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**Review Article**

# Enhanced Cognitive Behavior Therapy (CBT-E)

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## Abstract

CBT-E is an evidence-based treatment for adults with eating disorders (EDs). As CBT-E is a treatment for the core psychopathology of EDs rather than a specific ED diagnosis, based on the transdiagnostic cognitive behavioral theory, it is applicable to a wide range of EDs. The emphasis is on addressing the mechanisms maintaining EDs. CBT-E consists of two versions, the focused version and broad version, and two intensities, the 20-session version for non-underweight patients and 40-session version for underweight patients. CBT-E has been confirmed as effective for non-underweight patients, such as those with bulimia nervosa and binge eating disorders, and at least as effective as other treatments for underweight patients with anorexia nervosa. Better performance of CBT-E has been reported for adolescents than for adults. Inpatient CBT-E was also developed and promising results have been reported for severe anorexia nervosa. In Japan, cognitive-behavioral therapy for bulimia nervosa, implemented using a manual equivalent to the focused version of CBT-E, has been covered by insurance since April 2018. This report describes the features of CBT-E, its history, the transdiagnostic cognitive behavioral theory, efficacy and effectiveness of CBT-E, overview of the CBT-E 20 session-focused version and CBT-E education. Lastly, the issues and prospects for

application and dissemination of CBT-E to clinical practice in Japan are discussed.

**Keywords**: cognitive behavioral therapy, bulimia nervosa, binge eating disorder, anorexia nervosa, eating disorders

## Introduction

Manualized cognitive behavioral therapy (CBT), especially CBT for bulimia nervosa (BN) (CBT-BN), is an established psychosocial treatment for BN and binge eating disorder (BED) 26) and has been recommended as one of the main treatments in the guidelines in many countries, including in the UK's 2004 NICE guidelines 31)27). Enhanced CBT (CBT-E), an extended version of CBT-BN, is based on the transdiagnostic cognitive behavioral theory and can be applied to any diagnosis and type of eating disorder (ED) 32).

It has been 37 years since the CBT-BN was first published by Fairburn et al. in 1981 16) and about 10 years since the CBT-E guide was published in 2008 20). In April 2018, CBT-BN was covered by insurance in Japan 39). The CBT-E brief manual required for this calculation is equivalent to the 20-session focused version of CBT-E, which will be explained later 30). In this article, an overview of CBT-E is presented.

## I. What is CBT-E?

CBT-E is a representative form of ED-focused CBT (CBT-ED) 32) published by Fairburn et al. in 2008 20). CBT-E is a treatment for ED-specific psychopathology based on the transdiagnostic theory of ED 19) and can be applied to a wide range of EDs beyond the diagnostic categories of EDs 20). CBT focuses on addressing the factors maintaining EDs rather than the causes of EDs. The core psychopathology of EDs is a dysfunctional scheme for self-evaluation, and the dietary restrictions, various weight-control behaviors, binge eating, and inappropriate compensatory behaviors characteristic of EDs, are considered to be expressions or derivations of this core psychopathology 19). CBT-E is an empirical treatment, that is, a treatment based on empirical facts and supported by evidence 20).

## II. Form of CBT-E

For adults, the mainstay of CBT-E is individual (one-to-one) outpatient treatment. It is characterized by

manualized, clearly structured, and time-limed treatment. On the other hand, it is a personalized treatment that is governed by the patient and adapted to the needs of each patient. There are two versions of CBT-E. The default focused form concentrates on and addresses only the core psychopathology of the ED. On the other hand, the broad form addresses external maintenance mechanisms in addition to the core psychopathology, i.e., core low self-esteem, clinical perfectionism, and interpersonal difficulties 19). CBT-E is available in two intensities: the 20-session version addresses EDs without low body weight, such as BN, BED, and other specified feeding or EDs (OSFED). The 40-session version is intended for EDs with low body weight, i.e., anorexia nervosa (AN). The basic form of CBT-E is an individual outpatient treatment for adults, but variants of CBT-E have been developed for young adults, as well as intensive (inpatient and intensive outpatient), and group versions 20).

## III. History of CBT-E

The concept of BN was first proposed by Russell in 1979 35), and CBT-BN was developed by Fairburn as early as 1981 16). The efficacy of CBT-BN, including randomized controlled trials (RCTs), was then verified throughout the 1990s. For example, a study comparing the effects of CBT-BN with interpersonal psychotherapy (IPT) and behavior therapy (BT) showed that CBT-BN had a similar response rate to IPT and was superior to BT 12 months after treatment ended, and that CBT-BN showed a response earlier than IPT 17). In the UK's NICE guidelines, published in 2004, CBT-BN was recommended as a Grade A treatment for adult BN and was recognized as the main treatment option 31). However, Fairburn et al. were not satisfied with the results of CBT-BN, and continued to improve and experiment with the therapy in order to increase its effects and to expand its application to EDs other than BN. In 2003, they published a paper titled "Cognitive behaviour therapy for eating disorders: a "transdiagnostic" theory and treatment", in which they presented a transdiagnostic theory of the maintenance of EDs and their treatment 19). Then, in 2008, they published the CBT-E guidance "Cognitive Behavior Therapy and Eating Disorders" (hereafter referred to as the CBT-E guide) 20). Subsequent efficacy studies, including RCTs, led to a revision of the UK's NICE guidelines in 2017 to recommend CBT-ED, including CBT-E, as one of the first choices for psychological treatment of AN 32), alongside specialist supportive clinical management (SSCM), and Maudsley Anorexia Nervosa Treatment for Adults (MANTRA) 36) developed by

Treasure et al. On the other hand, the less expensive Guided Self-Help CBT (GSH-CBT) was considered the first choice for BN, and CBT-ED became the second choice for cases that did not respond to GSH-CBT 32) (Table 1). In Japan, the Japanese translation of the CBT-E guide, "Cognitive Behavioral Therapy for Eating Disorders", was published in 2010, in which CBT-E was introduced 22). A study to introduce CBT-E in Japan was started in 2014 by a research group of the National Center of Neurology and Psychiatry, and preparations for training instructors, preparing Japanese-language manuals and training materials, and verifying the effectiveness of CBT-E were initiated. In April 2018, CBT-BN was included in insurance coverage 39).

## IV. Transdiagnostic cognitive behavioral theory of EDs

The transdiagnostic cognitive behavioral theory of EDs is described in detail by Fairburn et al. 19). One of the rationales for the transdiagnostic theory of ED is the fact that the diagnosis and type of ED change over time in the same patient (diagnostic crossover). In the DSM-5 system, feeding disorders and EDs are divided into several diagnostic categories such as AN, BN, BED, OSFED. However, there is often a migration between diagnoses and subtypes of diseases, for example, if a patient diagnosed as AN-restricting type (AN-R) (presentation in which weight loss is accomplished mainly through dieting and/or excessive exercise) starts binge eating and vomiting during the course of the disease, the subtype becomes AN-BP, and if the patient regains weight and becomes a healthy weight, the diagnosis changes to BN. It is reasonable to assume that this is an evolution of one ED for the patient, rather than the same patient developing different psychiatric disorders one after another 19).

Another rationale is that similar psychopathology is seen across diagnostic categories and types of EDs. Fairburn et al. found that ED is essentially a cognitive disorder and that the core psychopathology inherent in ED is "over-evaluation of shape, weight and their control in a self-evaluation scheme" 19). In other words, patients with EDs evaluate their self-worth exclusively in terms of their body shape, weight, and diet and their ability to control them, and other areas of life and living that are important to people without EDs, such as work, studies, relationships with family and friends, and hobbies, are relegated to the corner in the evaluation of self-worth. In the DSM-5, criterion C for AN includes "undue influence of body weight or shape on self-evaluation", and criterion

D for BN includes "self-evaluation is unduly influenced by body shape and weight" 2). In BED, although not listed as a diagnostic criterion, self-evaluation is overly influenced by body shape and weight in about half of cases 28). Thus, over-evaluation of weight, shape and their control is widely shared among ED diagnoses and types, and is characteristic of ED. On the other hand, depression, anxiety, obsessionality, self-injury, substance misuse, and personality disorders, which are often comorbid in ED patients, have been distinguished from ED-specific psychopathology as general psychopathology 20). Fairburn et al.'s transdiagnostic theory of maintenance of EDs (Fig. 1) states that the behaviors characteristic of EDs (e.g., weight control behaviors such as strict dieting and excessive exercising, binge eating, compensatory vomiting, and laxative misuse) are expressions or derivatives of the core psychopathology of EDs, and binge eating and being underweight increasingly lead patients to focus on shape, weight, dieting, and their control, a vicious cycle that increases weight control behaviors. In other words, to prevent weight gain due to binge eating, patients engage in purging behaviors such as compensatory vomiting and laxative misuse. However, not only does the purging of food physiologically increase appetite, but it also lowers the psychological barrier to binge eating, making the patient more likely to binge eat, leading to a vicious cycle of binge eating and purging. On the other hand, adverse life events and negative moods can also weaken the ability to control eating and increase binge eating to temporarily ameliorate negative moods. Eventually, patients use and rely on binge eating and purging to regulate their emotions. When weight control results in significantly low weight, brain and body changes (starvation syndrome) act to intensify the core psychopathology. Depending on the individual patient, all of the ED maintaining mechanisms may be operating (e.g., AN-BP with weight-control, binge eating, being underweight, and compensatory discharge behaviors) or only some may be active (weight control and binge eating only, as in BED). In addition to the core ED maintaining mechanisms described above, Fairburn et al. found that some patients have one or more of four mechanisms external to ED core psychopathology that can interact with each other: severe "Clinical Perfectionism", unconditional and pervasive low self-esteem, "Core Low Self-Esteem", "Mood Intolerance", and "Interpersonal Difficulties". According to the transdiagnostic cognitive behavioral theory, these are the maintaining mechanisms of ED that

results in their self-perpetuation 19)20).

## V. Evidence for the Efficacy and Effectiveness of CBT-E

The efficacy of CBT-E has been demonstrated in a number of efficacy studies, including RCTs. The effectiveness of CBT-E has also been demonstrated in clinical practice 14).

Outcomes in efficacy studies have included recovery of healthy weight, cessation of symptoms such as overeating and purging behaviors, and better scores on the Eating Disorder Examination (EDE) and the Eating Disorder Examination Questionnaire (EDE-Q).

1. Efficacy study in BN patients

Poulsen et al. conducted an RCT of 70 BN patients with DSM-IV to compare the treatment effects of a focused form of CBT-E (CBT-Ef) (36 patients) and psychoanalytic psychotherapy (PP) (34 patients). The treatment completion rate was 77% for CBT-E and 88% for PP. The proportion of patients in the CBT-E group who had stopped both binge eating and purging behavior at the end of treatment in the intention to treat (ITT) analysis was 42% compared to 6% in the PP group (odds ratio 13.4, $P < 0.01$). In the CBT-E group, treatment was terminated after 20 weeks, while in the PP group, treatment was continued, and even after 24 months, the cessation rate of binge eating and purging behaviors was 44% in the CBT-E group and 15% in the PP group, with a significantly higher cessation rate in the CBT-E group (odds ratio 4.34, P=0.02) 34).

2. Efficacy study in a group of transdiagnostic patients.

Studies have also been conducted in patients with EDs that were not underweight, such as BN, DSM-5 BED, OSFED, or DSM-IV ED not otherwise specified (EDNOS) in a transdiagnostic manner. Fairburn et al. compared the effects of the focused form CBT-E (CBT-Ef) (65 patients) and IPT (65 patients) in an RCT of 130 DSM-IV ED patients (40.8% BN, 6.2% BED, 53.1% EDNOS) with a BMI of 17.5 kg/m$^2$ or higher. The Global score of the EDE was used as the outcome. Completion rates were 74% in the CBT-E group and 82% in the IPT group. In the ITT analysis, the remission rate at the end of treatment was 65.5% in the CBT-E group and 33.3% in the IPT group (odds ratio 8.8, $P<0.001$), and the remission rate in the CBT-E group was twice as high as that in the IPT group. The absence of binge eating and purging behaviors was 44.8% in the CBT-E group versus 21.7% in the ITP group. After 60 weeks of treatment, the remission rate was 69.4% in the CBT-E group and 49% in the IPT group, which was significantly higher in the CBT-E group 24).

3. Comparison of the effects of the

focused form and the broad form

Which is more effective, a focused form that focuses on core psychopathology (CBT-Ef) or a broad form that includes external maintaining mechanisms (CBT-Eb)? Fairburn et al. randomly assigned 154 ED patients (38.3% BN, 61.7% EDNOS) to CBT-Ef, CBT-Eb, or a waiting list control group. The waiting list control group was further divided into CBT-Ef and CBT-Eb groups after an 8-week observation period. There was little improvement in symptoms during the observation period in the waiting list control group. The overall treatment completion rate in the CBT-Ef group was 77.9%. The remission rate was 51.3% at the end of treatment and 50.0% after 60 weeks, but the remission rate was higher in patients who completed treatment (66.4%). Patients with complicated pathology had a lower remission rate (48%) than those with less complicated pathology (60%). The CBT-Ef group tended to have a higher remission rate than the CBT-Eb group when the pathology was not complicated, and the CBT-Eb group tended to have a higher remission rate than the CBT-Ef group when the pathology was complicated. It is possible that many patients with less complicated pathology will benefit from the focused form, while a small number of patients with complicated pathology will benefit from the broad form 21). On the other hand, Thompson-Brenner et al. compared the efficacy of CBT-Ef and CBT-Eb in an RCT of 50 patients with comorbid BN and borderline personality disorder and found no difference in efficacy between them 43).

4. Efficacy studies in patients with AN

The effects of CBT-E and other psychosocial treatments on AN have been compared. Zipfel et al. conducted a multicenter RCT of 242 adult outpatients with AN (mean BMI 16.7 kg/m$^2$ (SD 1.0)) to compare the effects of optimized treatment as usual (OTAU), focal psychodynamic therapy (FPT), and CBT-E (40-session version). Twenty-two percent of patients dropped out at the end of treatment and 30% at the 12-month assessment. The mean increase in BMI (kg/m$^2$) at the end of treatment and 12 months later was 0.69 and 1.22 for OTAU, 0.73 and 1.64 for FPT, and 0.93 and 1.30 for CBT-E, respectively, with no difference in weight gain at the end of treatment. However, at the 12-month follow-up, FPT tended to have higher weight gain than the other treatments 47).

Byrne et al. compared the effects of SSCM, MANTRA, and CBT-E in an RCT of 120 adult outpatients with BMI ≥14 kg/m$^2$ [mean age 26.19±9.47 (SD), mean BMI 16.7±1.22]. The overall treatment completion rate was 60% (57.5% for SSCM, 56.1% for MANTRA, and 66.7% for CBT-E). The percentage of patients

who had regained a healthy weight (BMI > 18.5) at 12 months after completion of treatment in the ITT analysis was 47.5% for SSCM, 43.9% for MANTRA, and 59.0% for CBT-E. The percentage of patients who had a normalized EDE Global score was 62.5% for SSCM, 43.9% for MANTRA, and 48.7% for CBT-E. The percentage of those who achieved remission (all of recovery of healthy weight, normalization of the EDE Global score, and cessation of binge eating and purging behavior) was 32.5% for SSCM, 22% for MANTRA, and 30.8% for CBT-E. There were no significant differences in completion rates, weight regain, normalization of psychopathology, or achievement of remission between the three treatment groups. Thus, for AN with BMI ≥14 kg/m2, CBT-E restored healthy weight in approximately 60% of patients, normalized ED psychopathology in 50%, and achieved remission in 30%, and the effectiveness of CBT-E was comparable to other psychosocial treatments 5).

5. Effectiveness of CBT-E in real-world clinical practice

Is CBT-E feasible and effective in a real-world setting rather than in a research setting such as an RCT?

Byrne et al. tested the feasibility and effectiveness of CBT-E in an open trial among ED patients in a public outpatient clinic in Australia. Of 176 patients who were referred to the clinic and assessed for eligibility, 125 (71.0%; AN 34, BN 40, EDNOS 51) started treatment, 66 (52.8%) completed treatment, 50 (40.0%) dropped out, 5 (4.0%) withdrew, and 4 (3.2%) were referred elsewhere. The dropout rates were 50.0% for AN, 35.0% for BN, and 37.3% for EDNOS, with a trend toward higher rates for AN. Of the patients who started treatment, 32.0% had complete remission and 8.0% had partial remission. Among patients who completed treatment, 56.1% had complete remission and 10.6% had partial remission. The overall remission rate in AN was lower than that in BN and EDNOS, but there was no difference between AN and BN or EDNOS only in patients who completed treatment. Compared to the results of the Fairburn et al. RCT, there was no difference in remission rates in patients who completed treatment, but there was a trend toward higher dropout rates (40.0% vs. 22.1%) 4).

Knott et al. investigated the effect of CBT-E in adult (18-65 years) BN and EDNOS patients at the Eating Disorder Service (EDS) of the National Health Service (NHS) in Wales. Six hundred and eighty-three patients were referred to EDS, 451 were evaluated for eligibility, 396 were placed on a waiting list as eligible, treatment was initiated in 272 of them, 135 completed

treatment, 26 were on treatment, and 111 did not complete treatment. The remission rate as assessed by EDE-Q reached 39.4% for all treated patients and 78.3% in those who completed treatment 29). Compared with the results of the Fairburn et al. RCT, the remission rate tended to be higher in patients who completed treatment (78.3% vs. 66.4%), but was slightly lower in the overall group, including patients who did not complete treatment (39.7% vs. 53.0%). This may be attributed to the high dropout rate (40.8% vs. 22.1%) 29). A recent report from an outpatient ED service in Australia also showed that patients who completed the treatment showed good improvement in ED and general psychopathology, but 50.0% failed to complete the treatment, indicating the importance of preventing dropout 40).

Frostad et al. performed 40 sessions of CBT-E in 44 patients with AN in the outpatient ED unit of a public hospital in Norway. Twenty-two patients (50.0%) completed the treatment. The percentage of patients who achieved their target weight (BMI >18.5 kg/m2) 12 months after the start of treatment was 77.3% for those who completed the treatment, 31.8% for those who did not complete the treatment, and 54.5% for all patients 25).

As described above, CBT-E has a higher dropout rate than RCTs in a real clinical setting, but the effects of CBT-E are comparable to those of RCTs when treatment is completed.

6. Summary of the evidence for CBT-E

Under study conditions such as RCTs, there is robust evidence for BN and BED, with about half of the inducted patients remitting, binge eating and purging behaviors disappearing in about 40%, 70% to 80% completing treatment, with about two-thirds of those who complete it remitting, and the effects being maintained over time, with remission rates higher than with other active treatments (PP and IPT). In AN patients that are underweight, remission is achieved in about 60% of those who complete treatment, which is comparable to the efficacy of other psychosocial treatments, but the overall remission rate is about 30% due to the low percentage of completion (about 60%). In clinical practice, CBT-E is as effective as in research, but the completion rate is lower (50-60%). Therefore, it is very important to complete the treatment and not to drop out in order to benefit from CBT-E.

## VI. CBT-E in practice

1. Text and Materials for CBT-E

In order to perform CBT, it is essential to read and become familiar with the CBT-E guides (Cognitive Behavior Therapy and Eating Disorders 20) and Cognitive Behavior Therapy for Eating

Disorders 22)). The guides are very detailed, and it is important to follow them faithfully and not deviate from them. "Overcoming Binge Eating, Second Edition" 23) is used as a psychoeducational text. At the time of this writing, the Japanese edition of the book had not been published, and its publication is awaited as soon as possible. English versions of the materials used in CBT-E and the latest information on CBT-E can be obtained from the CREDO (Centre for Research on Eating Disorders at Oxford) website 7). The "CBT-E Brief Manual for Cognitive Behavioral Therapy for Eating Disorders" 30) and Japanese versions of the materials and questionnaires can be obtained from the Eating Disorders Information Portal site 37) operated by the Center for Eating Disorder Research and Information.

2.Overview of the CBT-E program

For more information on CBT-E, please refer to the CBT-E guide and the text above. Here is a brief overview of the 20-session focused form, which is suitable for the majority of ED patients who are not underweight (BMI ≥ 17.5) (Table 2).

CBT-E has three goals: first, to remove the core psychopathology of ED: "over-evaluation of shape, weight, and their control"; second, to correct the mechanisms that have been maintaining the psychopathology of ED; and third, to ensure treatment-induced changes are lasting after treatment. The standard duration of CBT-E treatment is 20 weeks in patients who are not underweight.

Conduct one or two assessment interviews in preparation for beginning CBT-E. The goals are to engage the patient in treatment, to check the ED diagnosis and to ensure the patient's physical and psychological safety, to address potential barriers to treatment in advance, such as clinical depression, substance abuse, events or circumstances that interfere with the patient focusing on treatment, or circumstances that make treatment participation difficult, and to help the patient prioritize and focus on treatment.

There are four stages in CBT-E (Table 2). Stage 1, "Starting well", consists of a total of eight sessions twice a week (sessions 0-7); Stage 2, "Taking stock", consists of two sessions once a week (8, 9); Stage 3, "Addressing the maintaining mechanisms", consists of eight sessions once a week (10-17); and Stage 4, "Ending well", consists of three sessions once every two weeks (18-20). Thus, 22 sessions, 23-24 appointments including the assessment interview before the start of CBT-E, are required.

CBT-E consists of several modules (Figure 2). Stage 1 is the same for all patients. In Stage 3, the modules of

"Body image", "Dietary restraint", and "Events, moods, and eating" are implemented together based on the assessment and planning in Stage 2. In Stage 4, maintenance of progress and prevention of relapse are addressed.

The format of each session of CBT-E is fixed; except for Session 0, which lasts about 90 minutes, each session is about 50 minutes long. The session structure consists of (1) collaborative weighing, (2) reviewing progress, (3) setting the agenda, (4) working through the agenda, and (5) confirming the homework and summarizing the session.

Other important features of CBT-E are that it is a personalized treatment governed by the patient's formulation, that it emphasizes the establishment and maintenance of "therapeutic momentum", that much of the work is done in the form of homework between sessions, that it is conducted by a single therapist in principle, and that no other forms of psychotherapy are conducted at the same time. In common with other forms of CBT, it is collaborative.

The goal of Stage 1 is to actively engage the patient in the treatment, establish a therapeutic foundation, and achieve early change. Two sessions per week will help to establish a therapeutic momentum. The procedures to be introduced include the following main goals: assessment of the nature and severity of the psychopathology, description of the treatment, creation of formulation, i.e., creation of a conceptual diagram of the pathophysiology of the case (Figure 3), introduction of real-time self-monitoring, introduction of collaborative weighing, psychoeducation, and establishment of regular eating patterns. Formulation and self-monitoring can help patients distance themselves from the ED (decentering), understand the ED and the mechanisms that maintain it, and make changes. Weekly collaborative weighing, including weight education and graphing of weight progress, can reduce weight concerns. Individualized psychoeducation can correct various misconceptions about weight, body shape, and diet. Establishing regular eating patterns is a key intervention in CBT-E, and it makes the frequency of binge eating dramatically fall. CBT-E is usually one-to-one individual therapy, but may include several sessions with significant others if it is likely to facilitate treatment.

In Stage 2, the progress of treatment is reviewed and any barriers are addressed. Stage 3 is planned, and it is decided whether to use the broad form or not.

Stage 3 continues the strategies and procedures introduced in Stage 1, while addressing the key maintaining mechanisms operating in each case. The

"Body image" module addresses "over-evaluation of shape and weight", the "Dietary restraint" module addresses "Strict dietary restrictions", and the "Events, moods, and eating" module addresses "the influence of events and moods on eating behavior". The "Mindset" module is common to all patients and teaches control of the ED mindset.

In Stage 4, the treatment is gradually terminated, the patient's anxiety about treatment termination is addressed, and assurances are made that progress will continue after termination. To minimize the risk of recurrence in the long term, strategies for dealing with setbacks are discussed and a long-term maintenance plan is developed. This is the end of the treatment. A review session will be held 20 weeks after the end of Stage 4. The therapist asks the patient to provide an update on their status and progress, reevaluate the ED, review the implementation of the short-term maintenance plan, review the management of setbacks, determine if additional treatment is needed, discuss whether weight measurement should continue, and develop or review a long-term maintenance plan. This is the last time the therapist sees the patient unless additional treatment is needed.

3. Assessment methods used in CBT-E

The following is a description of the ED assessment used in CBT-E. Height and weight are measured. The EDE is a semi-structured interview that assesses ED symptoms and psychopathology over the past 4 weeks, and the DSM diagnostic items are assessed for the past 3 months to enable diagnosis 8). It takes about 90 minutes to perform, is used primarily in research and rarely in clinical practice, but once read, it is useful to understand the pathology characteristics of ED. The EDE-Q is a 28-item self-administered version of the EDE that assesses the past 28 days (4 weeks), and in addition to the Global score, subscale scores (Restraint, Eating Concern, Shape Concern, Weight Concern) can be calculated 18). The CIA (Clinical Impairment Assessment Questionnaire) is a 16-item self-administered questionnaire that assesses the degree of psychosocial impairment due to ED in the past 28 days 3).

In CBT-E practice, patients are evaluated using the EDE-Q and CIA at least before treatment, at Stage 2, at the end of treatment, and at review sessions.

## VII. Issues and Topics in CBT-E

It is estimated that about half of ED patients have other comorbid psychiatric disorders. However, the application and effectiveness of CBT-E for ED patients with comorbid conditions such as substance abuse, obsessive-compulsive disorder, anxiety,

and PTSD have not been well studied, and this is an issue for the future. The CBT-E guide recommends that patients with comorbid depression should be treated beforehand.

CBT-E was developed in the UK and has been studied mainly in European countries and Australia. In East Asia, including Japan, there is no scientific evidence of efficacy or actual clinical data, and verification is needed 33). Even in the UK, there is a shortage of therapists and treatment facilities that can implement CBT-E, and long waiting periods for treatment are a problem. In Japan, the lack of progress in the use of clinical psychologists in medicine and insufficient reimbursement for psychotherapy are issues that need to be addressed in order for the practice to spread.

One of the practical problems in implementing CBT-E is the frequency of sessions. Having two sessions per week, especially in Stage 1, can be difficult for both therapists and patients. There are no studies comparing the efficacy of twice-weekly and once-weekly sessions, but the developers of CBT-E emphasize that twice-weekly sessions clearly make a better start in their experience, and this author has the same impression. In the case of CBT-BN and CBT-E, the degree of reduction in vomiting after 4 weeks of treatment is moderately predictive of the outcome at the end of treatment and at follow-up 1)42). Therefore, it is extremely important to reduce binge eating and vomiting early in Stage 1 intervention. If recovery from EDs is the primary concern, both therapists and patients should make an effort to schedule sessions twice a week. The use of telemedicine may be one solution to this problem.

GSH-CBT 46) as a short-term treatment with less cost than CBT-E is effective for patients with a relatively mild disease 38). The effectiveness of web-based treatments is also being tested 41)45). Waller et al. developed a ten-session CBT-T for non-underweight ED patients (ten-session CBT for non-underweight EDs). Although good results have been reported in open studies 44), controlled studies are still needed.

As for the application of CBT-E, CBT-E for adolescents has been developed and studied mainly by Dalle et al. in Italy, and the results were reported to be better than those of adult patients that were or were not underweight 12)13). It has the potential to be an alternative to family-based therapy, which is currently the first choice for adolescents with AN 10). Inpatient CBT-E for AN patients has also been developed and studied by Dalle et al. 11), with good results reported even in patients with prolonged AN 6). CBT-E is expected to improve the outcome of inpatient

treatment of AN and shorten the duration of treatment.

## VIII. How to learn CBT-E

Fairburn states that no special qualifications are required to perform CBT-E, but it is preferable if the therapist is trained in CBT, has experience in treating EDs, understands the physical complications of EDs, and can deal with them appropriately 22). In fact, CBT-E is conducted not only by physicians and clinical psychologists, but also by nurses and social workers. In Japan, only physicians and nurses (when physicians and nurses work together) are currently eligible to receive insurance points.

In order to learn and practice CBT-E, it is essential to read the CBT-E guide carefully, and it is emphasized that it should be implemented faithfully and not be deviated from. The ideal way to learn CBT-E is to attend a 2-day CBT-E workshop held abroad several times a year, and to perform 2 to 3 training cases with supervision 20 times for about 1 year. However, it is very difficult for clinicians to obtain such opportunities. Fairburn and the other CBT-E developers are well aware of this, which is why the CBT-E guide describes strategies and procedures in great detail. Nevertheless, training, supervision by senior staff, and peer supervision with colleagues are essential for the proper implementation and quality of CBT-E. In Japan, a one-day training program was launched in 2018 by a joint working group of three academic societies: Japanese Society of Psychosomatic Medicine, Japanese Society of Psychosomatic Internal Medicine, and Japan Society for Eating Disorders. In addition, human resource development and systems for practical training and supervision are required. CREDO has developed web-centered training, which is a system to receive training using web-based materials 9). A joint working group of the above three academic societies is preparing a Japanese version.

## Conclusion.

CBT-E is a treatment for ED-specific psychopathology and is based on a transdiagnostic theory that is applicable to a wide range of EDs, with an emphasis on addressing the maintaining mechanisms rather than the causes of EDs. CBT-E has robust research and clinical evidence of efficacy and effectiveness for EDs in which the patient is not underweight, such as BN and BED. CBT-E has been reported to be at least as effective as other therapies in the outpatient setting for AN. CBT-E can be used in adolescents with minor modifications, and better results than in adults have been reported. Inpatient CBT-E has also been

developed, and good results have been reported. In Japan, CBT-BN was the first treatment for EDs to be covered by insurance, and can be calculated when administered with a manual equivalent to the focused form of CBT-E. In Japan, further research is required to verify the effectiveness of the treatment and to further improve the system for training therapists.

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Table 1. Recommendations for psychological treatment of eating disorders in the UK NICE guidelines 2017.

| | | First choice | Second choice | Third choice |
|---|---|---|---|---|
| Anorexia nervosa | Adult | ・Individual CBT-ED<br>・MANTRA<br>・SSCM | ・FPT | |
| | Children and young people | ・FT-AN | ・Individual CBT-ED<br>・AFP-AN | |
| Bulimia nervosa | Adult | ・BN-focused GSH | ・CBT-ED | |
| | Children | ・FT-BN | ・CBT-ED | |
| Binge eating disorder | | ・BED-focused GSH | ・Group CBT-ED | ・Individual CBT-ED |

(Modified from Reference 32)

CBT-ED: eating-disorder-focused cognitive behavioural therapy, MANTRA: Maudsley Anorexia Nervosa Treatment for Adults, SSCM: specialist supportive clinical management, FPT: ED-focused focal psychodynamic therapy, FT-AN: anorexia-nervosa-focused family therapy, AFP-AN: adolescent-focused psychotherapy for anorexia nervosa, GSH: guided self-help, FT-BN: bulimia-nervosa-focused family therapy

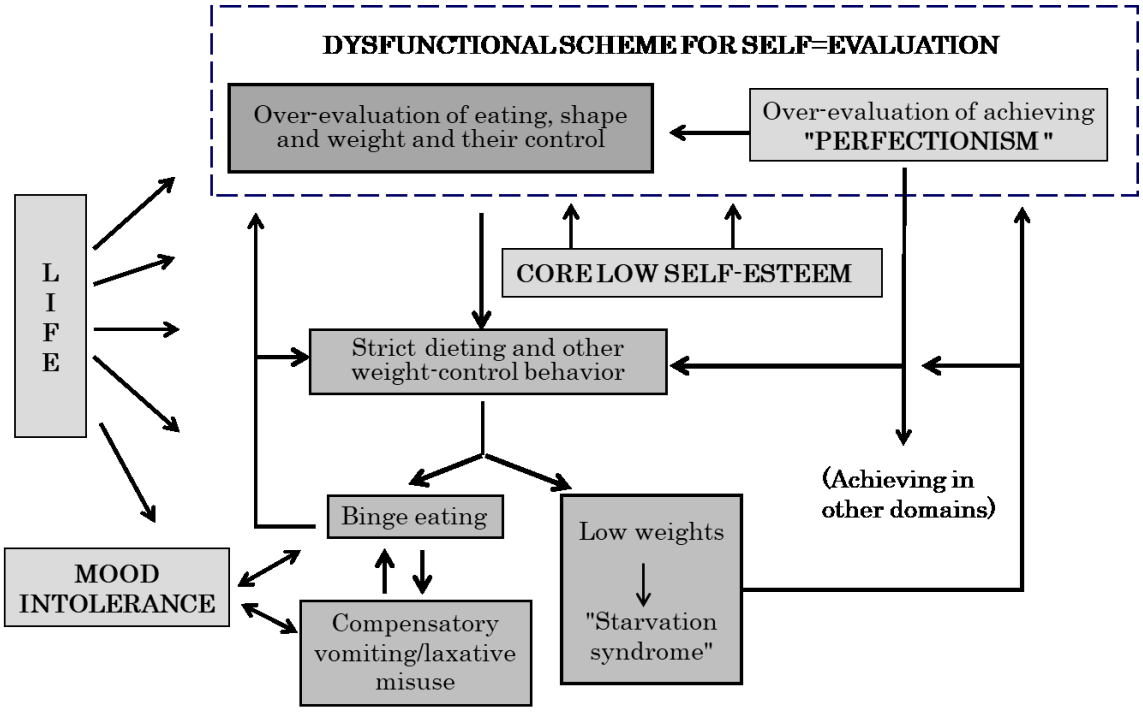


Figure 1. Transdiagnostic theory of the maintenance of eating disorders. (Modified from Reference 19)

Table 2. Goals and main contents of each stage of CBT-E, focused form, 20-session version

| | |
|---|---|
| Stage 1<br>Goals | "Starting well": 8 sessions (sessions 0-7), 2 times per week<br>1. To engage the patient in treatment and change<br>2. To create an individualized formulation to guide treatment<br>3. To reduce concerns about weight and provide psychoeducation<br>4. To establish a pattern of regular eating.<br>Assessing psychopathology and severity, explaining treatment, creating a formulation, establishing real-time self-monitoring, introducing collaborative weighing, providing individualized psychoeducation, establishing regular eating, and sessions with significant others. |
| Stage 2<br>Goals | "Taking stock and planning ahead": 2 sessions (sessions 8, 9), once a week<br>1. To review progress.<br>2. To identify any barriers to change<br>3. To plan Stage Three |
| Stage 3<br>Goals | "Addressing maintenance mechanisms": 8 sessions (sessions 10-17), once a week<br>1. To address the remaining eating disorder features<br>2. To address the mechanisms that have been maintaining the eating disorder psychopathology.<br>3. To develop the ability to tackle setbacks.<br>"Body image: To address over-evaluation of weight and shape.<br>Identifying the over-evaluation and its consequences, enhancing the importance of other domains for self-evaluation, addressing shape checking, addressing shape avoidance, addressing comparison-making, addressing “feeling fat”.<br>"Dietary restraint": To address dietary restraint.<br>Eating control and dietary rules, and over-evaluation of control overeating, helping patients view their dieting as a problem, educating patients about dietary restraint and dietary rules, addressing dietary rules, addressing patient’s reaction to rule-breaking.<br>"Events, moods, and eating": To address event- and mood-related changes in eating.<br>Addressing event-related changes in eating (self-monitoring, problem-solving), addressing mood-related changes in eating (identifying patients with mood intolerance, educating about mood intolerance, slowing down, observing and analyzing, intervention), binge analysis.<br>"Mindset": To learn to control the eating disorder mindset.<br>Identifying stimuli that put the mindset back in place (DVD analogy), recognizing the mindset coming back into place, displacing the mindset. |
| Stage 4<br>Goal | "Ending well": 3 sessions (sessions 18-20), once every 2 weeks<br>1. To address concerns about ending the treatment.<br>2. To ensure that progress is maintained.<br>3. To phase out certain treatment procedures.<br>4. To minimize the risk of relapse in the long-term.<br>Addressing concerns about ending the treatment, assessing what progress has been made, identifying features that still need to be addressed, creating a short-term maintenance plan, phasing out treatment procedures, developing a long-term maintenance plan. |
| Review session: 1 session 20 weeks after the end of treatment<br>To provide patients with an opportunity to check-in and report on their progress.<br>To reassess the eating disorder.<br>To review the implementation of the short-term maintenance plan.<br>To review how setbacks have been handled.<br>To decide whether there is a need for additional treatment.<br>To persist with weekly at-home weighing, to create or review the long-term maintenance plan. | |

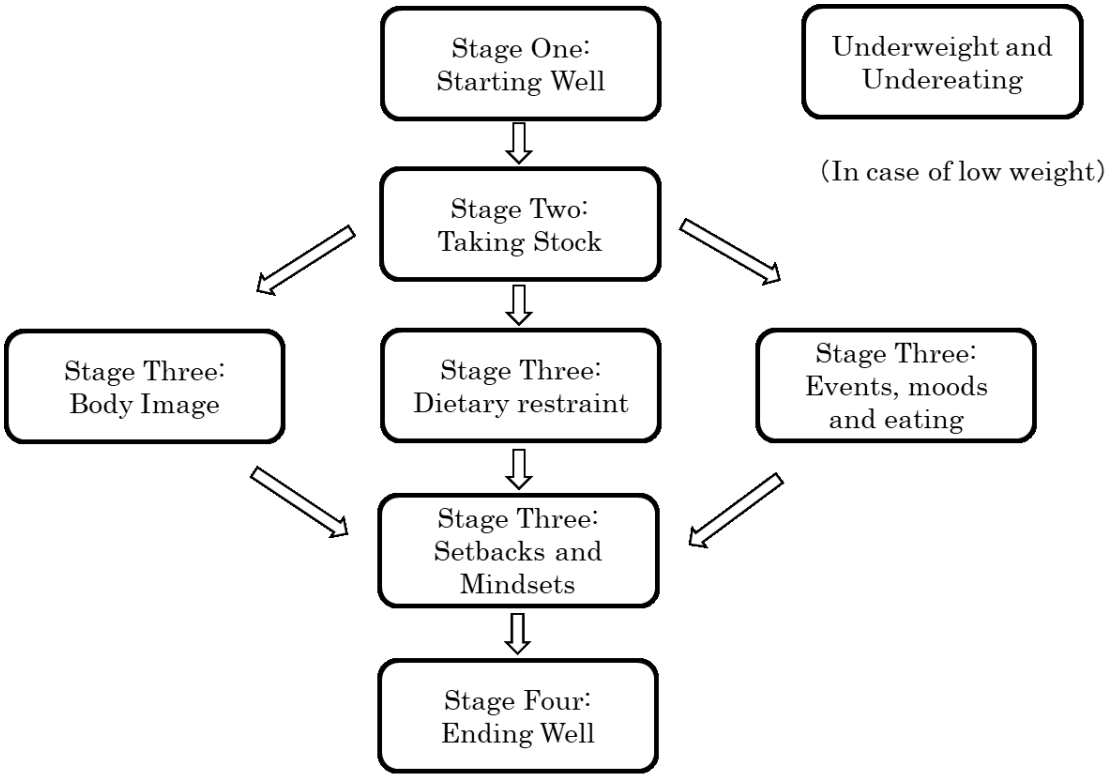


**Figure 2. Roadmap and modules for CBT-E.(Modified from Reference 30)**

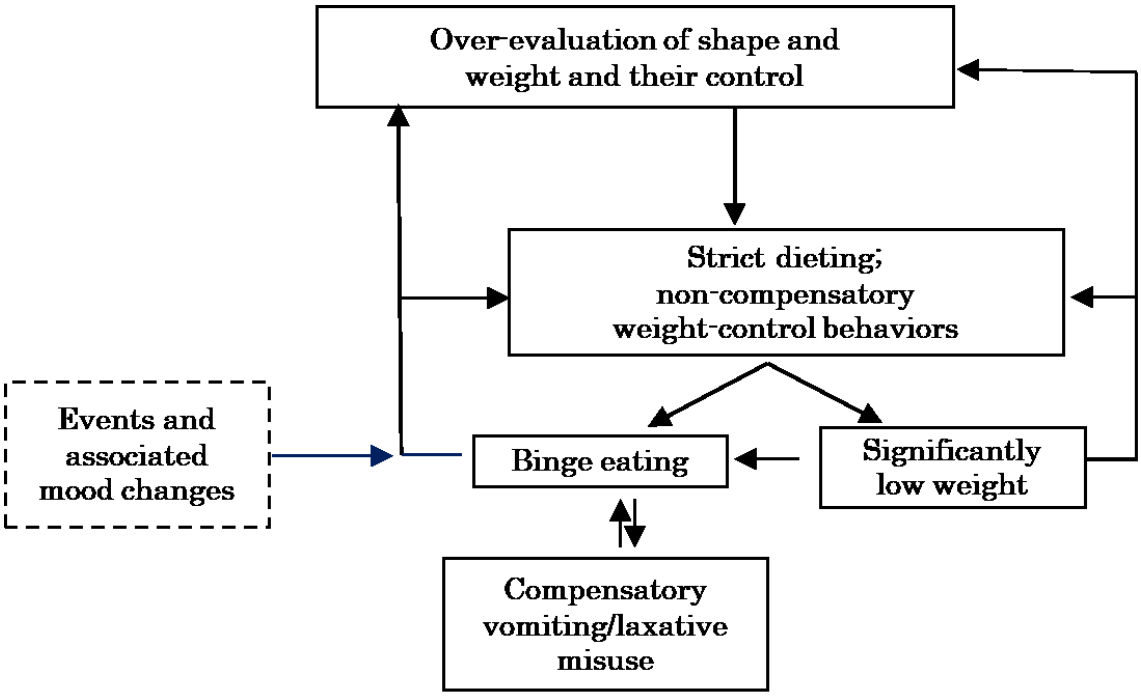


Figure 3. Transdiagnostic formulation of eating disorders. (Modified from Reference 22)