and Q (2) = 14.46, $p = .001$, respectively, whereas medication intake was no longer significant as a moderator, Q (1) = 2.61, $p = .11$. After the exclusion of outliers, main outcome also emerged as a significant moderator, Q (1) = 7.41, $p = .006$, with a larger effect size for studies having anxiety and depression as an outcome ($g = 1.01$, 95% CI [0.72, 1.30], $k = 13$, $n = 385$) compared to other negative outcomes ($g = 0.53$, 95% CI [0.33, 0.72], $k = 19$, $n = 1{,}552$). Studies with higher retention rates featured larger effects, although the effect was only marginally significant ($k = 30$; intercept = −.42, slope = .01; $p = .012$). See Table 1 for the overall results of the moderation analysis after the exclusion of extreme outliers.

Publication Bias

Visual inspection of the funnel plot indicated the presence of publication bias (see Supplement B in the online supplemental materials), a result formally supported by Egger's linear regression test (intercept = 3.36, $t = 4.91$, $p < .0001$) and Begg's test ($Z = 3.41$; $p = .001$). The exclusion of extreme outliers was not effective in reducing publication bias, as shown by Egger's linear regression test (intercept = 2.12, $t = 4.64$, $p < .0001$), and Begg's test ($Z = 2.40$; $p = .016$).

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Meta-Analysis on Depressive Symptoms

Overall, CFT was superior to control conditions on depressive symptoms, with a large effect size ($k = 26$, 1,580 participants, $g = 0.82$, 95% CI [0.54, 1.11], $p < .0001$; see Figure 3). Heterogeneity across studies was high, as shown by Q (25) = 162.47, $p < .0001$, and I^2 statistics ($I^2 = 84.61$). The exclusion of extreme outliers (Afshar-Zanjani et al., 2021; Daneshvar et al., 2020; Kelman et al., 2018) significantly reduced the effect size ($k = 23$, $n = 1{,}422$, $g = 0.49$, 95% CI [0.34, 0.64], $p < .0001$) and heterogeneity, Q (22) = 37.54, $p = .02$, $I^2 = 41.39$, which remained statistically significant.

Moderator Outcomes

Contrasting studies conducted in different countries yielded marginally significant differences, Q (3) = 5.49, $p = .06$, with a higher effect size for studies conducted in Iran ($g = 1.76$, 95% CI [0.58, 2.95], $k = 6$, $n = 171$) compared with studies conducted in Europe ($g = 0.41$, 95% CI [0.24, 0.58], $k = 13$, $n = 929$) or other countries (United States/Australia/Canada; $g = 0.61$, 95% CI [0.21, 1.00], $k = 6$, $n = 396$). It should be noted that this subgroup analysis was effective in reducing heterogeneity, which remained significant only for studies conducted in Iran, Q (5) = 54.5, $p < .0001$; $I^2 = 90.83$. No other significant moderators of the effects of CFT on depressive symptoms emerged. As shown in Table 1, which illustrates the overall results of the moderation analysis after the exclusion of extreme outliers, diagnosis also emerged as a marginally significant moderator, Q (1) = 2.94, $p = .08$, with a higher effect size for studies conducted on pathological ($g = 0.67$, 95% CI [0.22, 0.56], $k = 11$, $n = 306$) versus nonpathological samples ($g = 0.39$, 95% CI [0.23, 0.48], $k = 12$, $n = 1{,}118$). This subgroup analysis was effective in reducing heterogeneity, which became nonsignificant ($Q < 18.14$, $p > .08$; $I^2 < 39.37$).

Publication Bias

Visual inspection of the funnel plot indicated the presence of publication bias (see Supplement C in the online supplemental materials), a result formally supported by Egger's linear regression test (intercept = 3.20, $t = 3.14$, $p = .004$) and Begg's test ($Z = 3.24$; $p = .001$). The exclusion of extreme outliers was not effective in reducing publication bias, as shown by Egger's linear regression test (intercept = 1.68, $t = 2.97$, $p = .007$) and Begg's test ($Z = 2.51$; $p = .01$).

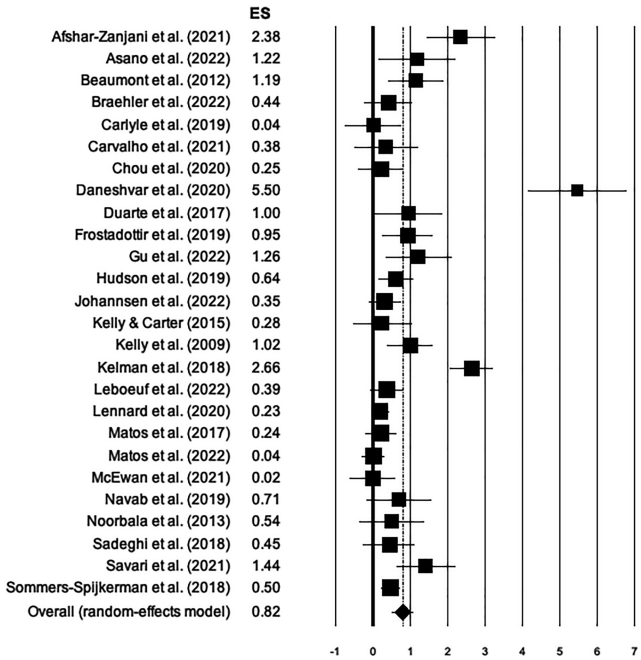
Meta-Analysis on Self-Criticism

With regard to self-criticism, CFT was superior to control conditions and the effect size was medium ($k = 18$, 1,653 participants, $g = 0.40$, 95% CI [0.25, 0.55], $p < .0001$; see Figure 4). Heterogeneity across studies was marginally significant ($Q = 25.57$; $p = .06$; $I^2 = 37.43$). The exclusion of one extreme outlier (Kelly et al., 2017) did not change the effect size ($k = 17$, $n = 1{,}631$, $g = 0.40$, 95% CI [0.21, 0.41], $p < .0001$) but reduced heterogeneity ($p > .05$). See Table 1 for the results of the moderation analysis.

Moderator Outcomes

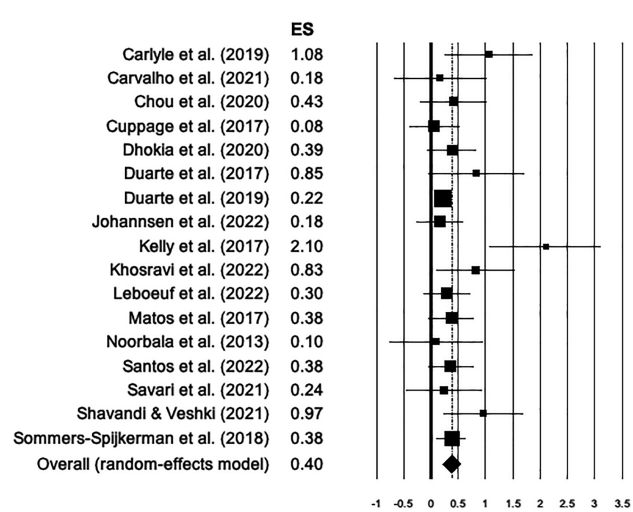
Diagnosis emerged as a marginally significant moderator, Q (1) = 2.92; $p = .08$, with studies conducted on psychopathological samples having larger effect sizes ($g = 0.65$, 95% CI [0.17, 0.39], $k = 8$, $n = 1{,}358$) compared to studies conducted on healthy samples ($g = 0.28$, 95% CI [0.24, 1.07], $k = 8$, $n = 265$). Importantly, only the first of the above-mentioned study types featured significant heterogeneity, Q (7) = 18.36, $p = .01$, $I^2 = 61.88$. Origin of content was also a marginally significant moderator, Q (1) = 5.53; $p = .06$, with a larger effect size for publication-based

Figure 3
Forest Plot for Meta-Analysis of the Effects of CFT on Depressive Symptoms



Note. CFT = compassion-focused therapy; ES = Hedges' g effect size.

Figure 4
Forest Plot for Meta-Analysis of the Effects of CFT on Self-Criticism



Note. CFT = compassion-focused therapy; ES = Hedges' g effect size.

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protocols ($g = 0.56$, 95% CI [0.22, 0.90], $k = 7$, $n = 486$) and mixed protocols ($g = 0.54$, 95% CI [0.24, 0.84], $k = 4$, $n = 171$) compared to those based on personal connection ($g = 0.24$, 95% CI [0.11, 0.37], $k = 4$, $n = 975$). Again, it is important to note that only publication-based studies were characterized by significant heterogeneity, Q (6) = 15.92, $p = .01$, $I^2 = 62.32$.

Publication Bias

The presence of publication bias was suggested by Egger's linear regression test (intercept = 1.34, $t = 2.81$, $p = .01$) and Begg's test ($Z = 1.73$; $p = .08$). Publication bias was no longer significant after exclusion of the extreme outlier.

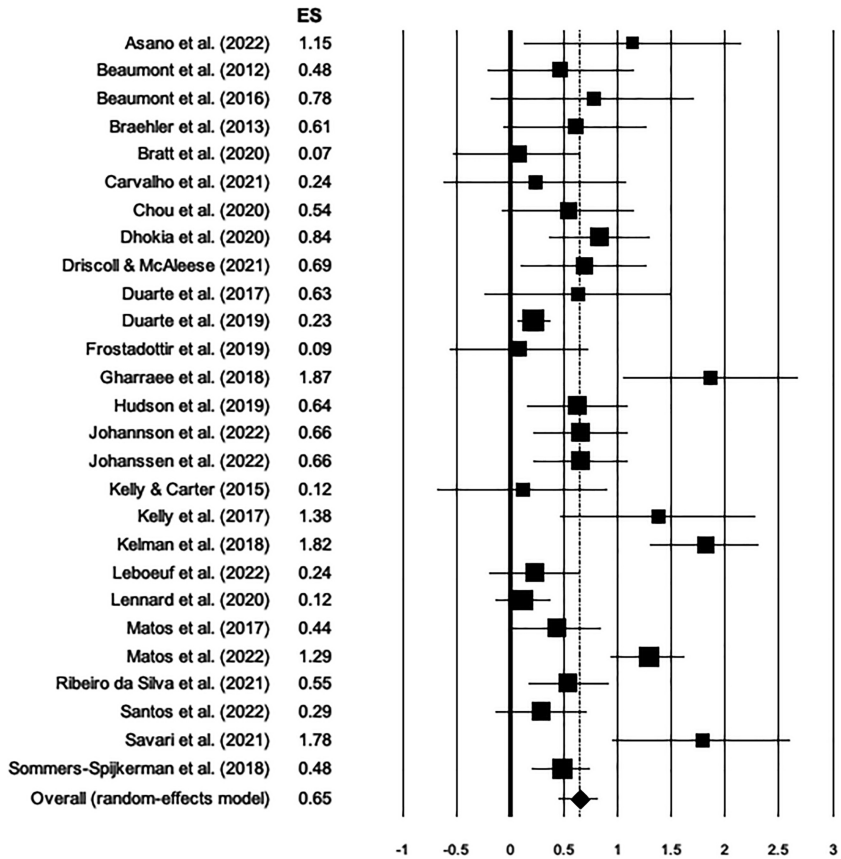
Meta-Analysis on Compassion (to Self and Others)

As regards compassion, CFT was superior to control conditions and the effect size was large ($k = 27$, 2,519 participants, $g = 0.65$, 95% CI [0.46, 0.83], $p < .0001$; see Figure 5). Heterogeneity across studies was high, Q (26) = 104.03; $p < .0001$; $I^2 = 75.01$. The effect size remained large after the exclusion of three outliers (Gharraee et al., 2018; Kelman et al., 2018; Savari et al., 2021; $k = 24$, 2,373 participants, $g = 0.51$, 95% CI [0.37, 0.66], $p < .0001$) as did heterogeneity ($Q = 55.07$, $p < .0001$, $I^2 = 58.23$).

Moderator Outcomes

Psychiatric medication intake was a significant moderator, Q (1) = 3.89; $p = .04$, with studies conducted on medicated individuals being characterized by larger effects ($g = 0.93$, $k = 9$, $n = 714$ vs. $g = 0.45$, $k = 9$, $n = 585$). As to continuous moderators, meta-regression analysis indicated that effect sizes varied on the basis of quality ($k = 27$; $b = .14$; $p = .04$), with studies of higher quality showing that CFT had larger effects on compassion. Similarly, studies with higher retention rates featured larger effects, although the effect was only marginally significant ($k = 26$; $b = .01$; $p = .08$). As shown in Table 1, after the removal of extreme outliers, the retention rate was no longer significant as a continuous moderator. After outlier removal, contrasting self-help and mixed studies to other-administered CFT studies yielded marginally significant differences, $Q = 3.24$, $p = .07$, with a higher effect size for studies with other-administered CFT ($g = 0.63$, 95% CI [0.40, 0.87], $k = 13$, $n = 722$) compared with online and mixed studies ($g = 0.38$, 95% CI [0.24, 0.52], $k = 11$, $n = 1{,}651$). It should be noted, however, that only other-administered studies showed significant heterogeneity ($Q = 26.53$; $p = .01$; $I^2 = 54.76$). Similarly, after the removal of outliers, a marginally significant statistical difference also emerged for modality ($Q = 2.93$, $p = .08$), with studies in which CFT was administered online ($g = 0.38$, $k = 11$, $n = 1{,}651$) being less effective than

Figure 5
Forest Plot for Meta-Analysis of the Effects of CFT on Compassion



Note. CFT = compassion-focused therapy; ES = Hedges' g effect size.

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those in which it was administered in person ($g = 0.64$, $k = 12$, $n = 609$). Again, only studies in which CFT was administered face to face were characterized by significant heterogeneity ($Q = 26.08$; $p = .01$; $I^2 = 57.82$). Importantly, age, CFT only versus CFT and TAU/CBT, control group (active or passive), country, developer involvement, pathological versus healthy participants, duration of single session, number of facilitators, format of intervention (group vs. individual), psychiatric medication intake, number of sessions, ongoing psychotherapy, origin of content, sex and training level of the therapist (all >2) did not emerge as significant moderators of the effects of CFT on compassion (to self or others).

Publication Bias

Egger's linear regression test indicated the presence of publication bias (intercept = 1.92, $t = 2.72$, $p = .01$); however, this was not confirmed by Begg's test ($Z = 1.58$; $p = .11$), nor by visual inspection of the symmetrical funnel plot. Publication bias was no longer significant after the exclusion of extreme outliers.

Discussion

This meta-analysis aimed to provide a synthesis of the research evidence regarding the efficacy of CFT in reducing mental health difficulties and improving positive mental health and well-being. Unlike previous meta-analyses, we (a) examined both clinical and nonclinical samples simultaneously, (b) included only controlled trials of CFT (excluding other mindfulness-based and compassion-based therapies), and (c) tested multiple moderators that were not considered in previous syntheses (i.e., country of origin, type, format and setting of CFT intervention, number of facilitators; see Table 1), to provide information on factors that may modulate the efficacy of CFT. While previous meta-analyses included a maximum of 15 randomized controlled trials and controlled pilot/feasibility studies, the four meta-analyses reported here were performed on overall data from 47 studies (with the number of studies in each meta-analysis ranging from 17 to 32), with a total of 7,875 participants and conducted over a 14-year period. Given the presence of extreme outliers, we opted for stringent criteria for interpretation and we now discuss only the results after the exclusion of extreme outliers. Thus, nine studies were excluded (Afshar-Zanjani et al., 2021; Araghian et al., 2020; Daneshvar et al., 2020; Gharraee et al., 2018; Kelly et al., 2017; Kelman et al., 2018; Nikbakht et al., 2022; Savari et al., 2021), which reported a g that was at least twice (or even 5 times) larger than the rest of the studies.

As regards the impact of CFT on overall mental health symptoms, CFT was superior to control conditions, with a large effect size ($g = 0.72$). However, in this meta-analysis, heterogeneity was considerable and not reduced by meta-regression or subgroup analysis. As for the latter, a large effect was reported for studies with a passive control condition (i.e., waiting list; $g = 0.97$), while studies with an active control condition (CBT or mindfulness or TAU) reported a smaller but still moderate-to-large effect size ($g = 0.49$). These findings are in line with the meta-analyses conducted by Craig et al. (2020) and Kirby et al. (2017), but not consistent with the pattern observed in the meta-analysis by Millard et al. (2023), which could not determine whether CFT was superior as compared to other psychological interventions. As already noted, studies conducted in Iran systematically reported larger effect sizes compared with studies conducted in Europe or other countries. Moreover, in all the performed meta-analyses, except for the one having self-criticism as an outcome, the studies conducted in Iran were always extreme outliers and, as stated, these were excluded from the analyses. Various elements related to the methodology (Iranian studies had smaller samples and, for the most part, were exclusively composed of women) as well as cultural elements could have had a potential impact on the results, which may well be important areas for subsequent research. It should be noted that a recent report (Sadeh et al., 2019) has highlighted Iran's exceptional increase in the annual number of publications, which has raised the question as to whether there has been a trade-off for quality. Indeed, a degree of uncertainty regarding the quality of the methodology emerged as a common concern across the included Iranian studies, due to a lack of information provided. At this stage, we are not able to formulate any further hypotheses about this statistical exceptionality.

CFT appeared to be particularly effective in reducing symptoms of depression and anxiety, with a large effect size when compared to the other examined mental health difficulties (i.e., substance abuse disorder, binge eating disorder, PTSD; see Supplement A in the online supplemental materials for an overview of the conditions and disorders reported by all of the included studies). CFT was originally designed to treat depressed clients with high shame and self-criticism. Given the transdiagnostic nature of self-criticism (Schanche, 2013) and the high comorbidity between depression and anxiety (Kalin, 2020), it is possible that CFT techniques and procedures are most effective for the psychopathological conditions for which they were originally designed. Future studies will need to test what kind of CFT adaptations (whether in terms of dosage or content of the intervention) are required to improve its efficacy on other psychological conditions.

Notably, CFT appeared to be equally effective in reducing overall mental health symptoms in both clinical and nonclinical samples, whether delivered alone or in combination with other interventions (TAU or CBT), or in group or individual formats. Moderation analyses also showed that a significantly larger effect size was reported when CFT was delivered by a therapist compared to when it was delivered as a self-help or "mixed" intervention (i.e., one introductory initial session with a facilitator followed by self-paced online sessions), suggesting that the "human interaction" with a facilitator strengthens the efficacy of the intervention. Instead, the setting of the interaction (whether online, face to face, or mixed) did not have a significant impact on the efficacy of the intervention, which implies that CFT is equally effective in reducing overall mental health issues both when delivered face to face and online.

In the last few years, there has been increasing interest in the idea that many mental health problems may be linked to a single dimension sometimes called the p-factor (Caspi et al., 2014), and associated with some dimension of threat (P. Gilbert, 1989/2016; Nesse, 2020). These approaches seek to move away from fragmenting diagnostic approaches and offer a more coherent understanding of basic underlying processes. The fact that CFT was effective in reducing overall symptoms of mental health difficulties seems to confirm the trans-symptomatologic and transdiagnostic nature of this evolution-informed and biopsychosocial intervention.

More specifically, as regards the impact of CFT on depressive symptoms, CFT was superior to control conditions, with a medium effect size ($g = 0.49$). These results are consistent with findings from previous meta-analyses (Craig et al., 2020; Kirby et al., 2017). The

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impact of CFT on depressive symptoms was stronger in clinical samples compared to nonclinical samples. This result could be explained by the severity of the initial level of symptomatology of the population sample, but not by the potential medication intake of the clinical subgroup, given that medication intake was not a significant moderator. Interestingly, this effect was not moderated by the type of control condition, suggesting that CFT is equally effective in reducing depressive symptoms when compared with both active and passive control groups.

As regards the impact of CFT on self-criticism, CFT was superior to control conditions, with a medium effect size ($g = 0.40$). One of the explanations for the relatively smaller effect size of CFT on self-criticism is that self-criticism is associated with stable traits or schemas, possibly related to early experiences and enduring interpersonal styles (Shahar et al., 2015) whereas the majority of the measures included (e.g., depression, negative outcomes) can be conceptualized as symptoms that are frequently caused or maintained by processes such as self-criticism. That said, even excluding extreme outliers, the impact of CFT on self-criticism showed a small-to-medium effect size ($g = 0.25$) in RCTs with active control groups. Results were consistent with the meta-analysis by Vidal and Soldevilla (2023).

As regards positive outcomes, CFT was superior to control conditions in improving compassion both for self and others, with an effect size that remained medium even after the exclusion of three extreme outliers ($g = 0.51$). These results are in line with previous meta-analytic findings (Kirby et al., 2017; Millard et al., 2023). Interestingly, studies characterized by higher quality showed larger effects of CFT on compassion, suggesting that this important finding is not attributable to the biases that often taint RCTs, such as skewed randomization, inappropriate presentation of withdrawals and dropouts, or misspecification of inclusion and exclusion criteria. A higher effect size was found for studies with other-administered CFT compared with self-help and mixed studies. Similarly, after outlier removal, studies in which CFT was administered online were less effective than those in which it was administered in person. Although past reviews have suggested that telepsychology works as well as more traditional, face-to-face forms of psychotherapy for a variety of disorders (e.g., Andersson, 2015), these findings seem to suggest that when the goal is to increase compassion and self-compassion, which have evolved in the context of caring and attachment behaviors, in-person treatments delivered by a therapist (rather than self-help treatments) might be more effective. Interestingly, the format of intervention (group vs. individual) did not moderate the efficacy of CFT. As regards the methodological quality of studies, while methodological quality was not a statistically significant moderator of the impact of CFT on outcomes, the quality assessments indicated that the methodological rigor of almost one-third of the studies was poor.

Strengths and Limitations

The first strength of this meta-analysis is that it was conducted in accordance with PRISMA guidelines and was preregistered in PROSPERO. Second, our analysis represents an update and expansion to previous meta-analyses of CFT. The most recent meta-analysis of CFT (Millard et al., 2023) only included clinical samples, thus excluding important data from RCTs with nonclinical samples (not formally diagnosed) but which would still present psychopathological symptoms that were positively impacted by the intervention. We expanded on the meta-analysis by Millard et al. (2023) not only by including randomized control trials, but also by incorporating both clinical and nonclinical populations and considering the variety of both positive and negative mental health outcomes that are present in the CFT literature. This is consistent with the transdiagnostic nature of CFT and its focus on promoting flourishing and well-being, rather than merely reducing symptomatology. An additional strength of the present work is that we investigated numerous treatment moderators, which had not been evaluated in the previous meta-analyses.

There are a number of potentially important limitations of this work. We only analyzed CFT efficacy between baseline and postintervention, and we did not include follow-ups. Heterogeneity across the studies was high for the four outcomes that were measured. Differences in findings could be attributed to the discrepancies between each intervention in terms of delivery content, sample size, main outcome used, and the questionnaires employed. Several studies aimed to test CFT with an extreme variety of different populations and measures, increasing the risk of both heterogeneity and publication biases. Authors may have been interested in specific findings—possibly relevant in such populations—while excluding or underestimating the role of other relevant outcomes. The current review has also been affected by the small sample sizes of some RCTs; in particular, several of the comparison conditions had low sample sizes and, therefore, the findings from these comparisons should be interpreted with caution. We also found a possible cultural factor related to studies conducted in Iran. Even when a few of them were excluded as extreme outliers, the remaining articles constituted a subsample of studies with systematically larger effect sizes (but also with relatively smaller samples).

Clinical Implications

This meta-analysis shows that CFT is effective in reducing general symptoms (in particular, depression, anxiety, and self-criticism) and improving compassion-based outcomes (compassion for self and others) across a range of clinical and nonclinical samples. CFT was also effective when it incorporated aspects of other evidence-based therapies (CF-CBT), suggesting that CFT is a multimodal, transdiagnostic intervention, which can be an effective psychotherapy for a variety of mental health outcomes. Various approaches can incorporate the understanding of the biological basis of the affect regulation systems and how these may be regulated by social motives, such as compassion, as a framework within which to deliver evidence-based techniques. However, only a minority of the studies employed CFT in combination with other evidence-based approaches, which calls for further investigations on the potential "boosting effect" of adding a compassion-focused framework to other approaches. In line with previous meta-analyses (Craig et al., 2020; Millard et al., 2023), our results show that the efficacy of CFT has been primarily established for group interventions. We still do not have enough data supporting the efficacy of CFT in a face-to-face individual setting, where interventions are delivered following an individualized case formulation. Retention rates within CFT interventions ranged from 28.9% to 100%, with an average of 83.66%, suggesting that CFT is highly acceptable among both clinical and nonclinical populations.

Implication for Future Research on CFT Interventions

Based on this meta-analysis, we would like to make some specific suggestions to improve the general understanding of the efficacy of

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CFT. (a) There is a need to conduct larger and adequately powered RCTs of CFT, with clear eligibility criteria guidelines for RCT evaluations. (b) Future RCTs should not have waiting list or TAU as a control condition, rather they should feature an active comparison, such as a mindfulness-based intervention, ACT or CBT. (c) The issue of publication bias needs to be addressed, especially when considering clinical trials, where withholding negative results may have deleterious consequences for the health of individuals in need (Joober et al., 2012). (d) Heterogeneity of findings needs to be addressed; one way to do so is to select measures carefully. For example, in the case of self-criticism, clinical studies should measure the most pathogenic dimensions of criticism, such as self-hating and self-persecution. (e) Other variables that CFT seeks to target, in particular, competing to avoid inferiority, should be a focus of impact. (f) Although there is one set of studies that looked at psychopathic traits, more research is needed to see if CFT can improve prosocial behavior, particularly for those with dark triad traits. (g) A problem that plagues all psychotherapeutic research is fidelity to the model. As is well known, even if a therapist follows a manual, they are not necessarily delivering the therapy skilfully. Thus, the need arises to better define how to assess the adequacy of therapist training and fidelity to the model being employed. (h) There is a need to conduct RCTs of CFT with children or adolescents, but also with older adults, as these subsamples are largely unrepresented in the current literature. (i) Future RCTs require more transparency in their methodologies, which will strengthen the evidence base of CFT. In fact, the evaluation of the risk of bias indicated some key areas where the reporting of the potential risks of bias was not clearly described in most studies. Moreover, it is likely that some of the studies did not follow the most rigorous RCT protocols (e.g., blinding of outcome assessment and allocation concealment). (j) As CFT is a biopsychosocial approach, future research will need to explore changes in social behavior and physiology so that studies do not simply rely on self-report methods. (k) In addition (as with all psychotherapies) CFT requires long-term follow-ups and, in particular, there is a need to explore how this therapy can help people when they encounter crises in their lives.

Conclusions

The present meta-analysis explored the efficacy of CFT in targeting a variety of positive and negative mental health outcomes, in both clinical and nonclinical populations. Despite the limitations discussed above, the current findings provide evidence that CFT can be considered an effective treatment in reducing diverse negative outcomes, including depressive symptoms, with a moderate-to-large effect size. CFT was also effective in improving compassion for self and others, with a large effect size. These results were controlled by excluding extreme outliers and exploring several possible moderators. While previous reviews suggested that the evidence is currently insufficient to show that CFT is more effective than current standard treatments, such as CBT (Leaviss & Uttley, 2015; Millard et al., 2023), the present meta-analysis provides initial evidence that CFT could be more effective than waiting-list control (passive) but also than alternative psychological interventions (active control groups, such as CBT and mindfulness), in achieving a reduction of negative outcomes and an increase of positive outcomes (g ranging between 0.49 and 0.72). However, given the significant heterogeneity of the findings, this result will need to be further confirmed in future RCTs, which will ideally test CFT against other evidence-based psychological interventions.

Even if the long-term effects of CFT are yet to be established, and despite the heterogeneity and publication bias that have been discussed above, CFT should be considered eligible for adequately powered RCTs to further corroborate its clinical utility.

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