



This is a repository copy of *Recent advances in cognitive-behavioural therapy for eating disorders (CBT-ED)*.

White Rose Research Online URL for this paper:

<https://eprints.whiterose.ac.uk/214242/>

Version: Published Version

Article:

Waller, G. orcid.org/0000-0001-7794-9546 and Beard, J. orcid.org/0000-0002-4330-4536
(2024) Recent advances in cognitive-behavioural therapy for eating disorders (CBT-ED).
Current Psychiatry Reports, 26. pp. 351-358. ISSN 1523-3812

<https://doi.org/10.1007/s11920-024-01509-0>

Reuse

This article is distributed under the terms of the Creative Commons Attribution (CC BY) licence. This licence allows you to distribute, remix, tweak, and build upon the work, even commercially, as long as you credit the authors for the original work. More information and the full terms of the licence here:

<https://creativecommons.org/licenses/>

Takedown

If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing eprints@whiterose.ac.uk including the URL of the record and the reason for the withdrawal request.



eprints@whiterose.ac.uk
<https://eprints.whiterose.ac.uk/>



Recent Advances in Cognitive-Behavioural Therapy for Eating Disorders (CBT-ED)

Glenn Waller¹ · Jessica Beard¹

Accepted: 25 April 2024 / Published online: 8 May 2024
© The Author(s) 2024

Abstract

Purpose of Review Eating disorders require more effective therapies than are currently available. While cognitive behavioural therapy for eating disorders (CBT-ED) has the most evidence to support its effectiveness, it requires substantial improvement in order to enhance its reach and outcomes, and to reduce relapse rates. Recent years have seen a number of noteworthy developments in CBT-ED, which are summarised in this paper.

Recent Findings The key advances identified here include: improvements in the efficiency and availability of CBT-ED; expansion of applicability to younger cases across durations of eating disorder; and new methodologies.

Summary There have been important recent advances in the field of CBT-ED. However, it is important to stress that there remain gaps in our evidence base and clinical skills, and suggestions are made for future research and clinical directions.

Keywords Eating disorders · Cognitive-behaviour therapy · Effectiveness · Accessibility · Duration · Review

Introduction

Eating disorders come in a number of forms, characterised by psychologically-driven unhealthy patterns of eating (e.g., severe restriction; emotionally-driven eating or avoidance of food; overeating and binge-eating; purging behaviours). Diagnoses include anorexia nervosa, bulimia nervosa, binge-eating disorder, other specified feeding and eating disorder (OSFED; including atypical cases), and avoidant/restrictive food intake disorder (ARFID) [1]. Eating disorders have a relatively high mortality rate among psychiatric disorders, due to physical sequelae and mental health issues [2, 3].

Cognitive-behavior therapy for eating disorders (CBT-ED) is one of the most strongly evidence-based therapies for this group of problems [4, 5]. CBT-ED encompasses a range of protocols that have demonstrated effectiveness with eating disorders [6–9]. It is a widely used approach to non-underweight eating disorders among adults (e.g., bulimia nervosa, binge-eating disorder; OSFED), and its limited outcomes have been shown to be no different from other

evidence-based therapies for anorexia nervosa in adults [10, 11]. It has had a more limited evidence base among children and young people, so has not been the first choice in working with that age group [4, 5]. There is evidence for the CBT-ED approach in face-to-face work, group, and guided self-help formats. Central elements involve teaching the patient that their emotional and cognitive reactions to food and eating are inaccurate, and addressing issues of body image. Recent reviews and meta-analyses [12, 13] have confirmed the effectiveness of CBT-ED in a range of settings, including in everyday clinical practice.

However, the relative success of CBT-ED should not blind us to its limitations and the need for further research and development in the field. Recovery rates are far from perfect, particularly for anorexia nervosa, and relapse rates are substantial enough to merit concern [13]. It is important to consider recent developments in the field of CBT-ED so that we can determine where we have improved and where there is more to do. This review will therefore focus largely on developments over the past three years, to update on a similar review [14]. It will consider:

- efforts to improve efficiency and availability of CBT-ED;
- applicability to younger cases and those with different durations of eating disorder;
- new methodologies; and

✉ Glenn Waller
g.waller@sheffield.ac.uk

¹ Clinical and Applied Psychology Unit, Department of Psychology, University of Sheffield, Cathedral Court, 1 Vicar Lane, Sheffield S1 2LT, UK

- remaining gaps in our evidence base and clinical skills.

Improvements in Efficiency and Availability of Therapies

Waiting lists for treatment of eating disorders can be (and often are) distressingly long, and they lengthened during and after the COVID-19 pandemic. Longer waiting times carry their own distress for the patient, enhancing their sense of helplessness, impacting on medical and psychological risks, and further worsening quality of life. Enhancing accessibility of therapies to patients and the efficiency of those therapies each contribute in an inter-linked way to addressing long waiting times effectively.

More Efficient Therapies

The motivation to improve efficiency of therapies can be seen as being that we achieve better patient turnover – faster, effective treatments enable clinicians to see more patients without sacrificing the benefits of CBT-ED. In recent years, there have been a number of such developments. Ten session CBT-T for non-underweight patients [15] has demonstrated significant reductions in global eating disorder psychopathology with large effect sizes. Furthermore, CBT-T has resulted in large positive effects on bingeing, purging, depression and quality of life, and a moderate effect on anxiety. These outcomes are all similar to those of 20-session CBT for non-underweight patients [16]. Such briefer individual and group therapies [17•] can enhance patient access to effective treatment. Similarly, group Dialectical Behaviour Therapy (with its focus on behavioural, cognitive, and emotional change) can be as effective in half the time [18, 19]. Guided self-help has also demonstrated important steps towards greater efficiency over a limited therapy period [20], remaining more effective than pure self-help [21, 22], and performing better than other internet-based approaches [23]. There are also early signs that including CBT-ED elements in apps and in single-session interventions can engage patients better and encourage greater change during subsequent therapy [24, 25•, 26]. However, other efforts to enhance efficiency have not always proven effective. For example, researchers have tested the potential to add ‘just in time adaptive interventions’ to existing therapies, but that has not yet proven effective [27].

More Accessible Therapies

The accessibility of therapy has also been addressed in recent research, showing that people can avail themselves of CBT-ED in a more timely fashion where services are configured to ensure that early identification and entry to

treatment are priorities. This became an important issue during the COVID-19 pandemic, where accessibility was enhanced via online access to CBT-ED [28, 29]. Indeed, our learning about the viability of provision of online CBT-ED treatment is one of the unexpected outcomes of the COVID-19 pandemic.

More planful initiatives in accessibility are worthy of particular consideration. In the UK, for example, the First Episode Rapid Early Intervention for Eating Disorders (FREED) programme has been devised to ensure rapid access to treatment for younger adult patients and those with a relatively recent onset [30]. Duration of an untreated eating disorder and waiting times were substantially shorter for FREED patients than for ‘treatment as usual’ patients [31], and the programme has yielded positive outcomes when using the briefer, efficient forms of CBT-ED therapies outlined above [32]. However, it should be stressed that low completion rates [33] mean that these FREED results should only be treated as indicative at present, especially as implementation of the scheme has its challenges [34].

Given the economic costs of eating disorders, including work-related losses, a further promising line of enquiry is whether CBT-ED can be delivered effectively via workplaces. This approach has been shown to be feasible and to have medium to large positive effect sizes on measures of pathology (i.e., eating pathology, depression, anxiety, binge-eating) and on work-related impairments [35].

Temporal Factors: Age of Patients and Duration of Eating Disorder

Guidelines [4, 5] usually default to family based treatment (FBT) as the first option when working with children and adolescents (apart from those with ARFID), given the substantial evidence base for FBT. However, there are circumstances in which CBT-ED should be considered as an alternative (e.g., where FBT has not proven acceptable to the young person or their families; where FBT has not been fully effective), as it has been demonstrated to improve eating attitudes, clinical impairment, and weight gain in such cases [36]. CBT-ED has a role in working with younger people [37], as shown by more recent evidence that young people with eating disorders show substantial weight gain and reduced scores on eating disorder and general psychopathology with CBT-ED, including longer (20–40 session) and briefer (10 session) versions [37–40].

Duration of the individual’s eating disorder has been an issue addressed in the eligibility criteria for the FREED programme. However, there is less clarity in efforts over the past decade to define ‘severe and enduring eating disorder’ (SEED) or ‘severe and enduring anorexia nervosa’ (SEAN) in a meaningful and useful way. For example, SEAN has

been labelled as being of at least three years duration [41] and at least seven years duration [40], even within the same team of clinical researchers. Nor is there consistency on the ‘severity’ criterion. Obviously, without any consistent criteria for such a label, the utility of labels such as SEED and SEAN remains limited. However, there is also evidence that the duration of the disorder is less relevant clinically. It has previously been shown that duration of anorexia nervosa is not related to outcomes when using CBT-ED oriented to full recovery [42, 43]. Recent evidence supports this conclusion for CBT-ED for young people [44••]. Overall, the evidence from systematic reviews and meta-analyses does not support any such role for severity or duration in determining treatment-seeking. Nor does it limit the outcome of therapies broadly [45, 46], or in the domain of CBT-ED more specifically [47].

The final temporal factor to reiterate is the most well-established predictor of outcomes in therapy for eating disorders – the level of change achieved over the first few sessions of therapy. This temporal predictor has been well-established as relevant to outcomes [48, 49]. It has been supported by more recent updates to this meta-analysis [50], where the majority of interventions were CBT-ED. This ‘early change predicts therapeutic outcome’ heuristic extends to guided self-help forms of CBT-ED [51].

New Methodologies in CBT-ED

There have been several developments in recent years in the technology of CBT-ED, meriting future implementation. These include developments in the exposure therapy element, CBT for ARFID, potential treatment-matching for trauma in eating disorders, and measurement of clinician competence.

Inhibitory Learning in Exposure Therapy

Inhibitory learning has been suggested as an approach to exposure therapy [52–54], and has been incorporated into brief, effective CBT-ED [9, 15, 55]. The inhibitory learning model states that in addition to repeated exposure to the feared stimulus, it is also important for the individual to learn more generalised safety – disconfirming expectations that the feared stimulus is threatening [56]. Recent research in anorexia nervosa has shown that this element of CBT-ED is associated with rapid learning of safety relating to food, particularly considering between-session exposure [57] and when using virtual food exposure [58]. A focus on inhibitory learning is well-justified in future research, and the guide provided by Melles and colleagues [56] for applying inhibitory learning to anorexia nervosa is recommended for those who are new to this way of implementing CBT-ED.

CBT-ED for ARFID

Building on work from before DSM-5 brought in the wider diagnosis of avoidant/restrictive food intake disorder (ARFID) [59], early developments in CBT-ED for ARFID showed that exposure-based approaches are effective in addressing different presentations of this disorder [8, 60•]. There has been some advance in this field, with early evidence that this approach can be effective among those with gastroenterology issues alongside ARFID [61] and those with Rumination Syndrome [61]. There are also suggestions of approach-specific outcomes when using CBT-ED with different ARFID presentations [62], but we are still awaiting the outcome of more definitive studies in the field of CBT-ED for ARFID. However, there is now a set of validated measures to support the evaluation of ARFID and the use of CBT-ED in such cases, rather than relying on other, less relevant eating disorder measures [63, 64].

Potential Treatment Matching in Cases Involving Trauma

Matching treatments to individual characteristics is a very undeveloped area in the field of eating disorders, meaning that the most effective approach for most people is to use the overall most effective treatment – often CBT-ED in adults. One area where recent developments offer a potential evidence-based approach to treatment matching is where the eating disorder presentation is associated with a trauma history. For example, there can be a long-term benefit (but not an immediate one) of adding eye movement desensitization and reprocessing (EMDR) to CBT-ED among patients with anorexia nervosa and a history of childhood maltreatment [65••]. On average, those treated with CBT-E plus EMDR reported a greater reduction in eating disorder specific psychopathology and greater improvements in terms of weight recovery, compared to those treated with CBT-E alone. Similarly, individuals with an eating disorder and a childhood trauma history respond better to compassion-focused therapy than to routine CBT-ED, but in the longer term rather than immediately (and not showing an impact on exercise levels) [66, 67]. In contrast, when considering post traumatic stress disorder (PTSD), routine CBT-ED versus an integrated CBT for eating disorders and PTSD did not differ in their outcomes, either immediately or in the longer term [68]. So, the recent evidence supports modifying approaches for eating disorders where there is a history of trauma, but not when there is comorbid PTSD.

Measurement of Clinician Competence in Delivering CBT-ED

The Cognitive Therapy Scale-Revised [69] is commonly used to determine clinician competence in delivering CBT

for anxiety and depression, but is less reliable and valid when working with other disorders. Earlier efforts to deliver measures of such competence [70, 71] have been limited to CBT-E [72] and have been limited methodologically. This has led to the development of the Cognitive Behaviour Therapy Scale for Eating Disorders (CBTS-ED), based more specifically on observation of clinicians working with patients with eating disorders [73], though further validation work is needed to support its use.

Future Directions in CBT-ED Research: What Are the Gaps that We Still Need to Fill?

Although we have pointed to a number of positive developments in CBT-ED over recent years, we cannot be complacent about the current position. Clearly, given its outcomes and relapse levels, CBT-ED is far from perfect. Therefore, we need to improve the core protocols for eating disorders – particularly for underweight patients. However, there are more specific areas where clinical research is needed to enhance specific elements of CBT-ED or to support their use at all.

Digital Interventions

While digital interventions are less expensive than clinician-delivered approaches, they lack strong evidence of effectiveness that would support their widespread use where there are better-evidenced approaches [74]. There is further research planned to test the potential use of such interventions [75], but we await convincing evidence of the outcomes.

Weight Management

Outcomes with weight loss remain limited and relatively short term [76, 77]. While several such trials are under way [78], it is not yet clear that we will see the hoped-for advances in the field of CBT for weight management.

Treatment-Matching Heuristics

We have seen some early suggestions (above) that CBT-ED approaches might be matched to trauma histories. However, there are many other factors that might be used in treatment matching. In particular, strategic clinical responses to the patient's clinical progress remain a good option [36]. For example, Grilo and colleagues [79] have supported the use of CBT-ED where other approaches have not been effective.

As noted above, there is limited evidence that pre-treatment characteristics predict treatment outcome. However, for CBT-ED, there are some recent suggestions that higher levels of early dietary restraint and overvaluation of weight

and shape predict reduction in eating pathology (though not abstinence from binge eating) [80]. Similarly, fast or slow early change in CBT-ED for binge-eating can be linked to greater levels of symptom return than moderate levels of early change [81], with some role for mood [82]. These two sets of findings support the conclusion that a combination of baseline scores and early trajectory of change might combine to predict outcomes [83], and this potential heuristic certainly merits further clinical research.

Adaptations of Therapy for Specific Groups

One area where there is promising evidence is in the treatment of eating disorders in those who are **gender diverse**. Studies of CBT-ED outcomes among such individuals have been relatively sparse to date [84], but recent work has supported its acceptability and preliminary effectiveness with individuals who self-identify as being from gender minorities [85•]. Therefore, this is a promising area for further expanding the reach of CBT-ED to support a group who have been under-served in the treatment literature, despite relatively well-identified levels of eating and body concerns [86, 87].

Neurodiversity is the other current area where recent clinical awareness of the problems involved are not well matched with treatment evidence. Of course, the diagnosis of problems such as autistic spectrum disorders and attention deficit hyperactivity disorder needs to be very cautiously undertaken in the context of eating disorder phenomena (starvation, dissociation) and comorbidity (e.g., obsessive compulsive disorder; substance misuse). However, in cases where there is clear neurodiversity, adaptations should be considered that help patients to engage in and benefit from treatment. Methods that might help in such circumstances (e.g., the PEACE pathway) have been suggested [88], though the benefit of these methods has yet to be established within CBT-ED approaches.

Conclusions

There have been substantial developments in CBT-ED in the past three years, building on existing evidence of effectiveness and reach. However, as stated above, we are a long way from perfection, so we should be thinking of broader enhancement of CBT-ED, rather than simply making relatively small changes. That might mean studies that involve active elements of different forms of CBT-ED, enhancing the use of other techniques that are more commonly associated with third wave therapies [89], learning from other therapies, and considering service user perspectives on what is effective at different stages in the therapy.

Finally, from the recent literature, it is clear that we need more concrete evidence of effectiveness in ARFID, and better overall outcomes in anorexia nervosa. It will be important to determine the effectiveness of CBT-ED in conjunction or in contrast with FBT and other approaches for children and young people. We also need to ensure that CBT-ED is delivered competently, given existing evidence of clinicians reporting weak adherence to any protocol when working with eating disorders [90].

Author Contributions Both authors undertook the planning of the paper and the search for studies. GW drafted the manuscript text. JB checked and edited the draft, and led on requested revisions. Both authors agreed the final version of the manuscript.

Funding None.

Data Availability No datasets were generated or analysed during the current study.

Compliance with Ethical Standards

Conflict of Interest GW is lead author on the Waller et al. [15] manual cited in this text, and receives royalties from Routledge as a result.

Human and Animal Rights and Informed Consent This article does not contain any studies with human or animal subjects performed by any of the authors.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

References

Papers of particular interest, published recently, have been highlighted as:

- Of importance
- Of major importance

1. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 5th ed. Washington DC: American Psychiatric Association; 2013. <https://doi.org/10.1176/appi.books.9780890425787>.
2. Arcelus J, Mitchell AJ, Wales J, Nielsen S. Mortality rates in patients with anorexia nervosa and other eating disorders. A meta-analysis of 36 studies. *Arch Gen Psychiatry*. 2011;68(7):724–31. <https://doi.org/10.1001/archgenpsychiatry.2011.74>.
3. van Hoeken D, Hoek HW. Review of the burden of eating disorders: mortality, disability, costs, quality of life, and family burden. *Curr Opin Psychiatry*. 2020;33(6):521–7. <https://doi.org/10.1097/YCO.0000000000000641>.
4. Academy for Eating Disorders. Psychological care guidelines Task force: A guide to selecting evidence-based psychological therapies for eating disorders. First edition. Reston, VA: Academy for Eating Disorders. 2020. <https://higherlogicdownload.s3.amazonaws.com/AEDWEB/27a3b69a-8aae-45b2-a04c2a078>.
5. National Institute for Health and Care Excellence. Eating disorders: recognition and treatment [NICE Guideline No. NG69]. 2017. <https://www.nice.org.uk/guidance/ng69>.
6. Fairburn CG, Norman PA, Welch SL, O'Connor ME, Doll HA, Peveler RC. A prospective study of outcome in bulimia nervosa and the long-term effects of three psychological treatments. *Arch Gen Psychiatry*. 1995;52(4):304–12. <https://doi.org/10.1001/archpsyc.1995.039501600540102011>.
7. Pike KM, Walsh BT, Vitousek K, Wilson GT, Bauer J. Cognitive behavior therapy in the posthospitalization treatment of anorexia nervosa. *Am J Psychiatry*. 2003;160(11):2046–9. <https://doi.org/10.1176/appi.ajp.160.11.2046>.
8. Thomas JJ, Becker KR, Kuhnle MC, et al. Cognitive-behavioral therapy for avoidant/restrictive food intake disorder: Feasibility, acceptability, and proof-of-concept for children and adolescents. *Int J Eat Disord*. 2020;53(10):1636–46. <https://doi.org/10.1002/eat.23355>.
9. Waller G, Tatham M, Turner H, et al. A 10-session cognitive-behavioral therapy (CBT-T) for eating disorders: Outcomes from a case series of nonunderweight adult patients. *Int J Eat Disord*. 2018;51(3):262–9. <https://doi.org/10.1002/eat.22837>.
10. Zeeck A, Herpertz-Dahlmann B, Friederich HC, et al. Psychotherapeutic treatment for anorexia nervosa: a systematic review and network meta-analysis. *Front Psychiatry*. 2018;9:158. <https://doi.org/10.3389/fpsy.2018.00158>.
11. van den Berg E, Houtzager L, de Vos J, et al. Meta-analysis on the efficacy of psychological treatments for anorexia nervosa. *Eur Eat Disord Rev*. 2019;27(4):331–51. <https://doi.org/10.1002/erv.2683>.
12. Öst LG, Brattmyr M, Finnes A, et al. Cognitive behavior therapy for adult eating disorders in routine clinical care: A systematic review and meta-analysis. *Int J Eat Disord*. 2024;57(2):249–64. <https://doi.org/10.1002/eat.24104>.
13. Solmi M, Monaco F, Højlund M, et al. Outcomes in people with eating disorders: a transdiagnostic and disorder-specific systematic review, meta-analysis and multivariable meta-regression analysis. *World Psychiatry*. 2024;23(1):124–38. <https://doi.org/10.1002/wps.21182>.
14. Mulkens S, Waller G. New developments in cognitive-behavioural therapy for eating disorders (CBT-ED). *Curr Opin Psychiatry*. 2021;34(6):576–83. <https://doi.org/10.1097/YCO.0000000000000745>.
15. Waller G, Turner H, Tatham M, Mountford V, Wade T. Brief cognitive behavioural therapy for non-underweight patients: CBT-T for eating disorders. Hove, UK: Routledge. 2019. <https://doi.org/10.4324/9780367192280>.
16. Keegan E, Waller G, Wade TD. A systematic review and meta-analysis of a 10-session cognitive behavioural therapy for non-underweight eating disorders. *Clin Psychol*. 2022;26(3):241–54. <https://doi.org/10.1080/13284207.2022.2075257>.
- 17.● Moore E, Waller G. Brief group cognitive-behavioral therapy for bulimia nervosa and binge-eating disorder: A pilot study of feasibility and acceptability. *Int J Eat Disord*. 2023;56(6):1228–1232. <https://doi.org/10.1002/eat.23935>. **This study showed that a group version of CBT-T is a**

- feasible intervention in the treatment of non-underweight eating disorders, with high compliance. However, the low acceptance rate warrants further understanding, as this limits the utility of group CBT-T in clinical practice.**
18. Adams G, Turner H, Hoskins J, Robinson A, Waller G. Effectiveness of a brief form of group dialectical behavior therapy for binge-eating disorder: Case series in a routine clinical setting. *Int J Eat Disord.* 2021;54(4):615–20. <https://doi.org/10.1002/eat.23470>.
 19. Blood L, Adams G, Turner H, Waller G. Group dialectical behavioral therapy for binge-eating disorder: Outcomes from a community case series. *Int J Eat Disord.* 2020;53(11):1863–7. <https://doi.org/10.1002/eat.23377>.
 20. Wade T, Byrne S, Fursland A, et al. Is guided self-help family-based treatment for parents of adolescents with anorexia nervosa on treatment waitlists feasible? A pilot trial. *Int J Eat Disord.* 2022;55(6):832–7. <https://doi.org/10.1002/eat.23720>.
 21. Barakat S, Burton AL, Cunich M, et al. A randomised controlled trial of clinician supported vs self-help delivery of online cognitive behaviour therapy for Bulimia Nervosa. *Psychiatry Res.* 2023;329:115534. <https://doi.org/10.1016/j.psychres.2023.115534>.
 22. Melisse B, Berg EVD, Jonge M, et al. Efficacy of web-based, guided self-help cognitive behavioral therapy-enhanced for binge eating disorder: randomized controlled trial. *J Med Internet Res.* 2023;25:e40472. <https://doi.org/10.2196/40472>.
 23. Hamid N. Internet-based cognitive behaviour therapy for the prevention, treatment and relapse prevention of eating disorders: A systematic review and meta-analysis. *Psych J.* 2024;13(1):5–18. <https://doi.org/10.1002/pchj.715>.
 24. Fursland A, Erceg-Hurn DM, Byrne SM, McEvoy PM. A single session assessment and psychoeducational intervention for eating disorders: Impact on treatment waitlists and eating disorder symptoms. *Int J Eat Disord.* 2018;51(12):1373–7. <https://doi.org/10.1002/eat.22983>.
 25. ● Schleider JL, Smith AC, Ahuvia I. Realizing the untapped promise of single-session interventions for eating disorders. *Int J Eat Disord.* 2023;56(5):853–863. <https://doi.org/10.1002/eat.23920>. **Important pointer to the value of brief focused interventions, and how they could be implemented in eating disorders.**
 26. Wade TD. Developing the "single-session mindset" in eating disorder research: Commentary on Schleider et al., 2023 "Realizing the untapped promise of single-session interventions for eating disorders." *Int J Eat Disord.* 2023;56(5):864–6. <https://doi.org/10.1002/eat.23930>.
 27. Juarascio AS, Presseller EK, Srivastava P, Manasse SM, Forman EM. A Randomized Controlled Trial of CBT+: A Clinician-Controlled, Just-In-Time, Adjunctive Intervention for Bulimia-Spectrum Disorders. *Behav Modif.* 2023;47(3):551–72. <https://doi.org/10.1177/01454455221109434>.
 28. Murphy R, Calugi S, Cooper Z, Dalle Grave R. Challenges and opportunities for enhanced cognitive behaviour therapy (CBT-E) in light of COVID-19. *Cogn Behav Therap.* 2020;13:e14. <https://doi.org/10.1002/eat.23930>.
 29. Waller G, Pugh M, Mulken S, et al. Cognitive-behavioral therapy in the time of coronavirus: Clinician tips for working with eating disorders via telehealth when face-to-face meetings are not possible. *Int J Eat Disord.* 2020;53(7):1132–41. <https://doi.org/10.1002/eat.23289>.
 30. Schmidt U, Brown A, McClelland J, Glennon D, Mountford VA. Will a comprehensive, person-centered, team-based early intervention approach to first episode illness improve outcomes in eating disorders? *Int J Eat Disord.* 2016;49(4):374–7. <https://doi.org/10.1002/eat.22519>.
 31. Flynn M, Austin A, Lang K, et al. Assessing the impact of First Episode Rapid Early Intervention for Eating Disorders on duration of untreated eating disorder: A multi-centre quasi-experimental study. *Eur Eat Disord Rev.* 2021;29(3):458–71.
 32. Allen K. Guided self-help for recent-onset binge/purge eating disorders: Use and outcomes in the FREED Network. British Association for Behavioural and Cognitive Psychotherapies conference, Cardiff. 2023.
 33. Richards KL, Hyam L, Allen KL, et al. National roll-out of early intervention for eating disorders: Process and clinical outcomes from first episode rapid early intervention for eating disorders. *Early Interv Psychiatry.* 2023;17(2):202–11. <https://doi.org/10.1111/eip.13317>.
 34. Hyam L, Torkelson C, Richards K, et al. "Early intervention isn't an option, it's a necessity": learning from implementation facilitators and challenges from the rapid scaling of an early intervention eating disorders programme in England. *Front Health Serv.* 2024;3:1253966. <https://doi.org/10.3389/frhs.2023.1253966>.
 35. Toro CT, Payne A, Jackson T, et al. Evidence for feasibility of implementing online brief cognitive-behavioral therapy for eating disorder pathology in the workplace. *Int J Eat Disord.* 2023;56(6):1254–68. <https://doi.org/10.1002/eat.23961>.
 36. Craig M, Waite J, Wilson S, Waller G. Optimizing treatment outcomes in adolescents with eating disorders: The potential role of cognitive behavioral therapy. *Int J Eat Disord.* 2019;52(5):538–42. <https://doi.org/10.1002/eat.23067>.
 37. Dalle Grave R, Sartirana M, Dalle Grave A, Calugi S. Effectiveness of enhanced cognitive behaviour therapy for patients aged 14 to 25: A promising treatment for anorexia nervosa in transition-age youth. *Eur Eat Disord Rev.* 2023. <https://doi.org/10.1002/erv.3019>.
 38. Dalle Grave R, Sartirana M, Calugi S. Enhanced cognitive behavioral therapy for adolescents with anorexia nervosa: Outcomes and predictors of change in a real-world setting. *Int J Eat Disord.* 2019;52(9):1042–6. <https://doi.org/10.1002/eat.23122>.
 39. Hart M, Hirneth S, Mendelson J, Jenkins L, Pursey K, Waller G. Brief cognitive behavioural therapy for eating disorders symptomatology among a mixed sample of adolescents and young adults in primary care: A non-randomised feasibility and pilot study. *Eur Eat Disord Rev.* 2024. <https://doi.org/10.1002/erv.3075>.
 40. Le Grange D, Eckhardt S, Dalle Grave R, et al. Enhanced cognitive-behavior therapy and family-based treatment for adolescents with an eating disorder: a non-randomized effectiveness trial. *Psychol Med.* 2020. <https://doi.org/10.1017/S0033291720004407>.
 41. Zhu J, Hay PJ, Yang Y, et al. Specific psychological therapies versus other therapies or no treatment for severe and enduring anorexia nervosa. *Cochrane Database Syst Rev.* 2023;8(8):CD011570. <https://doi.org/10.1002/14651858.CD011570.pub2>.
 42. Calugi S, El Ghoch M, Dalle GR. Intensive enhanced cognitive behavioural therapy for severe and enduring anorexia nervosa: A longitudinal outcome study. *Behav Res Ther.* 2017;89:41–8. <https://doi.org/10.1016/j.brat.2016.11.006>.
 43. Raykos BC, Erceg-Hurn DM, McEvoy PM, Fursland A, Waller G. Severe and enduring anorexia nervosa? Illness severity and duration are unrelated to outcomes from cognitive behaviour therapy. *J Consult Clin Psychol.* 2018;86(8):702–9. <https://doi.org/10.1037/ccp0000319>.
 44. ●● Calugi S, Dalle Grave A, Chimini M, Lorusso A, Dalle Grave R. Illness duration and treatment outcome of intensive cognitive-behavioral therapy in adolescents with anorexia nervosa. *Int J Eat Disord.* 2024. <https://doi.org/10.1002/eat.24196>. **Important evidence that therapy is not made less effective by the duration of the individual's eating disorder.**
 45. Radunz M, Keegan E, Osenk I, Wade TD. Relationship between eating disorder duration and treatment outcome: Systematic

- review and meta-analysis. *Int J Eat Disord.* 2020;53(11):1761–73. <https://doi.org/10.1002/eat.23373>.
46. Radunz M, Ali K, Wade TD. Pathways to improve early intervention for eating disorders: Findings from a systematic review and meta-analysis. *Int J Eat Disord.* 2023;56(2):314–30. <https://doi.org/10.1002/eat.23845>.
 47. Linardon J, Hindle A, Brennan L. Dropout from cognitive-behavioral therapy for eating disorders: A meta-analysis of randomized, controlled trials. *Int J Eat Disord.* 2018;51(5):381–91. <https://doi.org/10.1002/eat.22850>.
 48. Vall E, Wade TD. Predictors of treatment outcome in individuals with eating disorders: A systematic review and meta-analysis [published correction appears in *Int J Eat Disord.* 2016 Apr;49(4):432–3. *Int J Eat Disord.* 2015;48(7):946–971. <https://doi.org/10.1002/eat.22411>.
 49. Linardon J, Brennan L, de la Piedad GX. Rapid response to eating disorder treatment: A systematic review and meta-analysis. *Int J Eat Disord.* 2016;49(10):905–19. <https://doi.org/10.1002/eat.22595>.
 50. Chang PGRY, Delgado J, Waller G. Early response to psychological treatment for eating disorders: A systematic review and meta-analysis. *Clin Psychol Rev.* 2021;86: 102032. <https://doi.org/10.1016/j.cpr.2021.102032>.
 51. Jenkins PE, Smith L, Morgan C. Can early change in eating disorder psychopathology predict outcome in guided self-help for binge eating? *Eat Weight Disord.* 2021;26(7):2143–52. <https://doi.org/10.1007/s40519-020-01059-3>.
 52. Cardi V, Leppanen J, Mataix-Cols D, Campbell IC, Treasure J. A case series to investigate food-related fear learning and extinction using in vivo food exposure in anorexia nervosa: A clinical application of the inhibitory learning framework. *Eur Eat Disord Rev.* 2019;27(2):173–81. <https://doi.org/10.1002/erv.2639>.
 53. Murray SB, Treanor M, Liao B, Loeb KL, Griffiths S, Le Grange D. Extinction theory & anorexia nervosa: Deepening therapeutic mechanisms. *Behav Res Ther.* 2016;87:1–10. <https://doi.org/10.1016/j.brat.2016.08.017>.
 54. Reilly EE, Anderson LM, Gorrell S, Schaumberg K, Anderson DA. Expanding exposure-based interventions for eating disorders. *Int J Eat Disord.* 2017;50(10):1137–41. <https://doi.org/10.1002/eat.22761>.
 55. Dumont E, Jansen A, Kroes D, de Haan E, Mulkens S. A new cognitive behavior therapy for adolescents with avoidant/restrictive food intake disorder in a day treatment setting: A clinical case series. *Int J Eat Disord.* 2019;52(4):447–58. <https://doi.org/10.1002/eat.23053>.
 56. Melles H, Duijvis S, Jansen A. Inhibitory learning during exposure treatment in anorexia nervosa: A practical guide. *Behav Sci.* 2023;13(5):370. <https://doi.org/10.3390/bs13050370>.
 57. Essayli JH, Forrest LN, Zickgraf HF, Stefano EC, Keller KL, Lane-Loney SE. The impact of between-session habituation, within-session habituation, and weight gain on response to food exposure for adolescents with eating disorders. *Int J Eat Disord.* 2023;56(3):637–45. <https://doi.org/10.1002/eat.23894>.
 58. Natali L, Meregalli V, Rowlands K, et al. Virtual food exposure with positive mood induction or social support to reduce food anxiety in anorexia nervosa: A feasibility study. *Int J Eat Disord.* 2024;57(3):703–15. <https://doi.org/10.1002/eat.24155>.
 59. Farrow CV, Coulthard H. Relationships between sensory sensitivity, anxiety and selective eating in children. *Appetite.* 2012;58(3):842–6. <https://doi.org/10.1016/j.appet.2012.01.017>.
 - 60.● Thomas JJ, Becker KR, Breithaupt L, et al. Cognitive-behavioral therapy for adults with avoidant/restrictive food intake disorder. *J Behav Cogn Ther.* 2021;31(1):47–55. <https://doi.org/10.1016/j.jbct.2020.10.004>. **Early evidence that CBT-AR is effective outside of the younger age range.**
 61. Burton Murray H, Weeks I, Becker KR, et al. Development of a brief cognitive-behavioral treatment for avoidant/restrictive food intake disorder in the context of disorders of gut-brain interaction: Initial feasibility, acceptability, and clinical outcomes. *Int J Eat Disord.* 2023;56(3):616–27. <https://doi.org/10.1002/eat.23874>.
 62. Burton-Murray H, Becker KR, Breithaupt L, et al. Cognitive-behavioral therapy for avoidant/restrictive food intake disorder: A proof-of-concept for mechanisms of change and target engagement. *Int J Eat Disord.* 2024. <https://doi.org/10.1002/eat.24126>.
 63. Bryant-Waugh R, Stern CM, Dreier MJ, et al. Preliminary validation of the pica, ARFID and rumination disorder interview ARFID questionnaire (PARDI-AR-Q). *J Eat Disord.* 2022;10(1):179. <https://doi.org/10.1186/s40337-022-00706-7>.
 64. Cooper-Vince CE, Nwaka C, Eddy KT, et al. The factor structure and validity of a diagnostic interview for avoidant/restrictive food intake disorder in a sample of children, adolescents, and young adults. *Int J Eat Disord.* 2022;55(11):1575–88. <https://doi.org/10.1002/eat.23792>.
 - 65.●● Rossi E, Cassioli E, Cecci L, et al. Eye movement desensitization and reprocessing as add-on treatment to enhanced cognitive behaviour therapy for patients with anorexia nervosa reporting childhood maltreatment: A quasi-experimental multicenter study. *Eur Eat Disord Rev.* 2024;32(2):322–337. <https://doi.org/10.1002/erv.3044>. **This quasi-experimental study is the first to evaluate the effect of CBT-E plus EMDR in patients with anorexia nervosa with a history of childhood maltreatment, finding greater improvements in general psychopathology and dissociative symptoms compared to CBT-E only.**
 66. Vrabel KR, Waller G, Goss K, Wampold B, Kopland M, Hofgart A. Cognitive behavioral therapy versus compassion focused therapy for adult patients with eating disorders with and without childhood trauma: A randomized controlled trial in an intensive treatment setting. *Behav Res Ther.* 2024;174: 104480. <https://doi.org/10.1016/j.brat.2024.104480>.
 67. Vrabel KR, Bratland-Sanda S. Effects of inpatient treatment on compulsive exercise in adults with longstanding eating disorders: Secondary analysis from a randomized controlled trial with 12-month follow-up. *Int J Eat Disord.* 2024;57(2):437–49. <https://doi.org/10.1002/eat.24108>.
 68. Trottier K, Monson CM, Wonderlich SA, Crosby RD. Results of the first randomized controlled trial of integrated cognitive-behavioral therapy for eating disorders and posttraumatic stress disorder. *Psychol Med.* 2022;52(3):587–96. <https://doi.org/10.1017/S0033291721004967>.
 69. Blackburn IM, James IA, Milne DL, Baker C, Standart S, Garland A, Reichelt FK. The revised cognitive therapy scale (CTS-R): psychometric properties. *Behav Cog Psychotherapy.* 2001;29(4):431–46.
 70. Cooper Z, Doll H, Bailey-Straebl S, et al. The development of an online measure of therapist competence. *Behav Res Ther.* 2015;64:43–8. <https://doi.org/10.1016/j.brat.2014.11.007>.
 71. Cooper Z, Doll H, Bailey-Straebl S, et al. Assessing therapist competence: development of a performance-based measure and its comparison with a web-based measure. *JMIR Ment Health.* 2017;4(4):e51. <https://doi.org/10.2196/mental.7704>.
 72. Fairburn CG. *Cognitive behavior therapy and eating disorders.* Guilford Press; 2008.
 73. Beard J, Cooper Z, Masson P, et al. Assessing clinician competence in the delivery of cognitive-behavioural therapy for eating disorders: development of the Cognitive-Behavioural Therapy Scale for Eating Disorders (CBTS-ED). *Cogn Behav Ther.* 2024;53(1):29–47. <https://doi.org/10.1080/16506073.2023.2263640>.

74. Fairburn CG, Rothwell ER. Apps and eating disorders: A systematic clinical appraisal. *Int J Eat Disord.* 2015;48(7):1038–46. <https://doi.org/10.1002/eat.22398>.
75. Fitzsimmons-Craft EE, Laboe AA, McGinnis C, et al. A pilot randomized controlled trial of a cognitive-behavioral therapy guided self-help mobile app for the post-acute treatment of anorexia nervosa: A registered report. *Int J Eat Disord.* 2023;56(3):654–61. <https://doi.org/10.1002/eat.23891>.
76. Hay P, Palavras MA, da Luz FQ, et al. Physical and mental health outcomes of an integrated cognitive behavioural and weight management therapy for people with an eating disorder characterized by binge eating and a high body mass index: a randomized controlled trial. *BMC Psychiatry.* 2022;22(1):355. <https://doi.org/10.1186/s12888-022-04005-y>.
77. Kurnik Mesarič K, Pajek J, Logar Zakrajšek B, Bogataj Š, Kodrič J. Cognitive behavioral therapy for lifestyle changes in patients with obesity and type 2 diabetes: a systematic review and meta-analysis [published correction appears in *Sci Rep.* 2023 Dec 19;13(1):22674]. *Sci Rep.* 2023;13(1):12793. <https://doi.org/10.1038/s41598-023-40141-5>.
78. Boutelle KN, Afari N, Obayashi S, Eichen DM, Strong DR, Peterson CB. Design of the CHARGE study: A randomized control trial evaluating a novel treatment for Veterans with binge eating disorder and overweight and obesity. *Contemp Clin Trials.* 2023;130: 107234. <https://doi.org/10.1016/j.cct.2023.107234>.
79. Grilo CM, Lydecker JA, Gueorguieva R. Cognitive-behavioral therapy for binge-eating disorder for non-responders to initial acute treatments: Randomized controlled trial. *Int J Eat Disord.* 2023;56(8):1544–53. <https://doi.org/10.1002/eat.23975>.
80. Schmidt R, Hilbert A. Predictors of Symptom Trajectories After Cognitive-Behavioral Therapy in Adolescents With an Age-Adapted Diagnosis of Binge-Eating Disorder. *Behav Ther.* 2022;53(1):137–49. <https://doi.org/10.1016/j.beth.2021.08.002>.
81. Presseller EK, Lampe EW, Michael ML, Trainor C, Fan SC, Juarascio AS. Latent trajectories of symptom change during cognitive-behavior therapy predict post-treatment worsening of symptoms: a preliminary examination among outpatients with bulimia-spectrum eating disorders. *Eat Weight Disord.* 2022;27(6):2257–64. <https://doi.org/10.1007/s40519-021-01348-5>.
82. Lampe EW, Srivastava P, Presseller EK, Wilkinson ML, Trainor C, Manasse SM, Juarascio AS. Latent change trajectories in mood during focused CBT Enhanced for eating disorders are associated with global eating pathology at post-treatment and follow-up among individuals with bulimia nervosa-spectrum disorders: A preliminary examination. *Behav Ther.* 2024. <https://doi.org/10.1016/j.beth.2024.01.005>.
83. Hilbert A, Herpertz S, Zipfel S, et al. Early Change Trajectories in Cognitive-Behavioral Therapy for Binge-Eating Disorder. *Behav Ther.* 2019;50(1):115–25. <https://doi.org/10.1016/j.beth.2018.03.013>.
84. Cibich M, Wade TD. Treating bulimia nervosa in the context of gender dysphoria using 10-session cognitive behavior therapy. *Int J Eat Disord.* 2019;52(5):602–6. <https://doi.org/10.1002/eat.23068>.
85. • Brown TA, Klimek-Johnson P, Siegel JA, et al. Promoting Resilience to Improve Disordered Eating (PRIDE): A case series of an eating disorder treatment for sexual minority individuals. *Int J Eat Disord.* 2024;57(3):648–60. <https://doi.org/10.1002/eat.24150>. **Demonstrating the generalisability of treatment to non-binary individuals.**
86. Campbell L, Viswanadhan K, Lois B, Dundas M. Emerging Evidence: A Systematic Literature Review of Disordered Eating Among Transgender and Nonbinary Youth. *J Adolesc Health.* 2024;74(1):18–27. <https://doi.org/10.1016/j.jadohealth.2023.07.027>.
87. MacDonald DE, Liebman R, Trottier K. Clinical characteristics, treatment course and outcome of adults treated for avoidant/restrictive food intake disorder (ARFID) at a tertiary care eating disorders program. *J Eat Disord.* 2024;12(1):15. <https://doi.org/10.1186/s40337-024-00973-6>.
88. Li Z, Halls D, Byford S, Tchaturia K. Autistic characteristics in eating disorders: Treatment adaptations and impact on clinical outcomes. *Eur Eat Disord Rev.* 2022;30(5):671–90. <https://doi.org/10.1002/erv.2875>.
89. Turk F, Waller G. Is self-compassion relevant to the pathology and treatment of eating and body image concerns? A systematic review and meta-analysis. *Clin Psychol Rev.* 2020;79: 101856. <https://doi.org/10.1016/j.cpr.2020.101856>.
90. Tobin DL, Banker JD, Weisberg L, Bowers W. I know what you did last summer (and it was not CBT): a factor analytic model of international psychotherapeutic practice in the eating disorders. *Int J Eat Disord.* 2007;40(8):754–7. <https://doi.org/10.1002/eat.20426>.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.