

Cognitive Behavioral Therapy for Anorexia Nervosa: An Update

Riccardo Dalle Grave¹ · Marwan El Ghoch¹ · Massimiliano Sartirana¹ · Simona Calugi¹

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Abstract Cognitive behavioral therapy (CBT) for anorexia nervosa (AN), based on Beck's cognitive theory, was developed in a "generic" form in the early eighties. In recent years, however, improved knowledge of the mechanisms involved in maintaining eating disorder psychopathology has led to the development of a "specific" form of CBT, termed CBT-E (E= enhanced), designed to treat all forms of eating disorders, including AN, from outpatient to inpatient settings. Although more studies are required to assess the relative effectiveness of CBT-E with respect to other available treatments, the data indicate that in outpatient settings it is both viable and promising for adults and adolescents with AN. Encouraging results are also emerging from inpatient CBT-E, particularly in adolescents, and clinical services offering CBT-E at different levels of care are now offered in several countries around the world. However, CBT-E requires dissemination in order to become widely available to patients.

Keywords Cognitive behavior therapy · Eating disorders · Anorexia nervosa · Bulimia nervosa · Inpatient treatment · Adolescence

Introduction

Anorexia nervosa (AN) is difficult to treat [1], as patients are often reluctant to engage, and outcomes are often poor, even in those who do accept treatment. Although cases in which hospitalization is necessary generally result in weight gain, this is often transitory, and the treatment programs themselves are expensive and disruptive [2, 3].

The treatment of AN is also difficult to study because of the lengthy duration of treatment, the relative rarity of the disorder and its associated medical risks [4, 5]. Hence, few studies of psychosocial treatments have been published to date [6], and some have encountered major obstacles [1, 7]. However, the last 10 years have seen the development of several novel treatments [8], which have generated the publication of case studies, cohort studies, and randomized controlled trials (RCTs), and improved the evidence base for the treatment of AN, particularly in adolescents [9].

Although no specific approach has yet shown outright superiority in adults [10], the latest "enhanced" version of cognitive behavioral therapy (CBT-E) seems to be a promising treatment for AN in both adult and adolescent outpatient and inpatient populations. In order to promote dissemination of this promising approach, here, we provide an update on the recent developments in CBT for AN, discuss the evidence supporting its efficacy in this disorder, and describe the latest CBT-E-based clinical services now on offer.

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✉ Riccardo Dalle Grave
rdalleg@tin.it

Marwan El Ghoch
marwan1979@hotmail.com

Massimiliano Sartirana
massimiliano.ons@libero.it

Simona Calugi
si.calugi@gmail.com

¹ Department of Eating and Weight Disorders, Villa Garda Hospital, Via Montebaldo, 89, I-37016 Garda, VR, Italy

Origin and Evolution of CBT for AN

Garner and Bemis [11, 12] were the first to apply the principles of Beck's cognitive theory and depression therapy to AN [13]. Their cognitive behavioral viewpoint, later elaborated by Vitousek (previously Bemis) and colleagues [14–17], holds that eating disorder symptoms are principally maintained by a characteristic set of overvalued ideas about the personal implications of body shape and weight. This overvaluation originates in the interaction of stable individual characteristics, like perfectionism, asceticism, and difficulties in affect regulation, with sociocultural ideals of appearance [18]. Once formed, these beliefs prompt the individual to process information in accordance with specific cognitive biases, to be responsive to eccentric reinforcement contingencies, and to adopt distinctive eating and purging behaviors. Such disordered beliefs and behaviors are eventually sustained by the physiological sequelae of starvation [18].

A “generic” form of CBT based on this theory was developed and applied to AN, and its effectiveness tested in a trial featuring 56 female sufferers randomly assigned to either CBT, interpersonal psychotherapy (IPT), or specialist supportive clinical management (SSCM); 56 % of participants treated with SSCM had few or no significant features of eating disorders, as compared with 32 and 10 % of those receiving CBT and IPT, respectively [19], but, at long-term follow-up, the respective outcomes of the three treatments were indistinguishable [20]. This form of CBT for AN was, however, found to be more effective in preventing relapse after inpatient treatment than nutritional counseling [21].

Simultaneous with the publication of the description of CBT for AN, Fairburn and colleagues developed CBT for bulimia nervosa (CBT-BN) [22, 23], which became the leading evidence-based treatment for this disorder [22, 24]. According to the theory that underpins CBT-BN, the overvaluation of eating, shape and weight, and their control is of primary importance in maintaining the disorder, as most of the other clinical features of bulimia nervosa (e.g., dietary restraint and purging behaviors) apparently derive directly from this “core psychopathology.” The only feature of BN that is not obviously a direct consequence of the core psychopathology is binge eating, but, according to the theory, this is largely the consequence of a breakdown of the extreme and rigid dietary rules adopted by these individuals.

In 2003, Fairburn, Cooper, and Shafran, having observed that eating disorders share many clinical features [25], and that prospective studies frequently report a migration of eating disorders from one diagnostic category to another [26–28], suggested that common “transdiagnostic” mechanisms may be involved in the maintenance of eating disorders [25]. They proposed that eating disorder psychopathology is maintained by a common set of mechanisms, and that treatments designed to address these mechanisms need therefore to be effective

across the eating disorder diagnostic categories. These considerations gave rise to CBT-E, a treatment derived from CBT-BN but specifically adapted to focus on eating disorder psychopathology (rather than on the DSM diagnosis) [25, 29]. Though the treatment was originally developed for adult outpatients, later adaptations targeted younger people [30•, 31] and more intensive care settings [32].

Empirical Status of CBT-E for AN

CBT-E has been investigated as a treatment for AN in a sample of adult and adolescent outpatients and inpatients, all with encouraging results.

For example, one cohort study evaluated the effect of 40 sessions of CBT-E in 99 adults with AN recruited from the UK (Oxford and Leicester) and Italy (Verona) [33•]. Two thirds of the patients completed the treatment and displayed a mean increase in body weight of 7.5 kg, equivalent to a body mass index (BMI) gain of 2.77. Eating disorder psychopathology and general psychiatric features also improved substantially, and over the 60-week follow-up period there was little deterioration in any of these variables, although additional treatment was minimal.

Another cohort study recruited 46 adolescent patients from consecutive referrals to a community-based eating disorder clinic in Italy. Each patient was treated with the 40 sessions of CBT-E adapted for younger patients [34•]. Two thirds completed the full treatment with no additional input. In these patients, the mean weight gain was 8.6 kg, equivalent to a BMI centile increase of 27. In this case too, the increase in weight was associated with a marked reduction in eating disorder psychopathology. Once again, over the 60-week post-treatment follow-up period, there was little change, even though additional treatment was minimal.

A more recent study compared weight regain in 49 adults and 46 adolescents with AN treated with CBT-E [35•]. Though the drop-out rate was similar in the two groups (34.7 and 36.9 %, respectively), significantly more adolescents than adults reached a normal BMI range, and the mean time to body weight restoration was about 15 weeks shorter in adolescents than in adults.

A RCT in Germany compared three unique multifaceted interventions in the treatment of adults with AN [36•]. One was “optimized treatment as usual,” a treatment that involved access to a choice of specialists in the treatment of eating disorders and the possibility of inpatient treatment. The second was a novel form of focal dynamic psychotherapy coupled with the option of hospitalization. The third was a hybrid form of CBT-E that included the fusion of the focused and broad forms of CBT-E with some general CBT procedures (e.g., social skills training and cognitive restructuring) combined with the option of hospitalization, which are not features of the standard outpatient CBT-E. It emerged that

there were no differences between the three interventions with regard to the primary outcome variable, gain in BMI, which increased in mean from about 17.0 to 18.0. A proportion of this weight gain is likely to have been the result of hospitalization as this amounted to 25 days on average.

Outpatient CBT-E for AN has also been evaluated in “real world” clinical settings. For instance, an Australian study reported the outcome data of 34 over-16-year-old patients with AN treated with CBT-E [37]. In this sample, the drop-out was 50 %, and full remission was achieved by 50 % of completers. An improvement in quality of life was also reported across the same sample over the course of treatment [38].

Two further studies evaluated the effects of inpatient CBT-E in adult and adolescent patients with severe AN. The first was a randomized controlled trial that compared the focused and broad forms of inpatient CBT-E in 80 patients [39•], 90 % of whom completed the 20 weeks of inpatient treatment. At discharge, the patients in both arms showed significant improvements in weight, eating disorder, and general psychopathology; subsequent deterioration did occur, but was slight and restricted to the first 6 months after discharge. No significant differences emerged between the two programs in terms of either changes in BMI or specific or general psychopathology. In the second inpatient CBT-E study, 96 % of 27 adolescents completed the program, achieving a substantial improvement in weight, eating disorder features, and general psychopathology that was well maintained at 12-month follow-up [40•].

Finally, a study described the outcomes of 31 patients with eating disorders and a BMI <17.5 attending an NHS clinic in England [41•], all of whom received an amalgam of CBT-E and the overlapping approach of Waller and colleagues [42]. Among the 18 completers (52 %), the mean BMI increased from 15.78 to 18.43 at the end of the treatment.

In summary, the data of the above studies indicate that CBT-E is viable and promising for adults with AN, but we cannot yet state how effective it is with respect to other treatments. In adolescents, CBT-E seems to be a potential alternative to family-based treatment (FBT), the empirically supported treatment for this age group [43], but this has yet to be confirmed. Likewise, the promising results currently emerging from inpatient CBT-E, particularly in adolescents with AN, will require confirmation.

Characteristics of CBT-E for AN

CBT-E is based on a transdiagnostic interpretation of eating disorders. According to the theory, as for bulimia nervosa, the overvaluation of eating, shape, weight, and their control is central to the maintenance of the main manifestations of the eating disorders [25]. Other clinical features (e.g., strict dieting, excessive and compulsive exercising, binge eating, compensatory vomiting/laxative misuse, body checking and

avoidance, and feeling fat) stem directly or indirectly from this core psychopathology, and, in turn, act to reinforce it [25]. In underweight patients, the physiological and psychological consequences of malnutrition [44] may also contribute to the maintenance of the eating disorder psychopathology [45]. For example, the reduced resting metabolic expenditure associated with a low weight [46] increases the need to accentuate dietary restriction, while social withdrawal and loss of previous interests prevent patients from being exposed to experiences that might attenuate the importance they attribute to shape and weight. According to the transdiagnostic theory, in certain patients, additional obstacles to change may also be generated by one or more of three adjunctive maintenance mechanisms (i.e., clinical perfectionism, core low self-esteem, and marked interpersonal difficulties) interacting with the eating disorder psychopathology [25].

The primary aim of CBT-E, a highly individualized and flexible treatment detailed in full in the main treatment guide [47], is to focus on the processes acting to maintain the patients' eating disorder psychopathology, with cognitive processes being viewed as of central importance. The key cognitive strategy is to create a personalized formulation of the main maintenance mechanisms in operation, which will then be targeted by the treatment. Patients are actively involved in constructing their own personal formulation, which can be revised as necessary to deal with any mechanisms emerging during the course of treatment. This collaborative approach continues throughout the CBT-E program, which sees therapist and patient working together as a team in order to overcome the eating issues faced by the individual.

The eating disorder psychopathology is addressed by means of a flexible series of sequential cognitive behavioral procedures and strategies, integrated with progressive patient education. To modify thinking, the treatment aims to implement strategic changes in behavior, rather than direct cognitive restructuring. Ongoing self-monitoring and the accomplishment of strategically planned homework tasks between sessions are of fundamental importance in achieving the change. Hence, in the first phase of treatment, patients are encouraged to observe themselves enacting their formulation (in real time), and to engage in an attempt to change their behavior by considering its effects. In the later phase of treatment, when the main maintenance processes have been disrupted, patients are shown how to shift their dysfunctional mindset when it is triggered.

The treatment may be administered in one of two forms, a focused form that exclusively addresses the processes maintaining the eating disorder psychopathology, or a broad form that also addresses one or more of the three adjunctive maintenance mechanisms proposed by transdiagnostic cognitive behavioral theory. The broad form is only necessary if these external maintenance mechanisms are pronounced, appear to

maintain the eating disorders, and/or interfere with the response to treatment.

In people with AN, CBT-E has three main steps, and involves an initial assessment appointment followed by about 40 50-min sessions over 40 weeks. The sessions are held twice a week until the patients demonstrate a stable weight regain, and then their frequency is reduced to once a week. Special sessions held every 4 weeks are dedicated to systematically reviewing progress, identifying obstacles to change, and planning the psychopathological features to address in the forthcoming treatment until a low normal weight is restored. Each patient is treated by a single reference therapist, and there is no additional therapeutic input.

In essence, the goal of step one is to help patients see the need for weight regain and decide to embark upon it. The major focus of this step is to engage the patients in the treatment, and help them to independently arrive at the conclusion that weight regain should be their treatment goal.

In step two, the engaged patients are helped to regain weight to a low-healthy level (BMI 19.0–20.0) and, at the same time, to address their eating disorder psychopathology. Measures to encourage weight regain are aimed at helping patients achieve a weight gain of 0.5 kg per week. Although this goal is ambitious, it may be facilitated by educating the patient about the principles of the treatment, drawing a projected weight line on a weight graph, and discussing how to achieve a 500-kcal energy surplus each day. Measures to address the eating disorder psychopathology are integrated with the weight regain strategies and, in general, include addressing concerns about shape and weight, addressing dietary restraint and dietary restriction, enhancing the ability to deal with day-to-day events and moods, and, in the later stages of treatment, focusing on “setbacks and mindsets”.

In step three, the goal is to help the patients maintain their new healthy weight, and to fully enjoy being free of their prior “starvation state.” This also involves learning to accept their new body and appreciate their new “self.” Towards the end of step three, appointments are scheduled at fortnightly intervals, and the procedures are aimed at helping the patients “end their treatment well”; together, the therapist and patient draw up a written personalized plan to address the residual eating disorder issues, and to identify and address potential setbacks as early as possible in order to prevent relapse. A post-treatment review appointment is usually fixed about 20 weeks later.

Adjustments for Adolescents

CBT-E for adolescents with AN is essentially the same treatment as the adult form [30•, 31], with identical steps, strategies, and procedures, and the same reliance on a sole therapist. However, the adolescent version differs in that treatment tends to be shorter, as change often occurs more quickly (e.g., with underweight patients 30 sessions may be sufficient) [35•],

and, given these patients’ age range and circumstances, parental involvement invariably becomes necessary.

Involvement of the significant others of adult patients with AN only occurs upon consent by the latter, their role being simply to support the implementation of the one-to-one treatment [47], and the same principles apply in the treatment of younger patients. Parental involvement usually comprises a single 1-hour assessment session in the first 2 weeks of treatment, and six 15-min sessions with the patient and parents together (immediately after an individual session). These usually occur in weeks 1 to 4, and in weeks 8, 12, 20, and 30. The aim of the initial assessment with parents alone is to identify and address family-related factors liable to hinder the patient’s attempts to change, while the subsequent sessions are devoted to addressing meal planning, the management of mealtimes, and the generation of solutions to problems that have emerged or are foreseeable. Additional sessions with the parents may take place in rare circumstances, i.e., in the event of family crises, extreme difficulties at mealtimes, or parental hostility towards the young patient.

Adaptation for Intensive Levels of Care

The rationale behind extending CBT-E to intensive treatment settings stems from the consideration that in some patients the ineffectiveness of outpatient CBT-E might be due to an insufficiency of care intensiveness rather than the nature of the treatment itself. Two forms of intensive CBT-E have therefore been developed by Dalle Grave and colleagues [32, 48], one being inpatient-based (although it includes a day-hospital component) and the other being a more intensive form of outpatient treatment.

Inpatient CBT-E is designed to ensure a unified, rather than eclectic, approach to the patient’s treatment. The program, described in detail elsewhere [30•, 32, 48], maintains all the main strategies and procedures of CBT-E, which are delivered in both individual sessions and in a group format, but with two main features that distinguish it from the outpatient-based version. First, the treatment is delivered by a multidisciplinary team, comprising physicians, psychologists, dieticians, and nurses, all fully trained in CBT-E. Second, assistance with eating is provided in the first weeks of treatment to help patients get over their difficulties in real time. Inpatient CBT-E also includes additional elements designed to reduce the high rate of relapse that typically follows discharge from hospital. For instance, the inpatient unit is open, and patients are free to go outside. In this way, they continue to be exposed to the types of environmental stimuli that tend to provoke their eating disorder psychopathology, but with full access to staff support. Furthermore, during the weeks immediately preceding discharge, a concerted effort is made to identify likely environmental setback triggers, which are then addressed during the individual CBT-E sessions. Moreover, towards the end

of treatment, significant others are helped to create a positive, stress-free home environment in readiness for the patient's return. The fourth, and perhaps most important, relapse-prevention measure involved is that inpatient treatment is always followed by a stepped-down CBT-E-based treatment performed in an outpatient setting. This means that the patient's treatment continues in much the same way, and that the therapist is on hand to support and monitor the patient through this, often difficult, transitional phase.

Intensive outpatient CBT-E, on the other hand, was developed to provide an alternative for patients who may benefit from a higher-impact approach than outpatient CBT-E can provide, but whose condition is not sufficiently severe as to warrant hospitalization. Hence, this type of treatment adopts most of the procedures and strategies of outpatient CBT-E, but also integrates several developed specifically for this new approach [48]. Specifically, the treatment is scheduled to last a maximum of 12 weeks, but can usually be brought to a close beforehand, when patients successfully address the key factors responsible for the lack of progress in outpatient CBT-E (e.g., weight regain, binge eating, regular meals). It includes the following procedures, administered on weekdays only: (i) three supervised meals a day (lunch, snack, and dinner), (ii) two individual CBT-E sessions per week with a CBT-E psychologist, (iii) two individual sessions a week with a CBT-E dietitian to plan and review the weekend meals, and (iv) regular check-ups with a CBT-E physician. The team meets weekly to monitor each patient's progress, and can therefore, towards the end of treatment, gradually encourage responders to eat more meals outside the unit, thereby allowing the treatment to evolve into conventional outpatient CBT-E.

The CBT-E Clinical Service

In the real world, the treatment options offered to patients with eating disorders largely depend on the judgment and training of the examining clinicians, and the local availability of treatments. Although evidence-based psychological treatments such as CBT-E are available, these are not always delivered, or are applied in a manner that "drifts away" from proven therapeutic techniques [49, 50]. In some clinical services, there is an excessive emphasis on inpatient care, and it is common for patients to receive completely different treatments, in terms of both theory and content, when they change from a less intensive form of care (e.g., outpatient) to a more intensive treatment (e.g., inpatient) and vice versa. This creates discontinuity in the care pathway, and understandably disorients patients about the procedures and strategies that they need to use to overcome their eating problems.

CBT-E, being designed to treat all the diagnostic categories of eating disorders in adults and adolescents across the spectrum of care settings, offers the concrete possibility of implementing a treatment that overcomes some of the

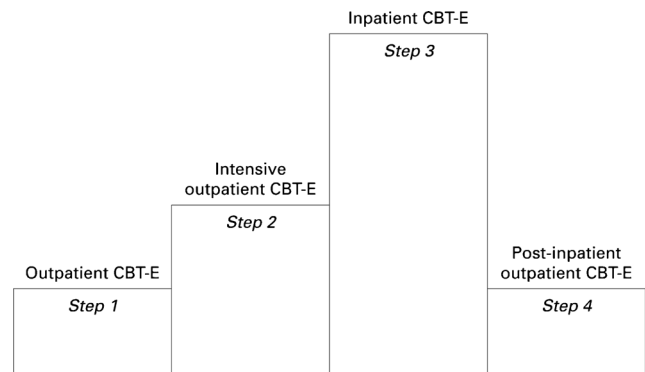


Fig. 1 The four steps of multistep CBT-E. Each level of care is based on the same theory, and uses similar strategies and procedures. The height of the bars represents the intensiveness and the cost of the treatment

difficulties encountered in more conventional, fragmented services. The most distinctive and unique feature of this approach, also termed "multistep CBT-E" [30••], is that the same theory and procedures are applied at each level of care (Fig. 1). The only difference between the various steps is the intensiveness of treatment, with less unwell patients being treated using outpatient CBT-E procedures, and more severely affected sufferers being channeled directly to inpatient CBT-E. With this approach, non-responders to outpatient treatment, and those who would benefit from more support but whose physical conditions do not warrant hospitalization, can be offered a more intensive form of outpatient treatment within the CBT-E framework. Thus, patients can be moved seamlessly from outpatient care to inpatient care, and then on to the final phase of outpatient treatment, with no change in the nature of the treatment itself.

This approach was first developed in Garda, Verona (Italy), but similar services are also being set up in the Netherlands, Norway, Denmark, Sweden, and the USA. A clinical service based on CBT-E has two main advantages. First, patients are treated with a single, well-delivered, evidence-based treatment, rather than the evidence-free "eclectic" approach common elsewhere. Second, it minimizes the problems associated with transitions from outpatient to intensive treatment, as it avoids subjecting patients to the confusing and counterproductive changes in therapeutic approach that commonly accompany such transitions. It goes without saying, however, that a different form of treatment must be recommended to any patients who do not respond to the CBT-E.

Conclusions

Following the adoption of the individualized transdiagnostic approach, which addresses the psychopathological maintenance mechanisms operating on a patient-by-patient basis,

irrespective of their DSM diagnosis, CBT for AN has made great advances over the last 10 years, and will hopefully continue to do so. The major outcome of this process so far has been the development of a comprehensive treatment suitable for both adult and adolescent patients and different levels of care, from outpatient to inpatient, and the implementation of clinical services entirely based on CBT-E.

Available data indicate that outpatient CBT-E is viable and promising for patients with AN, with about 40 % of adults and almost 60 % of adolescents reaching and maintaining a normal weight range at the intent to treat analysis. The increase in weight is accompanied by a decrease in eating disorder psychopathology and over half of adult and about 80 % of adolescent patients reaches and maintains minimal residual psychopathology. Promising data are also emerging about the efficacy of inpatient CBT-E, especially among adolescents. Indeed, adolescents regain weight more successfully, and at a faster rate, than adults, and may therefore benefit from a shorter treatment program. These results led the recent guide commissioned by NHS England “The Access and Waiting Time Standard for Children and Young People with an Eating Disorder” to recommend CBT-E as one of the evidence-based psychological interventions for adolescents with eating disorder [51].

Despite these encouraging findings, many challenges remain. First and foremost, CBT-E in adults requires comparative assessment alongside other treatments, pending the results of the first RCT of this type (the SWAN Study), which compares CBT-E with Maudsley Anorexia Nervosa Treatment for Adults (MANTRA) and SSCM, and is nearing completion. Comparison of the respective efficacies of CBT-E and FBT is also required in adolescents, which may also help to identify moderators of treatment response useful for matching patients to CBT-E or FBT, two treatments that rely on very different strategies, procedures, and postulated mechanisms of action.

Finally, given the results achieved so far, more needs to be done to promote the dissemination of CBT-E. To this end, a web-centered training program [52, 53], designed to train large numbers of therapists living in different countries simultaneously, is currently under evaluation.

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Compliance with Ethical Standards

Conflict of Interest Riccardo Dalle Grave, Marwan El Ghoch, Massimiliano Sartirana, and Simona Calugi declare that they have no conflict of interest.

Human and Animal Rights and Informed Consent This research did not rely on any studies with human or animal subjects performed by any of the authors.

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